MASTER CATALOG 719



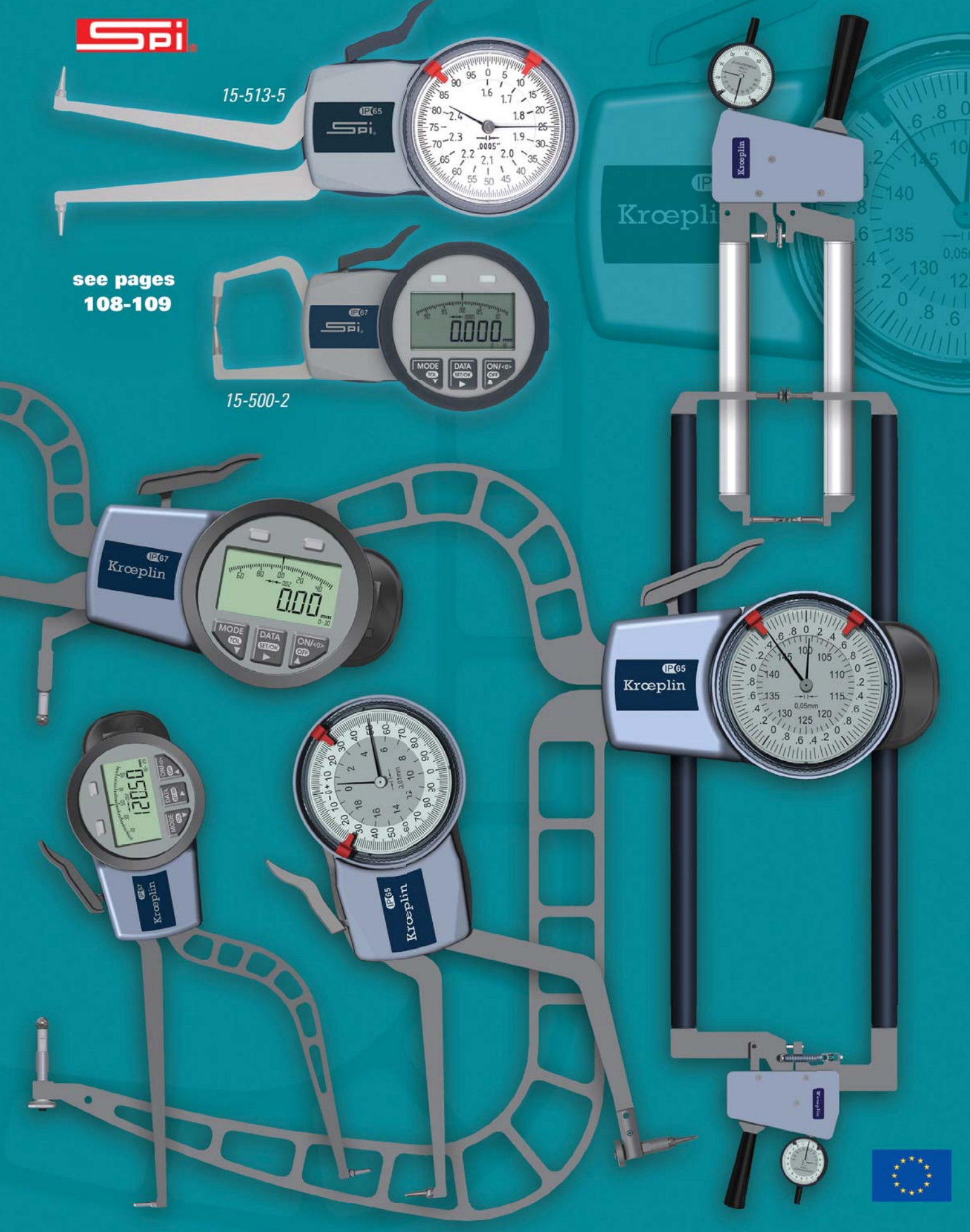








⚠ **WARNING:** Products identified herein may expose you to chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. Before purchasing any product identified herein, please consult www.swissprec.com to review any product-specific warnings.


15-513-5
see pages
108-109
15-500-2
Kroeplin
MODE
DATA
ON/OFF


20-650-8
See Page 90
6 Digital Internal Micrometers
for the range 30mm/1.182" to 400mm/15.748"
MICROTEST
SWISS MADE
8 Analog Internal Micrometers
for the range 30 to 900mm (mm only)

LINE CARD


Go With The Pro!
ABANAKI
OIL SKIMMERS


ACCUPRO
High Performance Milling


ALBRECHT


Bausch & Lomb


CENTAUR
PRECISION TOOLS INC.


CHANNELLOCK


COILHOSE
PNEUMATICS


COLLIS
TOOL CORPORATION
THE TOOLHOLDER PEOPLE


DESTACO
A DOVER COMPANY


Dico


DMT


DREMEL


ETALON
SWITZERLAND


ETM


Excel
USA
Our Edge Makes The Difference


EXTECH
INSTRUMENTS


fastoria


GAR


GATORADE


GEM


IP
INDUSTRIAL PRESS
SINCE 1945


Interapid
SWITZERLAND


Jacobs


JP
Jupiter Pneumatics
universal air solutions


LittleGIANT


LOCTITE


LPS


LUXO


Martin Tools


MECHANIX WEAR


MITEE-BITE
PRODUCTS LLC


Mitutoyo


PAV


PEACOCK


PEAK


PELICAN
You break it, we replace it... forever.


SCRUBS


shop-vac


SIOUX


Southwire
TOOLS & EQUIPMENT


STREAMLIGHT


SUBURBAN


Super Lube


sure shot


VALCUT


VAUGHAN


VISE-GRIP


VORTEC


BESSEY

BIG

BONDHUS
Timesaving GorillaProof Tools.

brown & sharpe

Castrol

COOK
HAMMER COMPANY INC.

COOL TOOL

CREWS
GLASSES
An MCR Safety Brand

CROWN

Devcon

DURHAM MFG
Est. 1922

Eklind

TASK LIGHTING
electrix

Energizer
INDUSTRIAL

ergodyne
WORK GEAR

FINN

FISKARS

Flambeau
Commercial Markets Group

FLEXBAR

FLORIDA
PNEUMATIC

GENERAL

GUARDAIR

HAWKEYE
PRECISION BORESCOPES

HeliCoil

HERTEL

KANT TWIST

KLEIN
TOOLS

KNIPEX

KRYLON
INDUSTRIAL

LANG
TOOLS
Professional Tools For 4 Generations

LYNDEX
NIKKEN

magafor

MAG-LITE

Mahr
FEDERAL

Markal

MOLDEX
Ideas that wear well.

Moody

CRESCENT
NICHOLSON

NOGA
SIMPLY SOPHISTICATED

PARLEC

phase II

PROTO

QUANTUM
STORAGE
SYSTEMS

QUICK

Rubbermaid
Commercial Products

SPHINX

SPI

Sprayon

STANLEY

Starrett

TECLOCK

TE-CO

TESA

Unibit

UVEX
by Honeywell

WD-40

WEARWELL

Wera
Tools. From Ideas.

WILTON

YOUNGSTOWN
GLOVE COMPANY

QUICK GUIDE

ABRASIVES	549-580
CUTTING TOOLS	449-548
ELECTRICAL	603-618
HAND TOOLS	371-448
HOSE, TUBES & FITTING	619-642
MACHINE ACCESSORIES	199-274
MATERIAL HANDLING	581-602
MEASURING	5-184
OPTICS	185-198
SAFETY	337-370
SHOP ACCESSORIES	299-336
TOOLING COMPONENTS	275-298

MEASURING











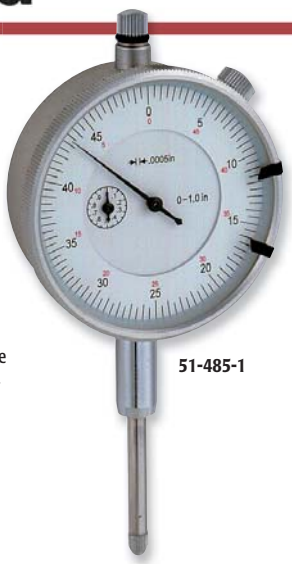






MEASURING

Economy Dial Indicators
AGD Group 2



- Thread size: #4-48.
- Stem dia.: 3/8"
- Easy read graduations.
- Revolution counter.
- Continuous Dial.
- Hard satin chrome finish with hard chrome plated stem, precision ground and lapped.
- Dial Dia.: 2 9/32".
- Lug back.
- Meet or exceed applicable Federal specifications.
- See pages 15 for replacement contact points.

RANGE	READING	REVOLUTION GRADUATION	COLOR	PART NUMBER	PRICE
0.250"	0 - 100	0.001"	White	**51-481-0**	$24.40
0.500"	0 - 100	0.001"	White	**51-482-8**	25.95
1.00"	0 - 100	0.001"	White/Yellow	**51-483-6**	22.90
1.00"	0 - 100	0.001"	Black	**51-484-4**	22.90
1.00"	0 - 50	0.0005"	White	**51-485-1**	31.85
2.00"	0 - 100	0.001"	White/Yellow	**51-486-9**	61.10
2.00"	0 - 100	0.001"	Black	**51-487-7**	61.10

SPI® IP54 Dial Indicators
AGD Group 2



- Easy to read graduation.
- Revolution counter.
- Counter pointer.
- Jeweled bearing.
- Lug and flat back included.
- Stem diameter: 3/8"/8 mm
- Thread size: #4-48/metric 2.5 x 0.45
- See page 15 for replacement Contact Points.
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- 2 year warranty.

Certified
Right Out of the Box!

RANGE	DIAL DIA.	DIAL READING	GRADU-ATION	ACCURACY	RANGE PER REVOLUTION	PART NUMBER	PRICE
0 - 0.4"	2 9/32"	0 - 100	0.001"	0.002"	0.1"	**20-552-6**	$79.55
0 - 0.4"	2 9/32"	0 - 50	0.0005"	0.0015"	0.05"	**20-553-4**	79.55



SPI® Classic Standard Dial Indicators

Certified
Right Out of the Box!

- Supplied with tolerance pointers.
- Revolution counter.
- Rigid, forged brass housing.
- Tungsten carbide contact point, 4-48 thread.
- 3/8" dia. mounting stem.
- Flat and lug back included.
- Conforms to ASME B89.1.10M-2001.
- Certificate of calibration traceable to NPL included.
- Furnished in fitted case.
- AGD Group 2.

RANGE	DIA.	DIAL READING	GRADUATION	PART NO.	PRICE
0.250"	1 1/2"	0-50-0	0.001"	**14-653-0†**	$67.45
0.250"	1 1/2"	1-100	0.001"	**14-654-8†**	67.45
0.200"	2 1/4"	0-100 & 0-50-0	0.0001"	**20-701-9***	102.90
0.500"	2 1/4"	0-50 & 0-25-0	0.0005"	**20-704-3**	55.90
0.500"	2 1/4"	0-100 & 0-50-0	0.001"	**20-700-1**	51.25
1.000"	2 1/4"	0-100 & 0-50-0	0.001"	**20-703-5**	50.15
Steel Ball Contact Point				**20-361-2**	4.90

† AGD Group 1. * Flat back only.

SPI® Classic Super Accurate 1" Travel Dial Indicator

Made in Japan



- Meets or exceeds Federal Specifications.
- Continuous dial with extreme accuracy.
- AGD Group 2.
- Contact point made of tool steel, hardened, ground and chrome plated.
- Shock proof.
- Contact point #4 - 48.
- Satin chrome finish case.
- Micro fine graduations for easy reading.
- Adjustable bezel for convenient zero setting with clamp screw.
- Lug back.
- Stem: 3/8" dia.

RANGE	READING	GRADUATION	PART NO.	PRICE
1.00"	0 - 100	0.001"	**26-333-5**	$48.80
Bezel			**03-395-1**	Call
Crystal			**03-399-3**	Call
Bezel Clamp			**03-412-4**	Call
Clamp Screw			**03-413-2**	Call
Steel Ball Contact Point			**20-361-2**	4.90
Flat Back			**24-312-1**	17.95

Deluxe Dial Indicators

- Accuracy meets or exceeds Federal Specifications.
- Easy reading graduations.
- Universal positioning capability.
- Counter pointer.
- Internal tolerance marker.
- Thread size: #4-48, metric 2.5 mm.
- Stem dia: 3/8", metric 8 mm.
- Adjustable bezel for convenient zero setting with clamp screw.
- Lug and flat back included.
- Furnished in a cardboard box.
- Short Form Certificate of Calibration included.
- 2 year warranty.


22-300-8


22-301-6

Certified
Right Out of the Box!


22-302-4


22-311-5

AGD Group 1

RANGE	READING	GRADUATION	DIAL DIA.	RANGE PER REV.	REV. COUNTER	TOLERANCE MARKER	BEZEL CLAMP	UPPER STEM	FACE COLOR	CRYSTAL	PART NUMBER	PRICE
0.250"	0-25-0	0.0005"	1.65"	0.05"	No	No	Yes	Movable	White	Dome	**22-298-4**	$49.50
0.250"	0-50-0	0.001"	1.65"	0.10"	No	No	Yes	Movable	White	Dome	**17-725-3**	49.50
0.250"	0-100	0.001"	1.65"	0.10"	No	No	Yes	Movable	White	Dome	**22-297-6**	49.50
5 mm	0-50	0.01 mm	42 mm	0.5 mm	Yes	Yes	No	Movable	White	Flat	**22-299-2**	46.00

AGD Group 2

RANGE	READING	GRADUATION	DIAL DIA.	RANGE PER REV.	REV. COUNTER	TOLERANCE MARKER	BEZEL CLAMP	UPPER STEM	FACE COLOR	CRYSTAL	PART NUMBER	PRICE
0.050"	0-5-0	0.0001"	2.20"	0.01"	Yes	Yes	Yes	Fixed	White	Flat	**22-302-4**	$84.85
0.050"	0-10	0.0001"	2.20"	0.01"	Yes	Yes	Yes	Fixed	White	Flat	**22-303-2**	84.85
0.250"	0-50-0	0.001"	2.20"	0.10"	Yes	Yes	Yes	Movable	White	Flat	**22-304-0**	54.20
0.250"	0-100	0.001"	2.20"	0.10"	Yes	Yes	Yes	Movable	White	Flat	**22-306-5**	54.20
0.250"	0-25-0	0.0005"	2.20"	0.05"	Yes	Yes	Yes	Movable	White	Flat	**22-307-3**	54.20
0.500"	0-50-0	0.001"	2.20"	0.10"	Yes	Yes	Yes	Movable	White	Flat	**22-309-9**	38.50
0.500"	0-100	0.001"	2.20"	0.10"	Yes	Yes	Yes	Movable	White	Flat	**22-308-1**	38.50
1.00"	0-100	0.001"	2.20"	0.10"	Yes	Yes	Yes	Movable	Black	Flat	**22-301-6**	45.85
1.00"	0-100	0.001"	2.20"	0.10"	Yes	Yes	Yes	Movable	White	Flat	**22-300-8**	45.85
2.00"	0-100	0.001"	2.20"	0.10"	Yes	Yes	Yes	Fixed	White	Flat	**22-310-7**	80.15
2.00"	0-100	0.001"	2.20"	0.10"	Yes	Yes	Yes	Fixed	Black	Flat	**22-311-5**	80.15
10 mm	0-100	0.01 mm	58 mm	1.0 mm	Yes	Yes	Yes	Movable	White	Flat	**22-312-3**	49.50
20 mm	0-100	0.01 mm	58 mm	1.0 mm	Yes	Yes	Yes	Movable	White	Flat	**22-313-1**	78.95


Multi-Magnetic Base shown with Travel Indicator, sold separately

Ground Ship ONLY

Kafer Multi-Magnetic Base

- For quick set-ups on machines.
- 2 1/4" permanent magnet surface includes 120° "V" holder with 1/4" depth.
- Swivel mount adjustable horizontally and vertically with 360° rotation.
- 2 3/4" L x 1 3/8"W x 2 3/8" H
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Multi-Magnetic Base	**20-756-3**	$188.70

Classic Kafer Dial Indicators

...Up to 4" Range

- With mfg. test certificate.
- Extreme accuracy.
- Continuous dial.
- Uniform pressure over full range of travel.
- Jeweled bearings.
- Adjustable bezel for quick zero settings.
- Stem diameter: 3/8"/metric 8 mm.
- C.L. stem to C.L. lug hole 3/4".
- Lug mount included.
- Flat back optional.
- #4-48 thread – Metric 2.5 x 0.45 mm.


20-781-1


20-782-9

Made in Germany

GRADUATION	BEZEL DIA.	RANGE	READING	PART NUMBER	PRICE
0.001"	2 1/4"	1.125"	0 - 100	**20-781-1**	$182.65
0.001"	2 1/4"	2.000"	0 - 100	**20-782-9**	227.70
0.001"	2 1/4"	4.000"	0 - 100	**20-783-7**	440.70
0.0005"	2 1/4"	2.000"	0 - 50	**20-788-6**	258.20
0,01 mm	60 mm	30 mm	0 - 100	**21-781-0**	152.20

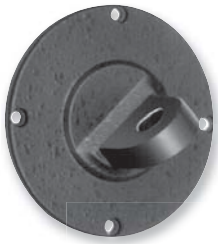
MEASURING

PEACOCK® Dial Indicators

- Thread size: #4-48, metric 2.5 x .045.
- Easy to read dials.
- Revolution counter on all models (except 11-910-7 & 11-917-2).
- Meets or exceeds applicable Federal & AGD specifications.
- See page 15 for replacement contact points.



11-914-9


11-925-5


11-927-1


11-928-9

Inch

MEASURING RANGE	DIAL READING	AGD	GRADUATION	DIAL DIA.	BACK TYPE	COLOR	PART NUMBER	PRICE
0.050"	0-10	2	0.0001"	$2\frac{3}{16}$"	Lug	White	**11-906-5**	$150.85
0.050"	0-10	2	0.0001"	$2\frac{3}{16}$"	Lug	Black	**11-907-3**	150.85
0.050"	0-5-0	2	0.0001"	$2\frac{3}{16}$"	Flat	White	**11-908-1**	150.85
0.050"	0-5-0	2	0.0001"	$2\frac{3}{16}$"	Flat	Black	**11-909-9**	150.85
0.200"	0-100	1	0.001"	$1\frac{37}{64}$"	Lug	White	**11-910-7**	104.45
0.500"	0-100	2	0.001"	$2\frac{3}{16}$"	Lug	White	**11-911-5**	76.60
0.500"	0-100	2	0.001"	$2\frac{3}{16}$"	Lug	Black	**11-912-3**	76.60
1.000"	0-100	2	0.001"	$2\frac{3}{16}$"	Lug	White	**11-913-1**	76.60
1.000"	0-100	2	0.001"	$2\frac{3}{16}$"	Lug	Black	**11-914-9**	76.60
2.000"	0-100	2	0.001"	$2\frac{3}{16}$"	Lug	White	**11-915-6**	168.25
2.000"	0-100	2	0.001"	$2\frac{3}{16}$"	Lug	Black	**11-916-4**	168.25

Metric (mm)

MEASURING RANGE	DIAL READING	AGD	GRADUATION	DIAL DIA.	BACK TYPE	COLOR	PART NUMBER	PRICE
4 mm	0-100	1	0.01 mm	$1\frac{37}{64}$"	Vert. Lug	Yellow	**11-917-2**	$107.90
10 mm	0-100	2	0.01 mm	$2\frac{3}{16}$"	Vert. Lug	Yellow	**11-918-0**	80.05
20 mm	0-100	2	0.01 mm	$2\frac{3}{16}$"	Vert. Lug	Yellow	**11-919-8**	85.90
50 mm	0-100	2	0.01 mm	$2\frac{3}{16}$"	Vert. Lug	Yellow	**11-920-6**	211.20

Accessories

DESCRIPTION	FITS AGD GROUP	PART NUMBER	PRICE
Lug Back	1	**11-921-4**	$11.35
Flat Back	1	**11-922-2**	9.75
Lifting Lever	1	**11-923-0**	38.30
Crystal	1	**11-924-8**	7.70
Lug Back	2	**11-925-5**	18.60
Flat Back	2	**11-926-3**	18.60
Post Back	2	**11-927-1**	74.50
Lifting Lever	2	**11-928-9**	64.40
Crystal	2	**11-929-7**	7.70



26-306-1



26-307-9

TECLOCK® Dial Indicators

- Thread size: #4-48, metric 2.5 x .045.
- Meets or exceeds Federal specifications.
- Easy reading dial with crisp graduations.
- Interchangeable hardened chrome point.
- Hard satin-chrome finish.
- Hard chrome plated stem, precision ground and tapped.
- See page 15 for replacement Contact Points.

Inch Graduations

MEASURING RANGE	DIAL READING	GRADUATION	DIAL DIA.	AGD	REVOLUTION COUNTER	DIAL COLOR	BACK TYPE	PART NUMBER	PRICE
0.050"	0-10	0.0001"	$2\frac{13}{64}$"	2	Yes	White	Lug	**26-300-4**	$165.05
0.250"	0-100	0.001"	$1\frac{17}{32}$"	1	No	White	Lug	**26-301-2**	117.85
0.250"	0-100	0.001"	$2\frac{11}{64}$"	2	No	White	Lug	**26-302-0**	99.05
0.250"	0-50-0	0.001"	$2\frac{11}{64}$"	2	No	White	Flat	**26-303-8**	99.05
0.500"	0-50-0	0.001"	$2\frac{11}{64}$"	2	Yes	White	Lug	**26-304-6**	94.30
0.500"	0-100	0.001"	$2\frac{11}{64}$"	2	Yes	White	Lug	**26-305-3**	94.30
1.000"	0-100	0.001"	$2\frac{11}{64}$"	2	Yes	White	Lug	**26-306-1**	82.55
1.000"	0-100	0.001"	$2\frac{11}{64}$"	2	Yes	Black	Lug	**26-307-9**	82.55
1.000"	0-50-0	0.001"	$2\frac{11}{64}$"	2	Yes	White	Lug	**26-308-7**	102.55

Metric Graduations

MEAS. RANGE (MM)	DIAL READING	GRAD. (MM)	DIAL DIA.	AGD	REVOLUTION COUNTER	DIAL COLOR	BACK TYPE	PART NUMBER	PRICE
1.0	0-100-0	0.001	$2\frac{13}{64}$"	2	Yes	White	Lug	**26-311-1**	$165.05
10.0	0-100	0.01	$2\frac{11}{64}$"	2	Yes	White	Lug	**26-312-9**	104.95
25.0	0-100	0.01	$2\frac{11}{64}$"	2	Yes	White	Lug	**26-313-7**	104.95

Accessories

DESCRIPTION	PART NO.	PRICE
Aluminum Flatback for AGD Group 2 Indicators	**24-312-1†**	$17.95
Magnetic Back for AGD Group 2 Indicators	**24-326-1†**	66.95
Lifting Levers for Smaller Inch Indicators (26-300-4, 26-302-0, 26-303-8)	**24-327-9**	23.20
Lifting Levers for Larger Inch Indicators (26-304-6, 26-305-3, 26-306-1, 26-308-7)	**24-328-7**	24.90
Replacement Crystals for Inch & mm Indicators AGD Group 1	**24-329-5**	14.75
Replacement Crystals for Inch & mm Indicators AGD Group 2	**24-330-3†**	14.75

† Except for 26-301-2

brown & sharpe

Dial Indicators

- Stainless steel racks and bottom bearings.
- Ground rack and teeth.
- Centered lug back can be rotated for vertical or horizontal use.
- Stem dia.: 3/8"
- **AGD 1 & 2** complete with centered lug back, revolution counter, tolerance pointers and ball contact tip.
- **AGD 1, 2 & 3** #4 - 48 thread.
- **AGD 3** complete with centered lug back, revolution counter and ball contact tip.



20-443-8

AGD SERIES	MEAS. RANGE	GRADUATION	RANGE PER REVOLUTION	DIAL READING	DIAL DIA.	DIAL COLOR	HAND COLOR	MODEL #	PART NUMBER	PRICE
2	0.200"	0.0001"	0.01	0-5-0	2 1/4"	White	Black	MW240	**20-435-4**	$205.20
2	0.200"	0.0001"	0.01	0-5-0	2 1/4"	Black	Orange	MB240	**20-436-2**	205.20
1	0.250"	0.0010"	0.10	0-50-0	1 11/16"	White	Black	MW181	**20-437-0**	168.30
1	0.250"	0.0010"	0.10	0-50-0	1 11/16"	Black	Orange	MB181	**20-438-8**	168.30
1	0.250"	0.0005"	0.05	0-25-0	1 11/16"	White	Black	MW183	**20-439-6**	167.45
1	0.250"	0.0005"	0.05	0-25-0	1 11/16"	Black	Orange	MB183	**20-440-4**	167.45
2	0.350"	0.0010"	0.35	0-50-0	2 1/4"	White	Black	MW210	**20-441-2**	151.00
2	0.350"	0.0005"	0.35	0-20-0	2 1/4"	White	Black	MW214	**20-442-0**	154.85
2	1.000"	0.0010"	0.10	0-100	2 1/4"	White	Black	MW216	**20-443-8**	121.00
2	1.000"	0.0010"	0.10	0-100	2 1/4"	Black	Orange	MB216	**20-444-6**	121.00
2	1.000"	0.0005"	0.05	0-50	2 1/4"	White	Black	MW217	**20-445-3**	127.80
2	1.000"	0.0005"	0.05	0-50	2 1/4"	Black	Orange	MB217	**20-446-1**	127.80
3	2.000"	0.0010"	0.10	0-100	3"	White	Black	MW222A	**20-447-9**	441.35
3	2.000"	0.0010"	0.10	0-100	3"	Black	Orange	MB222A	**20-448-7**	441.35

Mitutoyo

Dial Indicators

Features: Refer to Features Column in table

1. Shockproof
2. Jeweled Bearings
3 Waterproof
4. Balanced Dial
5. Stem dia. = 3/8"
6. Stem dia. = 8 mm
7. Reverse Reading

- Thread size: #4-48, metric 2.5 x .045.



11-609-5

Lug-On-Center Back (All Except 11-613-7) & Revolution Counter

Inch

MEASURING RANGE	DIAL READING	GRADUATION	RANGE PER REVOLUTION	DIAL DIA.	AGD	FEATURES	MITUTOYO MODEL #	PART NUMBER	PRICE
0.025"	0-10	0.0001"	0.01"	2 1/4"	2	1,2,5	2802S-10	**11-607-9**	$146.75
0.025"	0-5-0	0.0001"	0.01"	1 5/8"	1	2,5	1803S-10	**11-609-5**	153.15
0.025"	0-5-0	0.0001"	0.01"	2 3/16"	2	1,2,5	2803S-10	**11-610-3**	146.75
0.025"	0-5-0	0.0001"	0.01"	3"	3	2,5	3803S-10	**11-611-1**	195.35
0.050"	0-10	0.0001"	0.01"	2 3/16"	2	1,2,5	2804S-10	**11-612-9**	151.35
0.050"	0-10	0.0001"	0.01"	2 3/16"	2	1,2,5	2804SB-10	**11-613-7**	151.35
0.050"	0-5-0	0.0001"	0.01"	2 3/16"	2	1,2,5	2805S-10	**11-614-5**	151.35
0.050"	0-5-0	0.0001"	0.01"	2 3/16"	2	1,2,5,7	2923S-10	**11-615-2**	148.55
0.125"	0-25-0	0.0005"	0.05"	1 5/8"	1	5	1507S	**11-620-2**	91.55
0.125"	0-50	0.0005"	0.05"	1 5/8"	1	5	1506S	**11-622-8**	91.55
0.125"	0-50	0.0005"	0.05"	2 1/4"	2	5	2506S	**11-623-6**	99.05
0.125"	0-25-0	0.0005"	0.05"	2 1/4"	2	5	2507S	**11-624-4**	99.05
0.250"	0-50-0	0.0010"	0.1"	1 5/8"	1	5	1411S	**11-625-1**	99.05
0.250"	0-100	0.0010"	0.100"	1 5/8"	1	5	1410S	**11-626-9**	99.05
0.500"	0-10	0.0001"	0.010"	2 9/32"	2	2,5	2358S-10	**11-629-3**	201.75
0.500"	0-100	0.0010"	0.100"	2 1/4"	2	5	2414S	**11-630-1**	100.90
0.500"	0-50-0	0.0010"	0.100"	2 1/4"	2	5	2415S	**11-632-7**	100.90
1.000"	0-50	0.0005"	0.05"	2 3/16"	2	5	2776S	**11-633-5**	130.25
1.000"	0-50-0	0.0010"	0.100"	2 1/4"	2	5	2417S	**11-634-3**	109.15
1.000"	0-100	0.0010"	0.100"	2 3/16"	2	5	2416S	**11-635-0**	109.15
1.000"	0-100	0.0010"	0.100"	2 3/16"	2	2,5	2416S-10	**11-636-8**	129.30
1.000"	0-100	0.0010"	0.100"	3"	3	5	3416S	**11-637-6**	142.15
1.000"	0-100	0.0010"	0.100"	2 1/4"	2	5,7	2904S	**11-638-4**	113.75
2.000"	0-100	0.0010"	0.100"	2 3/16"	2	2,5	2424S-19	**11-639-2**	201.75
3.000"	0-100	0.0010"	0.100"	3 5/8"	4	4,5	4887S-19	**11-640-0**	311.80

Metric (mm)

MEASURING RANGE	DIAL READING	GRADUATION	RANGE PER REVOLUTION	DIAL DIA.	AGD	FEATURES	MITUTOYO MODEL #	PART NUMBER	PRICE
1.0	0-10-0	0.001	0.2	57	2	1,2,5	2109S-11	**11-642-6**	$184.35
1.0	0-100-0	0.001	0.2	57	2	1,2,6	2109S-10	**11-643-4**	184.35
2.5	0-100	0.01	1.0	57	2	5	2230S-01	**11-644-2**	109.15
5.0	0-25-0	0.005	0.5	57	2	2,3,5	2125S-71	**11-645-9**	192.60
5.0	0-50	0.01	1.0	41	1	6	1045S	**11-646-7**	92.65
5.0	0-10-0	0.001	0.2	57	2	2,5	2119S-11	**11-647-5**	188.00
10.0	0-100	0.01	1.0	57	2	5	2046S-01	**11-648-3**	82.55
10.0	0-100	0.01	1.0	57	2	6	2046S	**11-649-1**	104.55
10.0	0-100	0.01	1.0	57	2	2,5	2046S-11	**11-650-9**	101.80
20.0	0-100	0.01	1.0	57	2	5	2050S-01	**11-651-7**	124.75

MEASURING

Mitutoyo

Standard One Revolution Dial Indicators

For Error-Free Reading



10-694-8

- Series 2
- Shock-proof.
- The crystal is hard coated for durability and scratch resistance.
- Improved resistance to shop floor contaminants such as water and dust.
- A pair of limit hands are provided for quick and easy tolerance judgment (GO/±NG)
- Stem dia.: 3/8", metric 8 mm
- Thread size: #4 – 48/M2.5 x 0.45
- Flat back.

Inch

MEAS. RANGE	GRADU-ATION	RANGE/ FULL STROKE	DIAL READING	DIAL DIA.	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 0.02"	0.0005"	0.028"	10-0-10	2 1/4"	±0.0005"	2976	**10-694-8**	$74.65

Metric

MEAS. RANGE	GRADU-ATION	RANGE/ FULL STROKE	DIAL READING	DIAL DIA.	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 0.5 mm	0.01 mm	0.7 mm	25-0-25	2 1/8"	±0.010 mm	2971	**10-697-1**	$74.65
0 - 1.6 mm	0.02 mm	2 mm	80-0-80	2 1/8"	±0.016 mm	2973	**10-699-7**	67.30

Inch

MEASURING RANGE	DIAL READING	GRADU-ATION	RANGE PER REVOLUTION	DIAL DIA.	AGD	STARRETT MODEL #	PART NUMBER	PRICE
0.020"	0-4-0	0.0001"	0.008"	2 1/4"	2	25-118J	**10-212-9**	$285.10
0.025"	0-5-0	0.0001"	0.010"	2 1/4"	2	25-111J	**10-213-7**	281.85
0.025"	0-5-0	0.0001"	0.010"	1 11/16"	1	81-111J	**10-214-5**	278.80
0.025"	0-10	0.0001"	0.010"	1 11/16"	1	81-211J	**10-215-2**	278.80
0.050"	0-10-0	0.0005"	0.020"	1 1/4"	0	80-134J	**10-216-0**	269.60
0.075"	0-15-0	0.0005"	0.030"	1 11/16"	1	81-136J	**10-217-8**	191.65
0.100"	0-20-0	0.0010"	0.040"	1 11/16"	1	81-144J	**10-218-6**	194.85
0.100"	0-20-0	0.0010"	0.040"	1 17/64"	0	80-144J	**10-219-4**	263.75
0.125"	0-25-0	0.0010"	0.050"	1 11/16"	1	81-145J	**10-220-2**	169.95
0.125"	0-25-0	0.0005"	0.050"	1 11/16"	1	81-131J	**10-221-0**	171.95
0.125"	0-25-0	0.0005"	0.050"	2 1/4"	2	25-131J	**10-222-8**	169.95
0.200"	0-5-0	0.0010"	0.001"	2 1/4"	2	25-511J	**10-223-6**	323.25
0.200"	0-10	0.0001"	0.010"	2 1/4"	1	25-611J	**10-224-4**	323.25
0.250"	0-50-0	0.0010"	0.100"	1 11/16"	2	81-141J	**10-225-1**	169.05
0.250"	0-50-0	0.0010"	0.100"	2 1/4"	2	25-141J	**10-226-9**	169.05
0.250"	0-50-0	0.0010"	0.250"	2 3/4"	2	655-141J	**10-227-7**	201.35
0.250"	0-100	0.0010"	0.100"	1 11/16"	1	81-241J	**10-228-5**	166.95
0.250"	0-100	0.0010"	0.100"	2 1/4"	2	25-241J	**10-229-3**	171.95
0.400"	0-20	0.0001"	0.020"	3 5/8"	4	656-617J	**10-230-1**	384.90
0.500"	0-50-0	0.0010"	0.100"	2 1/4"	2	25-341/5J	**10-231-9**	169.95
0.500"	0-50	0.0005"	0.050"	2 1/4"	2	25-431J	**10-232-7**	197.95
0.500"	0-100	0.0010"	0.100"	2 1/4"	2	25-441/5J	**10-233-5**	171.95
1.000"	0-50	0.0005"	0.050"	2 1/4"	2	25-631J	**10-234-3**	191.80
1.000"	0-50-0	0.0010"	0.100"	2 1/4"	2	25-341J	**10-235-0**	169.05
1.000"	0-100	0.0010"	0.100"	2 1/4"	2	25-441J	**10-329-1** *	163.75
1.000"	0-100	0.0010"	0.100"	2 1/4"	2	25-441P	**10-236-8**	178.20
1.000"	0-100	0.0010"	0.100"	2 3/4"	3	655-441J	**10-237-6**	214.65
1.000"	0-100	0.0010"	0.100"	3 5/8"	4	656-441J	**10-238-4**	269.60
2.000"	0-100	0.0010"	0.100"	2 1/4"	2	25-2041J	**10-239-2**	320.90
2.000"	0-100	0.0010"	0.100"	2 3/4"	3	655-2041J	**10-240-0**	386.35
3.000"	0-100	0.0010"	0.100"	2 1/4"	2	25-3041J	**10-241-8**	421.50
4.000"	0-100	0.0010"	0.100"	2 1/4"	2	25-4041J	**10-242-6**	499.60
5.000"	0-100	0.0010"	0.100"	2 1/4"	2	25-5041J	**10-243-4**	591.95
5.000"	0-100	0.0010"	0.100"	3 5/8"	4	656-5041J	**10-244-2**	673.65

*Plain bearings

Metric (mm)

MEASURING RANGE	DIAL READING	GRADU-ATION	RANGE PER REVOLUTION	DIAL DIA.	AGD	STARRETT MODEL #	PART NUMBER	PRICE
0.5	0-10-0	0.002	1.0	1 11/16"	1	81-161J	**10-245-9**	$290.20
10.0	0-50-0	0.010	1.0	2 1/4"	2	25-381J	**10-246-7**	239.70
25.0	0-50-0	0.010	1.0	2 1/4"	2	25-781J	**10-247-5**	239.70
25.0	0-100	0.010	1.0	2 1/4"	2	25-881J	**10-248-3**	241.80


11-313-4

Starrett®

Universal Back Plunger Indicators & Sets

- Versatile, accurate, reliable and simple to operate.
- Rugged with few moving parts.
- Graduation: 0.001"/0.02 mm
- Dial Diameter: 1 7/16"
- Each set includes:
  - Indicator
  - 3 contact points
  - Adapter
  - Clamp
  - Tool post holder
  - Snug and hole attachment

Indicators (Includes 3 Contact Points)

MEAS. RANGE	DIAL READING	DIAL COLOR	STARRETT MODEL #	PART NUMBER	PRICE
0.200"	0-100	White	196B1	**11-309-2** **	$154.30
0.200"	0-50-0	White	196B5	**11-310-0** **	163.80
0.200"	0-100	White	196B6	**11-311-8** *	206.40
5 mm	0-20	Yellow	196MB1	**11-312-6** **	185.70

Sets

MEAS. RANGE	DIAL READING	DIAL COLOR	STARRETT MODEL #	PART NUMBER	PRICE
0.200"	0-100	White	196A1Z	**11-313-4**	$265.90
0.200"	0-50-0	White	196A5Z	**11-314-2**	271.35
0.200"	0-100	White	196A6Z	**11-315-9** *	313.90
5 mm	0-2	Yellow	196MA1Z	**11-316-7**	287.55

* Antimagnetic. ** Includes adapter

Starrett®

Dial Indicators

- All Starrett Dial Indicators are furnished with Lug-On-Center back, jewel bearings and shockless hardened steel gear train.
- Stem diameter: 3/8".
- #4-48 thread.



10-329-1

Backs

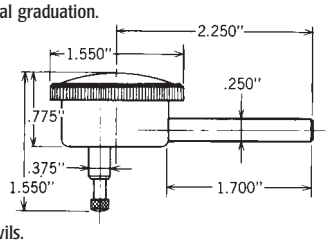
- 10-249-1 is a universal back that features a universal ball joint attached to the end of a gooseneck shank.
- 10-250-9 is a back with adjustable mounting bracket.

FOR USE WITH:	STARRETT #	PART NO.	PRICE
Series 25, 2600	672-2	**10-249-1**	$101.65
Series 25, 2600	674-2	**10-250-9**	181.55



Back Plunger Dial Indicator Sets

- Ideal for fast, accurate set-ups and measurements on lathes, milling machines, planers, shapers, etc. plus various inspection applications.
- Easy reading 0.001" (0.01 mm) dial graduation.
- Each set includes:
  - Test Indicator, fully jeweled
  - Universal clamp
  - Toolpost holder
  - 5/16" x 3" holding rod
  - 5/16" x 5" holding rod
  - #4-48 thread size
  - "G" clamp
- Lever attachment.
- Domed, tapered, and standard anvils.
- Furnished in fitted case.



Indicators

RANGE	READING	PART NO.	PRICE
0.1"	0-50-0	**14-222-4**	$96.00
0.1"	0-100	**14-223-2**	96.00
2.0 mm	0-50-0	**14-224-0**	96.00
2.0 mm	0-100	**14-225-7**	96.00

Sets

RANGE	READING	PART NO.	PRICE
0.1"	0-50-0	**14-226-5**	$164.70
0.1"	0-100	**14-227-3**	164.70
2.0 mm	0-50-0	**14-228-1**	164.70
2.0 mm	0-100	**14-229-9**	164.70

Digital Analog Indicators



21-800-8

Ground Ship ONLY

- Inch/metric conversion.
- Change of measuring direction.
- Preset & tolerance function.
- 330° screen rotation.
- SPC/USB data output.
- Thread size: #4-48
- Stem dia.: 3/8"
- Lug & flat back included.
- Resolution: 0.0001"/0.002mm
- Repeatability: 0.0001"/0.0025mm
- Auto shut off after 120 minutes.
- Battery: CR 2032 included
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	ACCURACY	PART NO.	PRICE
0 - .25"/6.35 mm	±0.0003"/0.008 mm	**21-798-4**	$164.95
0 - .5"/12.70 mm	±0.0003"/0.008 mm	**21-799-2**	170.85
0 - 1"/25.4 mm	±0.0006"/0.015 mm	**21-800-8**	182.90
SPC/USB Interface & Cable		**15-807-1**	89.30
Repl. Battery		**07-319-7**	2.55

Electronic Travel Indicators



21-365-2

Certified Right Out of the Box!

Ground Ship ONLY

- ON/OFF/ZERO set function.
- Absolute and incremental function.
- Inch/Metric conversion.
- Preset tolerance and value.
- Max., Min. or Max. - Min. value display.
- Large LCD display.
- Thread size: #4 - 48.
- Stem dia.: 3/8"
- SPC/USB data output.
- Lug and flat back included.
- Auto shut off.
- Battery CR2032 included.
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty

RANGE	RESOLUTION	ACCURACY	PART NO.	PRICE
0.5"/12.7 mm	0.0005"/0.01 mm	±0.0008"/0.02 mm	**21-361-1**	$101.55
1"/25.4 mm	0.0005"/0.01 mm	±0.0012"/0.02 mm	**21-362-9**	118.50
2"/50.8 mm	0.0005"/0.01 mm	±0.0012"/0.02 mm	**21-363-7**	237.00
0.5"/12.7 mm	0.00005"/0.001 mm	±0.00016"/0.004 mm	**21-364-5**	197.50
1"/25.4 mm	0.00005"/0.001 mm	±0.0002"/0.005 mm	**21-365-2**	214.40
2"/50.8 mm	0.00005"/0.001 mm	±0.00025"/0.006 mm	**21-366-0**	358.35
SPC/USB Interface and Cable			**15-807-1**	89.30
Repl. Battery (CR2032)			**07-319-7**	2.55

IP65 Electronic Indicators

Protects against coolants, dirt, grit and chips.



21-371-0

Certified Right Out of the Box!

Ground Ship ONLY

- Inch/metric conversion.
- Absolute and incremental function.
- SPC/USB data output.
- Thread size: #4-48
- Stem dia.: 3/8"
- Lug & flat back included.
- Auto shut off after 2 hours.
- Battery: CR2032 included
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	RESOLUTION	ACCURACY	PART NO.	PRICE
0 - .5"/12.70 mm	0.00005"/0.001 mm	0.00016"/0.004 mm	**21-370-2**	$193.60
0 - .5"/12.70 mm	0.0005"/0.01 mm	0.00080"/0.020 mm	**21-367-8**	96.65
0 - 1"/25.4 mm	0.00005"/0.001 mm	0.00020"/0.005 mm	**21-371-0**	236.60
0 - 1"/25.4 mm	0.0005"/0.01 mm	0.00120"/0.020 mm	**21-368-6**	107.45
0 - 2"/50.8 mm	0.00005"/0.001 mm	0.00025"/0.006 mm	**21-372-8**	344.25
0 - 2"/50.8 mm	0.0005"/0.01 mm	0.00120"/0.020 mm	**21-369-4**	268.90
SPC/USB Interface & Cable			**15-807-1**	89.30
Repl. Battery			**07-319-7**	2.55

MEASURING

SPI® Absolute Digital Indicators



11-966-9

Ground Ship ONLY

- IP54 protection.
- Inch/metric conversion.
- Change of measuring direction
- Preset & tolerance function.
- Absolute and incremental function.
- 330° screen rotation.
- SPC/USB data output.
- Thread size: #4-48
- Stem dia.: 3/8"
- Lug & flat back included.
- Resolution: 0.00005"/0.001mm
- Repeatability: 0.00005"/0.001mm
- Battery: CR 2032 for long life.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

RANGE	ACCURACY	PART NO.	PRICE
0 - .5"/0 - 12.7 mm	±0.00016"/0.004 mm	**11-965-1**	$168.10
0 - 1"/0 - 25.4 mm	±0.00020"/0.005 mm	**11-966-9**	187.35
SPC/USB Interface & Cable		**11-967-7**	123.45
Repl. Battery		**07-319-7**	2.55

SPI® IP54 Wireless Absolute Digital Indicators

NEW



29-008-0



29-009-8

Ground Ship ONLY

- Absolute and incremental function.
- Inch/metric conversion.
- Change of measuring direction
- Preset & tolerance function.
- 330° screen rotation.
- Thread size: #4-48
- Stem dia.: 3/8"
- Lug & flat back included.
- Battery: CR2032 for long life.
- Wireless Data Transmission to your bluetooth device or with the SPC/USB Interface & Cable.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	READING	ACCURACY	REPEATABILITY	PART NO.	PRICE
0 - .5"/12.7 mm	0.0005"/0.001 mm	0.0005"/0.01 mm	±0.0005"	**29-005-6**	$204.70
0 - .5"/12.7 mm	0.00005"/0.001 mm	0.00016"/0.004 mm	±0.00005"	**29-006-4**	291.60
0 - 1"/25.4 mm	0.0005"/0.001 mm	0.0005"/0.01 mm	±0.0005"	**29-007-2**	204.70
0 - 1"/25.4 mm	0.00005"/0.001 mm	0.00016"/0.004 mm	±0.00005"	**29-008-0**	300.55
0 - 2"/50.8 mm	0.0005"/0.001 mm	0.001"/0.015 mm	±0.0005"	**29-009-8**	238.70
0 - 2"/50.8 mm	0.00005"/0.001 mm	0.0002"/0.005 mm	±0.00005"	**29-010-6**	343.35
SPC/USB Interface & Cable				**11-967-7**	123.45
Wireless Data Output				**17-599-2**	121.80
Repl. Battery (CR2032)				**07-319-7**	2.55

SPI® Classic Logic ALG & Logic IQ Digital Indicators

MADE IN USA



Logic ALG
21-008-8

Ground Ship ONLY



Logic IQ
21-025-2

ALG Indicators

- Numeric display.
- Analog visual display.
- Incremental measuring mode.
- Measuring system in English or metric.
- Travel reverse.
- Auto off.
- Floating zero.
- Rotating bezel.
- #4-48 thread.
- Internal and external serial numbers.
- T.I.R. measuring with low and high storage recall
- Power with batteries (CR 2450 2 ea.) included.
- Additional power options through AC jack or data output.
- Programmable lock combination.
- User tolerance settings (high and low).
- Up to 4 user changeable resolutions.
- Inch/Metric display conversion.
- Large LCD display.
- Maximum reading hold.
- Display/Freeze reading hold.
- Minimum reading hold.
- Absolute/Preset measuring mode.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

IQ Indicators

IQ models include all features of the ALG series (except analog display), plus the additional features:

- 3 programmable presets.
- 3 programmable ratios.
- Extra large number display.

RANGE	RESOLUTION	LOGIC ALG PART NO.	LOGIC ALG PRICE	LOGIC IQ PART NO.	LOGIC IQ PRICE
0.250"/6.35 mm	0.0001"/0.002 mm	**21-001-3**	$468.00	**21-021-1**	$468.00
0.250"/6.35 mm	0.00005"/0.001 mm	**21-002-1**	480.50	**21-022-9**	480.50
0.600"/15.2 mm	0.0005"/0.01 mm	**21-003-9**	468.00	**21-023-7**	468.00
0.600"/15.2 mm	0.0001"/0.002 mm	**21-004-7**	480.50	**21-024-5**	480.50
0.600"/15.2 mm	0.00005"/0.001 mm	**21-005-4**	530.40	**21-025-2**	530.40
1.00"/25.4 mm	0.0005"/0.01 mm	**21-006-2**	480.50	**21-026-0**	480.50
1.00"/25.4 mm	0.0001"/0.002 mm	**21-007-0**	493.00	**21-027-8**	493.00
1.00"/25.4 mm	0.00005"/0.001 mm	**21-008-8**	555.40	**21-028-6**	555.40
2.00"/50.8 mm	0.001"/0.02 mm	**21-009-6**	842.40	**21-029-4**	842.40
2.00"/50.8 mm	0.0005"/0.01 mm	**21-010-4**	854.90	**21-030-2**	854.90
2.00"/50.8 mm	0.0001"/0.002 mm	**21-011-2**	867.40	**21-031-0**	867.40
4.00"/101.6 mm	0.001"/0.02 mm	**21-012-0**	1,241.80	**21-032-8**	1,241.80
4.00"/101.6 mm	0.0005"/0.01 mm	**21-013-8**	1,291.70	**21-033-6**	1,291.70
4.00"/101.6 mm	0.0001"/0.002 mm	**21-014-6**	1,342.00	**21-034-4**	1,341.60

DESCRIPTION	PART NO.	PRICE
AC Adapter 110V	**20-080-8**	$45.80
AC Adapter 220V	**21-080-7**	62.70
Contact Point	**06-274-5**	5.55
Battery (2 Req.)	**07-029-2**	4.90

Electronic Measuring System with Remote Readout



20-215-0

Certified
Right Out of the Box!

MADE IN USA



Stands sold separately

- User friendly and intuitive Android application for easy process monitoring and setup.
- 4 Channels—Simultaneous connection of up to four devices (Indicators, Calipers, Micrometers, Probes, etc.) and displays their current measurements on a connected Android tablet. Will work with nearly any gauge that outputs data in Digimatic format or any device that outputs raw quadrature.
- 7" color display allows viewing one, two or all 4 channels.
- As a standalone measurement system, the remote display provides a very intuitive and user-friendly way to configure and monitor multiple devices instantly.
- Programmable auto request, auto log/data collection and ratios.
- Settings for max., min. and freeze hold in quadrature. Also settings for In./mm and freeze hold in quadrature.
- Data logging/collection can be saved as a CSV file on micro SD card, e-mail or transfer to PC. Display has built-in micro SD card reader.
- Connect up to two external data consumers (desktop computer, laptop, PLC, or any generic serial device) over Unit has both RS-232 and USB output jacks. Connecting to a computer or other serial device makes data collection and statistical process control (SPC) simple and easy.
- Wide supply of voltage - 9V to 24V, with bright LED power lamp. USB power can be used instead of an external AC adapter.

Measuring System Includes:

- 7" Color Tablet with Preloaded Software
- Custom Stand
- AC Adaptor
- USB Cable
- Detailed User Manual

DESCRIPTION	PART NO.	PRICE
Electronic Measuring System	**20-215-0**	$1,015.60

C Series Probes

- Includes a rectangular connector and amplifier.
- Lug back, stem dia. 3/8"
- Thread size: #4-48.
- Certificate of calibration traceable to NIST.

RANGE	RESOLUTION	PART NO.	PRICE
0.060"/1.5 mm	0.0001"/0.002 mm	**20-165-7**	$364.65
0.060"/1.5 mm	0.00005"/0.001 mm	**20-166-5**	401.70
0.150"/3.8 mm	0.0001"/0.002 mm	**20-167-3**	364.65
0.150"/3.8 mm	0.00005"/0.001 mm	**20-168-1**	401.70
0.250"/6.35 mm	0.0001"/0.002 mm	**20-169-9**	364.65
0.250"/6.35 mm	0.00005"/0.001 mm	**20-170-7**	401.70
0.600"/15.2 mm	0.0001"/0.002 mm	**20-171-5**	364.65
0.600"/15.2 mm	0.00005"/0.001 mm	**20-172-3**	401.70
1.00"/25.4 mm	0.0001"/0.002 mm	**20-173-1**	364.65
1.00"/25.4 mm	0.00005"/0.001 mm	**20-174-9**	401.70
2.00"/50.8 mm	0.0001"/0.002 mm	**20-175-6**	636.55
4.00"/101.6 mm	0.0001"/0.002 mm	**20-176-4**	1,063.00



20-173-1

IP54 Absolute Digital Indicator Probes



20-187-1

- Inch/metric conversion.
- On/Off button
- Preset button.
- Origin button: to set origin at any point.
- Travel reverse.
- SPC/USB data output.
- Thread size: #4-48
- Stem dia.: 3/8"
- Removable lugback included.
- Attachable finger lift included
- Repeatability: 0.00005"/0.001mm
- Resolution: 0.00005"/0.001mm
- Battery: CR1632 for long life.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

Ground Ship ONLY



RANGE	ACCURACY	PART NO.	PRICE
0 - .5"/0 - 12.7 mm	0.0002"/0.005 mm	**20-186-3**	$126.60
0 - 1"/0 - 25 mm	0.0002"/0.005 mm	**20-187-1**	141.85
0 - 2"/0 - 50.8 mm	0.0003"/0.008 mm	**20-188-9**	175.40
0 - 4"/0 - 101.6 mm	0.0003"/0.008 mm	**20-189-7**	228.80
SPC/USB Interface & Cable		**11-967-7**	123.45
Wireless Data Output		**17-599-2**	121.80
Repl. Battery (CR1632)		**07-307-2**	3.75

IP54 Absolute Horizontal Digital Indicator Probes



21-454-4

- Inch/metric conversion.
- On/Off button
- Preset button.
- Origin button: to set origin at any point.
- Travel reverse.
- SPC/USB data output.
- Thread size: #4-48
- Stem dia.: 3/8"
- Removable lugback included.
- Repeatability: 0.00005"/0.001mm
- Resolution: 0.00005"/0.001mm
- Batteries: 0 - 0.5" (CR1632) included
  0 - 1.2" (CR2032) included
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.



21-455-1

Pistol Grip sold separately

RANGE	ACCURACY	PART NO.	PRICE
0 - 0.5"/0 - 12.5 mm	±0.0002"/0.005 mm	**21-454-4**	$149.70
0 - 1.2"/0 - 30 mm	±0.0002"/0.005mm	**21-455-1**	169.55
SPC/USB Interface & Cable		**11-967-7**	123.45
Wireless Data Output		**17-599-2**	121.80
Repl. Battery (CR1632)		**07-307-2**	3.75
Repl. Battery (CR2032)		**07-319-7**	2.55

Ground Ship ONLY

MEASURING

Mitutoyo
ID-U Digimatic Electronic Indicator

- Data output port for connection to SPC systems.
- Membrane sealed face helps keep out contaminants.
- Absolute encoder.
- Functions: On/Off button, origin setting, data output, ± direction changeover, error and low battery alarm, and inch/mm conversion (10-948-8).
- Measuring force: 1.8N or less.
- Resolution: 0.0005"/0.01 mm.
- Stem dia.: 3/8", metric 8 mm
- Protection Level: IP-42.
- Flat back type only.
- Power supply: one SR-44 battery.
- Battery Life: 20,000 hours.
- Operating temperature: 0°C - 40°C/32°F - 104°F.
- Thread size: #4-48, metric 2.5 x .045.

DESCRIPTION	RANGE	MEAS. RESOLUTION	ACCURACY	STEM DIA.	MITUTOYO MODEL #	PART NUMBER	PRICE
Inch/Metric	0 - 1"/ 0 - 25.4mm	0.0005"/ 0.01mm	0.0008"/ 0.02mm	3/8"	575-123	**10-948-8**	$178.85
Metric	0 - 25.4 mm	0.01 mm	0.02 mm	8 mm	575-121	**10-975-1**	178.85

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	905338	**10-993-4**	$39.05
80" SPC Output Cable	905409	**10-991-8**	45.40
Spindle Lifting Cable	540774	**10-992-6**	32.10
Repl. Battery (SR44)		**07-310-6**	2.25



10-948-8



10-574-2



10-575-9

Mitutoyo
Digimatic Indicators ID-N/ID-B
with Dust/Water Protection Conforming to IP66

- Waterproof data output connector.
- LCD display.
- Function:
  - – Zero-setting
  - – Direction switching
  - – Data output
  - – Built-in hold/preset
  - – Built-in tolerance judgment
  - – Inch/Metric conversion
- Alarm:
  - – Low voltage
  - – Over-flow error
  - – Counting value composition error
  - – Tolerance limit setting error
- Battery: SR44
- Switchable resolution.
- Stem dia.: 3/8"
- Thread size: #4 - 48
- ID-B has back plunger.

ID-N Indicators

MEASURING RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 0.5"/0 - 12.7 mm	0.00012"/0.003 mm	0.00012"/0.003 mm	543-576	**10-574-2**	$458.50

ID-B Indicators

MEASURING RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 0.22"/0 - 5.6 mm	0.0005"/0.01 mm	0.0008"/0.02 mm	543-581	**10-575-9**	$365.00
0 - 0.22"/0 - 5.6 mm	0.0005"/0.01 mm 0.00005"/0.001 mm	0.00012"/0.003 mm	543-586	**10-576-7**	493.35



10-579-1

Mitutoyo
Digimatic Indicators ID-H
High Accuracy and High Functional Type

- The maximum, minimum, or runout value can be displayed during measurement.
- GO/±NG judgment is performed by setting the upper and lower tolerances.
- If a judgment result is out of tolerance, the display backlighting changes from green to red, so tolerance judgment can be made at a glance.
- Function:
  - – Origin-set/Preset
  - – Runout measurement
  - – Zero-setting
  - – Resolution switching
  - – GO/±NG judgment
  - – Counting direction switching
  - – Max./Min. value hold
  - – Power On/Off
  - – Data output
  - – Inch/mm conversion (on inch/metric models only)
- Alarm:
  - – Low voltage
  - – Counting value composition error
  - – Over-flow error
  - – Tolerance limit setting error
- Stem dia.: 3/8", metric 8 mm
- Thread size: #4 – 48, metric M2.5 x 0.45
- SPC data output.

Inch/Metric

MEASURING RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1.2"/0 - 30.4 mm	0.00002", 0.00005", 0.0001" 0.0005 mm, 0.001 mm	0.0015 mm	543-562A	**10-577-5**	$809.75
0 - 2.4"/0 - 60.9 mm	0.00002", 0.00005", 0.0001" 0.0005 mm, 0.001 mm	0.0025 mm	543-564A	**10-578-3**	962.85

Metric

MEASURING RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 30.4 mm	0.0005 mm, 0.001mm	0.0015 mm	543-561A	**10-579-1**	$809.75

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
Remote Control	21EZA099	**10-045-3**	$90.15
40" SPC Output Cable	936937	**10-985-0**	45.50
80" SPC Output Cable	965014	**10-998-3**	54.50

Mitutoyo
IDC Digimatic Indicators



11-660-8

- Switchable resolutions on models noted below.
- Preset, zero-set, inch/metric, ±counting, GO/±NO GO, and f(x)=Ax calculation functions increase versatility
- Function lock.
- 7000 Hour battery life.
- Absolute encoder ensures all settings are maintained for the life of the battery.
- Data hold/Data output button.
- Extra large LCD with 0.443" character height.
- Stem diameter: 3/8".
- Thread size: #4-48.

Back with Lug

MEASURING RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0.5"/12.7 mm	0.00005"/ 0.001 mm	0.0001"	543-392	**11-660-8** *	$414.00
0.5"/12.7 mm	0.00005"/ 0.001 mm	0.0001"	543-396	**11-662-4** *†	647.00
0.5"/12.7 mm	0.0005"/ 0.01 mm	0.001"	543-402	**11-664-0**	302.00
0.5"/12.7 mm	0.0005"/ 0.01 mm	0.0001"	543-406	**11-666-5** †	485.00

Flat-Back

MEASURING RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0.5"/12.7 mm	0.00005"/ 0.001 mm	0.0001"	543-392B	**11-661-6** *	$414.00
0.5"/12.7 mm	0.00005"/ 0.001 mm	0.0001"	543-396B	**11-663-2** *†	647.00
0.5"/12.7 mm	0.0005"/ 0.01 mm	0.001"	543-402B	**11-665-7**	302.00
0.5"/12.7 mm	0.0005"/ 0.01 mm	0.001"	543-406B	**11-667-3** †	485.00
1"/25.4 mm	0.00005"/ 0.001 mm	0.0001"	543-472B	**11-668-1** *	554.00
1"/25.4 mm	0.0005"/ 0.01 mm	0.001"	543-476B	**11-669-9**	443.00
2"/50.8 mm	0.00005"/ 0.001 mm	0.0002"	543-492B	**11-670-7** *	696.00
2"/50.8 mm	0.0005"/ 0.01 mm	0.0016"	543-496B	**11-671-5**	582.00

* Switchable resolution models - 0.00005"/0.0001"/0.0005"/0.001 mm/0.01 mm
† Low force model

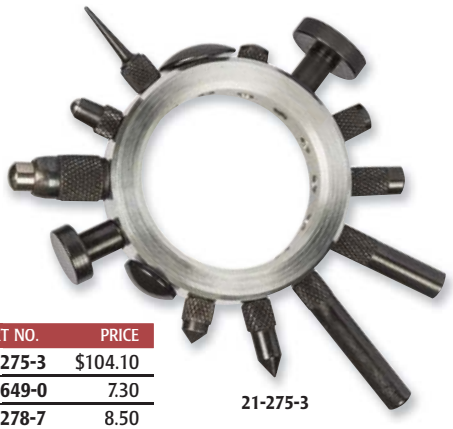
Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	905338	**10-993-4**	$39.05
80" SPC Output Cable	905409	**10-991-8**	45.40
Repl. Battery (SR44)		**07-310-6**	2.25

SPI®
Magnifiers
See Pg. 197


14-159-8

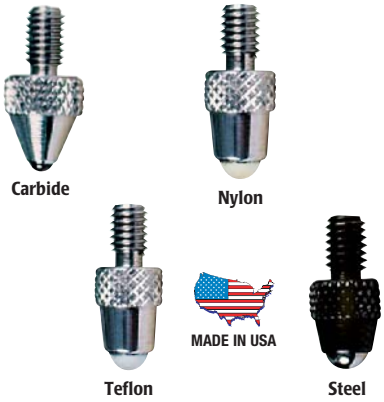
SPI® 14 Pc. Contact Point Set
Organized with Aluminum Ring


21-275-3

- AGD specifications #4-48 thread.
- High grade steel, hardened, ground and black oxide finish.
- Individual contact points included in the set.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
14 Pc. Contact Point Set	**21-275-3**	$104.10
M2.5 Thread to 4-48 Thread Adapter	**20-649-0**	7.30
3/8" Dia. Flat Bottom x 3/8" Long	**21-278-7**	8.50
1/2" Dia. Flat Bottom x 3/8" Long	**21-277-9**	9.70
1/2" Button Contact Point	**21-236-5**	4.20
3/8" Button Contact Point	**21-235-7**	3.65
60° Cone Point x 1/2" Long	**21-242-3**	3.95
.118" Ball x .280" Long	**20-335-6**	18.20
1/32" Tapered Contact x 5/8" Long	**21-271-2**	6.65
1/32" Cone Point x 5/16" Long	**21-283-7**	4.85
3/16" Dia. Radius Point x 1" Long	**21-282-9**	4.55
3/16" Dia. Radius Point x 3/4" Long	**21-279-5**	5.45
3/16" Dia. Radius Point x 1/2" Long	**21-280-3**	5.15
3/16" Dia. Radius Point x 1/4" Long	**21-281-1**	4.85
3/16" Dia. Radius Point x 1/8" Long	**21-228-2**	4.55
.183" Dia. Spring Tip Radius Point x .600" Long	**21-276-1**	27.25

MADE IN USA



SPI® Ball Contact Points

- For dial and travel indicators, depth gages, comparator gages, etc...
- Length: 1/4" – #4-48 thread.

DESCRIPTION	DIA.	PART NO.	PRICE
Carbide Ball	1.5 mm	**20-353-9**	$10.10
Carbide Ball	2.0 mm	**20-354-7**	10.10
Carbide Ball	3.0 mm	**20-355-4**	10.10
Nylon Ball	1/8"	**20-359-6**	21.65
Teflon Ball	1/8"	**20-360-4**	21.65
Steel Ball	3.0 mm	**20-361-2**	4.90

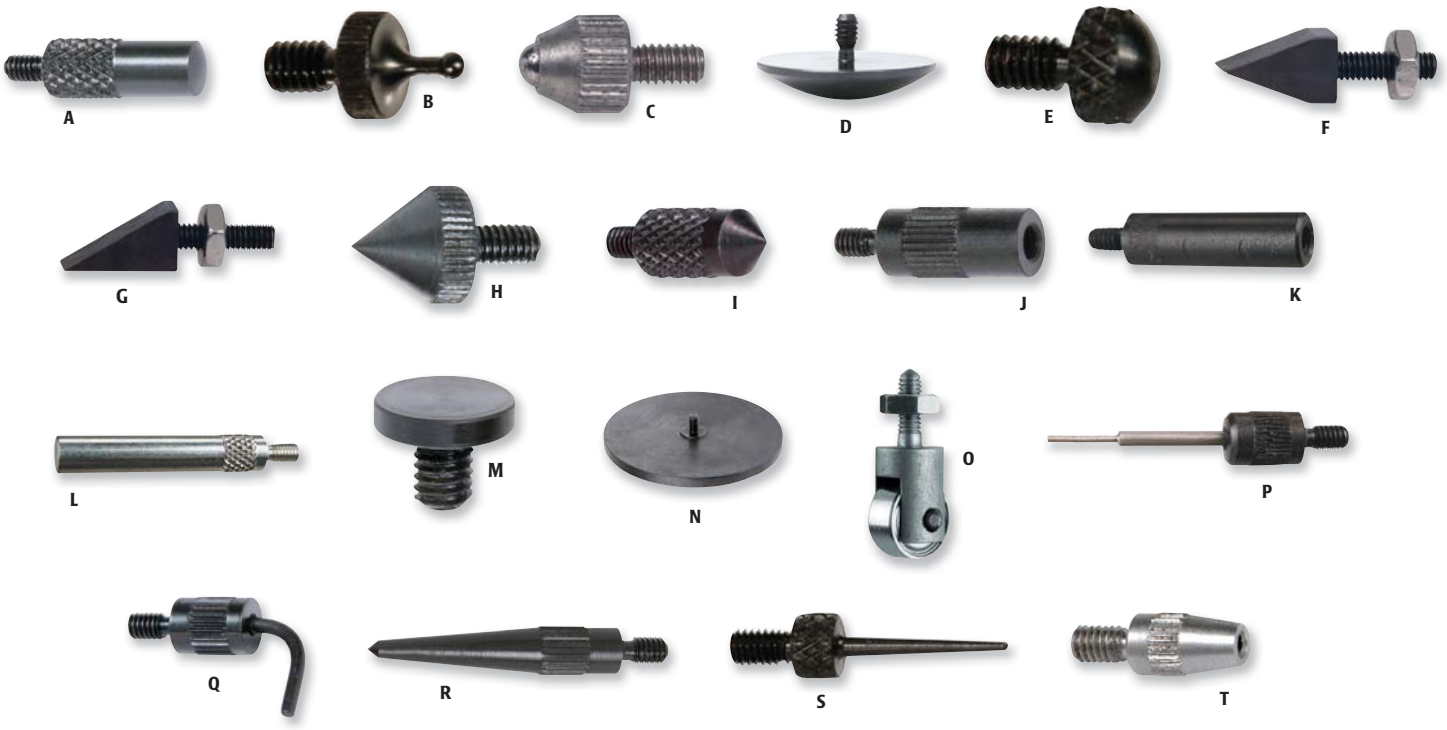
SPI® Dial Indicator Contact Points

TIP LENGTH	BALL SIZE (MM)	BALL MATERIAL	THREADS	PART NUMBER	PRICE EACH
0.280"	3.00	Carbide	#4-48	**20-335-6**	$18.20
0.280"	3.00	Carbide	M2.5	**20-336-4**	19.40
0.500"	3.00	Carbide	#4-48	**20-337-2**	19.40
0.750"	3.00	Carbide	#4-48	**20-338-0**	19.40
0.280"	4.00	Carbide	#4-48	**20-339-8**	20.60
0.280"	4.00	Carbide	M2.5	**20-340-6**	20.60
0.500"	4.00	Carbide	#4-48	**20-341-4**	21.20
0.750"	4.00	Carbide	#4-48	**20-342-2**	21.80
0.280"	3.00	Ruby	#4-48	**20-343-0**	21.80
0.280"	3.00	Ruby	M2.5	**20-344-8**	21.80
0.500"	3.00	Ruby	#4-48	**20-345-5**	23.05
0.750"	3.00	Ruby	#4-48	**20-346-3**	23.05
0.280"	4.00	Ruby	#4-48	**20-347-1**	24.25
0.280"	4.00	Ruby	M2.5	**20-348-9**	24.25
0.500"	4.00	Ruby	#4-48	**20-349-7**	25.45
0.750"	4.00	Ruby	#4-48	**20-350-5**	25.45



- Precision contact points for use on standard travel dial indicators.
- Both tungsten carbide and ruby have extremely hard and smooth measuring surfaces.
- Ball size: 3 mm = 0.118" 4 mm = 0.157"
- Fit all AGD Group 1, 2, 3 and 4 indicators.

Individual Indicator Points & Extension Kit for AGD Dial Indicators



- Each point is carefully manufactured of highest quality steel.
- 4 - 48 Threads for use in AGD 1, 2, 3, 4 indicators.

T (Adapt-A-Tip)

- Allows use of any test indicator on your dial indicator.

Overall lengths do not include length of thread ends

POINT ID	TYPE	OAL	PART NO.	PRICE EA.	POINT ID	TYPE	OAL	PART NO.	PRICE EA.
A	Radius	0.125"	**21-228-2**	$4.55	L	Flat	1.250"	**21-246-4**	$3.65
A	Radius	0.375"	**21-229-0**	3.65	L	Flat	0.875"	**21-247-2**	2.75
A	Radius	0.625"	**21-230-8**	3.65	L	Flat	0.750"	**21-273-8**	2.75
A	Radius	0.825"	**21-231-6**	3.95	L	Flat	0.625"	**21-248-0**	2.15
B	Ball Tip Needle (ø.062")	0.250"	**21-232-4**	4.25	L	Flat	0.500"	**21-249-8**	1.90
C	Cup Ball (ø.118")	0.285"	**21-233-2**	36.35	L	Flat	0.375"	**21-250-6**	1.85
C	Cup Ball (ø.250")	0.300"	**21-234-0**	25.30	L	Flat	0.250"	**21-251-4**	1.95
D	Radius Button (ø.375")	0.250"	**21-235-7**	3.65	L	Flat	0.203"	**21-252-2**	1.95
D	Radius Button (ø.500")	0.250"	**21-236-5**	4.20	M	Flat Button (ø.250")	0.094"	**21-253-0**	6.10
D	Radius Button (ø.750")	0.250"	**21-237-3**	7.80	M	Flat Button (ø.375")	0.094"	**21-254-8**	6.70
E	Radius Button (ø.203")	0.157"	**21-238-1**	4.55	M	Flat Button (ø.500")	0.094"	**21-255-5**	6.70
F	Chisel 60 Deg.	0.625"	**21-239-9**	36.35	M	Flat Button (ø.625")	0.094"	**21-256-3**	7.30
G	Offset Chisel 30 Deg.	0.625"	**21-240-7**	36.35	N	Flat Button (ø.750")	0.094"	**21-257-1**	11.50
H	Cone	0.300"	**21-241-5**	26.65	N	Flat Button (ø1.00")	0.125"	**21-258-9**	16.35
I	Cone	0.500"	**21-242-3**	3.95	N	Flat Button (ø1.50")	0.250"	**21-259-7**	20.60
I	Cone	0.625"	**21-243-1**	3.95	N	Flat Button (ø2.00")	0.250"	**21-260-5**	58.15
I	Cone	0.750"	**21-244-9**	4.25	N	Flat Button (ø2.50")	0.250"	**21-261-3**	83.55
I	Cone	0.875"	**21-245-6**	4.55	O	Roller (ø0.375")	0.500"	**21-262-1**	30.30
J	Metric/Eng Conv.	0.300"	**20-649-0** ‡	7.30	P	Flat Needle	1.000"	**21-263-9** †	4.85
K	Extension	0.500"	**20-637-5**	4.55	P	Flat Needle	1.000"	**21-264-7** º	5.45
K	Extension	0.750"	**20-638-3**	5.20	P	Flat Needle	1.000"	**21-265-4** ◊	5.15
K	Extension	1.000"	**20-639-1**	5.70	Q	Offset Needle (ø.060")	1.000"	**21-266-2**	5.50
K	Extension	1.250"	**20-640-9**	6.90	R	Tapper Radius 0.016"	0.500"	**21-267-0**	4.85
K	Extension	1.500"	**20-641-7**	6.90	R	Tapper Radius 0.016"	1.000"	**21-268-8**	4.65
K	Extension	1.750"	**20-642-5**	7.60	R	Tapper Radius 0.016"	1.500"	**21-269-6**	5.15
K	Extension	2.000"	**20-643-3**	7.30	R	Tapper Radius 0.016"	2.000"	**21-270-4**	5.15
K	Extension	2.500"	**20-644-1**	6.10	S	Tapper Radius 0.1875"	0.625"	**21-271-2**	6.65
K	Extension	3.000"	**20-645-8**	7.00	T	Inch/Metric Conv.	0.300"	**20-852-0** *	13.95
K	Extension	4.000"	**20-646-6**	8.05	T	Inch/Metric Conv.	0.300"	**20-855-3** §	13.95
K	Extension	6.000"	**20-647-4**	12.50	–	–	–	–	13.95
3 Pc. Extension Kit: 1", 2" & 3"			**20-648-2**	18.20	–	–	–	–	–

‡ Male M2.5/Female 4-48 † Tip 0.030" x 0.250", Step 0.060" x 0.468" ◊ No Step 0.060" x 0.720" º Tip 0.025" x 0.138", Step 0.060" x 0.576"
* Male 4-8/Female M1.4 § Male 4-8/Female M1.7


20-987-4


20-975-9

SPI® Ball Tip Dial Indicator Points

- #4-48 threaded stem.
- 3/4" length.
- Grade 25 chrome alloy steel balls.
- Use only as an indicator point and not for sizing or gauging applications where side pressure would be present.

BALL DIA.	PART NUMBER	PRICE	BALL DIA.	PART NUMBER	PRICE
1/32"	**20-971-8**	$14.55	1/4"	**20-980-9**	$14.55
3/64"	**20-972-6**	14.55	9/32"	**20-981-7**	14.55
1/16"	**20-973-4**	14.55	5/16"	**20-982-5**	14.55
5/64"	**20-974-2**	14.55	11/32"	**20-983-3**	16.95
3/32"	**20-975-9**	14.55	3/8"	**20-984-1**	16.95
1/8"	**20-976-7**	14.55	13/32"	**20-985-8**	19.40
5/32"	**20-977-5**	14.55	7/16"	**20-986-6**	19.40
3/16"	**20-978-3**	14.55	1/2"	**20-987-4**	20.60
7/32"	**20-979-1**	14.55	–	–	–


20-619-3

SPI® Classic Deluxe Indicator Point Kits*

- Wide selection of contact points in styles of half round, flat, bent, soft, long stem, taper & ball type in all popular lengths.
- AGD Specification #4-48 thread.
- Black oxide.

MADE IN USA

DESCRIPTION	BODY DIA.	PART NO.	PRICE
22 Pc. Indicator Point Kit	7/32"	**20-619-3**	$32.95

* Individuals available on request.



Magnetic Bases with Direct Mount Backs

- Permanent powerful magnet.
- Size 2 1/4" dia. 9/16" thickness.
- Direct mount of dial Indicators AGD. Group 2.
- Indicators sold separately.
- D.O.T. Regulated. Shipped via ground freight only.

A.G.D. Group 2 • 2 1/4" dia. Dial

FOR INDICATORS	PART NO.	PRICE
SPI Deluxe (Inch)	**20-821-5**	$42.40
SPI Deluxe (Metric)	**20-822-3**	42.40
Brown & Sharpe	**20-824-9***	44.30
Federal	**20-825-6**	44.30
Peacock, Mitutoyo	**20-829-8**	44.30
Starrett	**20-830-6**	44.30
Teclock	**20-833-0**	44.30
Baker, New Brown & Sharpe	**20-835-5†**	44.30

*3 hole pattern. † 4 hole pattern.

Mitutoyo Depth Gage Bases

- 3/8" diameter hole for easy mounting of AGD type indicator.
- Base width: 0.63", Flatness: 0.0002".
- Bottom surface of the base is hardened, ground and lapped.
- Satin chrome finish.
- Gage not included.



10-593-2

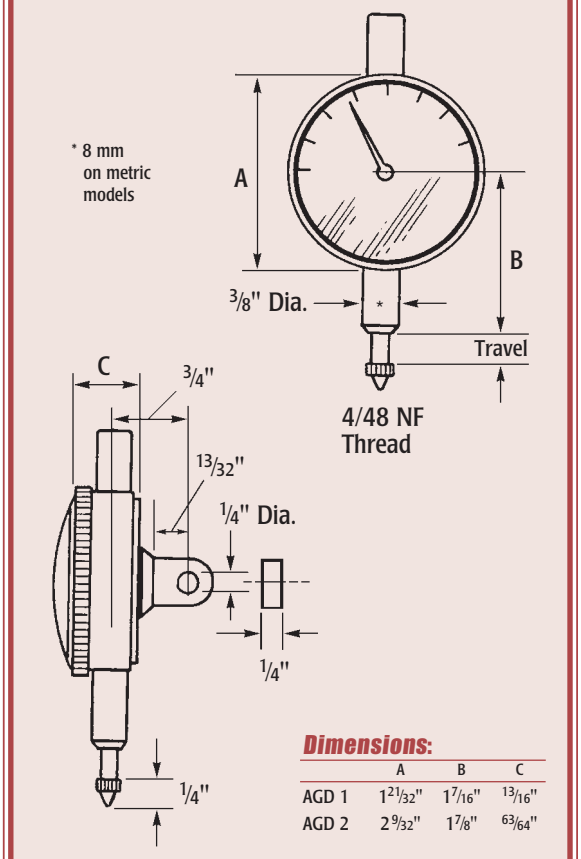
BASE LENGTH	FOR MODEL #'S	MITUTOYO MODEL #	PART NUMBER	PRICE
2 1/2"	547-217; 7217; 7237; 547-257	902164	**10-592-4**	$149.00
4"	547-218; 7218; 7238; 547-258	902165	**10-593-2**	170.00


12-610-2

SPI® Universal Indicator Probe Holders

- Holder allows any AGD dial indicator to hold any diameter probe, needle, etc. like a chuck.
- 0 - 0.040"/0 - 1 mm capacity.

TYPE	PART NO.	PRICE
#4 - 48	**12-610-2**	$30.30
M2.5	**21-284-5**	30.30



Dimensions:

	A	B	C
AGD 1	1 21/32"	1 7/16"	13/16"
AGD 2	2 9/32"	1 7/8"	63/64"



21-379-3

Certified
Right Out of the Box!



21-378-5



21-388-4

SPI® Dial Test Indicators & Sets

Horizontal and Vertical

- Universal positioning capability.
- Fully jeweled movement.
- Easy to read dial.
- Satin chrome finish.
- Contact point: 0.080" dia. x 1/2" length.
- Contact point pivot: ±100 degrees.
- Dovetail stems: 5/32" (8 mm) and 3/8" (6 mm) dia.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.

Sets Include:

- Indicator, 2 contact points, universal clamp, height gage bar, 5/32" and 3/8" dia. Dovetail extensions and fitted case.

Horizontal

RANGE	GRAD.	READING	DIAL DIA.	DIAL COLOR	PART NO.	PRICE
0.008"	0.0001"	0-4-0	1 1/4"	White	**21-376-9**	$114.20
0.020"	0.0005"	0-10-0	1 1/4"	White	**21-377-7**	93.70
0.030"	0.0005"	0-15-0	1 1/4"	White	**21-378-5**	85.80
0.030"	0.0005"	0-15-0	1 1/4"	Black	**21-379-3**	85.80
0.2 mm	0.002 mm	0-100-0	32 mm	White	**21-380-1**	117.40
0.5 mm	0.01 mm	0-25-0	32 mm	White	**21-381-9**	108.60
0.8 mm	0.01 mm	0-40-0	32 mm	White	**21-382-7**	90.50
1.0 mm	0.01 mm	0-50-0	32 mm	White	**21-383-5**	108.60

Horizontal Sets

RANGE	GRAD.	READING	DIAL DIA.	DIAL COLOR	PART NO.	PRICE
0.008"	0.0001"	0-4-0	1 1/4"	White	**21-501-2**	$167.55
0.020"	0.0005"	0-10-0	1 1/4"	White	**21-502-0**	147.00
0.030"	0.0005"	0-15-0	1 1/4"	White	**21-503-8**	107.75
0.030"	0.0005"	0-15-0	1 1/4"	Black	**21-504-6**	107.75
0.2 mm	0.002 mm	0-100-0	32 mm	White	**21-505-3**	170.75
0.5 mm	0.01 mm	0-25-0	32 mm	White	**21-506-1**	154.10
0.8 mm	0.01 mm	0-40-0	32 mm	White	**21-507-9**	121.90
1.0 mm	0.01 mm	0-50-0	32 mm	White	**21-508-7**	154.10

Vertical

RANGE	GRAD.	READING	DIAL DIA.	DIAL COLOR	PART NO.	PRICE
0.008"	0.0001"	0-4-0	1 1/4"	White	**21-384-3**	$129.25
0.020"	0.0005"	0-10-0	1 1/4"	White	**21-385-0**	108.65
0.030"	0.0005"	0-15-0	1 1/4"	White	**21-386-8**	85.80
0.2 mm	0.002 mm	0-100-0	32 mm	White	**21-387-6**	131.55
0.5 mm	0.01 mm	0-25-0	32 mm	White	**21-388-4**	112.10
0.8 mm	0.01 mm	0-40-0	32 mm	White	**21-389-2**	85.80





21-531-9

Certified
Right Out of the Box!

SPI® Extended Range Dial Test Indicators & Sets

- Easy to read graduations.
- Jeweled movement.
- Automatic reversal.
- Revolution counter.
- Rotating dial.
- Dial color: white.
- Accuracy: ±0.0012"
- 5/32" pivot stem with additional dovetail mount.
- Contact point swivels 210°.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



- **21-534-3, 21-535-0 & 21-536-8 Kits Include:**
  - Indicator
  - Height gage bar with clamp dia.: 1/4" x 1/2" x 3"
  - Axial support with 3/8" stem and dovetail
  - Adapter sleeve: 5/32 - 3/8"
  - (2) Dovetail stems: 3/8" & 5/32"
  - (3) contact points: 0.040" (steel) 0.080" & 0.120" (carbide) x 0.709" long
- **21-537-6 Kit Includes:**
  - Indicator
  - Magnetic base
  - 3 9/16" extension arm
  - Wrench
  - (2) Dovetail stems: 3/8" & 5/32"
  - (3) contact points: 0.040" (steel) 0.080" & 0.120" (carbide) x 0.709" long



Inch

MEAS. RANGE	GRADUATION	DIAL READING	DIAL DIA.	POINT LENGTH	HORIZONTAL PART NUMBER	PRICE	VERTICAL PART NUMBER	PRICE
0.060"	0.0005"	0-15-0	1 3/16"	0.709"	**21-528-5**	$163.40	**21-531-9**	$125.40
0.060"	0.0005"	0-15-0	1 1/2"	0.709"	**21-529-3**	163.40	**21-532-7**	125.40
0.060"	0.001"	0-15-0	1 3/16"	0.709"	**21-530-1**	163.40	**21-533-5**	125.40

Sets

MEAS. RANGE	GRADUATION	DIAL READING	DIAL DIA.	POINT LENGTH	HORIZONTAL PART NUMBER	PRICE
0.060"	0.0005"	0-15-0	1 3/16"	0.709"	**21-534-3**	$189.75
0.060"	0.0005"	0-15-0	1 1/2"	0.709"	**21-535-0**	195.00
0.060"	0.001"	0-15-0	1 3/16"	0.709"	**21-536-8**	181.90
0.060"	0.0005"	0-15-0	1 1/2"	0.709"	**21-537-6**	191.15

PEACOCK

Dial Test Indicators

- Available with white face and black needle or black face with orange needle.
- Complete with 0.038", 0.078", 0.125" diameter chrome contact points and 3/8", 1/4" and 5/32" diameter holder stems.
- Auto reversing.
- 180° swing on point and shaft.
- Fully jeweled movements.
- Universal positioning capability.
- Dovetails on top and back.
- Non-magnetic.



Horizontal

RANGE	GRAD.	DIAL READING	DIAL DIA.	DIAL COLOR	POINT LENGTH	PART NUMBER	PRICE
0 - 0.030"	0.0005"	0-15-0	1.375"	Black	.750"	**11-873-7**	$173.10
0 - 0.030"	0.0005"	0-15-0	1.375"	White	.750"	**11-874-5**	173.10
0 - 0.040"	0.0005"	0-20-0	1.375"	Black	1.750"	**11-875-2**	186.20
0 - 0.040"	0.0005"	0-20-0	1.375"	White	1.750"	**11-876-0**	186.20
0 - 0.008"	0.0001"	0-4-0	1.375"	Black	.375"	**11-877-8**	186.20
0 - 0.008"	0.0001"	0-4-0	1.375"	White	.375"	**11-878-6**	186.20
0 - 0.030"	0.0005"	0-15-0	1.828"	White	.750"	**11-879-4**	185.45
0 - 0.008"	0.0001"	0-4-0	1.828"	White	.375"	**11-880-2**	226.15
0 - 0.030"	0.0005"	0-15-0	1.828"	Black	.750"	**11-881-0**	185.45
0 - 0.008"	0.0001"	0-4-0	1.828"	Black	.375"	**11-882-8**	226.15
Repl. Crystal for Large Face						**11-883-6**	13.95

Vertical

RANGE	GRAD.	DIAL READING	DIAL DIA.	DIAL COLOR	POINT LENGTH	PART NUMBER	PRICE
0 - 0.008"	0.0001"	0-4-0	1.375"	Black	.375"	**11-884-4**	$221.75
0 - 0.030"	0.0005"	0-15-0	1.375"	Black	.750"	**11-885-1**	208.90
0 - 0.030"	0.0005"	0-15-0	1.375"	White	.750"	**11-886-9**	208.90
0 - 0.008"	0.0001"	0-4-0	1.375"	White	.375"	**11-887-7**	240.60

Dial Test Indicators

Horizontal



- Dial diameter: 1 1/4"
- Contact point adjustable through 230°.
- Fully jeweled movement.
- Clear, easy to read.
- Dovetails on top and back for all-around positioning.
- Contact point: 0.78" dia.
- Includes 5/32" and 3/8" dovetail extensions.

Inch

RANGE	GRAD.	DIAL READING	DIAL COLOR	POINT LENGTH	PART NUMBER	PRICE
0.008"	0.0001"	0-40-0	White	0.650"	**50-005-8**	$111.70
0.030"	0.0005"	0-15-0	White	0.700"	**50-006-6**	77.40
0.030"	0.001"	0-15-0	White	0.700"	**50-007-4**	70.70
0.030"	0.0005"	0-15-0	Black	0.700"	**50-008-2**	73.60

Inch/Metric

RANGE	GRAD.	DIAL READING	DIAL COLOR	PART NUMBER	PRICE
0.03"/ 0.2 mm	0.0005"/ 0.01 mm	0-15-0/ 0-35-0	White	**50-009-0**	$100.95

GEM

Test Indicators Sets

Jeweled-Satin Chrome Finish with Dovetail Back







- **3 Piece Sets (20-113-7 & 20-114-5*) Include:**
  - Test Indicator
  - Contact Point: 0.109" dia. X 0.500" long.
  - Ball shank assembly.
  - Body clamp assembly.
  - Complete with case.
- **8 Piece Sets (20-115-2* & 20-116-0) Include:**
  - Test Indicator
  - 2 Contact Points: 0.109" dia. X .500" long & 0.032" dia. X 500" long.
  - Universal shank.
  - Ball shank.
  - Slide adapter (use with universal shank on 18" and 24" height gages).
  - Indicator holder.
  - Surface gage adapter.
  - Body clamp assembly.
  - Complete with case.

NO. OF PIECES	GRADUATION	DIAL DIA.	MEAS. RANGE	PART NUMBER	PRICE
3	0.00100"	15/16"	0.030"	**20-113-7**	$151.50
3	0.00050"	1 3/8"	0.030"	**20-114-5** *	161.05
8	0.00050"	1 33/8"	0.030"	**20-115-2** *	213.40
8	0.00100"	15/16"	0.030"	**20-116-0**	213.40

*Shaded dial

Accessories

- A) Slide adapter – for use with all height gages - Slides over universal shank (20-118-6) with 3/16" x 5/16" inside dimensions and 1 3/4" overall length.
- B) Universal shank – for use with all height gages - Rectangular bar is 3/16" x 5/16". Overall length is 3 1/2". Shank is 3/16" x 5/8" long.
- C) Ball shank joint nut – 3/8" knurl diameter with 5/16 - 32 internal thread.
- D) Surface gage adapter – 1/4" diameter rod, 3" overall length, 5/8 - 32 internal threads.

KEY	DESCRIPTION	PART NO.	PRICE
A	Slide Adapter	**20-117-8**	$8.65
B	Universal Shank	**20-118-6**	11.90
C	Ball Shank Joint Nut	**20-119-4**	9.70
D	Surface Gage Adapter	**20-120-2**	16.20









brown & sharpe

BesTest® Dial Test Indicators

Where precision work is involved, BesTest® indicators meet or exceed Federal or DIN specifications. Furnished with a certificate of accuracy and traceability. Features ensure fast, accurate and continuously reliable measurement.

- Constant clockwise rotation.
- Automatic reversal.
- Swiveling, carbide tip point.
- Universal mounting.
- Monoblock (precision watch) body design.
- Anti-magnetic, corrosion resistant.
- Furnished in fitted case.



20-409-9

White Dial (Inch)/Yellow Dial (Metric)

- Each indicator set comes complete with one carbide tip contact point (0.080"), one rectangular bar, one swivel clamp and one contact point wrench.
- Each mounted indicator set comes with one 1/4" dia. x 2 1/2" long universal mounting attachment in place of rectangular bar and swivel clamp.

Inch Reading

MEAS. RANGE	DIAL READING	GRADU-ATION	DIAL DIA.	POINT LENGTH	TIP DIA.	MODEL #	PART NUMBER	PRICE
0.030"	0-15-0	0.001"	1"	1/2"	0.080"	599-7029-3	**20-392-7**	$229.30
0.030"	0-15-0	0.0005"	1"	1/2"	0.080"	599-7030-3	**20-393-5**	239.75
0.030"	0-15-0	0.0005"	1 1/2"	1/2"	0.080"	599-7031-3	**20-394-3**	247.20
0.008"	0-4-0	0.0001"	1"	1/2"	0.080"	599-7032-3	**20-395-0**	269.40
0.008"	0-4-0	0.0001"	1 1/2"	1/2"	0.080"	599-7023-3	**20-396-8**	310.60
0.008"	0-4-0	0.00005"	1 1/2"	1/2"	0.080"	599-7033-3	**20-397-6**	311.65
0.020"	0-10-0	0.0005"	1"	1 7/16"	0.080"	599-7034-3	**20-398-4**	316.90
0.020"	0-10-0	0.0005"	1 1/2"	1 7/16"	0.080"	599-7035-3	**20-399-2**	326.45
0.200"	0-100	0.001"	1 1/2"	11/32"	0.080"	599-7039	**20-400-8**	189.00

End Mounting

MEAS. RANGE	DIAL READING	GRADU-ATION	DIAL DIA.	POINT LENGTH	TIP DIA.	MODEL #	PART NUMBER	PRICE
0.030"	0-15-0	0.0005"	1"	1/2"	0.080"	599-7037-3	**20-401-6**	$316.90
0.008"	0-4-0	0.0001"	1 1/2"	1/2"	0.080"	599-7024-3	**20-402-4**	354.85
0.008"	0-4-0	0.00005"	1 1/2"	1/2"	0.080"	599-7038-3	**20-403-2**	354.85

Metric Reading

MEAS. RANGE	DIAL READING	GRADU-ATION	DIAL DIA.	POINT LENGTH	TIP DIA.	MODEL #	PART NUMBER	PRICE
0.8mm	0-0.4-0	0.01mm	28mm	12.5mm	2mm	599-7030-13	**20-404-0**	$239.75
0.8mm	0-0.4-0	0.01mm	38mm	12.5mm	2mm	599-7031-13	**20-405-7**	247.20
0.2mm	0-100-0	0.02mm	28mm	12.5mm	2mm	599-7032-13	**20-406-5**	269.40
0.2mm	0-100-0	0.02mm	38mm	12.5mm	2mm	599-7033-13	**20-407-3**	311.65

Black Dial Indicators

- Easy-to-read, satin black, "jet-console" dial indicators with high visibility orange hand.
- Each indicator comes complete with one carbide tip contact point (0.080"), one 1/4" dia. x 2 1/2" dia. extension with dovetail and one contact point wrench.

MEAS. RANGE	DIAL READING	GRADU-ATION	DIAL DIA.	POINT LENGTH	TIP DIA.	MODEL #	PART NUMBER	PRICE
0.030"	0-15-0	0.0010"	1"	1/2"	0.080"	599-7029-5	**20-408-1**	$180.70
0.030"	0-15-0	0.0005"	1"	1/2"	0.080"	599-7030-5	**20-409-9**	183.85
0.030"	0-15-0	0.0005"	1 1/2"	1/2"	0.080"	599-7031-5	**20-410-7**	204.95
0.008"	0-4-0	0.0001"	1"	1/2"	0.080"	599-7032-5	**20-411-5**	246.15
0.008"	0-4-0	0.00005"	1 1/2"	1/2"	0.080"	599-7033-5	**20-412-3**	257.75
0.020"	0-10-0	0.0005"	1"	1 7/16"	0.080"	599-7034-5	**20-413-1**	226.05
0.020"	0-10-0	0.0005"	1 1/2"	1 7/16"	0.080"	599-7035-5	**20-414-9**	249.30

White Dial (Inch)/Yellow Dial (Metric) Sets

- Each indicator set comes (3) carbide contact points: 0.040", 0.080" and 0.120 dia.; two extensions with dovetails one point wrench.
- Series 599-7739 includes: universal test indicator, swivel, clamp, hole attachment with indicator mounting hole, bar, 2 holding rods (0.312" x 3" long and 0.312" x 5" long) and fitted case.

Inch Reading

MEAS. RANGE	DIAL READING	GRADU-ATION	DIAL DIA.	POINT LENGTH	MODEL #	PART NUMBER	PRICE
0.030"	0-15-0	0.0005"	1"	1/2"	599-7030-6	**20-415-6**	$225.05
0.030"	0-15-0	0.0005"	1 1/2"	1/2"	599-7031-6	**20-416-4**	254.70
0.008"	0-4-0	0.0001"	1"	1/2"	599-7032-6	**20-417-2**	255.70
0.008"	0-4-0	0.0001"	1 1/2"	1/2"	599-7023-6	**20-418-0**	282.10
0.200"	0-100	0.001"	1 1/2"	11/32"	599-7739	**20-419-8**	363.60

Metric Reading

MEAS. RANGE	DIAL READING	GRADU-ATION	DIAL DIA.	POINT LENGTH	MODEL #	PART NUMBER	PRICE
0.8mm	0-0.4-0	0.01mm	28mm	12.5mm	599-7030-14	**20-420-6**	$233.25
0.8mm	0-0.4-0	0.01mm	38mm	12.5mm	599-7031-14	**20-421-4**	260.85
0.2mm	0-100-0	0.02mm	28mm	12.5mm	599-7032-14	**20-422-2**	286.05
2.5mm	0-250	0.0200mm	38mm	8.9mm	599-7739-10	**20-423-0**	363.60

Accessories & Accessory Sets for BesTest® Indicators

DESCRIPTION	MODEL #	PART NO.	PRICE
Round Bar 7/32" dia. with 0.163 stepped end; 0.220 dia. stud; 2 7/8" long	599-7048	**20-425-5**	$23.40
Swivel support (Short) 3/8" dia. x 1" long	599-7042	**20-904-9**	55.45
Angle attachment 3/8" hole with 3/8" dia. x 1" long	599-7043	**20-906-4**	61.30
Extension with dovetail 0.220" x 1/2" long	599-7052	**20-891-8**	21.90
Extension with dovetail 0.250" x 1/2" long	599-7053	**20-892-6**	21.45
Complete Set of All Items Listed Above.	599-7041	**20-427-1**	182.70
Rectangular Bar 1/4" thick x 1/2" high x 3" long with 0.220" dia. stud	599-7047	**20-903-1**	30.15
Swivel support (Long) 3/8" dia. x 3 5/8" shank	599-7044	**20-905-6**	58.80
Swivel clamp 3/8" and 7/32" dia. mounting holes. Dovetail opposite 3/8" hole	599-7045-1	**20-901-5**	42.55
Universal Dovetail Attachment chrome plated, 1/4" dia. x 2 1/2" long (to center of ball)	599-7054	**20-428-9**	35.20
Lug-back bracket slot is 1/4"	599-980-10	**20-429-7**	103.80
Universal swivel clamp 3/8" mounting hole	599-7055	**20-431-3**	108.70

NEW



20-122-8

TESA

TESATast® Dial Test Indicators

- Bidirectional measuring with automatic reversal inside the movement.
- Continuous clockwise pointer rotation providing error-free reading.
- Insensitive to magnetic fields.
- Jeweled movement with 7 rubies.
- Ball-bearing lever system with measuring insert swivelling through to 240°.
- Very low measuring force.
- Full-metal construction giving exceptional robustness.
- Supplied with a durable molded case, point wrench and extension dovetail.

MEAS. RANGE	GRADU-ATION	DIAL READING	DIAL DIA.	POINT LENGTH	MODEL #	PART NUMBER	PRICE
0.030"	0.0005"	0-15-0	1"	1/2"	01820006	**20-121-0**	$197.90
0.008"	0.0001"	0-4-0	1"	1/2"	01820011	**20-122-8**	231.25
0.030"	0.0005"	0-15-0	1 1/2"	1/2"	01820007	**20-123-6**	220.45
0.008"	0.0001"	0-4-0	1 1/2"	1/2"	01820012	**20-124-4**	252.75
0.008"	0.00005"	0-4-0	1 1/2"	1/2"	01820013	**20-125-1**	352.75
0.020"	0.0005"	0-10-0	1 1/2"	1 7/16"	01820009	**20-107-9**	291.45

ACCUPRO® High Performance Milling

NEW



AlTiN Coated

4 Flute High Performance TiCN & AlTin Coated Fine Tooth Roughing End Mills

See Pg. 520

NEW

3 Flute Zirconium Coated High Performance Single End Mills for Aluminum

See Pg. 517



Mahr FEDERAL

MarTest Test Indicators

- Test concentricity and run-out of shafts and bores. Also the parallelism and alignment of surfaces in engineering and tool making.
- Shockproof.
- Anti magnetic.
- Movement bearings are jeweled with 8 precious stones.
- Automatic matching to sensing direction, thus ensures error-free reading.
- Double lever supported in ball bearings, overload protection provided by slip-clutch.
- Contact point with carbide ball.
- Styli dia.: 0.080"/2 mm
- Dovetail stem: 3/8"/8 mm
- Furnished in plastic case.



12-283-8



12-284-6



12-286-1

12-287-9

Inch - Green Dial Face

MEAS. RANGE	GRADU-ATION	DIAL READING	DIAL DIA.	POINT LENGTH	FORCE (N)	MODEL #	PART NUMBER	PRICE
±0.015"	0.0005"	0-15-0	1.1"	0.570"	0.15	801 S	**12-283-8**	$173.00
±0.015"	0.0005"	0-15-0	1.5"	0.570"	0.15	801 SG	**12-284-6**	195.85
±0.004"	0.0001"	0-4-0	1.5"	0.570"	0.15	801 SGM	**12-285-3**	219.85
±0.010"	0.0005"	0-10-0	1.1"	1.620"	0.07	801 SL	**12-286-1**	212.65
±0.015"	0.0005"	0-15-0	1.1"	0.570"	0.25	801 H	**12-287-9**	164.30

Metric - Green Dial Face

MEAS. RANGE	GRADU-ATION	DIAL READING	DIAL DIA.	POINT LENGTH	FORCE (N)	MODEL #	PART NUMBER	PRICE
±0.04 mm	0.01 mm	0-40-0	27.5 mm	14.50 mm	0.15	800 S	**12-288-7**	$144.40
±0.04 mm	0.01 mm	0-40-0	38.0 mm	14.50 mm	0.15	800 SG	**12-289-5**	154.85
±0.25 mm	0.01 mm	0-25-0	27.5 mm	41.24 mm	0.07	800 SL	**12-290-3**	246.10
±0.04 mm	0.01 mm	0-40-0	27.5 mm	14.50 mm	0.25	800 H	**12-291-1**	184.25

Interapid SWITZERLAND

Test Indicators
Series 312

- INTERAPID, internationally acclaimed as the finest Test Indicators, are made to traditional precision and perfection.
- Inclined dial for easier reading.
- Exceptional sensitivity and responsiveness.
- Very light measuring pressure.
- Ball bearing contact point pivot and jewelled mechanism.
- Automatic reversing contact point, swiveling through 210°, vertical models 190°.
- Revolution counter.
- One piece, solid case for maximum rigidity.
- Universal - Swivel stem 5/32" dia. and two dovetails (vertical models have one dovetail) for convenient mounting.
- Includes .080" carbide contact point, metric models 2 mm, chrome plated.
- Complete with contact point wrench in fitted case.



Horizontal Type



Vertical Type

Horizontal Type

DIAL READING	DIA.	RANGE	LENGTH OF POINT	REFERENCE	PART NUMBER	PRICE
.0005"	1 1/2"	.060"	.687"	312B-1	**12-001-4**	$276.00
.0005"	1"	.060"	.687"	312B-2	**12-002-2**	276.00
.0001"	1 1/2	.016"	.687"	312B-3	**12-003-0**	350.70
.0001"	1"	.016"	.687"	312B-4	**12-004-8**	347.35
.001"	1"	.060"	.687"	312B-20	**12-005-5**	279.40
.0005"	1 1/2"	.060"	2.750"	312B-15	**12-006-3**	386.85
0,01 mm	37 mm	1,6 mm	18 mm	312-1	**12-018-8**	296.50
0,01 mm	30 mm	1,6 mm	18 mm	312-2	**12-019-6**	282.70
0,002 mm	37 mm	0,4 mm	18 mm	312-3	**12-020-4**	350.70
0,002 mm	30 mm	0,4 mm	18 mm	312-4	**12-021-2**	347.35

Vertical Type

DIAL READING	DIA.	RANGE	LENGTH OF POINT	REFERENCE	PART NUMBER	PRICE
.0005"	1 1/2"	.060"	.687"	312B-1V	**12-011-3**	$303.00
.0005"	1"	.060"	.687"	312B-2V	**12-012-1**	296.35
.001"	1"	.060"	.687"	312B-20V	**12-013-9**	279.40
.0001"	11/2"	.016"	.687"	312B-3V	**12-014-7**	367.55
.0005"	11/2"	.060"	2.750"	312B-15V	**12-015-4**	389.10
0,01 mm	37 mm	1,6 mm	18 mm	312-1V	**12-026-1**	310.90
0,01 mm	30 mm	1,6 mm	18 mm	312-2V	**12-027-9**	303.50

DESCRIPTION	PART NO.	PRICE
Shank	**05-226-6**	$26.25



20-903-1 (0.220" pin dia.)



12-037-8



12-034-5



12-038-6



12-036-0

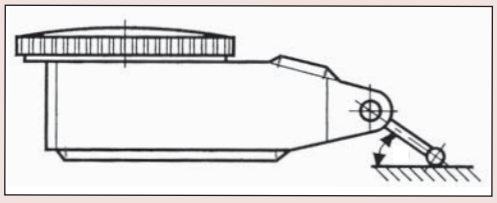


12-040-2

Test Indicator Accessories for INTERAPID

DESCRIPTION	REFERENCE	PART NO.	PRICE
Rectangular Bar 1/2"x1/4"	A11/310	**20-903-1**	$30.15
Axial Support with 8 mm dia. stem		**12-033-7**	67.50
Axial Support with 3/8" dia. stem	A2/310B	**12-034-5**	67.50
Reduction Sleeve 8 mm to 4 mm		**12-035-2**	19.50
Reduction Sleeve 3/8" to 5/32"		**12-036-0**	18.00
Case for Contact Points		**12-037-8**	4.30
Holding Bar with Pin		**12-038-6**	67.00
Holding Pin		**12-040-2**	5.00

Cosine Error



Keep the Angle a * between 10-15° and the error is so minimal that it can be neglected.

If work conditions require the Angle a to be bigger use the conversion chart below.

* Interapid indicators read 0 (zero) at 12-13°

Angle α	15°	30°	45°	60°
Correction factor	0.966	0.866	0.707	0.500

Example:

Angle α	30°
Reading on Dial:	0.012"
Actual measurement:	0.012" x 0.866 = 0.0104"



12-008-9

Interapid SWITZERLAND

Test Indicator Sets
Series 312

INTERAPID Test Indicator Sets include:
1 ea. 12-030-3 Height Gage Bar with Clamp.
1 ea. 12-034-5 Axial Support with 3/8" dia. stem.*
1 ea. 12-036-0 Reduction sleeve 3/8" to 5/32".*
1 ea. 12-037-8 Case for Contact Points.
1 ea. Test Indicator as listed in fitted case.

Sets with Horizontal Type Indicators

INDICATOR	REFERENCE	PART NO.	PRICE
12-001-4	312B-1 Set	**12-007-1**	$386.00
12-002-2	312B-2 Set	**12-008-9**	381.00
12-003-0	312B-3 Set	**12-009-7**	447.00
12-004-8	312B-4 Set	**12-010-5**	440.00
12-018-8		**12-022-0***	386.00
12-019-6		**12-023-8***	381.00
12-020-4		**12-024-6***	447.00
12-021-2		**12-025-3***	440.00

Sets with Vertical Type Indicators

INDICATOR	REFERENCE	PART NO.	PRICE
12-011-3	312B-1V Set	**12-016-2**	$410.00
12-012-1	312B-2V Set	**12-017-0**	397.00
12-026-1		**12-028-7***	410.00
12-027-9		**12-029-5***	397.00

* Metric Sets are furnished with 12-033-7 Axial Support with 8 mm dia. stem and 12-035-2 Reduction Sleeve 8 mm to 4 mm.

Mitutoyo
Dial Test Indicators

- Jeweled bearings assure higher sensitivity and accuracy.
- Reversible contact point is adjustable within 220°.
- Fully adjustable bezel/dial face, 1.27" Easy to read.
- Indicator includes:
  - 0.080" dia. carbide point installed.
  - 3/8" dia x 0.080" long dovetail stem.

- **Complete Sets Includes:**
  - 0.080" dia. carbide point installed.
  - 3/8" dia x 0.080" long dovetail stem.
  - 5/32" dia. x 0.070" long dovetail stem.
  - 0.315" dia. holding bar, for use w/drill chucks.
  - 1/2" x 1/4" holding bar, for use with lathe tool posts.
  - 5/32" x 3/8" dia. clamp.
  - 0.039" and 0.118" contact points.
  - Compact carrying case.



MEASURING RANGE	GRADUATIONS	DIAL READING	POINT LENGTH	MITUTOYO® MODEL #	INDICATOR ONLY PART NO.	PRICE	MITUTOYO MODEL #	COMPLETE SET PART NO.	PRICE
0.010"	0.0001"	0-5-0	0.7"	513-504	**10-900-9**	$147.00	513-504T	**10-934-8**	$172.00
0.020"	0.0005"	0-10-0	1.5"	513-512	**10-903-3**	170.00	513-512T	**10-935-5**	178.00
0.040"	0.001"	0-20-0	1.0"	513-518	**10-937-1**	126.00	513-518T	**10-936-3**	135.00

Mitutoyo
Universal Dial Test Indicators

- Universal application to all directions. (Not only in the direction of the measuring point, but also the direction of measurement itself can be adjusted 360° without moving the indicator.)

Basic Sets Include:
- Indicator
- Carbide contact point (0.079"/2 mm)
- Knurled clamp ring
- Dovetail stem (3/8"/8 mm)
- Spanner

Complete Sets Include:
- Indicator
- (2) Carbide contact points (0.039"/1 mm and 0.118"/3 mm)
- Swivel clamp for 0.157"/4 mm & 3/8"/8 mm dovetail
- Stem 0.157"/4 mm dia. dovetail
- Holding bar (4"/100 mm)



10-021-4

MEAS. RANGE	GRADUATION	DIAL READING	ACCURACY	MITUTOYO MODEL #	BASIC SET PART NO.	PRICE	MITUTOYO MODEL #	COMPLETE SET PART NO.	PRICE
0.030"	0.0005"	0-15-0	±0.0005"	513-302G	**10-021-4**	$401.00	513-302GT	**10-023-0**	$438.00

Mitutoyo
Horizontal Type Dial Test Indicators
20° Tilted Face

- Specially designed for easy viewing of measurements.
- Anti-magnetic.

Basic Sets Include:
- Indicator
- Carbide contact point (0.079")
- Knurled clamp ring
- Dovetail stem (3/8")

Complete Sets Include:
- Indicator
- (2) Carbide contact points (0.039" and 0.118")
- Swivel clamp for 3/8" & 5/32" dovetails
- Stem 0.157" dia. dovetail
- Holding bar (4")



10-684-9

MEAS. RANGE	GRADUATION	DIAL READING	ACCURACY	DIAL COLOR	MITUTOYO MODEL #	BASIC SET PART NO.	PRICE	MITUTOYO MODEL #	COMPLETE SET PART NO.	PRICE
0.060"	0.0005"	0-15-0	±0.0005"	White	513-442	**10-682-3**	$172.00	513-442T	**10-688-0**	$194.00
0.060"	0.0005"	0-15-0	±0.0005"	Black	513-442-06	**10-683-1**	172.00	513-442T-06	**10-689-8**	194.00
0.060"	0.0005"	0-15-0	±0.0005"	White	513-446	**10-684-9** *	229.00	513-446T	**10-690-6** *	259.00
0.060"	0.0005"	0-15-0	±0.0005"	Black	513-446-06	**10-685-6** *	229.00	513-446T-06	**10-691-4** *	259.00
0.016"	0.0001"	0-4-0	±0.0002"	White	513-443	**10-686-4**	216.00	513-443T	**10-692-2**	245.00
0.016"	0.0001"	0-4-0	±0.0002"	Black	513-443-06	**10-687-2**	216.00	513-443T-06	**10-693-0**	245.00

* Long contact points: 1.33"

MEASURING


11-297-9


11-301-9


11-305-0

Starrett® Dial Test Indicators with Swivel Head

White, Black or Red Dial Faces

- Large, 1 3/8" dial diameter.
- Contact point: 0.078" ball dia.
- Swivel head feature allows positioning from horizontal to vertical and at any angle in between 90°.
- Contact point reverses, always maintaining clockwise hand rotation.
- Furnished in fitted case.

MEAS. RANGE	GRAD.	DIAL READING	CONTACT POINT LENGTH	ATTACH-MENTS*	STARRETT MODEL #	WHITE DIAL PART NUMBER	PRICE	STARRETT MODEL #	BLACK DIAL PART NUMBER	PRICE	STARRETT MODEL #	RED DIAL PART NUMBER	PRICE
0.030"	0.0005"	0-15-0	5/8"	Yes	811-5CZ	**11-297-9**	$546.80	B811-5CZ	**11-301-9**	$546.80	R811-5CZ	**11-305-0**	$546.80
0.030"	0.0005"	0-15-0	5/8"	No	811-5PZ	**11-298-7**	484.75	B811-5PZ	**11-302-7**	484.75	R811-5PZ	**11-306-8**	484.75
0.060"	0.001"	0-30-0	1 5/16"	Yes	811-1CZ	**11-299-5**	531.95	B811-1CZ	**11-303-5**	531.95	R811-1CZ	**11-307-6**	531.95
0.060"	0.001"	0-30-0	1 5/16"	No	811-1PZ	**11-300-1**	480.55	B811-1PZ	**11-304-3**	480.55	R811-1PZ	**11-308-4**	480.55

* Attachments include (1) dovetail body clamp, (1) tool post holder, (1) swivel post snug with dovetail indicator clamp, and (1) snug and rod unit.

Starrett® Dial Test Indicators

- 3 Integral dovetails meet ISO specifications.
- Fully jeweled movement.
- Single and double revolution models available.
- Dial dia.: 1 3/8"
- Contact point reverses automatically.
- Rotatable bezel.
- Clockwise hand rotation.
- Case provided.
- Available with or without 4 attachments: Swivel clamp, Dovetail body clamp, Clamp sleeve and Holding bar.
- Contact point: 13/16", 0.080" carbide ball.
- Precision gear driven design for accurate readings.
- Metric models have yellow dial faces.



11-892-7



11-900-8



11-904-0

Inch

MEAS. RANGE	GRAD.	DIAL READING	ATTACH. INCL.	STARRETT MODEL #	WHITE DIAL PART NUMBER	PRICE	STARRETT MODEL #	BLACK DIAL PART NUMBER	PRICE	STARRETT MODEL #	RED DIAL PART NUMBER	PRICE
0.01"	0.0001"	0-5-0	No	708AZ	**11-888-5**	$329.80	B708AZ	**11-898-4**	$329.80	R708AZ	**11-902-4**	$329.80
0.01"	0.0001"	0-5-0	Yes	708ACZ	**11-889-3**	415.25	B708ACZ	**11-899-2**	415.25	R708ACZ	**11-903-2**	415.25
0.02"	0.0001"	0-5-0	No	708BZ	**11-890-1**	395.60	–	–	–	–	–	–
0.02"	0.0001"	0-5-0	Yes	708BCZ	**11-891-9**	484.00	–	–	–	–	–	–
0.03"	0.0005"	0-15-0	No	709AZ	**11-892-7**	281.05	B709AZ	**11-900-8**	281.05	R709AZ	**11-904-0**	281.05
0.03"	0.0005"	0-15-0	Yes	709ACZ	**11-893-5**	336.10	B709ACZ	**11-901-6**	342.60	R709ACZ	**11-905-7**	342.60
0.06"	0.0005"	0-15-0	No	709BZ	**11-894-3**	338.45	–	–	–	–	–	–
0.06"	0.0005"	0-15-0	Yes	709BCZ	**11-895-0**	425.75	–	–	–	–	–	–

Metric

MEAS. RANGE	GRAD.	DIAL READING	ATTACH. INCL.	STARRET MODEL #	WHITE DIAL PART NUMBER	PRICE
0.8 mm	0.01 mm	0-40-0	No	709MAZ	**11-896-8**	$342.70
0.8 mm	0.01 mm	0-40-0	Yes	709MACZ	**11-897-6**	424.00

Mitutoyo

Quick-Set Dial Test Indicators

- Perform easy and accurate measurements of narrow or deep areas, plus inside and outside diameters that dial indicators cannot access.
- No-clutch structure for automatic measuring, clockwise movement only.
- Glare-free flat crystal face with scratch resistant coating.
- One piece bezel and "crystal" design with O-ring make indicators water and dust resistant.
- Jeweled bearings for high sensitivity and quick response.
- Metric dial faces in yellow for easy identification.
- 0.079" (2 mm) dia. carbide contact point provided standard.
- Anti-magnetic.
- Series 513-412 & 513-414 have long contact points.
- Series 513-414 has long contact points and double scale spacing.



10-938-9



10-939-7



10-160-0

Basic Sets include:

- Indicator
- Carbide contact point (0.079"/2 mm)
- Knurled clamp ring
- Dovetail stem (3/8"/8 mm)

Complete Sets include:

- Indicator
- (2) carbide contact points (0.039"/1 mm and 0.118"/3 mm)
- swivel clamp for 5/32" & 3/8" dovetail.
- Stem 0.157"/4 mm dia. dovetails.
- Swivel clamp and holder bar (4"/100 mm dia.)

Inch

MEAS. RANGE	GRADUATION	DIAL READING	ACCURACY	TYPE	BASIC SET MITUTOYO® MODEL #	BASIC SET PART NUMBER	BASIC SET PRICE	COMPLETE SET MITUTOYO® MODEL #	COMPLETE SET PART NUMBER	COMPLETE SET PRICE
0.008"	0.0001"	0-4-0	±0.0001"	Horizontal	513-403	**10-938-9**	$165.00	513-403T	**10-940-5**	$193.00
0.008"	0.0001"	0-4-0	±0.0001"	Vertical	513-453	**10-301-0**	196.00	–	–	–
0.030"	0.0005"	0-15-0	±0.0005"	Horizontal	513-402	**10-939-7**	127.00	513-402T	**10-941-3**	150.00
0.030"	0.0005"	0-15-0	±0.0005"	Vertical	513-472	**10-160-0** *	141.00	–	–	–
0.030"	0.0005"	0-15-0	±0.0005"	Horizontal	513-412	**10-302-8**	181.00	513-412T	**10-304-4**	210.00
0.030"	0.0005"	0-15-0	±0.0005"	Vertical	513-452	**10-303-6**	165.00	513-452T	**10-305-1**	181.00

*Ruby contact point

Metric (mm)

MEAS. RANGE	GRADUATION	DIAL READING	ACCURACY	TYPE	BASIC SET MITUTOYO® MODEL #	BASIC SET PART NUMBER	BASIC SET PRICE	COMPLETE SET MITUTOYO® MODEL #	COMPLETE SET PART NUMBER	COMPLETE SET PRICE
0.2	0.0020	0-100-0	±0.0030	Horizontal	513-405E	**10-306-9**	$142.00	513-405T	**10-310-1**	$186.00
0.2	0.0020	0-100-0	±0.0030	Vertical	–	–	–	513-455T	**10-311-9**	217.00
0.5	0.0100	0-25-0	±0.0100	Horizontal	513-414E	**10-307-7**	158.00	513-414T	**10-312-7**	200.00
0.8	0.0100	0-40-0	±0.0080	Horizontal	513-404E	**10-308-5**	129.00	513-404T	**10-313-5**	151.00
0.8	0.0100	0-40-0	±0.0080	Vertical	–	–	–	513-454T	**10-314-3**	181.00
1.0	0.01	0-50-0	±0.0100	Horizontal	513-415E	**10-309-3**	137.00	513-415T	**10-315-0**	219.00

Inch/Metric

MEAS. RANGE	GRADUATION	DIAL READING	ACCURACY	TYPE	BASIC SET MITUTOYO® MODEL #	BASIC SET PART NUMBER	BASIC SET PRICE	COMPLETE SET MITUTOYO® MODEL #	COMPLETE SET PART NUMBER	COMPLETE SET PRICE
0.03 - 0.7"/ 0 - 0.7 mm	0.0005"/ 0.01 mm	0-15-0 0-35-0	±0.0005"	Horizontal	513-406	**10-316-8**	$148.00	513-406T	**10-317-6**	$152.00

TOP QUALITY
Quickie Vise Handles
See Pg. 212



76-425-8
76-424-1



Replacement Tips for the Most Popular Dial Test Indicators



For Mitutoyo Test Indicators - SPI Brand

0.606" Point Length

BALL SIZE	MATERIAL	PART NO.	PRICE
0.080"	Carbide	**20-302-6**	$21.30
0.039"	Steel	**20-303-4**	11.50
0.118"	Steel	**20-305-9**	11.50
0.078"	Steel	**20-304-2**	11.50

0.900" Point Length

BALL SIZE	MATERIAL	PART NO.	PRICE
0.078"	Carbide	**20-306-7**	$20.75
0.039"	Steel	**20-307-5**	20.75
0.118"	Steel	**20-308-3**	13.25

1.336" Point Length

BALL SIZE	MATERIAL	PART NO.	PRICE
0.039"	Steel	**20-309-1**	$11.50
0.118"	Steel	**20-311-7**	11.50
0.078"	Steel	**20-310-9**	11.50

For Interapid Test Indicators

Steel

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.031"	0.688"	**21-047-6**	$9.20
0.059"	0.688"	**21-048-4**	9.20
0.078"	0.688"	**21-049-2**	9.20
0.031"	0.812"	**21-050-0**	16.10
0.059"	0.812"	**21-051-8**	16.10
0.078"	0.812"	**21-052-6**	16.10

Carbide

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.015"	0.688"	**21-053-4**	$28.75
0.031"	0.688"	**21-054-2**	17.30
0.059"	0.688"	**21-055-9**	17.30
0.078"	0.688"	**21-056-7**	17.30
0.093"	0.688"	**21-057-5**	17.30
0.031"	0.812"	**21-058-3**	17.30
0.059"	0.812"	**21-059-1**	17.30
0.078"	0.812"	**21-060-9**	17.30
0.031"	1.450"	**21-061-7**	22.45
0.078"	1.450"	**21-062-5**	22.45
0.015"	1.750"	**21-063-3**	28.75
0.031"	1.750"	**21-064-1**	30.65
0.078"	1.750"	**21-065-8**	24.50
0.078"	2.750"	**21-066-6**	27.15

Ruby Tips

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.078"	0.688"	**21-067-4**	$37.40
0.078"	0.812"	**21-068-2**	37.40
0.078"	1.750"	**21-069-0**	37.40

For Tesa & BestTest Test Indicators

Steel

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.031"	0.497"	**21-113-6**	$12.65
0.039"	0.497"	**21-114-4**	12.65
0.059"	0.497"	**21-115-1**	12.65
0.078"	0.497"	**21-116-9**	12.65
0.118"	0.497"	**21-117-7**	17.30
0.031"	1.437"	**21-118-5**	25.30
0.039"	1.437"	**21-119-3**	25.30
0.078"	1.437"	**21-120-1**	40.30

Carbide

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.015"	0.497"	**21-121-9**	$36.80
0.039"	0.497"	**21-122-7**	36.80
0.078"	0.497"	**21-123-5**	36.80
0.118"	0.497"	**21-124-3**	38.35
0.015"	1.437"	**21-125-0**	36.80
0.039"	1.437"	**21-128-4**	36.80
0.078"	1.437"	**21-126-8**	36.80
0.118"	1.437"	**21-127-6**	40.30

Ruby Tips

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.078"	0.497"	**21-129-2**	$33.95
0.078"	1.437"	**21-130-0**	33.95

For Teclock Test Indicators - SPI Brand

Steel

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.039"	0.520"	**20-651-6**	$13.30
0.078"	0.520"	**20-652-4**	12.65
0.118"	0.520"	**20-653-2**	12.65
0.039"	0.671"	**20-654-0**	12.65
0.078"	0.671"	**20-655-7**	12.65
0.118"	0.671"	**20-656-5**	12.65
0.039"	1.470"	**20-657-3**	12.65
0.078"	1.470"	**20-658-1**	12.65
0.118"	1.470"	**20-659-9**	12.65

Ruby Tips

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.078"	0.671"	**20-633-4**	$37.10
0.078"	1.470"	**20-634-2**	37.10

MADE IN USA

For Peacock Test Indicators - SPI Brand

Steel

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.039"	0.665"	**20-594-8**	$12.65
0.078"	0.665"	**20-595-5**	12.65
0.118"	0.665"	**20-596-3**	12.65

Ruby Tips

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.078"	0.389"	**20-632-6**	$57.00

For Starrett Test Indicators

Steel

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.031"	0.515"	**20-686-2**	$8.05
0.078"	0.515"	**20-687-0**	8.05

Carbide

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.031"	0.515"	**20-688-8**	$36.80
0.039"	0.728"	**20-689-6**	20.75
0.078"	0.728"	**20-690-4**	20.75

For Compac Test Indicators

Steel

BALL SIZE	POINT LENGTH	PART NUMBER	PRICE
0.078"	0.572"	**20-691-2**	$24.15
0.078"	1.292"	**20-692-0**	24.15

Indicator Mounting Attachments



12-442-0

Dovetail Indicator Holder

- Attaches to any dovetail equipped indicator.
- Spring loaded holder locks in 4 quadrants.
- Spring loaded head allows many variable angle settings.
- Brass locking mechanism will not damage indicator.
- 1/4" shank with 3" reach.

DESCRIPTION	PART NO.	PRICE
Dovetail Indicator Holder	**12-442-0**	$23.35



12-443-8

Axial Support Bracket

- Movable parts allow bending for best orientation to workpiece.
- Uses dovetail, 5/32" or 1/4" stems.

DESCRIPTION	PART NO.	PRICE
Axial Support Bracket	**12-443-8**	$39.30

Holding Bar with Pin (not shown)

- Fits any height gage or column clamp that accepts 3/16" wide x 5/16" height bars.
- Removable pin is 7/32" diameter to fit the most popular clamp styles - reverses to 5/32" diameter.
- Parts area available to allow removable set-ups.
- 3" overall length.

DESCRIPTION	PART NO.	PRICE
Holding Bar with Pin	**12-445-3**	$57.55



12-441-2

Universal Clamp

- Fits all dovetail equipped indicators.
- 7/32" and 5/32" holes to accept rods and attachments.

DESCRIPTION	PART NO.	PRICE
Universal Clamp	**12-441-2**	$37.20



12-444-6

Height Gage Bar

- Fits all clamps that accept 1/4" thick by 1/2" height bars.
- 3" overall length.
- 0.220" pin diameter fits all 7/32" clamping holes.

DESCRIPTION	PART NO.	PRICE
Height Gage Bars	**12-444-6**	$48.75



20-845-4 20-846-2 20-847-0 20-848-8



Indicator sold separately

Dual Action Indicator Swivels

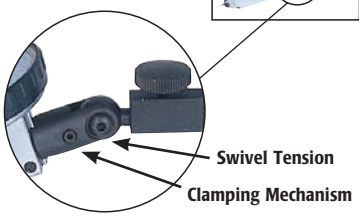
MADE IN USA

- Swivel tension and clamping mechanism adjust independently.
- Various stem sizes available to fit most standard tooling.
- Incredibly smooth swivel action using high strength engineered polymer bearings.
- Fits standard dovetail-style test indicators.
- Swivels over 240°.
- Hardened stem and dovetail pin.
- Durable corrosion-resistant coating.

DESCRIPTION	PART NO.	PRICE
8 mm Indicator Swivel	**20-844-7**	$28.25
5/32" Indicator Swivel	**20-845-4**	28.25
7/32" Indicator Swivel	**20-846-2**	28.25
3/8" Indicator Swivel	**20-847-0**	28.25
3/8" x 2" Indicator Swivel	**20-848-8**	28.25



Indicator and height gage sold separately



Swivel Tension

Clamping Mechanism



14-881-7

Swivel Joint Clamps for Test Indicators

- Adapt indicators to holding bars, height gage attachments, joint attachments, long and short arm attachments, etc.
- Overall length: 1 3/4".
- Stainless steel.

HOLDER DIA.	CLAMP DIA.	PART NUMBER	PRICE
5/16"	1/4"	**14-878-3**	$40.35
1/4"	1/4"	**14-879-1**	40.35
5/16"	5/32"	**14-880-9**	40.35
3/8"	1/4"	**14-881-7**	48.75
5/16"	5/16"	**14-882-5**	48.75
3/8"	5/16"	**14-883-3**	48.75
3/8"	3/8"	**14-884-1**	48.75
1/2"	3/8"	**14-885-8**	58.45
1/2"	5/16"	**14-887-4**	58.45



NEW

20-104-6

MADE IN USA

Swivel Joint Clamps for Test Indicators

- Adapt indicators to holding bars, height gage attachments, joint attachments, long and short arm attachments.
- Anti-vibration lock provides positive, rigid holding power.
- T-handle
- Made of steel.

HOLDER DIA.	CLAMP DIA.	OAL	PART NUMBER	PRICE
5/32"	5/16"	2 1/8"	**20-097-2**	$16.75
1/4"	1/4"	2 1/8"	**20-098-0**	16.75
1/4"	5/16"	2 1/8"	**20-099-8**	17.55
1/4"	3/8"	2 1/8"	**20-100-4**	16.75
5/16"	5/16"	2 1/8"	**20-101-2**	16.75
5/16"	3/8"	2 1/8"	**20-102-0**	17.55
3/8"	3/8"	2 1/4"	**20-103-8**	20.70
3/8"	1/2"	2 1/4"	**20-104-6**	28.75

SPI® Test Indicator Accessory

Dovetail Holder



- Black oxide finish, cold rolled steel.

SHANK DIA.	TYPE	OVERALL LENGTH	PART NUMBER	PRICE
3/8"	Axial (3 Joints)	5 1/4"	**51-130-3***	$41.20

* Also accepts 5/32" and 1/4" stems

Double-Jointed Indicator Holder



- 3-Link rod 3/8" dia., precision made, heat treated and black oxide.
- The joints are precision pivots with adjustable friction.
- Provides dovetail grip as well as firm holding 5/32" stem indicators.
- Upper link has 1/4-28 tapped hole to receive the supplied 2 1/4" extension for extra deep and extra wide reach.
- With the Double-Jointed Holder, the test indicator can be moved out of the way without losing the centerline of the set-up.
- Readily adapts to the popular INDICOL model 2 1/4" and larger.

DESCRIPTION	PART NO.	PRICE
Double-Jointed Indicator Holder	**20-880-1**	$124.00



The Indicator Tree

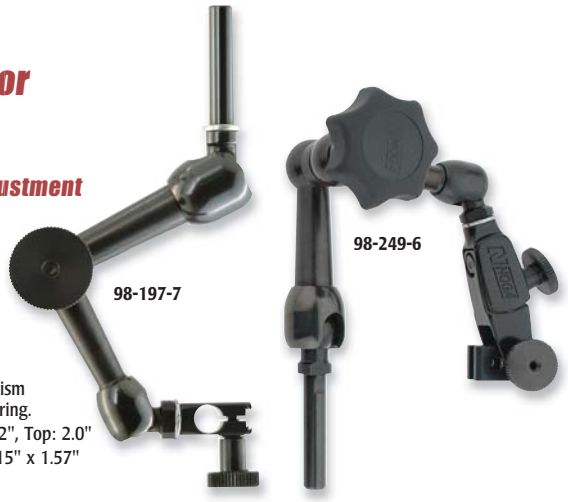
- Save time and energy.
- Now you can eliminate the step of changing the collet to accommodate the indicator stem during the process of indicating.
- Consists of 15 diameters, from 1/4" to 1 1/8" (in 1/16" increments).

DESCRIPTION	PART NO.	PRICE
for 5/32" Shank	**20-849-6**	$26.30
for 1/4" Shank	**20-850-4**	26.30

NOGA Test Indicator Holders

SIMPLY SOPHISTICATED

Standard and Universal Fine Adjustment



- Used for centering of workpieces.
- Holds indicators with stem or dovetail.
- Central locking mechanism with spring loaded bearing.
- Arm length: Bottom: 2.2", Top: 2.0"
- Centering rod dia.: 0.315" x 1.57"
- Black finish arms.

DESCRIPTION	CLAMPING DIA.	NOGA MODEL #	PART NUMBER	PRICE
Standard	3/8"	NF1018	**98-197-7**	$74.55
Universal Fine Adjustment	6, 8 mm, 3/8"	NF1022	**98-249-6**	86.30

Test Indicator Accessories

















Dovetail Adapters

DESCRIPTION	PART NO.	PRICE
Dovetail adapter with 8 mm dia. shank	**20-889-2**	$18.90
Dovetail adapter with 5/32" dia. shank	**20-890-0**	31.00
Dovetail adapter with 7/32" dia. shank	**20-891-8**	21.90
Dovetail adapter with 1/4" dia. shank	**20-892-6**	21.45
Key	**20-894-2**	2.65

Special Accessories

- Pin dia. for **20-902-3** & **20-903-1**: .220".

DESCRIPTION	PART NO.	PRICE
Swivel clamp 7/32" x 3/8" dia.	**20-901-5**	$42.55
Round bar 3/8" dia.	**20-902-3**	25.10
Rectangular Bar 1/2" x 1/4"	**20-903-1**	30.15
Short swivel support 1" x 3/8" dia.	**20-904-9**	55.45
Long swivel support 3 1/2" x 3/8" dia.	**20-905-6**	58.80
Angular clamp 1" x 3/8" dia.	**20-906-4**	61.30
Set of special accessories including fitted case	**20-912-2**	224.55



Quill Clamp Holder

- Fits milling machines with 1 7/8" dia. quills.
- Clamps directly on machine quill.
- Will not disturb working tool in the machine.
- Fits dovetail & 5/32" stem indicators.

DESCRIPTION	PART NO.	PRICE
Quill Clamp Holder	**51-155-0**	$22.99



Certified
Right Out of the Box!

SPI®

Test Indicator & Quill Clamp Holder Set

- SPI Dial Test Indicator (21-378-5):
  - 1 1/4" dial diameter
  - Range: 0.030"
  - Reading: 0-15-0
  - Contact point: 0.080" dia. X 1/2" long
  - Graduation: 0.0005"
  - 2 dovetail stems: 5/32" and 3/8" dia
  - Short Form Certificate of Calibration included.
- Quill Clamp Holder
  - Fits milling machines with 1 7/8" dia. spindle.
  - Clamps directly onto spindle o.d.
  - Has clearance to avoid a tool in collet or chuck.
  - Clamps directly onto machine quill.
  - Will not disturb working tool in the machine.

DESCRIPTION	PART NO.	PRICE
Test Indicator & Quill Clamp Holder Set	**13-726-5**	$114.80
Quill Clamp Holder Only	**13-167-2**	42.95

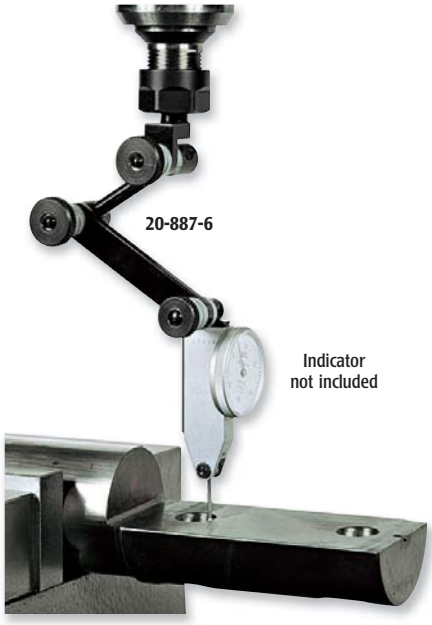
INDICOL

MINIINDICOL Universal Indicator Holders

For Dial Test Indicators

- A simplified version of the popular INDICOL.
- Two holders in one! Its parts allow it to be assembled also as a cylindrical holder.
- 1/4" shank.
- Reach from 0 to 12" diameter.
- Suitable for all indicators with 5/32" stem or dovetail.
- 3-point adjustment.

DESCRIPTION	PART NO.	PRICE
Minindicol	**20-887-6**	$87.25
Minindicol with Adjustol	**20-888-4**	114.55











INDICOL ADJUSTOL

- Universal indicator holder for Milling Machines and Jigbores.
- Ideal for BRIDGEPORTS!
- Suitable for all popular indicators with 5/32" shank or dovetail. – Extra Grip for holding 3/16" to 1/4" dia. shank optional.
- Does not disturb the working tool.
- Adapts immediately for fast and positive indicating.
- Mounts with single pressure screw directly on machine quill, bypassing the working tool.
- Frame features 3-point fixation with opposed pressure screw for rigid mounting.
- The desired stiffness is adjustable and is not altered by the pivoting of the joints.
- Reach from 0 - 12" dia. – Larger reach is possible by replacing and using a longer rod.
- Versatility in applications include: Alignment of work – Spindle perpendicularity checking – Concentricity reading.
- Indicator sold separately.

CLAMPING DIAMETER	INDICOL PART NUMBER	PRICE	ADJUSTOL PART NUMBER	PRICE
1 3/8"	**20-851-2** *	$143.70	**20-913-0**	$171.30
1 7/8"	**20-853-8** †	87.15	**20-914-8**	116.45
2"	**20-854-6**	130.50	**20-915-5**	158.50
2 1/4"	**20-861-1**	171.40	**20-916-3**	199.40
2 1/2"	**20-862-9**	187.70	**20-917-1**	212.65
2 3/4"	**20-863-7**	195.50	**20-918-9**	223.95
3"	**20-864-5**	218.00	**20-919-7**	245.75

*) for BRIDGEPORT Mill "M" Head
†) for BRIDGEPORT Mill "J", "2J", Moog, Index, Rockmill and Lagun Mills.

Adjustol

- Connection Rod with fine-adjustment. Ideal to retrofit existing Indicols.

FITS INDICOLS	PART NO.	PRICE
20-851-2 to 20-854-6	**20-857-9**	$34.30
20-861-1 to 20-864-5	**20-858-7**	38.20

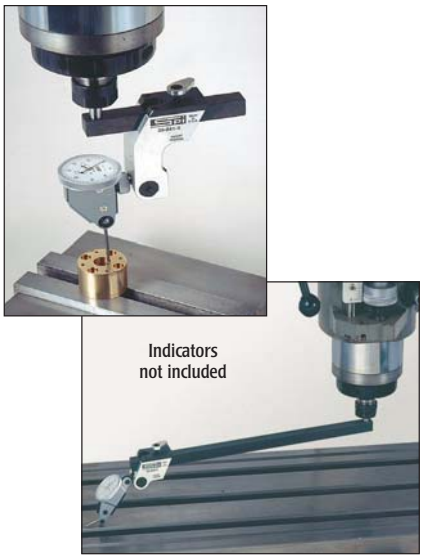
Extra Grip

- Interchangeable grip for holding 3/16" to 1/4" dia. shanks.

FITS INDICOLS	PART NO.	PRICE
Extra Grip	**20-865-2**	$21.05



MADE IN USA



Indicators not included

Classic Precision Indicator Holders

- Quick, easy & accurate adjustment, 0" to 7" and up to 12" radius with optional extension.
- Reversible holder slides full length of arm and allows fine adjustment to keep indicator on center line.
- Use with extension arm to quickly and accurately set table.
- 20-840-5 1" high vertical arm for setups with little vertical clearance for 5/32" stems.
- 20-841-3 2" high vertical arm for setups with more clearance allows better visibility of indicator for 5/32" stems.

HEIGHT	TYPE	PART NO.	PRICE
1"	Inch	**20-840-5**	$90.85
2"	Inch	**20-841-3**	90.85

Optional Extension Arm

DESCRIPTION	PART NO.	PRICE
8" Extension	**20-836-3**	$19.10
12" Extension	**20-837-1**	20.25



12-364-6

Indicator not included

Classic Sweep-It

- Attitude of the indicator does not change across the entire range.
- Eliminates the need to reposition the indicator and insures concentricity of progressive measurements.
- Directly adapts to dovetailed 5/32" shank of indicator.

MADE IN USA

SHANK	RANGE	PART NO.	PRICE
3/8"	0 - 8"	**20-757-1**	$94.85
3/8"	0 - 12"	**20-758-9**	116.80

Indicator not included



Zero-Set for Test Indicator

- "Zero-Set" is specially designed for test indicators with dovetails and functions as a quick and practical work positioning device.
- Setting up a workpiece before machining, or aligning the center of a round workpiece in relation to the cutting head, takes virtually no time with "Zero-Set."
- Attach "Zero-Set" directly to the collet, then zero-in the work position by reading the test indicator.
- The hardened clamping post consists of three O.D.'s, from top, 1/4", 3/8" and 1/2" and has hardness of approximately 58 to 60 RC.
- The illustration indicates the alignment of a workpiece in relation to the cutting head.
- It reaches anywhere within a 8" diameter and fine-adjusts about 3/8" with a large knurled knob.
- "Zero-Set" can also be adapted to transfer stands for closer control of the test indicator (in the horizontal direction).
- "Zero-Set" attachment allows for the placement of any test indicator equipped with dovetails or 1/4" posts in a multitude of positions and angles up to 90° on either side, bending both forward and backward.

DESCRIPTION	PART NO.	PRICE
Zero-Set Indicator Holder	**12-364-6**	$259.60
Holder Attachment	**12-365-3**	138.95

Spindle Squares™

A simple solution to squaring your machine. Just zero indicators on flat surface (like a granite plate), install in milling machine spindle, bring the spindle down to the table and adjust the head until both indicators read the same.

- 3/8" shank.
- Fully assembled with indicators mounted and ready for use.
- No more tramming or split reading, compensating for loose, worn gears or mirrors.
- Can also be used with a sine bar or protractor to set angle.
- Constructed of steel with precision ground contact points for durability and accuracy
- Mini inch model designed for mini-milling or table-top machines and comes in leather pouch.
- All other models furnished in fitted case.



20-910-6

DESCRIPTION	GRADUATION	DISTANCE BETWEEN CONTACT POINTS	PART NUMBER	PRICE
Standard Inch Model	0.001"	4"	**20-910-6**	$203.90
Tool Grade Inch Model	0.0005"	4"	**91-332-7**	218.60
Mini Inch Model	0.0005"	3"	**91-331-9**	213.40
Metric Model	0.01 mm	101 mm	**91-330-1**	209.00

Made in Germany

SPI® Classic

Alignment & Positioning Indicators

Dial or Electronic Model Available



13-165-6



14-476-6

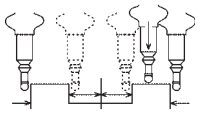
Ground Ship ONLY

- Advanced concept in finding zero, the true starting point of all 3 axis (X-Y-Z) on workpieces.
- Probe actually gets deflected in any of the 3 axes until indicator reaches centerline. At this point the workface (edge) is in direct line with the spindle.
- Radial run-out compensation.
- With the 3D tester centered in a tool holder, the workpiece edge can be positively picked up in one approach. No guessing as with electronic edge finders.
- Can be used on conductive and nonconductive workpieces
- Electrically insulated contact point for safe applications on all CNC centers and EDM machines.
- 31 mm L x 4 mm dia. stylus included.
- 3/4" shank.

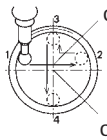
DESCRIPTION	PART NO.	PRICE
IP67 Dial Indicator	**13-165-6**	$576.75
Electronic Indicator	**14-476-6** *	731.55
31 mm Long x 4 mm dia. Stylus	**14-477-4**	59.00
56 mm Long x 6 mm dia. Stylus	**14-478-2**	83.25
Repl. Battery for 14-476-6	**07-319-7** *	2.55

*D.O.T. Regulated. Shipped via ground freight only. No collect shipments

Workpiece alignment and X-Z positioning on CNC machines



Establishing true center of bores on CNC machines



X axis = distance point 1 to point 2 / 2

Y axis = distance point 3 to point 4 / 2 = center of bore

Accessories for 98-399-9

DESCRIPTION	PART NO.	PRICE
Optional short stylus, 28 mm long with 3 mm dia. ball	**98-406-2**	$59.00
Replacement standard stylus, 41 mm long with 4 mm dia. ball	**98-407-0**	47.45
Optional long stylus, 67 mm long with 6 mm dia. ball	**98-408-8**	77.50

Spindle Square™ with 360° Rotating Indicators

Designed for CNC Mills, Safety and Convenience



91-146-1

- Ball-bearing mounting Rotating Dials eliminate Parallax.
- Includes Patent Pending Tram Clamp for traditional single dial tramming.
- Easy to read AGD 2 indicators.
- Graduation: 0.0005"
- 6.81" between indicator centers.
- 3/8" shank.
- Solid steel construction.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Spindle Square w/360° Rotating Indicators	**91-146-1**	$439.15



13-978-2

98-219-9
Super Stop
sold separately.



SPI®

CO-AX Centering Indicators

Provides a simplified method of centering a workpiece or fixture on horizontal and vertical machines. Face of indicator remains stationary in any desired position while the machine spindle rotates, leaving the operator with both hands free to accurately position the machine table.

- Length: 5 1/2"/140 mm, Shank dia.: 3/8"/10 mm, Feeler dia.: 1/8"/3 mm.
- 0.25"/6 mm off-axis measuring range.
- Dial Reading: 0 - 50
- Dial Dia.: 1.60"
- Locating accuracy within 0.0002"/0.005 mm of true center.
- Operating speed not to exceed 800 RPM.
- Capacity: 5/32" - 12"/4 - 300 mm Internal, up to 12"/300 mm external.
- Graduations: 0.0005"/0.01 mm
- Kit includes one each of all individual replacement parts listed below.

DESCRIPTION	PART NO.	PRICE
Inch Centering Indicator Kit	**13-978-2**	$222.40
Metric Centering Indicator Kit	**13-979-0**	222.40

Replacement Parts

DESCRIPTION	PART NO.	PRICE
6 Pc Feeler Set (ID, OD)	**14-137-4**	$97.65
ID Feeler, 2"/50 mm long, 4"/100 mm capacity	**14-138-2**	19.45
ID Feeler, 4"/100 mm long, 8"/200 mm capacity	**14-139-0**	19.45
ID Feeler, 6"/150 mm long, 12"/300 mm capacity	**14-140-8**	19.45
OD Feeler, 2"/50 mm long, 4"/100 mm capacity	**14-141-6**	19.45
OD Feeler, 4"/100 mm long, 8"/200 mm capacity	**14-142-4**	19.45
OD Feeler, 6"/150 mm long, 12"/300 mm capacity	**14-143-2**	19.45
Center Locating Feeler	**14-144-0**	24.15

BAYCO
Life Depends on Light™

Professional Fluorescent Work Lights

See Pg. 605


63-025-1


63-028-5


63-029-3


63-030-1


63-031-9


20-868-6


20-877-7


20-876-9

20-875-1

CO-AX Indicator

- A unique approach to quick, accurate centering in boring and milling set-ups.
- Operates at any angle from HORIZONTAL to VERTICAL without any change, and from INTERNAL to EXTERNAL diameter by simply changing the feeler.
- Indicator dial remains stationary while the machine spindle rotates, leaving the operator with both hands free to accurately position the machine table in the X-Y axis while conveniently observing the needle deflection.

Specifications

Length:	6 7/8"
Shank:	3/8" dia. x 7/8" long Metric 10 mm dia. x 22 mm long
Weight:	9 1/2 oz. net
Feeler ball:	1/8" dia.
Measuring range:	1/4" axis offset
Capacity:	Internal 5/32 - 4 1/4" dia. External 0 - 4 1/4" dia. (Can be increased to 12" dia. with accessory feeler)
Speed:	Spindle rotation up to 800 RPM
Locating accuracy:	0.0002" of true center
Initial positioning:	Within 7/16" diameter circle of true location
Graduations:	0.0005"/ 0.01 mm

- Set includes indicator, internal feeler, external feeler, restraining arm and fitted box.

DESCRIPTION	PART NO.	PRICE
CO-AX Indicator Set	**20-868-6** †	$490.00
Metric CO-AX Indicator Set	**20-877-7** *	496.50

Parts

DESCRIPTION	PART NO.	PRICE
Shaft (Inch)	**02-271-5** †	Call
Shaft (Metric)	**02-078-4** *	Call
Pivot Bracket Screw	**02-277-2**	Call
Pivot Bracket Nut	**02-280-6**	Call
Feeler Pivot Bracket	**02-281-4**	Call
Bracket Assembly	**02-282-2**	Call
Feeler Retaning Screw	**02-283-0**	Call
Bezel	**02-311-9**	Call
Crystal	**02-316-8**	Call
Restraining Arm	**02-274-9**	Call

Accessories

DESCRIPTION	MAX. RANGE	PART NO.	PRICE
Inside Feeler	4 1/4" Dia.	**20-875-1**	$22.95
Inside Feeler, Carbide	4 1/4" Dia.	**20-869-4**	47.05
Inside Feeler	8" Dia.	**20-871-0**	33.65
Inside Feeler	12" Dia.	**20-872-8**	39.85
Outside Feeler	4 1/4" Dia.	**20-876-9**	25.15
Outside Feeler, Carbide	4 1/4" Dia.	**20-870-2**	48.65
Outside Feeler	8" Dia.	**20-898-3**	39.85
Outside Feeler	12" Dia.	**20-873-6**	47.05

Super Stop

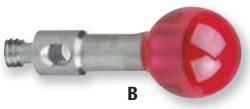
- Firmly attaches to any BRIDGEPORT-Type mill with 3 3/8" dia. quill, for convenient use with CO-AX Indicators and self-reversing Tapping Heads.

DESCRIPTION	PART NO.	PRICE
Super Stop	**98-219-9**	$97.35


98-219-9

Indicator sold separately.



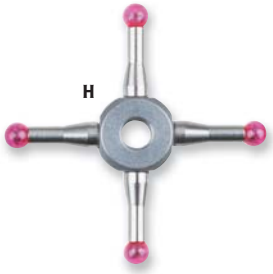










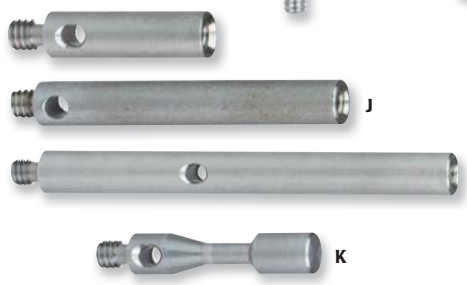


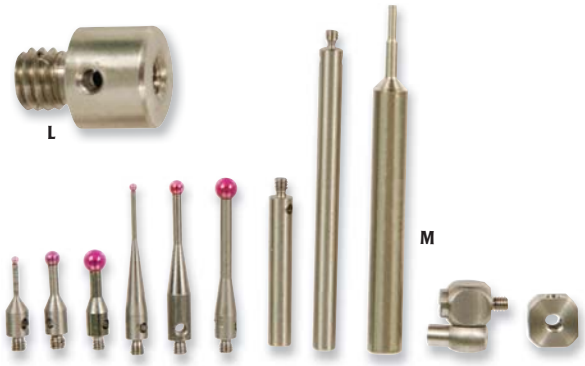


High Performance Stylus for CMM Touch Trigger Probes

- What is a stylus? The stylus mounts directly into a probe and is that part of the measuring system that makes contact with the component.
- This produces a trigger signal in the probe.
- The size and type of the stylus is determined by the application.
- Threads are M2 (2 mm).

DESCRIPTION	BALL DIA. (MM)	OAL (MM)	PHOTO CODE	PART NUMBER	PRICE
1 mm Ball x 10 mm Length - Ruby Stylus	1	10	A	**12-620-1**	$35.75
1 mm Ball x 20 mm Length - Ruby Stylus	1	20	D	**12-621-9**	39.55
2 mm Ball x 10 mm Length - Ruby Stylus	2	10	E	**14-987-2**	36.80
2 mm Ball x 20 mm Length - Ruby Stylus	2	20	E	**12-622-7**	39.55
3 mm Ball x 10 mm Length - Ruby Stylus	3	10	F	**14-988-0**	36.80
3 mm Ball x 20 mm Length - Ruby Stylus	3	20	F	**12-623-5**	39.55
4 mm Ball x 20 mm Length - Ruby Stylus	4	20	G	**12-624-3**	42.60
6 mm Ball x 10 mm Length - Ruby Stylus	6	10	B	**12-625-0**	50.45
8 mm Ball x 12 mm Length - Ruby Stylus	8	12	C	**12-626-8**	112.65
2 mm Ball x 20 mm Length x 20 mm Wide STAR Stylus	2	20	H	**12-628-4**	211.60
2 mm Ball x 20 mm Length x 30 mm Wide STAR Stylus	2	20	H	**12-629-2**	240.40
8.3mm High x 6.6 mm Wide - Cross Head Adapter M2 Threads	8.3	5		**12-630-0**	54.50
10 mm Extension Point M2 Threads		10	J	**12-631-8**	10.80
20 mm Extension Point M2 Threads		20	J	**12-632-6**	10.80
30 mm Extension Point M2 Threads		30	J	**12-633-4**	21.60
40 mm Extension Point M2 Threads		40	J	**14-983-1**	24.50
60 mm Extension Point M2 Threads		60	J	**14-984-9**	32.40
3 mm x 13 mm Cylinder M2 x 4 - Stylus		13	K	**12-634-2**	20.65
M2 Female to M3 Male		5		**14-986-4**	24.75
M3 Female to M2 Male		10	L	**14-979-9**	24.75
M2 Female to M4 Male		5	L	**14-980-7**	28.60
M4 Male to M2 Female		15	L	**14-981-5**	28.60
M3 Female to M4 male		10	L	**14-982-3**	28.60
Styli Wrench			-	**14-978-1**	10.70
11 Pc. Styli Kit			M	**14-985-6**	348.95







RENISHAW

TP20 Probe Modules

Quick Change From One Module to Another Without Re-Qualifying the CMM

- Module is held in place with a magnet and Accurately located by kinematic seat.
- Select the correct force module for the styli length and weight.
- TP20 is a 5-way or 6-way kinematic touch trigger probe.
- TP20 has a 2 piece design comprised of a probe body and detachable stylus module(s) which gives the ability to change stylus configurations either manually or automatically without re-qualification of the stylus tips.

TYPE	OAL (MM)	ACCURACY	RENISHAW MODEL #	PART NUMBER	PRICE
Standard Force Module for TP20 Probe or MH20 & MH20i Heads	38	0.35 Micron	A-1371-0270	**23-017-7**	$1,181.45
Low Force Module for TP20 Probe	38	0.35 Micron	A-1371-0392	**23-018-5**	1,181.45
Medium Force Module for TP20 Probe or MH20 & MH20i Heads	38	0.50 Micron	A-1371-0271	**23-019-3**	1,181.45
Extended Force Module for TP20 Probe or MH20 & MH20i Heads	38	0.65 Micron	A-1371-0272	**23-020-1**	1,181.45
50 mm Extended Force Module for TP20 Probe	88	0.35 Micron	A-1371-0430	**23-021-9**	1,429.90
75 mm Extended Force Module for TP20 Probe	113	0.35 Micron	A-1371-0431	**23-022-7**	1,475.55
6-Way Module for TP20 Probe	42	0.80 Micron	A-1371-0419	**23-023-5**	1,574.45



23-053-2



23-086-2



23-111-8

RENISHAW

Coordinate Measuring Machine Probes

Ruby Styli

- 3-Point Self-Centering Internal Micrometer for Precise Direct Measurement of bore diameters.
- Ratchet Stop for uniform measuring pressure and highest

M2 Thread

BALL DIA. (MM)	OAL (MM)	MATERIAL	RENISHAW MODEL #	PART NUMBER	PRICE
0.3	10.0	Carbide	A/5000/7800	**23-024-3**	$148.40
0.5	10.0	Carbide	A/5000/7805	**23-025-0**	120.35
0.7	10.0	Carbide	A/5000/7801	**23-026-8**	112.30
1.0	10.0	Carbide	A/5000/7806	**23-027-6**	42.80
1.0	20.0	Carbide	A/5003/0033	**23-028-4** *	73.55
1.0	20.0	Carbide	A/5000/7808	**23-029-2** †	65.50
1.0	27.0	Carbide	A/5000/8663	**23-030-0**	112.30
1.5	10.0	Stainless Steel	A/5000/7802	**23-031-8**	29.40
1.5	20.0	Carbide	A/5003/0034	**23-032-6**	73.55
1.5	30.0	Carbide	A/5003/0035	**23-033-4**	50.80
2.0	10.0	Stainless Steel	A/5000/7807	**23-034-2**	29.40
2.0	20.0	Stainless Steel	A/5000/3603	**23-035-9**	33.45
2.0	30.0	Carbide	A/5003/0036	**23-036-7**	58.85
2.0	40.0	Carbide	A/5003/0037	**23-037-5**	65.50
2.5	10.0	Stainless Steel	A/5000/7803	**23-038-3**	29.40
2.5	20.0	Stainless Steel	A/5000/7804	**23-039-1**	33.45
2.5	30.0	Carbide	A/5003/0038	**23-040-9**	58.85
2.5	40.0	Carbide	A/5003/0039	**23-041-7**	65.50
3.0	10.0	Stainless Steel	A/5000/3604	**23-042-5**	29.40
3.0	20.0	Stainless Steel	A/5000/4160	**23-043-3**	33.45
3.0	30.0	Carbide	A/5003/0040	**23-044-1**	58.85
3.0	35.0	Carbide	A/5003/0041	**23-045-8**	$65.50
3.0	50.0	Carbide	A/5003/0042	**23-046-6**	58.85
3.0	50.0	Ceramic	A/5003/0064	**23-047-4**	93.60
4.0	10.0	Stainless Steel	A/5000/4154	**23-048-2**	29.40
4.0	20.0	Stainless Steel	A/5000/4161	**23-049-0**	33.45
4.0	30.0	Carbide	A/5003/0043	**23-050-8**	58.85
4.0	40.0	Carbide	A/5003/0044	**23-051-6**	65.50
4.0	50.0	Carbide	A/5003/0045	**23-052-4**	65.50
4.0	50.0	Carbon Fiber	A/5003/2285	**23-053-2**	140.40
4.0	50.0	Ceramic	A/5003/0065	**23-054-0**	93.60
5.0	10.0	Stainless Steel	A/5000/4155	**23-055-7**	48.15
5.0	20.0	Carbide	A/5003/0046	**23-056-5**	58.85
5.0	30.0	Carbide	A/5003/0047	**23-057-3**	65.50
5.0	40.0	Carbide	A/5003/0048	**23-058-1**	70.90
5.0	50.0	Carbide	A/5003/0049	**23-059-9**	70.90
5.0	50.0	Ceramic	A/5003/0066	**23-060-7**	120.35
5.0	50.0	Carbon Fiber	A/5000/2286	**23-061-5**	147.05
6.0	10.0	Stainless Steel	A/5000/4156	**23-062-3**	52.15
6.0	50.0	Carbon Fiber	A/5003/2287	**23-063-1**	153.80
8.0	11.0	Stainless Steel	A/5000/4158	**23-064-9**	96.25
–	–	–	–	–	–

* Effective working length 12.5 mm † Effective working length 7 mm

M3 Thread

BALL DIA. (MM)	OAL (MM)	MATERIAL	RENISHAW MODEL #	PART NUMBER	PRICE
0.5	21.0	Carbide	A/5000/7632	**23-065-6**	$131.00
1.0	21.0	Stainless Steel	A/5000/3551	**23-066-4**	42.80
1.5	20.0	Carbide	A/5003/0050	**23-067-2**	58.85
1.5	30.0	Carbide	A/5003/0051	**23-068-0**	65.50
2.0	21.0	Stainless Steel	A/5000/3552	**23-069-8**	42.80
2.0	30.0	Carbide	A/5003/0052	**23-070-6**	58.85
2.0	40.0	Carbide	A/5003/0053	**23-071-4**	65.50
2.5	21.0	Carbide	A/5003/0054	**23-072-2**	58.85
2.5	30.0	Carbide	A/5003/0056	**23-073-0**	58.85
2.5	40.0	Carbide	A/5000/3553	**23-074-8**	65.50
3.0	21.0	Stainless Steel	A/5003/0057	**23-075-5**	42.80
3.0	30.0	Carbide	A/5003/0058	**23-076-3**	58.85
3.0	40.0	Carbide	A/5003/0067	**23-077-1**	65.50
3.0	50.0	Ceramic	A/5003/0067	**23-078-9**	$93.60
3.0	50.0	Carbide	A/5003/0059	**23-079-7**	70.90
4.0	21.0	Stainless Steel	A/5000/7606	**23-080-5**	42.80
4.0	31.0	Stainless Steel	A/5000/3554	**23-081-3**	42.80
4.0	40.0	Carbide	A/5003/0060	**23-082-1**	58.85
4.0	50.0	Ceramic	A/5003/0068	**23-083-9**	93.60
4.0	50.0	Carbide	A/5003/0061	**23-084-7**	70.90
5.0	21.0	Stainless Steel	A/5000/7630	**23-085-4**	42.80
5.0	31.0	Stainless Steel	A/5000/7648	**23-086-2**	42.80
5.0	40.0	Carbide	A/5003/0062	**23-087-0**	70.90
5.0	50.0	Carbide	A/5003/0063	**23-088-8**	70.90
5.0	50.0	Ceramic	A/5003/0069	**23-089-6**	93.60
–	–	–	–	–	–

M4 Thread

BALL DIA. (MM)	OAL (MM)	MATERIAL	RENISHAW MODEL #	PART NUMBER	PRICE
1.0	19.5	Steel	A/5000/7545	**23-090-4**	$116.30
2.0	19.0	Steel	A/5000/7547	**23-091-2**	101.65
3.0	18.5	Steel	A/5003/7549	**23-092-0**	80.40
4.0	18.0	Steel	A/5003/7551	**23-093-8**	80.40
5.0	18.0	Steel	A/5000/7553	**23-094-6**	80.40
5.0	100.0	Steel	A/5003/7522	**23-095-3**	105.65
6.0	17.5	Steel	A/5000/7555	**23-096-1**	$93.10
6.0	50.0	Ceramic	A/5000/3709	**23-097-9**	129.65
6.0	100.0	Ceramic	A/5000/3712	**23-098-7**	145.75
7.0	16.0	Steel	A/5000/7557	**23-099-5**	105.65
8.0	50.0	Ceramic	A/5003/7795	**23-100-1**	144.40
8.0	100.0	Ceramic	A/5003/7796	**23-101-9**	180.50

Stylus Extensions

OAL (MM)	MATERIAL	RENISHAW MODEL #	PART NUMBER	PRICE
10	Steel	M/5000/3647	**23-108-4**	$17.40
20	Stainless Steel	M/5000/3648	**23-109-2**	17.40
40	Steel	M/5000/7779	**23-110-0**	24.05
50	Ceramic	A/5003/0072	**23-111-8**	80.25
90	Carbon Fiber	A/5003/2283	**23-112-6**	147.05
30	Ceramic	A/5000/7754	**23-113-4**	68.15
50	Ceramic	A/5000/7755	**23-114-2**	80.25

Accessories

DESCRIPTION	RENISHAW MODEL #	PART NUMBER	PRICE
SC6 4-Way Stylus	A/500/8395	**23-102-7**	$88.10
1mm x 8mm x 15mm Adapter	A/5000/8876	**23-103-5**	247.35
SA3 M3/M2 x 5.00mm Adapter	M/5000/4163	**23-104-3**	16.05
SE24 M4/M3 x 100.00mm Adapter	A/5000/7753	**23-105-0**	139.00
TS27R Brake Protect Link	M/5003/5136	**23-106-8**	34.40
S7 M3/M2 Stylus Tool	M/5000/3540	**23-107-6**	12.40



98-335-3

SPI® Vacuum Base

- 3½" dia. vacuum base with powerful suction.
- On/Off lever for easy attaching or removing.
- Holds firmly to any smooth, non-porous surface.
- Ideal for use on granite surface plates.
- Threaded mounting hole to accept Bestyet Indicator Stand and all other fixation arms with 8 x 1.25 mm thread.

DESCRIPTION	PART NO.	PRICE
Vacuum Base	**98-335-3**	$116.80



95-743-1

NOGA SIMPLY SOPHISTICATED Vacuum Base

- Powerful suction.
- Ideal for use on granite surface plates.
- On/Off lever for easy attaching or removing.
- Holds firmly to any smooth, nonporous surface.
- Threaded mounting hole to accept arms with 8 x 1.25 mm thread.
- Noga model # DG0040.

DESCRIPTION	PART NO.	PRICE
Vacuum Base	**95-743-1**	$76.90

Magnetic Base Indicator Holder & Sets

- Powerful magnetic pull.
- Universal design features six different locations for mounting accessories.
  - Three ¼" x 20 tapped holes.
  - One 10 – 32 tapped hole.
  - One ⅜" mounting hole.
  - One V-Shaped mounting hole.
- Zinc die cast housing.
- Size approx 4½" x 1" x 1¼"
- Dial indicators furnished are 0.001" Grad. AGD 2 type.
- D.O.T. Regulated. Shipped via ground freight only.



52-751-5

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Multi-Use Magnetic Base (Base Only)	**52-751-5**	$12.20
Base with .5" Imported Dial Indicator	**52-752-3**	23.05
Base with 1" Imported Dial Indicator	**52-753-1**	22.40
Base with 2" Imported Dial Indicator	**52-754-9**	43.75



Ground Ship ONLY



SPI® MIGHTY MAG

- 4-way measurement: inside, outside, depth and step.
- Precision ground stainless steel construction.
- Satin chrome finish with etched graduations.
- Available in models with single set screw, double set screw with fine adjustment, heavy duty and thumb lock.
- Indicators include a Certificate of calibration traceable to NIST.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Mighty Mag	**98-279-3**	$26.95
Mighty Mag with 0.250" Travel Indicator 22-297-6	**13-998-0**	65.30
Mighty Mag with 0.500" Travel Indicator 22-308-1	**98-265-2**	52.00
Mighty Mag with 1.00" Travel Indicator 22-300-8	**98-266-0**	46.50
Mighty Mag with 2.00" Travel Indicator 22-310-7	**13-997-2**	85.25

Shear-Loc® Thumb Screw Knobs

See Pgs. 294 - 295

Make your own Thumb Screws... INSTANTLY

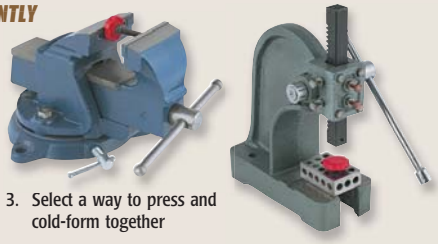
1. Select a standard socket head cap screw



2. Select a standard Shear-Loc knob



3. Select a way to press and cold-form together



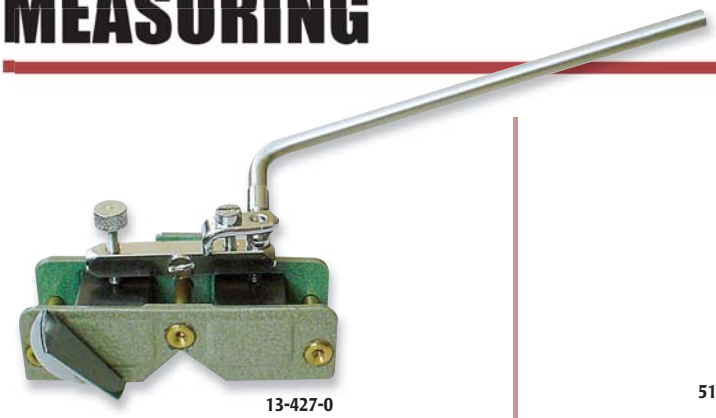
4. Your instant thumb screw



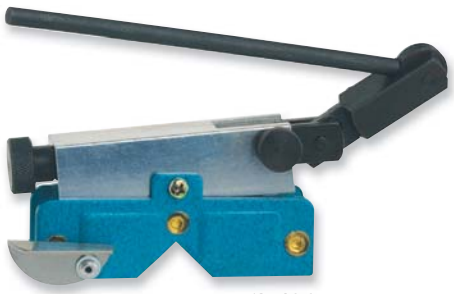


99-622-3

THE ORIGINAL QUALITY Since 1969 INSTANT THUMB SCREW



13-427-0



13-428-8

Ground Ship ONLY



13-429-6

Magnetic Base Indicator Holders & Set

- Full magnetic base: 3 1/2" L x 1 1/8" W x 1" H (13-428-8 is 1 1/2" H).
- Holds most any type dial or test indicators.
- Large 1/4" lug back type indicators mount in special links for more flexible positioning.
- Precision lateral adjustment enables better zero settings.
- Magnetic pull over 50 lbs.
- D.O.T. Regulated. Shipped via ground freight only.

Base w/Side Arm (13-427-0):

- Includes 6" L x 1/4" dia. non-magnetic stainless steel adjustable rod; fine precision adjustment controlled by thumb screw.

Magnetic Base w/Indicator (13-429-6) Includes:

- Magnetic base (13-426-2)
- 1" Dial Indicators (51-483-6) 0.001" graduations, 1-100 dial reading.

DESCRIPTION	PART NO.	PRICE
Base Only	**13-426-2**	$24.10
Base w/Side Arm	**13-427-0**	48.95
Base w/Adjustable Arm	**13-428-8**	55.83
Base w/Indicator	**13-429-6**	43.18



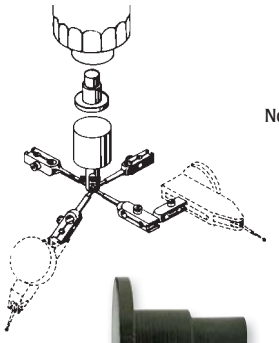
51-559-3

Ground Ship ONLY

Universal Magnetic Indicator Holder

- Fine adjustment clamp.
- Dovetail clamp for test indicator.
- 1/4" holes for 1/4" stem indicator.
- All knurled knobs and lock screws.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Universal Magnetic Indicator Holder	**51-559-3**	$30.10



98-297-5



98-298-3



Indicator Not Included

98-296-7

Ground Ship ONLY

Industrial Quality

Universal Indicator Holder with Magnetic Base

- Universal swivel with friction movement.
- Powerful permanent magnet.
- Overall height: 3 3/4".
- This holder gets into tight spots without clamps.
- Clamp indicator with either dovetail or 5/32" dia. stem.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Universal Indicator Holder with Magnetic Base	**98-296-7**	$67.20

Accessories

DESCRIPTION	PART NO.	PRICE
Mill Adapter with 3/8" and 1/2" dia. steps	**98-297-5**	$13.80
5/32" Stem Adapter with 5/32" and 1/4" dia. holes and dovetail	**98-298-3**	22.50
Universal Indicator Holder with Magnetic Base, including Mill Adapter and Stem Adapter as above	**98-299-1**	87.95



13-607-7

Ground Ship ONLY

SPI®

Fine Quality Magnetic Base Holder

For Test Indicators and Other Applications

- Adjustable post assembly swivels into a 40° desired position and has a fine adjusting screw for final setting.
- Can also be used with inspection magnifiers, mirrors, safety shields, oil sprays, air lines, etc.
- Permanent magnetic base.
- 5 1/4" fine pivot adjustment post.
- Base Diameter: 1 1/4"
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Fine Quality Magnetic Base	**13-607-7**	$40.35



Economy Magnetic Bases

- Single Universal Rod has 3 diameters to permit mounting popular indicators without changing rods.
- Full 360° swivel.
- Non-magnetic ball seat is riveted directly to the pole piece for permanent anchorage and lifetime rigidity.
- Non-breakable plastic base.
- Strong magnetic pull. Style A has a 44 lb. pull. Style B has a 99 lb. pull.

DESCRIPTION	PART NO.	PRICE
Style A	**50-281-5**	$30.50
Style B	**50-282-3**	54.95



brown & sharpe

Miti-Mite Magnetic Base Indicator Holders

with "V" Vase for Mounting Round Parts

Fixed Upright Post

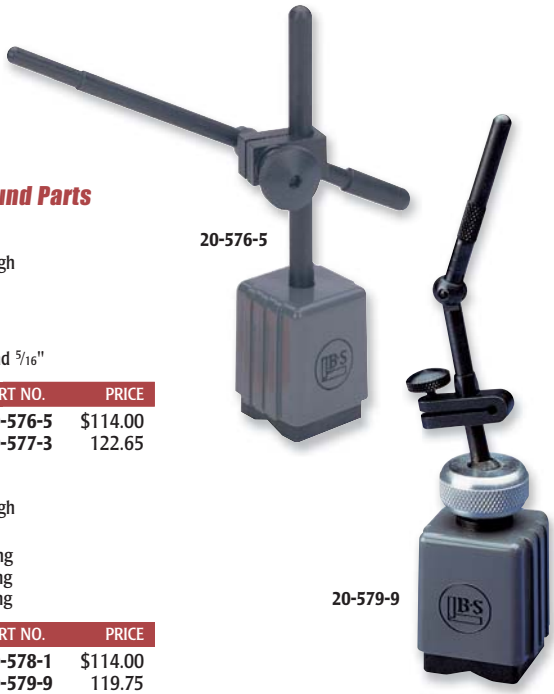
- Base dimensions: 1¼" Square x 1¾" High
- Post Dia.: 5/16"
- Tool Post: 5.25"
- Swivel Clamp Hole: ¼" dia.
- 4.5" Long Stepped Rod: dia. 7/32", ¼" and 5/16"

DESCRIPTION	MODEL #	PART NO.	PRICE
w/o Fine Adjustment	599-7762	**20-576-5**	$114.00
w/Fine Adjustment	599-7763	**20-577-3**	122.65

Ball & Socket Post

- Base dimensions: 1¼" Square x 1¾" High
- Tool Post: 5"
- Includes Three Posts: 7/32" dia. x 1½" long
  7/32" dia. x 4⅜" long
  5/16" dia. x 1½" long

DESCRIPTION	MODEL #	PART NO.	PRICE
w/o Fine Adjustment	599-7760	**20-578-1**	$114.00
w/Fine Adjustment	599-7761	**20-579-9**	119.75



SPI®

Magnetic Stands

Will accommodate dial or test indicators with 5/32", 5/16" and 3/8" dia. stems or with ¼" lug-nut mount.

- Base with V-shape and outside flats for use on round or flat surfaces.
- Models with or without fine adjustment.
- Pull: 175 lbs.
- On/Off lever.
- D.O.T. Regulated. Shipped via ground freight only.

MAGNETIC BASE L X W X H	OVERALL HT.	FINE ADJ.	PART NUMBER	PRICE
2¼" x 2" x 2⅛"	9"	No	**14-400-6**	$46.50
2¼" x 2" x 2⅛"	9"	Yes	**14-401-4**	54.85
4½" x 2" x 2⅛"	17"	Yes	**14-413-9**	131.15
2¼" x 2" x 2⅛"	–	–	**14-402-2**	35.80

Replacement Parts

DESCRIPTION	PART NO.	PRICE
Main post 0.472" dia.	**98-252-0**	$8.65
Dovetail Holding Rod with Fine Adjustment	**98-253-8**	15.60
Universal Clamp for Main Post	**98-254-6**	14.10
Holding Rod 0.394" Dia.	**98-255-3**	7.65
Holding Rod with Fine Adjustment and Universal Clamp	**98-256-1**	15.50
Universal Clamp for Holding Rod	**98-258-7**	15.75



On/Off Powerful Magnetic Base Indicator Holders

- Accepts all AGD indicators with lug backs.
- Smooth on/off switch.
- Base can be positioned horizontal or vertical.
- "V" groove for holding round parts.
- Chrome plated rods and column.
- D.O.T. Regulated. Shipped via ground freight only.

MAG. PULL (LBS)	ROD LENGTH	MAGNETIC BASE L X W X H	FINE ADJ.	PART NUMBER	PRICE
175	8.85"	2¾" x 2" x 2⅛"	Yes	**51-707-8**	$43.20
130	6.92"	2½" x 2" x 2⅛"	No	**51-708-6**	30.50
130	6.92"	2½" x 2" x 2⅛"	Yes	**51-169-1**	35.55

Chemical Etching Pen

See Pg. 372



Mitutoyo
Magnetic Base Stands & Indicator Set



10-601-3

Ground Ship ONLY

- Will hold all AGD dial indicators, test Indicators and probes with 3/8" diameter shank or lug back with 1/4" diameter mounting hole.
- On/Off switch
- With 6" rod and universal clamp.
- 132 lb. magnetic pull.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
Magnetic Base Stand	7010S	**10-600-5**	$128.00
Magnetic Base Stand with Fine Adjustment	7011BN	**10-601-3**	145.00
Magnetic Base Stand Set: with 10-600-5 Stand, plus 0 - 1" Dial Indicator with 0.001" Graduations	7046	**10-602-1**	221.00

Magnetic Vee Base

- On and off lever releases magnet, base doesn't have to be pulled off, no risk of marring polished surfaces.
- M8 x 1.25 threaded hole.
- Magnetic pull: 130 Lbs.
- Dimensions: 2 1/2" L x 2" W x 2 1/8" H.
- D.O.T. Regulated. Shipped via ground freight only.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Magnetic Vee Base	**52-750-7**	$18.55



52-750-7



82-466-4



82-467-2

NOGA SIMPLY SOPHISTICATED

Magnetic Bases
Compatible with Noga Arms

- On/Off lever.
- M8 x 1.25 threaded hole.
- D.O.T. Regulated. Shipped via ground freight only.

MAGNETIC BASE L X W X H	MAG. PULL (LBS.)	NOGA MODEL #	PART NUMBER	PRICE
2.36" x 1.97" x 2.17"	175	DG0036	**82-466-4**	$42.70
2.95" x 1.97" x 2.17"	225	DG0038	**82-467-2**	62.30



14-239-8

Ground Ship ONLY


15-835-2

SPI®
Magnetic Base Holders
with Articulating Arms

- Arms have 3 articulating joints that can be locked with a single hand knob.
- Use with 3/8" and 8 mm stem diameter indicators and dovetails.
- Magnetic bases have On/Off switch.
- D.O.T. Regulated. Shipped via ground freight only.

BASE L.	BASE W.	BASE HT.	ARM L.	MAGNETIC PULL (LBS.)	PART NUMBER	PRICE
1.42"	1.18"	1.38"	7"	72	**14-237-2**	$90.35
2.36"	2.00"	2.17"	11"	180	**14-238-0**	113.20
2.36"	2.00"	2.17"	13 3/8"	180	**14-239-8**	136.10
4.77"	1.98"	2.19"	25"	286	**15-835-2**	259.70

SPI®
Test & Travel Indicator Magnetic Bases


15-837-8



Indicators Not Included

15-838-6

Ground Ship ONLY

- Indicator dovetail clamping mechanism.
- Dial gauges held by the 3/8" (8 mm) diameter stem or by the lug back.
- Rotary on/off.
- D.O.T. Regulated. Shipped via ground freight only.

BASE L.	BASE W.	BASE HT.	ARM L.	MAGNETIC PULL (LBS.)	PART NUMBER	PRICE
2.36"	2"	2.16"	7.09"	176	**15-836-0**	$31.25
2.36"	2"	2.16"	7.99"	176	**15-837-8**	35.70
2.87"	2"	2.16"	9.84"	220	**15-838-6**	40.20
4.61"	2"	2.16"	13.78"	220	**15-839-4**	63.40

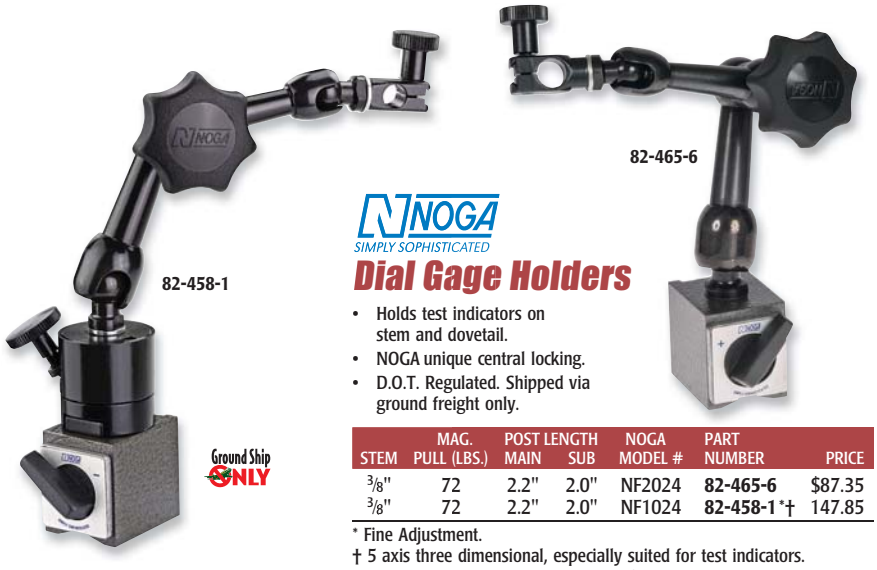
NOGA
SIMPLY SOPHISTICATED

Magnetic Base Indicator Holders

- Powerful On/Off magnetic base.
- Fine adjustment on top arm (95-741-5) or on base (95-740-7 and 95-742-3).
- Holds 6 mm, 8 mm, 3/8", dovetail and lugback.
- 95-740-7 arm length: Bottom: 4.72", Top: 4.33"
- 95-741-5 arm length: Bottom: 7.99", Top: 6.89"
- 95-742-3 arm length: Bottom: 10.24", Top: 8.86"
- D.O.T. Regulated. Shipped via ground freight only.



BASE WIDTH	BASE LENGTH	BASE HEIGHT	MAGNETIC PULL (LBS.)	NOGA MODEL #	PART NUMBER	PRICE
1.18"	1.57"	1.38"	70	PH3100	**95-740-7**	$43.75
1.97"	2.36"	2.17"	170	PH6400	**95-741-5**	84.00
1.97"	2.76"	2.17"	220	PH4016	**95-742-3**	91.10



NOGA
SIMPLY SOPHISTICATED

Dial Gage Holders

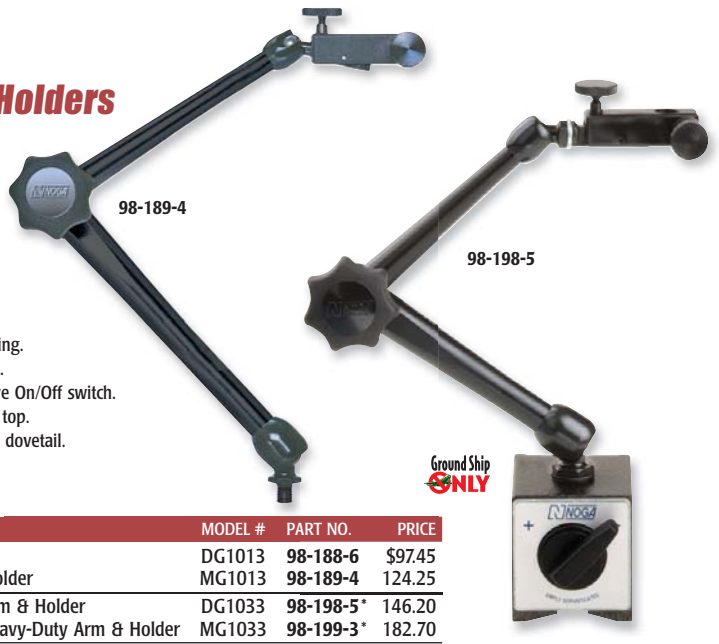
- Holds test indicators on stem and dovetail.
- NOGA unique central locking.
- D.O.T. Regulated. Shipped via ground freight only.

STEM	MAG. PULL (LBS.)	POST LENGTH MAIN	POST LENGTH SUB	NOGA MODEL #	PART NUMBER	PRICE
3/8"	72	2.2"	2.0"	NF2024	**82-465-6**	$87.35
3/8"	72	2.2"	2.0"	NF1024	**82-458-1** *†	147.85

* Fine Adjustment.
† 5 axis three dimensional, especially suited for test indicators. Assembly swivels on base a full 360°.

NOGA
SIMPLY SOPHISTICATED

Dial Gage Holders
For AGD or Test Indicators



- Unique central locking.
- 3-D arm movement.
- Magnetic bases have On/Off switch.
- Fine adjustment on top.
- Holds 3/8" stem and dovetail.

DESCRIPTION	MODEL #	PART NO.	PRICE
Dial Gage Holder	DG1013	**98-188-6**	$97.45
Heavy-Duty Gage Holder	MG1013	**98-189-4**	124.25
Magnetic Base w/Arm & Holder	DG1033	**98-198-5***	146.20
Magnetic Base w/Heavy-Duty Arm & Holder	MG1033	**98-199-3***	182.70

*D.O.T. Regulated. Shipped via ground freight only.



NOGA
SIMPLY SOPHISTICATED

Flexible Magnetic Mini-Base

- Firmly attach to any steel surface.
- Central-locking knob.
- 5" reach.
- Magnetic pull: 63 lbs.
- Fine adjustment at the base of arm.
- Holds indicators with dovetails and 3/8" dia. stems.
- Noga model #NF1033.

DESCRIPTION	PART NO.	PRICE
Magnetic Mini-Base 2 3/8" x 1 1/4" x 5/8" with powerful permanent magnet (magnetizes at bottom and both ends)	**98-277-7**	$131.25



Flexible Magnetic Stand

- Instant fixation in any position with a single centralized knob.
- Total reach: 10 1/2".
- Accepts indicators with dovetails and 3/8" dia. stems.
- Magnetic base 2.37" x 2.00" x 2.12" with On/Off switch.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Flexible Magnetic Stand	**51-202-0**	$98.75



NOGA
SIMPLY SOPHISTICATED

Dial Gage Holders

With Top Mounted or Base Fine Adjustment

- Unique central locking mechanism with spring loaded bearing.
- Many arm lengths to choose from.
- Magnetic bases have On/Off switch.
- D.O.T. Regulated. Shipped via ground freight only.

Ground Ship ONLY

A. 95-729-0 & 95-736-5

- Universal swivel clamp holds 3/8", 8 mm and 6 mm stem and dovetails.
- Arm length: Bottom: 5.26", Top: 3.98"
- 95-736-5 same as 95-729-0 without base.

B. 95-730-8 & 95-737-3

- Universal swivel clamp holds 3/8", 8 mm and 6 mm stem and dovetails.
- Arm length: Bottom: 5.26", Top: 5.24"
- 95-737-3 same as 95-730-8 without base.

C. 95-731-6

- Holds 3/8" stem and dovetail.
- Arm length: Bottom: 4.33", Top: 3.98"

D. 95-732-4

- Holds 3/8" stem and dovetail.
- Arm length: Bottom: 5.26", Top: 5.24"

E. 95-733-2 & 95-738-1

- Universal swivel clamp holds 3/8", 8 mm and 6 mm dovetails.
- Arm length: Bottom: 12.80", Top: 9.50"
- 95-738-1 same as 95-733-2 without base.

F. 95-734-0 & 95-739-9

- Universal swivel clamp holds 3/8", 8 mm and 6 mm dovetails.
- Arm length: Bottom: 2.20", Top: 2.00"
- 95-739-9 same as 95-734-0 without base.

G. 95-735-7

- Holds 3/8" stem and dovetail.
- Arm length: Bottom: 2.20", Top: 2.00"

H. 95-744-9

- Universal swivel clamp holds 3/8", 8 mm and 6 mm stem and dovetails.
- Arm length: Bottom: 6.43", Top: 4.44"

I. 95-745-6

- Universal swivel clamp holds 3/8", 8 mm and 6 mm stem and dovetails.
- Arm length: Bottom: 4.33", Top: 3.98"

KEY	HOLDER TYPE	MAGNETIC PULL (LBS.)	FINE ADJ.	NOGA MODEL #	PART NUMBER	PRICE	HOLDER ONLY, NO BASE MODEL #	PART NO.	PRICE
A	Standard	175	Top	DG61003	**95-729-0**	$136.00	DG60103	**95-736-5**	$125.45
B	Heavy-Duty	175	Top	MG61003	**95-730-8**	171.50	MG60103	**95-737-3**	150.20
C	Standard	65	Base	DG10533	**95-731-6**	149.00	–	–	
D	Heavy-Duty	175	Base	MG10533	**95-732-4**	183.30	–	–	
E	Big Boy	286	Top	MA61003	**95-733-2**	270.80	MA60103	**95-738-1**	229.45
F	NogaFlex	70	Top	NF61003	**95-734-0**	108.80	NF60103	**95-739-9**	97.00
G	NogaFlex	70	Base	NF10433	**95-735-7**	120.65	–	–	–
H	Heavy-Duty	176	Top	MG71003	**95-744-9**	190.90	–	–	–
I	Standard	176	Top & Base	DG6160	**95-745-6**	147.20	–	–	

Starrett®
Universal Indicator Holder



- With fine-adjustment, magnetic base, indicator holding rod, and snug.
- Three pivots.
- Working area is within a hemisphere having a radius of approximately 12".
- Will hold indicators with 3/8" dia. stem, 1/4" or 3/16" shank, standard dovetail mount or body clamp.
- Starrett® model #657-1.

DESCRIPTION	PART NO.	PRICE
Starrett® Universal Incicator Holder	**10-341-6**	$407.05


13-665-5


15-480-7


Indicator not included

98-354-4


98-357-7

Ground Ship ONLY

SPI® Classic

Bestyet Flexible Indicator Stands & Sets

with Magnetic or Vacuum Base

- Instant fixation in any position.
- Single knob controls all three joints.
- Heavy-duty mechanical lock.
- Sturdy aluminum arms for maxium rigidity.
- Fine adjustment.
- Fits dovetail and 3/8" stem indicators.
- Mounting thread M8 x 1.25 mm.
- Magnetic base has 175 lbs. of pull, vacuum base has 3 1/2" dia.
- Standard models have chrome-plated arm sections; premium models have red anodized arm sections.
- Indicators in sets include a Certificate of calibration traceable to NIST.
- D.O.T. Regulated. Shipped via ground freight only.

Stands

Strato

DESCRIPTION	PART NO.	PRICE
6 1/2" w/Magnetic Base	**98-354-4**	$220.20
9 3/8" w/Magnetic Base	**98-363-5**	215.50
9 3/8" w/o Magnetic Base	**98-359-3**	192.40
12" w/Magnetic Base	**98-358-5**	254.30
12" w/o Magnetic Base	**98-334-6**	233.55
12" w/Vacuum Base	**98-333-8**	325.85

Standard

DESCRIPTION	PART NO.	PRICE
7" w/Magnetic Base	**98-357-7**	$169.20
7" w/o Magnetic Base	**98-356-9**	150.15
10" w/Magnetic Base	**98-290-0**	206.90
10" w/o Magnetic Base	**98-291-8**	174.60
Vacuum Base	**98-335-3**	116.80
Magnetic Base only	**14-402-2**	35.80

Sets

Strato

DESCRIPTION	SPI INDICATOR TYPE	MEAS. RANGE	GRADU-ATION	PART NUMBER	PRICE
12" w/Magnetic Base & Indicator	Dial (22-300-8)	1.000"	0.001"	**15-476-5**	$286.65
12" w/Vacuum Base & Indicator	Dial Test (21-378-5)	0.030"	0.0005"	**13-664-8**	397.30
12" w/Vacuum Base & Indicator	Dial (22-300-8)	1.000"	0.001"	**13-665-5**	353.00

Standard

DESCRIPTION	SPI INDICATOR TYPE	MEAS. RANGE	GRADU-ATION	PART NUMBER	PRICE
7" w/Magnetic Base & Indicator	Dial (22-300-8)	1.000"	0.001"	**15-481-5**	$210.25
10" w/Magnetic Base & Indicator	Dial (22-300-8)	1.000"	0.001"	**15-480-7**	232.40

Gooseneck Magnetic Stand


98-338-7

Ground Ship ONLY

- Accepts all A.G.D. Dial Indicators with lug-backs and Test indicators with stem 1/8" to 1/2" dia.
- Stem flexes 360°. Overall length 13".
- Cam lever operates adjustable tension cable and locks arm instantly in any position.
- Permanent magnet with on and off switch.
- Thread size of gooseneck 8 mm x 1.25 mm.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Flexible Stand with Standard Mag. Base	**98-338-7**	$102.95
Flex Gooseneck Magnetic Base Only	**07-090-4** / **14-402-2**	73.95 / 35.80

FLEXBAR

Tom Thumb Dial Indicator Holder

Ideal for Very Tight Areas


88-859-4

- All knurled knobs and lock screws.
- Universal flexible arm locks into an extremely rigid position by turning knob.
- Supports up to 2 lb. load when fully tightened.
- Cable locking knob.
- Accommodates mounting rods or studs up to 1/4" diameter.
- Turns 1 1/4" diameter circle.
- Mounting clamp fits 5/16" diameter posts.
- Base: 1 1/8" dia. x 1 3/8" high
- 25 lb. pull
- 5" post with fine adjustor.

DESCRIPTION	PART NO.	PRICE
Tom Thumb Dial Indicator Holder	**88-859-4**	$72.15

FLEXBAR

Gooseneck Magnetic Base Universal Holders & Positioners

Instantly and Securely Reach Over, Under and Around

- No need for a large assortment of rods, swivels and clamps to position the tool.
- Holders set and lock with a simple twist of a lever.
- Design provides incredible rigidity as locking is by tension of the stainless steel cable.
- Cam-Action locking.
- Cable and fittings are stainless steel aircraft and mil specification grade.
- Magnetic bases with On/Off switch.



DESCRIPTION	OVERALL HEIGHT	BASE MAG. PULL (LBS.)	FINE ADJUSTER	PART NUMBER	PRICE
Magnetic Base Holder With Flat Bottom with Push Button	16"	65	Yes	**88-847-9**	$130.20
Magnetic Base Holder with "V" Bottom	16"	65	No	**88-848-7**	95.75
Magnetic Base Holder with "V" Bottom	16"	65	Yes	**88-849-5**	95.75
Heavy-Duty Magnetic Base Holder with Heavy Duty Cable & Ball Joints	21"	150	Yes	**88-850-3**	242.35
Flexbar Goosneck Holder with Single Axis In-Line Fine Adjustor and 5/16-18 Thread	15 1/4"	–	Yes	**88-851-1**	100.85
Flexbar Goosneck Holder with Single Axis In-Line Fine Adjustor and 8 mm x 1.25 Thread	15 1/4"	–	Yes	**88-852-9**	100.85
Magnetic Base Holder with "V" Bottom and Single Axis In-Line Fine Adjustor	17 1/2"	90	Yes	**88-853-7**	135.30
Flexbar Goosneck Holder with Double Axis In-Line Fine Adjustor and 5/16-18 Thread	16 1/4"	–	Yes	**88-854-5**	117.45
Flexbar Goosneck Holder with Double Axis In-Line Fine Adjustor and 8 mm x 1.25 Thread	16 1/4"	–	Yes	**88-855-2**	117.45
Magnetic Base Holder with "V" Bottom and Double Axis In-Line Fine Adjustor	18 1/2"	90	Yes	**88-856-0**	137.85
Replacement Stainless Steel Cable	–	–	–	**88-857-8**	14.50

SPI®

Indicator & Universal Magnetic Holder Set



SPI Dial Test Indicator (21-378-5):

- 1 1/4" dial diameter
- Range: 0.030"
- Reading: 0-15-0
- Contact point: 0.080" dia. X 1/2" long
- Graduation: 0.0005"
- 2 dovetail stems: 5/32" and 3/8" dia
- Short Form Certificate of Calibration included.

Base Features:

- Two universal ball sockets permit adjustment to any angle or position with full 360° movement.
- Fine adjustment clamp.
- Dovetail and 1/4" holes for test indicators.
- Knurled knobs and lock screws.

13-723-2

Ground Ship ONLY

- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Indicator & Universal Magnetic Holder Set	**13-723-2**	$105.15
Universal Magnetic Holder Only	**13-608-5**	46.50

SPI®

Test Indicator & Magnetic Base Set



Set Includes:

- SPI Dial Test Indicator (21-378-5):
  - 1 1/4" dial diameter
  - Range: 0.030"
  - Reading: 0-15-0
  - Contact point: 0.080" dia. X 1/2" long
  - Graduation: 0.0005"
  - 2 dovetail stems: 5/32" and 3/8" dia
  - Short Form Certificate of Calibration included.
- Medium Duty Magnetic Base
  - With clamp and 2 1/4" posts
  - On/Off switch
- Indicator Clamp
  - Accepts 5/32" and 1/4" dia. stems and dovetail.
- Clamp Assembly
  - Includes two holding rods and 2 clamps that accept 3/16" and 1/4" diameter rods

13-725-7

Ground Ship ONLY

- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Test Indicator & Magnetic Base Set	**13-725-7**	$108.30



13-724-0

Test Indicator & Magnetic Base Set

SPI Dial Test Indicator (21-378-5):

- 1¼" dial diameter
- Range: 0.030"
- Reading: 0-15-0
- Contact point: 0.080" dia. X ½" long
- Graduation: 0.0005"
- 2 dovetail stems: 5/32" and 3/8" dia
- Short Form Certificate of Calibration included.

Base Features:

- 3-dimensional indicator holder with a unique central locking mechanism – manually adjusts to secure a snug fit
- Easy to set up into required position, swivels 360°
- Holder includes fine adjustment
- On/Off switch

- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Test Indicator & Magnetic Base Set	**13-724-0**	$153.85

brown & sharpe

Miti-Mite Magnetic Base with BesTest® Indicator Set

- Attaches solidly to rounded as well as flat surfaces.
- Ball and socket action provides reach and orientation not possible with fixed post holders.
- Fine adjustment.
- Threaded post segments are easily changed to suit the application.
- BesTest® Indicator:
  - Automatic reversal and swiveling contact point.
  - Monobloc body design.
  - Universal dovetail mounting from top, bottom and end.
  - 1" diameter dial.
  - 0.5" long carbide tip with 0.080" dia. ball tip.
- Miti-Mite Magnetic Base:
  - Size: 1.125" square x 1.75" high.
  - 3 posts: 0.219" dia. x 1.5" long
    0.219" dia. x 4.375" long
    0.312" dia. x 1.5" long
- Supplied in plastic case.
- Model #599-849.



20-499-0

DESCRIPTION	PART NO.	PRICE
Miti-Mite Magnetic Base w/BesTest® Indicator Set	**20-499-0**	$389.65



51-172-5

Granite Stand

- 6" Square x 2" thick granite base.
- Flatness .00005".
- 7¾" high column, 1" dia.
- Rapid positioning and microscrew fine adjustment.
- Accepts all AGD Indicators with lug backs.

DESCRIPTION	PART NO.	PRICE
Granite Stand	**51-172-5**	$46.85



59-016-6

Granite & Dial Indicator Set

- With lugback.
- Microscrew fingertip control for fine adjustment.
- 0.00005" flatness.
- 10" overall height.
- Comes with 1"/0.001" AGD 2 dial indicator.
- Accepts all lug back AGD indicators.
- 6" x 6" x 2".

DESCRIPTION	PART NO.	PRICE
Granite & Dial Indicator Set	**59-016-6**	$65.10



13-721-6

Granite Base Comparator Stands

Comparator Stand

- Highest quality, ebony granite base.
- Base dimensions: 2" thick x 6" square.
- Flatness accuracy: ±0.00005"
- Accepts AGD 1, 2, 3, and 4 indicators with lug back.
- Column diameter: 0.990", OAH: Approximately 10".
- Clamp with fine adjustment.

SPI Indicator (22-300-8)

- AGD 2, lugback.
- Range: 1.00", Reading: 0 - 100, Graduation: 0.001".
- Stem diameter: 3/8", Thread size: 4-48.
- Short Form Certificate of Calibration included.

DESCRIPTION	PART NO.	PRICE
Stand Only	**13-695-2**	$94.95
Stand with Indicator	**13-721-6**	110.70



MADE IN USA

SPI® Classic
Indicator Stands w/Granite Base
Plain Type - with Fine Adjustment

- With lugback.
- Accepts all AGD Indicators.
- Flatness of Black Granite Base: ±0.00005"
- Column of plain type 8".

BASE DIMENSIONS LENGTH	WIDTH	HEIGHT	PART NUMBER	PRICE
6"	5"	2"	**50-500-8**	$125.60
8"	6"	2"	**50-501-6**	165.20

Starrett®
Dial Gage Granite Comparator Stand & Indicator Set
For Comparison Height Measurements Using A Dial Indicator



- Base is Grade A crystal pink granite.
- Base dimensions: 12" Long x 8" Wide x 2" Thick
- Overall Tolerance: 0.0001"
- Maximum Vertical Capacity: 9¼"
- Maximum Throat Depth: 5"
- Column Diameter: 1½"
- Fine adjustment on beam makes it quick and easy to zero set indicator.
- Jeweled Indicator:
  - Range: 0.25"
  - Graduation: 0.001"
  - Dial Reading: 0-50-0
  - Model #655-141J

DESCRIPTION	STARRETT MODEL #	PART NUMBER	PRICE
Comparator Stand Only	653G	**11-317-5**	$868.80
Comparator Stand & Indicator Set	653GJ	**11-318-3**	1,100.70



SPI® Comparator Stand

- Rugged enameled cast iron base.
- Full 5½" x 4¼" ground working surface.
- Column: 1" diameter x 8" height.
- Fine adjustment knob.
- Can be used with AGD1, 2, 3, and 4 indicators with lug back.

DESCRIPTION	PART NO.	PRICE
Comparator Stand	**13-696-0**	$88.25



SPI® Comparator Stands

- Quick positioning adjustment.
- Fine adjustment - 180° slide travel with lock.
- Used with ⅜" and 8 mm stems and lug backs.
- Cast iron base: 6" x 3⅞"
- Column: 1" diameter x 8" high
- Top of anvil to bottom of indicator holder: 6¾"
- Height, base to top of anvil: 2⅛"
- Throat dimension: 2⅛"

DESCRIPTION	PART NO.	PRICE
Round Anvil	**13-698-6**	$144.25
Square Anvil	**13-699-4**	144.25



SPI® Comparator Stand

- Compact, sturdy design with strong 25 mm dia. column, 7" high.
- Base and indicator arm are made from stabilized castings.
- Precision ground working surface.
- Parallel fine adjustment, 0.100" travel.
- Convenient rapid coarse setting.
- Clearance between base and indicator holder is 5⅜".
- Measuring area: 3¼" x 3¼"
- Base dimensions: 4" x 5¾" x 1½"
- Total height: 8½"
- Extremely versatile for quick set-ups with indicators or electronic comparators.
- Furnished with 2 bushings for ⅜" and 8 mm indicator stems.
- Weight 7.50 lbs.

DESCRIPTION	PART NO.	PRICE
Comparator Stand	**30-205-9**	$329.70







Indicators sold separately



SPI® Classic Comparator Stands

- Sturdy modern design for greater versatility.
- Base and indicator carriage are made of the finest Meehanite castings, hard-enamel finished.
- Rapid positioning with coarse adjustment.
- Unique fine adjustment assembly, backlash free.
- Fine adjustment range: 1/8"
- Bore for 3/8" dia. stem indicators.
- Hardened and ground anvil.
- 1 3/8" dia. chrome plated column.
- Length of column 10". Maximum clearance between anvil and indicator arm 7".
- Throat width: 3 3/4"
- Overall dimensions: 5" x 8" x 11"

MADE IN USA

Round Anvil

DESCRIPTION	WEIGHT	PART NO.	PRICE
3 5/8" dia. Flat	18 lbs.	**30-206-7**	$362.20
3 5/8" dia. Serrated	18 lbs.	**30-207-5**	362.65

Rectangular Anvil

DESCRIPTION	WEIGHT	PART NO.	PRICE
1 3/4" x 3 1/2" Flat	18 lbs.	**30-208-3**	$417.80

Spot Anvil

DESCRIPTION	WEIGHT	PART NO.	PRICE
1/2" dia. Flat	18 lbs.	**30-210-9**	$313.40
16" Column for above Stands		**30-211-7**	84.85

Lug-Mounted Stands For Digital Travel Indicators

DESCRIPTION	WEIGHT	PART NO.	PRICE
Round, flat anvil, 3 5/8" dia. 10" column, for Indicators up to 2" travel	18 lbs.	**30-212-5**	$430.15
Round, flat anvil, 3 5/8" dia. 16" column, for Indicators with more than 2" travel	22 lbs.	**30-213-3**	462.55



Mitutoyo Dial Gage Stand

for Comparison Height Measurements Using A Dial Indicator

- Working range over the anvil: 4"
- Arm rotates: 360°
- Fine adjustment makes it quick and easy to zero set indicator.
- Hardened steel anvil.
- Mitutoyo model #7002-10

DESCRIPTION	PART NO.	PRICE
Dial Gage Stand w/Flat Anvil	**10-798-7**	$526.30

Surface Gages

- Quick setting for any angle and height.
- Fine adjustment for accurate positioning.
- Base is hardened and precision ground on bottom.
- V groove base for easy mounting on round parts.
- Two-retractable dowel pins serve as guide along straight edges.
- All models furnished complete with scriber.

Small Toolmakers Surface Gage

- Includes 4" and 7" spindles.
- Base dimensions: length 2 1/8", width 1 9/16", height 3/4".

Universal Surface Gage

- Includes clamp attachment (with 5/32" and 15/64" holes) for holding indicators, scribers, etc.
- Base dimensions: length 3 1/2", width 2 1/2", height 1". with 9" and 12" spindles.
- Base dimensions: length 3 1/4", width 2 1/2", height 1". with 12" and 18" spindles.

DESCRIPTION	STEMS	PART NO.	PRICE
Small Toolmaker's Surface Gage	4" & 7"	**30-145-7**	$38.90
Universal Surface Gage	9" & 12"	**30-149-9**	58.90
Universal Surface Gage	12" & 18"	**30-152-3**	79.70





Jupiter Pneumatics universal air solutions

Regular Safety Pistol Blow Guns

Fixed Angle Nozzle with Side Hole

See Pg. 631

SPI® Surface Gages

- Base hardened.
- Bottom grooved for cylindrical work.
- Front end recessed for depressing spindle below base level.
- Knurled thumb screw in rocker for extra fine adjustment.
- Includes scriber.

Small Toolmakers Surface Gage

- Includes 4" and 7" spindles.
- Base dimensions: length 2 1/4", width 1 5/8", height 7/8"

Universal Surface Gage

- Includes clamp attachment (with 5/32" and 15/64" holes) for holding indicators, scribers, etc.
- With 9" and 12" spindles.
- Base dimensions: length 3 1/8", width 2 3/8", height 1 1/8"


13-675-4

DESCRIPTION	PART NO.	PRICE
Small Toolmaker's Surface Gage	**13-674-7**	$66.60
Universal Surface Gage	**13-675-4**	88.75

SPI® Transfer Stand

- Fast set-ups with dial & test indicators and electronic probes for accurate transfers.
- Holder for dial indicators with 3/8" dia. stem.
- Rapid coarse adjustment knob and sensitive fine-adjustment.
- Sturdy triangular cast iron base 5" x 5".
- Weight: 9.25 lbs.


30-579-7

DESCRIPTION	PART NO.	PRICE
12" Transfer Stand	**30-579-7**	$227.90

SPI® Magnetic Surface Gage with Indicator

Featuring a permanent magnetic base with on/off switch and fine adjustment. Doubles as surface gage when used with magnet turned off.

- SPI Dial Test Indicator (21-378-5):
  - 1 1/4" dial diameter
  - Range: 0.030"
  - Reading: 0-15-0
  - Contact point: 0.080" dia. X 1/2" long
  - Graduation: 0.0005"
  - 2 dovetail stems: 5/32" and 3/8" dia
  - Short Form Certificate of Calibration included.
- Magnetic Base (12-366-1):
  - Base: 3 1/8" x 2 7/16" x 1 7/16"
  - 5/16" x 9" post
  - 1 main swivel clamp
  - 2 holding rods: 7/32" x 2 1/4" and 2 5/8"
  - 1 scriber rod: 7/32" x 4"

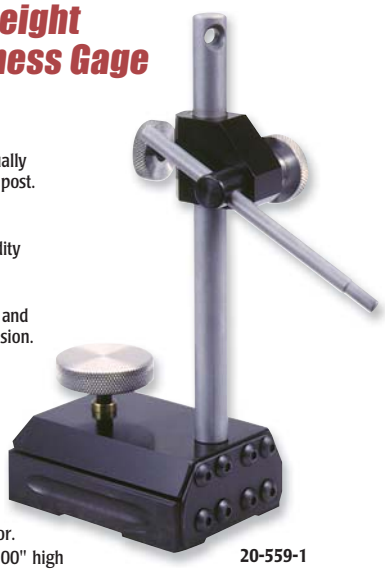

12-994-0

DESCRIPTION	PART NO.	PRICE
Magnetic Surface Gage w/Indicator	**12-994-0**	$204.75
Magnetic Surface Gage Only	**12-366-1**	113.80

brown & sharpe HITE-CHECK® Jr. Height Transfer/Squareness Gage

For Big Performance on Your Surface Plate

- It's low-center-of-gravity base virtually eliminates vibration in the upright post.
- The location of the post on the base permits maximum extension of the indicator with sufficient rigidity to assure accurate readings, even for hard to reach features.
- A swivel clamp anchors the swivel and indicator mounting for added precision.
- The fine adjustment control knob is located in the base and has a large diameter for precise control.
- For checking squareness, the rear surface of gage is designed with a reference surface that can be squared against a master with an optional BESTEST® indicator.
- Base dimensions: 3.5" x 2.5" x 1.300" high
- Includes 4" long, straight indicator rod and clamp.
- Indicator mounting rod has a 0.22" diameter on one end and a 0.25" on the other end.
- Indicator sold separately.


20-559-1

DESCRIPTION	PART NO.	PRICE
HITE-CHECK® Jr. Height Transfer/Squareness Gage	**20-559-1**	$600.15

Steel Surface Plate

- Serrated to accommodate easy movement on plate.
- Size: 12" L x 12" W x 2" T
- Weight: 15 lbs.


51-310-1

DESCRIPTION	PART NO.	PRICE
Steel Surface Plate	**51-310-1**	$594.15

SPI® Miniflat

- Top surface flatness 50 millionths.

MADE IN USA



LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
6"	5"	2"	**50-405-0**	$104.75
8"	6"	2"	**50-406-8**	125.75
12"	8"	2"	**50-407-6**	210.20
12"	9"	3"	**57-444-2***	78.65

*Import.

Black Granite

6 x 9 x 12" is two step.







Angle Plates

*) HEIGHT	LABORATORY GRADE AA ± .000025"				INSPECTION GRADE A ± .000050"			
NOMINAL DIMENSIONS	2 FACES PART NO.	PRICE	4 FACES PART NO.	PRICE	2 FACES PART NO.	PRICE	4 FACES PART NO.	PRICE
3 x 4* x 3	**50-211-2**	$399.90	**50-220-3**	$492.45	**50-231-0**	$308.50	**50-241-9**	$413.70
3 x 4 x 4	**50-212-0**	441.20	**50-221-1**	484.50	**50-232-8**	325.00	**50-242-7**	441.20
3 x 4 x 5	**50-213-8**	464.85	**50-222-9**	510.15	**50-233-6**	350.60	**50-243-5**	461.85
4 x 4 x 4	**50-214-6**	480.55	**50-223-7**	592.85	**50-234-4**	378.20	**50-244-3**	481.60
4 1/2 x 6 x 6	**50-215-3**	495.40	**50-224-5**	920.70	**50-235-1**	385.05	**50-245-0**	665.75
6 x 6 x 6	**50-216-1**	542.65	**50-225-2**	926.65	**50-236-9**	467.80	**50-246-8**	804.55
6 x 6 x 9	**50-217-9**	1,090.10	**50-226-0**	2,025.50	**50-237-7**	940.45	**50-247-6**	1,587.30
6 x 9 x 12	**50-218-7**	1,729.15	**50-227-8**	2,532.60	**50-238-5**	1,165.90	**50-248-4**	1,918.15

Accuracies indicated are per 6 inches. Nominal dimensions ± 1/8" . — Other accuracies or sizes on request. Threaded steel inserts or holes for T-bolts etc. are furnished on request. FOB Los Angeles.

Parallels - Per Matched Pair

	LABORATORY GRADE AA ± .000025"				INSPECTION GRADE A ± .000050"			
NOMINAL DIMENSIONS	2 FACES PART NO.	PRICE	4 FACES PART NO.	PRICE	2 FACES PART NO.	PRICE	4 FACES PART NO.	PRICE
3/4 x 1x 6	**50-302-9**	$303.35	**50-312-8**	$413.70	**50-322-7**	$275.70	**50-332-6**	$391.95
1 x 2 x 6	**50-303-7**	310.25	**50-313-6**	484.50	**50-323-5**	305.20	**50-333-4**	434.30
1 x 2 x 9	**50-304-5**	408.75	**50-314-4**	592.85	**50-324-3**	378.20	**50-334-2**	454.05
1 x 2 x 12	**50-305-2**	497.35	**50-315-1**	690.35	**50-325-0**	408.75	**50-335-9**	555.40
1 1/2 x 2 x12	**50-306-0**	497.35	**50-316-9**	679.50	**50-326-8**	408.75	**50-336-7**	512.10
2 x 2 x 12	**50-307-8**	537.70	**50-317-7**	679.50	**50-327-6**	439.20	**50-337-5**	512.10
1 1/2 x 3 x 18	**50-308-6**	1,227.00	**50-318-5**	1,481.95	**50-328-4**	1,129.55	**50-338-3**	1,367.80
2 x 3 x 18	**50-309-4**	1,243.70	**50-319-3**	1,540.05	**50-329-2**	1,162.95	**50-339-1**	1,406.20

Accuracies indicated are per 12 inches. Nominal dimensions ± .015" in width and length between finished surfaces, ± 1/16" for length and between unfinished surfaces. FOB Los Angeles.

V-Blocks - Per Matched Pair

	LABORATORY GRADE AA ± .000050"				INSPECTION GRADE A ± .0001"			
NOMINAL DIMENSIONS	UNIVERSAL TYPE PART NO.	PRICE	ECONOMY TYPE PART NO.	PRICE	UNIVERSAL TYPE PART NO.	PRICE	ECONOMY TYPE PART NO.	PRICE
2 x 2 x 2 1/2	**50-271-6**	$2,121.10	**50-277-3**	$1,680.85	**50-283-1**	$1,738.95	**50-289-8**	$1,283.10
3 x 3 x 3	**50-272-4**	2,354.40	**50-278-1**	1,906.40	**50-284-9**	2,132.85	**50-290-6**	1,476.10
4 x 4 x 4	**50-273-2**	3,083.05	**50-279-9**	2,280.60	**50-285-6**	2,750.25	**50-291-4**	1,955.60
6 x 6 x 6	**50-274-0**	3,472.95	**50-280-7**	2,459.75	**50-286-4**	2,929.40	**50-292-2**	2,208.65

Accuracies indicated are per 6 inches. Nominal dimensions ± 1/8". — Single Block, quote on request. The 90° V is centered to the parallel sides, parallel to the bottom and square to the ends. On the economy models, the ends are not square to the bottom. Grade A Universal type clamps will be quoted on request. FOB Los Angeles.



Surface Plates

- Autocollimator calibration for overall accuracy.
- Local accuracy and repeat measurement guaranteed by electronic inspection.
- Certification traceable to NIST.

	LABORATORY GRADE AA				INSPECTION GRADE A			
SIZE	THICK-NESS	OVERALL ACCURACY ±	4 LEDGES PART NO.	PRICE	THICK-NESS	OVERALL ACCURACY±	2 LEDGES PART NO.	PRICE
12 x 18	3	.000025	**50-145-2**	$443.05	3	.00005	**50-171-8**	$337.45
18 x 24	4	.000037	**50-147-8**	891.75	3	.000075	**50-112-2**	557.65
24 x 24	4	.000037	**50-148-6**	1,125.95	3	.000075	**50-173-4**	843.65
24 x 36	6	.000050	**50-149-4**	1,705.35	4	.0001	**50-174-2**	1,141.00
24 x 48	6	.000075	**50-150-2**	2,438.10	6	.00015	**50-175-9**	1,762.50
36 x 48	6	.0001	**50-151-0**	3,565.75	6	.0002	**50-113-0**	2,370.10
36 x 72	10	.00015	**50-152-8**	5,565.50	8	.0003	**50-176-7**	4,309.50
48 x 72	10	.000175	**50-153-6**	6,795.30	8	.00035	**50-177-5**	5,089.10

SHIPPED VIA TRUCK FREIGHT COLLECT, FOB LOS ANGELES.

	TOOLROOM GRADE B				SURFACE PLATE STANDS			
SIZE	THICK-NESS	OVERALL ACCURACY ±	0 LEDGE PART NO.	PRICE	W/LEVELING SCREWS PART NO.	PRICE	WITH CASTERS PART NO.	PRICE
12 x 18	3	.0001	**50-193-2**	$228.20	—	—	—	—
18 x 24	3	.00015	**50-195-7**	391.90	**50-123-9**	$557.65	**50-133-8**	$740.45
24 x 24	3	.00015	**50-196-5**	629.50	**50-124-7**	590.20	**50-134-6**	763.70
24 x 36	4	.0002	**50-197-3**	858.70	**50-125-4**	700.45	**50-135-3**	915.50
24 x 48	6	.0003	**50-198-1**	1,412.70	**50-126-2**	768.35	**50-136-1**	980.55
36 x 48	6	.0004	**50-199-9**	1,935.20	**50-127-0**	816.35	**50-137-9**	1,102.95
36 x 72	6	.0006	**50-201-3**	3,131.10	**50-128-8**	982.10	**50-138-7**	1,346.25
48 x 72	6	.0007	**50-202-1**	4,085.65	**50-129-6**	1,166.45	**50-139-5**	1,649.80

SHIPPED VIA TRUCK FREIGHT COLLECT, FOB LOS ANGELES.

SPI® Granite Surface Plate Cleaner

Contains No Class 1 Ozone Depleting Chemicals. Very Low Evaporation Rate. Use Much Less Than Ordinary Cleaners.

- Contains no chlorides, fluorides or sulphates.
- Nonflammable. Free from strong odors.
- Excellent for cleaning surface plates, metals, ceramics, as well as other hard surfaces.
- Spray pump design reduces overspray.
- D.O.T. Regulated. Shipped via ground freight only.

CONTAINER SIZE	PART NO.	PRICE
16 oz. Pump Spray	**14-436-0**	$9.10
16 oz. Bottle	**15-551-5**	7.85
1 Quart Filler	**14-437-8**	12.95
½ Gallon Filler	**14-438-6**	19.40
1 Gallon Filler	**14-439-4**	24.60
5 Gallon Pail	**15-552-3**	77.55

Ground Ship ONLY



14-436-0



20-056-8

NEW

Starrett® Granite Surface Plate Cleaner

- Helps keep surface plates and other precision granite products in top conditions.
- Prevents abrasion of tools by dirt and other foreign particles.
- The liquid cleaner, which also acts as a degreaser and rust inhibitor, should be used without water to minimize the risk of rusting tools.
- 1 gallon jug (3.8 liter).

DESCRIPTION	PART NO.	PRICE
Granite Surface Plate Cleaner	**20-056-8**	$44.99

Economy Wiggler Set



- Versatile center and edgefinder, with four attachments that quickly and easily snap into chuck.
- ⅜" shank.
- Set includes: Offset Indicator Holder, .250" Dia. Ball Contact, .100" Dia. Disc Contact, Needle Point Contact.

65-097-8

DESCRIPTION	PART NO.	PRICE
Wiggler Set	**65-097-8**	$21.15

SPI® Wiggler Set



- Versatile Center & Edge Finder with 4 interchangeable attachments which snap conveniently into the special chuck.
- Ball swivel joint permits adjustments to an angular position or true concentricity.
- Set includes offset indicator holder, ball contact attachment - 0.250" dia., disc contact attachment - 0.100" dia. and needle point attachment.
- Furnished in vinyl case.

DESCRIPTION	PART NO.	PRICE
Wiggler Set	**98-319-7**	$34.10

Replacement Attachments

DESCRIPTION	ILLUSTRATION	PART NO.	PRICE
Chuck Only	A	**12-575-7**	$10.30
Point Only, Length: Closed 2⅜", Open: 4⅛"	B	**12-576-5**	5.60
Shank Dia.: ⅜", Ball Dia.: 0.250" (contact only)	C	**12-577-3**	5.00
Disc Contact Only (0.100" Dia.)	D	**12-578-1**	8.55
Offset Indicator Holder Only	E	**12-579-9**	6.20



15-192-8

SPI® Chain Clamps For Shaft Alignment

- For a relatively quick precision alignment of pumps, motors, compressors or any other rotating equipment.
- Used in all industries such as paper mills, plastics, oil refineries, power houses, chemicals and training schools for machinists.

Indicator Clamp Includes:

- #41 roller chain adjustable clamping chain and aluminum body clamp. Chain can adjust between ½" to 8" diameter.
- 3" and 6" stainless steel rods (5/16" dia.) and hex wrench.

Kit w/2 Back Plunger Indicators (15-192-8) Includes:

- (2) Indicator clamps.
- (2) SPI 0.1" Back plunger indicators (14-223-2).
- (1) 11" Extension shaft.
- (1) Inspection mirror and case.

DESCRIPTION	PART NO.	PRICE
Chain Clamp	**15-190-2**	$284.80
Chain Clamp Kit w/Back Plunger Indicators	**15-192-8**	666.20

SPI® Center & Edge Finders

- Accurately locates the starting point for all types of machine work and jig boring.
- Hardened and ground all over.

DESCRIPTION	SHANK DIA.	TIP DIA.	PART NO.	PRICE
Edge Finder	3/8"	0.200"	**98-321-3**	$10.65
Edge Finder	1/2"	0.200"	**98-322-1**	13.85
Edge Finder	1/2"	0.500"	**98-329-6**	13.85
Edge Finder	10 mm/3/8"	10 mm	**98-327-0***	18.60
Edge Finder	10 mm	10 mm	**98-328-8**	14.35
Center Finder	3/8"		**98-323-9**	14.35
Center Finder	1/2"		**98-324-7**	13.70
Combo Edge & Center Finder	3/8"	0.200"	**98-325-4**	13.85
Combo Edge & Center Finder	1/2"	0.200"	**98-326-2**	14.35
4 Pc. Center & Edge Finder Set	3/8" & 1/2"	0.200" & 0.500"	**51-831-6**	42.45

*Stepped shank 10 mm/3/8"





98-345-2 98-347-8 98-346-0

SPI® Audible Edge Finders

- Hardened and ground all over.
- Visual plus audible edge positioning of workpieces.
- Ingenious shape of the tip produces a distinct sound at the precise moment the tip slides into alignment with the shank.

SHANK DIA.	TIP DIA.	PART NO.	PRICE
3/8"	0.200"	**98-345-2**	$15.60
1/2"	0.200"	**98-346-0**	16.45
10 mm/3/8"	10 mm	**98-347-8** *	16.95
10 mm	10 mm	**98-348-6**	18.05
1/2"	0.500"	**98-349-4**	16.45

* Stepped shank 10 mm/3/8".



10-961-1 10-962-9

Starrett® Edge Finders

- Work with flat straight edges, shoulders, grooves, round work, studs, dowels, center points and scribed lines. All these can be quickly and accurately located.
- Body and contacts are made of tool steel, hardened ground and lapped to close tolerances for diameter and concentricity.
- Straight head diameter .200".

TYPE	SHANK	STARRETT® MODEL#	PART NUMBER	PRICE
Single	3/8"	827A	**10-961-1**	$29.60
Double	1/2"	827B	**10-962-9**	34.55



brown & sharpe

Edge Finders

- Locate round or flat work easily within 0.0005".
- Fully hardened and precision ground.
- Rated up to 1,000 RPM.

END TYPE	HEAD DIA.	SHANK DIA.	STYLE	MODEL #	PART NUMBER	PRICE
Single	0.500"	1/2"	A	599-792	**20-602-9**	$16.65
Double	0.500/0.200"	1/2"	B	599-792-1	**20-603-7**	22.15
Single	0.200"	3/8"	C	599-792-2	**20-604-5**	16.15
Single	0.200"	1/2"	C	599-792-3	**20-605-2**	16.65
Double	0.200"	3/8"	B	599-792-4	**20-606-0**	21.50
Double	0.200"	1/2"	B	599-792-5	**20-607-8**	22.15
Single	10 mm	3/8"	A	599-792-11	**20-608-6**	18.90
Single	10 mm	10 mm	A	599-792-12	**20-609-4**	18.90



13-146-6

SPI® Audible/Conventional Edge Finder Set

This versatile set allows you to accurately locate the starting point on all types of surfaces including flat and round surfaces, shoulders, and many more.

Set includes:

- 3/8" x 0.200" combo edge and center finder
- 1/2" x 0.200" combo edge and center finder
- 3/8" x 0.200" audible edge finder
- 1/2" x 0.500" audible edge finder

- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Audible/Conventional Edge Finder Set	**13-146-6**	$53.60

SPI® Height Offset Gage



13-156-5

- Repeatability T.I.R. within 0.0002".
- Hardened and precision ground on all surfaces.
- Four visible lamps light up at the slightest touch of the workpiece with 360° visibility.
- 1.5V (x3) batteries included.
- 2" OAL, 0.312" head diameter.
- Spring loaded to safeguard against damage from overrun.

DESCRIPTION	PART NO.	PRICE
Height Offset Gage	**13-156-5**	$136.95
Repl. Battery	**07-310-6**	2.25
Repl. Bulb	**13-425-4**	5.60

SPI® Electronic Edge Finder



13-160-7

- Repeatability T.I.R within 0.002"
- Hardened and precision ground.
- Four highly visible LED lights.
- Reads off any electrically conductive metal.
- Accuracy: 0.0004"
- Ball Dia.: 0.400"
- 3/4" shank.
- Overall length: 3 3/4"
- Furnished in a plastic case.

DESCRIPTION	PART NO.	PRICE
Electronic Edge Finder	**13-160-7**	$135.85
Repl. Battery 12V (2 ea.)	**60-197-1**	4.60

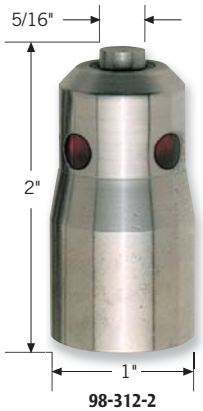
Electronic Edge Finder



20-044-4

- Repeatability within 0.002"
- Highly visible LED light.
- Reads off any electrically conductive metal.
- Ball Dia.: 3/8"
- 3/4" shank.
- Overall length: 3 7/8"
- Two 1.5V batteries included.
- Made of stainless steel.
- Furnished in a wooden box.

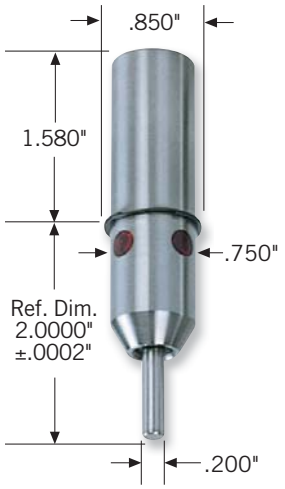
DESCRIPTION	PART NO.	PRICE
Electronic Edge Finder	**20-044-4**	$126.85
Repl. Battery (357/303)	**07-310-6**	2.25



98-312-2



98-311-4



98-313-0

Electronic Locating Gages

- Ultra sensitive solid state circuit for fast and accurate positioning.
- Indicator lamps light up at the slightest touch of the workpiece with 360° visibility.
- Spring loaded to safeguard against damage from overrun.
- Hardened and precision ground.
- Long life batteries A76 (LR44 or SR44) included.

DESCRIPTION	PART NO.	PRICE
Edge Finder	**98-311-4**	$153.72
Height Offset Presetting Gage	**98-312-2**	156.96
Three Axis Locator	**98-313-0**	266.45
Replacement Bulb	**06-628-2**	5.60
Replacement Battery	**07-310-6**	2.25



13-145-8

SPI® Electronic Edge Finder

- Repeatability: 0.002"
- Reads off any electronically conductive metal.
- Cylindrical style head.
- 1/2" shank.
- Furnished with LED indicator.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Electronic Edge Finder	**13-145-8**	$30.80
Repl. Battery (2 ea.)	**60-197-1**	4.60
Repl. Bulb	**13-154-0**	4.15

SPI® Electronic Edge-Center-Depth Finder



98-316-3

- Deluxe Edge Finder with highly sensitive LED lamp.
- Lamp lights up at just a few grams of pressure on stylus touching ferrous as well as non-ferrous metals.
- Operates even if work piece is oily.
- Includes 2 (N/1.5v) batteries.
- Precision ground stylus 0.400" dia. x 2 3/8" length.
- Overall length: 6 1/16"
- Accuracy: ± 0.0001"
- No over travel.
- Sub-zero treatment is added to prevent distortion throughout years of use.
- In addition to most convenient edge finding, the instrument can also be used as positioning tool for outside, inside and depth measurements.

Made in Japan

DESCRIPTION	PART NO.	PRICE
with 3/4" Shank	**98-316-3**	$300.95
Repl. Battery (2 ea.)	**60-456-1**	3.85



52-365-4

Zero Setter

- Establishing of "0" reference point with built in indicator.
- Positioning accuracy and repeatability: 0.0004"/0.01 mm.
- Graduation: 0.0005".
- Size: 1.45" L x 1.45" W x 2" H.
- Supplied in fitted case.

DESCRIPTION	PART NO.	PRICE
Zero Setter	**52-365-4**	$173.35

SPI® Zero-Setter

- Precision mechanical zero-setting instruments for CNC Machining Centers.
- Direct establishing of "0" point eliminates the need of several spindle approaches.
- Positive alignment of zero position with easy reading precision indicator, 0.0005" graduation.
- Spring loaded setting face to safeguard against damage from overrun.
- Positioning accuracy and repeatability 0.0004".
- Body 1.45" dia. x 1" height.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Zero-Setter	**98-340-3**	$356.20



98-340-3



90-050-0

Tool Depth Setter

Set Z Depth Quickly & Accurately

- Simply lower tool toward tool depth setter. An indicator lights up when contact is made.
- Can be operated directly off table or from machine vise.
- Aluminum contact face eliminates carbide chipping on cutting tools.
- Repeatability: 0.0002"
- Block dimensions: 1" x 2" x 3"
- Requires 2 CR44 batteries (included).

DESCRIPTION	PART NO.	PRICE
Tool Depth Setter	**96-050-0**	$126.05

SPI® Electronic Tool Setter



98-330-4

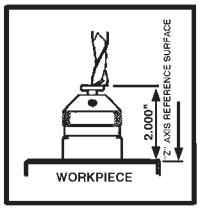
Ground Ship ONLY

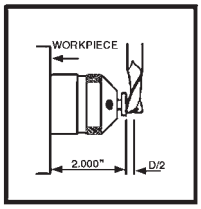
- Ideal to preset tools and to reference tool positions in CNC Machines, Machining & Turning Centers, $1^{31}/_{32}$" dia.
- Heat treated, precision ground tool steel.
- Parallel within 0.0002" to inside of groove.
- Repeatability: 0.0002"
- Height bottom to inside of groove: 2.0000 ±0.0001".
- Built-in magnet for convenient use on horizontal and vertical faces.
- 0.196" (5 mm) compression stroke for over-run protection.
- 3V lithium battery included. - Lasts approx. 1 year.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

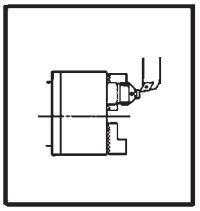
DESCRIPTION	PART NO.	PRICE
Electronic Tool Setter	**98-330-4**	$583.15
Repl. Battery (CR2032)	**07-319-7**	2.55



74-725-3







BIG Base Master Presetter

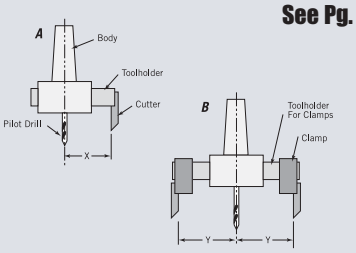
- LED lamp illuminates at exactly 2" from the reference surface.
- Repeatability of ±0.00004".
- Safety over-travel of sensor plate prevents damage to the tools.
- Magnetic base allows vertical, horizontal or angular mounting on almost any machine.
- Two SR44 batteries are included.

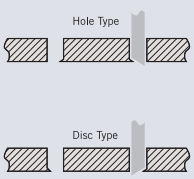
DESCRIPTION	PART NO.	PRICE
Base Master Presetter	**74-725-3**	$720.15
Repl. Battery (SR44)	**07-310-6**	2.25



VALCUT® Trepanning Tools

See Pg. 532-533





Hole type cutters are designed to make a clean hole with minimum burr.

Disc type cutters create discs with clean edges and minimum burring.



Lathe Application



31-668-7

Sine Bars

- Both sine bar and rolls are hardened and ground for extreme accuracy.
- Top surface is accurate to 0.00003" per inch of length.
- Various size holes are furnished for clamping purposes.
- Parallelism: 0.00004"
- Sine bars and 5" sine plate have tapped holes for hold downs.
- Center to center distance between center of rolls is accurate within 0.0002".
- Flange on the end for resting work.

WIDTH	DISTANCE BETWEEN CENTER OF ROLL	PART NUMBER	PRICE
15/16"	5"	**31-668-7**	$93.00
1"	10"	**31-669-5**	196.25
2"	5"	**31-670-3**	133.00



10-173-3

brown & sharpe

5" Sine Bar

Valu-Line

- Quick measurements of desired angles in machine set-ups.
- Hardened and precision ground.
- Supplied with back plate.
- Body size: 1"
- Overall length: 5 3/4".
- Accuracy between rolls 0.0003".

DESCRIPTION	PART NO.	PRICE
5" Sine Bar	**10-173-3**	$106.20



13-185-4

SPI®

Sine Bars

- Hardened and ground.
- Parallelism within 0.0004".
- Center distance between rolls within 0.0004".

LENGTH	WIDTH	CTR. TO CTR.	PART NO.	PRICE
3 3/4"	1"	2 1/2"	**13-185-4**	$44.45
6"	1"	5	**13-186-2**	49.05



30-090-5

SUBURBAN

5" Sine Bar

- Made of steel, hardened to RC 58 - 60.
- Accuracy between rolls: ±0.0001"
- Flat, Square and Parallel: 0.0002"
- Includes end rail, which can be mounted at either end.
- Furnished with backplate.

SINE	DIMENSIONS (W x L x H)	PART NO.	PRICE
5"	1" x 6 1/2" x 1 21/32"	**30-090-5**	$300.95

SPI®

Sine Bar Riser Kit

Sine Bar:

- 5" length, 1" body size.
- Hardened and ground steel.
- Top parallel to bottom of rolls within 0.0002".

Riser:

- 18 risers: 1/2, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 1/4T and 1/2T.
- Within 0.0001" of exact constants.
- Note: Risers to be used individually, not to be stacked. 1/4 T and 1/2 T are to obtain angle of 1/4" and 1/2" taper per foot respectively.
- Complete in a protective molded case.

DESCRIPTION	PART NO.	PRICE
Sine Bar with Riser Kit	**10-195-6**	$145.30



10-195-6

5" V-Sine Bar

- Width: 1 1/4"
- 1" round capacity.
- Accuracy: 0.0003"
- Hardened and ground steel.
- Clamp included.



Gage Blocks not included

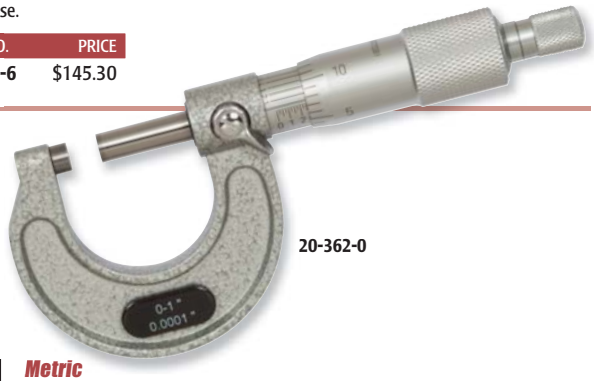
98-384-1

DESCRIPTION	PART NO.	PRICE
5" V-Sine Bar	**98-384-1**	$294.06

Outside Micrometers & Sets

Inch & Metric

- Ratchet stop.
- Carbide measuring faces.
- Painted frame; enamel.
- Resolution: 0.0001"/0.01 mm



20-362-0

Inch

RANGE (IN.)	ACCURACY (IN.)	PART NUMBER	PRICE
0 - 1	0.0001	**20-362-0**	$29.95
1 - 2	0.0001	**20-363-8**	35.65
2 - 3	0.0001	**20-364-6**	38.20
3 - 4	0.0001	**20-365-3**	44.55
4 - 5	0.0001	**20-366-1**	50.90
5 - 6	0.0001	**20-367-9**	57.25

Sets

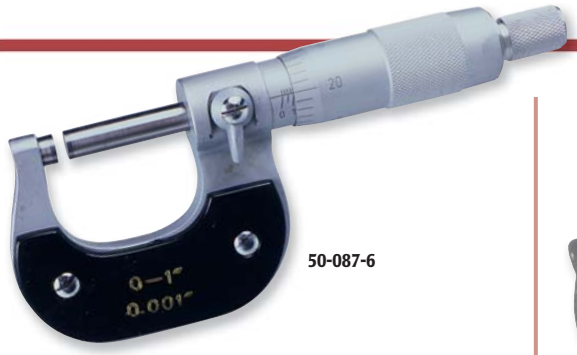
RANGE (IN.)	ACCURACY (IN.)	PART NUMBER	PRICE
0 - 3	0.0001	**20-368-7**	$108.05
0 - 4	0.0001	**20-369-5**	146.20
0 - 6	0.0001	**20-370-3**	254.25

Metric

RANGE (MM)	ACCURACY (MM)	PART NUMBER	PRICE
0 - 25	0.004	**20-371-1**	$31.85
25 - 50	0.004	**20-372-9**	35.65
50 - 75	0.005	**20-373-7**	38.20
75 - 100	0.005	**20-374-5**	44.55
100 - 125	0.006	**20-375-2**	50.90
125 - 150	0.006	**20-376-0**	57.25

Sets

RANGE (MM)	ACCURACY (MM)	PART NUMBER	PRICE
0 - 75	0.005	**20-377-8**	$104.95
0 - 100	0.005	**20-378-6**	136.45
0 - 150	0.006	**20-379-4**	230.95



50-087-6



51-788-8

Outside Micrometers & Sets

Inch & Metric

- Carbide tipped anvils with ratchet stop and locking lever.
- Individual micrometers come in a case with adjusting wrench.
- 2" and larger furnished with standard.
- 0 – 4" have satin chrome finish heat insulated forged steel frame.
- 5" and larger have lightweight tubular steel enamel frame with satin chrome barrel.

Inch

RANGE (IN.)	GRADUATION (IN.)	PART NUMBER	PRICE
0 - 1	0.001	**50-087-6**	$30.10
0 - 1	0.0001	**51-783-9**	31.50
1 - 2	0.001	**50-088-4**	37.05
1 - 2	0.0001	**51-784-7**	39.30
2 - 3	0.0001	**51-785-4**	40.75
3 - 4	0.0001	**51-786-2**	45.65
4 - 5	0.0001	**51-787-0**	51.15
5 - 6	0.0001	**51-788-8**	63.25
6 - 7	0.0001	**51-789-6**	89.75
7 - 8	0.0001	**51-790-4**	112.55
8 - 9	0.0001	**51-791-2**	128.65
9 - 10	0.0001	**51-792-0**	131.65
10 - 11	0.0001	**51-793-8**	141.35
11 - 12	0.0001	**51-794-6**	146.40

Sets

RANGE (IN.)	GRADUATION (IN.)	NO. OF STANDARDS	PART NUMBER	PRICE
0 - 3	0.0001	2	**50-089-2**	$124.15
0 - 4	0.0001	3	**50-090-0**	186.95
0 - 6	0.0001	5	**51-556-9**	338.95
6 - 12	0.0001	6	**50-091-8**	618.50
0 - 12	0.0001	11	**50-092-6**	1,065.90

Metric

RANGE (MM)	GRADUATION (MM)	PART NUMBER	PRICE
0 - 25	0.01	**50-093-4**	$31.50
25 - 50	0. 01	**50-094-2**	39.30
50 - 75	0. 01	**50-095-9**	38.55
75 - 100	0. 01	**50-096-7**	45.65
100 - 125	0. 01	**50-097-5**	62.85
125 - 150	0. 01	**50-098-3**	62.60

Sets

RANGE (MM)	GRADUATION (MM)	NO. OF STANDARDS	PART NUMBER	PRICE
0 - 75	0. 01	2	**50-099-1**	$124.15
0 - 100	0. 01	3	**50-100-7**	186.95
0 - 150	0. 01	5	**50-101-5**	279.60



17-635-4



SPI® Outside Micrometers

- Carbide measuring faces.
- Painted steel frame.
- Standards included above 0 - 1"/0 - 25 mm range.
- Spindle Dia.: 0.25".
- Graduation: 0.0001"/0.01mm.
- Ratchet thimble.
- Spindle lock.
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- 2 year warranty.

Inch

RANGE	ACCURACY	PART NO.	PRICE	RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**17-640-4**	$73.00	6 - 7"	±0.0002"	**17-646-1**	$127.35
1 - 2"	±0.0002"	**17-641-2**	80.80	7 - 8"	±0.0002"	**17-647-9**	139.00
2 - 3"	±0.0002"	**17-642-0**	79.10	8 - 9"	±0.0002"	**17-648-7**	149.90
3 - 4"	±0.0002"	**17-643-8**	84.40	9 - 10"	±0.0003"	**17-649-5**	161.10
4 - 5"	±0.0002"	**17-644-6**	95.00	10 - 11"	±0.0003"	**17-650-3**	171.75
5 - 6"	±0.0002"	**17-645-3**	106.40	11 - 12"	±0.0003"	**17-651-1**	182.90

Sets

RANGE	NO. OF PCS.	PART NO.	PRICE
0 - 3"	3	**17-634-7**	$263.42
0 - 6"	6	**17-635-4**	516.38
0 - 12"	12	**17-636-2**	1,231.65
6 - 12"	6	**17-637-0**	860.70

SPI Certified
Right Out of the Box!

Metric

RANGE (MM)	ACCURACY (MM)	PART NUMBER	PRICE	RANGE (MM)	ACCURACY (MM)	PART NUMBER	PRICE
0 - 25	±0.004	**17-652-9**	$73.00	50 - 75	±0.005	**17-654-5**	$79.10
25 - 50	±0.004	**17-653-7**	79.10	75 - 100	±0.005	**17-655-2**	84.40

Sets

RANGE (MM)	NO. OF PIECES	PART NUMBER	PRICE
0 - 75	3	**17-853-3**	$239.50
0 - 150	6	**17-854-1**	516.40

Mitutoyo Outside Micrometers

Series 101

- Clear graduations on satin-chrome finish for easy reading.
- Carbide-tipped anvil and spindle for extended wear.
- Your choice of friction thimble or ratchet stop give a constant feel between operators.
- Sizes 1 - 2" and larger furnished with standards for mic reading verification.
- Furnished in fitted case.



10-880-3

RANGE	GRAD.	THIMBLE STYLE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.0001"	Ratchet	101-113	**10-605-4**	$133.00
0 - 1"	0.0001"	Friction	101-117	**10-880-3**	131.65
1 - 2"	0.0001"	Ratchet	101-114	**10-606-2**	158.00
1 - 2"	0.0001"	Friction	101-118	**10-607-0**	158.00
2 - 3"	0.0001"	Ratchet	101-119	**10-608-8**	173.00
3 - 4"	0.0001"	Ratchet	101-120	**10-609-6**	190.00

Mitutoyo

Enamel Frame Outside Micrometers & Sets

- Hammertone baked enamel finished frame.
- Clear graduations on satin-chrome finish for easy reading.
- Carbide-tipped anvil and spindle for extended wear.
- Your choice of friction thimble or ratchet give a constant feel between operators.
- Plain spindle types do not have positive locking clamp.
- Supplied with a fitted case to protect against damage.



11-679-8

Inch

RANGE	GRAD.	STD. INCL.	SPINDLE TYPE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.0010"	No	Ratchet	103-177	**11-679-8**	$106.00
0 - 1"	0.0010"	No	Ratchet	103-259	**11-680-6** *	106.00
0 - 1"	0.0001"	No	Friction	103-135	**11-681-4**	116.00
0 - 1"	0.0001"	No	Ratchet	103-260	**11-683-0**	115.00
1 - 2"	0.0010"	Yes	Ratchet	103-178	**11-685-5**	123.00
1 - 2"	0.0001"	Yes	Friction	103-136	**11-686-3**	137.00
1 - 2"	0.0001"	Yes	Ratchet	103-262	**11-688-9**	135.00
2 - 3"	0.0010"	Yes	Ratchet	103-179	**11-689-7**	142.00
2 - 3"	0.0001"	Yes	Ratchet	103-217	**11-691-3**	150.00
3 - 4"	0.0010"	Yes	Ratchet	103-180	**11-692-1**	166.00
3 - 4"	0.0001"	Yes	Ratchet	103-218	**11-694-7**	173.00
4 - 5"	0.0010"	Yes	Ratchet	103-181	**11-695-4**	182.00
4 - 5"	0.0001"	Yes	Ratchet	103-219	**11-697-0**	187.00

* 11-680-6 has elongated "U" shaped frame

RANGE	GRAD.	STD. INCL.	SPINDLE TYPE	MITUTOYO MODEL #	PART NUMBER	PRICE
5 - 6"	0.0010"	Yes	Ratchet	103-182	**11-698-8**	$199.00
5 - 6"	0.0001"	Yes	Ratchet	103-220	**11-700-2**	208.00
6 - 7"	0.0010"	Yes	Ratchet	103-183	**11-701-0**	225.00
6 - 7"	0.0001"	Yes	Ratchet	103-221	**11-702-8**	235.00
7 - 8"	0.0010"	Yes	Ratchet	103-184	**11-703-6**	242.00
7 - 8"	0.0001"	Yes	Ratchet	103-222	**11-704-4**	248.00
8 - 9"	0.0010"	Yes	Ratchet	103-185	**11-705-1**	260.00
8 - 9"	0.0001"	Yes	Ratchet	103-223	**11-706-9**	275.00
9 - 10"	0.0010"	Yes	Ratchet	103-186	**11-707-7**	275.00
9 - 10"	0.0001"	Yes	Ratchet	103-224	**11-708-5**	285.00
10 - 11"	0.0010"	Yes	Ratchet	103-187	**11-709-3**	285.00
10 - 11"	0.0001"	Yes	Ratchet	103-225	**11-710-1**	299.00
11 - 12"	0.0010"	Yes	Ratchet	103-188	**11-711-9**	299.00
11 - 12"	0.0001"	Yes	Ratchet	103-226	**11-712-7**	311.00

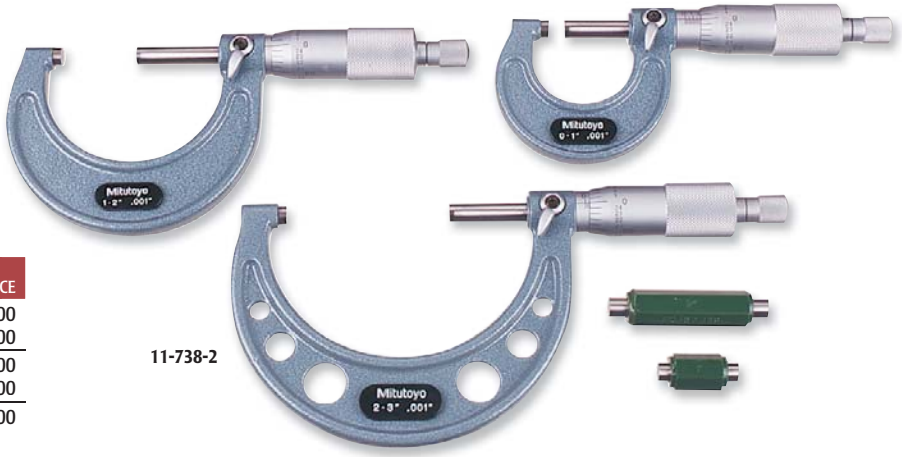
Metric

RANGE (MM)	GRAD. (MM)	STD. INCL.	SPINDLE TYPE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 25	0.010	No	Ratchet	103-137	**11-723-4**	$106.00
25 - 50	0.010	Yes	Ratchet	103-138	**11-726-7**	123.00
50 - 75	0.010	Yes	Ratchet	103-139-10	**11-728-3**	142.00
75 - 100	0.010	Yes	Ratchet	103-140-10	**11-729-1**	165.00
100 - 125	0.010	Yes	Ratchet	103-141-10	**11-730-9**	182.00
125 - 150	0.010	Yes	Ratchet	103-142-10	**11-731-7**	201.00

RANGE (MM)	GRAD. (MM)	STD. INCL.	SPINDLE TYPE	MITUTOYO MODEL #	PART NUMBER	PRICE
150 - 175	0.010	Yes	Ratchet	103-143-10	**11-732-5**	$225.00
175 - 200	0.010	Yes	Ratchet	103-144-10	**11-733-3**	242.00
200 - 225	0.010	Yes	Ratchet	103-145-10	**11-734-1**	260.00
225 - 250	0.010	Yes	Ratchet	103-146-10	**11-735-8**	275.00
250 - 275	0.010	Yes	Ratchet	103-147-10	**11-736-6**	280.00
275 - 300	0.010	Yes	Ratchet	103-148-10	**11-737-4**	299.00

Sets

- Supplied in fitted case.
- Supplied with standards.
- Furnished with blanket certificate of accuracy.



11-738-2

11-739-0, 11-742-4 have 0 - 1" and 1 - 2" micrometers with friction thimble; all others are ratchet stop.

Inch

RANGE	NO. OF STANDARDS	GRAD.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 3"	2	0.0010"	103-929	**11-738-2**	$381.00
0 - 3"	2	0.0001"	103-922	**11-739-0**	420.00
0 - 4"	3	0.0010"	103-930	**11-741-6**	458.00
0 - 4"	3	0.0001"	103-931	**11-742-4**	519.00
6 - 12"	6	0.0001"	103-909	**11-747-3**	1,710.00

Metric

RANGE (MM)	NO. OF STANDARDS	GRAD. (MM)	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 75	2	0.01	103-927	**11-750-7**	$384.00

Starrett®
Outside Micrometers & Sets

- No glare satin chrome finish.
- Precise and easy readability.
- Balanced frame & thimble.
- Ring type knurled lock nut.
- Hard and stable one piece spindle.
- Quick & easy adjustments.



11-212-8



11-220-1



11-279-7

Series 226
0.0001" Graduations with Carbide Faces & Locking Levers

MEAS. RANGE	FRICTION THIMBLE	RATCHET STOP	STARRETT MODEL #	PART NUMBER	PRICE
1 - 2"		•	T226XRL-2	**11-212-8**	$275.80
2 - 3"		•	T226XRL-3	**11-213-6**	282.20
3 - 4"		•	T226XRL-4	**11-214-4**	310.65
4 - 5"		•	T226XRL-5	**11-215-1**	326.40
5 - 6"		•	T226XRL-6	**11-216-9**	378.60

Series 226 Set
0.0001" Graduations, Carbide Faces, Ratchet Stop and Locking Lever with Standards & Case

MEAS. RANGE	FRICTION THIMBLE	RATCHET STOP	STARRETT MODEL #	PART NUMBER	PRICE
0 - 3"		•	ST226AXRLZ	**11-217-7**	$805.70
0 - 6"		•	ST226BXRLZ	**11-218-5**	1,886.75

Series 436
0.0001" Graduations with Carbide Faces & Locking Levers

MEAS. RANGE	FRICTION THIMBLE	RATCHET STOP	STARRETT MODEL #	PART NUMBER	PRICE
0 - 1"	•		T436.1XFL-1	**11-220-1**	$154.55
0 - 1"		•	T436.1XRL-1	**11-221-9**	152.45
1 - 2"	•		T436.1XFL-2	**11-222-7**	185.70
1 - 2"		•	T436.1XRL-2	**11-223-5**	178.40
2 - 3"		•	T436.1XRL-3	**11-224-3**	225.35
2 - 3"	•		T436.1XFL-3	**11-225-0**	229.45
3 - 4"		•	T436.1XRL-4	**11-226-8**	253.35
3 - 4"	•		T436.1XFL-4	**11-227-6**	251.15
4 - 5"		•	T436.1XRL-5	**11-228-4**	273.65
4 - 5"	•		T436.1XFL-5	**11-229-2**	270.75
5 - 6"		•	T436.1XRL-6	**11-230-0**	297.85
5 - 6"	•		T436.1XFL-6	**11-231-8**	295.85
6 - 7"		•	T436XRL-7	**11-232-6**	341.10
7 - 8"		•	T436XRL-8	**11-233-4**	367.70
10 - 11"		•	T436XRL-11	**11-236-7**	424.05
11 - 12"		•	T436XRL-12	**11-237-5**	435.45

Series 436 Set
0.001" Graduations, Steel Faces, Ratchet Stop and Locking Lever with Standards & Case

MEAS. RANGE	FRICTION THIMBLE	RATCHET STOP	STARRETT MODEL #	PART NUMBER	PRICE
6 - 12"		•	S436DRLZ	**11-274-8**	$2,765.30
0 - 12"		•	S436ERLZ	**11-275-5**	4,143.70
0 - 300 mm		•	S436MEXRLZ	**11-276-3***	4,478.30

*Carbide face

Series 436 Set
0.0001" Graduations, Carbide Faces, Ratchet Stop and Locking Lever with Standards & Case

MEAS. RANGE	FRICTION THIMBLE	RATCHET STOP	STARRETT MODEL #	PART NUMBER	PRICE
0 - 3"		•	ST436.1AXRLZ	**11-277-1**	$647.70
0 - 4"		•	ST436.1BXRLZ	**11-278-9**	960.15
0 - 6"		•	ST436.1CXRLZ	**11-279-7**	1,545.50
6 - 12"		•	ST436DXRLZ	**11-280-5**	2,881.25
0 - 12"		•	ST436EXRLZ	**11-281-3**	4,303.85

Series 226 – A precision micrometer with outstanding design and finish. Drop forged steel frame with strong ribs is finished with smooth black enamel and polished steel ribs and hub. Quick reading figures every thousandth inch.

Series 436 – The most popular precision micrometer used by skilled craftsmen. Accurate, rugged and easy to use. Rigid one piece steel frame is ribbed for extra strength on sizes up to 6".

Series 436
0.001" Graduations

MEAS. RANGE	CARBIDE FACE	PLAIN	FRICTION THIMBLE	RATCHET STOP	AGD	STARRETT MODEL #	PART NUMBER	PRICE
0 - 1"	•			•	•	436.1XRL-1	**11-241-7**	$152.00
1 - 2"	•			•	•	436.1XRL-2	**11-244-1**	177.85
2 - 3"	•			•	•	436.1XRL-3	**11-246-6**	224.65
4 - 5"	•			•	•	436.1XRL-5	**11-249-0**	267.30
10 - 11"				•	•	436RL-11	**11-255-7**	418.90
11 - 12"				•	•	436RL-12	**11-256-5**	426.20

Series 436 Metric
0.01 mm Graduations

MEAS. RANGE	CARBIDE FACE	PLAIN	FRICTION THIMBLE	RATCHET STOP	AGD	STARRETT MODEL #	PART NUMBER	PRICE
0 - 25	•		•		•	436.1MXFL-25	**11-257-3**	$154.15
100 - 125	•			•	•	436.1MXRL-125	**11-259-9**	272.55
25 - 50	•			•	•	436.1MXRL-50	**11-261-5**	193.40
50 - 75	•			•	•	436.1MXRL-75	**11-263-1**	226.60
125 - 150	•			•	•	436.1MRXRL-150	**11-266-4**	296.50
150 - 175	•			•	•	436MXRL-175	**11-267-2**	331.05
175 - 200	•			•	•	436MXRL-200	**11-268-0**	357.40
200 - 225	•			•	•	436MXRL-225	**11-269-8**	376.75
225 - 250	•			•	•	436MXRL-250	**11-270-6**	396.50

Series 436 Metric Set
0.01 mm Graduations, Carbide Faces, Ratchet Stop and Locking Lever with Standards & Case

MEAS. RANGE	CARBIDE FACE	PLAIN	FRICTION THIMBLE	RATCHET STOP	AGD	STARRETT MODEL #	PART NUMBER	PRICE
0 - 100	•			•		1MBXRLZ	**11-282-1**	$990.60
0 - 150	•			•		1MCXRLZ	**11-283-9**	1,714.20

MEASURING



12-263-0



12-277-0



brown & sharpe

Value-Line Outside Micrometers

- Carbide faces on anvil & spindle.
- 0.0001" straight-line graduations.
- Friction thimble; can also be used as solid thimble.
- Locking lever.
- Meets federal specifications.
- Black enamel frame.
- Standards not included with individual micrometers.

Individual Micrometers

MEAS. RANGE	MODEL #	PART NUMBER	PRICE
0 - 1"	599-1-944	**12-263-0**	$134.40
1 - 2"	599-2-944	**12-264-8**	144.45
2 - 3"	599-3-944	**12-265-5**	149.65
3 - 4"	599-4-944	**12-266-3**	152.35
4 - 5"	599-5-944	**12-267-1**	164.20
5 - 6"	599-6-944	**12-268-9**	168.65
6 - 7"	599-7-944	**12-269-7**	319.70
7 - 8"	599-8-944	**12-270-5**	329.55
8 - 9"	599-9-944	**12-271-3**	335.75
9 - 10"	599-10-944	**12-272-1**	343.35
10 - 11"	599-11-944	**12-273-9**	349.20
11 - 12"	599-12-944	**12-274-7**	358.65

Micrometer Set in Fitted Wooden Case

MEAS. RANGE	STANDARDS PROVIDED	MODEL #	PART NUMBER	PRICE
0 - 3"	NO	599-181-923	**12-275-4**	$518.65
0 - 3"	YES	599-181-923-1	**12-276-2**	585.30
0 - 4"	NO	599-181-924	**12-277-0**	681.70
0 - 4"	YES	599-181-924-1	**12-278-8**	776.20
0 - 6"	NO	599-182-926	**12-279-6**	1,130.60
0 - 6"	YES	599-182-926-1	**12-280-4**	1,309.30

Starrett®

Outside Micrometers



11-288-8

- Satin chrome, no glare finish.
- Balanced frame and thimble for easy handling and quick reading.
- Tapered frame for use in narrow slots and tight places.
- Micro-lapped finish on measuring faces.
- One piece drop forged steel frame.
- Locking lever.
- Decimal equivalents on frame.

RANGE	TYPE	GRADUATIONS	STARRETT MODEL #	PART NUMBER	PRICE
0 - ½"	Ratchet Stop	0.0001"	T232XRL	11-287-0 *	$230.75
0 - 1"	Ratchet Stop	0.001"	T230XRL	11-288-8 *	243.65
0 - 1"	Friction	0.0001"	T230XFL	11-289-6 *	243.65
0 - 1"	Ratchet Stop	0.001"	T230XRLZ	11-290-4 †	241.05
0 - 1"	Friction	0.0001"	T230XFLZ	11-291-2 †	175.00
0 - 1"	Ratchet Stop	0.0001"	T1230XRL	11-292-0 *‡°	315.00
1 - 2"	Ratchet Friction	0.0001"	T2XRL	11-293-8 *◊	294.00
1 - 2"	Friction	0.0001"	T2XFL	11-294-6 *	303.00

Metric

RANGE (MM)	TYPE	GRADUATIONS (MM)	STARRETT MODEL #	PART NUMBER	PRICE
0 - 25	Friction	0.001	V230MXFL	11-296-1 *	$238.00

* Carbide faces. † Includes deluxe padded case. ‡ Includes fitted case.
° Stainless steel. ◊ Includes 1" gage block standard.

brown & sharpe

Convertible Thimble Outside Micrometers



12-145-9

- Micrometers can be used either as a solid thimble tool or with automatic friction action which stops the spindle advance when a pre-determined amount of pressure is exerted against the part being measured.
- All thimble parts are completely interchangeable.
- Graduations: 0.0001"
- Carbide faces and locking lever.
- 1 - 2" and 2 - 3" models have insulated frames.
- Satin chrome finish.
- Meets federal and DIN specifications.

Slant-Line

MEAS. RANGE	MODEL #	PART NUMBER	PRICE
0 - 1"	599-1-31	**12-140-0**	$212.75
0 - 1"	599-1-31-9	**12-141-8** *	229.35
1- 2"	599-2-31	**12-142-6** †	262.65
2 - 3"	599-3-31	**12-143-4** †	271.90
0 - 3" Set	599-181-901	**12-144-2** *†	786.80

*Includes wooden case. † Includes standards.

Straight-Line

MEAS. RANGE	MODEL #	PART NUMBER	PRICE
0 - 1"	599-1-32	**12-145-9**	$214.60
0 - 1"	599-1-32-9	**12-146-7** *	231.15
1 - 2"	599-2-32	**12-147-5** †	264.50
2 - 3"	599-3-32	**12-148-3** †	276.55
0 - 3" Set	599-181-901-1	**12-149-1** *†	794.05

SHOP GRADE

5-Axis Milling Stop

See Pg. 212





10-101-4





TESA®

TESAMASTER

Direct Reading Micrometers

- Increments of 0.005" are digitally displayed in windows, greatly reducing reading errors.
- Flush fitting thimble and vernier for parallax-free reading of thousands and tenths.
- Carbide measuring faces.
- Easy and accurate zero setting.
- Micro-fine graduations.
- Hardened and precision ground spindle 63 RC.
- Uniform, light touch friction drive.
- Forged and specially heat treated steel frame.
- Frame, barrel and thimble satin chrome plated.
- Furnished in fitted case.

RANGE	READING	PART NO.	PRICE
0 - 1"	0.0001"	**10-101-4**	$383.80



51-543-7

Economy Digit Outside Micrometers & Set

- Ratchet stop.
- Carbide tipped anvils.
- Positive locking nut.
- Clear graduations on satin chrome finished thimble.
- Graduations: .0001"/.01 mm
- Standard included for sizes 1 - 2" & larger.
- 3 pc. set includes: 0 - 1", 1 - 2", 2 - 3"

MEAS. RANGE	PART NO.	PRICE
0 - 1"	**51-543-7**	$62.70
1 - 2"	**51-702-9**	95.40
2 - 3"	**51-703-7**	119.25
3 - 4"	**51-704-5**	143.10
0 - 25 mm	**51-705-2**	83.50

Set

DESCRIPTION	PART NO.	PRICE
3 Pc. Set	**51-706-0**	$166.95

SPI®

Digit Outside Micrometers

Mechanical Digit Counter for Quick Error Free Reading



Certified
Right Out of the Box!

- Carbide measuring faces.
- Painted steel frame with plastic heat shield.
- Standard included above 0 - 1"/0 - 25 mm range.
- Spindle dia.: 0.250"
- Graduation: 0.0001"/0.001 mm
- Ratchet thimble.
- Spindle lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**17-849-1**	$99.40
1 - 2"	±0.0002"	**17-850-9**	109.10
2 - 3"	±0.0002"	**17-851-7**	116.60
3 - 4"	±0.0002"	**17-731-1**	128.45
4 - 5"	±0.0002"	**17-732-9**	147.90
5 - 6"	±0.0002"	**17-733-7**	167.00
0 - 25 mm	±0.004 mm	**17-956-4**	99.80

Sets

RANGE	NO. OF PCS.	PART NO.	PRICE
0 - 3"	3	**17-734-5**	$326.00
0 - 4"	4	**17-735-2**	453.45
0 - 6"	6	**17-736-0**	780.05



17-736-0

Starrett® Mechanical Digit Micrometers



10-551-0

- .001" is read directly from the counter.
- .0001" or .001 mm is read from the vernier scale on the micrometer sleeve.
- Clear, easily read numbers reduce errors.
- Balanced frame design for comfortable and accurate measuring.
- Tapered frame for use in narrow slots and tight places.
- Micro-lapped carbide measuring faces.
- No-glare satin chrome finish on thimble and sleeve.
- No-glare black finish on the frame.
- Ring-type knurled lock nut for quick and sure locking.
- The anvil and spindle are sized at .250" (6.35 mm).
- Extremely hard and stable one-piece spindle.
- Smooth friction thimble for uniform pressure.



10-545-2

RANGE	GRAD.	THIMBLE STYLE	MEAS. FACES	STARRETT MODEL #	PART NUMBER	PRICE
0 - 1"	0.001"	Friction	Carbide	216-XFL-1	**10-545-2**	$284.75
0 - 1"	0.001"	Ratchet	Carbide	216-XRL-1	**10-546-0**	284.75
0 - 1"	0.0001"	Friction	Carbide	T216-XFL-1	**10-547-8**	287.80
0 - 1"	0.0001"	Ratchet	Carbide	T216-XRL-1	**10-548-6**	282.95
1 - 2"	0.0001"	Friction	Carbide	T216XFL-2	**10-551-0**	356.65
1 - 2"	0.0001	Ratchet	Carbide	T216-XRL-2	**10-552-8**	356.65
2 - 3"	0.0001	Friction	Carbide	T216-XFL-3	**10-554-4**	395.60
2 - 3"	0.0001	Ratchet	Carbide	T216-XRL-3	**10-555-1**	395.60
3 - 4"	0.0001	Ratchet	Carbide	T-216XRL-4	**10-557-7**	449.40
4 - 5"	0.0001	Ratchet	Carbide	T-216XRL-5	**10-558-5**	617.85
5 - 6"	0.0001	Ratchet	Carbide	T-216XRL-6	**10-559-3**	623.15
6 - 7"	0.0001	Ratchet	Carbide	T-216XRL-7	**10-560-1**	665.80



10-509-8

Mitutoyo
Digit Outside Micrometers & Set

- Easy to read counter.
- Carbide faces.
- Heat insulated frame.
- Friction or ratchet spindle.
- Standards furnished with over 1" micrometers.
- Inch models: 0.0001" thimble, 0.001" counter.
- Metric models: 0.01 mm counter.
- Supplied in a fitted case.

MEAS. RANGE	FRICTION/ RATCHET	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	Friction	193-211	**10-506-4**	$164.65
1 - 2"	Friction	193-212	**10-507-2**	193.85
2 - 3"	Ratchet	193-213	**10-508-0**	216.85
3 - 4"	Ratchet	193-214	**10-509-8**	239.85
0 - 25 mm	Ratchet	193-101	**10-510-6**	156.65

3 Pc. Set

MEAS. RANGE	FRICTION/ RATCHET	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 3"	Friction/ Ratchet	193-923	**10-511-4**	$575.25



11-753-1

Mitutoyo
MDC Lite Digimatic Micrometers

- Large LCD display.
- Inch/Metric conversion.
- Slimmer design and reduced weight make these Digimatic micrometers easier to use.
- Auto power on/off for convenience.
- Resolution: 0.0005"/0.001 mm.
- Accuracy: 0.0001"/0.002 mm.

RANGE	THIMBLE STYLE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25.4 mm	Ratchet Stop	293-831	**11-753-1**	$132.60
0 - 1"/0 - 25.4 mm	Friction	293-832	**11-754-9**	138.45

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	937387	**32-304-8**	$50.25
80" SPC Output Cable	965013	**32-309-7**	59.35
Repl. Battery (SR44)		**07-310-6**	2.25

SPI®
IP54 Electronic Micrometers & Sets



11-545-1

- Standard included above 0 - 1" range.
- Carbide measuring faces.
- Inch/Metric conversion.
- Absolute and Incremental measuring modes.
- Spindle dia.: 0.250"
- Resolution: 0.00005"/0.001 mm
- Friction thimble.
- Battery: #357/303 included.
- Lever lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.00016"/0.002 mm	**11-545-1**	$114.05
1 - 2"	±0.00016"/0.002 mm	**11-546-9**	133.20
2 - 3"	±0.0002"/0.003 mm	**11-547-7**	152.60
3 - 4"	±0.0002"/0.003 mm	**11-548-5**	175.55
4 - 5"	±0.00024"/0.003 mm	**11-549-3**	193.90
5 - 6"	±0.00024"/0.003 mm	**11-550-1**	214.55
6 - 7"	±0.00028"/0.004 mm	**11-551-9**	235.15
7 - 8"	±0.00028"/0.004 mm	**11-552-7**	250.50

SPI Certified
Right Out of the Box!

Micrometer Sets

DESCRIPTION	RANGE	PART NO.	PRICE
3 Pc. Set	0 - 3"	**11-553-5**	$398.10
4 Pc. Set	0 - 4"	**11-554-3**	577.85
Repl. Battery		**07-310-6**	2.25

Sets include standards.



11-202-9

brown & sharpe

IP54 Micromaster® Electronic Micrometers & Set



11-210-2

- Large, easy to read digital display.
- Tungsten carbide faces.
- Spindle lock.
- Preset absolute and differential modes.
- Automatic shut off.
- Battery: CR2032 included.
- Resolution: 0.00005"/1µm
- Meets or exceeds applicable Federal and DIN standards.
- RS models has RS232 interface.
- Complete with shop-hardened fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

Ground Ship ONLY

MEAS. RANGE	RS232 INTERFACE	MODEL #	PART NUMBER	PRICE
0 - 1.2"	NO	599-100	**11-202-9** *	$352.35
0 - 1.2"	NO	599-125	**11-203-7**	364.40
1.0 - 2.0"	NO	599-126	**11-204-5**	449.50
1.0 - 2.0"	YES	599-126RS	**11-205-2**	466.10
2.0 - 3.0"	NO	599-127	**11-206-0**	490.15
2.0 - 3.0"	YES	599-127RS	**11-207-8**	508.65
3.0 - 4.0"	NO	59-128	**11-208-6**	528.10
3.0 - 4.0"	YES	599-128RS	**11-209-4**	546.60

*Not IP54 rated

3 Pc. Set

MEAS. RANGE	RS232 INTERFACE	MODEL #	PART NUMBER	PRICE
0 - 3"	YES	06030029	**11-210-2**	$1,462.80
Repl. Battery (CR2032)			**07-319-7**	2.55



12-047-7

Certified
Right Out of the Box!

IP65 Electronic Micrometers

2 mm Revolution

- Fast and convenient operation.
- Carbide measuring faces.
- 2 mm feeding of spindle for every thimble revolution.
- Automatic shut-off after 5 minutes.
- Inch/Metric conversion.
- Spindle dia.: 0.250"
- Resolution: 0.00005"/0.001 mm
- Absolute and Incremental measuring modes.
- Ratchet thimble.
- SPC/USB data output.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"/0 - 25 mm	0.0001"/0.004 mm	**12-047-7**	$183.88
1 - 2"/25 - 50 mm	0.0002"/0.004 mm	**12-048-5**	201.40
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25



15-953-3

IP65 Electronic Outside Micrometers

- Carbide measuring faces.
- Spindle: 0.256" dia.
- Standard included above 0 - 1" range.
- Resolution: 0.00005"/0.001 mm
- Inch/metric conversion.
- Absolute and incremental function.
- SPC/USB data output.
- Double ratchet.
- Spindle lock.
- Auto shut-off.
- Battery: CR2032 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

Certified
Right Out of the Box!

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"/0 - 25 mm	±0.0001"/0.002 mm	**15-953-3**	$145.20
1 - 2"/25 - 50 mm	±0.0002"/0.002 mm	**15-954-1**	167.05
2 - 3"/50 - 75 mm	±0.0002"/0.003 mm	**15-955-8**	182.65
3 - 4"/75 - 100 mm	±0.0002"/0.003 mm	**15-956-6**	216.65
4 - 5"/100 - 125 mm	±0.0002"/0.003 mm	**15-957-4**	268.60
5 - 6"/125 - 150 mm	±0.0002"/0.003 mm	**15-958-2**	293.95
SPC/USB Interface & Cable		**17-598-4**	145.85
Repl. Battery (CR2032)		**07-319-7**	2.55

Mitutoyo

Quickmike IP54 ABSOLUTE Digimatic Micrometers

Inch/Metric Conversion



10-088-3

- Non-rotating spindle and the new ratchet friction thimble.
- Speedy spindle feed by 10 mm/rev and .4"/rev.
- With absolute linear scale.
- Battery: 357/303 included.
- IP54 dust/water protection (when not connected to data output cable).
- With SPC data output.
- Supplied in fitted plastic case.

MEAS. RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1.2"/ 0 - 30.48 mm	0.00005"/ 0.001 mm	±.0001"	293-676	**10-088-3**	$579.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	959149	**31-586-1**	$49.25
80" SPC Output Cable	959150	**11-829-9**	55.85
Repl. Battery (357/303)		**07-310-6**	2.25

IP65 Absolute Electronic Outside Micrometers



17-840-0

- IP65 level protection.
- Carbide measuring faces.
- Spindle dia.: 0.250"
- Standard included above 0 - 1" range.
- Painted frame with heat shield.
- Resolution: 0.00005"/0.001 mm
- Inc./abs./inch/metric measuring.
- Ratchet thimble.
- Spindle lock.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified
Right Out of the Box!



17-848-3

MEASURING RANGE	ACCURACY	PART NO.	PRICE
0 - 1"/0 - 25 mm	±0.0001"/0.002 mm	**17-840-0**	$153.30
1 - 2"/25 - 50 mm	±0.0002"/0.002 mm	**17-841-8**	186.75
2 - 3"/50 - 75 mm	±0.0002"/0.003 mm	**17-842-6**	213.90
3 - 4"/75 - 100 mm	±0.0002"/0.003 mm	**17-843-4**	241.10
4 - 5"/100 - 125 mm	±0.0002"/0.003 mm	**17-844-2**	268.25
5 - 6"/125 - 150 mm	±0.0002"/0.003 mm	**17-845-9**	308.45
6 - 7"/150 - 175 mm	±0.0002"/0.004 mm	**17-846-7**	321.40

Sets

RANGE	PART NO.	PRICE
0 - 3"	**17-847-5**	$542.40
0 - 6"	**17-848-3**	1,196.65

Accessories

DESCRIPTION	PART NO.	PRICE
SPC/USB Interface & Cable	**20-461-0**	$89.30
Repl. Battery (357/303)	**07-310-6**	2.25



10-800-1



29-000-7



Ground Ship ONLY

IP65 Quick-Action Electronic Micrometers

SPC Data or Wireless Output

- Fully opens and closes in less than one second!
- Lever activated – thimble non-functional.
- Meas. Range: 0 – 1"/0 - 25 mm
- Carbide faced non-rotating spindle.
- Spindle dia.: 0.255"/6.5 mm
- Inch/Metric; Absolute/Incremental modes.
- Resolution: 0.00005"/0.001 mm
- Accuracy: ±0.00015"/0.003 mm
- Automatic shut-off
- Ball attachment included.
- USB data output.
- Wireless Data Transmission to your bluetooth device (29-000-7).
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Quick Action Electronic Micrometer	**10-800-1**	$131.65
Wireless Quick Action Elec. Micrometer	**29-000-7**	175.20
Repl. Battery (CR2032)	**07-319-7**	2.55
SPC Cable	**11-967-7**	123.45



11-759-8

Mitutoyo IP65 Digimatic Coolant-Proof Micrometers

- IP65 Waterproof rating protects against coolants, dirt, grit and chips found in many manufacturing environments.
- 1.2 Year battery life under normal use.
- Carbide tipped measuring faces reduce face wear for longer life.
- ABS/INC, origin set, inch/metric, zero setting, and data output/hold (output models only) features reduced measuring time and increase the micrometer's capability.

Inch

RANGE	RESOLUTION	THIMBLE STYLE	OUTPUT	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.00005"	Ratchet Stop	Yes	±0.00005"	293-330	**11-759-8**	$233.00
0 - 1"	0.00005"	Friction	Yes	±0.00005"	293-335	**11-760-6**	233.00
0 - 1"	0.00005"	Ratchet Stop	No	±0.00005"	293-340	**11-761-4**	182.35
0 - 1"	0.00005"	Ratchet	No	±0.00005"	293-344	**11-762-2**	182.35
0 - 1"	0.00005"	Friction	No	±0.00005"	293-348	**11-763-0**	182.35
0 - 1"	0.0001"	Ratchet	No	±0.0001"	293-349	**11-764-8**	182.35
1 - 2"	0.00005"	Ratchet Stop	No	±0.00005"	293-341	**11-765-5**	236.00
1 - 2"	0.00005"	Ratchet Stop	Yes	±0.00005"	293-331	**11-766-3**	275.00
1 - 2"	0.00005"	Friction	Yes	±0.00005"	293-336	**11-767-1**	275.00
1 - 2"	0.00005"	Ratchet	No	±0.00005"	293-345	**11-768-9**	236.00
2 - 3"	0.00005"	Ratchet Stop	Yes	±0.00005"	293-332	**11-769-7**	339.00
2 - 3"	0.00005"	Ratchet Stop	No	±0.00005"	293-342	**11-770-5**	294.00
2 - 3"	0.00005"	Ratchet	No	±0.00005"	293-346	**11-771-3**	309.00
3 - 4"	0.00005"	Ratchet Stop	Yes	±0.0001"	293-333	**11-772-1**	365.00
3 - 4"	0.00005"	Ratchet	No	±0.0001"	293-347	**11-773-9**	333.00
4 - 5"	0.0001"	Ratchet Stop	Yes	±0.0001"	293-350-10	**11-774-7**	451.00
5 - 6"	0.0001"	Ratchet Stop	Yes	±0.0001"	293-351-10	**11-775-4**	470.00

Micrometer Sets

RANGE	RESOLUTION	THIMBLE STYLE	OUTPUT	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 3"	0.00005"	Ratchet Stop	Yes	±0.00005"	293-960	**11-776-2**	$853.00
0 - 4"	0.00005"	Ratchet Stop	Yes	0 - 3(±0.00005") 3 - 4(±0.0001")	293-961	**11-777-0**	1,190.00

Metric- Resolution: 0.001 mm

Individual Micrometers

RANGE	THIMBLE	OUTPUT	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 25 mm	Ratchet Stop	Yes	±0.001 mm	293-230	**11-778-8**	$233.00
0 - 25 mm	Ratchet Stop	No	±0.001 mm	293-240	**11-779-6**	173.00
25 - 50 mm	Ratchet Stop	Yes	±0.001 mm	293-231	**11-781-2**	275.00
50 - 75 mm	Ratchet Stop	Yes	±0.001 mm	293-232	**11-782-0**	339.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (SR44)		**07-310-6**	2.25



11-755-6

Mitutoyo

IP65 QuantuMike™

- Faster measurement of 2 mm per revolution vs. 0.5 mm standard.
- Patented ratchet thimble mechanism ensures repeatability.
- Function lock helps prevent error.
- Certificate of inspection is provided.
- Carbide faces.
- Resolution: 0.00005"/0.001 mm.
- Accuracy: 0.00005"/0.001 mm.
- Significant reduction in positioning time.

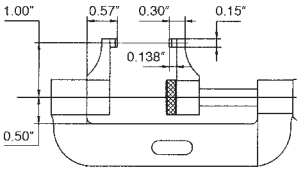
RANGE	SPC OUTPUT	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25 mm	Yes	293-180	**11-755-6**	$256.00
0 - 1"/0 - 25 mm	No	293-185	**11-756-4**	220.00
1 - 2"/25 - 50 mm	Yes	293-181	**11-757-2**	293.00
1 - 2"/25 - 50 mm	No	293-186	**11-758-0**	252.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (SR44)		**07-310-6**	2.25



17-944-0



SPI®

Caliper Type Micrometers

- Caliper type enables precise measuring in hard to reach areas.
- Carbide measuring faces.
- Spindle dia.: 0.250"
- Graduation: 0.001"
- Ratchet thimble.
- Painted frame.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified
Right Out of the Box!

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0002"	**17-944-0**	$327.20
1 - 2"	±0.00024"	**17-945-7**	363.70

SPI®

Spline Micrometer

- Measuring range: 0 - 1"
- Anvil and spindle have a small diameter for measuring splined shafts, slots and keyways.
- Measuring face: 0.118" dia. x 0.200" length.
- Main spindle dia.: 0.250"
- Graduation: 0.0001"
- Accuracy: ±0.0001"
- Ratchet thimble.
- Lever lock.
- Carbide face.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



17-948-1

Certified
Right Out of the Box!

DESCRIPTION	PART NO.	PRICE
Spline Micrometer	**17-948-1**	$167.30

Mitutoyo

Spline Micrometers

For Measuring Splined Shafts, Slots & Keyways

- Carbide faces.
- Satin chrome finish.
- Ratchet stop.
- Graduation: 0.0001"
- Accuracy: ±.00015"
- Supplied in fitted plastic case.
- 1 - 2" model 10-437-2 with standard.



10-436-4

READING	MEAS. RANGE	ANVIL DIA.	MITUTOYO MODEL #	PART NUMBER	PRICE
Mechanical	0 - 1"	0.118"	111-166	**10-436-4**	$235.00
Digit	0 - 1"	0.118"	131-166	**10-437-2**	298.00

SPI®

IP65 Absolute Electronic Spline Micrometers

- Carbide measuring faces offered in two different diameters. for measuring spline shafts, slots, and keyways.
- Main spindle dia.: 0.250"
- Resolution: 0.00005"/0.001 mm
- Accuracy: ±0.0001"/0.002 mm
- Inc./abs/inch/metric measuring.
- Ratchet thimble.
- Spindle lock.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



17-952-3

Certified
Right Out of the Box!

MEASURING RANGE	SPLINE DIA.	PART NO.	PRICE
0 - 1"/0 - 25 mm	0.118"/3 mm	**17-952-3**	$377.35
0 - 1"/0 - 25 mm	0.079"/2 mm	**17-953-1**	377.35
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25

MEASURING



10-438-0

Mitutoyo
IP65 Digimatic Spline Micrometers
with LCD Display and SPC Output

- Inch/Metric.
- Resolution: 0.00005"/0.001 mm.
- Accuracy: 0.0001"
- Battery: 357/303 included.

MEASURING RANGE	ANVIL DIA.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25 mm	0.118"	331-351	**10-438-0**	$459.00
0 - 1"/0 - 25 mm	0.079"	331-361	**10-439-8**	459.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25



51-090-9

Blade Micrometers

- Perfect for easy measurements of narrow grooves, slots and keyways.
- Blade thickness: 0.030", length: 0.256".
- Spindle and anvil are hardened, ground and lapped.
- Graduations are crisp and clean for easy and accurate reading.

RANGE	GRADUATION	PART NO.	PRICE
0 - 1"	0.0010"	**51-141-0**	$144.90
0 - 1"	0.0001"	**51-142-8**	163.20
1 - 2"	0.0010"	**51-090-9**	157.10
1 - 2"	0.0001"	**51-143-6**	169.30
2 - 3"	0.0001"	**51-144-4**	187.35

SPI® Blade Micrometers

- Measures narrow grooves and hard to reach areas.
- Blade thickness: 0.030", length: 0.250"
- Non-rotating spindle has 0.250" dia.
- Standard included above 0 - 1" range.
- Painted frame with heat shield.
- Carbide face.
- Graduation: 0.0001"
- Ratchet/friction thimble.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



17-741-0

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**17-741-0**	$195.75
1 - 2"	±0.0002"	**17-742-8**	213.10
2 - 3"	±0.0002"	**17-743-6**	222.55
3 - 4"	±0.0002"	**17-744-4**	226.75

Certified
Right Out of the Box!

Starrett® Blade Micrometers

- Measures narrow grooves, slots, keyways and recesses.
- The blades are .030" (0.8 mm) thick.
- Blades will measure to $^{5}/_{16}$" (8 mm) depths.
- Non-rotating spindle prevents blade from turning in narrow slots or rolling off shoulder.
- Satin-chrome finish.
- Graduation: 0.001"



11-105-4

MEAS. RANGE	STARRETT MODEL #	PART NUMBER	PRICE
0 - 1"	486P-1	**11-105-4**	$467.10
1 - 2"	486P-2	**11-106-2**	486.65
2 - 3"	486P-3	**11-107-0**	492.90
3 - 4"	486P-4	**11-108-8**	521.55
4 - 5"	486P-5	**11-109-6**	540.05
5 - 6"	486P-6	**11-110-4**	642.15

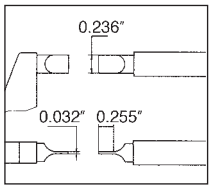
SPI® IP54 Electronic Blade Micrometers

- Measures narrow grooves and hard to reach areas.
- Standard included above 0 - 1" range.
- Painted frame with heat shield.
- Resolution: 0.00005"/0.001 mm
- Non rotating spindle has 0.250" dia.
- Inch/Metric conversion.
- Ratchet thimble.
- Spindle lock.
- SPC/USB data output.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.



17-749-3

Certified
Right Out of the Box!



RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**17-749-3**	$553.85
1 - 2"	±0.0002"	**17-750-1**	578.80
SPC/USB Interface & Cable		**17-598-4**	145.85
Repl. Battery (357/303)		**07-310-6**	2.25



11-792-9

Mitutoyo

Mechanical & Digimatic Blade Micrometers

For measuring narrow grooves, keyways and other hard to reach dimensions. Hammertone green frame finish on 2", 3" and 4" models.

- Clear graduations on satin chrome finish.
- 1 - 2" micrometers furnished with standard for mic reading verification.
- Ratchet stop gives a constant feel between operators.
- Digimatic Micrometers have ABS/INC, origin set, In./mm, zero setting, data ouput/hold features to reduce measuring time and increase the micrometers' capability.
- Resolution: 0.00005"/0.001 mm.

Mechanical Type (Standard Reading)

RANGE	GRAD.	ACCURACY	BLADE DIM.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.0001"	±0.00015"	0.030"	122-125	**11-785-3**	$294.00
1 - 2"	0.0001"	±0.00015"	0.030"	122-126	**11-786-1**	307.00
2 - 3"	0.0001"	±0.00015"	0.030"	122-127	**11-787-9**	323.00
3 - 4"	0.0001"	±0.00015"	0.030"	122-128	**11-788-7**	344.00
0 - 1"	0.0001"	±0.0002"	0.016"	122-135	**11-789-5**	339.00
0 - 1"	0.0001"	±0.00015"	0.016"	122-151	**11-790-3** *	345.00

* Carbide Anvil

Digimatic (Electronic Digital Readout w/SPC)

RANGE	ACCURACY	BLADE DIM.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25.4 mm	±0.00015"	0.016"	422-360	**11-791-1**	$780.00
0 - 1"/0 - 25.4 mm	±0.00015"	0.030"	422-330	**11-792-9**	761.00
1 - 2"/25.4 – 50.8 mm	±0.00015"	0.030"	422-331	**11-793-7**	815.00
2 - 3"/50.8 - 76.2 mm	±0.00015"	0.030"	422-332	**11-794-5**	861.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (SR44)		**07-310-6**	2.25

Electronic Blade Micrometer

Inch/Metric Conversion



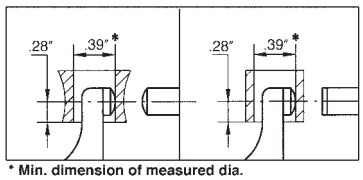
51-339-0

- Friction thimble.
- Perfect for easy measurements of narrow grooves, slots and keyways.
- Spindle and anvil are hardened, ground and lapped.
- Large LCD display.
- Accuracy: 0.00016"/0.004 mm
- Graduation: 0.00005"/0.001 mm
- Blade thickness: 0.030", length: 0.256".

MEAS. RANGE	PART NO.	PRICE
0 - 1"/0 - 25 mm	**51-339-0**	$242.90
Repl. Battery (357/303)	**07-310-6**	2.25



17-928-3



* Min. dimension of measured dia.

SPI® Ball Anvil Micrometers

Certified Right Out of the Box!

- Carbide sphere on fixed anvil.
- Carbide sphere or flat face on spindle.
- Painted frame with plastic heat shield.
- Spindle dia.: 0.250".
- Graduation: 0.0001"
- Accuracy: ±0.0001"
- Ratchet thimble.
- Lever lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	DESCRIPTION	PART NO.	PRICE
0 - 1"	Ball on Anvil Only	**17-928-3**	$77.40
0 - 1"	Ball on Anvil & Spindle	**17-753-5**	71.30

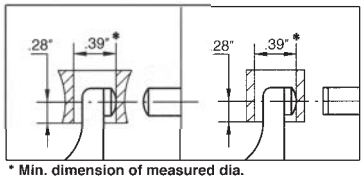


17-924-2



17-926-7

Certified Right Out of the Box!



* Min. dimension of measured dia.

SPI® IP65 Absolute Electronic Ball Micrometers

- Carbide sphere on fixed anvil.
- Carbide sphere or flat face on spindle.
- Painted frame with plastic heat shield.
- Standard included with 1 - 2".
- Spindle dia.: 0.250"
- Resolution: 0.00005"/0.001 mm
- Inc./abs./inch/metric measuring.
- SPC/USB data output.
- Ratchet thimble.
- Spindle lock.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Ball on Anvil Only

SIZE	ACCURACY	PART NO.	PRICE
0 - 1"	0.0001"	**17-924-2**	$191.70

Ball on Anvil and Spindle

SIZE	ACCURACY	PART NO.	PRICE
0 - 1"	0.0001"	**17-926-7**	$191.70
1 - 2"	0.0002"	**17-927-5**	204.45
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25



17-932-5

Certified
Right Out of the Box!

SPI® Point Micrometers

Pointed spindle and anvil (30 Deg.) for measuring drill web, grooves, and other hard to reach areas.

- Carbide tipped measuring faces.
- Point radius approx. 0.012".
- Spindle Dia.: 0.250"
- Painted frame with heat shield.
- Ratchet thimble.
- Lever lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	GRADUATION	ACCURACY	PART NO.	PRICE
0 - 1"	0.001"	±0.0001"	**17-932-5**	$112.65
0 - 1"	0.0001"	±0.0001"	**17-933-3**	100.40



17-940-8

SPI® IP65 Absolute Electronic Point Micrometers

Pointed Spindle and Anvil (30 deg.) for Measuring Drill Web, Grooves and Other Hard to Reach Areas.

- Carbide tipped measuring points.
- Point radius approx. 0.012".
- Standard included above 0 - 1" range.
- Painted frame with heat shield.
- Spindle dia.: 0.250"/6.5 mm
- Resolution: 0.00005"/0.001 mm
- Inc./abs./inch/metric measuring.
- Ratchet thimble.
- Spindle lock.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified
Right Out of the Box!

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"/0 - 25 mm	±0.0001"	**17-940-8**	$314.60
1 - 2"/25 - 50 mm	±0.0002"	**17-941-6**	356.30
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25



10-388-7



10-397-8

Mitutoyo Vernier & Digimatic Point Micrometers

Ideal For Measuring The Web Thickness of Drills, Small Grooves and Other Hard-To Reach Dimensions

- Points have approximately 0.012" radius to reduce point breakage.
- Satin-chrome finish.
- Choice of hardened steel or carbide points.
- Ratchet stop.
- 1 - 2" and larger furnished with standards.
- Supplied in fitted case.

Vernier

RANGE	ANGLE	LENGTH	GRADUATION	TYPE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	15°	0.394"	0.001"	Hard. Steel	112-177	**10-388-7**	$219.00
0 - 1"	30°	0.430"	0.001"	Hard. Steel	112-225	**10-389-5**	166.00
1 - 2"	30°	0.430"	0.001"	Hard. Steel	112-226	**10-390-3**	192.00
0 - 1"	15°	0.394"	0.001"	Carbide	112-189	**10-391-1**	278.00
0 - 1"	30°	0.430"	0.001"	Carbide	112-237	**10-392-9**	224.00
1 - 2"	15°	0.394"	0.001"	Carbide	112-190	**10-393-7**	299.00
1 - 2"	30°	0.430"	0.001"	Carbide	112-238	**10-394-5**	233.00

Digimatic

- Digimatic IP-65 Rating with SPC output.
- ABS/INC, origin set, inch/metric, zero setting and data output/hold feature.
- Resolution: 0.00005"/0.001 mm.
- IP65 coolant proof.

RANGE	ANGLE	LENGTH	TYPE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25.4 mm	15°	0.394"	Carbide	342-351	**10-395-2**	$462.00
0 - 1"/0 - 25.4 mm	30°	0.430"	Carbide	342-361	**10-397-8**	462.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15



17-757-6



17-758-4

Certified
Right Out of the Box!

SPI® Tube Micrometers

- Carbide tipped measuring faces.
- Ratchet stop.
- Painted frame with heat shield.
- Lever lock.
- Spindle dia.: 0.250"
- Resolution: 0.0001"
- Accuracy: ±0.0001"
- Fix anvil length: 0.315"
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	HEAD DIA.	ANVIL	PART NO.	PRICE
0 - 1"	0.070"	Pin	**17-757-6**	$110.70
0 - 1"	0.137"	Barrel	**17-758-4**	110.70





Mitutoyo

Tube Micrometers

For Measuring the Wall Thickness of Various Tubing

- Cylindrical anvil.
- Accuracy: ±0.00015"
- Graduation: 0.0001"
- Carbide tipped.
- Ratchet Stop.
- Locking Lever.
- Shipped in a fitted plastic case.

MEAS. RANGE	HEAD DIA.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.070"	115-314	**10-562-7**	$143.00
0 - 1"	0.150"	115-313	**10-563-5**	143.00



SPI®

IP65 Absolute Electronic Tube Micrometers

Pin or Barrel Perpendicular Anvil

- Carbide tipped spindle face.
- Resolution: 0.00005"/0.001 mm
- Accuracy: 0.0001"/0.004 mm
- Fix anvil length: 0.315"
- ABS/INC, origin set, zero setting.
- Inch/Metric conversion.
- Ratchet stop.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEAS. RANGE	HEAD DIA.	ANVIL	PART NO.	PRICE
0 - 1"/25 mm	0.070"	Pin	**17-765-9**	$342.50
0 - 1"/25 mm	0.137"	Barrel	**17-766-7**	342.50
SPC/USB Interface & Cable			**20-461-0**	89.30
Repl. Battery (357/303)			**07-310-6**	2.25





Mitutoyo

Digimatic IP65 Tube Micrometers

with LCD Display and SPC Output

- Cylindrical anvil.
- Inch/Metric.
- Accuracy: ±0.00015"
- Resolution: 0.0001"/0.0010 mm
- ABS/INC.
- Data Output/Hold, Origin Set, Zero Setting
- Satin chrome finish.
- Ratchet stop.
- Locking lever.
- Battery: 357/303 included.
- Shipped in a fitted plastic case.

MEASURING RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25.4 mm	395-363	**10-564-3**	$451.00
0 - 1"/0 - 25.4 mm	395-364	**10-565-0**	440.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25

SPI®

IP65 Electronic Crimp Height Micrometer

- Measures height of crimp contacts.
- 60° point spindle with blade anvil.
- Preset, zero set, data hold/output.
- Inc./abs./inch/metric measuring.
- Resolution: 0.00005"/0.001 mm
- Accuracy: ±0.0002"/0.002 mm
- Spindle dia.: 0.25"
- Ratchet thimble.
- Spindle lock.
- Carbide faced.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



RANGE	PART NO.	PRICE
0 - 1"/0 - 25 mm	**17-638-8**	$336.05
SPC/USB Interface & Cable	**20-461-0**	89.30
Repl. Battery (357/303)	**07-310-6**	2.25

SPI®

Disc Micrometers

- Disc flanges on micrometer make it possible to get accurate measurements on areas not reachable with standard micrometers such as gear pitch, ribs, slot and groove distances.
- Painted frame with plastic heat shield.
- Disc flange dia.: 0.787"
- Spindle dia.: 0.250"
- Graduation: 0.0001"
- Standards included above 0 - 1"
- Ratchet thimble.
- Non rotating spindle.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**17-767-5**	$132.80
1 - 2"	±0.0002"	**17-768-3**	146.20
2 - 3"	±0.0002"	**17-769-1**	160.90
3 - 4"	±0.0002"	**17-770-9**	182.45

MEASURING



17-922-6

Certified
Right Out of the Box!

SPI®
IP54 Absolute Electronic Outside Disc Micrometers

- Thin measuring faces enter narrow grooves, slots and recesses, making measuring fast and accurate.
- Non-rotating spindle.
- Disc flange diameter: 25/32"/20 mm
- Resolution: 0.0005"/0.001 mm
- Standards included above 0 - 1" range.
- Painted frame with heat shield.
- Absolute and Incremental measuring modes.
- Inch/Metric conversion.
- Ratchet thimble.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEAS. RANGE	ACCURACY	PART NO.	PRICE
0 - 1"/0 - 25 mm	±0.0001"/0.005 mm	**17-922-6**	$354.45
1 - 2"/25 - 50 mm	±0.0002"/0.005 mm	**17-923-4**	376.65
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25



11-113-8

Starrett®
Outside Disc Micrometers

- Ratchet stop with rotating spindles.
- Satin chrome finish and micro lapped measuring faces.
- Locking lever.
- ½" diameter discs tapering to 0.015" thick at the edge.

RANGE	GRADUATION	STARRETT MODEL #	PART NUMBER	PRICE
0 - 1"	0.001"	256RL-1	**11-113-8** *	$370.25
1 - 2"	0.001"	256RL-2	**11-114-6**	400.20
2 - 3"	0.001"	256RL-3	**11-115-3**	432.35

* Supplied in fitted case



10-357-2



10-360-6

Mitutoyo
Outside Disc Micrometers

- The 0.79" diameter thin discs make this the perfect tool for measuring narrow grooves, slots and recesses.
- Measuring discs are hardened, ground and micro-lapped.
- Ratchet stop for constant force.
- Digimatic Micrometers are IP65 and ABS/INC, origin set, inch/metric, zero setting and have data output/hold features.
- Supplied in a fitted case.

IP65 Digimatic Rotating

MEASURING RANGE	GRADUATION (IN./MM)	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"/0 - 25 mm	0.0001/0.001	323-350	**10-357-2** *	$487.00
1 - 2"/25 - 50 mm	0.0001/0.001	323-351	**10-358-0** *	546.00

* SPC output

Mechanical Rotating

MEASURING RANGE	GRADUATION	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.001"	123-125	**10-360-6**	$238.00
0 - 1"	0.001"	223-125	**10-361-4** †	306.00
1 - 2"	0.001"	123-126	**10-362-2** °	262.00
2 - 3"	0.001"	123-127	**10-363-0** °	278.00
3 - 4"	0.001"	123-128	**10-364-8** °	303.00
0 - 25 mm	0.010 mm	123-101	**10-365-5**	238.00
25 - 50 mm	0.010 mm	123-102	**10-366-3** °	262.00

Mechanical Rotating

MEASURING RANGE	GRADUATION	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.001"	123-125	**10-360-6** °	$238.00

† with digital counter ° with standard graduations

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25

SPI®
Deep Throat Micrometers

- Great for use with sheet metal and similar applications.
- Clear graduations on satin chrome finish.
- Enamel finish frame. Ratchet stop and spindle lock.
- Carbide tipped measuring faces.
- 6" model has flat anvil and spindle, 12" model has round anvil and flat spindle.
- Spindle dia.: 0.250"
- Accuracy: ±0.0003"
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	THROAT DEPTH	GRADUATION	PART NO.	PRICE
0 - 1"	6"	0.0001"	**17-775-8**	$141.60
0 - 1"	12"	0.0001"	**17-776-6**	196.30



Certified
Right Out of the Box!

17-775-8

Mitutoyo

Spherical Face Micrometers

- Designed for measuring the wall thickness of small parts.
- Great for measuring sleeves, collars, tubing and various cylindrical work pieces.
- Also use to measure dimensions from the inside of holes to outside edges.
- Ratchet stop with carbide tipped measuring faces.
- 1 - 2" and larger are furnished with standards.
- Digimatic models are inch/metric and have ABS/INC, IP-65 waterproof ratings against coolants, dirt, grit and chips.
- Supplied in fitted case.



10-461-2



10-463-8

Mechanical

DESCRIPTION	MEAS. RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
Spherical Anvil	0 - 1"	0.0001"	±0.00015"	115-153	**10-461-2**	$119.65
Spherical Anvil & Spindle	0 - 1"	0.0001"	±0.00015"	115-253	**10-462-0**	142.00

Digit

DESCRIPTION	MEAS. RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
Spherical Anvil	0 - 1"	0.0001"	±0.00015"	295-153	**10-463-8**	$210.00
Spherical Anvil & Spindle	0 - 1"	0.0001"	±0.00015"	295-253	**10-464-6**	219.00
Spherical Anvil & Spindle	0 - 25 mm	0.01mm	±0.003 mm	295-215	**10-465-3**	219.00



10-468-7

IP65 Digimatic

DESCRIPTION	MEAS. RANGE	RESOLUTION	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
Spherical Anvil	0 - 1"/0 - 25.4mm	0.00005"	±0.0001"	395-351	**10-466-1**	$397.00
Spherical Anvil	1 - 2"/25 - 50.8 mm	0.00005"	±0.0001"	395-352	**10-467-9**	415.00
Spherical Anvil & Spindle	0 - 1"/0 - 25.4 mm	0.00005"	±0.0001"	395-371	**10-468-7**	400.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25



12-391-9

SPI®

Digital Deep Throat Micrometer

- Carbide flat faced fixed anvil.
- Moving anvil with 30 deg. ground angle.
- Fast sliding scale.
- Rugged lightweight design provides measurements up to 2.5" and will accommodate depths to 3".
- Easy to read LCD display.
- Inch/metric conversion
- Zero set and on/off buttons.
- Resolution: 0.0005"/0.01 mm
- Accuracy: ±0.001"/0.02 mm
- Furnished in fitted case.

RANGE	PART NO.	PRICE
0 - 2.5"/63 mm	**12-391-9**	$193.65
Repl. Battery (357/303)	**07-310-6**	2.25

SPI®

IP65 Absolute Electronic Deep Throat Micrometers

Measuring Range 0 – 1" with Your Choice of 6" or 12" Deep Throat



17-777-4

Certified
Right Out of the Box!

- Enamel finish frame. Ratchet thimble. Spindle lock.
- Carbide tipped measuring faces.
- For sheet metal and similar applications.
- Inch/Metric absolute and relative measuring conversion.
- 6" model has flat anvil and spindle, 12" model has round anvil and flat spindle.
- Spindle dia.: 0.250"
- Resolution: 0.00005"/0.001 mm
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

THROAT DEPTH	ACCURACY	PART NUMBER	PRICE
6"	±0.0003"/0.006 mm	**17-777-4**	$379.45
12"	±0.0003"/0.007 mm	**17-778-2**	444.50
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25



51-551-0

Economy Indicating Micrometer

- Jeweled bearings, hardened pinion and gear.
- Hardened and precision ground spindle and anvil, 0.255" dia.
- Push button actuated retractable anvil, 0.040" travel.
- Indicator range ±0.003", reading 0.00005".
- Micrometer reading 0.001".
- Indicating accuracy 0.00008".
- Satin chromed frame with plastic heatshield.
- Furnished in wooden case.

DESCRIPTION	PART NO.	PRICE
0 – 1" Indicating Mic.	**51-551-0**	$299.95



21-070-8

Certified
Right Out of the Box!

SPI®

Indicating Micrometers

- Retractable anvil with indicator for precise measurement.
- Carbide tipped measuring faces.
- Lever lock.
- Spindle dia.: 0.250"/6 mm
- Indicator Resolution: 0.00005"/0.001 mm
- Indicator Range: ±0.0016"/0.04 mm
- Micrometer Reading: 0.0001"/0.002 mm
- Standards included above 0 -1" range.
- 1 - 2" does not have center support.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEAS. RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**21-070-8**	$565.45
1 - 2"	±0.0002"	**21-071-6**	667.35
0 - 25 mm	±0.002 mm	**21-074-0**	602.60



11-528-7

Mitutoyo
IP54 Dial Snap Meter
Outside Indicating Limit Gage

- Direct Go/No-Go judgment for mass produced parts.
- Hard coating to shield indicator's window plate from scratches.
- Easy to read large-sized graduation plates.
- Spindle dia.: 0.425"/10.8 mm.
- Indicating range: ±0.0023".
- Accuracy: 0.00005".
- Flatness: 0.000012".
- Parallelism: 0.000024".
- Supplied in fitted plastic case.

MEAS. RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 – 1"	523-131	**11-528-7**	$810.00

Mitutoyo
IP54 Indicating Micrometers
Function as a GO/NO-GO Gage and is Great for High Production Runs



10-398-6

- Large easy to read dial face.
- ±0.0023" range with 0.00005" graduations.
- Hard coated crystal protects against scratches.
- Can be hand held or mounted in a micrometer stand.
- Supplied in fitted case.

MEAS. RANGE	THROAT DEPTH OF FRAME	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.98"	510-131	**10-398-6** *	$827.00
1 - 2"	1.349"	510-132	**10-399-4**	891.00
2 - 3"	1.97"	510-133	**10-400-0**	993.00

* retractable anvil button on the right side.

ETALON SWITZERLAND

Indicating Micrometers



Swiss Made

- Easy to read, wide spaced graduations are permanently deep-etched on large diameter barrel and thimble. Satin chrome finish.
- Can be set for continuous accurate gaging. Push button activated retractable anvil for quick insertion and removal of parts. Adjustable part-support rod.
- Positive spindle lock. Hardened and precision ground stainless steel spindle.
- Carbide measuring faces. Flatness of measuring faces 0.000012".
- Micrometer reading 0.0001". Fine dial-adjustment with knurled button for accurate zero setting.
- Adjustable tolerance hands, color coded for plus and minus sides.
- Jeweled, shock proof movement. Repeatability of dial indicator 0.00008".
- Supplied in fitted case with 2 adjusting wrenches.

RANGE	INDICATOR READING	PART NUMBER	PRICE
0 - 1"	0.0001"	**12-107-9**	$1,496.05
1 - 2"	0.0001"	**12-108-7**	1,616.00
0 - 1"	0.00005"	**12-109-5**	1,458.65
1 - 2"	0.00005"	**12-110-3**	1,527.00
0 - .800"	0.00005"	**12-111-1** *	1,544.00

* With small measuring faces. Diameter of pins anvils 0.080". Length of pin anvils 0.200".

DESCRIPTION	PART NO.	PRICE
Cover Assembly	**02-079-2**	Call

Hub Micrometers

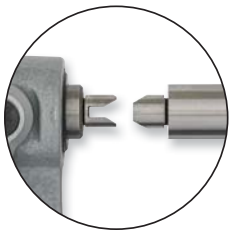


17-917-6

- Measures hub thickness and shoulders inside a bore.
- Carbide measuring faces.
- Spindle dia.: 0.250"
- Graduation: 0.0001"
- Ratchet thimble.
- Standards included above 0 - 1" range.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	ACCURACY	PART NO.	PRICE
0 - 1"	±0.0001"	**17-917-6**	$166.85
1 - 2"	±0.0002"	**17-918-4**	197.50
2 - 3"	±0.0002"	**17-919-2**	214.70

Certified
Right Out of the Box!





20-953-6

Mechanical and IP65 Absolute Electronic Screw Thread Micrometers

- Interchangeable anvils for 60° threads.
- Standards included above 0 - 1" range.
- Painted steel frame.
- Ratchet thimble.
- Locking clamp.
- Anvils sold separately.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Mechanical

MEAS. RANGE	RESOLUTION	ACCURACY	PART NO.	PRICE
0 - 1"	0.001"	±0.0001"	**20-953-6**	$192.25
1 - 2"	0.001"	±0.0002"	**20-954-4**	170.70
2 - 3"	0.001"	±0.0002"	**20-955-1**	238.55
3 - 4"	0.001"	±0.0002"	**20-956-9**	210.55

Certified
Right Out of the Box!

IP65 Absolute Electronic

- Inch/Metric conversion.
- Absolute and Incremental measuring modes.
- Automatic shut-off.
- SPC/USB data output.
- Battery: 357/303 included.

MEAS. RANGE	RESOLUTION	ACCURACY	PART NO.	PRICE
0 - 1"/0 - 25 mm	0.00005"/0.001 mm	±0.0001"/0.004 mm	**15-988-9**	$256.70
1 - 2"/25 - 50 mm	0.00005"/0.001 mm	±0.0002"/0.004 mm	**15-989-7**	275.60
2 - 3"/50 - 75 mm	0.00005"/0.001 mm	±0.0002"/0.005 mm	**15-990-5**	294.50
3 - 4"/75 - 100 mm	0.00005"/0.001 mm	±0.0002"/0.005 mm	**15-991-3**	318.70
SPC/USB Interface & Cable			**20-461-0**	89.30
Repl. Battery (357/303)			**07-310-6**	2.25

Standards

- Hardened, ground and tapped for accuracy.

LENGTH	ACCURACY	PART NO.	PRICE
25 mm	±0.0030 mm	**14-230-7**	$64.65
50 mm	±0.0035 mm	**14-231-5**	68.40
75 mm	±0.0040 mm	**14-232-3**	73.50
1"	±0.00012"	**14-233-1**	64.65
2"	±0.00014"	**14-234-9**	68.40
3"	±0.00016"	**14-235-6**	73.50

Anvils - 60° Threads

PITCH	PART NO.	PRICE
64 - 48 TPI/0.4 - 0.5 mm	**20-961-9**	$23.85
44 - 28 TPI/ 0.6 - 0.9 mm	**20-962-7**	23.85
24 - 14 TPI/ 1 - 1.75 mm	**20-963-5**	23.85
13 - 9 TPI/ 2 - 3 mm	**20-964-3**	23.85
8 - 5 TPI/ 3.5 - 5 mm	**20-965-0**	23.85
4.5 - 3.5 TPI/ 5.5 - 7 mm	**20-966-8**	23.85
6 Pair Set (2 ea. above)	**20-967-6**	150.70



10-777-1



10-779-7

Mitutoyo Screw Thread Micrometers

- Satin chrome finish.
- Carbide-tipped anvil and spindle.
- Ratchet Stop.
- 1 - 2" and larger include standard.
- Complete with fitted case.

with Digital Readout & IP65

MEAS. RANGE	DIGITAL READOUT (IN./MM)	ANVILS SUPPLIED	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.00005/0.001	No	326-351-30	**10-777-1**	$666.00
1 - 2"	0.00005/0.001	No	326-352-30	**10-782-1**	688.00

without Readout

MEAS. RANGE	ANVILS SUPPLIED	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	No	126-137	**10-779-7**	$438.00
1 - 2"	No	126-138	**10-780-5**	524.00
1 - 2"	Yes	126-902	**10-781-3**	983.00
2 - 3"	No	126-139	**10-783-9**	592.00
2 - 3"	Yes	126-903	**10-784-7**	1,050.00
3 - 4"	No	126-140	**10-785-4**	695.00
4 - 5"	No	126-141	**10-786-2**	748.00
5 - 6"	No	126-142	**10-787-0**	789.00

Individual 60° Anvils

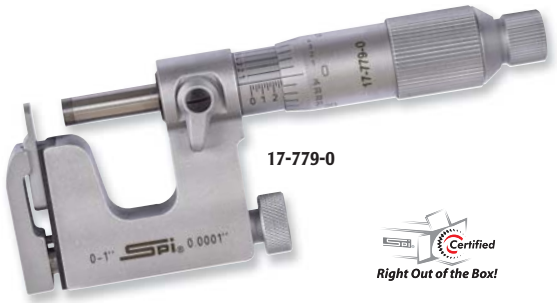
THREADS PER INCH	MITUTOYO MODEL #	PART NUMBER	PRICE
64 - 48	126-801	**10-788-8**	$76.35
44 - 28	126-802	**10-789-6**	76.35
24 - 14	126-803	**10-790-4**	76.35
13 - 9	126-804	**10-791-2**	76.35
8 - 5	126-805	**10-792-0**	76.35
4.5 - 3.5	126-806	**10-793-8**	76.35
6 Pc. Set 64 - 3.5	126-800	**10-794-6**	458.00

Standards

LENGTH	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
1"	±0.00015"	167-294	**10-795-3**	$78.15
2"	±0.0002"	167-295	**10-796-1**	84.20
3"	±0.0002"	167-298	**10-797-9**	89.60

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25



17-779-0

Certified
Right Out of the Box!

SPI®
Multi-Anvil Micrometer

- Measuring range: 0 - 1"
- Kit comes complete with two interchangeable anvils.
  - Flat anvil (0.059" x 0.25") for checking slot locations, etc.
  - Rod anvil (0.118") for checking hole locations or wall thickness.
- Can be used without anvils to measure steps.
- Resolution: 0.0001"
- Accuracy: ±0.0001"
- Spindle dia.: 0.250"
- Carbide measuring face.
- Ratchet thimble.
- Spindle lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Multi-Anvil Micrometer	**17-779-0**	$151.70



17-783-2

Certified
Right Out of the Box!

SPI®
IP65 Absolute Electronic Multi-Anvil Micrometer

- Measuring range: 0 - 1"/0 - 25 mm
- Kit comes complete with two interchangeable anvils.
  - Flat anvil (0.059" x 0.25") for checking slot locations, etc.
  - Rod anvil (0.118") for checking hole locations or wall thickness.
- Can be used without anvils to measure steps.
- Resolution: 0.00005"/0.001 mm
- Accuracy: 0.0001"/0.002 mm
- Spindle dia.: 0.255"
- Carbide measuring face.
- Inc./abs./inch/metric measuring.
- Ratchet thimble.
- Spindle lock.
- Automatic shut-off.
- SPC/USB data output.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
IP65 Absolute Electronic Multi-Anvil Micrometer	**17-783-2**	$374.05
SPC/USB Interface & Cable	**20-461-0**	89.30
Repl. Battery (357/303)	**07-310-6**	2.25

Starrett®
Mul-T-Anvil



10-339-0

- Quickly interchange anvils.
- Accuracy: ±0.0002".
- Range: 0 - 1".
- Graduation: 0.001".
- Ratchet stop with lock nut.
- Includes round and flat anvils and carbide faced spindle.
- Starrett Model # 220XRL-1

DESCRIPTION	PART NO.	PRICE
Mul-T-Anvil	**10-339-0**	$302.80



11-796-0



11-799-4

Mitutoyo
Uni-Mike
Mechanical & Digimatic

Two Anvils are Supplied:
- **Rod Anvil** - 0.118" (3 mm) diameter is useful in checking small tube thicknesses or checking the distance from a drilled hole to the edge of the workpiece.
- **Flat Anvil** - 0.059" (1.5 mm) in thickness, and is used to measure shoulders, lands, fins, etc., as well as regular outside dimensions.

- Can be used without anvil and clamp to measure heights or steps up to 0.0001".
- Spindle lock.
- Optional disc anvils are available to convert the UNI-MIKE into a compact, low cost height micrometer. Discs have lapped mirror surfaces.
- Graduations: 0.0001".
- Carbide tipped spindle face.
- Friction thimble.
- The 317 series provides digital readout to 0.00005"/0.001 mm with ±0.0002" accuracy and can be linked to the SPC system.

Mechanical - Inch

RANGE	RESOLUTION	ANVILS SUPPLIED	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.0001"	Flat & Rod Anvils	117-107	**11-796-0**	$203.00
1 - 2"	0.0001"	Flat & Rod Anvils, and 1" Standard	117-108	**11-797-8**	238.00
Disc Anvil for 0 - 1" Micrometer			950758	**11-798-6**	87.25

Digimatic - Inch/MM with SPC

RANGE	RESOLUTION	ANVILS SUPPLIED	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.00005"	Flat & Rod Anvils	317-351	**11-799-4** *	$516.00
1 - 2"	0.00005"	Flat & Rod Anvils, and 1" Standard	317-352	**11-800-0** *	525.00

* IP65 Level: Protection against coolants, dust and dirt.

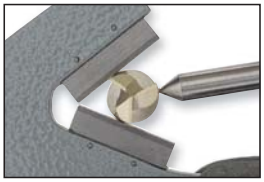
Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25

Mechanical and IP65 Absolute Electronic V-Anvil Micrometers

Measure Diameter of 3 or 5 Fluted Tools Such as Taps, Reamers and End Mills.

- Carbide tipped measuring faces.
- Painted steel frame.
- Main spindle dia.: 0.250"
- Standards included.
- Ratchet thimble.
- Spindle lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



Certified
Right Out of the Box!



17-812-9

Mechanical

- Resolution: 0.001"

RANGE	NO. OF FLUTES	ACCURACY	PART NUMBER	PRICE
0.090" - 1.00"	3	0.0001"	**17-812-9**	$385.10
0.200" - 1.00"	5	0.0002"	**17-813-7**	385.10
1.00" - 2.00"	3	0.0002"	**17-814-5**	476.50

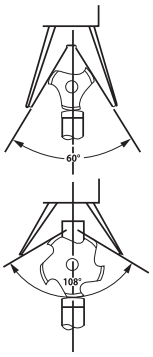


17-817-8

IP65 Absolute Electronic

- Inch/Metric conversion.
- Absolute and Incremental measuring modes.
- Resolution: 0.00005"/0.001 mm
- Automatic shut-off.
- SPC/USB data output.
- Battery: 357/303 included.

RANGE	NO. OF FLUTES	ACCURACY	PART NUMBER	PRICE
0.040" - 0.60" 1.0 - 15 mm	3	0.0001"	**17-817-8**	$564.60
SPC/USB Interface & Cable			**20-461-0**	89.30
Repl. Battery (357/303)			**07-310-6**	2.25





10-369-7



10-370-5

Mitutoyo V-Anvil Micrometers

Measure 3-Flute & 5-Flute Cutting Heads Tools Like Reamers, Taps and End Mills

- Baked enamel finish.
- Flatness: 0.00004"
- Includes standard.
- Complete with fitted case.

MEASURING RANGE	NO. OF FLUTES	GRADUATION	MITUTOYO MODEL #	PART NUMBER	PRICE
0.050 - 0.60"	3	0.001"	114-163	**10-368-9**	$355.00
0.093 - 1.00"	3	0.0001"	114-202	**10-369-7** *	502.00
0.093 - 1.00"	5	0.0001"	114-135	**10-370-5** *	502.00

* Carbide-tipped anvil and .0001" reading obtained with vernier.

Mitutoyo Digimatic V-Anvil Micrometers

Measure Outside Diameter of 3-Flute Cutting Tools Like Reamers, Taps and End Mills

- SPC output.
- Ratchet stop.
- 2 counting modes.
- Carbide faces.
- With setting standard.
- Supplied with fitted case.



10-427-3

IP65 Digimatic Rotating

MEASURING RANGE	GRADUATION (IN./MM)	ACCURACY (IN.)	MITUTOYO MODEL #	PART NUMBER	PRICE
0.050 - 0.600"/1.27 - 15.24 mm	0.00005/0.001	±0.00020	314-351-10	**10-427-3** *	$661.00
0.050 - 0.600"/1.27 - 15.24 mm	0.00005/0.001	±0.00020	314-361-10	**10-428-1**	623.00
0.400 - 1.00"/10.16 - 25.40 mm	0.00005/0.001	±0.00020	314-362-10	**10-429-9**	676.00

* has centerline groove

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25

Starrett® V-Anvil Micrometers



11-377-9

- Used to check out-of-roundness from centerless grinding or other machining operations.
- Also used for measuring odd fluted taps, milling cutters and reamers.
- Direct measuring of three and five-fluted tools (11-379-5 only).
- Satin chrome finish.
- With staggered lines and distinct figures for precise and easy readability.
- Ratchet stop and lock nut.
- Graduation: 0.0001"

MEAS. RANGE	STARRETT MODEL #	PART NUMBER	PRICE
0.093 - 1"	T483XRL-1	**11-377-9** *	$746.00
1 - 2"	T483XRL-2	**11-378-7**	886.00
0.078 - 1"	T485XRL	**11-379-5**	760.00

* Tapered spindle



17-785-7

SPI® Interchangeable Anvil Micrometers

- All spindles and anvils micro-lapped for accuracy.
- Carbide measuring faces, ratchet stop.
- Anvils easily reset; positive locking clamp.
- Flatness: 0.00004"
- Standards included.
- Ratchet thimble.
- Spindle lock.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year waranty.

Certified Right Out of the Box!

MEAS. RANGE	GRADU-ATIONS	ACCURACY	NO OF ANVILS	NO OF STANDARDS	PART NUMBER	PRICE
0 - 6"	0.0001"	±0.0002"	6	5	**17-785-7**	$226.25
6 - 12"	0.0001"	±0.0003"	6	6	**17-786-5**	328.50
12 - 16"	0.001"	±0.0004"	4	2	**17-787-3**	383.90

Certified Right Out of the Box!

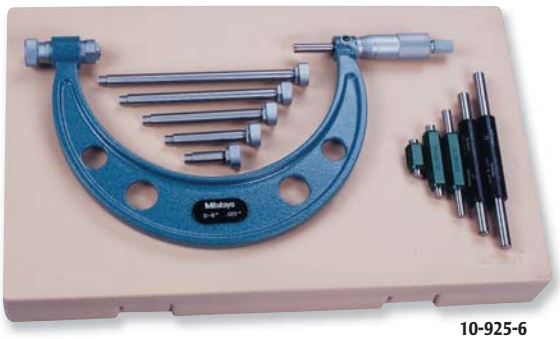


17-803-8

SPI® IP65 Absolute Electronic Interchangeable Anvil Micrometers

- Includes IP65 protection.
- Meets federal specifications.
- Anvils easily reset; positive locking clamp.
- Carbide measuring faces, ratchet thimble.
- Standards included.
- Ratchet thimble.
- Absolute and incremental function.
- Inch/metric conversion.
- Cast plate frame.
- Flatness: 0.00004"
- Resolution: 0.00005"/0.001mm
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEAS. RANGE	ACCURACY	NO. OF ANVILS	NO. OF STANDARDS	PART NUMBER	PRICE
0 - 6"	±0.0002"	6	5	**17-803-8**	$538.90
6 - 12"	±0.0003"	6	6	**17-804-6**	596.20
12 - 16"	±0.0004"	4	2	**17-805-3**	758.65
SPC/USB Interface & Cable				**20-461-0**	89.30
Repl. Battery (357/303)				**07-310-6**	2.25



10-925-6

Mitutoyo Outside Micrometers with Interchangeable Anvils

- Wide measuring range.
- Ratchet stop for constant force.
- Supplied with zero-setting standards bar for each range.
- Graduation: 0.001"
- Carbide-tipped spindle.
- Supplied in fitted case.

MEAS. RANGE	NO. OF ANVILS	NO. OF STANDARDS	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 6"	6	5	104-137	**10-925-6**	$377.00
6 - 12"	6	6	104-138	**10-631-0**	681.00
12 - 16"	4	4	104-152	**10-632-8**	690.00
12 - 18"	6	6	104-201	**10-633-6**	945.00
16 - 20"	4	4	104-153	**10-634-4**	854.00
18 - 24"	6	6	104-202	**10-635-1**	1,090.00
20 - 24"	4	4	104-154	**10-636-9**	1,010.00
24 - 30"	6	6	104-203	**10-637-7**	1,310.00
30 - 36"	6	6	104-204	**10-638-5** *	1,430.00

*Shipped via truck collect.

Starrett® Tubular Frame Outside Micrometers with Insulated Frame

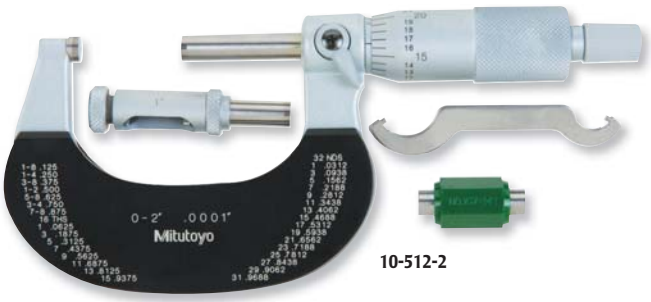
- Provides a wide range of measurement in steps of one inch in a single micrometer.
- The hollow tubular frame combines light weight and extreme rigidity.
- Anvils are fitted with an adjustable collar to compensate for wear and act as a seat when clamped in position by a locking collar.
- Satin chrome finish on sleeve and thimble.
- Micro-lapped measuring faces.
- Anvil faces are lapped.
- Graduations: 0.001"
- Furnished with standards and adjusting wrenches in a protective case.



11-155-9

MEAS. RANGE	FURNISHED STANDARDS	STARRETT MODEL #	PART NUMBER	PRICE
12 - 18"	12 - 17"	724LZ-18	**11-153-4**	$1,830.40
18 - 24"	18 - 23"	724LZ-24	**11-154-2**	1,977.00
24 - 30"	25, 27, 29"	724LZ-30	**11-155-9**	2,000.20
30 - 36"	31, 33, 35"	724LZ-36	**11-156-7**	2,181.80
36 - 42"	37, 39, 41"	724LZ-42	**11-157-5** *	2,746.60
42 - 48"	43, 45, 47"	724LZ-48	**11-158-3** *	3,036.50
48 - 54"	49, 51, 53"	724LZ-54	**11-159-1** *	3,486.10
54 - 60"	55, 57, 59"	724LZ-60	**11-160-9** *	4,045.50

*Shipped via truck collect.

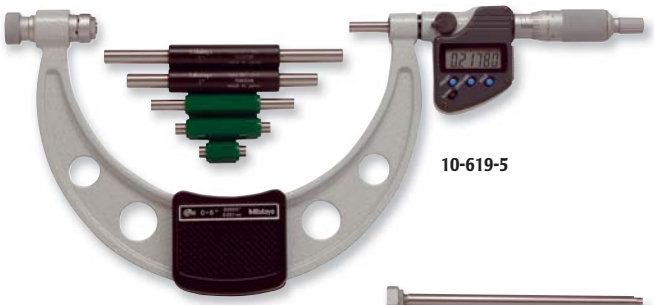


10-512-2

Mitutoyo
0 - 2" Interchangeable Anvil Micrometer

- Now Measure 0 - 1" & 0 - 2" using this special 1" anvil attachment.
- The length of the attachment is exactly 1" so the micrometer can be self-checked at 1".
- Carbide tipped spindle.
- Ratchet stop on thimble.
- Graduations: 0.0001" reading is obtained with vernier.
- Model 104-165

DESCRIPTION	PART NO.	PRICE
Interchangeable Anvil Micrometer	**10-512-2**	$200.00



10-619-5



Mitutoyo
Digimatic Interchangeable Anvil Micrometers

- Inch/Metric with IP65 water/dust protection.
- LCD readout. Resolution: 0.0001"/0.0010 mm.
- Carbide faces.
- Spindles are micro-lapped with carbide faces.
- Ratchet stop.
- ABS/INC, origin set, inch/metric, zero settingand data output hold.
- SPC output is compatible with Mitutoyo DP series mini-processors and other SPC systems.
- Supplied with 6 anvils and 6 standards.
- Complete with fitted carrying case.

MEAS. RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 6"	340-351-10	**10-619-5***	$714.00
6 - 12"	340-352-10	**10-620-3**	878.00
12 - 18"	340-713	**10-621-1**	1,100.00
18 - 24"	340-714	**10-622-9**	1,250.00

* Resolution: 0.00005"/0.0010 mm.
Supplied with 6 anvils and 5 standards.

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25



Micrometer Standards

- Use for calibration of micrometers, as spacing bars for stages and for checking accuracy of vernier and dial calipers.
- Complete with heat insulating handle.
- Lapped measuring ends: Flat ends for 12"/300 mm and under. Spherical ends for over 12"/300 mm.

Inch

LENGTH	ACCURACY	PART NO.	PRICE	LENGTH	ACCURACY	PART NO.	PRICE
1"	±0.00005"	**12-471-9**	$13.95	13"	±0.00025"	**12-483-4**	$46.50
2"	±0.00010"	**12-472-7**	16.50	14"	±0.00025"	**12-484-2**	48.25
3"	±0.00010"	**12-473-5**	17.75	15"	±0.00025"	**12-485-9**	49.90
4"	±0.00010"	**12-474-3**	21.55	16"	±0.00025"	**12-486-7**	52.80
5"	±0.00015"	**12-475-0**	24.10	17"	±0.00025"	**12-487-5**	57.00
6"	±0.00015"	**12-476-8**	26.65	18"	±0.00025"	**12-488-3**	60.70
7"	±0.00015"	**12-477-6**	30.45	19"	±0.00030"	**12-489-1**	62.10
8"	±0.00015"	**12-478-4**	32.95	20"	±0.00030"	**12-490-9**	65.90
9"	±0.00020"	**12-479-2**	35.50	21"	±0.00030"	**12-491-7**	67.15
10"	±0.00020"	**12-480-0**	39.30	22"	±0.00030"	**12-492-5**	70.15
11"	±0.00020"	**12-481-8**	41.85	23"	±0.00030"	**12-493-3**	72.25
12"	±0.00025"	**12-482-6**	45.20	–		–	–

Metric

LENGTH (MM)	ACCURACY (MM)	PART NUMBER	PRICE	LENGTH (MM)	ACCURACY (MM)	PART NUMBER	PRICE
25	±0.0020	**14-200-0**	$13.70	300	±0.0050	**14-211-7**	$44.75
50	±0.0020	**14-201-8**	17.40	325	±0.0050	**14-212-5**	46.00
75	±0.0020	**14-202-6**	17.40	350	±0.0050	**14-213-3**	48.50
100	±0.0020	**14-203-4**	21.15	375	±0.0050	**14-214-1**	49.70
125	±0.0025	**14-204-2**	26.10	400	±0.0050	**14-215-8**	55.95
150	±0.0030	**14-205-9**	29.85	425	±0.0060	**14-216-6**	58.40
175	±0.0030	**14-206-7**	29.85	450	±0.0060	**14-217-4**	60.90
200	±0.0030	**14-207-5**	32.35	475	±0.0060	**14-218-2**	64.65
225	±0.0040	**14-208-3**	34.85	500	±0.0060	**14-219-0**	65.90
250	±0.0040	**14-209-1**	38.55	525	±0.0060	**14-220-8**	67.15
275	±0.0040	**14-210-9**	41.00	575	±0.0060	**14-221-6**	70.85

Micrometer Stand
An Absolute Must For The Tool Room, Repetitive Parts Measurementand Any SPC System

- Fits 0.5" - 4" micrometers.
- Facilitates with one hand operation of micrometers.
- Eliminates pick up and set down of micrometer.
- Cast iron with enamel wrinkle finish.

DESCRIPTION	PART NO.	PRICE
Micrometer Stand	**12-460-2**	$49.70



12-460-2



12-469-3

Micrometer not included.

Folding Micrometer Stand

- This compact folding micrometer stand has a locking mechanism that holds any micrometer in the perfect position for use and viewing.
- For use with 0 - 1" micrometers.

DESCRIPTION	PART NO.	PRICE
Folding Micrometer Stand	**12-469-3**	$23.35

MEASURING

SPI® Micrometer Heads
Vernier Type

Certified Right Out of the Box!



- Use for improving accuracy in machines, gauging, test equipment, electronics, optical instruments and machine instruments.
- Flat face rotating spindle.
- Accuracy: ±0.0002"/±0.004 mm
- Graduations: 0.001"/0.01 mm
- Short Form Certificate of Calibration included.
- 2 year warranty.

MEASURING RANGE	THIMBLE DIA.	SPINDLE DIA.	OVERALL LENGTH	SPINDLE LOCK	CLAMP NUT	PART NUMBER	PRICE
0 - 0.500"	0.51"	0.200"	2.30"	No	No	**12-375-2**	$51.60
0 - 0.500"	0.51"	0.200"	2.30"	No	Yes	**12-376-0**	62.90
0 - 0.500"	0.51"	0.200"	2.64"	Yes	Yes	**12-379-4**	64.80
0 - 0.500"	0.51"	0.200"	2.64"	Yes	No	**12-380-2**	51.60



12-382-8

SPI® Digit Micrometer Head

- Digital micrometer head with easy to read counter.
- 3/8" diameter collar for easy mounting.
- Spindle dia.: 0.255"
- Accuracy: 0.00012"
- Collar dia.: 0.472"
- Rotating spindle.
- Carbide spindle for extended wear.
- Ratchet stop gives a consistent feel between operators.
- Easy to reach spindle lock.
- 0 - 1" measuring range with 0.001" graduations.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified Right Out of the Box!

DESCRIPTION	PART NO.	PRICE
Digit Micrometer Head	**12-382-8**	$83.55



10-513-0

Mitutoyo Digit Micrometer Heads

- Digit counter for easy reading of spindle movement.
- Carbide tipped measuring face.
- Ratchet stop for constant force.

MEAS. RANGE	GRADUATION	STEM DIA.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.0001"	0.375"	250-312	**10-513-0**	$158.00
0 - 25 mm	0.01 mm	10 mm	250-301	**10-514-8**	151.00



65-087-9

Economy Micrometer Anvil Attachments



- 7 of the most popular anvils in a plastic case.

DESCRIPTION	PART NO.	PRICE
Micrometer Anvil Attachments	**65-087-9**	$30.55

SPI® Ball Attachments



- Designed to fit all types of Outside Micrometers.
- Precision molded neoprene retainer with reinforced band, adds strength and holding power.
- Hardened and lapped chrome steel ball.



10-451-3

BALL DIA.	FITS SPINDLE DIA.	PART NO.	PRICE
0.200"	0.235 - 0.270"	**10-451-3**	$7.05
5 mm	6.35 - 6.86 mm	**12-369-5**	9.50

Micrometer Not Included

Micrometer and Caliper not included.



57-501-9

SPI® Micrometer & Caliper Holster

- Heavy duty leather holster for safe, convenient carry-along and store a micrometer and caliper.
- Ideal for set-up personnel and floor inspectors.
- Made from high quality, heavy duty leather with steel rivet fasteners.

DESCRIPTION	PART NO.	PRICE
Micrometer & Caliper Holster	**57-501-9**	$25.55

SPI® IP65 Absolute Electronic Micrometer Head



17-914-3

Certified Right Out of the Box!

- Large LCD display.
- IP65 protection.
- Carbide tipped measuring face.
- Spindle dia.: 0.250"
- Resolution: 0.00005"/0.001 mm
- Accuracy: ±0.0001"
- Collar dia.: 0.472"
- Rotating spindle.
- Ratchet thimble.
- Absolute and incremental readings.
- Inch/Metric conversion.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEASURING RANGE	PART NO.	PRICE
0 - 1"/25 mm	**17-914-3**	$182.55
SPC/USB Interface & Cable	**20-461-0**	89.30
Repl. Battery (357/303)	**07-310-6**	2.25

Starrett®
Mircometer Ball Attachments

Starrett outside micrometers and micrometer heads having spindle sizes listed below can be instantly converted for measuring wall thickness of tubing, split and fill bearings, sleeves and other parts with rounded surfaces.

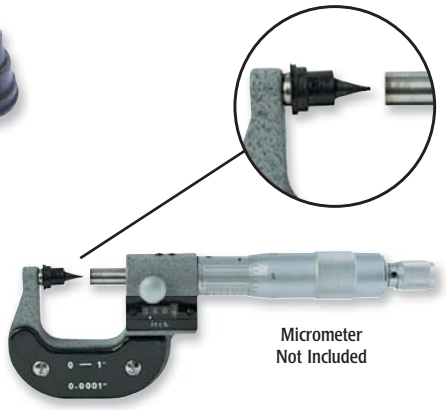
- Easily applied by snapping on to end of either anvil or spindle.
- Balls are hardened and move freely in the retainer, insuring positive contact with anvil and spindle.
- Diameter of each ball (0.200") used must be subtracted from the micrometer reading.



11-396-9

ANIVIL DIA.	FITS SERIES	STARRETT MODEL #	PART NUMBER	PRICE
0.235"	2, 226, 230, 263	247A	**11-394-4**	$15.00
0.270"	224A, 224AA, 436	247B	**11-395-1**	14.50
0.200"	232, 436	247C	**11-396-9**	15.00
0.250"	216, 231, 436.1, 733, 734, 1212, 1230	247D	**11-397-7**	14.50
0.300"	224B – J, 238, 239, 436, 663	247E	**11-398-5**	15.00





Micrometer Not Included

SPI®
Micrometer Anvil Kit

- 7 slip-on pieces.
- Fit any 1 - 12" micrometer anvil, inch or metric.
- Held with own reinforced neoprene boots.
- Measure hard to reach places and odd workpieces. (Shoulders, webs, slots, grooves, etc.).
- All anvil attachments – other than ball, subtract 0.500"from total reading. Subtract 0.175" for ball.
- All parts hardened and ground.
- Furnished in a plastic case.

DESCRIPTION	PART NO.	PRICE
Micrometer Anvil Kit	**12-470-1**	$90.50

Individual Anvils

KEY	ANVIL TYPE	SPECIFICATIONS	PART NO.	PRICE
A	Spline	0.100"	**14-310-7**	$25.30
B	Knife	30° Angle	**14-311-5**	25.30
C	Super Spline	0.050" Face	**14-312-3**	25.30
D	Blade	0.300" Thick	**14-313-1**	25.30
E	Comparator	30° Point	**14-314-9**	25.30
F	Disk Anvil	0.500" Face	**14-315-6**	25.30
G	Ball Attch.	0.200" Dia.	**10-451-3**	7.05



98-097-9



SHOP GRADE

Tool Holding Fixture

for CAT or BT 40/50 Toolholders

See Pg. 230



11-346-4

SPI®
Micrometer Calibration Sets

- Measuring Ranges:
  - 0.0625, 0.100, 0.125, 0.200, 0.250, 0.300, 0.500, 1, & 2"
  - 0.105, 0.210, 0.315, 0.420, 0.500, 0.605, 0.710, 0.815, 0.920 & 1"
  - 2.5, 5.1, 7.7, 10.3, 12.9, 15.0, 17.6, 20.2, 22.8, 25 mm
- Flatness: 0.000004"
- Parallel: 0.00002"
- Optical flats for checking micrometer flatness are 0.500" and 0.5125".
- Certificate of calibration traceable to NIST.
- Furnished in wooden case.
- 2 year warranty.

Inch

GRADE	NO. OF BLOCKS	NO. OF OPTICAL FLATS	MEASURING RANGE	PART NUMBER	PRICE
0	9	2	0.0625 - 2"	**11-346-4**	$242.65
0	9	1	0.0625 - 2"	**11-344-9**	218.70
AS-1	9	2	0.0625 - 2"	**11-347-2**	166.15
AS-1	9	1	0.0625 - 2"	**11-345-6**	142.20
0	10	2	0.105 - 1"	**11-342-3**	231.05
AS-1	10	2	0.105 - 1"	**11-343-1**	144.50

Metric

GRADE	NO. OF BLOCKS	NO. OF OPTICAL FLATS	MEASURING RANGE	PART NUMBER	PRICE
0	10	1	2.5 - 25 mm	**11-348-0**	$247.20
1	10	1	2.5 - 25 mm	**11-349-8**	170.00
2	10	1	2.5 - 25 mm	**11-350-6**	96.60



10-617-9

GF GAGE
Micrometer Master

- For use on 1" micrometers.
- 9 steps, each accurate to ±0.0001"
- Rounded step surfaces allow for checking of anvils that have worn concave.
- Steps will explore "out-of-parallel" anvils in 45 degree increments
- Chrome plated.

DESCRIPTION	PART NO.	PRICE
Micrometer Master	**10-617-9**	$323.50

MEASURING

Shown with Torque wrench



11-566-7

SPI® Depth Micrometers

Inch and Metric

- Graduation: 0.001"/0.01 mm
- Accuracy: ±0.0002"/0.005 mm up to 6"
  ±0.00028"/0.007 mm over 6"
- Interchangeable rods with flat ends.
- Ratchet stop.
- Positive locking clamp.
- Torque wrench included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified
Right Out of the Box!

Inch

MEASURING RANGE	NO. OF RODS	BASE LENGTH	PART NUMBER	PRICE
0 - 4"	4	2½"	**11-565-9**	$124.35
0 - 6"	6	2½"	**11-566-7**	159.00
0 - 12"	12	2½"	**11-567-5**	302.95
0 - 4"	4	4"	**11-568-3**	134.25
0 - 6"	6	4"	**11-569-1**	157.35
0 - 12"	12	4"	**11-570-9**	302.95

Metric

MEASURING RANGE (MM)	NO. OF RODS	BASE L (MM)	PART NUMBER	PRICE
0 - 100	4	63	**11-571-7**	$124.35
0 - 150	6	63	**11-572-5**	153.95
0 - 300	12	63	**11-573-3**	308.25
0 - 100	4	102	**11-574-1**	141.05
0 - 150	6	102	**11-575-8**	177.30
0 - 300	12	102	**11-576-6**	333.75



11-357-1

Starrett® Micrometer Depth Gages with Non-Rotating Blades

- Non-rotating, blade-type rods approximately .045" thick x ⅛" wide.
- By holding the base in one hand, the blade can be turned with the fingers and positioned at any angle relative to the base.
- The blade does not turn, but moves perpendicularly only, permitting depth measurement of narrow shoulders without the blade rolling off.
- Comes with the combination ratchet and speeder for uniform pressure and quicker adjustment.
- Furnished in protective case.

RANGE	BASE LENGTH	NO. OF RODS	STARRETT MODEL #	PART NUMBER	PRICE
0 - 3"	2½"	3	449AZ-3R	**11-357-1**	$317.10
0 - 6"	2½"	6	449AZ-6R	**11-358-9**	393.25
0 - 3"	4"	3	449BZ-3R	**11-359-7**	336.80
0 - 6"	4"	6	449BZ-6R	**11-360-5**	406.15

Replacement Rods

SIZE	STARRETT MODEL #	PART NUMBER	PRICE
0 - 1"	PT99115	**11-361-3**	$21.10
1 - 2"	PT99116	**11-362-1**	21.10
2 - 3"	PT99117	**11-363-9**	21.10
3 - 4"	PT99118	**11-364-7**	24.30
4 - 5"	PT99119	**11-365-4**	25.40
5 - 6"	PT99120	**11-366-2**	27.95

Mitutoyo Depth Micrometers

- 0.63" base width provides extra stability in depth gaging.
- Entire bottom surface is micro-lapped to achive a higher degree of accuracy.
- Satin chrome finish.
- Graduations: 0.001"/0.01 mm
- Accuracy: ±0.0003"
- Ratchet stop for consistent and repetitive measurements.
- 0.157" dia. interchangeable rods, with lapped measuring ends, are calibrated and tested at the factory. The rod length can be adjusted to compensate for wear on the measuring tip with two supplied wrenches.
- Crisp, clear graduations on the thimble.
- Complete with fitted carrying case.



10-278-0

Inch

MEAS. RANGE	BASE L	NO. OF RODS	MITUTOYO® MODEL #	PART NUMBER	PRICE
0 - 4"	2.5"	4	129-127	**10-277-2**	$182.00
0 - 6"	2.5"	4	129-128	**10-278-0**	220.00
0 - 12"	2.5"	6	129-149	**10-279-8**	388.00
0 - 4"	4"	4	129-131	**10-280-6**	202.00
0 - 6"	4"	12	129-132	**10-926-4**	238.40
0 - 12"	4"	12	129-150	**10-281-4**	406.00

Metric (mm)

MEAS. RANGE	BASE L	NO. OF RODS	MITUTOYO® MODEL #	PART NUMBER	PRICE
0 - 100	63.5	4	129-111	**10-282-2**	$182.00
0 - 150	63.5	6	129-112	**10-283-0**	220.00
0 - 100	101.6	4	129-115	**10-284-8**	202.00
0 - 150	101.6	6	129-116	**10-285-5**	236.00

Replacement Rods - For Inch Models Only

SIZE	MITUTOYO® MODEL #	PART NUMBER	PRICE
0 - 1"	983502	**10-286-3**	$13.00
1 - 2"	983504	**10-287-1**	14.00
2 - 3"	983506	**10-288-9**	14.80
3 - 4"	983508	**10-289-7**	16.05
4 - 5"	983510	**10-290-5**	17.35
5 - 6"	983512	**10-291-3**	18.25
6 - 7"	983526	**10-292-1**	19.25
7 - 8"	983528	**10-293-9**	20.65
8 - 9"	983530	**10-294-7**	21.75
9 - 10"	983532	**10-295-4**	23.20
10 - 11"	983534	**10-296-2**	24.30
12 - 12"	983536	**10-297-0**	25.20



Certified
Right Out of the Box!



17-819-4

SPI® Digit Depth Micrometers

- Features digit counter for faster readings.
- Rods are precision ground and lapped.
- Graduation: 0.001"/0.01 mm
- Counter readout: 0.001"/0.01 mm
- Accuracy: ±0.0002"/0.005 mm
- Rod Diameter: 0.175"/4.5 mm
- Ratchet stop.
- Flat end rods.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	RODS	WIDTH	PART NO.	PRICE
0 – 4"	4	2½"	**17-819-4**	$141.30
0 – 6"	6	2½"	**17-820-2**	175.70
0 – 6"	6	4"	**17-821-0**	175.70
0 – 150 mm	6	63 mm	**17-823-6**	175.70

SPI® Half Base Depth Micrometers

Half base permits measuring depths of holes and slots close to shoulders and in between obstructions. Quick reading graduations.

- Graduations: 0.001"
- Accuracy: ±0.0002"
- Base: 0.645" wide x 2.25" long.
- Ratchet stop.
- Flat end rods.
- Torque wrench included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified
Right Out of the Box!



17-920-0

RANGE	NO. OF RODS	PART NO.	PRICE
0 - 4"	4	**17-920-0**	$167.15
0 - 6"	6	**17-921-8**	209.00



17-825-1

SPI® IP65 Electronic Depth Micrometers

- IP65 dust and water protection.
- Ratchet stop.
- Inch/Metric absolute and incremental data.
- Resolution: 0.00005"/0.001 mm
- Accuracy: ±0.0002" up to 6"
  ±0.00028" over 6"
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Flat end rods.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

Certified
Right Out of the Box!

MEASURING RANGE	NO. OF RODS	BASE LENGTH	PART NUMBER	PRICE
0 - 6"	6	2½"	**17-825-1**	$444.20
0 - 6"	6	4"	**17-826-9**	482.85
0 - 12"	12	2½"	**17-827-7**	537.15
0 - 12"	12	4"	**17-828-5**	602.35
SPC/USB Interface & Cable			**20-461-0**	89.30
Repl. Battery (357/303)			**07-310-6**	2.25

Mitutoyo Digimatic Depth Micrometers

- Interchangeable stainless steel rods, 0.157" diameter.
- Ratchet stop with locking lever.
- Satin-chrome base 4" long x 0.63 wide.
- Base micro-lapped on bottom surface for accuracy.
- Special Functions Include:
  - Presets
  - Zero set
  - Inch/Metric reading
  - Data send
- SPC Output for data storage and analysis via any Mitutoyo Miniprocessor or host computer links.
- Fitted carrying case.

RANGE	LCD DISPLAY	NO OF RODS	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	0.00005"/0.001 mm	6	329-350-10	**10-109-7**	$576.00
0 - 12"/0 - 300 mm	0.00005"/0.001 mm	12	329-351-10	**10-110-5**	708.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25

Certified
Right Out of the Box!



11-200-3

SPI® Electronic Depth Gage

- Range: 0 - 1.2"/0 - 30 mm
- Designed for depth measurements or shoulders, small bores or inside grooves.
- OAL: 5.315"
- Base width: 2.362"
- Accuracy: ±0.001"/0.025 mm
- Resolution: 0.0005"/0.01 mm
- Zero-set at any point for comparison measurement.
- Stainless steel 1" x .079" measuring rod.
- Large LCD.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Electronic Depth Gage	**11-200-3**	$67.11
Repl. Battery (357/303)	**07-310-6**	2.25



SPI®
IP54 Absolute Digital Depth Calipers
Available with Double, Single or Without Hook

- Stainless steel construction.
- Inch/Metric conversion.
- 0/ABS button.
- Base Dimensions: 0 - 6"/8" 3.94" L x 0.270" W
  0 - 12" 5.90" L x 0.270" W
- Resolution: 0.0005"/0.01 mm
- Accuracy: 0 - 6" ±0.001"/0.02 mm
  0 - 8" ±0.0015"/0.03 mm
  0 - 12" ±0.0015"/0.03 mm
- Minimum Bore Dia.: Double Hook: 1.100"
  Single Hook: 0.812"
  Without Hook: 0.615"
- SPI/USB data port.
- Battery: CR2032 included.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only.
- 2 year warranty.



17-608-1

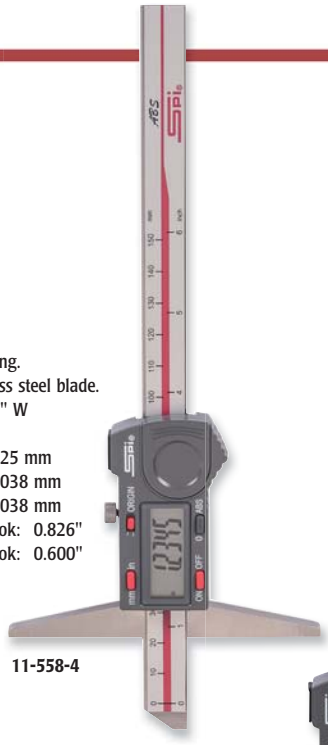
Ground Ship ONLY



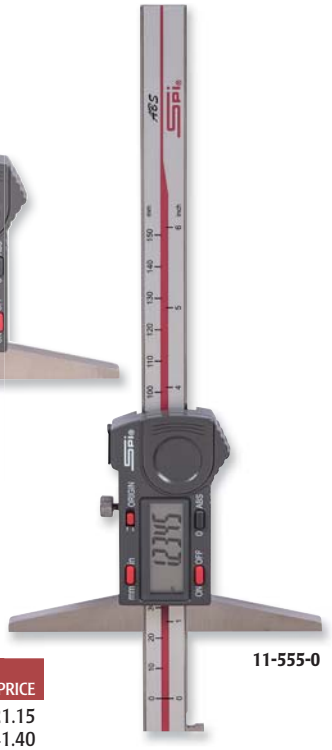
RANGE	DOUBLE HOOK PART NO.	PRICE	SINGLE HOOK PART NO.	PRICE	WITHOUT HOOK PART NO.	PRICE
0 - 6"	**17-608-1**	$122.55	**17-611-5**	$103.55	**17-614-9**	$87.90
0 - 8"	**17-609-9**	135.75	**17-612-3**	118.40	**17-615-6**	106.30
0 - 12"	**17-610-7**	201.60	**17-613-1**	184.30	**17-616-4**	161.90
SPC/USB Interface & Cable			**11-967-7**	123.45		
Wireless Data Output			**17-599-2**	121.80		
Repl. Battery (CR2032)			**07-319-7**	2.55		

SPI®
Absolute Electronic Depth Gages
Available With or Without Groove Hook

- Large LCD display for easy reading.
- Linear scale embedded in stainless steel blade.
- Base Dimensions: 3.94" L x 0.28" W
- Resolution: 0.0005"/0.01 mm
- Accuracy: 0 - 6" ±0.001"/0.025 mm
  0 - 8" ±0.0015"/0.038 mm
  0 - 12" ±0.0015"/0.038 mm
- Minimum Bore Dia.: Single Hook: 0.826"
  without Hook: 0.600"
- SPC/USB data output.
- Automatic shut-off.
- Battery: CR2032 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only.
- 2 year warranty.



11-558-4



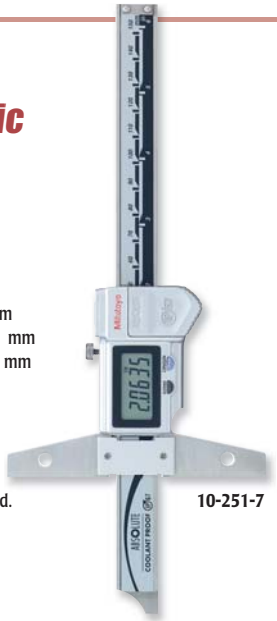
11-555-0

Certified
Right Out of the Box!

RANGE	SINGLE HOOK PART NO.	PRICE	WITHOUT HOOK PART NO.	PRICE
0 - 6"/150 mm	**11-555-0**	$140.65	**11-558-4**	$121.15
0 - 8"/200 mm	**11-556-8**	169.80	**11-559-2**	141.40
0 - 12"/300 mm	**11-557-6**	231.90	**11-560-0**	220.60
SPC/USB Interface & Cable			**17-598-4**	145.85
Repl. Battery (CR2032)			**07-319-7**	2.55

Mitutoyo
IP67 Digimatic Depth Gage

- Auto power On/Off for greater battery life.
- Range: 0 - 6"/0 - 150 mm
- Resolution: 0.0005"/0.01 mm
- Accuracy: ±0.001"/±0.02 mm
- Oil resistant.
- Leak tested to ensure compliance with IP67 standards.
- SPC output.
- Battery: 357/303 included.
- Mitutoyo model #571-261-10



10-251-7

DESCRIPTION	PART NO.	PRICE
IP67 Digimatic Depth Gage	**10-251-7**	$452.05

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA624	**11-830-7**	$91.60
80" SPC Output Cable	05CZA625	**11-831-5**	93.00
Repl. Battery (357/303)		**07-310-6**	2.25

Mitutoyo
Digimatic Depth Gages
Series 571 with Absolute Encoder

Mitutoyo Digimatic Depth Gages offer convenient and accurate LCD readout for depth measurements up to 12". Special features include In./mm selection and Zero-Set. SPC output is provided for data storage and processing by any of the Mitutoyo Mini-processors (DP-1HS, DP-5, DP-7 & DP-20) or interfaces (MUX-10 & MUX-40) for host computer systems.

- Absolute encoder type scale.
- Base length: 4".
- No rack, no pinion, no glass scale. Linear Scale is safely embedded in the hardened stainless steel blade.
- Sliding LCD unit offers push button control for In./mm selection, absolute zero setting and turning the display on and off.
- One SR44 battery is supplied. Battery life is approximately two years with normal use.
- LCD unit displays "E-05" for movement error and "B" for battery replacement. Response speed is unlimited.
- Data output cables are optional. Cable No. 31-586-1 is 1 meter long. Cable No. 11-829-9 is 2 meters long.
- Inch/metric conversion.

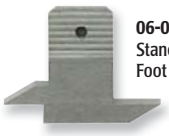
RANGE	ACCURACY	RESOLUTION	MITUTOYO® MODEL #	PART NUMBER	PRICE
0 - 6"	±0.001"	0.0005"	571-211-20	**11-843-0**	$358.00
0 - 8"	±0.001"	0.0005"	571-212-20	**11-844-8**	408.00
0 - 12"	±0.002"	0.0005"	571-213-10	**11-845-5**	480.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	959149	**31-586-1**	$49.25
80" SPC Output Cable	959150	**11-829-9**	55.85
Repl. Battery (SR44)		**07-310-6**	2.25



11-843-0



06-047-5
Standard Measuring Foot included

Swiss Made

30-650-6
Cross Hole probe with Ruby Ball included





30-651-4
Depth Measuring Probe included

30-652-2
Adapter for special probes Two 2.5 mm threaded holes included.





Spi® Classic



Universal Digital Depth Gages

Double Prismatic Frame — Double V Guide

- Ingenious design to make the most complex depth measurements simple, convenient and efficient.
- High contrast digital LCD readout arranged in horizontal position for easy reading in any light.
- Proven non-capacitive measuring system.
- Direct inch/metric conversion
- PRESET Switch (up to two arbitrary orgins can be set).
- ZERO/ABS Switch (switches between incremental and absolute modes).
- Data output for interface to printer or computer.
- Operates on one 1.5 volt Silver oxide type 357 battery, included.
- One year battery life with low drain circuit.
- Double prismatic frame (double V guide) with 4 lapped contact faces for velvet smooth and precise movement without play.
- Quick-locks on the base for fast and positive mounting of extention measuring bridges.
- Includes 4 interchangeable measuring probes to solve virtually all problems inherent with groove and slot — depth — cross hole — and special application measurements.
- Extension bridges to increase range of base.
- 30-220-8 includes 15.75" bridge. 30-221-6 includes 23.60" bridge.
- Furnished in fitted case.

DEPTH RANGE	BASE	READING	OVERALL ACCURACY	PART NUMBER	PRICE
8"	6.3"	0.0005"/0.01 mm	0.0015"	**30-220-8**	$2,893.80
16"	6.3"	0.0005/0.01 mm	0.002"	**30-221-6**	3,135.35

Replacement Parts

DESCRIPTION	PART NO.	PRICE
Standard Measuring Foot	**06-047-5**	$192.00
Cross Hole probe w/Ruby Ball	**30-650-6**	169.65
Depth Measuring Probe	**30-651-4**	169.65
Adapter for special probes	**30-652-2**	169.65
Screw for Measuring Foot	**06-048-3**	11.85
Replacement Battery	**07-310-6**	2.25

Optional Parts

DESCRIPTION	PART NO.	PRICE
11.80" Extension Bridge	**30-653-0**	$463.85
15.75" Extension Bridge	**30-654-8**	538.45
23.60" Extension Bridge	**30-655-5**	848.40



13-190-4

Spi® Classic

Dial Depth Gage

Interchangeable Rods Permit Range up to 22"

- Includes 0 - 1" travel indicator.
- Graduations: 0.001"
- 4 - 48 thread.
- Base size: 3.2"

DESCRIPTION	PART NO.	PRICE
0 - 22" Dial Depth Gage	**13-190-4**	$138.70
Repl. Contact Point	**12-436-2**	6.45



20-156-6

Spi®

Dial Depth Gages

- AGD 2 - 1" travel indicator.
- Graduations: 0.001"/0.01 mm
- Accuracy: 0.002"/0.02 mm
- Lifting lever and revolution counter.
- Base hardened and precision ground.
- Inch models include 4 measuring rods.
- Metric models include 10 measuring rods.
- Thread size: #4-48, metric 2.5 mm.
- Furnished in fitted case.
- 2 year warranty.

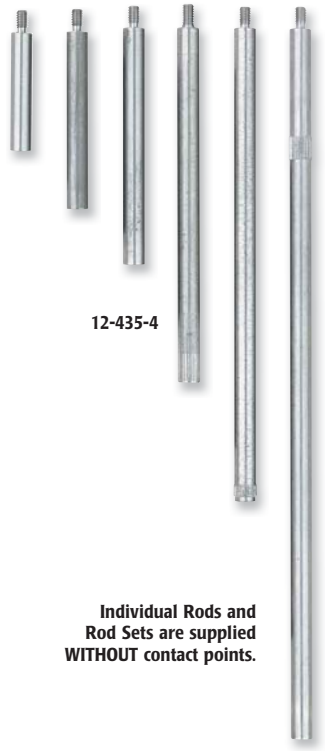
Inch

RANGE	BASE	PART NO.	PRICE
0 - 4"	2.5"	**20-156-6**	$168.30
0 - 4"	4.0"	**20-157-4**	191.85
Contact Point		**12-436-2**	6.45

Metric

RANGE	BASE	PART NO.	PRICE
0 - 100 mm	63 mm	**20-158-2**	$168.30
0 - 100 mm	101 mm	**20-159-0**	191.85

MEASURING



12-435-4

Individual Rods and Rod Sets are supplied WITHOUT contact points.

SPI® Dial Depth Gage Accessories

- #4-48 thread.

DESCRIPTION	LENGTH	PART NO.	PRICE
Extension Rod	1"	**12-429-7**	$14.00
Extension Rod	1½"	**12-430-5**	15.05
Extension Rod	2"	**12-431-3**	16.30
Extension Rod	3"	**12-432-1**	17.70
Extension Rod	4"	**12-433-9**	23.30
Extension Rod	6"	**12-434-7**	27.40
Set of 6 Rods	1" - 6"	**12-435-4**	98.65
Extension Rod Contact Point		**12-436-2**	6.70



20-750-6

Made in Germany

SPI® Classic KAFER Dial Depth Gage

- Measuring range 0 - 1"
- Reading: 0.001"
- Accuracy: ±0.0005".
- Removable base: 3.15 x 0.59".
- Dial dia. 2¼".
- Continuous dial for 1" travel.
- Large revolution counter. Jeweled bearings.
- Uniform pressure over full range of travel.
- 1", 2" and 3" extensions included.
- #4 - 48 thread.

DESCRIPTION	PART NO.	PRICE
Dial Depth Gage	**20-750-6**	$396.85



10-927-2

Mitutoyo 0 - 8" Dial Depth Gages

- The dial indicator has a precision-ground, hard-chrome-plated stem with standard AGD ⅜" diameter.
- Contact point is hardened, ground and chrome-plated steel.
- Spindle rack, pinions and pivots are hardened stainless steel to insure long wear and continuing accuracy.
- Bezel is cleanly knurled and smoothly adjustable with a clamping screw for positive settings.
- Accuracy: ±0.002"
- Flatness: 0.0002"
- Includes 1", 2" and 4" rods. Rods can be connected for depths up to 8".
- Thread size: #4-48".
- Spindle lifting lever for raising and lowering spindle is maintained under spring pressure.
- Bottom surface of the base is hardened, ground and lapped for highest degree of flatness.
- The dial indicator is attached to the base by a clamping screw and is readily interchangeable with any other standard AGD dial indicator.
- Complete with fitted carrying case.
- Specifications
  - 0 to 8" Measuring range.
  - 1.0" Dial range.
  - 0.001" Graduations.
  - Measuring force: 2.0 N or less.

BASE	MITUTOYO® MODEL #	PART NUMBER	PRICE
2.5"	7217S	**10-927-2**	$300.60
4"	7218S	**10-928-0**	324.45

Mitutoyo Absolute Digimatic Depth Gages

Origin Set, Zero Setting, Data Hold, Data Output

- Uses Mitutoyo IDC Type Digimatic Indicators.
- Go/No Go judgment function and the indication of the judgment function.
- Inch/Metric conversion.
- Data Output Port for SPC System.
- Battery Life: 5,000 hours.
- Can keep track of the origin point, once set, for the entire life of the battery.
- Bottom of base is hardened ground and lapped for flatness.
- Face rotates 330° for use at different angles.
- Complete with one SR44 battery, 4 extension rods (½", 1", 2" and 4"), interchangeable stylus and Allen wrench.

MEASURING RANGE	RESOLUTION	BASE LENGTH	MEASURING FORCE	ACCURACY	BASE FLATNESS	MITUTOYO MODEL #	PART NUMBER	PRICE
0 – 8"/ 0 – 200 mm	0.0005"/ 0.01 mm	2.5"	1.5 N	±0.001"	0.00020"	547-217S	**11-469-4**	$470.00
0 – 8"/ 0 – 200 mm	0.0005"/ 0.01 mm	4.0"	1.5 N	±0.001"	0.00020"	547-218S	**11-470-2**	471.20
0 – 8"/ 0 – 200 mm	0.00005"/ 0.001 mm	2.5"	1.5 N	±0.0003"	0.00008"	547-257S	**11-471-0**	572.15
0 – 8"/ 0 – 200 mm	0.00005"/ 0.001 mm	4.0"	1.5 N	±0.0003"	0.00008"	547-258S	**11-472-8**	580.05
Repl. Battery							**07-310-6**	2.25



11-469-4



11-118-7

Starrett®
Dial Depth Gages

- Hardened and ground bases.
- Bases are 2½" long.

Model #640 & 640R

- The contact is slightly up into the base at rest.
- The top button is pushed down to contact the work and the measurement is taken.
- 640R has reversible movement.

Model #643

- Gage has a knife-edge base and a needle point contact which has been hardened and ground.
- The knife-edge base has a cutout so that the conical point can be precisely positioned for close work.
- Point is ½" long with a 40° included angle.

Model #644

- This gage is for longer ranges and is accurate and simple to use.
- Put the contact on the work to be measured and push the gage head down until the base stops at the reference point and take your reading.

RANGE	GRADUATION	DIAL READING	STARRETT MODEL #	PART NUMBER	PRICE
0 - ½"	0.0005"	0 - 50	640JZ	**11-116-1**	$410.65
0 - ½"	0.0005"	0 - 50	640RJZ	**11-117-9** *	410.65
0 - 0.125"	0.0005"	0 - 25 - 0	643JZ	**11-118-7**	432.90
0 - 3"	0.001"	0 - 100	644JZ	**11-119-5**	418.10

* Reversible



11-400-9

Starrett®
Dial Depth Gages with Back Plunger Indicator

Top Reading Dial Indicator for Easy and Quick Readouts

- Indicator does not have to be repositioned to get the full range available.
- 2 contacts and 5 extensions extend the range to 8.6"; Charts are supplied showing various combinations of contacts and extension to achieve required length.
- Choice of 2 base lengths; 2½" and 4".
- Complete with case.
- Indicator Specifications:
  - Measuring Range: 0 - 8.6"
  - Graduations: 0.001"
  - Indicator Range: 0.200"
  - Dial Reading: 0 - 100

BASE SIZE	STARRETT MODEL #	PART NUMBER	PRICE
2½"	65103	**11-399-3**	$484.20
4"	65104	**11-400-9**	652.40



12-370-3

Certified
Right Out of the Box!

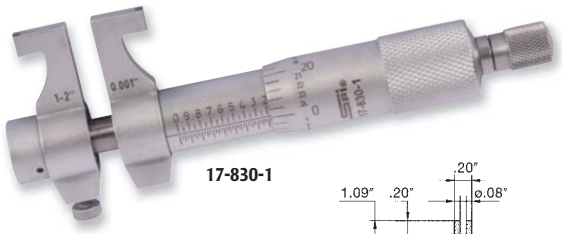
SPI®
Interchangeable Rod Type Inside Micrometers

- Graduations: 0.001"
- Rod diameter: 0.248"
- Each rod is marked for range.
- Overall accuracy: ±0.0004"
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEASURING RANGE	NO. OF RODS	TRAVEL OF MICROMETER	PART NUMBER	PRICE EACH
1" - 2"	2	0.250"	**12-370-3**	$143.55
2" - 8"	6	0.500"	**12-371-1**	150.90
2" - 12"	10	0.500"	**12-372-9**	178.75



17-829-3

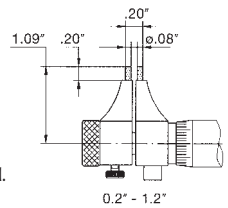


17-830-1

Certified
Right Out of the Box!

SPI®
Caliper Type Inside Micrometers

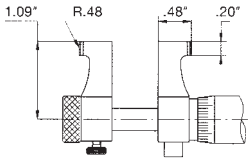
- Satin chrome finish.
- Carbide measuring faces.
- Graduation: 0.001"/0.01 mm
- Ratchet thimble.
- Calibrated setting ring included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



0.2" - 1.2"

Inch

MEAS. RANGE	ACCURACY	PART NUMBER	PRICE	SETTING RINGS SIZE	SETTING RINGS ACCURACY
0.2" - 1.2"	±0.0001"	**17-829-3**	$105.70	0.200"	±0.00002"
1.0" - 2.0"	±0.0002"	**17-830-1**	113.80	1.00"	±0.00003"



1.0" - 8.0"

Metric

MEAS. RANGE	ACCURACY	PART NUMBER	PRICE	SETTING RINGS SIZE	SETTING RINGS ACCURACY
5 - 30 mm	±0.007 mm	**17-831-9**	$105.70	5 mm	±0.0005 mm
25 - 50 mm	±0.008 mm	**17-832-7**	113.80	25 mm	±0.0008 mm

Starrett®
Inside Micrometer Calipers

- Caliper type jaws permit quick inside measurements accurate to ±0.0002".
- Jaws are hardened and ground on a radius for accurate feel without cramping.
- Satin chrome reading surface is glare free and resists rust.
- Friction thimble.
- Lock screw.
- Graduation: 0.001"



11-097-3

SIZE	STARRETT MODEL #	PART NUMBER	PRICE
0.200 - 1.200"	700A	**11-097-3**	$404.00
1 - 2"	700B	**11-098-1**	443.25







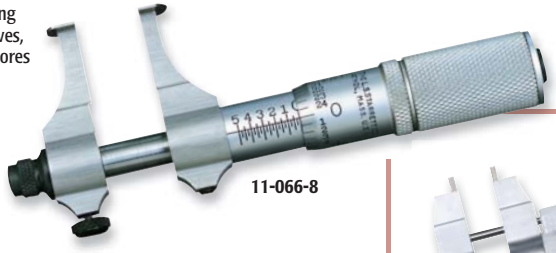
Mitutoyo
Inside Micrometers

- Caliper type jaws are made of high-grade, tool steel.
- Locking clamp for positive locking of spindle.
- Satin-chrome finish.
- Graduation: 0.001"/0.01mm.
- Supplied in fitted plastic case.

MEAS. RANGE	RESOLUTION	ACCURACY	MEAS. FACE	MITUTOYO MODEL #	PART NUMBER	PRICE
0.2 - 1.2"	0.001"	±0.00025"	A	145-193	**10-255-8**	$238.00
1 - 2"	0.001"	±0.0003"	B	145-194	**10-256-6**	255.00
2 - 3"	0.001"	±0.00035"	B	145-195	**10-257-4**	269.00
5 - 30 mm	0.01 mm	±0.005 mm	A	145-185	**10-258-2**	238.00
25 - 50 mm	0.01 mm	±0.006 mm	B	145-186	**10-259-0**	255.00
Stand Holder				300400	**10-260-8**	22.50

Starrett®
Internal Groove Micrometers

- Measures grooves for retaining rings and "O" rings, oil grooves, washer grooves, as well as bores and recesses.
- Depth of grooves up to $^{5}/_{64}$" can be measured with 701A and $^{7}/_{32}$" with 701B.
- Satin chrome finish.
- Friction thimble.
- Lock screw.
- Graduation: 0.001"
- Jaws thickness: 0.030"



MEAS. RANGE	MIN. BORE	MAX. DEPTH BORE	STARRETT MODEL #	PART NUMBER	PRICE
0.500 – 1.500"	0.500"	$^{1}/_{2}$"	701A	**11-066-8**	$604.75
1.500 – 2.500"	1.500"	$^{7}/_{8}$"	701B	**11-067-6**	629.90

Mitutoyo
Digimatic Inside Micrometer Calipers with SPC Output
Unique Design Allows ID Measurement in Tight Spaces

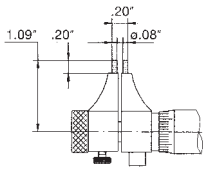
- Inch/Metric
- ABS/INC
- Satin Chrome Finish.
- Complete with fitted plastic case.
- Locking Lever.
- Ratchet Stop.
- Data Output/Hold, Origin Set, Zero Setting

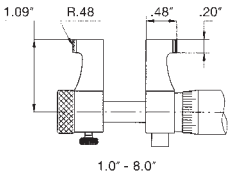
RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0.2 - 1.2"/5 - 30 mm	±.00025"	345-350-30	**10-528-8**	$540.00
1.0 - 2.0"/25 - 50 mm	±.0003"	345-351-30	**10-529-6**	576.00



Certified
Right Out of the Box!

SPI®
Caliper Type Absolute Electronic Inside Micrometers





- Carbide pins for measuring contact points.
- Satin chrome finish.
- Sizes up to 2" include a setting ring.
- Painted frame with heat shield.
- Resolution: 0.00005"/0.001 mm
- Inc./Abs./inch/metric measuring.
- Ratchet thimble.
- Spindle lock.
- SPC/USB data output.
- Automatic shut-off.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEASURING RANGE	ACCURACY	PART NO.	PRICE
0.2 - 1.2"/5 - 30 mm	±0.0001"/0.007 mm	**17-900-2**	$294.25
1 - 2"/25 - 50 mm	±0.0002"/0.008 mm	**17-901-0**	307.25
2 - 3"/50 - 75 mm	±0.0002"/0.009 mm	**17-902-8**	323.80
3 - 4"/75 - 100 mm	±0.0002"/0.010 mm	**17-903-6**	336.80
4 - 5"/100 - 125 mm	±0.0002"/0.010 mm	**17-904-4**	350.95
SPC/USB Interface & Cable		**20-461-0**	89.30
Repl. Battery (357/303)		**07-310-6**	2.25





Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA662	**31-027-6**	$81.75
80" SPC Output Cable	05CZA663	**31-028-4**	90.15
Repl. Battery (357/303)		**07-310-6**	2.25



14-547-4

SPI®

Tubular Inside Micrometers

- Each set provides a wide range of ID measurement capabilities by combining the various extension rods with the micrometer head supplied in kit.
- Supplied with standard for micrometer head calibration.
- Carbide measuring faces.
- Graduation: 0.001"
- Furnished in fitted case.
- 2 year warranty.

RANGE	RODS	PART NO.	PRICE
2 - 12"	5	**14-546-6**	$151.30
2 - 20"	6	**14-547-4**	182.30
2 - 40"	8	**14-548-2**	608.85

Starrett®

Tubular Indside Micrometers

- Steel tube rods are approximately 3/8" diameter.
- Each rod is marked with length.
- Hardened and ground anvils on rods are adjustable for length.
- Interchangeable anvils heads.
- Quick reading figures – every thousandth numbered on inch reading tools.
- Lock nut furnished on 1" heads.
- Graduation: 0.001"
- Furnished in protective case.



11-134-4

MEAS. RANGE	MOVEMENT SCREW	NO. OF RODS	5½" HANDLE	STARRETT MODEL #	PART NUMBER	PRICE
1½ – 8"	½"	5	Yes	823AZ	**11-133-6**	$341.60
1½ – 12"	½"	8	Yes	823BZ	**11-134-4**	410.95
4 – 24"	1"	7	No	823CZ	**11-135-1**	534.45
4 – 32"	1"	8	No	823DZ	**11-136-9**	591.90
4 – 40"	1"	10	No	823EZ	**11-137-7**	641.50
1½ – 32"	½" & 1"	10	Yes	823FZ	**11-138-5**	803.10



10-519-7

Mitutoyo

Extension Pipe Type Micrometer Sets

Get a Wide Range if ID Measurements by Combining Extension Pipes & Anvils with a Micrometer Head

- 0.001" graduations.
- Supplied with wooden case.

MEAS. RANGE	DIA.	NO. OF PIECES	LENGTHS INCLUDED	MITUTOYO MODEL #	PART NUMBER	PRICE
1.5 - 12"	0.375"	8	0.5, 1, 2, 2.5, 3, 3.5, 4, 6"	139-201	**10-516-3**	$254.00
4.0 - 40"	0.375"	10	1, 2, 3, 6, 9, 12, 14, 16, 17, 19"	139-202	**10-517-1**	385.00
4.0 - 36"	0.670"	5	1, 2, 4, 8, 16"	139-179	**10-519-7**	955.00
4.0 - 52"	0.670"	6	1, 2, 4, 8, 16" (two 16" pipes)	139-180	**10-520-5**	1,110.00

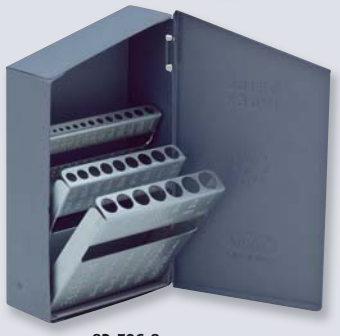
Huot

Drill Index Cases

See Pg. 456



82-589-3



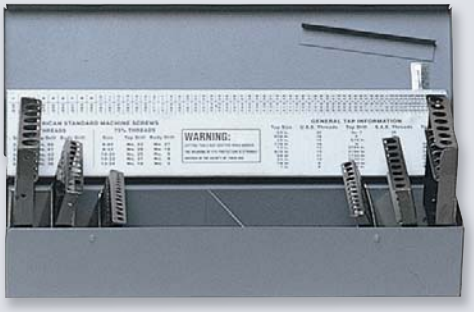
82-596-8



82-598-4



82-597-6



82-599-2







SPI® Classic
3-Point Hole-Mikes & Sets

- Three point internal micrometer for precise direct measurement of bore diameters.
- Self aligning and self centering.
- Carbide measuring anvils.
- Suitable to measure to within .050" of bottom of blind hole, up to 4" capacity.
- Feelers taper toward the back for positive reading of the front edge.
- Ratchet stop provides uniform measuring pressure and assures highest reading accuracy.
- In lieu of Setting Rings, Setting Frames are provided for diameter ranges above 7" dia.
- Setting ring not included with individual sizes.
- Hole-Mike accuracy:

0.150" – 1.6"	±0.0001"
1.6" – 4"	±0.00012"
4" – 8"	±0.0002"
8" – 12"	±0.0004"

- Setting Ring accuracy:

0.175" - 2"	±0.0001"
2.8" & 3.6"	±0.0002"
5" & 7"	±0.0003"
9" & 11"	±0.0005"

Inch

RANGE	READING	MEAS. DEPTH	PART NUMBER	PRICE	SETTING RING SIZE	SETTING RING PART NO.	SETTING RING PRICE
.150 - .175"	.0001"	.78"	**10-701-1**	$247.75	.175"	**10-708-6**	$96.00
.175 - .225"	.0001"	.78"	**10-702-9**	247.75	.225"	**10-709-4**	96.00
.225 - .275"	.0001"	.78"	**10-703-7**	247.75	–	–	–
SET .150-.275" including Setting Rings and Spanner wrenches in wooden case						**10-700-3**	775.95

RANGE	READING	MEAS. DEPTH	PART NUMBER	PRICE	SETTING RING SIZE	SETTING RING PART NO.	SETTING RING PRICE
.275 - .350"	.0001"	2.00"	**10-711-0**	$247.75	–	–	–
.350 - .425"	.0001"	2.00"	**10-712-8**	247.75	.350"	**10-718-5**	$76.60
.425 - .500"	.0001"	2.00"	**10-713-6**	247.75	.500"	**10-719-3**	76.60
SET .275-.500" incl. Extension, Setting Rings and Spanner wrenches in wooden case						**10-710-2**	775.95
4" Depth Extension						**10-717-7**	79.00

RANGE	READING	MEAS. DEPTH	PART NUMBER	PRICE	SETTING RING SIZE	SETTING RING PART NO.	SETTING RING PRICE
.500 - .650"	.0002"	2.36"	**10-721-9**	$247.75	–	–	–
.650 - .800"	.0002"	2.36"	**10-722-7**	247.75	.650"	**10-728-4**	$76.60
SET .500-.800" incl. Extension, Setting Ring and Spanner wrenches in wooden case						**10-720-1**	480.65
6" Depth Extension						**10-727-6**	79.00

RANGE	READING	MEAS. DEPTH	PART NUMBER	PRICE	SETTING RING SIZE	SETTING RING PART NO.	SETTING RING PRICE
0.800 - 1.000"	.0002"	3.15"	**10-731-8**	$247.75	–	–	–
1.000 - 1.200"	.0002"	3.15"	**10-732-6**	247.75	1.000"	**10-738-3**	$85.75
1.200 - 1.400"	.0002"	3.15"	**10-733-4**	247.75	1.400"	**10-739-1**	102.90
1.400 - 1.600"	.0002"	3.15"	**10-734-2**	247.75	–	–	–
SET 0.800-1.600" incl. Extension, Setting Rings and Spanner wrenches in wooden case						**10-730-0**	984.50
6" Depth Extension						**10-737-5**	79.00

RANGE	READING	MEAS. DEPTH	PART NUMBER	PRICE	SETTING RING SIZE	SETTING RING PART NO.	SETTING RING PRICE
1.600 - 2.000"	.0002"	3.54"	**10-741-7**	$310.20	–	–	–
2.000 - 2.400"	.0002"	3.54"	**10-742-5**	310.20	2.000"	**10-748-2**	$141.75
2.400 - 2.800"	.0002"	3.54"	**10-743-3**	310.20	2.800"	**10-749-0**	147.45
2.800 - 3.200"	.0002"	3.54"	**10-744-1**	310.20	3.600"	**10-750-8**	160.00
3.200 - 3.600"	.0002"	3.54"	**10-745-8**	310.20	–	–	–
3.600 - 4.000"	.0002"	3.54"	**10-746-6**	310.20	–	–	–
SET 1.600 - 4.000" incl. Extension, Setting Rings and Spanner wrenches in wooden case						**10-740-9**	1,895.95
6" Depth Extension						**10-747-4**	79.00

RANGE	READING	MEAS. DEPTH	PART NUMBER	PRICE	SETTING FRAME SIZE	SETTING FRAME PART NO.	SETTING FRAME PRICE
4.000 - 5.000"	.0002"	5.51"	**10-751-6**	$615.05	5.000"	**10-753-2**	$443.70
5.000 - 6.000"	.0002"	5.51"	**10-752-4**	604.50	–	–	–
6.000 - 7.000"	.0002"	5.51"	**10-754-0**	604.50	7.000"	**10-756-5**	528.10
7.000 - 8.000"	.0002"	5.51"	**10-755-7**	604.50	–	–	–
8.000 - 9.000"	.0002"	5.51"	**10-757-3**	775.95	9.000"	**10-759-9**	562.70
9.000 - 10.000"	.0002"	5.51"	**10-758-1**	775.95	–	–	–
10.000 - 11.000"	.0002"	5.51"	**10-760-7**	775.95	11.000"	**10-762-3**	625.50
11.000 - 12.000"	.0002"	5.51"	**10-761-5**	775.95	–	–	–

Ingress Protection



IP54



IP67

Protection against . . .

IP First number, solid objects.

0 No protection.
1 . . solid objects up to 50 mm.
2 . . solid objects up to 12 mm.
3 . . solid objects over 2.5 mm.
4 . . solid objects over 1 mm.
5 . . dust limited ingress.
6 Totally protected against dust.

IP Second number, liquids.

0 No protection.
1 . . vertically falling drops of water e.g. condensation.
2 . . direct sprays of water up to 15° from the vertical.
3 . . direct sprays of water up to 60° from the vertical.
4 . . water sprayed from all directions D limited ingress.
5 . . low pressure jets of water from all directions D limited ingress.
6 . . low pressure jets of water, e.g. for use on ship decks limited ingress permitted.
7 . . the effect of immersion between 15cm and 1m.
8 . . long periods of immersion under pressure.

2 & 3-Point Hole Mikes & Sets

Precise Direct Measurement of Bore Diameters



21-903-0







Certified
Right Out of the Box!

- Models up to and including 0.24" have two measuring points and models 0.275" and above have three measuring points.
- Calibrated setting rings on sizes up to 4" included.
- Self-centering contact points for accurate measurements.
- Contact points allow measurements near to the bottom of a blind bore or in a deep bore using additional extensions.
- Ratchet thimble.
- Carbide measuring surfaces.
- Short Form Certificate of Calibration included on sizes up to 4".
- Furnished in a case.
- Setting rings sizes more than 4" are not included for individual sizes.
- 2 year warranty.

MEASURING RANGE	GRAD.	ACCURACY	SETTING RING	PART NUMBER	PRICE
0.120 - 0.160"	0.0001"	±0.00016"	0.16"	**21-881-8**	$368.30
0.160 - 0.200"	0.0001"	±0.00016"	0.16"	**21-882-6**	368.30
0.200 - 0.240"	0.0001"	±0.00016"	0.24"	**21-883-4**	368.30
0.240 - 0.280"	0.0001"	±0.00016"	0.24"	**21-884-2**	368.30
4 Pc. Set: 0.120 - 0.280" includes: 2 setting rings, & spanner wrench in fitted case				**21-880-0**	$1,224.35

MEASURING RANGE	GRAD.	ACCURACY	SETTING RING	PART NUMBER	PRICE
0.275 - 0.350"	0.0001"	±0.00016"	0.275"	**21-891-7**	$368.30
0.350 - 0.425"	0.0001"	±0.00016"	0.35"	**21-892-5**	368.30
0.425 - 0.500"	0.0001"	±0.00016"	0.5"	**21-893-3**	368.30
3 Pc. Set: 0.275 - 0.500" includes: 3 setting rings, 4" extension rod & spanner wrench in fitted case				**21-890-9**	943.40

MEASURING RANGE	GRAD.	ACCURACY	SETTING RING	PART NUMBER	PRICE
0.500 - 0.650"	0.0002"	±0.00016"	0.65"	**21-895-8**	$368.30
0.650 - 0.800"	0.0002"	±0.00016"	0.65"	**21-901-4**	368.30
2 Pc. Set: 0.500 - 0.800" includes: setting ring, 6" extension rod & spanner wrench in fitted case				**21-900-6**	640.70

MEASURING RANGE	GRAD.	ACCURACY	SETTING RING	PART NUMBER	PRICE
0.800 - 1.000"	0.0002"	±0.00016"	1"	**21-904-8**	$368.30
1.000 - 1.200"	0.0002"	±0.00016"	1"	**21-905-5**	368.30
1.200 - 1.600"	0.0002"	±0.00016"	1.6"	**21-906-3**	368.30
1.600 - 2.000"	0.0002"	±0.00020"	1.6"	**21-907-1**	438.90
4 Pc. Set: 0.800 - 2.000" includes: 2 setting rings, 2 - 6" extension rod & spanner wrench in fitted case				**21-903-0**	1,175.50

MEASURING RANGE	GRAD.	ACCURACY	SETTING RING	PART NUMBER	PRICE
2.000 - 2.500"	0.0002"	±0.00020"	2.5"	**21-911-3**	$438.90
2.500 - 3.000"	0.0002"	±0.00020"	2.5"	**21-912-1**	438.90
3.000 - 3.500"	0.0002"	±0.00020"	3.5"	**21-913-9**	438.90
3.500 - 4.000"	0.0002"	±0.00020"	3.5"	**21-914-7**	438.90
4 Pc. Set: 2.000 - 4.000" includes: 2 setting rings, 6" extension rod & spanner wrench in fitted case				**21-910-5**	1,609.30

MEASURING RANGE	GRAD.	ACCURACY	SETTING RING	PART NUMBER	PRICE
4.000 - 5000"	0.0002"	±0.00020"	4.5"	**21-921-2**	$438.90
5.000 - 6.000"	0.0002"	±0.00020"	5.5"	**21-922-0**	741.60
6.000 - 7.000"	0.0002"	±0.00020"	6.5"	**21-923-8**	741.65
7.000 - 8.000"	0.0002"	±0.00020"	7.5"	**21-924-6**	741.65
8.000 - 9.000"	0.0002"	±0.00028"	8.5"	**21-925-3**	943.40
9.000 - 1.000"	0.0002"	±0.00028"	9.5"	**21-926-1**	1,145.20
10.000 - 11.000"	0.0002"	±0.00028"	10.5"	**21-927-9**	1,276.35
11.000 -12.000"	0.0002"	±0.00028"	11.5"	**21-928-7**	1,456.85

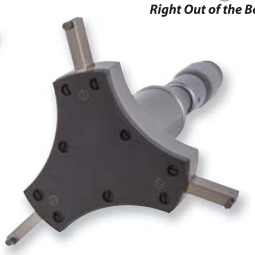
IP65 Electronic 3 Point Internal Micrometers & Sets



17-628-9







Certified
Right Out of the Box!

- Self centering 3 contact points for accurate measurement of internal diameters.
- Carbide measuring.
- Measurement can be taken close to the bottom of a blind bore, can also be taken in a deep bore with extension rod.
- Inch/Metric conversion.
- Resolution: 0.00005"/0.001 mm
- Supplied with calibrated setting ring and extension rod.
- Ratchet thimble.
- SPC/USB data output.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

MEASURING RANGE	ACCURACY	SETTING RING	EXT. RODS	L	A	PART NUMBER	PRICE
0.275 - 0.350"	±0.00016"	0.275"	4"	2.1"	0.02"	**17-617-2**	$582.15
0.350 - 0.425"	±0.00016"	0.35"	4"	2.1"	0.02"	**17-618-0**	582.15
0.425 - 0.500"	±0.00016"	0.5"	4"	2.1"	0.02"	**17-619-8**	582.15
3 Pc. Set: 0.275 - 0.500" includes: 3 setting rings, 4" extension rod & spanner wrench in fitted case						**17-620-6**	1,601.80

MEASURING RANGE	ACCURACY	SETTING RING	EXT. RODS	L	A	PART NUMBER	PRICE
0.500 - 0.650"	±0.00016"	0.65"	6"	3.15"	0.02"	**17-621-4**	$621.95
0.650 - 0.800"	±0.00016"	0.65"	6"	3.15"	0.02"	**17-622-2**	621.95
2 Pc. Set: 0.500 - 0.800" includes: setting ring, 6" extension rod & spanner wrench in fitted case						**17-623-0**	1,124.55

MEASURING RANGE	ACCURACY	SETTING RING	EXT. RODS	L	A	PART NUMBER	PRICE
0.800 - 1.000"	±0.00016"	1"	6"	3.54"	0.02"	**17-624-8**	$647.25
1.000 - 1.200"	±0.00016"	1"	6"	3.54"	0.02"	**17-625-5**	647.25
1.200 - 1.600"	±0.00016"	1.6"	6"	3.82"	0.02"	**17-626-3**	719.55
1.600 - 2.000"	±0.0002"	1.6"	6"	3.82"	0.02"	**17-627-1**	719.55
4 Pc. Set: 0.800 - 2.000" includes: 2 setting rings, 2 - 6" extension rod & spanner wrench in fitted case						**17-628-9**	2,387.60

MEASURING RANGE	ACCURACY	SETTING RING	EXT. RODS	L	A	PART NUMBER	PRICE
2.000 - 2.500"	±0.0002"	2.5"	6"	4.49"	0.02"	**17-629-7**	$771.40
2.500 - 3.000"	±0.0002"	2.5"	6"	4.49"	0.02"	**17-630-5**	817.15
3.000 - 3.500"	±0.0002"	3.5"	6"	4.49"	0.02"	**17-631-3**	849.75
3.500 - 4.000"	±0.0002"	3.5"	6"	4.49"	0.02"	**17-632-1**	889.50
4 Pc. Set: 2.000 - 4.000" includes: 2 setting rings, 6" extension rod & spanner wrench in fitted case						**17-633-9**	2,746.80

Accessories

DESCRIPTION	PART NO.	PRICE
SPC/USB Interface & Cable	**20-461-0**	$89.30
Repl. Battery (LR44)	**07-310-6**	2.25

MEASURING


11-943-8


11-946-1


11-950-3

brown & sharpe

INTRIMIK®

Analog & Digital Models

- A unique cone-generated movement eliminates wear problems common to tools with accurately angled arms.
- A three-point measuring system makes the tool self-centering and self-aligning for consistently accurate measurement every time.
- Three measuring bolts are spaced 120° apart.

INTRIMIK® Analog Models

- Reads like a micrometer, making direct readings of bore diameters easy and accurate, and eliminates the errors associated with fixed, transfer and comparator gages.
- Ratchet setting eliminates user-to-user measuring variations, providing reliable accuracy.
- Hardened steel measuring faces.
- Case not included with individual gages.
- Set include gages, 2 setting rings, 1 extension and fitted case.

Digital INTRIMIK® Models

- Designed to meet tight tolerances that internal measurements require without complicated setups.
- Capacitive measurement system.
- Resolution: 0.00005"/0.001 mm
- Hardened steel measuring faces for sizes up to 0.472"/12 mm
- TiN hard-coating measuring faces 0.433 - 3.94"/11 - 100 mm
- Automatic shutdown after 10 minutes of non-use.
- 3V CR2032 lithium battery.
- Plastic case included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

Individual Micrometers

MEAS. RANGE	W/O EXT.	W/1 EXT.	W/2 EXT.	MODEL #	PART NUMBER	PRICE
0.275 – 0.350"	2	6	10	599-281-3	**11-930-5**	$528.50
0.350 – 0.425"	2	6	10	599-281-4	**11-931-3**	530.35
0.425 – 0.500"	2	6	10	599-281-5	**11-932-1**	535.80
0.500 – 0.600"	3	9	15	599-281-6	**11-933-9**	543.10
0.600 – 0.700"	3	9	15	599-281-7	**11-934-7**	546.75
0.700 – 0.800"	3	9	15	599-281-8	**11-935-4**	559.55
0.800 – 1.000"	3	9	15	599-281-10	**11-936-2**	598.80
1.000 – 1.200"	3	9	15	599-281-12	**11-937-0**	606.10
1.200 – 1.400"	3	9	15	599-281-14	**11-938-8**	613.40
1.400 – 1.600"	3	9	15	599-281-16	**11-939-6**	623.45
1.600 – 2.000"	3	9	15	599-281-20	**11-940-4**	708.30
2.000 – 2.400"	3	9	15	599-281-24	**11-941-2**	718.35
2.400 – 2.800"	3	9	15	599-281-28	**11-942-0**	732.05
2.800 – 3.200"	3	9	15	599-281-32	**11-943-8**	751.20
3.200 – 3.600"	3	9	15	599-281-36	**11-944-6**	764.90
3.600 – 4.00"	3	9	15	599-281-40	**11-945-3**	776.75

Sets

MEAS. RANGE	MODEL #	PART NO.	PRICE
0.5000 – 0.8000"	00880400	**11-946-1**	$2,022.30
0.8000 – 1.6000"	00881200	**11-947-9**	2,924.45

Extensions

DESCRIPTION	MODEL #	PART NO.	PRICE
4" Extension for 0.275 – 0.500	599-281-321	**10-009-9**	$129.65
6" Extension for 0.500 – 0.800	599-281-621	**10-014-9**	182.90
6" Extension for 0.800 – 1.600	599-281-1021	**10-020-6**	202.30
6" Extension for 1.600 – 4.000	599-281-2021	**10-032-1**	238.05

Digital Models

MEAS. RANGE (IN.)	MEAS. RANGE (MM)	ACCURACY (IN.)	MEAS. DEPTH (IN.)	MODEL #	PART NUMBER	PRICE
0.24 – 0.32	6 – 8	0.00016	2.17	599-290-35-1	**11-948-7**	$919.15
0.32 – 0.40	8 – 10	0.00016	2.17	599-290-42-1	**11-949-5**	919.15
0.40 – 0.48	10 – 12	0.00016	2.17	599-290-50-1	**11-950-3**	938.95
0.43 – 0.55	11 – 14	0.00016	2.68	599-290-60-1	**11-951-1**	961.30
0.55 – 0.67	14 – 17	0.00016	2.68	599-290-70-1	**11-952-9**	961.30
0.67 – 0.79	17 – 20	0.00016	3.27	599-290-80-1	**11-953-7**	961.30
0.79 – 0.99	20 – 25	0.00016	3.27	599-290-100-1	**11-954-5**	998.35
0.99 – 1.18	25 – 30	0.00016	3.50	599-290-120-1	**11-955-2**	998.35
1.18 – 1.38	30 – 35	0.00016	3.50	599-290-140-1	**11-956-0**	1,047.80
1.58 – 1.98	40 – 50	0.00024	3.85	599-290-200-1	**11-957-8**	1,107.25
1.98 – 2.38	50 – 60	0.00024	3.85	599-290-240-1	**11-958-6**	1,143.30

Mitutoyo

Holtest Internal Micrometers

Accurate Direct Measurement of Internal Diameters

- 3-Point Self-Centering Internal Micrometer for Precise Direct Measurement of bore diameters.
- Ratchet Stop for uniform measuring pressure and highest reading accuracy.
- Can measure deep holes using Extension Rod (Optional on Individual Micrometers)
- Smallest reading on thimble 0.0002".
- Up to 4" supplied in plastic cases. Over 4" supplied in wooden cases.


20-819-9


20-803-3

Individual Holtest Micrometers

MEASURING RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
0.500 – 0.650"	368-864	**20-803-3**	$534.00
0.650 – 0.800"	368-865	**20-804-1**	534.00
0.800 – 1.000"	368-866	**20-805-8**	570.00
1.000 – 1.200"	368-867	**20-806-6**	570.00
1.200 – 1.600"	368-868	**20-807-4**	724.00
1.600 – 2.000"	368-869	**20-808-2**	758.00
2.000 – 2.500"	368-870	**20-809-0**	759.00
2.500 – 3.000"	368-871	**20-810-8**	828.00
3.000 – 3.500"	368-872	**20-811-6**	867.00
3.500 – 4.000"	368-873	**20-812-4**	871.00
4.000 – 5.000"	368-874	**20-813-2**	1,130.00
5.000 – 6.000"	368-875	**20-814-0**	1,170.00
6.000 – 7.000"	368-876	**20-815-7**	1,330.00
7.000 – 8.000"	368-877	**20-816-5**	1,450.00

Sets - Include Extension Rod for Measuring Deep Holes

SET RANGE	INDIVIDUAL MICROMETER RANGE (IN.)	SETTING RINGS INCLUDED	MITUTOYO MODEL #	PART NUMBER	PRICE
0.275 – 0.500"	0.275 – 0.350, 0.350 – 0.425, 0.425 – 0.500	.350" Dia., .500" Dia.	368-916	**20-817-3**	$2,160.00
0.500 – 0.800"	0.500 – 0.650, 0.650 – 0.800	.650" Dia.	368-917	**20-818-1**	1,450.00
0.800 – 2.000"	0.800 – 1.000, 1.000 – 1.200, 1.200 – 1.600, 1.600 – 2.000	1.00" Dia., 1.60" Dia.	368-918	**20-819-9**	3,330.00







ETALON SWITZERLAND

"Ingage" Internal Bore Micrometers

- Direct reading reduces the possibility of parallax error.
- Accurate measurement of diameter at the bottom of blind holes. The anvils extend beyond the measuring head.
- Quick and clear determination of bore dimension.
- Hardened and stabilized steel anvils.
- Dull chrome finish.
- Direct measurement.
- Easy and immediate alignment of the instrument because of its low weight and long anvil guides.
- The irregular location of anvils 135-135-90 degrees (above 0.800") permits checking of possible ovalness of bores.
- Up to five extensions can be used.
- Graduations: 0.0001".

2 Contact Points at 180°

MEAS. RANGE	PART NO.	PRICE
0.190 - 0.235"	**12-112-9**	$1,131.85
0.235 - 0.275"	**12-113-7**	1,131.85
0.275 - 0.335"	**12-114-5**	1,131.85
0.335 - 0.400"	**12-115-2**	1,131.85

3 Contact Points at 120°

MEAS. RANGE	PART NO.	PRICE
0.400 - 0.500"	**12-116-0**	$1,045.15
0.500 - 0.600"	**12-117-8**	1,045.15
0.600 - 0.700"	**12-118-6**	1,045.15
0.700 - 0.800"	**12-119-4**	1,045.15

3 Contact Points at 135°-135°-90°

MEAS. RANGE	PART NO.	PRICE
0.800 - 1.000"	**12-120-2**	$1,168.35
1.000 - 1.200"	**12-121-0**	1,168.35
1.200 - 1.400"	**12-122-8**	1,168.35
1.400 - 1.600"	**12-123-6**	1,351.80
1.600 - 1.800"	**12-124-4**	1,351.80
1.800 - 2.000"	**12-125-1**	1,351.80
2.000 - 2.400"	**12-126-9**	1,491.45
2.400 - 2.800"	**12-127-7**	1,491.45
2.800 - 3.400"	**12-128-5**	1,627.45
3.400 - 4.000"	**12-129-3**	1,627.45



Certified
Right Out of the Box!

Pistol Grip Bore Gages with Electronic Indicator

- Single handed operation, right and left hand viewing.
- Self-centering 3-point head for highly accurate internal measurements.
- Highly durable carbide tipped contact points.
- Supplied with calibrated setting ring.
- SPI Digital Indicator (included):
  - Range: 0 - 0.5"/12.70 mm
  - 360° screen rotation
  - Stem dia.: 3/8"
  - Thread size: #4 - 48
  - Inch/Metric conversion
  - Accuracy: ±0.0003"/0.008 mm
  - Resolution: 0.0005"/0.001 mm
  - SPC/USB data output
  - Automatic shut-off
  - Battery: CR2032 included
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.



Ground Ship ONLY

MEASURING RANGE	ACCURACY	SETTING RING	EXT. RODS	L	A	PART NUMBER	PRICE
0.275 - 0.350"	±0.00016"	0.275"	4"	2"	0.06"	**21-154-0**	$535.50
0.350 - 0.425"	±0.00016"	0.35"	4"	2"	0.06"	**21-155-7**	535.50
0.425 - 0.500"	±0.00016"	0.5"	4"	2"	0.06"	**21-156-5**	546.65
3 Pc. Set: 0.275 - 0.500" includes: 3 setting rings, 4" extension rod & spanner wrench in fitted case						**21-167-2**	1,188.10
0.500 - 0.650"	±0.00016"	0.65"	6"	2.6"	0.02"	**21-157-3**	$568.95
0.650 - 0.800"	±0.00016"	0.65"	6"	2.6"	0.02"	**21-158-1**	593.50
2 Pc. Set: 0.500 - 0.800" includes: setting ring, 6" extension rod & spanner wrench in fitted case						**21-168-0**	948.25
0.800 - 1.000"	±0.00016"	1"	6"	3.64"	0.02"	**21-159-9**	$619.15
1.000 - 1.200"	±0.00016"	1"	6"	3.64"	0.02"	**21-160-7**	641.45
1.200 - 1.600"	±0.00016"	1.6"	6"	3.88"	0.02"	**21-161-5**	674.95
1.600 - 2.000"	±0.0002"	1.6"	6"	3.88"	0.02"	**21-162-3**	747.40
4 Pc. Set: 0.800 - 2.000" includes: 2 setting rings, 6" extension rod & spanner wrench in fitted case						**21-169-8**	2,136.30
2.000 - 2.500"	±0.0002"	2.5"	6"	4.48"	0.02"	**21-163-1**	$780.90
2.500 - 3.000"	±0.0002"	2.5"	6"	4.48"	0.02"	**21-164-9**	825.55
3.000 - 3.500"	±0.0002"	3.5"	6"	4.48"	0.02"	**21-165-6**	864.55
3.500 - 4.000"	±0.0002"	3.5"	6"	4.48"	0.02"	**21-166-4**	965.00
4 Pc. Set: 2.000 - 4.000" includes: 2 setting rings, 6" extension rod & spanner wrench in fitted case						**21-170-6**	2,788.90

Accessories

DESCRIPTION	PART NO.	PRICE
0 - .5" IP54 Digital Indicator	**21-799-2**	$170.85
SPC/USB Interface & Cable	**15-807-1**	89.30
Repl. Battery (CR2032)	**07-319-7**	2.55

MEASURING



17-557-0

Dial Bore Gage Sets

- Includes interchangeable anvils and necessary accessories to perform close tolerance I.D. measurements.
- AGD Series 2 dial indicator furnished in each kit.
- Available in your choice of graduation on the dial face, 0.0005" or 0.001"
- Furnished with fitted case.

MEAS. RANGE MIN. – MAX.	NO. OF ANVILS	GAGING DEPTH	SETS W/0.001" GRAD. INDICATOR PART NO.	PRICE	SETS W/0.0005" GRAD. INDICATOR PART NO.	PRICE	REPL. ANVIL SETS PART NO.	PRICE
0.24 – 0.40"	9	1.57"	**17-547-1**	$179.25	**17-553-9**	$188.85	**17-560-4**	$50.20
0.40 – 0.70"	9	4.00"	**17-548-9**	162.70	**17-554-7**	170.95	**17-561-2**	50.20
0.70 – 1.50"	8	5.00"	**17-549-7**	162.70	**17-555-4**	170.95	**17-562-0**	46.20
1.40 – 2.40"	6	6.00"	**17-550-5**	162.70	**17-556-2**	170.95	**17-563-8**	39.50
2.00 – 6.00"	11	6.00"	**17-551-3**	162.70	**17-557-0**	165.95	**17-564-6**	59.30
6.00 – 10.00"	6	16.00"	**17-552-1**	191.65	**17-558-8**	194.40	**17-565-3**	50.20
10.00 – 16.00"	6	16.00"	–	–	**17-559-6**	201.40	–	–

SPI®

Dial Bore Gages

- Close tolerance inspection of bores for size, roundness, ovality, and taper.
- AGD group 2 dial indicator is fully protected by rugged cover to minimize potential shock in the machine shop environment.
- Includes anvils, spacers and sub-anvils.
- 2 point measurement:
  - 0.24 - 0.4" is with fixed anvils
  - 0.4 - 0.7" is with plate guide and fixed anvils
  - 0.7 - 1.4" is with canister and fixed anvils
  - Over 1.4" is with wheel guide and inserting anvils
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- Accessory - 11-367-0 Bore Gage Setting Master sold separately.
- 2 year warranty.

SPI Certified
Right Out of the Box!



21-337-1

0.0005" Graduations

MEASURING RANGE	PROBE DEPTH	ACCURACY	NO. OF ANVILS	NO. OF SPACERS	NO. OF SUB-ANVILS	PART NUMBER	PRICE
0.24 - 0.40"	2"	±0.0006"	9	–	–	**21-333-0**	$352.55
0.40 - 0.70"	4"	±0.0006"	9	1	–	**21-334-8**	244.35
0.70 - 1.50"	6"	±0.0006"	10	2	–	**21-335-5**	206.40
1.40 - 2.40"	6"	±0.00065"	6	4	–	**21-336-3**	203.05
2.00 - 6.00"	6"	±0.00065"	11	4	1	**21-337-1**	229.85
6.00 - 10.00"	16"	±0.00070"	6	6	1	**21-338-9**	344.70
10.00 - 16.00"	16"	±0.00070"	6	6	2	**21-339-7**	418.35

0.0001" Graduations

MEASURING RANGE	PROBE DEPTH	ACCURACY	NO. OF ANVILS	NO. OF SPACERS	NO. OF SUB-ANVILS	PART NUMBER	PRICE
0.24 - 0.40"	2"	±0.0002"	9	–	–	**21-340-5**	$367.05
0.40 - 0.70"	4"	±0.0003"	9	1	–	**21-341-3**	278.90
0.70 - 1.50"	6"	±0.0003"	10	2	–	**21-342-1**	235.40
1.40 - 2.40"	6"	±0.0003"	6	4	–	**21-343-9**	230.95
2.00 - 6.00"	6"	±0.0003"	11	4	1	**21-344-7**	251.05
6.00 - 10.00"	16"	±0.0003"	6	6	1	**21-345-4**	380.45
10.00 - 16.00"	16"	±0.0003"	6	6	2	**21-346-2**	451.85

Starrett®

Dial Bore Gages

- The split-ball contact is self-centering and useful for detecting hole geometry problems such as taper, bell-mouth and out-of-roundness.
- Useful for controlling approach to tolerance without removing the workpiece from a machine.
- Interchangeable probes are hard chrome plated and polished.
- Graduation: 0.0001"
- Sets consist of: 1 Dial Indicator, a Body and Actuating Rod, 2 Adjusting Wrenches and Probes as specified below.
- Measurements are taken by comparison so some type of set master should be used as a reference standard.
- Furnished in protective case.



11-068-4



11-070-0

MEAS. RANGE	NO. OF PROBES	MAX. DEPTH BORE	MAX. BORE DEPTH	STARRETT MODEL #	PART NUMBER	PRICE
0.107 - 0.266"	5	0.107 - 0.140"; 0.139 - 0.172" 0.171 - 0.203"; 0.202 - 0.234", 0.233 - 0.266"	$^{13}/_{16}$"	82AZ	**11-068-4**	$1,242.55
0.217 - 0.594"	6	0.217 - 0.281"; 0.279 - 0.344"; 0.342 - 0.405" / 0.403 - 0.469"; 0.467 - 0.532"; 0.530 - 0.594"	$1^{1}/_{2}$" / $1^{3}/_{4}$"	82BZ	**11-069-2**	1,432.95
0.560 - 1.565"	8	0.560 - 0.690"; 0.685 - 0.815"; 0.810 - 0.940" / 0.935 - 1.065"; 1.060 - 1.190"; 1.185 - 1.315"; 1.310 - 1.440"; 1.435 - 1.565"	$2^{1}/_{2}$" / 5" *	82CZ	**11-070-0**	1,717.60

* Includes insertion of gage body into bore



12-191-3

SPI®
Dial Bore Gage Set
1.4" to 6" Measuring Range

Set includes:

- 2 interchangeable measuring heads: 1.4" - 2" & 2" - 6"
- 2 sets of anvils with carbide contact points: 1.4, 1.6, 1.8, 2, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4"
- 2" extender
- 3 spacers/washers: 0.02, 0.05, 0.1"
- Travel Indicator
  - Range: 0 - .25"
  - Resolution: 0.0005"
  - Reading: 0-25-0

- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Dial Bore Gage Set	**12-191-3**	$145.45

SPI®
Electronic Bore Gages

Certified Right Out of the Box!



Ground Ship ONLY

13-985-7

- Close tolerance inspection of bores for size, roundness, ovality, and taper.
- Electronic indicator is fully protected by rugged cover to minimize potential shock in the machine shop environment.
- Includes anvils, spacers and sub-anvils.
- 2 point measurement:
  - 0.24 - 0.4" is with fixed anvils
  - 0.4 - 0.7" is with plate guide and fixed anvils
  - 0.7 - 1.4" is with canister and fixed anvils
  - Over 1.4" is with wheel guide and inserting anvils
- Electronic Indicator:
  - Range: 0.250" – Resolution: 0.0001"/0.002 mm – Accuracy: 0.0006"
- Inc./abs/inch/metric measuring.
- Auto shut-off.
- Battery: CR2032 included.
- Furnished in fitted case.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- Accessory - 11-367-0 Bore Gage Setting Master sold separately.
- 2 year warranty.

MEASURING RANGE	PROBE DEPTH	ACCURACY	NO. OF ANVILS	NO. OF SPACERS	PART NUMBER	PRICE
0.24 - 0.4"	2"	±0.0005"	9	–	**13-980-8**	$247.70
0.4 - 0.7"	4"	±0.0005"	9	1	**13-981-6**	247.70
0.7 - 1.5"	6"	±0.0006"	10	2	**13-982-4**	247.70
1.4 - 2.4"	6"	±0.0006"	6	3	**13-983-2**	247.70
2.0 - 4.0"	6"	±0.0007"	11	3	**13-984-0**	247.70
2.0 - 6.0"	16"	±0.0007"	6	5	**13-985-7**	247.70
6.0 - 10.0"	16"	±0.0007"	6	5	**13-986-5**	247.70
Repl. Battery (CR2032)					**07-319-7**	2.55

Mitutoyo
Dial Bore Gage Sets



10-716-9



A B C

- All sets feature a top quality AGD series 2 dial indicator complete with dial protector cover.
- Furnished with interchangeable anvils and necessary accessories to perform close tolerance I.D. measurements.
- Furnished in a custom molded case.
- Spanner wrench not included.
- Carbide contact points for durability.
- Dial graduation: 0.0005" or 0.0001".

Inch

MEAS. RANGE (IN.) MIN.	MAX.	GAGING DEPTH (IN.)	NO. OF ANVILS	PROBE STYLE	SET WITH 0.0005" GRAD. INDICATOR MITUTOYO #	PART NO.	PRICE	SET WITH 0.0001" GRAD. INDICATOR MITUTOYO #	PART NO.	PRICE
0.24	0.4	2.0	9	A	–	–	–	511-212	**10-141-0**	$614.00
0.30	0.4	2.2	6	B	–	–	–	526-122	**10-142-8**	506.00
0.40	0.7	2.4	8	B	–	–	–	526-123	**10-929-8**	467.00
0.70	1.4	4.1	9	C	511-741	**10-135-2**	$347.00	511-751	**10-714-4**	701.00
0.70	6.0	4.0 - 6.0	26	C	511-931	**10-136-0**	951.00	511-932	**10-143-6**	1,000.00
1.40	2.5	6.0	6	C	511-742	**10-137-8**	347.00	511-752	**10-715-1**	391.00
2.00	6.0	5.9	11	C	511-743	**10-138-6**	384.00	511-753	**10-716-9**	427.00
4.00	6.5	5.9	13	C	–	–	–	511-754	**10-144-4**	565.00
6.50	10.0	9.8	6	C	511-745	**10-139-4**	577.00	511-755	**10-145-1**	636.00
10.00	16.0	9.8	5	C	–	–	–	511-756	**10-146-9**	757.00

Accessories

DESCRIPTION	MITUTOYO® MODEL #	PART NUMBER	PRICE
9.84" (250 mm) Extension Rod for 6.5 - 16" (160 - 400 mm) Models	952361	**10-147-7**	$168.00
2" Sub-Anvil for 2 - 6" Sets	101421	**10-148-5**	23.20



12-192-1

SPI®
Absolute Electronic Bore Gage Set
1.4" to 6" Measuring Range

Ground Ship ONLY

- IP54 protection.

Set includes:

- 2 interchangeable measuring heads: 1.4" - 2" & 2" - 6"
- 2 sets of anvils with carbide contact points: 1.4, 1.6, 1.8, 2, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, .2, 3.4, 3.6, 3.8, 4"
- 2" extender
- 3 spacers/washers: 0.02, 0.05, 0.1"
- Digital Travel Indicator
  - Range: 0 - 0.5"/0 - 12.7 mm
  - Resolution: 0.00005"/0.001 mm
  - Preset & Min function
  - SPC/USB output

- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Absolute Electronic Bore Gage Set	**12-192-1**	$254.55
SPC/USB Interface & Cable	**11-967-7**	123.45
Repl. Battery	**07-319-7**	2.55



Bore Gage Setting Master Kit with 36 Gage Blocks - Grade 0

For Accurately Setting Any Bore Gage Up To 6" Diameter To An Accuracy of 0.0001"

Kit Includes:

- Bore Gage Setting Master
  - Internal capacity: 6"
  - Depth capacity: 1"
  - Centralizer capacity width: 2⅝"
  - Quick-release holder for fast adjustment
- 2 Pc. - 2⅜" x ⅜" Anvils
- 36 Pc. Gage Block Set - Grade 0
  - 1 Blocks: .0.50"
  - 9 Blocks: .1001" - .1009" in .0001" steps
  - 9 Blocks: .101" - .109" in .001" steps
  - 9 Blocks: .110" - .190" in .010" steps
  - 5 Blocks: .100" - 500" in .100" steps
  - 3 Blocks: 1", 2" & 4"
  - Certificate of calibration traceable to NIST.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Bore Gage Setting Master Kit	**11-367-0**	$332.19



Outside and Electronic Chamfer Gages are available on request.

Chamfer Gages

- Instant measuring of chamfers and tapered hole diameters.
- Direct diameter reading to 0.001".
- Hardened and precision ground 3-blade steel plungers assures high accuracy and repeatability.
- To "Zero" the gage, press the base of the gage against any flat ground surface and set it to the "Set To" number stamped on the back.
- Accuracy: 0 - 90° ±0.001"/ 90 - 127° ±0.002"
- Furnished in fitted case.
- 2 year warranty.

CAPACITY	0 - 90° ANGLE RANGE PART NO.	PRICE	90 - 127° ANGLE RANGE PART NO.	PRICE
0 - 1"	**20-660-7**	$285.15	**20-665-6**	$322.35
1 - 2"	**20-661-5**	425.20	**20-666-4**	483.50

O.D. gages on request.



Electronic Countersink Gages are available on request.

Countersink Gages

- Fast, accurate measurements of countersink diameters.
- Direct major diameter reading of 100° countersink angles to 0.002".
- Accuracy: ±0.0005"
- Simply press the gage into the piece/part and read the dial.
- Reading is "held" on the dial until the reset button is pressed.
- Convenient one-hand operation, including resetting.
- Handy 5-inch pocket size length.
- Each gage is furnished with setting ring in foam-lined storage case.
- Furnished in fitted case.

DIAMETER RANGE	COUNTERSINK	PART NO.	PRICE
0.020 - 0.170"	100°	**20-540-1**	$489.70
0.160 - 0.360"	100°	**20-541-9**	348.40
0.360 - 0.560"	100°	**20-542-7**	354.60

Slot & Groove Gage



- Extreme accuracy, simplicity and versatility for measuring the width and distance of slots and grooves for stop rings, circlips, "O" rings, joints, or axial lengths in a bore etc.
- 0 - 2" range.
- 2 to 6" with optional sleeve and spindle.
- Direct reading.
- Graduation: 0.0005".
- Continuous dial.
- Large revolution counter.
- Jeweled movement, shockproof.
- Resistant to corrosion.
- Setting gage, table stand and fitted case included.

Swiss Made

DESCRIPTION	PART NO.	PRICE
Slotmaster, complete Includes: .051" & 1 - 2" Spindle & Sleeve with Clamp Set	**20-650-8**	$3,195.00

Replacement Spindles & Sleeves with Clamp

SIZE	SPINDLE	PRICE	SLEEVE	PRICE
0.05 - 1"	**07-326-2**	Call	**07-320-5**	Call
1 - 2"	**07-327-0**	Call	**07-321-3**	Call
2 - 3"	**07-328-8**	Call	**07-322-1**	Call
3 - 4"	**07-329-6**	Call	**07-323-9**	Call
4 - 5"	**07-330-4**	Call	**07-324-7**	Call
5 - 6"	**07-331-2**	Call	**07-325-4**	Call



Groove Micrometers



20-935-3

Certified
Right Out of the Box!

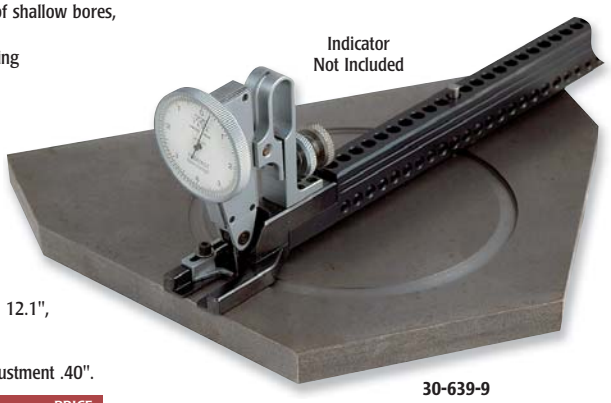
- Flanged spindle for measuring width, bore depth, and location of grooves.
- Non-rotating spindle with bi-directional ratchet stop.
- Two separate laser engraved graduations on barrel (top and bottom).
- Graduation: 0.001"/0.01 mm
- Accuracy: ±0.001"/0.01 mm
- Parallelism: 0.001"/0.01 mm
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

INSIDE	OUTSIDE	DISC DIA.	REACH*	PART NO.	PRICE
0.06 - 1.05"	0.0 - 1.0"	0.26"	1.40"	**20-935-3†**	$225.40
0.06 - 1.05"	0.0 - 1.0"	0.52"	3.38"	**20-936-1**	236.10
1.05 - 2.05"	1.0 - 2.0"	0.52"	3.38"	**20-937-9**	249.80
2.05 - 3.05"	2.0 - 3.0"	0.52"	3.38"	**20-938-7**	274.20
1.6 - 26.5 mm	0 - 25 mm	6.5 mm	35.5 mm	**20-940-3†**	225.40

* Reach is to the stationary flange, then add measuring range.
† without adjustable stop.

SPI® Shallow-Test Gage

- Perfect for accurate measurement of shallow bores, outside diameters, slots and more.
- Modular design maximizes measuring range, minimizes cost.
- Works with most brands of test indicators (not included).
- All wear surfaces hardened and precision ground.
- Easy to set up using gage blocks, ring gage or qualified part.
- Includes a hardened tool steel contact pin and hex keys.
- Handy storage case included.
- Specifications: Internal Range 2" to 12.1", External Range 1.95" to 12.05", Contact Pin Hole Distant .25" Typ., Depth Range .05" to .50", Fine Adjustment .40".



30-639-9

DESCRIPTION	PART NO.	PRICE
Shallow-Test Gage	**30-639-9**	$429.45

Optional Range Extension*

DESCRIPTION	PART NO.	PRICE
10" Range Extension	**30-633-2**	$112.20
20" Range Extension	**30-634-0**	156.00

*Not shown



40-005-1

GENERAL® Pocket Slide Calipers

- Made of stainless steel.
- For measuring inside and outside dimensions.
- Decimal equivalent chart is included on the back.
- Scale has etched and filled graduations.
- 3" caliper readings are in inch and metric.
- 4" caliper readings are in 16ths and 32nds.

DESCRIPTION	PART NO.	PRICE
3" Pocket Slide Caliper	**40-005-1**	$13.10
4" Pocket Slide Caliper	**40-006-9**	15.90



10-618-7

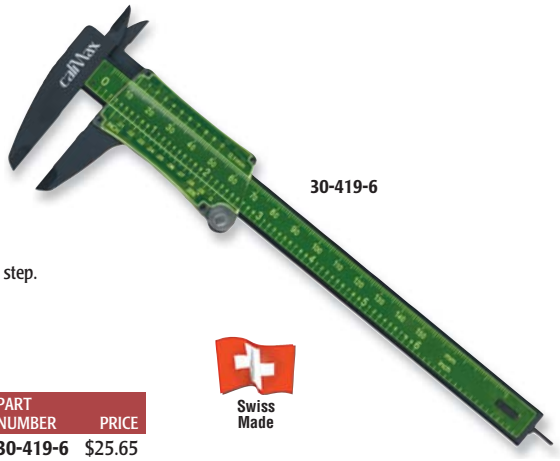
GF GAGE Vernier Caliper Master

- Accurately checks outside and inside jaws on 6" calipers.
- "T" shaped measuring points ensure that the caliper jaws can be checked for "out-of-parallel" condition.

DESCRIPTION	PART NO.	PRICE
Vernier Caliper Master	**10-618-7**	$770.80

SPI® Classic Economy 6" Vernier Caliper

- Vernier graduations capture light for enhanced readability.
- Thumb-roller.
- Super Polymid, 60% fiberglass reinforced to metal-like qualities.
- 4-way measuring: inside, outside, depth and step.
- Prismatic guide. Handy and light.
- Parallax-free.
- Overall accuracy: ±0.002"
- Furnished in fitted case.



30-419-6

Swiss Made

RANGE	JAW LENGTH	VERNIER SCALE TOP	VERNIER SCALE BOTTOM	PART NUMBER	PRICE
6"/150 mm	1½"	0.1 mm	0.005"	**30-419-6**	$25.65



Mitutoyo Groove Micrometers

Measure Thickness and Spacing of Grooves, from an Edge to a Land and From a Shoulder to a Groove

- Graduations: 0.001"
- Two types of graduations for inside and outside measurements.
- Non-rotating spindle type has two-directional ratchet stop.
- Discs are hardened and lapped.

OUTSIDE MEAS. RANGE	INSIDE MEAS. RANGE	MEAS. FACE DISC DIA.	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 1"	0.055 - 1.050"	0.250"	146-131	**10-566-8**	$234.00
0 - 1"	0.055 - 1.050"	0.500"	146-232	**10-567-6**	436.00
1 - 2"	1.050 - 2.050"	0.500"	146-133	**10-568-4**	345.00



11-121-1

Starrett® Groove Master

- Designed to quickly and easily measure widths of internal and external grooves and lands.
- Has a reach of 1⅝" maximum depth.
- Measuring disc is 9/32" diameter and 0.025" thick.
- Measures groove widths 0.050 - 1.050"
- Measures land widths from 0 - 1"
- Accuracy: ±0.0004"
- Graduation: 0.001"
- Staggered lines and distinct figures for precise and easy readability.
- Satin-chrome finish.
- Case included.
- Model #260Z

DESCRIPTION	PART NO.	PRICE
Groove Master	**11-121-1**	$378.95

MEASURING



Vernier Calipers

Inch/Metric

- All models Hardened Stainless Steel.
- Dull chromed finish.
- Micro-fine graduation.

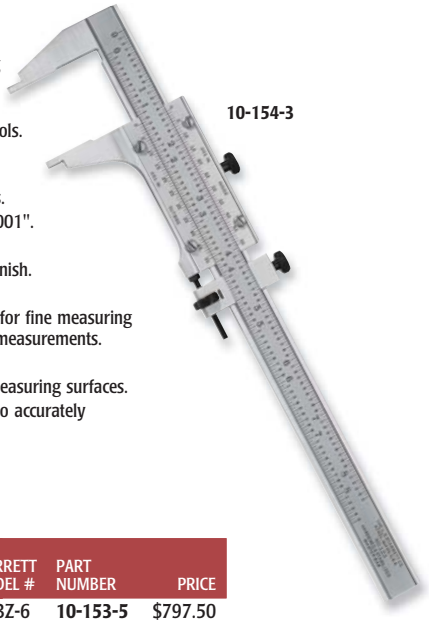
TYPE	MEASURING STYLE	RANGE	READING	JAW LENGTH	PART NUMBER	PRICE
A	Thumb Lock	6"/ 150 mm	1/1000" x 1/20 mm	1.6"/ 40 mm	**30-489-9**	$33.90
B	Plain	6"/ 150 mm	1/1000" x 1/20 mm	1.6"/ 40 mm	**30-490-7**	34.20
B	Plain	8"/ 200 mm	1/1000" x 1/20 mm	2.0"/ 50 mm	**30-491-5**	62.60
B	Fine Adjust.	12"/ 300 mm	1/1000" x 1/50 mm	3.0"/ 75 mm	**30-493-1**	122.65

Heavy Duty

TYPE	MEASURING STYLE	RANGE	READING	JAW LENGTH	PART NUMBER	PRICE
C	Fine Adjust.	18"/ 450 mm	1/1000" x 1/50 mm	3.5"/ 90 mm	**30-494-9**	$257.85
C	Fine Adjust.	24"/ 600 mm	1/1000" x 1/50 mm	4.0"/ 100 mm	**30-495-6**	313.15
C	Fine Adjust.	40"/1000 mm	1/1000" x 1/50 mm	5.5"/ 140 mm	**30-496-4**	606.85

Starrett®
Satin-Chrome Master Vernier Calipers

Read Without Using a Magnifying Glass



- Micro-fine graduation.
- Easy to read – Eliminate reading errors caused by parallax.
- Half as many bar graduations as conventional single-vernier tools.
- Long 50-Division vernier scales and widely spaced graduations - Read without a magnifying glass.
- Machine divided graduations, 0.001".
- Tight, smoothly fitted slides.
- No glare Starrett satin chrome finish.
- Open-face design.
- Screw-type adjusting nut allows for fine measuring adjustments and lock nut holds measurements.
- Fine tool steel construction.
- Hardened, ground and lapped measuring surfaces.
- Divider points on the back side to accurately set dividers and trammels.
- Hardened and stabilized bars.
- Supplied in fitted wood case.

MEAS. RANGE	JAW DEPTH APPROX.	MAX. NIB WIDTH CLOSED	STARRETT MODEL #	PART NUMBER	PRICE
0 - 6"	1 9/16"	0.25"	123Z-6	**10-153-5**	$797.50
0 - 12"	2 5/16"	0.30"	123Z-12	**10-154-3**	948.50
0 - 24"	2 5/16"	0.30"	123Z-24	**10-155-0**	1,233.10
0 - 36"	3"	0.50"	123Z-36	**10-156-8**	2,704.90
0 - 48"	3"	0.50"	123Z-48	**10-157-6**	3,976.55
0 - 60"	4 1/2"	0.75"	123Z-60	**10-158-4**	6,517.75



SPI® Certified
Right Out of the Box!

Vernier Calipers

- Precision ground stainless steel construction.
- 0 - 6" thru 0 - 11.2" Jaw thickness: 0.126"
- Short Form Certificate of calibration included.
- Furnished in fitted case.
- 2 year warranty.

Single Set Screw Style

RANGE	GRADUATION SCALE UPPER	GRADUATION SCALE LOWER	ACCURACY	JAW LENGTH	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	0.001"	0.02 mm	±0.001"	1.57"	**20-988-2**	$51.15
0 - 6"	1/128"	0.001"	±0.001"	1.57"	**17-718-8**	51.15
0 - 150 mm	–	0.02 mm	±0.02 mm	1.57"	**20-989-0**	51.15
0 - 8"/0 - 200 mm	0.001"	0.02 mm	±0.0015"	1.97"	**20-990-8**	65.45
0 - 8"/0 - 200 mm	1/128"	0.05 mm	±0.0015"	1.97"	**20-991-6**	65.45
0 - 200 mm	–	0.02 mm	±0.03 mm	1.57"	**17-722-0**	65.45

Double Set Screw w/Fine Adjustment Style

RANGE	GRADUATION SCALE UPPER	GRADUATION SCALE LOWER	ACCURACY	JAW LENGTH	PART NUMBER	PRICE
0 - 5.2"/0 - 130 mm	0.001"	0.02 mm	±0.001	1.57"	**20-992-4**	$51.15
0 - 7.2"/0 - 180 mm	0.001"	0.02 mm	±0.0015"	1.97"	**20-993-2**	65.45
0 - 11.2"/0 - 280 mm	0.001"	0.02 mm	±0.0015"	2.50"	**20-994-0**	109.05

Thumb Lock Style

RANGE	GRADUATION SCALE UPPER	GRADUATION SCALE LOWER	ACCURACY	JAW LENGTH	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	0.001"	0.02 mm	±0.001"	1.57"	**20-995-7**	$51.15
0 - 8"/0 - 200 mm	0.001"	0.02 mm	±0.0015"	1.97"	**20-996-5**	65.45

Heavy-Duty - No Upper Jaw

RANGE	GRADUATION SCALE UPPER	GRADUATION SCALE LOWER	ACCURACY	JAW LENGTH	PART NUMBER	PRICE
0 - 12"/0 - 300 mm	0.001"	0.02 mm	±0.0015"	2.95"	**20-693-8**	$165.85
0 - 18"/0 - 450 mm	0.001"	0.02 mm	±0.002"	3.93"	**20-694-6**	285.90
0 - 24"/0 - 600 mm	0.001"	0.02 mm	±0.002"	3.93"	**20-695-3**	326.55
0 - 40"/0 - 1000 mm	0.001"	0.02 mm	±0.003"	5.90"	**20-696-1**	714.70
0 - 60"/0 - 1500 mm	0.001"	0.02 mm	±0.004"	7.87"	**20-697-9†**	1,086.35

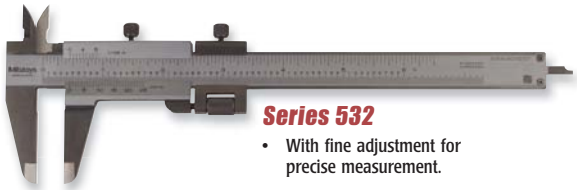
† Not Certified



Series 531
- With thumb clamp. The jaw can be moved only when spring loaded thumb clamp is depressed.



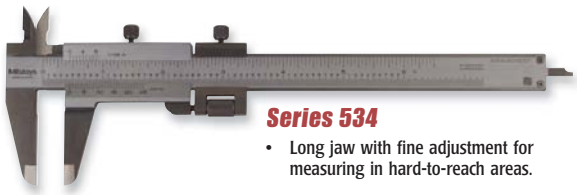
Diamond Master Series 522-
- Plain and basic vernier caliper with parallax free scales and locking screw on bottom of the moving slider.



Series 532
- With fine adjustment for precise measurement.



Series 530-
- Plain and basic vernier caliper with locking screw on top of the moving slider.



Series 534
- Long jaw with fine adjustment for measuring in hard-to-reach areas.

Mitutoyo
Vernier Calipers

RANGE	GRADUATION SCALE UPPER/LOWER	ACCURACY	JAW DEPTH	MAX NIB WIDTH	MFR'S #	PART NUMBER	PRICE
0 - 6"	0.050 mm/1/128"	±0.05 mm	1.60"	–	522-601	**10-483-6** *	$134.00
0 - 6"	0.001"/1/128"	±0.0015"	1.60"	–	530-105	**10-485-1**	102.00
0 - 6"	0.20 mm/0.001"	±0.03 mm	1.60"	–	530-312	**10-486-9**	102.00
0 - 150 mm	0.050 mm/–	±0.05 mm	1.58"	–	530-101	**10-487-7**	102.00
0 - 8"	0.001"/1/128"	±0.0015"	1.60"	–	530-116	**10-488-5**	121.00
0 - 8"	0.020 mm/0.001"	±0.03 mm	1.60"	–	530-118	**10-489-3**	121.00
0 - 6"	0.020 mm/0.001"	±0.03 mm	1.58"	–	531-128	**10-490-1**	105.00
0 - 8"	0.020 mm/0.001"	±0.03 mm	1.58"	–	531-129	**10-491-9**	131.00
0 - 8"	0.050 mm/1/128"	±0.05 mm	1.60"	–	531-108	**10-492-7**	131.00
0 - 5"	0.020 mm/0.001"	±0.03 mm	1.58"	–	532-119	**10-494-3**	114.00
0 - 7"	0.020 mm/0.001"	±0.03 mm	1.58"	–	532-120	**10-496-8**	131.00
0 - 11"	0.020 mm/0.001"	±0.04 mm	1.58"	–	532-121	**10-497-6**	285.00
0 - 20"	0.001"/0.001"	±0.003"	7.87"	0.80"	534-118	**10-500-7**	850.00
0 - 30"	0.020 mm/0.001"	±0.08 mm	200 mm	20 mm	534-107	**10-503-1**	1,120.00
0 - 40"	0.020 mm/0.001"	±0.10 mm	200 mm	20 mm	534-108	**10-505-6**	1,560.00

* Diamond Master, Parallax free scales

VISE-GRIP®
Locking Multi-Pliers
See Pg. 400

NEW



60-898-4



60-899-2



60-900-8

Mitutoyo
Vernier Calipers
with Nib Style Jaws and Fine Adjustment



- Jaws have round measuring face for accurate ID measurement.
- With fine adjustment carriage to feed the slider finely.
- Inside and outside measurements can be directly read from the upper and lower slider graduations, respectively.

Inch/Inch Dual Scale

RANGE*	GRADUATION SCALE UPPER/LOWER	ACCURACY	JAW DEPTH	MAX NIB WIDTH	MFR'S #	PART NUMBER	PRICE
0 (.5") - 24"	0.001"/0.001"	±0.002"	3.94"	0.50"	160-102	**10-920-7**	$868.00

* ( ): Minimum dimension in ID measurement

Inch/Metric Dual Scale

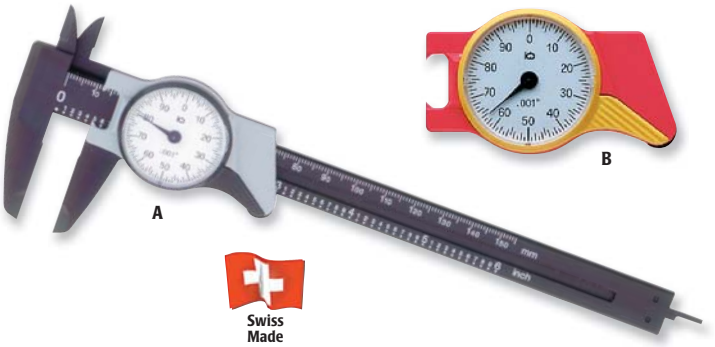
RANGE*	GRADUATION SCALE UPPER/LOWER	ACCURACY	JAW DEPTH	MAX NIB WIDTH	MFR'S #	PART NUMBER	PRICE
0 (.5") - 18"/0 (20) - 450 mm	0.001"/0.02 mm	±0.002"	3.94"	0.50"	160-119	**10-657-5**	$719.00

* ( ): Minimum dimension in ID measurement

SPI® Classic Dial Calipers

- Tough as steel, Super Polymid, 60% fiberglass, corrosion resistant.
- Bright, modern color combinations.
- Handy and light.
- Exclusive patented guide.
- 4-way measuring: inside, outside, depth and step.
- Shockproof measuring mechanism.
- Glare-free crystal.
- Adjustable, easy-reading dial.
- Patented thumb friction-stop release.
- Drill and tap chart on back face.
- Furnished in protective case.

COLOR	RANGE	JAW LENGTH	DIAL GRADUATION	PER REVOLUTION	SCALE TOP	SCALE BOTTOM	PART NUMBER	PRICE
A	6"	1.57"	0.001"	0.100"	1 mm	0.100"	**30-412-1**	$35.90
B	150 mm	1.57"	0.1 mm	10 mm	10 mm	1/16"	**31-415-3**	35.90





Dial Calipers

- Features direct reading 0.001" graduations, adjustable bezel with lock, glued rack
- Accuracy ±0.001" in six inches,
- 0.100" per revolution.
- Hardened steel, satin chrome finish, durable case.

DESCRIPTION	PART NO.	PRICE
6" Black Face Caliper	**51-490-1**	$37.60
6" White Face Caliper	**51-505-6**	38.20
8" Dial Caliper	**51-501-5**	59.05
12" Dial Caliper	**51-502-3**	103.20
18" Dial Caliper	**51-503-1** *	191.20

*Heavy duty style



SPI® 6" Personalized Dial Caliper

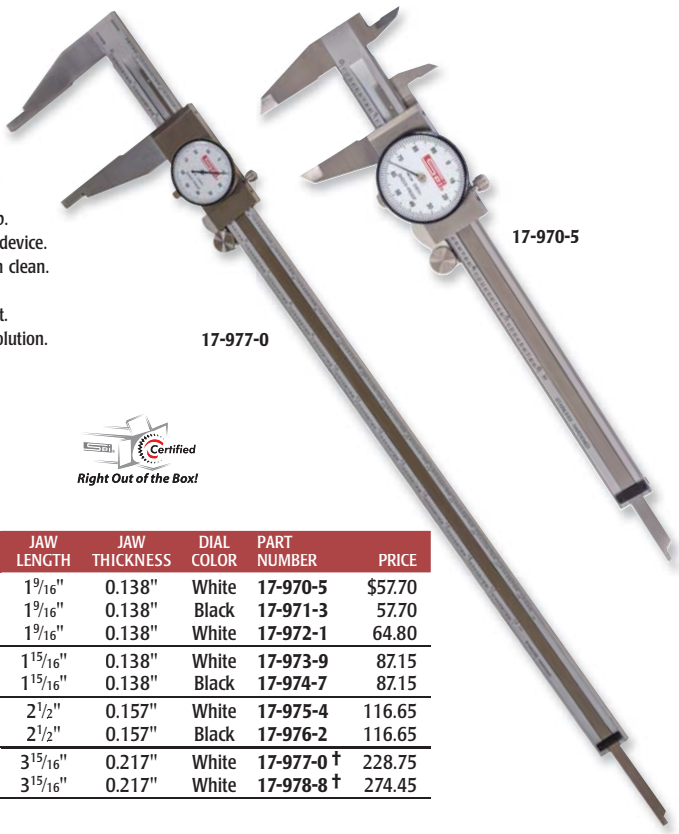
Engrave Your Caliper with Up To 24 Upper-Case Characters

- Designate what you want engraved at time of order.
- Continuous dial reads 0 - 100 with 0.001" graduations.
- 4-way measurement: Inside, outside, depth, and step.
- Satin chrome finish.
- Covered rack.
- Positive lock.
- Main beam hardened and ground.
- Accuracy: ±0.001" over 6" travel.
- Certificate of calibration traceable to NIST.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Engraved 6" Dial Caliper	**15-603-4**	$73.20

SPI® Dial Calipers

- Graduations: 0.001"/0.02 mm
- 4-Way measurements: inside, outside, depth and step.
- Adjustable bezel with locking device.
- Covered rack keeps gear teeth clean.
- Dial dia.: 1.535"
- Hardened stainless throughout.
- Easy zero adjustment per revolution.
- Shockproof design.
- Satin chrome finish.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.



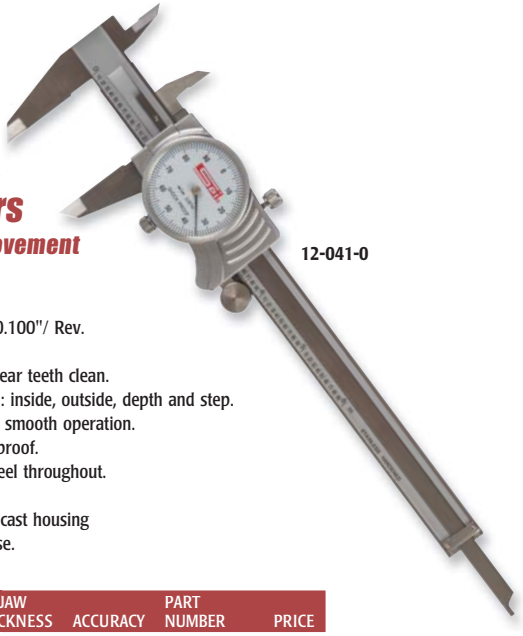
Inch

RANGE	DIAL READING	ACCURACY	JAW LENGTH	JAW THICKNESS	DIAL COLOR	PART NUMBER	PRICE
0 - 6"	0.1"	±0.001"	1 9/16"	0.138"	White	**17-970-5**	$57.70
0 - 6"	0.1"	±0.001"	1 9/16"	0.138"	Black	**17-971-3**	57.70
0 - 6"	0.2"	±0.001"	1 9/16"	0.138"	White	**17-972-1**	64.80
0 - 8"	0.1"	±0.0015"	1 15/16"	0.138"	White	**17-973-9**	87.15
0 - 8"	0.1"	±0.0015"	1 15/16"	0.138"	Black	**17-974-7**	87.15
0 - 12"	0.1"	±0.0015"	2 1/2"	0.157"	White	**17-975-4**	116.65
0 - 12"	0.1"	±0.0015"	2 1/2"	0.157"	Black	**17-976-2**	116.65
0 - 18"	0.1"	±0.0020"	3 15/16"	0.217"	White	**17-977-0** †	228.75
0 - 24"	0.1"	±0.0020"	3 15/16"	0.217"	White	**17-978-8** †	274.45

† 3-way measuring.

Metric

RANGE (MM)	DIAL READING	ACCURACY	JAW LENGTH	JAW THICKNESS	DIAL COLOR	PART NUMBER	PRICE
0 - 150	2 mm	±0.002 mm	40 mm	0.138"	White	**17-979-6**	$57.70
0 - 200	2 mm	±0.003 mm	50 mm	0.138"	White	**17-980-4**	87.15
0 - 300	2 mm	±0.004 mm	64 mm	0.157"	White	**17-981-2**	116.65



Dial Calipers
Super Smooth Movement

- Dial dia.: 1.4"
- Dial reading: 0.100"
- Graduation: 0.001" 0.100"/ Rev.
- Dial color: White
- Covered rack keeps gear teeth clean.
- 4-Way measurements: inside, outside, depth and step.
- Dual pinion for super smooth operation.
- Dual direction shock proof.
- Hardened stainless steel throughout.
- Covered rack.
- Sturdy aluminum die-cast housing
- Furnished in fitted case.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"	1 9/16"	0.136"	±0.001"	**12-041-0**	$73.80
0 - 8"	1 7/8"	0.135"	±0.0015"	**12-042-8**	116.90
0 - 12"	2 7/16"	0.157"	±0.002"	**12-043-6**	176.50



Certified
Right Out of the Box!

Dial Calipers
Extra-Smooth Movement

- Dual pinion mechanism offers extra smooth feel.
- Sturdy aluminum die-cast housing.
- 4-way measurement: inside, outside, depth and step.
- Graduation: 0.001"/0.01 mm
- Shock proof design.
- Short Form Certificate of Calibration traceable included.
- Furnished in fitted case.
- 2 year warranty.

Inch

MEAS. RANGE	RANGE/ REV.	JAW LENGTH	JAW THICKNESS	ACCURACY	DIAL COLOR	PART NUMBER	PRICE
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	White	**17-982-0**	$90.00
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	Black	**17-983-8**	90.00
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	Green	**17-984-6**	90.00
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	Orange	**17-985-3**	90.00
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	Purple	**17-986-1**	90.00
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	Red	**17-987-9**	90.00
0 - 6"	0.100"	1 9/16"	0.138"	±0.001"	Blue	**17-988-7**	90.00
0 - 8"	0.100"	1 15/16"	0.157"	±0.0015"	White	**17-989-5**	138.15
0 - 8"	0.100"	1 15/16"	0.157"	±0.0015"	Black	**17-990-3**	138.15
0 - 12"	0.100"	2 1/2"	0.157"	±0.0015"	White	**17-991-1**	208.65
0 - 12"	0.100"	2 1/2"	0.157"	±0.0015"	Black	**17-992-9**	208.65

Metric

MEAS. RANGE (MM)	RANGE/ REV. (MM)	JAW LENGTH (MM)	JAW THICKNESS	ACCURACY (MM)	DIAL COLOR	PART NUMBER	PRICE
0 - 150	1	40	0.138"	±0.02	White	**17-993-7**	$94.60
0 - 200	1	50	0.138"	±0.03	White	**17-994-5**	119.65
0 - 300	1	64	0.157"	±0.04	White	**17-995-2**	216.05



brown & sharpe

Dial Calipers

- Stainless steel construction.
- 4-Way measurements (inside, outside, depth & step).
- Resolution: 0.001".
- 1 1/4" diameter rotating dial w/lock.
- Extremely smooth movement.

MEASURING RANGE	RANGE PER REV.	GRAD.	DIAL COLOR	MODEL #	PART NUMBER	PRICE
0 - 6"	0.100"	0.001"	White	599-579-4	**11-864-6**	$157.10
0 - 6"	0.100"	0.001"	Black	599-579-5	**11-865-3**	157.10
0 - 8"	0.100"	0.001"	White	599-579-8-1	**11-866-1**	280.10
0 - 8"	0.100"	0.001"	Black	599-579-8-5-1	**11-867-9**	322.00
0 - 12"	0.100"	0.001"	White	599-579-12-1	**11-868-7**	334.05
0 - 12"	0.100"	0.001"	Black	599-579-12-5-1	**11-869-5**	384.00
Repl. Crystal				99-579-31	**05-045-0**	4.40
Repl. Hand				99-579-72	**11-871-1**	6.35
Repl. Bezel Assembly				99-579-50	**11-872-9**	37.85



ETALON SWITZERLAND

Dial Calipers

- 4-way measuring, inside, outside, depth and step.
- Beam scale dull chromed.
- Measuring jaws, cursor knife edges and beam are hardened and stabilized.
- Jaw length: 1.57" external, 0.57" internal.
- Accuracy: ±0.001" per 6".
- Hardened stainless steel rack with precision ground teeth.
- Shockproof indicator movement, anti-backlash rack and pinion.
- 1 1/4" dia. rotating dial. Satin finish housing.
- Adjustable bezel with locking device.
- Furnished in fitted case.

DIAL FACE	RANGE	GRADUATION	PER REVOLUTION	PART NO.	PRICE
White	6"	0.001"	0.100"	**12-150-9**	$174.15
Black	6"	0.001"	0.100"	**12-151-7**	174.15
Depth Measuring Base 3" x 1/4" wide, optional				**30-507-8**	42.90
Crystal				**05-045-0**	4.40

MEASURING

Starrett®
6" Dial Caliper


10-328-3

- White dial face. Sharp black bar graduations on a no-glare satin finish.
- Hardened stainless steel bar, measuring surfaces, rack and gears.
- Positive split gear anti-backlash control.
- Fitted plastic case.
- Graduation: 0.001".
- Model #120A-6.

DESCRIPTION	PART NO.	PRICE
Starrett® 6" Dial Caliper	**10-328-3**	$217.60


10-765-6


10-766-4

Mitutoyo
Dial Calipers

- Extra rigid main beam.
- Direct reading 0.001".
- Accuracy: ±0.001" per 6".
- Thumb roller provides a consistent "feel" for more accurate measurements.
- Hardened stainless steel throughout.
- Micro-fine graduations.
- Adjustable and locking bezel.
- Covered rack to keep gear teeth clean.
- Easy zero adjustment.
- Satin chrome finish.
- Furnished in fitted case.

RANGE	GRAD.	RANGE/ REV.	JAW L	DIAL COLOR	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 6"	0.001"	0.200"	1 9/16"	White	505-717	**10-764-9**	$108.00
0 - 6"	0.001"	0.200"	1 9/16"	White	505-718	**10-772-2** ° ◊	151.00
0 - 6"	0.001"	0.100"	1 9/16"	White	505-675	**10-765-6**	118.00
0 - 6"	0.001"	0.100"	1 9/16"	White	505-712	**10-768-0** * °	202.00
0 - 6"	0.001"	0.100"	1 9/16"	White	505-708	**10-769-8** ° ◊	180.00
0 - 6"	0.001"	0.100"	1 9/16"	Blue	505-675-51	**10-766-4**	118.00
0 - 6"	0.001"	0.100"	1 9/16"	Purple	505-675-52	**10-767-2**	118.00
0 - 6"	0.001"	0.100"	1 9/16"	Green	505-675-53	**11-809-1**	118.00
0 - 6"	0.001"	0.100"	1 9/16"	Red	505-675-54	**11-810-9**	118.00
0 - 6"	0.001"	0.100"	1 9/16"	Orange	505-675-55	**11-811-7**	118.00
0 - 6"	0.001"	0.100"	1 9/16"	Black	505-675-56	**10-770-6**	118.00
0 - 8"	0.001"	0.200"	1 9/16"	White	505-719	**10-773-0**	161.00
0 - 8"	0.001"	0.100"	1 9/16"	White	505-676	**10-774-8**	173.00
0 - 12"	0.001"	0.200"	2 1/2"	White	505-720	**10-775-5** °	255.00
0 - 12"	0.001"	0.100"	2 1/2"	White	505-714	**11-813-3** *	519.00
0 - 12"	0.001"	0.100"	2 1/2"	White	505-677	**10-776-3** °	274.00
0 - 150 mm	0.01 mm	1 mm	40 mm	Yellow	505-681	**11-814-1** °	121.00
0 - 150 mm	0.02 mm	2 mm	50 mm	Yellow	505-671	**11-815-8** °	111.00
0 - 150 mm	0.02 mm	2 mm	40 mm	Yellow	505-711	**11-816-6** * °	202.00
0 - 300 mm	0.02 mm	2 mm	64 mm	Yellow	505-673	**11-818-2** °	261.00

* w/Carbide OD & ID jaws. ° Includes Certificate of Inspection. ◊ w/Carbide OD jaws.

Certified
Right Out of the Box!

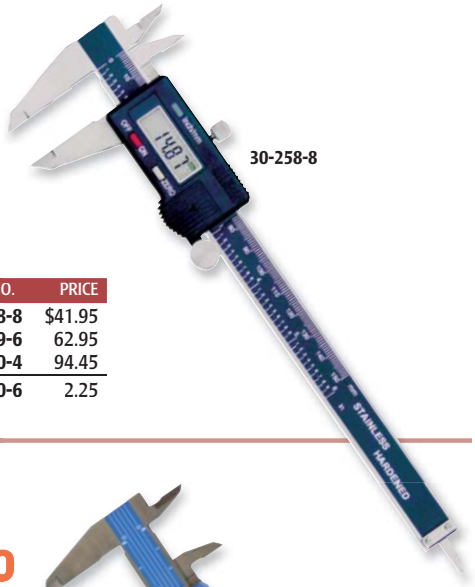

17-965-5

SPI®
Inch/Metric Dual Dial Calipers
4-Way measurement for O.D., I.D., Depth & Step

- Dual graduated dial face for Inch (black), Metric (red).
- Precision ground stainless steel construction.
- With thumb roller and slide lock.
- Shock proof.
- Graduation: 0.001"/0.01 mm
- Dial reading: 0 - 100/0 - 2 mm
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

RANGE	ACCURACY	JAW LENGTH	JAW THICKNESS	PART NUMBER	PRICE
0 - 6"/150 mm	±0.001"/0.02 mm	1.57"/40 mm	0.138"	**17-965-5**	$68.85
0 - 8"/200 mm	±0.0015"/0.03 mm	1.97"/50 mm	0.138"	**17-966-3**	92.95
0 - 12"/300 mm	±0.0015"/0.04 mm	2.50"/64 mm	0.157"	**17-967-1**	131.70

Electronic Calipers
Without Output


30-258-8

- An economical electronic caliper for general use.
- Resolution: 0.0005"
- Accuracy: 0.001"

MEAS. RANGE	PART NO.	PRICE
0 – 6"	**30-258-8**	$41.95
0 – 8"	**30-259-6**	62.95
0 – 12"	**30-260-4**	94.45
Repl. Battery	**07-310-6**	2.25

Mitutoyo
MyCAL LITE
Digital Caliper for DIY


10-149-3

- The LCD screen allows error-free readout of measurements.
- Depth measuring bar.
- Zero-setting.
- Power On/Off.
- Inch/Metric conversion.
- Alarm: Low voltage, Counting value compensation error.
- Resolution: 0.001"/0.1 mm
- Accuracy: 0.005"/0.2 mm

MEASURING RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
0 – 6"/0 – 150 mm	700-113-10	**10-149-3**	$113.00
0 – 8"/0 – 200 mm	700-123-10	**10-150-1**	174.00
Repl. Battery (SR44)	–	**07-310-6**	2.25



30-440-2

Swiss Made

SPI® Classic

Digital Caliper

Digital Reading 0.001" / 0,1 mm

- Ultra light weight (1.7 oz.) for easy handling.
- Inside, outside, depth and step measuring. Range 6"/150 mm.
- Super Polymid, 60% fiberglass reinforced plastic of highest quality. Depth rod, frame and housing are made of non-conductive plastic. Resistant to chemicals and corrosion.
- Large, high contrast LCD display.
- Zero setting at any position within entire range. Direct inch / mm conversion.
- Alarm signal for low battery and over speed. 2 year battery life (approx.).
- Jaw Length: 1.57" / 40 mm. Resolution: 0.001"/ 0,1 mm. Accuracy: 0.004" / 0.1 mm.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Digital Caliper	**30-440-2**	$79.75
Repl. Battery	**07-310-6**	2.25



15-719-8

SPI®

6" Electronic Caliper

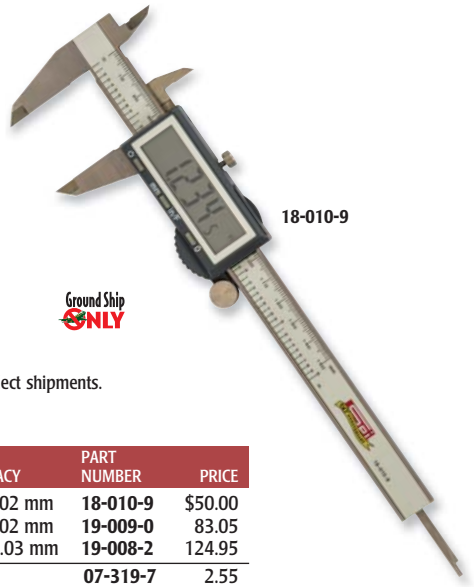
- Precision ground stainless steel construction.
- Inch-Metric conversion.
- Zero set anywhere within range.
- With thumb roller and slide lock.
- Jaw length: $1^{19}/_{32}$"
- Display Resolution: 0.0005"/0.01 mm
- Accuracy: ±0.001"/0.03 mm
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
6" LCD Caliper	**15-719-8**	$48.04
Repl. Battery	**07-310-6**	2.25

SPI® 60th ANNIVERSARY

IP54 Electronic Calipers

with 1/2" Easy to Read LCD Display



18-010-9

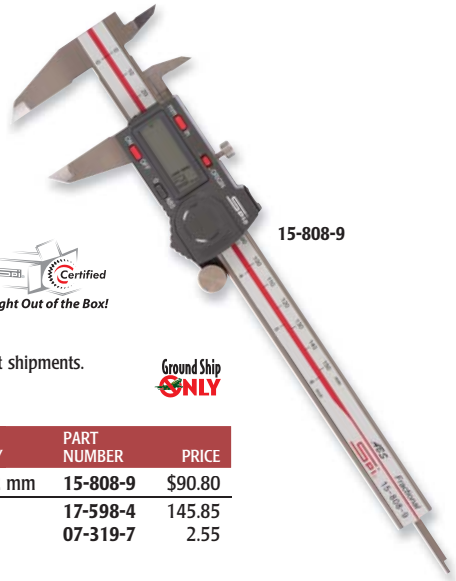
Ground Ship ONLY

- Precision ground hardened stainless steel construction.
- Inch/Inch fraction/Metric conversion.
- 4-Way measurements: inside, outside, depth and step.
- Auto power on/off.
- With thumb roller and slide lock.
- Display Resolution: 0.0005"/0 - $^{1}/_{128}$"/0.01 mm
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	$1^{19}/_{32}$"	0.138"	±0.001"/0.02 mm	**18-010-9**	$50.00
0 - 8"/0 - 200 mm	$1^{15}/_{16}$"	0.138"	±0.001"/0.02 mm	**19-009-0**	83.05
0 - 12"/0 - 300 mm	$2^{3}/_{8}$"	0.157"	±0.0015"/0.03 mm	**19-008-2**	124.95
Repl. Battery				**07-319-7**	2.55

SPI®

Absolute Fractional Electronic Calipers



15-808-9

Certified Right Out of the Box!

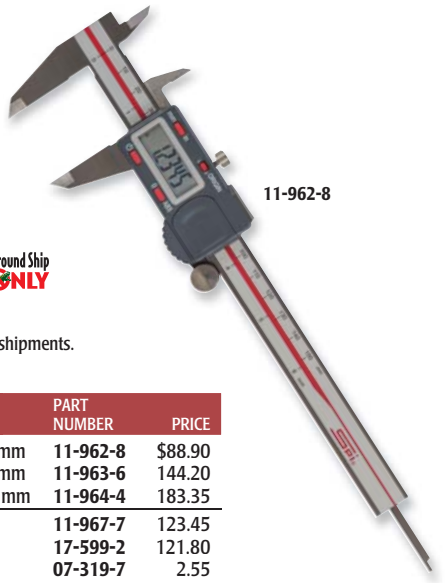
Ground Ship ONLY

- Absolute Encoder; on power up eliminates zero setting.
- Decimal inch, metric and fractional display.
- Display resolution: 0.0005"/0.01mm/$^{1}/_{128}$"
- Hardened stainless steel.
- SPC/USB data output.
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	$1^{19}/_{32}$"	0.138"	±0.001"/0.02 mm	**15-808-9**	$90.80
SPC/USB Interface & Cable				**17-598-4**	145.85
Repl. Battery (CR 2032)				**07-319-7**	2.55

SPI®

IP54 Absolute Electronic Calipers



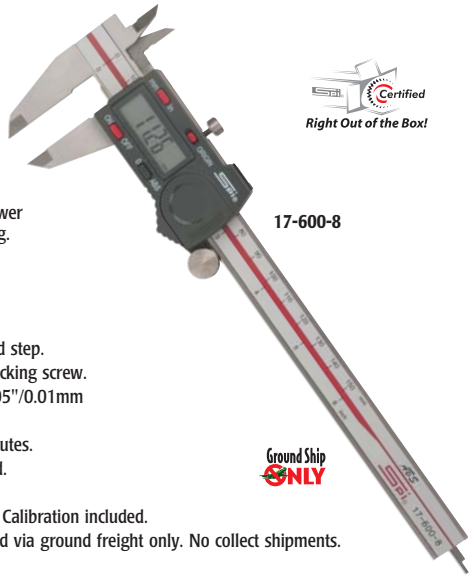
11-962-8

Ground Ship ONLY

- Absolute Encoder; on power up eliminates zero setting.
- SPC/USB data output.
- Smooth sliding .
- With thumb roller and locking screw.
- Display resolution: 0.0005"/0.01mm
- Hardened stainless steel.
- Battery: CR 2032 for long life.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	$1^{19}/_{32}$"	0.138"	±0.001"/0.02 mm	**11-962-8**	$88.90
0 - 8"/0 - 200 mm	$1^{15}/_{16}$"	0.138"	±0.001"/0.02 mm	**11-963-6**	144.20
0 - 12"/0 - 300 mm	$2^{3}/_{8}$"	0.157"	±0.0015"/0.03 mm	**11-964-4**	183.35
SPC/USB Interface & Cable				**11-967-7**	123.45
Wireless Data Output				**17-599-2**	121.80
Repl. Battery				**07-319-7**	2.55

SPI® Absolute Electronic Calipers



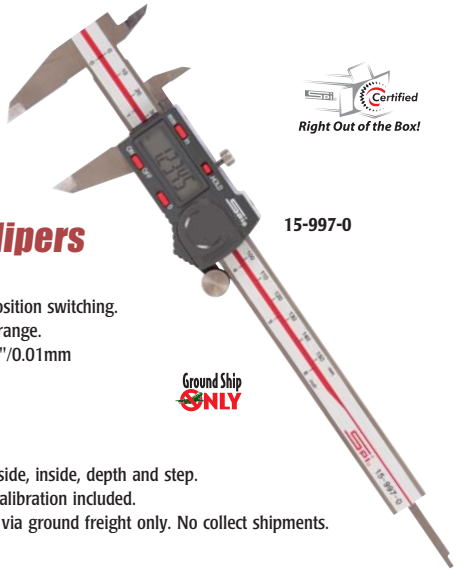
Certified Right Out of the Box!

Ground Ship ONLY

- Absolute Encoder; on power up eliminates zero setting.
- On/Off button.
- SPC/USB data output.
- Smooth sliding.
- 4-Way measurements: inside, outside, depth and step.
- With thumb roller and locking screw.
- Display resolution: 0.0005"/0.01mm
- Hardened stainless steel.
- Auto shut off after 5 minutes.
- Battery: CR2032 included.
- Furnished in fitted case.
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	1.570"	0.138"	±0.001"/0.025 mm	**17-600-8**	$101.75
0 - 8"/0 - 200 mm	1.970"	0.138"	±0.0015"/0.04 mm	**17-601-6**	167.15
0 - 12"/0 - 300 mm	2.360"	0.157"	±0.0015"/0.04 mm	**17-602-4**	212.55
0 - 24"/0 - 600 mm	3.930"	0.215"	±0.002"/0.05 mm	**17-603-2**	278.00
0 - 40"/0 - 1000 mm	4.920"	0.334"	±0.003"/0.08 mm	**17-604-0**	927.05
SPC/USB Interface & Cable				**17-598-4**	145.85
Repl. Battery (CR2032)				**07-319-7**	2.55

SPI® Electronic Calipers



Certified Right Out of the Box!

Ground Ship ONLY

- Inch-Metric conversion.
- Absolute or Incremental position switching.
- Zero set anywhere within range.
- Display resolution: 0.0005"/0.01mm
- Hardened stainless steel.
- Auto shut off.
- Furnished in fitted case.
- Thumb wheel.
- 4-Way measurements: outside, inside, depth and step.
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	$1^{19}/_{32}$"	0.138"	±0.001"/0.02 mm	**15-997-0**	$83.65
0 - 8"/0 - 200 mm	$1^{15}/_{16}$"	0.138"	±0.001"/0.02 mm	**15-998-8**	103.40
0 - 12"/0 - 300 mm	$2^{3}/_{8}$"	0.157"	±0.0015"/0.03 mm	**15-999-6**	157.65
Repl. Battery (CR 2032)				**07-319-7**	2.55

NEW

SPI® IP54 Wireless Absolute Electronic Calipers

with 1/2" Easy to Read LCD Display

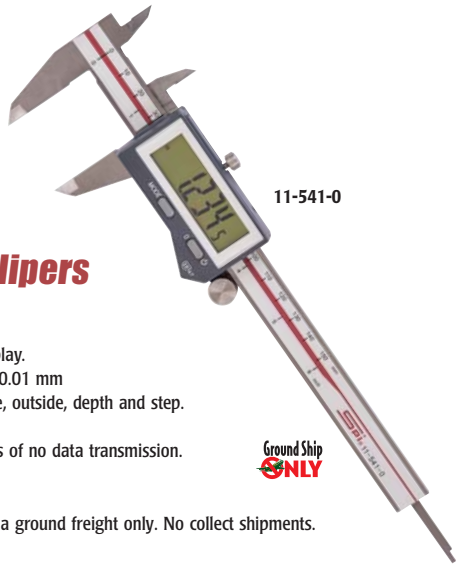


Ground Ship ONLY

- Absolute Encoder; on power up eliminates zero setting.
- Precision ground hardened stainless steel construction.
- Inch/Inch fraction/Metric conversion.
- 4-Way measurements: inside, outside, depth and step.
- With thumb roller and slide lock.
- Display Resolution: 0.0005"/0.01 mm/128th
- Wireless Data Transmission to your bluetooth device.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/150 mm	$1^{19}/_{32}$"	0.138"	±0.001"/0.02 mm	**29-002-3**	$119.05
0 - 8"/200 mm	$1^{15}/_{16}$"	0.138"	±0.001"/0.02 mm	**29-003-1**	171.90
0 - 12"/300 mm	$2^{3}/_{8}$"	0.157"	±0.0015"/0.03 mm	**29-004-9**	198.20
Repl. Battery (CR2032)				**07-319-7**	2.55

SPI® IP67 Digital Calipers



Ground Ship ONLY

- Stainless steel construction.
- Large high contrast LCD display.
- Display resolution: 0.0005"/0.01 mm
- 4-Way measurements: inside, outside, depth and step.
- Inch/Metric conversion.
- Auto shut-off after 5 minutes of no data transmission.
- Battery: CR 2032 included.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

RANGE	JAW LENGTH	JAW THICKNESS	ACCURACY	PART NUMBER	PRICE
0 - 6"/0 - 150 mm	$1^{19}/_{32}$"	0.138"	±0.001"/0.02 mm	**11-541-0**	$140.95
0 - 8"/0 - 200 mm	$1^{15}/_{16}$"	0.138"	±0.0015"/0.03 mm	**11-542-8**	187.80
0 - 12"/0 - 300 mm	$2^{3}/_{8}$"	0.157"	±0.0015"/0.03 mm	**11-543-6**	226.80
Repl. Battery (CR 2032)				**07-319-7**	2.55

NEW

Adhesive Tape Measures

Easy to Read

See Pg. 140

MADE IN USA







11-544-4

Ground Ship ONLY

SPI®
6" Wireless Data Transmitting IP67 Digital Caliper

- Stainless steel construction.
- Large high contrast LCD display.
- 4-Way measurements: inside, outside, depth and step.
- Inch/Metric conversion.
- Wireless Data Transmission to your bluetooth device.
- Jaw length: $1^{19}/_{32}$"
- Jaw thickness: 0.137"
- Auto shut-off after 15 minutes of no data transmission.
- Furnished in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

DESCRIPTION	PART NO.	PRICE
6" Wireless Data Transmitting IP67 Digital Caliper	**11-544-4**	$162.60
Repl. Battery (CR2032)	**07-319-7**	2.55



Certified
Right Out of the Box!

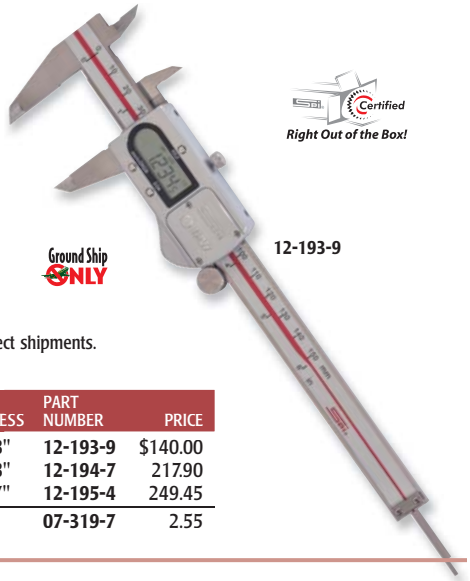
14-431-1

SPI®
6" Offset Jaw Electronic Caliper

- Measuring range: 0 - 6"/0 - 150 mm
- Inch/metric conversion.
- Zero-set at any point for comparison measurement.
- Resolution: 0.0005"/0.01 mm
- Accuracy: ±0.001"/0.03 mm
- Long jaw length: $4^{1}/_{4}$"
- Main scale jaw moves up and down to easily measure stepped sections.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
6" Offset Jaw Electronic Caliper	**14-431-1**	$172.75
Repl. Battery	**07-310-6**	2.25

SPI®
IP67 Electronic Calipers



Certified
Right Out of the Box!

Ground Ship ONLY

12-193-9

- Absolute zero and hold functions.
- Absolute or incremental measuring modes.
- Inch/Metric conversion.
- Thumb wheel.
- Resolution: 0.0005"/0.01 mm.
- Auto shut off after 2 minutes
- Battery: CR2032 included
- Short Form Certificate of Calibration included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

MEASURING RANGE	ACCURACY	JAW LENGTH	JAW THICKNESS	PART NUMBER	PRICE
0 - 6"/150 mm	±0.001"/0.02 mm	$1^{9}/_{16}$"	0.138"	**12-193-9**	$140.00
0 - 8"/200 mm	±0.0015"/0.03 mm	$1^{15}/_{16}$"	0.138"	**12-194-7**	217.90
0 - 12"/300 mm	±0.0015"/0.03 mm	$2^{3}/_{8}$"	0.157"	**12-195-4**	249.45
Repl. Battery (CR2032)				**07-319-7**	2.55

PAV
6" Digital Caliper
Double Prismatic Frame - Double V Guide



SPI® Classic

30-236-4

Swiss Made

Ground Ship ONLY

- Double prismatic frame (double V guide) with 4 lapped contact faces for velvet smooth and play free movement.
- IP67 Protection.
- Hardened Stainless Steel frame and jaws with 4-way measuring, outside, inside, step and depth.
- Reading: 0.0005"
- Overall accuracy: 0.0015"
- Depth Rod Dia.: 0.063"
- Direct inch/metric conversion.
- Two button: MODE for Data send & mm- inch conversion, SET for Data send, Zero, Sleep & Off.
- SPC through Proximity-USB or RS Connection.
- Battery life over a year.
- Complete in fitted case.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

DESCRIPTION	PART NO.	PRICE
PAV 6" Digital Caliper	**30-236-4**	$1,130.00
Repl. Battery (CR2032)	**07-319-7**	2.55

Mitutoyo
IP67 Solar Battery Calipers
Eco-Friendly with No Battery



10-676-5

- No origin restoration necessary. A measurement can be started any time and no restriction on operating speed.
- Uses components that do not contain harmful substances and is compatible with RoHS directives.
- IP67 protection against dirt, dust, coolants and temporary water submersion.
- Oil resistant.
- Leak tested to ensure compliance with IP67 standards.
- Auto power On/Off for greater battery life.
- Shock resistant display.

RANGE	MITUTOYO MODEL #	WITHOUT OUTPUT PART NO.	LIST	MITUTOYO MODEL #	WITH OUTPUT PART NO.	PRICE
0 - 6"/0 - 150 mm	500-784	**10-676-5**	$233.00	500-786	**10-678-1**	$260.00
0 - 8"/0 - 200 mm	500-785	**10-677-3**	299.00	500-787	**10-679-9**	322.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA624	**11-830-7**	$91.60
80" SPC Output Cable	05CZA625	**11-831-5**	93.00


10-588-2

Mitutoyo
Digimatic Solar Powered Calipers
No Battery & 4-Way Measurement

- Absolute Encoder Type—Eliminates zero setting on power up.
- Zero and absolute measurements to match your measuring needs.
- Epoxy embedded scale eliminates rack and pinion jams.
- Inch/Metric conversion 0.0005"/0.01 mm.
- 4-Way Measurement—OD, ID, step and depth.
- Hardened stainless steel throughout.
- Supplied in fitted case.

RANGE	MITUTOYO MODEL #	WITHOUT OUTPUT PART NO.	PRICE	MITUTOYO MODEL #	WITH OUTPUT PART NO.	PRICE
0 - 4"/0 - 100 mm	500-463	**10-584-1** *	$176.00	500-473	**10-587-4***	$253.00
0 - 6"/0 - 150 mm	500-464	**10-585-8**	190.00	500-474	**10-588-2**	297.00
0 - 8"/0 - 200 mm	500-465	**10-586-6**	248.00	500-475	**10-589-0**	347.00

*Round depth bar

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	959149	**31-586-1**	$49.25
80" SPC Output Cable	959150	**11-829-9**	55.85

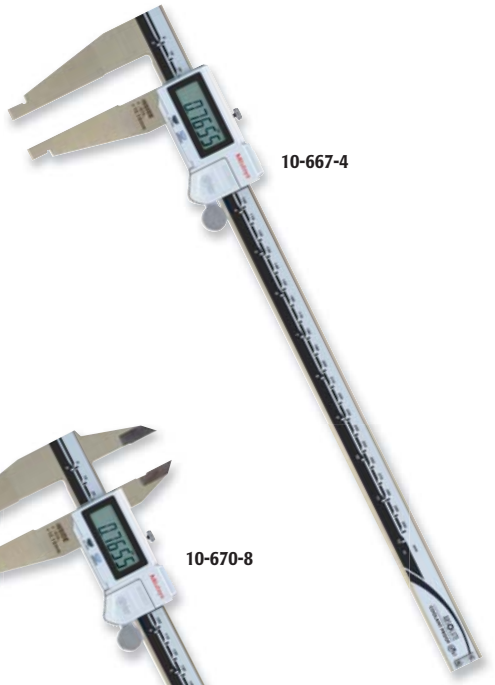

11-819-0

Mitutoyo
Digimatic Calipers
Inch/Metric

- Available with or without SPC data output.
- Power on Absolute Encoder eliminates zero setting on power up.
- Large switchable inch/metric 0.0005"/0.01 mm LCD display for easy reading.
- Resolution: 0.005"/0.01 mm.
- Repeatability: 0.005"/0.01 mm.
- Hardened stainless steel throughout for longer life and corrosion resistance.
- The thumb roll provides a consistent "feel" for more accurate measurements.
- OD, ID, step and depth measurements increase the tool's versatility (no depth bar above 12" range).
- Zero and absolute measurements let you match the tool to your measuring needs.
- 20,000 Hr. average battery life reduces operating costs and trips to the crib.
- The epoxy embedded scale eliminates rack and pinion jams.

RANGE	ACCURACY	SPC OUTPUT	JAWS	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 4"/0 - 100 mm	±0.001"	No	Standard	500-195-20	**10-856-3**	$144.00
0 - 4"/0 - 100 mm	±0.001"	Yes	Standard	500-170-20	**11-819-0**	167.00
0 - 6"/0 - 150 mm	±0.001"	No	Standard	500-196-30	**10-857-1**	137.28
0 - 6"/0 - 150 mm	±0.001"	No	Standard	500-196-20	**11-820-8** °	205.00
0 - 6"/0 - 150 mm	±0.001"	No	Carbide	500-160-20	**11-821-6**	312.00
0 - 6"/0 - 150 mm	±0.001"	Yes	Standard	500-171-20	**10-859-7**	178.00
0 - 6"/0 - 150 mm	±0.001"	Yes	Carbide	500-735-10	**11-822-4** *†	318.00
0 - 6"/0 - 150 mm	±0.001"	Yes	Carbide	500-737-10	**11-823-2** †	399.00
0 - 8"/0 - 200 mm	±0.001"	No	Standard	500-197-20	**10-858-9**	217.00
0 - 8"/0 - 200 mm	±0.001"	Yes	Standard	500-172-20	**10-860-5**	241.00
0 - 8"/0 - 200 mm	±0.001"	Yes	Carbide	500-738-10	**11-824-0** †	454.00
0 - 12"/0 - 300 mm	±0.0015"	No	Standard	500-193-20	**10-861-3**	439.00
0 - 12"/0 - 300 mm	±0.0015"	Yes	Standard	500-173	**11-825-7**	512.00
0 - 18"/0 - 450 mm	±0.002"	Yes	Standard	500-505-10	**11-826-5** ‡	799.00
0 - 24"/0 - 600 mm	±0.002"	Yes	Standard	500-506-10	**11-827-3** ‡	878.00
0 - 40"/0 - 1000 mm	±0.003"	Yes	Standard	500-507-10	**11-828-1** ‡	1,700.00
40" SPC Cable				959149	**31-586-1**	49.25
80" SPC Cable				959150	**11-829-9**	55.85
40" SPC Cable (IP67 Models)				05CZA624	**11-830-7**	91.60
80" SPC Cable (IP67 Models)				05CZA625	**11-831-5**	93.00
Cover, Cell/Off Center My-Cal Spare Parts				09GAA185	**11-832-3**	1.40
Repl. Battery (357/303)					**07-310-6**	2.25

* Standard ID Jaws, Carbide OD Jaws. † IP67 Model. ‡ Without thumb roller.
° Available from stock with NIST traceable certificate of accuracy.


10-667-4


10-670-8

Mitutoyo
ABSOLUTE Digimatic Calipers
with Nib Style Jaws

- The rounded faces of the jaws are ideal for accurate ID measurements.
- With SPC output.
- Resolution: 0.0005"/0.01 mm
- Supplied in fitted plastic case. 40"/1000 mm supplied in wooden case.

RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 12"/0 - 300 mm	±.0015"	550-341-10	**10-667-4**	$744.00
0 - 18"/0 - 450 mm	±.002"	550-223-10	**10-668-2**	933.00
0 - 40"/0 - 1000 mm	±.003"	550-227-10	**10-669-0** *	1,860.00

* IP67 with offset/preset function for easy ID measurement

with Nib Style and Standard Jaws

- The rounded faces of the jaws are ideal for accurate ID measurements.
- Parallax-free vernier scale type is available for easy and positive measurement.
- With SPC output.
- Resolution: 0.0005"/0.01 mm
- Supplied in fitted plastic holster in carton.

RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 12"/0 - 300 mm	±.002"	551-341-10	**10-670-8** *	$809.00

* IP67 with offset/preset function for easy ID measurement

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	959149	**31-586-1**	$49.25
80" SPC Output Cable	959150	**11-829-9**	55.85
Repl. Battery (357/303)		**07-310-6**	2.25



11-801-8

Caliper Not Included.

Mitutoyo

DP-1VR SPC Processor

Series 264 Portable Digimatic Miniprocessors for SPC & SQC

The DP-1VR is a dedicated data processor which may be connected to all Mitutoyo instruments with digimatic output. SPC made simple. It is a great way to step into the world of statistical process control. In fact, it may be all you need. The DP-1VR offers 3 processing modes in which to record and statistically analyze measurement data, thus increasing the available selection of data printouts and statistical charts.

Specifications:

ITEM	DESCRIPTION
Printing Speed:	Approx. 6.5 mm/sec. (using AC adapter)
Power Supply:	AC adapter (6V, 500mA) Ni-Mh batteries (size AA) LR6 (Alkaline)
Dimensions:	4 W x 8 D x 3 H

- A variety of statistical parameters - Number of samples (N), Maximum value (MAX), minimum value (MIN), Range (R), Mean value (X-bar), Standard deviation (n, n-1), Process capability index (Cp, Cpk), Number of defectives (±NG), Percentage of defectives (P).
- Generation of a histogram.
- Generation of a D-chart ("D" is an abbreviation of "Displacement") that represents time-domain variation of the measured data.
- Various calculation functions necessary for generating an X-bar R control chart.
- Timer-controlled automatic data input.
- Data output function: Output of measured data (through RS-232C); Output of GO/±NG judgment result (+NG, GO,-NG).
- GO/±NG judgment result can be displayed on the LED and printed out on the printer.
- Dual-power supply either by an AC adapter, Ni-Mh or LR6 (Alkaline) batteries (size AA, 4 pcs.).
- A 48m roll-type printer paper is standard.
- 11-802-6, 11-803-4 and 11-804-2 are IBM PC compatible. 11-802-6 is used with PS/2 style keyboard. 11-804-2 used with USB 2.0 or 1.1 port.

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
DP-1VR Processor	264-504-5A	**11-801-8**	$494.00
Input Tool for Keyboard	264-005	**11-802-6**	192.00
Input Tool for RS232	264-007	**11-803-4**	271.00
Replacement Paper (10 Rolls per Pkg.)	09EAA082	**11-805-9** *	130.00
Optional Foot Switch	937179T	**11-806-7**	84.75
RS-232C Conversion Cable	09EAA084	**11-807-5**	302.00
GO/±NG Judgment Result Output Cable	965516	**11-808-3**	85.35

* When ordering replacement paper request a quantity of one and you will receive the package qty.

STREAMLIGHT
Dualie® 2AA LED Flashlight
See Pg. 363

60-202-9

Mitutoyo

IP67 Waterproof Digimatic Calipers



11-833-1

- IP67 Level: Protection against coolants, dust, dirt, chips and temporary water submersion.
- Certification of inspection.
- Custom chips are designed by Mitutoyo to increase battery life and functionality.
- Oil resistant materials are used in all plastic components to survive cutting fluids.
- Every IP67 caliper is leak tested at the factory to ensure compliance with IP standards.
- Includes certification for IP compliance by an internationally recognized certification company.
- SPC output for cables.
- Resolution: 0.0005"(0.01 mm).
- Accuracy: ±0.001"
- Auto power On/Off.
- Set and forget technology.
- Inch/metric.

RANGE	MITUTOYO MODEL #	WITHOUT OUTPUT PART NO.	PRICE	MITUTOYO MODEL #	WITH OUTPUT PART NO.	PRICE
0 - 6"/0 - 150 mm	500-752-10	**11-833-1**	$204.00	500-762-10	**11-836-4**	$244.45
0 - 8"/0 - 200 mm	500-753-10	**11-834-9**	273.00	500-763-10	**11-837-2**	242.00
0 - 12"/0 - 300 mm	500-754-10	**11-835-6**	472.00	500-764-10	**11-838-0**	524.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA624	**11-830-7**	$91.60
80" SPC Output Cable	05CZA625	**11-831-5**	93.00
Repl. Battery (SR44)		**07-310-6**	2.25

Mitutoyo

Lightweight Digimatic Carbon Fiber Calipers

Inch/Metric



11-839-8

The carbon fiber beam reduces the calipers' weight. These lightweight calipers make it easier to measure large dimensions. A stainless steel expansion strip allows the caliper to perform just like heavier stainless steel calipers.

- Large LCD display.
- Resolution: 0.0005"/0.01 mm.
- SPC output allows convenient data recording.
- Preset, zero set, inch/metric, data hold/output increase the calipers functionality.
- Two year battery life under normal use reduces the need for new batteries.

RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 18"/0 - 450 mm	±0.002"	552-312-10	**11-839-8**	$924.00
0 - 24"/0 - 600 mm	±0.002"	552-313-10	**11-840-6**	1,030.00
0 - 40"/0 - 1000 mm	±0.002"	552-314-10	**11-841-4**	1,840.00
0 - 60"/0 - 1500 mm	±0.004"	552-315-10	**11-842-2**	2,200.00

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA624	**11-830-7**	$91.60
80" SPC Output Cable	05CZA625	**11-831-5**	93.00
Repl. Battery (357/303)		**07-310-6**	2.25



11-526-1

Mitutoyo
IP67 Digimatic Blade Type Caliper

- The thin blade type jaws fit into very small grooves.
- The OD measuring faces are carbide tipped.
- Depth bar.
- Large LCD display.
- Origin-set, Zero-setting, Power On/Off, Data output, Inch/Metric conversion.
- SPC output for cables. Cables sold separately.
- Measuring range: 0 - 6"/0 – 150 mm.
- Resolution: 0.0005"/0.01 mm.
- Accuracy: ±0.001".
- Battery: 357/303 included.
- Supplied in fitted plastic case.
- Mitutoyo model #573-734.

DESCRIPTION	PART NO.	PRICE
IP67 Digimatic Blade Type Caliper	**11-526-1**	$569.95

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA624	**11-830-7**	$91.60
80" SPC Output Cable	05CZA625	**11-831-5**	93.00
Repl. Battery		**07-310-6**	2.25



11-527-9

Mitutoyo
IP67 Digimatic Offset Caliper

- Main scale jaw can slide up and down to facilitate measurement of stepped sections.
- Depth bar.
- Large LCD display.
- Origin-set, Zero-setting, Power On/Off, Data output, Inch/Metric conversion.
- SPC output for cables. Cables sold separately.
- Measuring range: 0 - 6"/0 – 150 mm.
- Resolution: 0.0005"/0.01 mm.
- Accuracy: ±0.001".
- Battery: 357/303 included.
- Supplied in fitted plastic case.
- Mitutoyo Model #573-701.

DESCRIPTION	PART NO.	PRICE
IP67 Digimatic Offset Caliper	**11-527-9**	$459.95

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	05CZA624	**11-830-7**	$91.60
80" SPC Output Cable	05CZA625	**11-831-5**	93.00
Repl. Battery		**07-310-6**	2.25

brown & sharpe

Twin-Cal IP40 Electronic Caliper



20-283-8

Ground Ship ONLY

- Measures outside, inside, depth and steps.
- Stainless steel frame; hardened and ground.
- Absolute and differential measurement.
- Auto-shut-off.
- Instant inch/metric conversion.
- Measuring Range: 0 - 6".
- Resolution: 0.0005".
- Accuracy: ±0.001.
- Battery: CR2032 included.
- Model # 00590093
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

DESCRIPTION	PART NO.	PRICE
Twin-Cal IP40 Electronic Caliper	**20-283-8**	$129.00
Repl. Battery	**07-319-7**	2.55

brown & sharpe

Twin-Cal IP67 Electronic Waterproof Caliper



20-284-6

Ground Ship ONLY

- TESA wireless interface (TWIN) and wired data output port (requires cable or wireless receiver, not included).
- IP67 Level: protection against coolants, dust, dirt, chips and temporary water submersion
- Measures outside, inside, depth and steps.
- PVD coated stainless steel frame.
- Absolute and differential measurements.
- Auto-shut-off.
- Instant inch/metric conversion.
- Measuring range: 0 - 6".
- Resolution: 0.0005".
- Accuracy ±0.001.
- Battery: CR2032 included.
- Model #00590302
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

DESCRIPTION	PART NO.	PRICE
Twin-Cal IP67 Electronic Waterproof Caliper	**20-284-6**	$199.00
Repl. Battery	**07-319-7**	2.55

SPI®

Electronic Snap Caliper



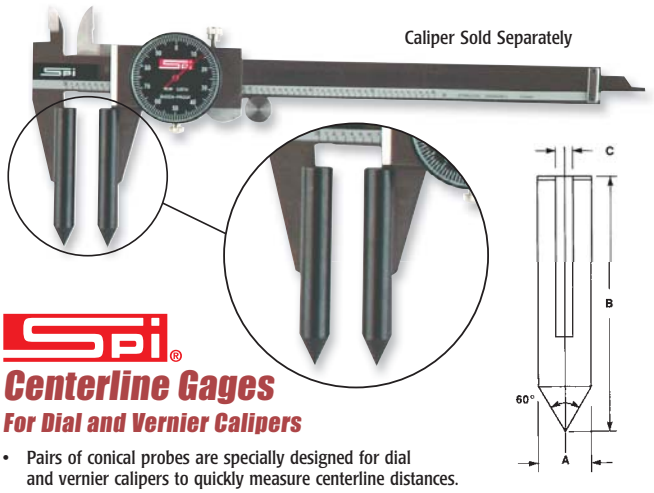
20-459-4

- Measuring range: 0 - 1.2"/30 mm
- Wide jaw for easy use.
- Large LCD display.
- Inch/Metric conversion.
- ABS button allows user to zero at any position.
- Hanging loop included.
- Resolution: 0.0005"/0.01 mm
- Accuracy: 0.0015"/0.03 mm
- Jaw Length: $1^{3}/_{16}$"
- Hardened stainless steel construction.
- Battery: CR2032 included.
- Short Form Certificate of Calibration included.
- Furnished in fitted case.
- 2 year warranty.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

SPI Certified
Right Out of the Box!

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Electronic Snap Caliper	**20-459-4**	$103.70
Repl. Battery (CR2032)	**07-319-7**	2.55



Centerline Gages
For Dial and Vernier Calipers

- Pairs of conical probes are specially designed for dial and vernier calipers to quickly measure centerline distances.
- The 60° conical probe snugly fits into the holes and takes guesswork away from center distance measurements.
- 2 year warranty.

CONTACT FOR CALIPERS	DIAMETER A	OAL B	WIDTH C	PART NUMBER	PRICE
4", 6" & 8"	0.375"	2.187"	0.141"	**12-439-6**	$37.00
12"	0.500"	2.750"	0.183"	**12-440-4**	66.50



Ground Ship ONLY

Electronic Caliper w/Centerline Plus Accessory Kit
Centerline Kit fits all 6" Electronic, Dial and Vernier Calipers with Jaw Thickness of 0.140" or Less

Caliper (15-997-0) Features:

- Measuring range: 0 - 6"/0 - 150 mm
- Inch/Metric conversion.
- Stainless steel, hardened and ground frame.
- Large LCD display with SPC output.
- Resolution: 0.0005"/0.01 mm
- Battery CR2032 included.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

Centerline Kit Features:

- Interchangeable centerline cones.
- Measures places impossible to reach with regular calipers – undercuts, grooves, webs, and shoulders.
- Threaded holes in accessory jaws allow use of any AGD standard point equipped with 4-48 threads.
- Has virtually unlimited uses.
- Long life – corrosion protection.
- Permanent pins for easy alignment.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Caliper w/Accessory Kit	**13-617-6**	$147.05
Repl. Battery (CR2032)	**07-319-7**	2.55

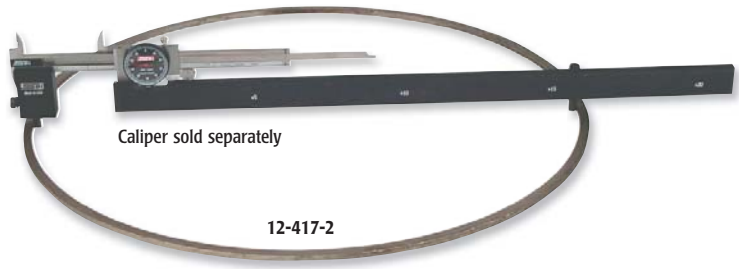


12-416-4

Caliper Accessory Kit

- Fits all 4", 6" and 8" dial, vernier and electronic calipers.
- Measures slots, grooves, webs, shoulders, holes, pockets and places impossible to reach.
- Adapts in seconds.
- #4 - 48 thread.
- Jaw thickness max.: 0.140"
- Contains 1 pair each: flat, conical, stem and ball end points.
- Allen wrench and instructions included.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Caliper Accessory Kit	**12-416-4**	$57.65



12-417-2

Caliper Range Extenders
Convert Your 6" Caliper Into A Measuring Device Capable of Measuring Up to 91" Accurately



12-424-8

- Fits most 6" dial, vernier and electronic calipers.
- Improved version includes strong durable anodized finish. Additional accessories available.
- Caliper range extender readily attaches to your caliper with 2 set screws and 2 clamp screws - will not harm caliper assembles and disassembles in minutes.
- Measures inside and outside dimensions.
- Furnished with a 6" stainless steel calibration rod.
- A pair of 1/2" long projection pins provided with unit - other lengths optional.
- Optional layout kit has carbide scribe point and stepped pin.
- Optional hardened 60° conical center line gage pins enable measurement of holes from centerline to centerline up to 3/8" hole diameter.
- 2 year warranty.

Caliper Extenders

SIZE	ACCURACY	PART NO.	PRICE EA.
26"	±0.003"	**12-417-2**	$217.10
36"	±0.003"	**12-418-0**	284.85
51"	±0.004"	**12-419-8**	337.80
71"	±0.005"	**12-420-6**	382.25
91"	±0.006"	**12-421-4**	559.80

Accessories

DESCRIPTION	PART NO.	PRICE
1" Projection Pins (Pair)	**12-422-2**	$47.05
1 1/2" Projection Pins (Pair)	**12-423-0**	47.90
Layout Kit (2 Pc.)	**12-424-8**	85.30
Center Line Gage Pins (Pair)	**12-425-5**	79.75



11-592-3



10-870-4

Mitutoyo
Caliper/Micrometer Set

- Features the latest and most advanced 1" digimatic micrometer and 6" MyCAL digimatic caliper with fitted mahogany carrying case.
- Featuring caliper 10-857-1 and micrometer 11-763-0.
- Mitutoyo model #950-940.

DESCRIPTION	PART NO.	PRICE
Mitutoyo Cal./Mic. Set	**10-870-4**	$387.00
Replacement Battery	**07-310-6**	2.25

Mitutoyo
Tool Kit Lite

Kit includes:

- 6" black steel rule (16R).
- 0 – 6"/0 – 150 mm MyCal Lite (resolution: 0.001"/0.1 mm).
- 0 – 1"/0 – 25.4 mm MDC Lite with ratchet thimble (resolution: 0.00005"/0.001 mm).
- Complete with fitted mahogany case.
- Mitutoyo model #64PKA073.

DESCRIPTION	PART NO.	PRICE
Tool Kit Lite	**11-592-3**	$287.00

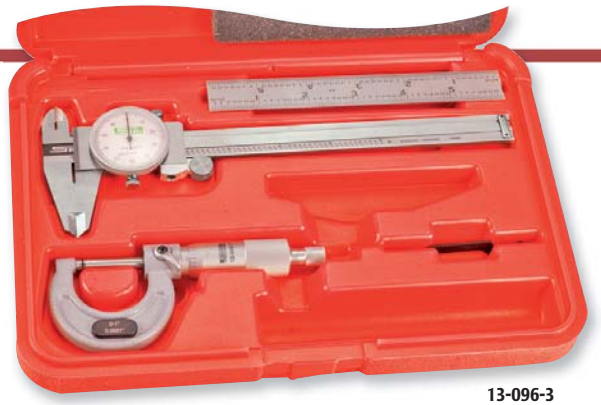
Starrett®
Basic Precision Tool Set

- 1" Outside micrometer.
- 6" Dial caliper.
- 6" Spring tempered precision rule.
- Furnished in protective case.
- Starrett® model #65122



10-327-5

DESCRIPTION	PART NO.	PRICE
Basic Precision Tool Set	**10-327-5**	$460.80



13-096-3

SPI®
3 Piece Machinist Kit

Set Includes:

- 0 - 1" enamel frame micrometer with ratchet stop and lock nut, carbide tipped, 0.0001" graduation.
- 0 - 6" white face caliper with 0.100"/dial revolution. Stainless steel with satin chrome finish.
- 6" rigid rule – 4R graduations.
- Furnished in fitted case.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
3 Pc. Machinist Kit	**13-096-3**	$97.85



13-988-1

SPI®
Electronic Tool Kit

Ground Ship ONLY

Certified Right Out of the Box!

Set comes complete with a fitted, shop hardened case.

- 6" Electronic caliper, 0.0005" resolution, CR2032 battery included.
- 0 - 1" IP54 Electronic micrometer, 0.00005"/0.001 mm resolution.
- Steel rule, 6" L, 3/4" W, 4R grad. - 8ths, 16ths, 32nds, 64ths.
- Caliper and micrometer include a certificate of calibration traceable to NIST.
- 2 year warranty.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

DESCRIPTION	PART NO.	PRICE
Electronic Tool Kit	**13-988-1**	$221.35
Repl. Battery	**07-319-7**	2.55



11-605-3

Mitutoyo
Machinist's Measuring Tool Kit
0 - 1" Micrometer & 0 - 6" Dial Caliper

Outside Micrometer:

- Range: 0 - 1"
- Graduations: 0.0001"
- Spindle: Ratchet
- Finish: Satin chrome
- Carbide faces
- Locking lever

Dial Caliper:

- Range: 0 - 6"
- Dial reading: 0.001"
- Dial face: White
- 4-Way measurement: inside, outside, step and depth
- Model #64PKA074
- Set supplied in a convenient carrying case.

DESCRIPTION	PART NO.	PRICE
Machinist's Measuring Tool Kit	**11-605-3**	$199.00



11-599-8



11-600-4



11-601-2

Mitutoyo
Machinist Tool Kits

4 Pc. Student/Apprentice Kit:

The very basic measuring instruments recommended for vocational students and machinist apprentices are supplied in this kit.

- Outside micrometer w/friction thimble (Range: 0 – 1", Graduation: 0.0001").
- 6" full-flexible rule (16R).
- Test Indicator set (Range: 0.04", Graduation: 0.001").
- Dial caliper (Range: 0 - 6", Dial Graduation: 0.001").
- Complete with fitted mahogany case.
- Mitutoyo model #64PKA069.

DESCRIPTION	PART NO.	PRICE
4 Pc. Student/Apprentice Kit	**11-599-8**	$400.00

10 Pc. Depth Measuring Kit:

For operations where depth measurements are a primary concern, this kit is ideal for measuring depths to 6", in addition to providing the tools for regular precision measurements.

- Outside micrometer w/friction thimble (Range: 0 – 1", Graduation.: 0.0001").
- Depth micrometer w/6 pc. Rods (Range: 0 – 6", Graduation: 0.001").
- 6" full-flexible rule (16R).
- Dial caliper (Range: 0 - 6", Dial Graduation: 0.001").
- Complete with fitted mahogany case.
- Mitutoyo model #64PKA070.

DESCRIPTION	PART NO.	PRICE
10 Pc. Depth Measuring Kit	**11-600-4**	$475.00

3 Pc. Machinist's Tool Kit:

The very basic measuring instruments recommended for machinist.

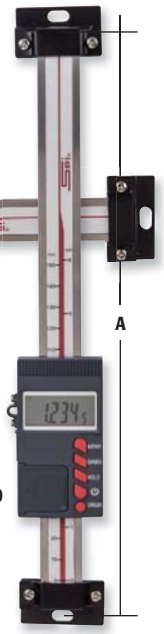
- Outside micrometer w/friction thimble (Range: 0 – 1", Graduation: 0.0001").
- Dial caliper (Range: 0 - 6", Dial Graduation: 0.001").
- 6" full-flexible rule (3R).
- Complete with fitted mahogany case.
- Mitutoyo model #64PKA068.

DESCRIPTION	PART NO.	PRICE
3 Pc. Machinist's Tool Kit	**11-601-2**	$303.00

IP54 Electronic Absolute Horizontal/Vertical Linear Scales



15-970-7



15-964-0

- Stainless steel construction.
- Inch/Metric conversion.
- Absolute and incremental function.
- On/Off button.
- Auto shut-off after 5 minutes of non use.
- Preset button.
- Hold button.
- Origin button: to set origin at any point.
- Resolution: 0.001"/0.01mm
- SPC/USB data output.
- Convenient mounting brackets included.
- Battery CR2032 included.
- 2 year warranty.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

Ground Ship ONLY

Vertical Linear Scales

MEASURING RANGE	ACCURACY	A	PART NUMBER	PRICE
0 - 4"/100 mm	0.001"/0.02 mm	9¼"	**15-963-2**	$83.70
0 - 6"/150 mm	0.0015"/0.03 mm	11¼"	**15-964-0**	104.55
0 - 8"/200 mm	0.0015"/0.03 mm	13¼"	**15-965-7**	125.80
0 - 12"/300 mm	0.002"/0.051 mm	17¼"	**15-966-5**	146.55
0 - 20"/508 mm	0.0025"/0.0635 mm	25¼"	**15-967-3**	167.85
0 - 40"/1000 mm	0.003"/0.076 mm	45¼"	**15-968-1**	409.85

Horizontal Linear Scales

MEASURING RANGE	ACCURACY	A	PART NUMBER	PRICE
0 - 4"/100 mm	0.001"/0.02 mm	9¼"	**15-969-9**	$83.70
0 - 6"/150 mm	0.0015"/0.03 mm	11¼"	**15-970-7**	104.55
0 - 8"/200 mm	0.0015"/0.03 mm	13¼"	**15-971-5**	125.80
0 - 12"/300 mm	0.002"/0.051 mm	17¼"	**15-972-3**	146.55
0 - 20"/508 mm	0.0025"/0.0635 mm	25¼"	**15-973-1**	167.85
0 - 40"/1000 mm	0.003"/0.076 mm	45¼"	**15-974-9**	409.85

Accessories

DESCRIPTION	PART NO.	PRICE
SPC/USB Interface & Cable	**11-967-7**	$123.45
Wireless Data Output	**17-599-2**	121.80
Repl. Battery (CR2032)	**07-319-7**	2.55



15-975-6

IP54 Absolute Digital Scales with Remote Readout

Horizontal or Vertical

Ground Ship ONLY

- Stainless steel construction.
- Inch/Metric/Fraction conversion.
- Absolute and incremental function.
- On/Off button.
- Auto shut-off after 5 minutes of non use.
- Preset button.
- Hold button.
- Origin button: to set origin at any point.
- Resolution: 0.001"/0.01mm/Fraction
- SPC/USB data output.
- Displays have magnetic strips in back to allow for easy attachment to steel surfaces.
- Remote cable length: 76"
- Includes articulating arm that allows for stacking multiple displays.
- Convenient mounting brackets included.
- Uses 2 CR2032 batteries, included.
- 2 year warranty.
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

MEASURING RANGE	ACCURACY	A	PART NUMBER	PRICE
0 - 6"/150 mm	0.0015"/0.03 mm	11¼"	**15-975-6**	$117.35
0 - 8"/200 mm	0.0015"/0.03 mm	13¼"	**15-976-4**	141.15
0 - 12"/300 mm	0.002"/0.051 mm	17¼"	**15-977-2**	164.60
0 - 24"/508 mm	0.0025"/0.0635 mm	29¼"	**15-978-0**	188.45
0 - 40"/1000 mm	0.003"/0.076 mm	45¼"	**15-979-8**	408.25
SPC/USB Interface & Cable			**11-967-7**	123.45
Wireless Data Output			**17-599-2**	121.80
Repl. Battery (CR2032)			**07-319-7**	2.55



13-159-9

SPI® Pocket Thickness Gages

- Features easy to read dial with revolution counter.
- Dial diameter: 1 7/8", Throat depth: 1/2".
- Measuring range: 0 - 0.500"/0 - 10 mm
- Flat contacts. Anvil: 0.26" dia., Spindle: 0.23" dia.
- Inch/Metric conversion chart on back (to 1/2" in 1/64" increments).
- 2 year warranty.

GRADUATION	PART NO.	PRICE
0.001"	**13-158-1**	$110.55
0.0005"	**13-159-9**	122.95
0.01 mm	**13-157-3**	122.95



13-152-4

SPI® Dial Thickness Gages

- Designed to measure parts single handed by using handle and lifting lever.
- Easy to use retractable handle offers quick and efficient inspection.
- Hardened stainless steel spindle.
- Flat contact points.
- Dial diameter: 2 1/4" - Throat depth: 1 1/8"
- 2 year warranty.

RANGE	GRADUATIONS	PART NO.	PRICE
0 - 0.050"	0.0001"	**13-151-6**	$160.25
0 - 0.500"	0.001"	**13-152-4**	110.55
0 - 1.000"	0.001"	**13-153-2**	122.95

Starrett® Dial Indicator Pocket Gages

Approximately the Size of a Thin Pocket Watch

- Checks the size of materials up to 3/8" thick.
- Throat depth ranges from 1/2" down to 5/16"
- Flat contacts.
- 1/4" contact diameter.
- Gage has a small count hand for recording each revolution of the large hand.
- Case is chrome plated and the dial is covered with an unbreakable crystal.
- Furnished in protective case.

MEAS. RANGE	GRADUATION	DIAL READING	STARRETT MODEL #	PART NUMBER	PRICE
0.375"	0.001"	0 - 100	1010Z	**11-462-9**	$347.45
0.375"	0.0005"	0 - 50	1010EZ	**11-463-7**	373.75



11-462-9

Mahr Federal Outside Micrometers

Portable Measurement of Sheet Materials and Small Parts

- Indicator built into gage frame for maximum ruggedness.
- Lift-lever for one-handed operation.
- Continuous reading dials with revolution counter for absolute measurements of thin materials, plastic films and small parts.
- 1/4" diameter, flat steel contact.

RANGE	THROAT DEPTH	GRADUATIONS	MODEL #	PART NUMBER	PRICE
0 - .10"	1.13"	0.0001"	22P-11	**12-196-2**	$696.00
0 - .50"	2.00"	0.001"	22P-15	**12-197-0**	730.25
0 - 1.00"	2.00"	0.001"	22P-20	**12-198-8**	730.25



12-196-2

Mitutoyo Digimatic Thickness Gages

Provide Snap-Action Movement with Clear LCD Readout

- All with SPC output.
- Uses Mitutoyo's popular IDS and IDC Indicators.
- Instant Inch/Metric conversion.
- Zero setting at any point.
- Control buttons are membrane sealed to keep out contaminants.
- LCD Readout (Resolution): 0.0005"/0.01 mm
- Measuring Force: 1.5N or less (163gf)



11-986-7

ANVIL TYPE	INDICATOR TYPE	MEASURING RANGE	MITUTOYO® MODEL #	PART NUMBER	PRICE
Blade	IDS	0 - 0.47"/ 0 - 12 mm	547-516	**11-984-2**	$299.00
Flat	IDC	0 - 0.40"/ 0 - 10 mm	547-300S	**11-986-7**	438.00
Flat-Deep Throat	IDC	0 - 0.40"/ 0 - 10 mm	547-320S	**11-987-5**	451.00
Flat-Alternative Handle	IDC	0 - 0.47"/ 0 - 12 mm	547-400S	**11-988-3** *	811.00
Flat-Deep Throat	IDS	0 - 0.47"/ 0 - 12 mm	547-520	**11-989-1**	297.00

* Measuring force: 3.5N or less

Accessories

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
40" SPC Output Cable	905338	**10-993-4**	$39.05
80" SPC Output Cable	905409	**10-991-8**	45.40

Mitutoyo

Dial Thickness Gages



- Grip handle.
- Thumb trigger.
- Spring-loaded spindle.
- Dial Diameter: 2"

11-992-5

ANVIL TYPE	MEASURING RANGE	GRADUATION	MEASURING FORCE	MITUTOYO MODEL #	PART NUMBER	PRICE
Flat	0 - 0.05"	0.0001"	1.4N or less	7326S	**11-992-5**	$215.00
Blade	0 - 0.50"	0.0010"	1.4N or less	7316S	**11-994-1**	193.00
Pipe	0 - 0.50"	0.0010"	1.4N or less	7361S	**11-995-8**	157.00
Reversible	0 - 0.50"	0.0010"	1.4N or less	7312S	**11-996-6**	156.00
Flat	0 - 0.50"	0.0010"	1.4N or less	7300S	**11-997-4**	130.00
Flat	0 - 1.00"	0.0010"	2.0N or less	7304S	**11-998-2**	156.00
Flat*	0 - 1.00"	0.0010"	2.0N or less	7322S	**11-999-0**	183.00

* Deep throat



13-161-5

SPI®
Electronic Thickness Gages

Handy, Easy to Use Electronic Thickness Gage. Available in Two Ranges.

- Inch/Metric conversion.
- Zero set at any position
- Accuracy: ±0.00016"
- Resolution: 0.0005"
- Anvil dia.: 0.350"
- 2 year warranty.

RANGE	PART NO.	PRICE
0 - 0.600"	**13-161-5**	$122.95
0 - 1.000"	**13-162-3**	185.05
Repl. Battery	**07-310-6**	2.25

SPI®
Internal/External Electronic Caliper Gages

Certified
Right Out of the Box!

- Digital resolution: 0.0002"/0.005 mm
- Analog resolution: 0.0005", 0.001", 0.0002" 0.01, 0.02, 0.05 mm
- Accuracy: ±0.0008"/0.02 mm
- Inch/metric conversion.
- Preset origin for absolute measurement.
- Origin data recall.
- Absolute and incremental measurement.
- Dial rotates ±170 degrees.
- SPC/USB data output.
- Automatic shut-off.
- Battery: CR2032 included.
- Furnished in fitted case.
- Short Form Certificate of Calibration traceable included
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.



21-109-4

Ground Ship ONLY

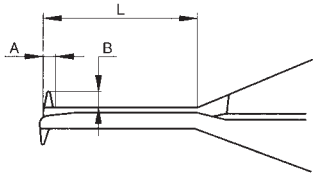


21-100-3

Internal

- Suited for measuring bores, internal grooves and other hard to reach inside dimensions.
- Analog display: ±20 graduation
- Contact point: 1/16" radius chisel x 0.020" wide.

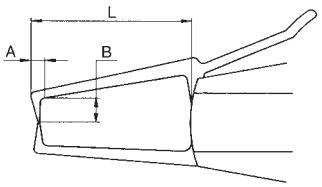
RANGE	A	B	L	PART NO.	PRICE
0.4 - 1.2"	0.078"	0.137"	2.156"	**21-108-6**	$208.70
0.8 - 1.6"	0.118"	0.256"	3.150"	**21-109-4**	208.70
1.2 - 2.0"	0.118"	0.335"	3.150"	**21-110-2**	208.70



External

- Suited for measuring outside diameters, grooves and other hard to reach outside dimensions.
- Contact point: 0.030" flat

RANGE	A	B	L	PART NO.	PRICE
0.0 - 0.8"	0.256"	0.985"	3.150"	**21-100-3**	$201.70



Accessories

DESCRIPTION	PART NO.	PRICE
SPC/USB Interface & Cable	**20-461-0**	$89.30
Repl. Battery (CR2032)	**07-319-7**	2.55



SPI®
Internal Dial Caliper Gages

- For checking internal bores, recess diameters, etc.
- Highly recommended for quick ID comparisons.
- Accuracy: +0.002"/-0.003".
- Gage has a movement of 1" (25 mm).
- Can be set with a micrometer or ring gage.
- Bezel rotates for zero setting.
- Button for closing arms. Arms automatically open when button is released.
- Unit is spring-loaded and makes point contact at constant measuring pressure.
- Arms have 0.06" diameter measuring tips.
- Smallest graduation 0.001"/0.025 mm.
- Revolution counter.
- Leg length 3 1/4".
- 2 year warranty.

12-401-6

Inch

RANGE	PART NO.	PRICE
0.375 - 1.375"	**12-401-6**	$149.25
0.750 - 1.750"	**12-402-4**	166.55
1.125 - 2.125"	**12-403-2**	185.10
1.500 - 2.500"	**12-404-0**	201.25
1.875 - 2.875"	**12-405-7**	217.45
2.250 - 3.250"	**12-406-5**	232.50
2.875 - 3.875"	**12-407-3**	239.45
3.250 - 4.250"	**12-408-1**	256.80

Metric

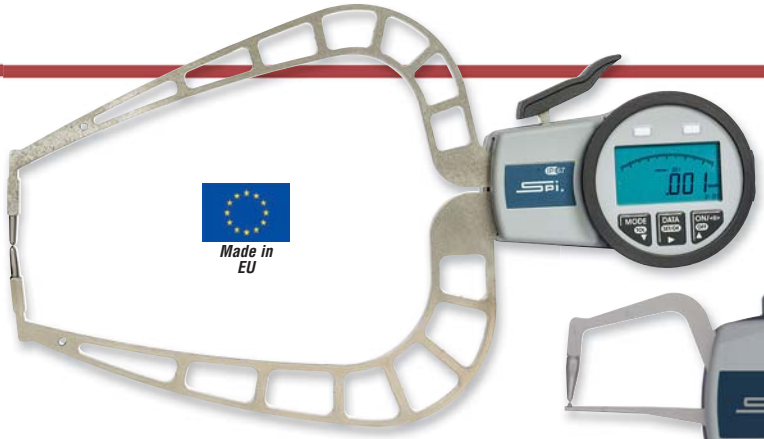
RANGE (MM)	PART NO.	PRICE
10.00 - 35.00	**14-403-0**	$149.25
20.00 - 45.00	**14-404-8**	166.55
30.00 - 55.00	**14-405-5**	185.10
40.00 - 65.00	**14-406-3**	201.25
50.00 - 75.00	**14-407-1**	217.45
60.00 - 85.00	**14-408-9**	232.50
75.00 - 100.00	**14-409-7**	239.45
85.00 - 110.00	**14-410-5**	256.80
95.00 - 120.00	**14-411-3**	274.15
100.00 - 125.00	**14-412-1**	297.30

MEASURING

SPI® Classic

Oditest Caliper Gages

Mechanical & Electronic



15-913-7



15-526-7

- Used for measuring external grooves, recess diameters and thicknesses.
- Certain Oditest gages are used for measuring the wall thickness of small pipes and tubes.
- Jeweled movement, dust, splash and shockproof.
- Carbide measuring contacts.
- Mechanical gages are IP65 rated. Electronic gages are IP67 rated.
- Dampened movement with steel string transmission for higher precision.
- Electronic models use 1.5V AAA battery (included).
- 2 year warranty.

Mechanical

Inch Reading

RANGE	GRADU-ATION	ACCURACY	MEAS. DEPTH	GROOVE MAX. DEPTH	GROOVE MIN. WIDTH	CONTACT POINTS	PART NUMBER	PRICE
0 - 0.4"	0.0002"	0.0008"	1.37"	0.75"	0.16"	Ball/Ball	**15-523-4**	$645.90
0 - 0.8"	0.0005"	0.0015"	3.20"	0.97"	0.16"	Ball/Ball	**15-524-2**	645.90
0 - 0.8"	0.0005"	0.0015"	3.20"	0.97"	0.15"	Chisel/Chisel	**15-525-9**	645.90
0 - 2"	0.001"	0.002"	6.6"	1.25"	0.16"	Ball/Ball	**15-929-3**	757.50



15-500-2

Metric Reading • in Millimeters (mm)

RANGE	GRADU-ATION	ACCURACY	MEAS. DEPTH	GROOVE MAX. DEPTH	GROOVE MIN. WIDTH	CONTACT POINTS	PART NUMBER	PRICE
0 - 10	0.005	0.015	35	18.6	4	Ball/Ball	**15-528-3**	$645.90
0 - 20	0.01	0.03	85	24.6	4	Ball/Ball	**15-529-1**	645.90
0 - 20	0.01	0.03	85	24.6	4	Chisel/Chisel	**15-530-9**	645.90
0 - 50	0.05	0.05	167	30	4	Ball/Ball	**15-930-1**	757.50

DESCRIPTION	PART NO.	PRICE
Bezel & Crystal	**02-000-8**	$29.40



15-506-9

Electronic

RANGE (IN./MM)	RESOLUTION (IN./MM)	ACCURACY (IN./MM)	MEAS. DEPTH (IN./MM)	GROOVE MAX. DEPTH (IN./MM)	GROOVE MIN. WIDTH (IN./MM)	CONTACT POINTS	PART NUMBER	PRICE
0 - 0.39/0 - 10	0.0002/0.005	0.0008/0.015	1.37/35	0.75/18.6	0.16/4.0	Ball/Ball	**15-500-2**	$667.60
0 - 0.39/0 - 10	0.0002/0.005	0.0010/0.02	1.37/35	0.58/14.8	0.24/6.0	Flat/Flat	**15-506-9**	667.60
0 - 0.78/0 - 20	0.0005/0.01	0.0015/0.03	3.20/85	0.97/24.6	0.16/4.0	Ball/Ball	**15-501-0**	667.60
0 - 0.78/0 - 20	0.0005/0.01	0.0015/0.03	3.20/85	0.97/24.6	0.15/3.8	Chisel/Chisel	**15-502-8**	667.60
0 - 1.18/0 - 30	0.0005/0.01	0.001/0.02	4.57/116	1.18/30	0.1/2.5	Ball/Ball	**15-912-9**	677.95
0 - 1.97/0 - 50	0.0005/0.01	0.0016/0.04	6.57/167	1.18/30	0.1/2.5	Ball/Ball	**15-913-7**	936.10

DESCRIPTION	PART NO.	PRICE
Repl. Batteries - AAA (Pkg. of 4)	**60-187-2**	$3.95



15-928-5

For Pipes & Tubes

Mechanical

MEASURING RANGE (IN.)	MEASURING RANGE (MM)	GRADAUTION/ RESOLUTION (IN./MM)	ACCURACY (IN./MM)	MIN. PIPE ID (IN./MM)	MEASURING DEPTH (IN./MM)	CONTACT POINTS	PART NUMBER	PRICE
0 - 0.4	–	0.0002/ –	0.0008/ –	0.12/ –	1.37/ –	Ball/Ball	**15-526-7**	$645.90
0 - 0.4	–	0.0002/ –	0.0008/ –	0.12/ –	1.37/ –	Chisel/Ball	**15-527-5**	645.90
0 - 2	–	0.001/ –	0.002/ –	0.47/ –	6.6/ –	Ball/Ball	**15-928-5**	757.50
–	0 - 20	– /0.01	– /0.03	– /9	– /85	Ball/Ball	**15-531-7**	645.90
–	0 - 20	– /0.01	– /0.03	– /9	– /85	Chisel/Ball	**15-532-5**	645.90
–	0 - 50	– / 0.05	– / 0.05	– /13	–/169	Ball/Ball	**15-927-7**	757.50

Electronic

MEASURING RANGE (IN.)	MEASURING RANGE (MM)	GRADAUTION/ RESOLUTION (IN./MM)	ACCURACY (IN./MM)	MIN. PIPE ID (IN./MM)	MEASURING DEPTH (IN./MM)	CONTACT POINTS	PART NUMBER	PRICE
0 - 0.39	0 - 10	0.0002/0.005	0.0008/0.015	0.12/3	1.37/35	Ball/Ball	**15-503-6**	$667.60
0 - 0.39	0 - 10	0.0002/0.005	0.0008/0.015	0.12/3	1.37/35	Chisel/Ball	**15-504-4**	667.60
0 - 0.78	0 - 20	0.0005/0.01	0.0015/0.03	0.35/9	3.20/85	Ball/Ball	**15-505-1**	667.60

SPI® Classic

Intertest Caliper Gages

Mechanical & Electronic

- Used for measuring bores, internal grooves and recesses.
- Jeweled movement, dust, splash and shockproof.
- Carbide measuring contacts.
- Dampened movement with steel string transmission for higher precision.
- Mechanical gages are IP65 rated.
  Electronic gages are IP67 rated.
- Electronic models use 1.5V AAA battery (included).
- 2 year warranty.

Made in EU



15-508-5

Mechanical

Inch Reading

RANGE	GRADU-ATION	ACCURACY	MEAS. DEPTH	GROOVE MAX. DEPTH	GROOVE MIN. WIDTH	CONTACT POINTS	PART NUMBER	PRICE
0.10 - 0.5"	0.0002"	0.0008"	0.47"	0.027"	0.024"	Chisel/Chisel	**15-508-5**	$645.90
0.20 - 0.6"	0.0002"	0.0008"	1.37"	0.090"	0.032"	Ball/Ball	**15-509-3**	645.90
0.40 - 1.2"	0.0005"	0.0015"	3.30"	0.190"	0.060"	Ball/Ball	**15-510-1**	645.90
0.80 - 1.6"	0.0005"	0.0015"	3.30"	0.260"	0.060"	Ball/Ball	**15-511-9**	645.90
1.20 - 2"	0.0005"	0.0015"	3.30"	0.260"	0.060"	Ball/Ball	**15-512-7**	645.90
1.60 - 2.4"	0.0005"	0.0015"	3.30"	0.310"	0.060"	Ball/Ball	**15-513-5**†	645.90
2 - 2.8"	0.0005"	0.0015"	3.30"	0.310"	0.060"	Ball/Ball	**15-514-3**†	645.90
2.40 - 3.2"	0.0005"	0.0015"	3.30"	0.310"	0.060"	Ball/Ball	**15-515-0**†	645.90



15-513-5

Metric Reading • in Millimeters (mm)

RANGE	GRADU-ATION	ACCURACY	MEAS. DEPTH	GROOVE MAX. DEPTH	GROOVE MIN. WIDTH	CONTACT POINTS	PART NUMBER	PRICE
2.5 - 12.5	0.005	0.015	12	0.7	0.5	Chisel/Chisel	**15-517-6**	$645.90
5 - 15	0.005	0.015	35	2.3	0.8	Ball/Ball	**15-518-4**	645.90
10 - 30	0.01	0.03	85	5.2	1.2	Ball/Ball	**15-519-2**	645.90
20 - 40	0.01	0.03	85	7	1.2	Ball/Ball	**15-520-0**	645.90
30 - 50	0.01	0.03	85	7	1.2	Ball/Ball	**15-521-8**	645.90
40 - 60	0.01	0.03	85	8.3	1.2	Ball/Ball	**15-522-6**†	645.90

DESCRIPTION	PART NO.	PRICE			
Bezel & Crystal	**02-000-8**	$29.40	Repl. Contact Point	**20-629-2**	29.40

Electronic

RANGE (IN./MM)	RESOLUTION (IN./MM)	ACCURACY (IN./MM)	MEAS. DEPTH (IN./MM)	GROOVE MAX. DEPTH (IN./MM)	GROOVE MIN. WIDTH (IN./MM)	CONTACT POINTS	PART NUMBER	PRICE
0.10 - 0.49/2.5 - 12.5	0.0002/0.005	0.0008/0.015	0.47/12	0.027/0.7	0.023/0.5	Chisel/Chisel	**15-490-6**	$667.60
0.20 - 0.59/5 - 15	0.0002/0.005	0.0008/0.015	1.37/35	0.090/2.3	0.032/0.8	Ball/Ball	**15-491-4**	667.60
0.39 - 1.18/10 - 30	0.0005/0.01	0.0015/0.03	3.30/85	0.190/5.2	0.060/1.2	Ball/Ball	**15-492-2**	667.60
0.59 - 2.56/15 - 65	0.001/0.02	0.0016/0.04	7.40/188	0.22/5.5	0.074/1.9	Ball/Ball	**15-914-5**	667.60
0.79 - 1.58/20 - 40	0.0005/0.01	0.0015/0.03	3.30/85	0.260/7	0.060/1.2	Ball/Ball	**15-493-0**	667.60
1.18 - 1.97/30 - 50	0.0005/0.01	0.0015/0.03	3.30/85	0.260/7	0.060/1.2	Ball/Ball	**15-494-8**	667.60
1.58 - 2.36/40 - 60	0.0005/0.01	0.0015/0.03	3.30/85	0.310/8.3	0.060/1.2	Ball/Ball	**15-495-5**†	667.60
1.97 - 2.75/50 - 70	0.0005/0.01	0.0015/0.03	3.30/85	0.310/8.3	0.060/1.2	Ball/Ball	**15-496-3**†	667.60
2.36 - 3.15/60 - 80	0.0005/0.01	0.0015/0.03	3.30/85	0.310/8.3	0.060/1.2	Ball/Ball	**15-497-1**†	667.60
2.75 - 3.54/70 - 90	0.0005/0.01	0.0015/0.03	3.30/85	0.310/8.3	0.060/1.2	Ball/Ball	**15-498-9**†	667.60

† Replaceable contact points. All other units have fixed points.



15-917-8

Electronic 3-Point Contacts

RANGE (IN./MM)	RESOLUTION (IN./MM)	ACCURACY (IN./MM)	MEAS. DEPTH (IN./MM)	GROOVE MAX. DEPTH (IN./MM)	GROOVE MIN. WIDTH (IN./MM)	CONTACT POINTS	PART NUMBER	PRICE
0.28 - 0.55/7 - 14	0.0001/0.002	0.0002/0.004	1.37/34	0.086/2.2	0.0315/0.8	Ball/Ball	**15-915-2**	$813.60
0.4 - 0.79/10 - 20	0.0002/0.005	0.0008/0.01	2.95/75	0.14/3.5	0.064/1.6	Ball/Ball	**15-916-0**	813.60
0.59 - 1.18/15 - 30	0.0002/0.005	0.0008/0.01	3.03/77	0.2/5	0.064/1.6	Ball/Ball	**15-917-8**	813.60
0.98 - 1.77/25 - 45	0.0002/0.005	0.0008/0.01	3.3/84	0.26/7	0.064/1.6	Ball/Ball	**15-918-6**	813.60
1.57 - 2.36/40 - 60	0.0002/0.005	0.0008/0.01	3.3/84	0.31/8	0.064/1.6	Ball/Ball	**15-919-4**	813.60
2.17 - 2.95/55 - 75	0.0002/0.005	0.0008/0.01	3.3/84	0.31/8	0.064/1.6	Ball/Ball	**15-920-2**	813.60
2.76 - 3.54/70 - 90	0.0002/0.005	0.0008/0.01	3.3/84	0.34/8.5	0.064/1.6	Ball/Ball	**15-921-0**	813.60
3.35 - 4.13/85 - 105	0.0002/0.005	0.0008/0.01	3.3/84	0.36/9	0.064/1.6	Ball/Ball	**15-922-8**	813.60

DESCRIPTION	PART NO.	PRICE
Repl. Batteries - AAA (Pkg. of 4)	**60-187-2**	$3.95



12-088-1

TESA

Groove Checking Comparator Gages

Wide Range: 0.375" - 6"

- Easy setup for reliable checking round holes, parallelism of grooves and slots.
- Variety of contact points and attachments to keep the two point measuring system on center line.
- Adjustable arm ends.
- Accurately set the gage with a micrometer or if the centering attachments are used a ring can be used.

Specifications

Measuring Range: 0.375" - 6"
Scale Range: ±0.008"
Graduation: 0.0005"
Measuring Depth: 2.500" in a 0.5" dia. hole
Arm Clearance: 0.400"
Measuring Force: 12.5 oz.

DESCRIPTION	PART NO.	PRICE
Groove Checking Gage with Steel Contact Points	**12-088-1**	$2,855.05
Groove Checking Gage with Carbide Contact Points	**12-089-9**	2,857.70

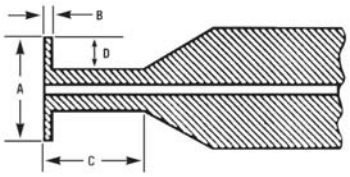
SPI Classic

GROOVEMASTER

- Highly effective caliper attachment for quick and accurate measurements of internal and external diameters of retaining ring grooves, o-ring grooves and undercuts.
- Available individually and in convenient sets.
- Precision machined from steel, hard chrome plated for extra wear resistance.
- Fits all 6" vernier, dial and digital calipers with a maximum jaw-thickness of 0.140".
- Measures internal grooves from 0.200" up to the capacity of the caliper.
- 2 year warranty.



Caliper sold separately.



Ground Ship ONLY



30-463-4



30-464-2

SIZE	MIN. BORE A	WIDTH OF FLG. B	MAX. DEPTH C	GROOVE DEPTH D	PART NUMBER	PRICE
1	0.200"	0.015"	0.400"	0.050"	**30-465-9**	$53.55
2	0.300"	0.015"	0.625"	0.070"	**30-466-7**	53.55
3	0.600"	0.025"	1.000"	0.200"	**30-467-5**	53.55
4	0.725"	0.040"	1.250"	0.255"	**30-468-3**	66.35
5	External	0.024"	3.000"	0.375"	**30-469-1**	97.75

Metric Set

SIZE	MIN. BORE A (MM)	WIDTH OF FLG. B (MM)	MAX. DEPTH C (MM)	GROOVE DEPTH D (MM)	PART NUMBER	PRICE
1	5	0.4	10	13	**30-483-2**	$62.85
2	7.5	0.4	16	1.75	**30-484-0**	65.20
3	15	0.65	25	5	**30-485-7**	65.20
4	18	1.0	32	6.5	**30-486-5**	73.35
5	External	0.65	76	9.5	**30-488-1**	112.90
Set of 5 pcs., w/6" Digital Caliper					**30-461-8***	343.65
Set of 3 pcs., 1 ea. size 1, 2 and 3					**30-463-4**	137.35
Set of 5 pcs., 1 ea. of all sizes					**30-464-2**	272.30
Set of 5 pcs., Metric					**30-470-9**	279.30

* D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

INDICAL Bore and Groove Gage

- Indical is a simple holder to which any test indicator can be attached for checking bores, O ring and snap ring grooves, thread reliefs, undercuts, etc.
- For indicator without dovetail, special adapters are required. Specify make and model.
- I.D. range 0.600" - 6". – (0.200" - 0.600" with optional off-set points 06-003-8).

DESCRIPTION	PART NO.	PRICE
I.D. Indical with 3 pairs of points and case	**30-518-5**	$229.85

Indicator not included in above price.

Replacement Parts 4 - 48 Thread

DESCRIPTION	PART NO.	PRICE
Stand for easy set-up	**30-520-1**	$31.00
Standard Points, pair	**06-000-4**	Call
Long Points, pair	**06-001-2**	Call
Ball Points, pair	**06-002-0**	Call
Offset Replacement Contact Points	**06-003-8**	Call
Gem	**06-005-3**	Call
1/4" Extension	**06-007-9**	Call
1/2" Extension	**06-008-7**	Call
3/4" Extension	**06-009-5**	Call
1" Extension	**06-010-3**	Call



Indicator and Stand Not Included

Extensions



1" **06-010-3**



3/4" **06-009-5**



1/2" **06-008-7**



1/4" **06-007-9**



06-000-4



06-001-2



06-002-0



06-003-8

For I.D. work in small range use contact point 06-003-8 and grind to desired size.


11-391-0

Starrett®
Dial Indicator Groove Gage
0.375 - 6" Measuring Range

- Lightweight gage is used for in-process or bench inspection of oil grooves, snap ring retainer grooves, "O" ring seat retainer grooves and similar internal recesses.
- Also useful for checking bore dimensions and testing for taper, bell-mouth and out-of-roundness.
- Supplied with two sets of jaws, both readily interchangeable.
- Three sets of contacts are furnished that can be attached to the ends of the jaws without replacing the entire jaw.
- Contacts have flush ends so that the grooves at the bottom of blind holes can be gaged.
- Graduation: 0.0005"
- Reading: ±30
- Range: 0.060"
- Furnished with storage case.
- Model #1175Z

DESCRIPTION	PART NO.	PRICE
Dial Indicator Groove Gage	**11-391-0**	$2,233.10


57-430-1

Telescoping Gage Set

- Complete set of 6 gages in a fitted case.
- Measuring Range: 5/16" to 6".
- Uniform contact pressure.
- Rigid handle with self centering feature.
- Satin chrome finish.
- Contact points are of hardened tool steel and precision ground on the end measuring radius.
- Supplied in a fitted carrying case.

DESCRIPTION	PART NO.	PRICE
Economy Telescoping Gage Set	**57-430-1**	$43.65

SPI®

Telescoping Hole Gages

Plunger on gage expands in hole to be measured, locks in place and remove gage from hole. Final hole size is obtained by measuring over contacts with a micrometer.

- Contact points are of hardened and ground precision tool steel.
- Contact plungers automatically self center in all positions.
- Constant spring tension for uniform feel.
- Satin chrome finish.
- Models with TiN coated plungers available.
- Sets supplied in vinyl pouch.
- 2 year warranty.


14-125-9

Satin Chrome Finish

RANGE	APPROX. LENGTH	PART NUMBER	PRICE
5/16 - 1/2"	4.2"	**14-117-6**	$20.75
1/2 - 3/4"	4.4"	**14-118-4**	20.75
3/4 - 1 1/4"	4.4"	**14-119-2**	20.75
1 1/4 - 2 1/8"	5.85"	**14-120-0**	26.50
2 1/8 - 3 1/2"	5.85"	**14-121-8**	26.50
3 1/2 - 6"	5.85"	**14-122-6**	26.50
Set of 4 Gages, 5/16 - 2 1/8"		**14-123-4**	67.95
Set of 5 Gages, 1/2 - 6"		**14-124-2**	79.45
Set of 6 Gages, 5/16 - 6"		**14-125-9**	93.30


14-192-9

Extended Length Handles-Satin Chrome Finish

RANGE	APPROX. LENGTH	PART NUMBER	PRICE
5/16 - 1/2"	12"	**15-445-0**	$36.85
1/2 - 3/4"	12"	**15-446-8**	36.85
3/4 - 1 1/4"	12"	**15-447-6**	36.85
1 1/4 - 2 1/8"	12"	**15-448-4**	44.90
2 1/8 - 3 1/2"	12"	**15-449-2**	44.90
3 1/2 - 6"	12"	**15-450-0**	44.90


15-445-0

TiN Coated Finish

RANGE	APPROX. LENGTH	PART NUMBER	PRICE
5/16 - 1/2"	4.2"	**14-193-7**	$25.35
1/2 - 3/4"	4.4"	**14-194-5**	25.35
3/4 - 1 1/4"	4.4"	**14-195-2**	25.35
1 1/4 - 2 1/8"	5.85"	**14-196-0**	28.80
2 1/8 - 3 1/2"	5.85"	**14-197-8**	28.80
3 1/2 - 6"	5.85"	**14-198-6**	28.80
Set of 6 Gages, 5/16 - 6"		**14-192-9**	118.60


10-121-2

brown & sharpe

Telescoping Hole Gage Set
Measures the true size of holes, slots, and recesses from 5/16" to 6"

- Constant spring tension for uniform feel.
- Rigid handle with self-centering feature .
- Satin Chrome finish.
- Contact ends are hardened and ground precision tool steel.
- Supplied in a fitted case.
- Model #599-591-20

PCS. IN SET	RANGE	PART NO.	PRICE
6	5/16 - 6"	**10-121-2**	$173.95



10-342-4

Starrett®
Telescoping Hole Gages & Sets

- Measures the true size of holes, slots and recesses from 5/16" to 6"
- The ends of both contacts are hardened and ground to a radius to allow proper clearance on the smallest hole the gage will enter.
- Must be slightly "rocked" in the hole being measured to ensure that the tool is on the proper diameter before it is locked and withdrawn.
- The final hole size is obtained by measuring over the gage contacts with a micrometer.

Series 229

- Features a handle, one rigid contact arm and one spring-tensioned telescoping contact arm.

Individuals

MEAS. RANGE	HANDLE LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
1/2 - 3/4"	2 3/8"	229A	**11-076-7**	$41.20
3/4 - 1 1/4"	2 3/8"	229B	**11-077-5**	40.65
1 1/4 – 2 1/8"	2 3/8"	229C	**11-078-3**	42.75
2 1/8 – 3 1/2"	2 3/8"	229D	**11-079-1**	53.75
3 1/2 – 6"	3 1/4"	229E	**11-080-9**	64.80

Sets

PCS. IN SET	RANGE	STARRETT MODEL #	PART NUMBER	PRICE
3	1/2 - 2 1/8"	S229FZ	**10-418-2**	$130.70
5	1/2 - 6"	S229GZ	**10-419-0**	249.10

Series 579

- Similar to the 229 series with a slightly greater range and two telescoping contacts.
- Handles are rigidly attached to the contact plungers and are automatically self-centering.
- Constant spring tension give uniform contact pressure.
- Both plungers are easily locked at any desired setting.

Individuals

MEAS. RANGE	HANDLE LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
5/16 – 1/2"	2 3/8"	579A	**11-081-7**	$37.35
1/2 - 3/4"	2 3/8"	579B	**11-082-5**	40.25
3/4 - 1 1/4"	2 3/8"	579C	**11-083-3**	41.35
1 1/4 – 2 1/8"	2 3/8"	579D	**11-084-1**	42.55
2 1/8 – 3 1/2"	2 3/8"	579E	**11-085-8**	52.85
3 1/2 - 6"	3 1/4"	579F	**11-086-6**	66.50
5/16 – 1/2"	12"	579A-12	**11-087-4**	95.35
1/2 - 3/4"	12"	579B-12	**11-088-2**	100.85
3/4 - 1 1/4"	12"	579C-12	**11-089-0**	103.00
1 1/4 – 2 1/8"	12"	579D-12	**11-090-8**	105.45
2 1/8" – 3 1/2"	12"	579E-12	**11-091-6**	113.70
3 1/2 - 6"	12"	579F-12	**11-096-5**	127.45

Sets

PCS. IN SET	RANGE	STARRETT MODEL #	PART NUMBER	PRICE
4	5/16 - 2 1/8"	S579GZ	**10-342-4**	$166.95
6	5/16 - 6"	S579HZ	**10-420-8**	283.40

SPI® Classic
Small Hole Gages

Flat Bottom Type

- Full radius measuring faces with flat bottom, ideal for measuring shallow holes, slots, grooves.
- Size adjustment by knurled knob.
- Final size is obtained by measuring over the contact points with a micrometer.
- Gaging surface is fully hardened.
- Satin chrome finish.
- Extra long for gaging deep holes and slots.

RANGE	MEAS. DEPTH	PART NO.	PRICE
0.125 - 0.200"	0.880"	**30-426-1**	$16.40
0.200 - 0.300"	1.200"	**30-427-9**	18.60
0.300 - 0.400"	1.600"	**30-428-7**	21.90
0.400 - 0.500"	1.600"	**30-429-5**	25.15
Set of above 4 Gages		**30-425-3**	78.25

Full Ball Type

- Small Hole Gages with full ball for very accurate measurements.
- Easy to adjust with full spherical, hard, satin-chrome plated measuring faces.

RANGE	MEAS. DEPTH	PART NO.	PRICE
0.125 - 0.200"	1"	**31-441-9**	$17.15
0.200 - 0.300"	1 3/16"	**31-442-7**	20.80
0.300 - 0.400"	1 9/16"	**31-443-5**	22.95
0.400 - 0.500"	1 5/8"	**31-444-3**	26.25
Set of above 4 Gages		**31-440-1**	80.40



Made in Japan

30-425-3

- 2 year warranty.

31-440-1

Mitutoyo
Small Hole Gages & Set

Half Ball

- Used with an outside micrometer for measuring inside diameter of bores.
- Extra long for gaging deep and shallow holes, slots and similar workpieces.
- Gaging surface is fully hardened to insure long tool life.
- Set supplied in fitted pouch.



10-629-4

Individuals

MEAS. RANGE	LENGTH	MITUTOYO MODEL #	PART NUMBER	PRICE
0.125 - 0.2"	0.885"	154-105	**10-625-2**	$25.50
0.2 - 0.3"	1.181"	154-106	**10-626-0**	26.10
0.3 - 0.4"	1.378"	154-107	**10-627-8**	27.90
0.4 - 0.5"	1.575"	154-108	**10-628-6**	32.85

Set

PCS. IN SET	RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
4	0.125 - 0.5"	154-901	**10-629-4**	$109.00

Mitutoyo
Telescoping Hole Gages & Sets

- Spring-loaded plunger expands within the bore (groove), allowing determination of the internal diameter.
- With a knurled clamp.
- Sets supplied in fitted pouch.



10-933-0

Individuals

MEAS. RANGE	LENGTH	MODEL #	PART NO.	PRICE
0.313 - 0.5"	4.33"	155-121	**10-594-0**	$27.10
0.5 - 0.75"	4.33"	155-122	**10-595-7**	30.20
0.75 - 1.25"	4.33"	155-123	**10-596-5**	31.95
1.25 - 2.125"	5.91"	155-124	**10-597-3**	32.75
2.125 - 3.5"	5.91"	155-125	**10-598-1**	39.15
3.5 - 6"	5.91"	155-126	**10-599-9**	43.95

Sets

PCS. IN SET	RANGE	MITUTOYO MODEL #	PART NUMBER	PRICE
4	0.313 - 2.125"	155-907	**10-059-4**	$118.00
6	0.313 - 6"	155-903	**10-933-0**	200.00



11-143-5

11-149-2

Starrett®
Small Hole Gages & Sets

Half Ball with Flat Bottom

- Ideal for accurately measuring the most shallow holes, slots and recesses.
- Hardened half-ball measuring surface with two-point contact.
- Radius on each gage is less than the minimum diameter to be measured, which provides the two-point contact necessary for maximum accuracy.
- The adjustment of the gage beyond their range is restricted by a safety stop that prevents breakage.
- Set supplied in protective pouch.

MEAS. RANGE	APPROX. LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
0.125 - 0.200"	$2^{13}/_{16}$"	831A	**11-139-3**	$43.30
0.200 - 0.300"	$3^{1}/_{8}$"	831B	**11-140-1**	47.55
0.300 - 0.400"	$3^{3}/_{8}$"	831C	**11-141-9**	49.70
0.400 - 0.500"	$3^{1}/_{2}$"	831D	**11-142-7**	53.50

Sets

PCS. IN SET	MEAS. RANGE	STARRETT MODEL #	PART NUMBER	PRICE
4	0.125 – 0.500"	S831EZ	**11-143-5**	$198.75
5	0.125 – 0.500"	S830FZ	**11-144-3***	259.20

* 2" long

Full Ball

- Ideal for accurately measuring the small holes, slots, grooves and recesses.
- Hardened ball measuring surface with two-point contact.
- Radius on each gage is less than the minimum diameter to be measured, which provides the two-point contact necessary for maximum accuracy.
- The adjustment of the gage beyond their range is restricted by a safety stop that prevents breakage.
- Set supplied in protective pouch.

MEAS. RANGE	APPROX. LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
0.125 – 0.200"	$2^{7}/_{8}$"	829A	**11-145-0**	$42.20
0.200 – 0.300"	3"	829B	**11-146-8**	46.45
0.300 – 0.400"	$3^{3}/_{8}$"	829C	**11-147-6**	48.65
0.400 – 0.500"	$3^{1}/_{2}$"	829D	**11-148-4**	53.50

Set

PCS. IN SET	MEAS. RANGE	STARRETT MODEL #	PART NUMBER	PRICE
4	0.125 – 0.500"	S829EZ	**11-149-2**	$170.90

SPI® Classic
PITCHMASTER

- Precision machined and chrome plated caliper and micrometer attachments with precision ground inserts for accurate measurements (sold separately).
- Caliper attachments are designed for use with 6" dial or electronic calipers with max. jaw thickness of 0.140".
- The I.D. Caliper attachment set includes 4 pairs of I.D. inserts to measure threads from 42 to 6.5 TPI with a minimum $^{5}/_{8}$" minor internal diameter, and all 60° metric internal threads with a minimum 16 mm minor diameter and a pitch from 0,6 mm to 4,0 mm.
- The O.D. Caliper attachment set includes 4 pairs of O.D. inserts for measuring 60° external threads from 42 to 6.5 TPI and 0,6 mm to 4,0 mm pitch.
- The O.D. Micrometer attachment set includes 4 pairs of O.D. inserts to measure 60° external threads from 42 to 6.5 TPI, and 60° external metric threads from 0,6 mm to 4,0 mm pitch with a micrometer with $^{1}/_{4}$" dia. spindle.
- Ideal for quick checking threads in the machine shop.
- Furnished with instructions.
- 2 year warranty.

PITCHMASTER Sets

DESCRIPTION	PART NO.	PRICE
I.D. and O.D. attachments & inserts for Calipers	**31-470-8**	$499.15
I.D. attachment & inserts for Calipers	**31-471-6**	292.00
O.D. attachment & inserts for Calipers	**31-472-4**	234.60
O.D. attachments & inserts for Micrometers	**31-473-2**	183.95

I.D. Insert Pairs

RANGE	PART NO.	PRICE
42 - 25 TPI / 0,6 - 1,0 mm pitch	**31-478-1**	$64.00
25 - 17 TPI / 1,0 - 1,5 mm pitch	**31-479-9**	64.00
17 - 10 TPI / 1,5 - 2,5 mm pitch	**31-481-5**	64.00
10 - 6,5TPI / 2,5 - 4,0 mm pitch	**31-482-3**	64.00

O.D. Insert Pairs

RANGE	PART NO.	PRICE
42 - 25 TPI / 0,6 - 1,0 mm pitch	**31-474-0**	$53.55
25 - 17 TPI / 1,0 - 1,5 mm pitch	**31-475-7**	53.55
17 - 10 TPI / 1,5 - 2,5 mm pitch	**31-476-5**	53.55
10 - 6,5TPI / 2,5 - 4,0 mm pitch	**31-477-3**	53.55

Attachments Only (in Pairs)

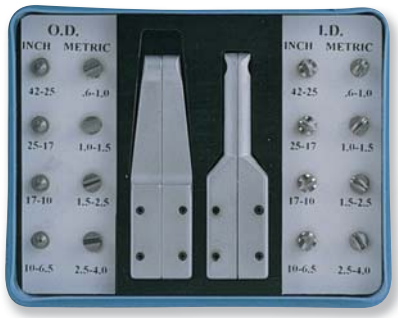
DESCRIPTION	PART NO.	PRICE
Micrometer attachment for $^{1}/_{4}$" anvil	**31-483-1**	$12.20
Micrometer attachment for 0.257" anvil	**31-484-9**	12.20







Micrometers and Calipers sold separately



31-470-8



31-471-6



31-472-4



31-473-2

SPI® Classic

IPD Gage + Software

A Complete Internal Pitch Diameter Measuring System

MADE IN USA



- Major breakthrough in utilizing computer software with a measuring instrument.
- With this new concept, accurate measurements of internal threads and compensation calculations for ball diameter variations or lead angles are made extremely simple.
- The CD Rom supplied with the IPD Gage can be used in any Windows compatible PC to obtain all data required for accurate inspection of any specific internal thread without the necessity of a master gage.
- Easy to set IPD Gage with Micrometer or Gage Blocks, etc.
- Universal. Can be used as general purpose internal gage for measuring bores, grooves and pitch diameters of screw threads and internal gears, etc.
- Indicator alone, with the included adapter, extensions and optional contact points, makes it possible to measure internal threads and bores from 7½" to 18".
- Rigid construction plus special high precision pivot bearings assure repeatability of 0.0002" or less.
- Balanced body design for easy and convenient handling.
- Adjustable contact pressure.
- Carbide ball contact points are optional, not included.
- System includes internal gage, 1" travel indicator, indicator-adapter, 8 extensions (¼", ⅜", ½", ¾", 1", 2", 3" and 4" long), measuring tip organizer, 2 standard contact points ¼" long, allen wrench, fitted case plus CD ROM for internal pitch diameter threads and instruction manual.

Specifications

Measuring range: Bores	0.93" to 8"
Nominal Size Threads	1⅛ to 8"
Extended range with included indicator adapter	7½ to 18"
Gage arm travel	0.625"
Maximum reach in 1¼" dia. bore	4.8"
1" Travel indicator graduation	0.0005"

CD Rom

The IPD software complies with ANSI standards; fully compensates for the effects of lead angle.

User Friendly

On screen explanation, no commands to remember. Error free data entry, will detect invalid input data.

Universal

Supports UN series and Metric threads as well as threads with user defined thread angle and number of starts for Acme, Whitworth and multiple start threads.

- Software calculates the correct diameter for any chosen ball contact point within the specified range per table below.
- Diameter setting with micrometer or gage blocks, no master thread setting ring required.



- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
IPD Gage + Software	**30-640-7**	$997.05
Metric indicator for IPD gage	**20-508-8**	158.40

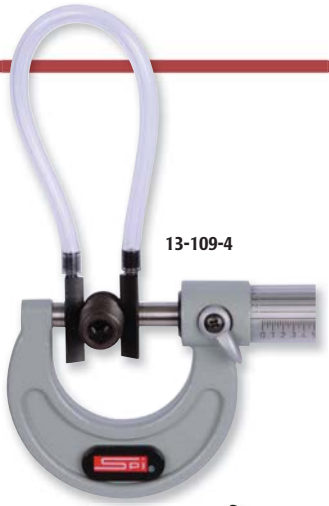
IPD Gage Accessories

Carbide Ball Contact Points, ¼" Length, #4-48 Thread

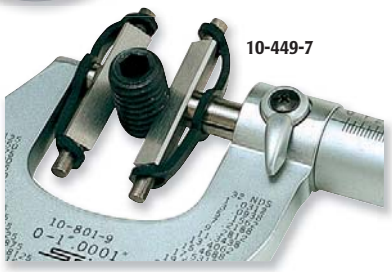
BALL DIAMETER TOLERANCES ± .0001"	UN SERIES THREADS PER INCH	ACME THREADS PER INCH	METRIC THREADS PITCH (MM)	PART NUMBER	PRICE PER PAIR
0.03125" (1/32)	24–14		1.25 –1.75	**30-641-5**	$43.05
0.04687" (3/64)	16–8		1.75–3	**30-642-3**	43.05
0.0625" (1/16)	11–6		2.5–4	**30-643-1**	43.05
0.07813" (5/64)	9–5		3–5	**30-644-9**	45.30
0.09375" (3/32)	6–4		4–6	**30-645-6**	46.25
0.10938" (7/64)	6–3.5	5	4–7	**30-646-4**	46.25
0.125" (1/8)	5–3	4	5–8	**30-647-2**	52.90
0.1875" (3/16)	3.5–2	3	7–13	**30-648-0**	52.90
0.250" (1/4)	3–1.5	2	8–17	**30-649-8**	52.90
4 Pair Carbide Ball Contact Points, Package #1 - 1/32", 3/64", 1/16", 3/32" dia. covering UN Series threads from 24 to 4 pitch.				**30-637-3**	177.55
7 Pair Carbide Ball Contact Points, Package #2 - 1/32", 3/64", 1/16", 5/64", 3/32", 7/64", 1/8" dia. covering UN Series 24 to 3 pitch single and multiple starts.				**30-638-1**	262.56



Indicator with Adaptor for 7½ to 18".



13-109-4



10-449-7

Micrometer sold separately

SPI®

Thread Triangles

- Thread Triangles quickly measure pitch diameter of all 60 degree threads from 4 to 80 pitch, standard and special.
- Instantly classifies thread as 2a, 3a.
- No complicated formulas to figure! For any standard thread refer directly to chart.
- Thread Triangles nest well into the "V" of the thread instead of making just point contact.
- Micrometer rests on two parallel flat surfaces for better feel.
- Each set includes: thread triangle, holders and chart.
- 2 year warranty.

10-449-7

- Convenient Neoprene holders, fit any make micrometer spindle.

13-109-4

- Alternative way to hold thread triangle in place.

DESCRIPTION	PART NO.	PRICE
Thread Triangles w/Neoprene Holders	**10-449-7**	$70.15
Thread Triangles w/Holding Loop	**13-109-4**	109.43



65-013-5

Economy Thread Measuring Wire Set

- 16 different sizes.
- 48 wires to measure the pitch dia. on threads from 3-48 threads per inch and metric threads from 0.5 mm to 6 mm pitch.
- Instruction chart included.

DESCRIPTION	PART NO.	PRICE
Thread Measuring Wire Set	**65-013-5**	$24.45



98-370-0

PEE DEE Thread Measuring Set



- 48 wires — 16 different sizes.
- Measures all threads from 3 - 48 threads per inch.
- Measures all metric threads from 0.5 mm to 6 mm.
- Also measures ACME threads.
- Laminated chart included.
- Furnished in fitted vinyl case.

DESCRIPTION	PART NO.	PRICE
Pee Dee Thread Measuring Set	**98-370-0**	$42.50

Flynn Thread Measuring Wire Set

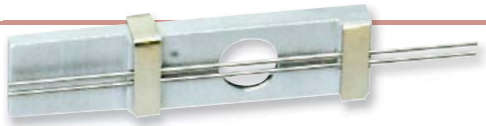
Three Wire Method of Checking Pitch Diameter of Screw Threads



13-448-6

- Sixteen (16) sets of 3 each stainless steel wires, 3" long.
- Accurate to tolerance of plus or minus 0.001".
- Chart for measuring threads.
- Supplied in leatherette case.
- Inch set - Measures 60° threads 40 to 3½ threads per inch (22 different threads).
- Metric set - Measures metric 60° threads 0.5 to 8 mm threads per inch (21 different threads).

DESCRIPTION	PART NO.	PRICE
Inch Set	**13-448-6**	$103.50
Metric Set	**13-449-4**	108.60



Complete set shown with optional micrometer. Order base and thread holders separately



Mitutoyo 3-Wire Thread Measuring System

- Fast and accurate method of thread measuring available for use with micrometer applications.
- Measure set of thread plug gages and working thread plug gages.
- Monitor the wear on working thread plug gages.
- Monitor and control pitch diameter variation during thread fabrication.
- Reduce measurement time to a fraction of the time normally taken using the traditional three wire method.
- Use in conjunction with "Go" and "No Go" thread ring gages to control thread size to the most demanding specifications.
- Determine out of roundness and taper that may exist in thread parts.
- Applications for preplating and post plating thread measurements.
- Tolerance of Wires:
  - Diameter: ±0.000010"
  - Roundness: ±0.000010"
  - Surface finish 2 micro inches AA, lapped
  - Hardness HRC 59-64
  - Certification of accuracy included.
  - Traceable to NIST.
  - Meets or exceeds all ANSI and ISO spec.

THREADS PER INCH	THREAD DIAMETER	MITUTOYO MODEL #	PART NUMBER	PRICE
40	0.01443	64AAA212	**11-474-4**	$207.00
36	0.01604	64AAA213	**11-475-1**	207.00
32	0.01804	64AAA214	**11-476-9**	207.00
30	0.01925	64AAA215	**11-477-7**	207.00
28	0.02062	64AAA216	**11-478-5**	207.00
27	0.02138	64AAA217	**11-479-3**	207.00
26	0.02221	64AAA218	**11-480-1**	207.00
24	0.02406	64AAA219	**11-481-9**	207.00
22	0.02624	64AAA220	**11-482-7**	207.00
20	0.02887	64AAA221	**11-483-5**	207.00
18	0.03208	64AAA222	**11-484-3**	207.00
16	0.03608	64AAA223	**11-485-0**	207.00
14	0.04124	64AAA224	**11-486-8**	207.00
13	0.04441	64AAA225	**11-487-6**	207.00
12	0.04811	64AAA226	**11-488-4**	207.00
11½	0.05020	64AAA227	**11-489-2**	207.00
11	0.05249	64AAA228	**11-490-0**	207.00
10	0.05774	64AAA229	**11-491-8**	207.00
9	0.06415	64AAA230	**11-492-6**	207.00
8	0.07217	64AAA231	**11-493-4**	207.00
Base Assembly			**11-473-6**	272.00



13-180-5

36 Pc. Round Space Block Set

For quickly setting stops and set ups in lathes, milling machines, drill presses, etc. Also excellent for setting sine bars.

- Each block marked for size. Overall diameter: 0.750".
- ¼"-28 threaded hole through center of block.
- Working surfaces hardened to RC 58-60.
- Working surfaces precision ground and lapped to ±0.000050".
- 4 connecting screws supplied to form desired length.
- Furnished in fitted plastic case.

Blocks Included in Set:

.050	.090	.104	.109	.140	.190	.600
.060	.100	.105	.110	.150	.200	.700
.0625	.101	.106	.120	.160	.300	.800
.070	.102	.107	.125	.170	.400	.900
.080	.103	.108	.130	.180	.500	1.00 (2 ea.)

DESCRIPTION	PART NO.	PRICE
36 Pc. Round Space Block Set	**13-180-5**	$150.90



30-909-6

36 Pc. Round Space Block Set

- Packaged in a high-quality fitted case.
- Accuracy ±0.0001."
- For quickly setting stops and setups on lathes, milling machines and drill presses, setting sine bars, etc.
- Size marked on each block.
- Overall diameter is ¾" and ID is threaded: 6 mm x 1.0 mm working surfaces hardened to RC 58 - 60.
- Surfaces precision ground and lapped to tolerances shown.
- Four connecting screws supplied to form whatever length is desired.
- Furnished in plastic case.

Set of 36 Blocks Consist of the Following:

.050	.090	.104	.109	.140	.190	.600
.060	.100	.105	.110	.150	.200	.700
.0625	.101	.106	.120	.160	.300	.800
.070	.102	.107	.125	.170	.400	.900
.080	.103	.108	.130	.180	.500	1.00 (2 ea.)

DESCRIPTION	PART NO.	PRICE
36 Pc. Round Block Set	**30-909-6**	$122.35



15-003-7

Rectangular Long Gage Block Set

- Grade 0.
- 8 pc. set includes: 5, 6, 7, 8, 10, 12, 16 & 20" blocks.
- Certificate of calibration traceable to NIST included.
- Furnished in fitted case.

Certified Right Out of the Box!

DESCRIPTION	PART NO.	PRICE
Rectangular Long Gage Block Set	**15-003-7**	$1,935.00



Individual Rectangular Steel Gage Blocks

- Grade 0 and AS-1.
- Each gage block has blended radii and is burr-proof.
- Wringing or stacking the block will not cause damage to the measuring surfaces.
- Certificate of calibration traceable to NIST included with each gage.

Certified Right Out of the Box!



50-019-9

Rectangular Gage Block Sets

- Each block is serialized and meets or exceeds Federal Specifications ASME B89.1.9-2002.
- Carbide gage blocks are recommended in an abrasive environment.
- All sets are supplied in deluxe fitted wood cases.

36 Pc. Sets

1 Blocks: .0.50"
10 Blocks: .1000" - .1009" in .0001" steps
9 Blocks: .101" - .109" in .001" steps
9 Blocks: .110" - .190" in .010" steps
4 Blocks: .200" - 500" in .100" steps
3 Blocks: 1", 2" & 4"

Steel

GRADE	TOLERANCE	PART NO.	PRICE
Economy	±0.00005"	**50-046-2**	$158.60
AS-1		**50-047-0**	385.30
0		**50-048-8**	560.90

81 Pc. Sets

1 Blocks: .0.50"
10 Blocks: .1000" - .1009" in .0001" steps
49 Blocks: .101" - .149" in .001" steps
17 Blocks: .150" - .950" in .050" steps
4 Blocks: 1.000" - 4.000" in .1.000" steps

Steel

GRADE	TOLERANCE	PART NO.	PRICE
Economy	±0.00005"	**50-019-9**	$260.60
AS-1		**50-049-6**	560.90
0		**50-018-1**	657.25

Carbide

GRADE	TOLERANCE	PART NO.	PRICE
Economy	±0.00005"	**50-050-4**	$1,370.00

SIZE (IN.)	GRADE 0 PART NO.	PRICE	GRADE AS-1 PART NO.	PRICE	SIZE (IN.)	GRADE 0 PART NO.	PRICE	GRADE AS-1 PART NO.	PRICE	SIZE (IN.)	GRADE 0 PART NO.	PRICE	GRADE AS-1 PART NO.	PRICE
0.05000	**12-640-9**	$33.35	–	–	0.12100	**12-671-4**	$23.80	**15-035-9**	$19.05	0.18000	**14-992-2**	$23.80	**15-067-2**	$19.05
0.10000	**12-641-7**	23.80	**15-004-5**	$19.05	0.12200	**12-672-2**	23.80	**15-036-7**	19.05	0.19000	**14-993-0**	23.80	**15-068-0**	19.05
0.10005	–	–	**15-005-2**	19.05	0.12300	**12-673-0**	23.80	**15-037-5**	19.05	0.20000	**12-701-9**	23.80	**15-069-8**	19.05
0.10010	**12-642-5**	23.80	**15-006-0**	19.05	0.12400	**12-674-8**	23.80	**15-038-3**	19.05	0.21000	**14-994-8**	26.20	**15-070-6**	20.25
0.10020	**12-643-3**	23.80	**15-007-8**	19.05	0.12500	**12-675-5**	23.80	**15-039-1**	19.05	0.25000	**12-702-7**	26.20	**15-071-4**	20.25
0.10030	**12-644-1**	23.80	**15-008-6**	19.05	0.12600	**12-676-3**	23.80	**15-040-9**	19.05	0.30000	**12-703-5**	26.20	**15-072-2**	20.25
0.10040	**12-645-8**	23.80	**15-009-4**	19.05	0.12700	**12-677-1**	23.80	**15-041-7**	19.05	0.35000	**12-704-3**	26.20	**15-073-0**	20.25
0.10050	**12-646-6**	23.80	**15-010-2**	19.05	0.12800	**12-678-9**	23.80	**15-042-5**	19.05	0.40000	**12-705-0**	26.20	**15-074-8**	20.25
0.10060	**12-647-4**	23.80	**15-011-0**	19.05	0.12900	**12-679-7**	23.80	**15-043-3**	19.05	0.45000	**12-706-8**	26.20	**15-075-5**	20.25
0.10070	**12-648-2**	23.80	**15-012-8**	19.05	0.13000	**12-680-5**	23.80	**15-044-1**	19.05	0.50000	**12-707-6**	30.95	**15-076-3**	20.25
0.10080	**12-649-0**	23.80	**15-013-6**	19.05	0.13100	**12-681-3**	23.80	**15-045-8**	19.05	0.55000	**12-708-4**	30.95	**15-077-1**	20.25
0.10090	**12-650-8**	23.80	**15-014-4**	19.05	0.13200	**12-682-1**	23.80	**15-046-6**	19.05	0.60000	**12-709-2**	30.95	**15-078-9**	20.25
0.10100	**12-651-6**	23.80	**15-015-1**	19.05	0.13300	**12-683-9**	23.80	**15-047-4**	19.05	0.65000	**12-710-0**	30.95	**15-079-7**	20.25
0.10200	**12-652-4**	23.80	**15-016-9**	19.05	0.13400	**12-684-7**	23.80	**15-048-2**	19.05	0.70000	**12-711-8**	30.95	**15-080-5**	20.25
0.10300	**12-653-2**	23.80	**15-017-7**	19.05	0.13500	**12-685-4**	23.80	**15-049-0**	19.05	0.75000	**12-712-6**	33.35	**15-081-3**	26.20
0.10400	**12-654-0**	23.80	**15-018-5**	19.05	0.13600	**12-686-2**	23.80	**15-050-8**	19.05	0.80000	**12-713-4**	33.35	**15-082-1**	26.20
0.10500	**12-655-7**	23.80	**15-019-3**	19.05	0.13700	**12-687-0**	23.80	**15-051-6**	19.05	0.85000	**12-714-2**	33.35	**15-083-9**	26.20
0.10600	**12-656-5**	23.80	**15-020-1**	19.05	0.13800	**12-688-8**	23.80	**15-052-4**	19.05	0.90000	**12-715-9**	33.35	**15-084-7**	26.20
0.10700	**12-657-3**	23.80	**15-021-9**	19.05	0.13900	**12-689-6**	23.80	**15-053-2**	19.05	0.95000	**12-716-7**	33.35	**15-085-4**	26.20
0.10800	**12-658-1**	23.80	**15-022-7**	19.05	0.14000	**12-690-4**	23.80	**15-054-0**	19.05	1.00000	**12-717-5**	47.60	**15-086-2**	40.50
0.10900	**12-659-9**	23.80	**15-023-5**	19.05	0.14100	**12-691-2**	23.80	**15-055-7**	19.05	2.00000	**12-718-3**	51.20	**15-087-0**	42.85
0.11000	**12-660-7**	23.80	**15-024-3**	19.05	0.14200	**12-692-0**	23.80	**15-056-5**	19.05	3.00000	**12-719-1**	58.30	**15-088-8**	48.80
0.11100	**12-661-5**	23.80	**15-025-0**	19.05	0.14300	**12-693-8**	23.80	**15-057-3**	19.05	4.00000	**12-720-9**	73.80	**15-089-6**	60.70
0.11200	**12-662-3**	23.80	**15-026-8**	19.05	0.14400	**12-694-6**	23.80	**15-058-1**	19.05	5.00000	**14-995-5**	233.25	**15-090-4**	202.30
0.11300	**12-663-1**	23.80	**15-027-6**	19.05	0.14500	**12-695-3**	23.80	**15-059-9**	19.05	6.00000	**14-996-3**	251.05	**15-091-2**	220.15
0.11400	**12-664-9**	23.80	**15-028-4**	19.05	0.14600	**12-696-1**	23.80	**15-060-7**	19.05	7.00000	**14-997-1**	293.90	**15-092-0**	263.00
0.11500	**12-665-6**	23.80	**15-029-2**	19.05	0.14700	**12-697-9**	23.80	**15-061-5**	19.05	8.00000	**14-998-9**	312.95	**15-093-8**	282.00
0.11600	**12-666-4**	23.80	**15-030-0**	19.05	0.14800	**12-698-7**	23.80	**15-062-3**	19.05	10.00000	**14-999-7**	509.25	**15-094-6**	348.65
0.11700	**12-667-2**	23.80	**15-031-8**	19.05	0.14900	**12-699-5**	23.80	**15-063-1**	19.05	12.00000	**15-000-3**	594.95	**15-095-3**	422.40
0.11800	**12-668-0**	23.80	**15-032-6**	19.05	0.15000	**12-700-1**	23.80	**15-064-9**	19.05	16.00000	**15-001-1**	765.10	**15-096-1**	594.95
0.11900	**12-669-8**	23.80	**15-033-4**	19.05	0.16000	**14-990-6**	23.80	**15-065-6**	19.05	20.00000	**15-002-9**	961.40	**15-097-9**	692.50
0.12000	**12-670-6**	23.80	**15-034-2**	19.05	0.17000	**14-991-4**	23.80	**15-066-4**	19.05	–	–	–	–	–



Right Out of the Box!

Gage Block Sets

Rectangular Blocks

- Grade 0 and Grade AS-1 accuracy meets or exceeds Federal Specifications B89.1.9-2002.
- Certificate of calibration traceable to NIST included in each set and each individual block.
- Grade Economy shop accuracy approx. ±0.00005".
- All sets are supplied in attractive fitted case.

Tolerances in Microinches

	GRADE 0	GRADE AS-1	ECONOMY
1" and less	+ 4 – 2	+ 8 –4	+ 50 –50
2"	+ 8 – 4	+16 –8	+ 50 –50
3"	+10 – 5	+20 –10	+ 50 –50
4"	+12 – 6	+24 –12	+ 50 –50

36 Pc. Sets

9 Blocks: .1001 thru 0.1009" in 0.0001" steps
9 Blocks: 0.101 thru 0.109" in 0.001" steps
9 Blocks: 0.110 thru 0.190" in 0.010" steps
4 Blocks: .200, 0.300, 0.400, 0.500"
2 Blocks: .050, 0.100"
3 Blocks: 1.000, 2.000, 4.000"

GRADE	PART NO.	PRICE
0	**30-914-6**	$371.60
AS1	**30-915-3**	332.40
Economy	**30-916-1**	146.10

81 Pc. Sets

9 Blocks: 0.1001 thru 0.1009" in 0.0001" steps
49 Blocks: 0.101 thru 0.149" in 0.001" steps
19 Blocks: 0.050 thru 0.950" in 0.050" steps
4 Blocks: 1.000 thru 4.000" in 1.000" steps

GRADE	PART NO.	PRICE
0	**30-910-4**	$577.50
AS1	**30-911-2**	489.25
Economy	**30-912-0**	234.35



11-586-5

Mitutoyo

Square Gage Block Sets

- A Certificate of Accuracy traceable to the National Institute of Standards (NIST) is provided with each set.

81 Pc. Set

– 9 Blocks: 0.1001 – 0.1009" (Steps of 0.0001")
– 49 Blocks: 0.101 – 0.149" (Steps of 0.001")
– 19 Blocks: 0.05 – 0.95" (Steps of 0.05")
– 4 Blocks: 1.00 – 4.00" (Steps of 1.00")

GRADE	MITUTOYO MODEL #	PART NUMBER	PRICE
0	516-402-26	**11-585-7**	$2,750.00
AS-1	516-403-26	**11-586-5**	2,460.00
AS-2	516-404-26	**11-587-3**	1,610.00

36 Pc. Set

– 1 Blocks: 0.05"
– 9 Blocks: 0.1001 – 0.1009" (Steps of 0.0001")
– 9 Blocks: 0.101 – 0.109" (Steps of 0.001")
– 9 Blocks: 0.11 – 0.19" (Steps of 0.01")
– 5 Blocks: 0.1 – 0.5" (Steps of 0.1")
– 3 Blocks: 1.00 – 3.00" (Steps of 1.00")

GRADE	MITUTOYO MODEL #	PART NUMBER	PRICE
AS-1	516-423-26	**11-589-9**	$1,160.00

Accessories for Rectangular Gage Blocks

- Expand the use of rectangular gage blocks with these accessories.
- Base Block- 4 x 2.75 x 1.70", mounting surface lapped flat and parallel with base.
- Points: General point used for checking graduations, Scriber point used for scribing lines, and center point used for locating centers.
- Cylindrical Jaws are used for inside or outside measurements and for setting instruments' accuracy.
- Flat Jaws have two sides lapped and accurately flat, parallel and to size.
- Reference Jaws are used for spacing blocks within limits; 0.394" H, 1.970" L, 0.0625" reference line.



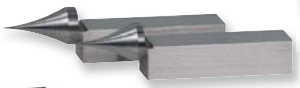
A-Base Block



B-Scriber Point



C-Center Point



D-Points



E-Cylindrical Jaws



G-Reference Jaws



H-Beveled End Jaws



F-Flat Jaws



I-Holder

14 Pc. Set Includes:

- (4) Pairs of cylindrical jaws: 0.100, 0.200, 0.250, & 0.500" radius.
- (2) Pairs of Beveled Edge Jaws: 4 and 6" long.
- (1) 4.175" L x 2.250" capacity holder.
- (1) 8.500" L x 6.000" capacity holder.
- Aluminum case.

27 Pc. Set Includes:

- All accessories except for Part # 15-357-7.
- Aluminum case.

REFERENCE #	ACCURACY
1	Height ±0.0002"
2	Flatness per 2" = 0.00002"
3	Concentricity ±0.0004"
4	Concentricity ±0.0002"
5	Radius ±0.00003" , Pair ±0.00004"
6	Parallelism = 0.00004"
7	Accuracy of ref. line to measuring surface ±0.0002"
8	Flatness per 2" = 0.0002"
9	Working surfaces accurately ground and lapped

LEGEND	DESCRIPTION	OAL	RADIUS	HOLDING CAP.	JAW HEIGHT	ACCURACY REF #	NO. OF PCS.	PART NUMBER	PRICE
A	Base Block	4.00"	–	–	–	1	1	**15-340-3**	$162.05
B	Scriber Point	1.95"	–	–	–	2	1	**15-341-1**	50.70
C	Center Point	2.50"	–	–	–	3	1	**15-342-9**	82.10
D	Points	2.05"	–	–	–	4	Pair	**15-343-7**	167.80
E	Cylinder Jaws	1.58"	0.100"	–	0.315"	5	Pair	**15-344-5**	123.15
E	Cylinder Jaws	1.965"	0.200"	–	0.315"	5	Pair	**15-345-2**	123.15
E	Cylinder Jaws	2.366"	0.250"	–	0.315"	5	Pair	**15-346-0**	136.40
E	Cylinder Jaws	2.945"	0.500"	–	0.512"	5	Pair	**15-347-8**	165.40
E	Cylinder Jaws	4.920"	0.750"	–	0.768"	5	Pair	**15-348-6**	278.85
F	Flat Jaws	6.00"	–	–	0.750"	6	Pair	**15-349-4**	296.95
G	Reference Jaws	1.97"	–	–	0.394"	7	Pair	**15-350-2**	101.40
H	Beveled End Jaws	4.00"	–	–	0.750"	8	Pair	**15-351-0**	134.00
H	Beveled End Jaws	6.00"	–	–	0.750"	8	Pair	**15-352-8**	182.30
I	Holder	4.175"	–	2.250"	–	9	1	**15-353-6**	112.30
I	Holder	6.50"	–	4.000"	–	9	1	**15-354-4**	123.15
I	Holder	8.50"	–	6.000"	–	9	1	**15-355-1**	144.85
I	Holder	12.00"	–	10.00"	–	9	1	**15-356-9**	155.75
I	Holder	18.00"	–	16.00"	–	9	1	**15-357-7**	183.50
–	14 Piece Set	–	–	–	–	–	14	**15-358-5**	844.95
–	27 Piece Set	–	–	–	–	–	27	**15-359-3**	1,810.55



PRECISION BRAND

Shim Stock

- All rolls are 6" x 100".
- Full hard, cold rolled, low carbon 1010 steel.
- Rockwell hardness RB90 - 100.
- Meets SAE J-403g 1010, FED QQS- 698, ASTM A-109, AISI 1010 and AMS 5045 Full Hard.
- Approx. Tensile Strength: 80,000 p.s.i.
- #2 Bright finish.
- Analysis: C .08 – .13, Mn .30 – .60, P .03 max., S .035 max.

STEEL SHIM TOLERANCES	
.001-.003	±10%
.0035-.006	±.0005
.007-.018	±.00075
.020-.025	±.001
.031	±.0015
Width Tolerance	±.005

SIZE	PART NO.	PRICE
.001	**61-680-5**	$9.15
.002	**61-681-3**	9.15
.005	**61-682-1**	9.90
.010	**61-683-9**	11.05
.015	**61-684-7**	11.60
.020	**61-685-4**	12.70
.025	**61-686-2**	12.30
.031	**61-687-0**	14.20

MADE IN USA



15 Pc Steel & Brass Shim Assortments

6" x 12" Sheets

- Shim stock assortments are a shop necessity and work for production or maintenance purposes where shims in various thicknesses are required.
- Thickness (1 ea.): 0.001, 0.0015, 0.002, 0.003, 0.004, 0.005, 0.006, 0.007, 0.008, 0.010, 0.012, 0.015, 0.020, 0.025, .031"

MATERIAL	PART NO.	PRICE
Steel	**61-698-7**	$38.45
Brass	**61-699-5**	76.00

Individual Pin Gages

Range 0.011" - 1.000"

- Black oxide coating prevents corrosion and shows gage wear.
- Hardened drill rod RC 60-62
- Overall length: 2"

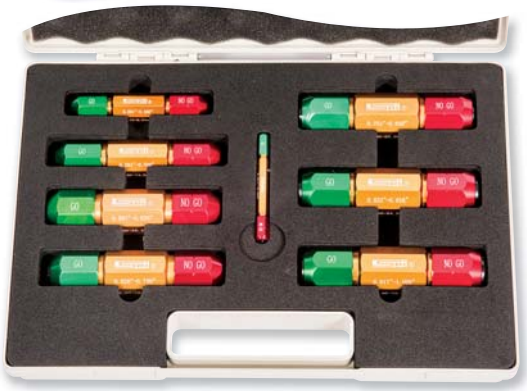
	SPI BRIGHT	SPI BLACK	PREMIUM
0.011 –0.060" specify size	$3.15 ea.	$3.75 ea.	$4.30 ea.
0.061 –0.500" specify size	3.15 ea.	3.75 ea.	3.80 ea.
0.501 –0.625" specify size	3.75 ea.	4.95 ea.	4.60 ea.
0.626 –0.750" specify size	5.30 ea.	6.25 ea.	6.70 ea.
0.751 –0.832" specify size	8.10 ea.	8.70 ea.	10.85 ea.
0.833 –0.916" specify size	9.35 ea.	9.95 ea.	11.65 ea.
0.917 –1.000" specify size	9.95 ea.	11.20 ea.	12.55 ea.

Unless specified with the order, individual pin gages will be supplied in the minus tolerance (–0.0002" + 0.0000")





13-316-5



13-310-8

SPI Pin Gage Handles & Set

- Comfortable, ergonomically made handle for pin gages.
- Can be used with GO pin (green) on one end, NO GO pin (red) on opposite end.

PIN RANGE	PART NO.	PRICE
0.011 - 0.060"	**13-311-6**	$17.15
0.061 - 0.250"	**13-312-4**	19.10
0.251 - 0.500"	**13-313-2**	21.05
0.501 - 0.625"	**13-314-0**	22.05
0.626 - 0.750"	**13-315-7**	22.05
0.751 - 0.832"	**13-316-5**	23.00
0.833 - 0.916"	**13-317-3**	23.00
0.917 - 1.000"	**13-318-1**	24.95
8 Pc. Set of Above	**13-310-8**	179.05

SPI Plug Gage Handle

- Handles all Plug Gages sizes from 1/32" thru 1/2" dia. (0.8 mm thru 12.5 mm)
- Go and No Go clearly marked.

DESCRIPTION	PART NO.	PRICE
Plug Gage Handle	**30-270-3**	$24.20

30-270-3



Plug gage sold separately

GO & GO/NO GO Gage Handles

- Select handle with range appropriate for pins to be held. Choose bushings to fit the specific pins ordered.
- Single end has green collet.



23-009-4

SIZE RANGE MIN. - MAX.	SINGLE END PART NO.	PRICE	DOUBLE END PART NO.	PRICE
0.010 - 0.075	**23-001-1**	$6.25	**23-009-4**	$10.15
0.075 - 0.180	**23-002-9**	6.80	**23-010-2**	11.05
0.180 - 0.281	**23-003-7**	7.95	**23-011-0**	13.00
0.281 - 0.406	**23-004-5**	9.05	**23-012-8**	15.25
0.406 - 0.510	**23-005-2**	10.45	**23-013-6**	18.65
0.510 - 0.635	**23-006-0**	14.45	**23-014-4**	23.70
0.635 - 0.760	**23-007-8**	17.75	**23-015-1**	27.05
0.760 - 1.010	**23-008-6**	27.30	**23-016-9**	41.65

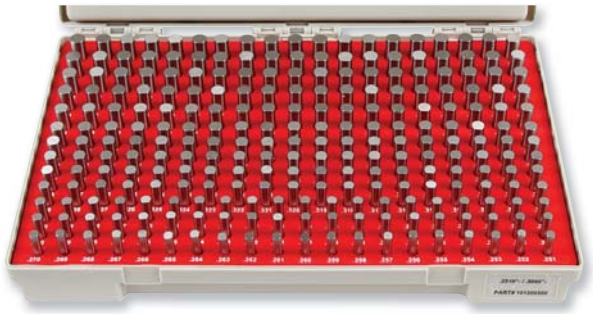
- Bushings located on page 120.



Economy Pin Gage Sets

- Centerless finish with 10 micro finish or better.
- Inspected to tolerance (+0.0000", -0.0002").
- Increments of 0.001".
- Uniform 2" overall length.
- All sharp corners broken.
- Great for measuring hole sizes or checking distances between holes.
- Heat treated to a hardness of 60-62 RC.

GAGE RANGE	NUMBER OF PIECES	ACCURACY -0.0002" -0" PART NO.	PRICE	ACCURACY +0.0002" +0" PART NO.	PRICE
0.011 to 0.060"	50	**65-088-7**	$62.60	**65-699-1**	$60.60
0.061 to 0.250"	190	**65-089-5**	96.10	**65-700-7**	98.35
0.251 to 0.500"	250	**65-090-3**	180.95	**65-701-5**	182.40
0.501 to 0.625"	125	**65-091-1**	208.95	**65-702-3**	213.95
0.626 to 0.750"	125	**65-669-4**	229.10	**65-703-1**	232.10
0.751 to 0.832"	82	**65-670-2**	328.70	**65-704-9**	328.70
0.833 to 0.916"	84	**65-671-0**	349.75	**65-705-6**	348.75
0.916 to 1.000"	84	**65-672-8**	408.10	**65-706-4**	437.90



27-005-8

Vermont Gage

Class ZZ Pin Gage Sets

Measure Hole Sizes, Slot Widths, Calculated Distances Between Holes and Use as GO/NO GO Gages

- ZZ Class Tolerance: Minus Sets +0.0000", -0.0002"; Plus Sets +0.0002", -0.0000"
- 10 micro finish or better.
- Increments of 0.001"
- Members marked with size.
- Uniform 2" length.

RANGE	NO. OF PIECES	ACCURACY -0.0002" +0" PART NO.	PRICE	ACCURACY +0.0002" -0" PART NO.	PRICE
.0110 - .0600	50	**27-001-7**	$94.85	**27-013-2**	$94.85
.0115 – 0605	50	**27-002-5**	94.85	**27-014-0**	94.85
.0610 - .2500	190	**27-003-3**	207.95	**27-015-7**	207.95
.0615 - .2505	190	**27-004-1**	207.95	**27-016-5**	207.95
.2510 - .5000	250	**27-005-8**	301.65	**27-017-3**	301.65
.2515 - .5005	250	**27-006-6**	301.65	**27-018-1**	301.65
.5010 - .6250	125	**27-007-4**	356.05	**27-019-9**	356.05
.5015 - .6255	125	**27-008-2**	392.15	–	–
.6260 - .7500	125	**27-009-0**	395.10	**27-020-7**	391.20

SPI®

Pin Gage Sets

Range: 0.011" - 1.000"/0.20 mm - 25.48 mm

- For quick and accurate measurements. Measure hole sizes, slot widths, calculate distances between holes, use as Go/NoGo gaging, etc.
- Each set includes pin gage holder.
- Furnished in attractive molded plastic case.
- Class ZZ guaranteed to 0.0002"/0.005 mm tolerance limit.
- Inspected with equipment which has been calibrated and is traceable to NIST.
- Marked with size and direction of tolerance on gages over 0.060"/1.5 mm.
- Hardened drill rod RC 60-62
- Overall length: 2"
- 10 micro finish or better.
- Certificate of Accuracy included.



Inch Sets

Bright

MEASURING RANGE	NO. OF PCS.	ACCURACY -0.0002" +0" PART NO.	PRICE	ACCURACY +0.0002" -0" PART NO.	PRICE
0.011 - 0.060"	50	**22-146-5**	$61.75	**22-154-9**	$61.75
0.061 - 0.250"	190	**22-147-3**	144.65	**22-155-6**	144.65
0.251 - 0.500"	250	**22-148-1**	204.25	**22-156-4**	204.25
0.501 - 0.625"	125	**22-149-9**	232.75	**22-157-2**	232.75
0.626 - 0.750"	125	**22-150-7**	266.00	**22-158-0**	266.00
0.751 - 0.832"	82	**22-151-5**	418.05	**22-159-8**	418.05
0.833 - 0.916"	84	**22-152-3**	461.00	**22-160-6**	461.00
0.917 - 1.000"	84	**22-153-1**	516.45	**22-161-4**	516.45

Black

MEASURING RANGE	NO. OF PCS.	ACCURACY -0.0002" +0" PART NO.	PRICE	ACCURACY +0.0002" -0" PART NO.	PRICE
0.011 - 0.060"	50	**22-162-2**	$68.40	**22-170-5**	$68.40
0.061 - 0.250"	190	**22-163-0**	143.45	**22-171-3**	143.45
0.251 - 0.500"	250	**22-164-8**	218.50	**22-172-1**	218.50
0.501 - 0.625"	125	**22-165-5**	256.50	**22-173-9**	256.50
0.626 - 0.750"	125	**22-166-3**	280.25	**22-174-7**	280.25
0.751 - 0.832"	82	**22-167-1**	461.10	**22-175-4**	461.10
0.833 - 0.916"	84	**22-168-9**	491.85	**22-176-2**	491.85
0.917 - 1.000"	84	**22-169-7**	537.70	**22-177-0**	537.70

Metric Sets

Bright

MEASURING RANGE (MM)	NO. OF PCS.	ACCURACY -0.005 MM +0 PART NO.	PRICE	ACCURACY +0.005 MM -0 PART NO.	PRICE
0.2 - 1.28	55	**22-178-8**	$73.15	**22-188-7**	$73.15
1.30 - 4.98	185	**22-179-6**	161.50	**22-189-5**	161.50
5.00 - 9.98	250	**22-180-4**	254.00	**22-190-3**	254.00
10.00 - 13.98	200	**22-181-2**	213.75	**22-191-1**	213.75
14.00 - 16.48	125	**22-182-0**	269.35	**22-192-9**	269.35
16.50 - 18.98	125	**22-183-8**	322.05	**22-193-7**	322.05
19.00 - 20.98	100	**22-184-6**	603.10	**22-194-5**	603.10
21.00 - 22.48	75	**22-185-3**	509.40	**22-195-2**	509.40
22.50 - 23.98	75	**22-186-1**	521.15	**22-196-0**	521.15
24.00 - 25.48	75	**22-187-9**	557.40	**22-197-8**	557.40

MEASURING

SPI® Individual Inspection Gage Balls



- Chrome steel hardened to 63 RC.
- Ground and lapped.
- Grade 25 accuracy - AFBMA certified.
- Certificate NOT supplied with individual gage balls.

Inch

SIZE	PART NO.	PRICE
1/8"	12-722-5	$1.00
9/64"	12-723-3	1.20
5/32"	12-724-1	1.20
3/16"	12-725-8	1.20
7/32"	12-726-6	1.20
1/4"	12-727-4	1.20
9/32"	12-728-2	1.40
5/16"	12-729-0	1.55
11/32"	12-730-8	1.55
3/8"	12-731-6	1.55
13/32"	12-732-4	1.55
7/16"	12-733-2	1.55
15/32"	12-734-0	1.85
1/2"	12-735-7	1.85
17/32"	12-736-5	1.85
9/16"	12-737-3	1.85
5/8"	12-739-9	1.85
21/32"	12-740-7	2.25
11/16"	12-741-5	2.25
23/32"	12-742-3	2.25
3/4"	12-743-1	2.45
13/16"	12-744-9	2.85
7/8"	12-745-6	3.15
15/16"	12-746-4	3.45
1"	12-747-2	3.60

Metric

SIZE (MM)	PART NO.	PRICE
1	14-811-4	$2.40
2	14-812-2	2.40
3	14-813-0	2.40
4	14-814-8	2.40
5	14-815-5	2.70
6	14-816-3	2.70
7	14-817-1	2.70
8	14-818-9	2.70
9	14-819-7	2.70
10	14-820-5	2.90
11	14-821-3	2.90
12	14-822-1	2.90
13	14-823-9	2.90
14	14-824-7	2.90
15	14-825-4	2.90
16	14-826-2	3.20
17	14-827-0	3.20
18	14-828-8	3.20
19	14-829-6	3.20
20	14-830-4	3.40
21	14-831-2	3.40
22	14-832-0	3.40
23	14-833-8	3.40
24	14-834-6	3.40
25	14-835-3	3.65

SPI® Precision Inspection Gage Ball Sets



10-193-1

- Meets all grade 24 AFBMA standards.
- Chrome alloy steel, hardened to 63 RC.
- Surface finish to 1.5 Micro-Inches.
- Within 0.0001"/0.0025 mm of actual size.
- Spherical accuracy within 0.000025"/0.0006 mm.
- Inches - includes: 26 pairs in Inch sizes 1/8" to 1"
- Metric - includes: 25 pairs in Metric sizes 1 mm to 25 mm in 1 mm increments.

DESCRIPTION	PART NO.	PRICE
Ball Set - Inches	10-193-1	$67.05
Ball Set - Metric	10-194-9	67.05



10-194-9

TE-CO® Ball Bearing Parallels



75-147-9

- Designed to ease movement of heavy loads when machining.
- Size: 1/4" thick x 2 1/2" wide plate with 3/8" diameter balls.
- Plate: 1018 steel.
- Balls: Grade 200 carbon steel.
- Load capacity per ball: 3,000 lbs.
- Black oxide finished plates.

LENGTH	NO. OF BALLS PER PLATE	PART NUMBER	PRICE
6"	18	75-147-9	$19.05
12"	36	75-148-7	35.05
18"	54	75-149-5	51.95



Plain Gage Pin Bushings

- Select bushing with the range to hold the pin gage.
- Handles for the bushing on page 118.

MEAS. RANGE MIN. - MAX.	PART NUMBER	PRICE
0.0061 – 0.0100"	65-754-4	$3.65
0.0100 – 0.0150"	65-755-1	4.30
0.0150 – 0.0200"	65-756-9	4.30
0.0200 – 0.0250"	65-757-7	4.30
0.0250 – 0.0300"	65-758-5	4.30
0.0300 – 0.0350"	65-759-3	4.00
0.0350 – 0.0400"	65-760-1	4.00
0.0400 – 0.0450"	65-761-9	3.80
0.0450 – 0.0500"	65-762-7	4.00
0.0500 – 0.0550"	65-763-5	$4.00
0.0550 – 0.0600"	65-764-3	4.00
0.0600 – 0.0650"	65-765-0	4.00
0.0650 – 0.0700"	65-766-8	4.00
0.0700 – 0.0750"	65-767-6	4.00
0.0750 – 0.0820"	65-768-4	4.00
0.0820 – 0.0890"	65-769-2	4.00
0.0890 – 0.0960"	65-770-0	4.00
0.0960 – 0.1030"	65-771-8	4.00
0.1030 – 0.1100"	65-772-6	4.00
0.1100 – 0.1170"	65-773-4	4.00
0.1170 – 0.1240"	65-774-2	4.00
0.1240 – 0.1310"	65-775-9	4.00
0.1310 – 0.1380	65-776-7	4.00
0.1380 – 0.1450	65-777-5	4.00
0.1450 – 0.1520	65-778-3	4.00
0.1520 – 0.1590	65-779-1	4.00
0.1590 – 0.1660	65-780-9	4.00
0.1660 – 0.1730	65-781-7	4.00
0.1730 – 0.1800	65-782-5	4.00
0.1800 – 0.1880	65-783-3	4.00
0.1880 – 0.1960	65-784-1	4.00
0.1960 – 0.2040	65-785-8	4.00
0.2040 – 0.2120	65-786-6	4.00
0.2120 – 0.2200	65-787-4	4.00
0.2200 – 0.2280	65-788-2	$4.00
0.2280 – 0.2360	65-789-0	4.00
0.2360 – 0.2440	65-790-8	4.00
0.2440 – 0.2520	65-791-6	4.00
0.2520 – 0.2610	65-792-4	4.00
0.2610 – 0.2710	65-793-2	4.00
0.2710 – 0.2810	65-794-0	4.00
0.2810 – 0.2910	65-795-7	4.45
0.2910 – 0.3010	65-796-5	4.45
0.3010 – 0.3110	65-797-3	4.45
0.3110 – 0.3210	65-798-1	4.45
0.3210 – 0.3310	65-799-9	4.45
0.3310 – 0.3410	65-800-5	4.45
0.3410 – 0.3510	65-801-3	4.45
0.3510 – 0.3610	65-802-1	4.45
0.3610 – 0.3710	65-803-9	4.45
0.3710 – 0.3820	65-804-7	4.45
0.3820 – 0.3940	65-805-4	4.45
0.3940 – 0.4060	65-806-2	4.45
0.4060 – 0.4200	65-807-0	4.45
0.4200 – 0.4350	65-808-8	4.45
0.4350 – 0.4500	65-809-6	4.45
0.4500 – 0.4650	65-810-4	4.45
0.4650 – 0.4800	65-811-2	4.45
0.4800 – 0.4950	65-812-0	4.45
0.4950 – 0.5100	65-813-8	$4.45
0.5100 – 0.5320	65-814-6	5.85
0.5320 – 0.5470	65-815-3	5.85
0.5470 – 0.5630	65-816-1	5.85
0.5630 – 0.5790	65-817-9	5.85
0.5790 – 0.5940	65-818-7	5.85
0.5940 – 0.6100	65-819-5	5.85
0.6100 – 0.6250	65-820-3	5.85
0.6250 – 0.6350	65-821-1	5.85
0.6350 – 0.6560	65-822-9	5.85
0.6560 – 0.6720	65-823-7	5.85
0.6720 – 0.6880	65-824-5	5.85
0.6880 – 0.7040	65-825-2	5.85
0.7040 – 0.7190	65-826-0	5.85
0.7190 – 0.7350	65-827-8	5.85
0.7350 – 0.7500	65-828-6	5.85
0.7500 – 0.7600	65-829-4	5.85
0.7600 – 0.7810	65-830-2	5.85
0.7810 – 0.8120	65-831-0	7.90
0.8120 – 0.8430	65-832-8	7.90
0.8430 – 0.8750	65-833-6	7.90
0.8750 – 0.9060	65-834-4	7.90
0.9060 – 0.9370	65-835-1	7.90
0.9370 – 0.9680	65-836-9	7.90
0.9680 – 1.0100	65-837-7	7.90

Ultra Precision Wavy Parallel Set

- Made of high quality spring steel, hardened, stress relieved, and precision ground.
- Parallel within ±0.0002", paired ±0.0002".
- Includes 9 pairs 4¼" long with the following heights: ½, ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1⅜, 1½".
- Shims can be compressed, which proves useful in the holding of thin parts.
- Complete with fitted wooden case.



98-430-2

DESCRIPTION	PART NO.	PRICE
Ultra Precision Wavy Parallel Set	**98-430-2**	$148.55

10 Pair 1/32" Thin Parallel Set

- 6" length.
- Parallel heights ½" thru 1⅝" in ⅛" increments.
- Hardness 50 RC. Parallelism within 0.0002" within each pair.
- Absolute heights are nominal.
- Furnished in fitted case.



98-417-9

DESCRIPTION	PART NO.	PRICE
10 Pair Ultra Thin Parallel Set	**98-417-9**	$119.05



10-185-7

10 Pair 1/32" Parallel Set

- ½" - 1⅝", ⅛" increments.
- Hardened to 50 RC.
- Ground parallel within ±0.0001", height variation ±0.0001".
- 6" length.
- Protective molded case included.

DESCRIPTION	PART NO.	PRICE
1/32" Parallel Set	**10-185-7**	$192.50

9 Pair 1/4" Thick Parallel Set

- ¾" - 1¾", ⅛" increments.
- 6" length.
- Made of high grade alloy steel, hardened and ground from stabilized stock. Ideal for the most demanding application.
- Within .0002" in parallelism.
- Paired within .0002" in height.
- Hardness 52-58 RC
- Absolute heights are nominal.
- Protective molded case included.



10-183-2

DESCRIPTION	PART NO.	PRICE
1/4" Thick Parallel Set	**10-183-2**	$359.00



98-418-7

Precision 9 Pair 1/4" Parallel Set

- ¼" thick x 6" long hardened and ground high grade alloy steel.
- ¾" - 1¾" heights in ⅛" increments.
- Parallel within 0.0002".
- Paired within ±0.0002" in height.
- Hardness 52-58 RC.
- Height specifications consistent within each pair.
- Absolute heights are nominal.
- Supplied in durable molded plastic case.

DESCRIPTION	PART NO.	PRICE
Precision 9 Pair Parallel Set	**98-418-7**	$247.00



10-184-0

10 Pair ⅛" Parallel Set

- ½" - 1⅝", ⅛" increments.
- Hardened to 58-63 RC.
- Ground parallel within ±0.0002", height variation ±0.0015".
- 6" length.
- Protective molded case included.

DESCRIPTION	PART NO.	PRICE
1/8" Parallel Set	**10-184-0**	$334.85

10 Pair 1/8" Parallel Set


98-446-8

- 6" length.
- Parallel heights 1/2" thru 1 5/8" in 1/8" increments.
- Hardness 50 RC.
- Ground parallel within 0.0002" each pair.
- Absolute heights are nominal.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
10 Pair Parallel Set	**98-446-8**	$204.53


13-197-9

8 Pair 1/2" Parallel Set

- 7/8 - 1 3/4" in 1/8" increments.
- 6" long x 1/2" width.
- Parallelism: ±0.0003"
- Paired accuracy: ±0.0003"
- Width accuracy: ±0.0008"
- Length accuracy: ±0.006"
- Hardness: RC 52 - 58.
- Furnished in fitted case.

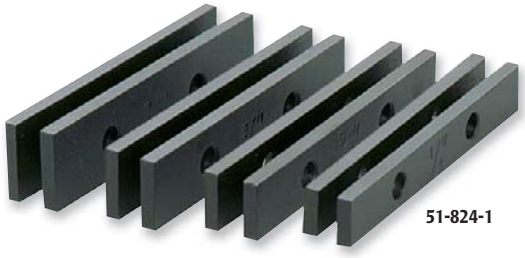
DESCRIPTION	PART NO.	PRICE
8 Pair Parallel Set	**13-197-9**	$327.55

20 Pairs Set 1/32" Ultra Thin Parallels


57-010-1

- Set of 20 pairs of parallels, 1/2" to 1 11/16" high in increments of 1/16 ths.
- 6" length, 50 RC hardness.
- Accuracy: Height ±0.0001", parallelism ±0.0001".
- In fitted case.

DESCRIPTION	PART NO.	PRICE
Ultra Thin Parallel Set	**57-010-1**	$241.55


51-824-1

4 Pair Thin Parallel Set

- Length: 3 1/2".
- Thickness: 5/32".
- Approximate height: 1/2", 5/8", 3/4", 7/8".

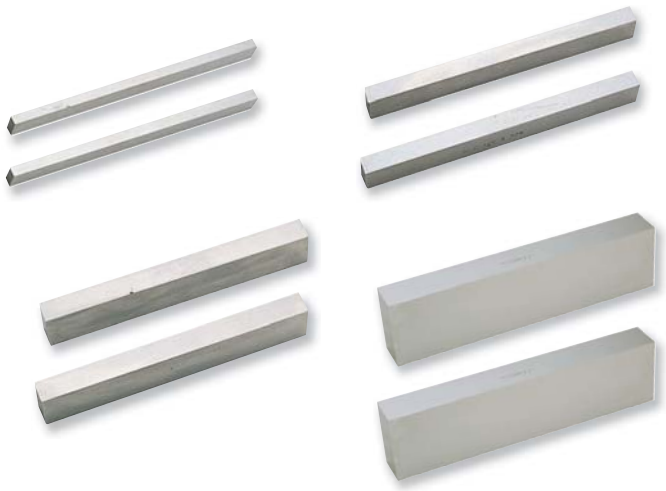
DESCRIPTION	PART NO.	PRICE
8 Pc. Thin Parallel Set	**51-824-1**	$22.75


13-239-9

Steel Parallel Sets

- 4 pair, 6" long parallels are made from hardened steel and ground on all four sides to close tolerances.
- Parallel within 0.0001".
- Paired within ±0.0002" in height.
- Includes fitted case.

HEIGHT X WIDTH/THICKNESS	PART NO.	PRICE
1" x 1/8", 7/8" x 3/16", 3/4" x 1/4", 1/2" x 3/8"	**13-239-9**	$230.05
1 3/16" x 1/8", 1 1/8" x 3/16", 1" x 1/4", 3/4" x 3/8"	**13-240-7**	230.05



SUBURBAN Steel Parallels

Precision - 4 Faces

- Made of quality steel, hardened and precision ground on all 4 sides.
- Sold individually.
- No need to buy matched pairs. These parallels can be purchased and used individually or can be matched with any number of other individual parallels at any time.
- Different sizes can be used together. For example, a 6" x 1/2" x 1" parallel can be used with one 8" x 3/4" x 1".
- Held to size ±0.00025" on four sides.
- Adjacent sides per square inch within 0.0005".
- Opposite sides parallel within 0.0001" per 6".

SIZE	WEIGHT LBS.	PART NUMBER	PRICE EACH
6" x 1/4" x 3/8"	0.18	**77-380-4**	$75.65
6" x 1/4" x 1/2"	0.25	**77-381-2**	77.00
6" x 1/4" x 5/8"	0.28	**77-382-0**	77.00
6" x 1/4" x 3/4"	0.33	**77-383-8**	82.65
6" x 1/4" x 1"	0.44	**77-384-6**	85.45
6" x 3/8" x 1/2"	0.33	**77-385-3**	82.65
6" x 3/8" x 5/8"	0.42	**77-386-1**	85.45
6" x 3/8" x 3/4"	0.51	**77-387-9**	85.45
6" x 1/2" x 5/8"	0.48	**77-388-7**	99.45
6" x 1/2" x 3/4"	0.66	**77-389-5**	105.05
6" x 1/2" x 1"	0.87	**77-390-3**	107.80
8" x 1/2" x 1"	1.16	**77-391-1**	163.85
8" x 3/4" x 1"	1.72	**77-392-9**	177.80
8" x 3/4" x 1 1/4"	2.20	**77-393-7**	187.60
12" x 3/4" x 1"	2.59	**77-394-5**	210.00
12" x 1" x 1 1/2"	5.14	**77-395-2**	249.20
12" x 1" x 2"	6.90	**77-396-0**	274.40
12" x 1 1/2" x 2"	10.30	**77-397-8**	379.40
12" x 1 1/2" x 3"	15.10	**77-398-6**	443.80



Precision Steel Parallels

- High grade hardened tool steel.
- Precision ground on all four sides.
- Parallelism within 0.0005". Paired width is ±0.001".
- Hardness: 50 RC
- Finished, packed and sold in pairs.

1/8" Thick x 6" Long

HEIGHT	PART NO.	PRICE
1/2"	**98-451-8**	$38.55
5/8"	**98-452-6**	38.55
3/4"	**98-453-4**	38.55
7/8"	**98-454-2**	38.55
1"	**98-455-9**	38.55
1 1/8"	**98-456-7**	46.70
1 1/4"	**98-457-5**	46.70
1 3/8"	**98-458-3**	46.70
1 1/2"	**98-459-1**	46.70
1 5/8"	**98-460-9**	46.70

1/2" Thick x 6" Long

HEIGHT	PART NO.	PRICE
3/4"	**13-198-7**	$51.40
7/8"	**13-200-1**	54.85
1"	**13-201-9**	57.20
1 1/8"	**13-203-5**	64.20
1 1/4"	**13-204-3**	70.05
1 3/8"	**13-224-1**	75.90
1 1/2"	**13-205-0**	77.00
1 5/8"	**13-206-8**	82.90
1 3/4"	**13-207-6**	89.90

1/4" Thick x 6" Long

HEIGHT	PART NO.	PRICE
1/2"	**13-208-4**	$47.85
5/8"	**13-209-2**	52.55
3/4"	**13-210-0**	57.20
7/8"	**13-211-8**	59.55
1"	**13-212-6**	63.05
1 1/8"	**13-213-4**	67.70
1 1/4"	**13-214-2**	71.20
1 5/8"	**13-215-9**	73.55
1 3/4"	**13-216-7**	77.00

3/8" Thick x 6" Long

HEIGHT	PART NO.	PRICE
1/2"	**13-217-5**	$58.40
3/4"	**13-218-3**	59.55

9" Long

HEIGHT	THICKNESS	PART NO.	PRICE
3/4"	1/2"	**13-229-0**	$99.25
1"	1/2"	**13-230-8**	119.05
1"	3/4"	**13-231-6**	112.05

12" Long

HEIGHT	THICKNESS	PART NO.	PRICE
1"	3/4"	**13-232-4**	$184.40
1 1/4"	3/4"	**13-233-2**	213.55
2"	1"	**13-234-0**	295.25
1 1/2"	1 1/4"	**13-235-7**	324.45
2"	1 1/4"	**13-236-5**	374.60
2"	1 1/2"	**13-237-3**	424.80
3"	1 1/2"	**13-238-1**	501.80



52-543-6

Precision Parallels & 4 Pair Sets

- Made from high grade alloy steel stress relieved, precision hardened and ground.
- 5 holes in each parallel for easy setups.
- Hardness: 55 RC to 62 RC on top and bottom only.
- Parallelism: within 0.0003" on two sides.
- Paired: ±0.0002"
- Sets include 4 matched pairs in fitted case.

Individual Parallels

W x H x L	PART NO.	PRICE
3/16" x 1" x 6"	**52-544-4**	$38.55
3/16" x 1 1/4" x 6"	**52-545-1**	42.55
3/16" x 1 1/2" x 6"	**52-546-9**	42.55
3/16" x 1 3/4" x 6"	**52-547-7**	45.15
1/2" x 1" x 6"	**52-548-5**	55.75
1/2" x 1 1/4" x 6"	**52-549-3**	57.20
1/2" x 1 1/2" x 6"	**52-550-1**	57.20
1/2" x 1 3/4" x 6"	**52-551-9**	61.15

Sets

W x H x L	PART NO.	PRICE
3/16" x 1" x 6" 3/16" x 1 1/4" x 6" 3/16" x 1 1/2" x 6" 3/16" x 1 3/4" x 6"	52-541-0	$185.90
1/2" x 1" x 6" 1/2" x 1 1/4" x 6" 1/2" x 1 1/2" x 6" 1/2" x 1 3/4" x 6"	52-542-8	$132.70
3/16" x 1" x 6" 3/16" x 1 1/4" x 6" 1/2" x 1 1/2" x 6" 1/2" x 1 3/4" x 6"	52-543-6	$170.05



57-008-5

Thin Parallel Sets

10, 9 & 8 Pair Sets

- 10 pairs 1/8" sets 1/2" - 1 5/8" in 1/8" increments.
- 9 pairs 1/4" sets 3/4" - 1 3/4" in 1/8" increments.
- 8 pairs 1/2" sets 7/8" - 1 3/4" in 1/8" increments.
- High grade alloy steel, hardened and ground within 0.0008" in parallelism.
- Hardness 50-54 RC.
- 6" length.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
1/8" Thick Set (10 prs.)	**57-008-5**	$97.50
1/4" Thick Set (9 prs.)	**57-007-7**	192.95
1/2" Thick Set (8 prs.)	**57-006-9**	227.50

Steel Parallels Precision Matched Pairs

- Made of high quality alloy steel, hardened and ground to better than 16 Micro-Finish.
- Two holes in each parallel for easier handling and greater versatility for set-ups.
- Accuracy: 0.0001" parallelism in height.

WIDTH/HEIGHT/LENGTH	HOLE SIZE
1/2 x 1 x 6"	5/16"
1/2 x 1 1/4 x 6"	3/8"
1/2 x 1 1/2 x 6"	7/16"
1/2 x 1 3/4 x 6"	1/2"

DESCRIPTION	PART NO.	PRICE
Set of above 4 pairs, including fitted case 1/2" set	**98-415-3**	$266.30



98-415-3



14-871-8

SPI® Adjustable Parallels & Sets

- Machined and ground to close tolerances.
- Quickly adjustable and locked with set-screws.
- Thickness: 9/32"
- Sets are furnished in fitted case.

Individual Parallels

RANGE MIN.	RANGE MAX.	LENGTH	PART NUMBER	PRICE
3/8"	1/2"	1 3/4"	**14-872-6**	$18.65
1/2"	11/16"	2 1/8"	**14-873-4**	18.65
11/16"	15/16"	2 11/16"	**14-874-2**	22.40
15/16"	1 5/16"	3 9/16"	**14-875-9**	24.85
1 5/16"	1 3/4"	4 3/16"	**14-876-7**	28.60
1 3/4"	2 1/4"	5 1/16"	**14-877-5**	31.05

Sets

DESCRIPTION	RANGE MIN.	RANGE MAX.	PART NUMBER	PRICE
4 Pc. Set	3/8"	1 5/16"	**14-871-8**	$84.25
6 Pc. Set	3/8"	2 1/4"	**14-870-0**	126.90



52-758-0



52-759-8

Thin Angle Block Sets

- Hardened and precision ground on working surface.
- Two 1/4" holes for mounting.
- Size: 3 1/2" long, 5/32" thick.

NO. OF PCS.	ANGLE	PART NUMBER	PRICE
6	1/2°, 1 - 5° by 1°	**52-758-0**	$25.15
5	6 - 10° by 1°	**52-759-8**	21.80

Starrett® Adjustable Parallels & Sets



10-956-1

- Quickly adjustable. The smaller sizes A, B and C, are locked by one screw while the larger sizes D, E and F, have two lock screws.
- All parallels are 9/32"/7 mm thick.
- Sets are supplied in plastic pouch.

Individual Parallels

MEASURING RANGE	LENGTH	STARRETT® MODEL #	PART NUMBER	PRICE
3/8" - 1/2"/9.5 - 12.7 mm	1 3/4"/45 mm	154A	**10-406-7**	$37.45
1/2" - 11/16"/12.7 - 17.5 mm	2 1/8"/55 mm	154B	**10-407-5**	40.75
11/16" - 15/16"/17.5 - 24 mm	2 11/16"/70 mm	154C	**10-408-3**	42.60
15/16" - 1 5/16"/24 - 33 mm	3 9/16" /90 mm	154D	**10-409-1**	47.55
1 5/16" - 1 3/4"/33 - 44 mm	4 3/16"/105 mm	154E	**10-410-9**	53.35
1 3/4" - 2 1/4"/44 - 57 mm	5 1/16"/130 mm	154F	**10-411-7**	59.55

Sets

DESCRIPTION	MEAS. RANGE	STARRETT® MODEL #	PART NUMBER	PRICE
4 Pc. Set - Sizes A, B, C, D	3/8 - 1 5/16"	S154SZ	**10-181-6**	$177.70
6 Pc. Set - Sizes A, B, C, D, E, F	3/8 - 2 1/4"	S154LZ	**10-956-1**	286.45

Precision Angle Blocks & Set

- For accurate, quick, direct angle set-ups in tooling, production and inspection.
- Eliminates calculations and avoids errors.
- Hardened and precision ground.
- Light magnetized for better holding.



58-737-8



Individual Angle Blocks

ANGLE	PART NO.	PRICE
1/4°	**57-142-2**	$10.30
1/2°	**57-143-0**	10.30
1°	**58-727-9**	10.30
2°	**58-728-7**	10.90
3°	**58-729-5**	10.90
4°	**58-730-3**	10.90
5°	**58-731-1**	11.65
10°	**58-732-9**	11.65
15°	**58-733-7**	11.65
20°	**58-734-5**	12.25
25°	**58-735-2**	12.25
30°	**58-736-0**	12.25

10 Pc. Angle Block Set

- Set includes: 1, 2, 3, 4, 5, 10, 15, 20, 25, 30°
- Supplied in fitted plastic case.

DESCRIPTION	PART NO.	PRICE
10 Pc. Angle Blocks Set	**58-737-8**	$97.25

SPI® 12 Pc. Ultra Precision Angle Block Set

- 3" long and 1/4" thick.
- Angular accuracy within 0.0001" per inch (± 30 arc seconds).
- Angles included are 1/4°, 1/2°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25° and 30°.
- Plastic case included.

DESCRIPTION	PART NO.	PRICE
12 Pc. Ultra Precision Angle Block Set	**30-139-0**	$158.80



30-139-0



98-353-6

Ultra Precision 17 Pc. V-Angle Block Set

- For production and inspection applications.
- Precision hardened and ground steel.
- Accuracy within 0.0003".
- Complete set includes: 1/4°, 1/2°, 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°, 35°, 40°, 45°, plus 2 riser blocks.
- Furnished in a custom wooden case.

DESCRIPTION	PART NO.	PRICE
Precision 17 Pc. V-Angle Block Set	**98-353-6**	$327.80



98-339-5

Vee Block & Angle Plate Set

Universal Combination

- The unique combination of 10°, 15° and 30° Vee Blocks and 5 Angle Plates, 1° to 5°, provide fast and easy set-ups at various angles in 1° increments.
- All pieces heat treated 45 - 50 RC and precision ground to ±1 minute.
- Vee Block dimensions: 3" L x 1 3/16" W x 1 3/16" H
- Angle Plate dimensions: 2 3/4" L x 1 3/16" W x 5/64" H at narrow end.

DESCRIPTION	PART NO.	PRICE
Vee Block & Angle Plate Set	**98-339-5**	$257.70



13-183-9

13-182-1

Quality Angle Plates

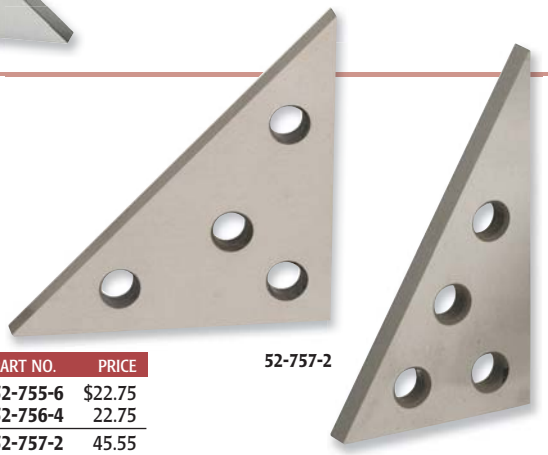
- Accuracy: ±10 minutes
- Thickness: 1/4"
- Precision ground and hardened steel.
- Convenient for set-ups in tooling, production, and inspection.
- Four holes for easy mounting.

OVERALL SIZE	ANGLE	PART NO.	PRICE
2 x 3 1/4 x 4"	30/60/90°	**13-183-9**	$39.60
3 x 3 x 4 1/4"	45/45/90°	**13-182-1**	39.60
Set 1 each of Above		**13-184-7**	68.65

Solid Angle Plates

- Made from hardened steel.
- Precision ground angles.
- Thickness: 1/4".

OVERALL SIZE	ANGLE	PART NO.	PRICE
2 x 3 3/8 x 5/16"	30/60/90°	**52-755-6**	$22.75
3 x 3 x 5/16"	45/45/90°	**52-756-4**	22.75
Set of 1 of each above		**52-757-2**	45.55



52-757-2



20-105-3

Universal Vee Blocks & Angle Plates Set

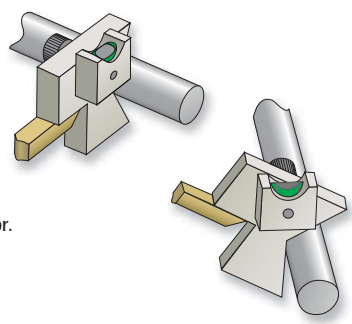
- The unique combination of 10°, 15° and 30° Vee Blocks and 5 Angle Plates, 1° to 5°, provide fast and easy set-ups at various angles in 1° increments.
- All pieces heat treated 45 - 50 RC and precision ground to ±3 minutes.
- Vee Block dimensions: 3" L x 1 3/16" W x 1 3/16" H
- Angle Plate dimensions: 2 3/4" L x 1 3/16" W x 5/64" H at narrow end.
- Furnished in plastic case.

DESCRIPTION	PART NO.	PRICE
Vee Blocks & Angles Plates Set	**20-105-3**	$140.50

CNC Tool Setting Gages

- Designed for use on CNC slant bed machines.
- Accurately sets turning, boring and facing tools on the centerline of the workpiece.
- Adjustable to any slant angle (360°).
- 13-718-2 includes easy-to-read laser etched protractor.

DESCRIPTION	PART NO.	PRICE
Tool Setting Gage	**98-274-4**	$28.45
Deluxe Tool Setting Gage	**13-718-2**	40.30





98-274-4



13-718-2



SPI® 1-2-3, 2-3-4 & 2-4-6 Block Sets

- Hardened steel to RC 55-60, ground to surface finish 6-16 microinches.

Matched 1-2-3 and 2-3-4 Blocks

- Squareness of all sides within 0.0001" per inch on 1-2-3 Blocks, 0.0003" per inch on 2-3-4 Blocks.
- Five tapped holes (3/8"-16), 18 untapped holes (0.340" dia.).

Matched 2-4-6 Blocks

- Squareness of all sides within 0.0003" per inch.
- Five tapped holes (5/8"-11), 18 untapped holes (0.520" dia.).

DESCRIPTION	PART NO.	PRICE
1-2-3 Block Set	**13-670-5**	$54.25
2-3-4 Block Set	**13-672-1**	142.75
2-4-6 Block Set	**13-671-3**	275.55



51-800-1

TOP QUALITY 1-2-3, 2-3-4, & 2-4-6 Block Sets

Supplied in Matched Pairs

- Precision ground and case hardened on all six sides.
- Ideal for precision set up and layout work.
- Hardness: 56 – 60 RC.
- Feature 23 holes: 5 are tapped 3/8 – 16, the other 18 are untapped.

BLOCKS	HOLES	PARALLELISM	PART NO.	PRICE
1-2-3	None	0.0002"	**52-769-7**	$36.15
1-2-3	1	0.0001"	**52-770-5**	64.10
1-2-3	23	0.0002"	**51-800-1**	31.05
2-3-4	23	0.0002"	**52-771-3**	128.20
2-4-6	23	0.0005"	**52-772-1**	161.25



10-182-4

brown & sharpe

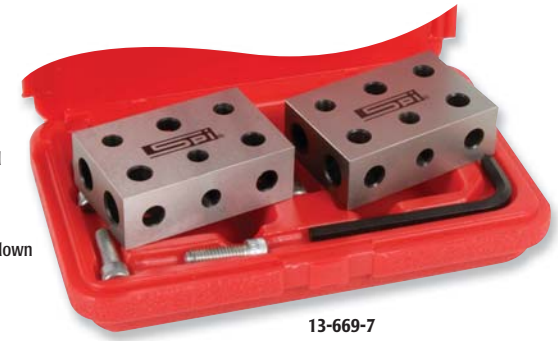
1-2-3 Blocks

- Hardened and precision ground on all six surfaces.
- Squareness on all sides to 0.0001".
- Surface finish is 6 - 16 micro inches, 50 - 60 RC.
- 23 holes: 5 tapped 3/8 - 16 holes, 18 untapped thru holes.
- Includes protective molded case, five bolts and one hex key.

DESCRIPTION	PART NO.	PRICE
1-2-3 Blocks	**10-182-4**	$86.30

SPI® Universal 1-2-3 Block Set

- Matched pair.
- Precision ground and case hardened on all six surfaces.
- Squareness on all sides to 0.0001".
- 11 holes on three faces. Five 5/16-18 tapped holes arranged for holding down and conversion to an angle plate.
- Surface finish 6 to 16 micro inches.
- Blocks are over sized to allow for normal lapping to 0.0003".



13-669-7

DESCRIPTION	PART NO.	PRICE
Universal 1-2-3 Block Set	**13-669-7**	$80.25

SPI® 1-2-3 Universal Blocks

Matched Pair or Set of 3

- Hardened steel, precision ground on all six sides to ±0.0001" squareness.
- To size within ±0.0002".
- The 5/16-18 tapped holes are arranged for screw mounting and conversion into angle plates and various other inspection or production set-ups.



98-422-9

DESCRIPTION	PART NO.	PRICE
Matched Pair, Complete w/Case	**98-422-9**	$145.35
Matched Set of 3	**98-424-5**	189.65
Wooden Case for Set of 3	**98-425-2**	45.35

SUBURBAN 1-2-3, 2-3-4, & 2-4-6 Block Sets

- Hardened steel, ground on all six sides.
- 30-746-2 has one 1/2" through hole in 2" x 3" face.
- 23-hole models have 3/8 – 16 tapped holes.
- 30-747-0, 30-748-8 & 30-749-6 have drilled, counter-bored & tapped holes to allow screw mounting and conversion into angle plates and other precision set-ups.
- All models, except 30-745-4, are furnished with a fitted wooden box.



30-745-4

BLOCKS	HOLES	PARALLELISM	PART NO.	PRICE
1-2-3	None	0.0002"	**30-745-4***	$94.65
1-2-3	1	0.0002"	**30-746-2**	130.25
1-2-3	23	0.0002"	**30-747-0**	199.00
2-3-4	23	0.0003"	**30-748-8**	461.95
2-4-6	23	0.0003"	**30-749-6**	712.50

* Sold as individual, not matched pair

V-Blocks



- Precision ground matched pairs made of Cast Iron Grade 20.
- Supports objects that are cylindrical and 90° of less.
- Accuracy:
  Flatness: 0.002"
  Parallelism: 0.0015"
  Perpendicularity: 0.0015"

WIDTH	V-OPENING	HEIGHT	LENGTH	V-CAP.	PART NO.	PRICE
2"	7/8"	1 1/4"	15/16"	1 5/32"	**63-392-5**	$40.40
3"	1 3/4"	2 3/8"	1 5/16"	2 7/16"	**63-393-3**	46.40
4"	2 3/16"	2 9/16"	1 9/16"	3 1/16"	**63-394-1**	59.45
5"	2 7/16"	3 1/16"	1 15/16"	3 3/8"	**63-395-8**	83.20
6"	3 1/16"	3 1/2"	2 7/16"	4 1/4"	**63-396-6**	135.45
7 7/8"	4 7/16"	5 1/2"	3 15/16"	6 1/4"	**63-397-4**	243.60
9 7/8"	4 15/16"	6 1/2"	4 15/16"	6 15/16"	**63-398-2**	402.75
11 13/16"	5 1/16"	7 7/8"	5 15/16"	7 1/16"	**63-399-0**	610.65

Super Wee-Vee Block Set

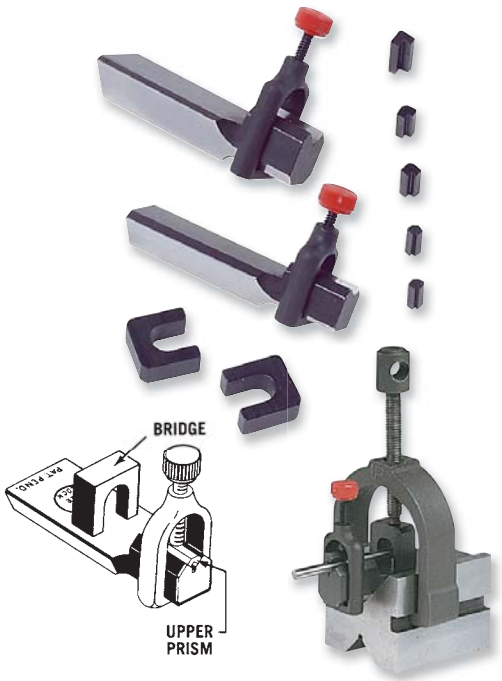


91-288-1



- This combination of Vee Blocks has a capacity of 0.030" - 1 1/2".
- Large Vee Blocks are matched and numbered.
- Can be used separately or in conjunction with the Wee Blocks.
- Made of hardened and ground chrome steel to 0.0002" accuracy.
- Set includes:
  - One pair matched Vee Blocks with clamps, 2 3/4" L x 1 3/4" W x 1 5/8" H with V capacity of 1 1/2".
  - Two Wee Blocks, size A 0.030" - 5/32" capacity, size B 0.050" - 9/32" capacity. Both sizes have clamps.
  - Two Bridges, Sizes A and B
  - Five Upper Prisms, two 1/8", two 5/32", one 3/16" capacity
  - Attractive, fitted, plastic case.

DESCRIPTION	PART NO.	PRICE
Super Wee-Vee Block Set	**91-288-1**	$172.55



Super Wee Block Set

- A unique and universal holding tool for small, miniature or intricate parts, used in conjunction with larger V-Blocks.
- Capacity 0.030" to 9/32".
- Ideal holding fixture for grinding/indexing punches and pins – drilling – milling – EDM – inspection on optical comparators.
- Furnished with bridges to straddle long workpieces, allowing top hold-down screw of V-Block clamp to be utilized.
- Hardened and high precision ground Wee Blocks, squareness and parallelism within 0.0002".
- Set in attractive, fitted case includes 2 Super Wee Blocks, size A 0.030" – 5/32" cap. and size B 0.050" – 9/32" cap., Bridge A and B, plus 5 Upper Prisms, 1/8", 5/32" and 3/16" cap.

DESCRIPTION	PART NO.	PRICE
Super Wee Block Set	**30-610-0**	$164.31



91-294-9

4-Way V-Blocks

- Manufactured from close grained cast iron.
- Precisely machined and ground square and parallel within 0.0008".
- V-groove parallel to bearing surface within 0.0008".
- Each V-Block has 4 different size V's supporting a large range of diameters.
- Furnished in matched and numbered pairs.
- V angle: 90° (with 1/8" groove at bottom of V).

OAL	OAH	OAW	V OPENINGS	PART NO.	PRICE
3 3/4"	2 3/4"	1 3/8"	13/16, 1 1/4, 1 11/16, 2"	**91-296-4**	$59.25
4"	4"	1 5/32"	7/8, 1 1/4, 1 5/8, 2"	**91-294-9**	62.45
4 3/4"	4 3/4"	1 3/8"	1 1/4, 1 5/8, 2 1/8, 2 1/2"	**91-295-6**	86.15



91-312-9



91-313-7

V-Block & Clamp Sets

- Hardened and precision ground tool steel.
- Squareness and parallelism within 0.0003".
- Flatness within 0.0002".
- Numbered & matched pair to guarantee accuracy when used together.
- Supplied complete with a pair of zinc die cast clamps.

CAPACITY	LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
1"	1 19/32"	1 1/4"	1 1/4"	**91-312-9**	$64.65
1 1/2"	2	1 1/2"	1 1/2"	**91-313-7**	70.00

SPI® V-Block & Clamp


91-280-8

- Parallelism: 0.0002"
- Squareness: 0.0003"
- Hardness: 55-60 RC.

LENGTH	WIDTH	HEIGHT	V-CAP.	PART NO.	PRICE
2 1/2"	2 1/2"	2"	1 3/8"	**91-280-8**	$97.65
3"	4"	3"	2 3/8"	**91-281-6**	165.85
6"	6"	4"	4 3/8"	**91-282-4**	366.60
6"	6"	6"	4 3/8"	**91-283-2**	420.00

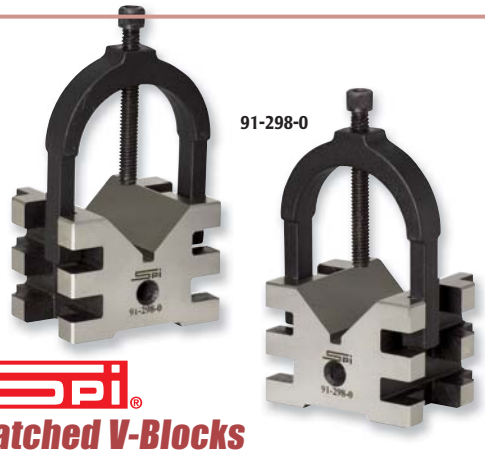

98-465-8

V-Blocks with Clamps

Numbered Matched Pairs

- Hardened and precision ground to 0.0002" per inch squareness and 0.0002" overall parallelism.
- Serial numbered in matched pairs, matched overall accuracy 0.0002".

HEIGHT	WIDTH	LENGTH	V-CAPACITY	PART NO.	PRICE
1 1/4"	1 1/4"	1 5/8"	1"	**98-465-8**	$163.85


91-298-0

SPI® Matched V-Blocks

Hardened steel. All sides of V-Blocks precision ground parallel and square within 0.0002". Use for layout work in tool room. Blocks have capability to hold square or round pieces with greater accuracy.

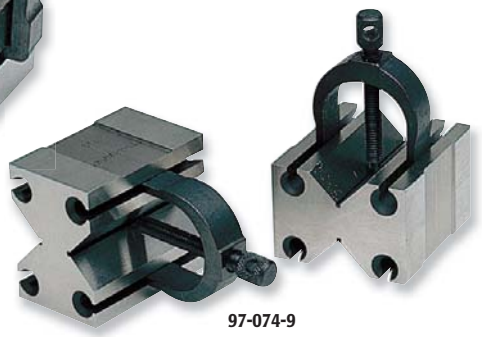
- Comes in matched pairs with 90° V-grooves, clamps included.
- V-grooves ground central and parallel to sides and base within 0.0002".
- Bottom of V has 3/16" groove.
- Clamping capacity: 2"
- Length: 2 3/8", Width: 2 3/4", Height: 2"
- Constructed with stepped grooves allowing clamps to be inserted without protrusion, thus allowing V-Blocks to be used on base, ends, or sides.

DESCRIPTION	PART NO.	PRICE
Matched V-Blocks	**91-298-0**	$215.40


97-072-3

V-Blocks with Clamps

Numbered Matched Pairs


97-074-9

- Made of chrome steel, hardened and ground to matched accuracy of 0.0002".
- All sides ground square and parallel to each other.
- 90° V ground central, parallel and square with ends.
- Models 97-074-9 and 97-075-6 are designed so that clamps do not protrude over the sides; tool can thus be used on its sides.
- Matched and numbered in pairs.

LENGTH	WIDTH	HEIGHT	V-CAPACITY	PART NO.	PRICE
1 25/32"	1 9/16"	1 7/16"	1"	**97-072-3**	$65.35
2 3/4"	1 25/32"	1 19/32"	1 9/32"/1 11/16"	**97-073-1**	94.35
2 25/32"	2 1/2"	1 25/32"	1 3/16"/1"	**97-074-9**	125.35
4 29/32"	3 17/32"	2 25/32"	1 19/32"/1 1/4"	**97-075-6**	239.25

SPI® V-Blocks Set

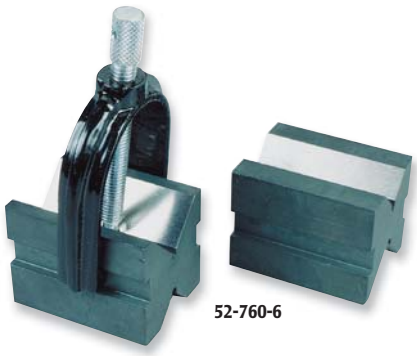

91-305-3

- Matched and numbered V-Block set with two 90° V's on each one. Clamps included.
- Surfaces square and parallel within 0.0005".
- V-grooves square and parallel with all surfaces within 0.0005".
- Matching dimensions for each pair within 0.0005".
- Provided in fitted plastic case.

Set Includes: (Dims. Approximate)

	L	W	H	WORK V-OPENINGS	WORK CAPACITY
2 ea.	1 1/2"	1 1/4"	1 1/4"	Top 13/16" Bottom 7/16"	1"
2 ea.	2"	1 1/2"	1 1/2"	Top 1 1/8" Bottom 9/16"	1 1/2"

DESCRIPTION	PART NO.	PRICE
V-Blocks Set	**91-305-3**	$105.55


52-760-6


52-762-2

Tool Maker's Vee Block & Clamp Sets

Ideal for holding work securely during drilling, milling and grinding operations

- Numbered in matched pairs, each pair has two 90° Vees.
- Vee's are ground central, parallel and square with the ends and sides.
- Each pair comes complete with a pair of rigid and robust clamps.
- Flatness of working faces: 0.0002".
- Hardened to 55 – 60 RC.

LENGTH	WIDTH	HEIGHT	V-OPENINGS	PART NO.	PRICE
2"	1 1/2"	1 1/2"	Top 13/16", Bottom 7/16"	**52-760-6**	$59.90
Replacement Clamp for Set				**52-761-4**	11.40
1 19/32"	1 1/4"	1 1/4"	Top 1 3/32", Bottom 1/2"	**52-762-2**	54.45
Replacement Clamp for Set				**52-763-0**	11.40

brown & sharpe

V-Blocks & Clamps



749

- Made in numbered pairs from mild steel.
- Surfaces (except V) are square and parallel with each other within 0.002".
- V-grooves are square and parallel with all surfaces within 0.0035".
- Dimensions: 1½" square x 2" long, work capacity of approximately 1½" diameter.

DESCRIPTION	PART NO.	PRICE
2 Blocks & 1 Clamp	**20-765-4**	$249.30
Extra Clamp (for 20-765-4)	**20-766-2**	51.60



749-1

- For larger and heavier work.
- Made in numbered pairs from mild steel.
- Block features two clamping grooves.
- Lower grooves permit blocks to be clamped to table.
- Dimensions: 2½" square x 3" long, work capacity of approximately ½" to 2½" diameter.
- Accuracy: Sides are square with each other within 0.003". Ends are square with sides within 0.003". V-groove is parallel and central with sides within 0.002". V-groove is 90° ±½°. V's of pairs are central and parallel to each other within 0.004".

DESCRIPTION	PART NO.	PRICE
2 Blocks & 1 Clamp	**20-767-0**	$348.10
Extra Clamp (for 20-767-0)	**20-768-8**	56.75



750-1

- For finest toolroom work.
- Made in numbered pairs from case hardened steel.
- Set consists of two blocks and two clamps.
- Dimensions: 2¼" square 1⅝" long. Work capacity of approximately 1" diameter.
- Accuracy: Surfaces (except V) are square and parallel with each within 0.0003". V-grooves are square and parallel with all surfaces within 0.0003". V is 90° +0.0000" -0.0002". Corresponding dimensions for each pair are alike within 0.0003".

DESCRIPTION	PART NO.	PRICE
2 Blocks & 2 Clamp	**20-769-6**	$380.05
Extra Clamp (for 20-769-6)	**20-770-4**	49.70

Starrett®
V-Blocks & Clamps



Series 278

- Precision ground to extreme accuracy. Manufactured and numbered in pairs, so that the V's in each block are always in alignment.
- Blocks have a tapped hole through the sides so that they may be attached to an angle iron by a ¼-20 screw.
- Each block is 1¼" square and 1⅝" long.
- V-capacity is 1".
- Matched pair, includes two V-Blocks and two Clamps.
- Starrett® model #'s: – Matched pair: 278. (**10-957-9**)
  – Clamp only: 278B. (**10-996-7**)

DESCRIPTION	PART NO.	PRICE
V-Block w/Clamp Matched Pair	**10-957-9**	$335.95
Clamp Only (for 10-957-9)	**10-996-7**	25.40



Series 567

- V-block and clamp can be used on base or on end.
- Recessed clamp allows V-Block to be used on both sides.
- Groove at the stepped end is at a right angle to the base, handy for holding shouldered studs, round pins, etc.
- Block is 1⅞" square, the base length is 3½" and capacity is 1⅝".
- Starrett® model #'s: – One V-Block: 567. (**10-958-7**)
  – Clamp only: 567B. (**10-995-9**)

DESCRIPTION	PART NO.	PRICE
One V-Block w/clamp	**10-958-7**	$394.40
Clamp Only (for 10-958-7)	**10-995-9**	55.15



Series 568

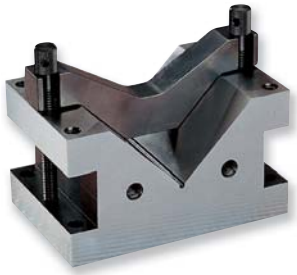
- Hardened and ground.
- V-capacity: 2" round, 1 7/16" square.
- 2½" long x 3" wide x 2" high. ⅜-16" tapped holes.
- Precision V-block for the most accurate tool room work.
- V-groove ground central and parallel to sides and base perfect alignment in matched pairs.
- Holds square or round work. Clamp has screw holes at 45° and 90°.
- Starrett® model #'s:
  – Single set: 568A. (**10-959-5**)
  – Matched pair: 568C. (**10-960-3**)

DESCRIPTION	PART NO.	PRICE
One V-Block and Clamp	**10-959-5**	$261.45
Matched Pair V-Blocks w/Clamps	**10-960-3**	555.10

Series 578

- Large capacity block is made of hardened steel, precision ground flat, square and parallel.
- Rugged, reversible, hardened clamp can accommodate 9/16 - 4" diameters of almost any shape of work.
- No clamp interference when the block lies on either side.
- Three available clamp positions.
- Two tapped holes (⅜ - 16") in one end for mounting the v-blocks perpendicular to faceplates, etc.
- Holds square or round work. Clamp has screw holes at 45° and 90°.
- Starrett® model #'s: – Single set: 578A. (**10-725-0**)
  – Matched pair: 578B (**10-726-8**)

DESCRIPTION	OAL	H	W	PART NO.	PRICE
For Large Capacity Work V-Block & Clamp	3.4"	3.0"	5.3"	**10-725-0**	$893.40
Clamp Only w/2 Screws for V-Block	6.0"	1.0"	2.8"	**10-726-8**	117.75




52-553-5

Super Duty V-Blocks & Clamps

- 90° V-Blocks are parallel, square and centered within 0.0002".
- Completely hardened and ground tool steel.
- Supplied in a wooden case.

LENGTH	WIDTH	HEIGHT	V-CAPACITY	INDIVIDUAL PART NO.	PRICE	2 PC. SET PART NO.	PRICE
1 3/8"	1 3/8"	1 3/16"	1 9/32"	**52-552-7**	$55.10	**52-555-0**	$105.95
2 3/8"	2 3/8"	2"	1 3/16"	**52-553-5**	84.80	**52-556-8**	166.75
4 1/8"	4 1/8"	3 1/16"	2 9/16"	**52-554-3**	115.95	**52-557-6**	226.10


52-556-8


91-290-7

Multi-Surface V-Block & Clamp Set

- Precision ground on all surfaces.
- Permits any of its ground surfaces to be used as a datum.
- 4 tapped holes 3/8-16 permit mounting on other workholders like slotted angle plates.
- Block is 1 7/8" square, base length is 3 1/2" and "V" capacity is 1 5/16".
- Forged clamp is recessed – does not interfere with orientation.
- Thru-hole in largest "V" allows the removal of dowel pins.

DESCRIPTION	PART NO.	PRICE
Multi-Surface V-Block & Clamp	**91-290-7**	$166.90
Replacement Clamp	**91-291-5**	19.95

Ball Bearing V-Blocks


91-310-3

Ideal for use where inspection set-ups are not possible using plain V-Blocks. This unique product allows you to inspect and detect out of round conditions, defects, and lobes without damage to parts or blocks.

- Accuracy of ball sphericity:
  0.000025" on small and medium sets
  0.00005" on large set
- Balls finished to .2 micro inches, hardened to 62 RC.
- Overall accuracy of matched pairs: ±5 microns
- Case iron base and housing are heat stabilized and seasoned
- Sold in pairs with clamps and test ball
- Base dimensions:
  91-308-7: 2 3/16" square x 1 1/16" O/A Ht.
  91-309-5: 3 3/8" square x 1 5/8" O/A Ht.
  91-310-3: 4 3/4" square x 2 1/2" O/A Ht.

DESCRIPTION	CAP. RANGE	BALL DIA.	WT. CAP. LBS.	PART NUMBER	PRICE
Small Pair	3/64 - 2 1/2"	1/2"	220	**91-308-7**	$229.40
Medium Pair	3/32 - 5"	15/16"	1100	**91-309-5**	347.80
Large Pair	3/16 - 15"	1 1/2"	2000	**91-310-3**	608.40

High Precision Adjustable V-Blocks


91-300-4

Precision made tool that performs all of the functions normally requiring the use of various blocks, shims, or non-precision machinist jacks. Supports single and multiple diameter shafts, bars, etc. by quickly adjusting height.

- Wide angle 120° V with 2 3/4" opening accepts 3/16 to 5" diameters.
- Top flats ground parallel to base.
- Position lock prevents vibration creeping.
- Total height adjustment 9/16", 0.050" per revolution, 0.001" dial increments.
- Base dimensions: 4" W x 1 3/4" L, V opening: 2 3/4", 13/16" wide
- Height: approximately 3" closed, 3 9/16" opened.

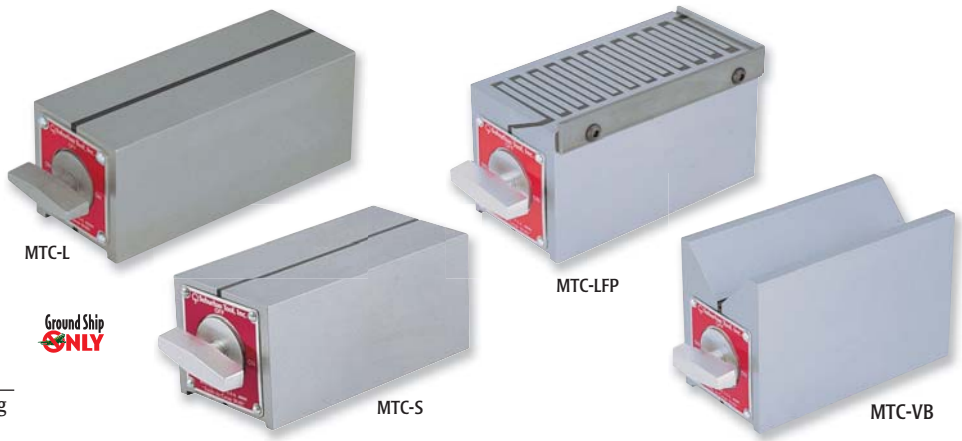
DESCRIPTION	PART NO.	PRICE
2 Pc. Set	**91-300-4**	$301.90

SUBURBAN Magnetic Toolmakers Chucks

- Top, bottom and end magnetize simultaneously.
- All models are precision ground, flat, square and parallel to 0.0005" overall accuracy.
- Bottom surface is relieved 1/8" to minimize loss of magnetism.
- On-Off switch.
- Powerful Alnico magnets.
- D.O.T. Regulated. Shipped via ground freight only.

WIDTH	LENGTH	HEIGHT	MODEL	PART NO.	PRICE
2"	5"	2"	MTC-S	**77-560-1**	$510.15
2 3/4"	5 1/2"	2 1/2"	MTC-L	**77-561-9**	609.95
2 3/4"	5 1/2"	3"	MTC-LFP	**77-562-7**	662.95
2 3/4"	5 1/2"	3 5/8"	MTC-VB	**77-563-5**	662.95

Model MTC-LFP has 3/16" x 1/16" fine pole construction for holding small or thin parts and features removable side and end rails.


MTC-L
MTC-LFP
MTC-S
MTC-VB
Ground Ship ONLY

Magnetic Chuck V-Blocks & Parallels

Laminated Aluminum



99-943-3

- Ground on all surfaces..
- Maximum transfer of magnetism when laminations are in line with magnetic chucks.
- Two Vees, large V 2" capacity, small V ½" cap.

Single 90° V-Block

LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
4 3/8"	2 3/8"	1 7/8"	**99-943-3**	$97.25

Matched Pairs 90° V-Blocks

LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
2"	2 3/8"	1 7/8"	**99-942-5**	$97.25



99-942-5

Chuck Parallels

Laminated Aluminum • Matched Pair

LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
4"	2"	1"	**99-941-7**	$87.15



99-941-7

Combination Set

Laminated Aluminum

DESCRIPTION	PART NO.	PRICE
Matched pair of Chuck Parallels as above (99-941-7) and 1 matched pair of V-Blocks as above (99-942-5)	**99-944-1**	$120.15

brown & sharpe

Permanent Magnetic Blocks

Ideal for Holding Small Work in Toolmaking, Manufacturing or Inspection

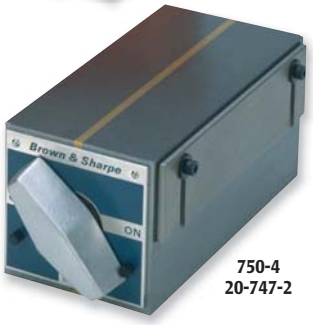


255
20-746-4

- On/Off switch.
- Each of the blocks can also be held on their back ends as well as on their bases.
- The working surface is parallel to the base to 0.001", sides and ends are square to 0.001".
- Each block is supplied in a finished wooden case.

No. 255

- Fine-pole top plate is specially designed for holding small work.
- Working surface and base of block are ground parallel.
- Back end is square with the working surface.
- One side and one end stop plates are furnished.



750-4
20-747-2

No. 750-4

- Holds work in contact with the V face.
- Block is accurately ground and faces of V-groove are hardened.
- Removable stop plate furnished for back end of block.
- "V" takes round stock to 1-3/4" diameter.
- Side and bottom are parallel to vee to 0.001" and vee is central within 0.001".



760
20-748-0

No. 760

- Working surface and base are ground parallel.
- Back end is square with working surface.
- Removable stop plates are furnished for back end and one for use on either side.

LENGTH	WIDTH	HEIGHT	MODEL #	PART NO.	PRICE
2 7/8"	5 1/4"	2 7/16"	225	**20-746-4**	$1,094.00
2 7/16"	5 1/4"	2 7/16"	750-4	**20-747-2**	1,020.40
3 3/16"	5 1/4"	2 7/16"	760	**20-748-0**	1,424.35



91-315-2

SPI®

Adjustable Angle Blocks

- Securely locks in any position between 0 and 60º.
- Used for drilling, milling, and set-up applications.
- Angle adjustment locks with hex screw on bottom of V.
- Hardened to 50-55 RC.
- Angle of V: 90º.

WIDTH	HEIGHT	LENGTH	WEIGHT	PART NO.	PRICE
1"	1.50"	3.25"	1.7 lbs.	**91-315-2**	$124.90
1.18"	1.94"	4"	2.5 lbs.	**91-316-0**	144.80
1.75"	1.94"	4"	3.5 lbs.	**91-317-8**	159.20



51-175-8



51-176-6

Magnetic V-Blocks

- Lever operated on-off switch eliminates need for separate wrench.
- Precision finish holder for scribing, grinding, cutting and finishing operations.
- D.O.T. Regulated. Shipped via ground freight only.

Ground Ship ONLY

LENGTH	WIDTH	HEIGHT	MAX. CAPACITY	PART NUMBER	PRICE
2.76"	2.34"	2.85"	1.97"	**51-175-8**	$98.35
4.92"	2.34"	2.85"	1.97"	**51-176-6**	158.85



SPI®

Magnetic V-Block

With On and Off Switch

- Permanent, powerful magnet.
- Faces for V are accurately ground.
- Ideal for holding round or irregular shapes.

WIDTH	LENGTH	HEIGHT	PART NO.	PRICE
2 3/8"	5 5/16"	2 7/8"	**98-284-3**	$408.85



52-765-5



52-767-1

Magnetic Vee Blocks & Pairs

Ideal for holding round or irregular shapes for scribing, grinding, measuring machining and test applications.

- Can be used either ways, up or standing on end.
- Vee faces can be energized or de-energized simultaneously by turning the rotary action control knob.
- Brass knob ensures no interference with the magnetic field, unlike the conventionally used steel knobs.
- Flatness tolerance of the mounting base: 0.0003"
- Vee grooves are square and parallel with all surfaces within 0.0004".
- Serial numbered in matched pairs, matched overall accuracy: 0.0004".
- Powerful magnetic strength of 180 lbs.

LENGTH	WIDTH	HEIGHT	V-OPENINGS	PART NO.	PRICE
4"	3"	3 3/4"	Top 2 1/8", Bottom 7/8"	**52-764-8**	$196.15
4"	3"	3 3/4"	Top 2 1/8", Bottom 7/8"	**52-765-5** *	379.00
3 3/16"	2 3/8	3 3/4"	Top 1 11/16", Bottom 11/16"	**52-766-3**	163.45
3 3/16"	2 3/8"	3 3/4"	Top 1 11/16", Bottom 11/16"	**52-767-1** *	312.75
6"	3"	3 3/4"	Top 2 1/8", Bottom 1"	**52-768-9**	316.10

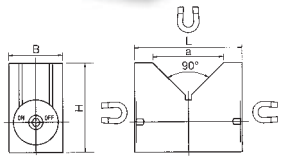
*Pairs



Magnetic V-Blocks

Sold in Sets (matched pair)

- Applications:
  - Holding tools for marking and drilling.
  - Holding tools for EDM and wire cutting machines.
  - Holding tools for three dimensional measuring instruments and various measuring systems.
- Lightweight design for easy handling.
- Workpiece can be held on top (V face), front and rear face.
- Magnetic force can be turned On or Off.
- Waterproof and oil proof construction.



MAX. DIA.	HOLDING POWER	B	H	L	a	PART NUMBER	PRICE
3.14"	200N or Over	1.96"	3.14"	3.93"	2.36"	**98-285-0**	$810.20



Magnetic Inspection V-Blocks

- Permanent, powerful magnet.
- ON and OFF switch.
- Two different size 90º Vees for increased capacity.
- Precision ground to close tolerances:
  Hardened blocks: flat, parallel, square within 0.0002"
  Soft blocks: flat, parallel, square within 0.0004"

Single 90° V-Block

LENGTH	WIDTH	HEIGHT	HARDENED	V OPENINGS	MAGNETIC PULL LBS.	WEIGHT LBS.	PART NUMBER	PRICE EACH
2 3/8"	2 3/4"	2"	–	Top 1 1/4", Bottom 11/16"	130	2.75	**95-701-9**	$308.75
2 3/4"	2"	2 3/8"	55 - 60 RC	Top 1 1/4", Bottom 11/16"	130	2.75	**95-703-5**	444.55
3 15/16"	2 3/4"	3 3/4"	–	Top 2", Bottom 1"	220	9.1	**95-705-0**	428.65
3 15/16"	2 3/4"	3 3/4"	55 - 60 RC	Top 2", Bottom 1"	220	9.1	**95-707-6**	603.70

Matched Pair 90° V-Blocks

LENGTH	WIDTH	HEIGHT	HARDENED	V OPENINGS	MAGNETIC PULL LBS.	WEIGHT LBS.	PART NUMBER	PRICE EACH
2 3/4"	2"	2 3/8"	55 - 60 RC	Top 1 1/4", Bottom 11/16"	130	6	**95-709-2**	$851.95



34-337-6

Certified
Right Out of the Box!

Taperlock Thread Plug Gages Double End with Handles

Machine Screw & Fractional Sizes

- Certificate of calibration traceable to NIST.
- Through hardened RC 60-64.
- Thread measurements as per ANSI specification B1.2.

NOMINAL SIZE	CLASS 2B PART NO.	CLASS 3B PART NO.	PRICE
0 - 80	**34-337-6**	**34-338-4**	$107.40
1 - 64	**34-339-2**	**34-340-0**	107.40
1 - 72	**34-341-8**	**34-342-6**	107.40
2 - 56	**34-343-4**	**34-344-2**	107.40
2 - 64	**34-345-9**	**34-346-7**	107.40
3 - 48	**34-347-5**	**34-348-3**	97.25
3 - 56	**34-349-1**	**34-350-9**	97.25
4 - 40	**34-351-7**	**34-352-5**	97.25
4 - 48	**34-353-3**	**34-354-1**	97.25
5 - 40	**34-355-8**	**34-356-6**	84.80
5 - 44	**34-357-4**	**34-358-2**	84.80
6 - 32	**34-359-0**	**34-360-8**	84.80
6 - 40	**34-361-6**	**34-362-4**	84.80
8 - 32	**34-363-2**	**34-364-0**	84.80
8 - 36	**34-365-7**	**34-366-5**	84.80
10 - 24	**34-367-3**	**34-368-1**	84.80
10 - 32	**34-369-9**	**34-370-7**	84.80
12 - 24	**34-371-5**	**34-372-3**	84.80
12 - 28	**34-373-1**	**34-374-9**	84.80
1/4 - 20	**34-375-6**	**34-376-4**	71.25
1/4 - 28	**34-377-2**	**34-378-0**	71.25
1/4 - 32	**34-379-8**	**34-380-6**	133.40
5/16 - 18	**34-381-4**	**34-382-2**	71.25
5/16 - 24	**34-383-0**	**34-384-8**	71.25
5/16 - 32	**34-385-5**	**34-386-3**	133.40
3/8 - 16	**34-387-1**	**34-388-9**	76.90
3/8 - 24	**34-389-7**	**34-390-5**	76.90
3/8 - 32	**34-391-3**	**34-392-1**	153.75
7/16 - 14	**34-393-9**	**34-394-7**	76.90
7/16 - 20	**34-395-4**	**34-396-2**	76.90
7/16 - 28	**34-397-0**	**34-398-8**	156.05
1/2 - 13	**34-399-6**	**34-400-2**	84.80
1/2 - 20	**34-401-0**	**34-402-8**	84.80
1/2 - 28	**34-403-6**	**34-404-4**	156.05
9/16 - 12	**34-405-1**	**34-406-9**	105.15
9/16 - 18	**34-407-7**	**34-408-5**	105.15
9/16 - 24	**34-409-3**	**34-410-1**	166.20
5/8 - 11	**34-411-9**	**34-412-7**	105.15
5/8 - 18	**34-413-5**	**34-414-3**	105.15
5/8 - 24	**34-415-0**	**34-416-8**	166.20
3/4 - 10	**34-417-6**	**34-418-4**	115.35
3/4 - 16	**34-419-2**	**34-420-0**	115.35
3/4 - 20	**34-421-8**	**34-422-6**	168.45
7/8 - 9	**34-423-4**	**34-424-2**	122.10
7/8 - 14	**34-425-9**	**34-426-7**	122.10
7/8 - 20	**34-427-5**	**34-428-3**	201.25
1 - 8	**34-429-1**	**34-430-9**	139.05
1 - 12	**34-431-7**	**34-432-5**	139.05



Taperlock Thread Plug Gages

Machine Screw & Fractional Sizes

- Certificate of calibration traceable to NIST.
- Through hardened RC 60-64.
- Aluminum handles are not included with single members.
- Thread measurements as per ANSI specification 1.16B.

Certified Right Out of the Box!



Double End Handle Only

NOMINAL SIZE	GO MEMBER PART NO.	NO GO MEMBER CLASS 2B PART NO.	NO GO MEMBER CLASS 3B PART NO.	PRICE	HANDLE ONLY SIZE	HANDLE ONLY PART NO.	HANDLE ONLY PRICE
0 - 80	34-193-3	34-194-1	34-195-8	$48.65	000	34-650-2	$9.85
1 - 64	34-196-6	34-197-4	34-198-2	48.65	000	34-650-2	9.85
1 - 72	34-199-0	34-200-6	34-201-4	48.65	000	34-650-2	9.85
2 - 56	34-202-2	34-203-0	34-204-8	48.65	000	34-650-2	9.85
2 - 64	34-205-5	34-206-3	34-207-1	48.65	000	34-650-2	9.85
3 - 48	34-208-9	34-209-7	34-210-5	46.35	000	34-650-2	9.85
3 - 56	34-211-3	34-212-1	34-213-9	46.35	000	34-650-2	9.85
4 - 40	34-214-7	34-215-4	34-216-2	46.35	00	34-651-0	9.85
4 - 48	34-217-0	34-218-8	34-219-6	46.35	00	34-651-0	9.85
5 - 40	34-220-4	34-221-2	34-222-0	37.35	00	34-651-0	9.85
5 - 44	34-223-8	34-224-6	34-225-3	37.35	00	34-651-0	9.85
6 - 32	34-226-1	34-227-9	34-228-7	37.35	00	34-651-0	9.85
6 - 40	34-229-5	34-230-3	34-231-1	37.35	00	34-651-0	9.85
8 - 32	34-232-9	34-233-7	34-234-5	37.35	0	34-652-8	9.85
8 - 36	34-235-2	34-236-0	34-237-8	37.35	0	34-652-8	9.85
10 - 24	34-238-6	34-239-4	34-240-2	37.35	0	34-652-8	9.85
10 - 32	34-241-0	34-242-8	34-243-6	37.35	0	34-652-8	9.85
12 - 24	34-244-4	34-245-1	34-246-9	37.35	0	34-652-8	9.85
12 - 28	34-247-7	34-248-5	34-249-3	37.35	0	34-652-8	9.85
1/4 - 20	34-250-1	34-251-9	34-252-7	30.55	1	34-653-6	9.85
1/4 - 28	34-253-5	34-254-3	34-255-0	30.55	1	34-653-6	9.85
1/4 - 32	34-256-8	34-257-6	34-258-4	62.20	1	34-653-6	9.85
5/16 - 18	34-259-2	34-260-0	34-261-8	30.55	1	34-653-6	9.85
5/16 - 24	34-262-6	34-263-4	34-264-2	30.55	1	34-653-6	9.85

NOMINAL SIZE	GO MEMBER PART NO.	NO GO MEMBER CLASS 2B PART NO.	NO GO MEMBER CLASS 3B PART NO.	PRICE	HANDLE ONLY SIZE	HANDLE ONLY PART NO.	HANDLE ONLY PRICE
5/16 - 32	34-265-9	34-266-7	34-267-5	62.20	1	34-653-6	$9.85
3/8 - 16	34-268-3	34-269-1	34-270-9	33.95	2	34-654-4	9.85
3/8 - 24	34-271-7	34-272-5	34-273-3	33.95	2	34-654-4	9.85
3/8 - 32	34-274-1	34-275-8	34-276-6	72.40	2	34-654-4	9.85
7/16 - 14	34-277-4	34-278-2	34-279-0	33.95	2	34-654-4	9.85
7/16 - 20	34-280-8	34-281-6	34-282-4	33.95	2	34-654-4	9.85
7/16 - 28	34-283-2	34-284-0	34-285-7	73.50	2	34-654-4	9.85
1/2 - 13	34-286-5	34-287-3	34-288-1	37.35	2	34-654-4	9.85
1/2 - 20	34-289-9	34-290-7	34-291-5	37.35	2	34-654-4	9.85
1/2 - 28	34-292-3	34-293-1	34-294-9	73.50	2	34-654-4	9.85
9/16 - 12	34-295-6	34-296-4	34-297-2	47.50	3	34-655-1	9.85
9/16 - 18	34-298-0	34-299-8	34-300-4	47.50	3	34-655-1	9.85
9/16 - 24	34-301-2	34-302-0	34-303-8	78.00	3	34-655-1	9.85
5/8 - 11	34-304-6	34-305-3	34-306-1	47.50	3	34-655-1	9.85
5/8 - 18	34-307-9	34-308-7	34-309-5	47.50	3	34-655-1	9.85
5/8 - 24	34-310-3	34-311-1	34-312-9	78.00	3	34-655-1	9.85
3/4 - 10	34-313-7	34-314-5	34-315-2	53.15	3	34-655-1	9.85
3/4 - 16	34-316-0	34-317-8	34-318-6	53.15	3	34-655-1	9.85
3/4 - 20	34-319-4	34-320-2	34-321-0	79.15	3	34-655-1	9.85
7/8 - 9	34-322-8	34-323-6	34-324-4	55.40	4	34-656-9	11.55
7/8 - 14	34-325-1	34-326-9	34-327-7	55.40	4	34-656-9	11.55
7/8 - 20	34-328-5	34-329-3	34-330-1	94.95	4	34-656-9	11.55
1 - 8	34-331-9	34-332-7	34-333-5	64.45	4	34-656-9	11.55
1 - 12	34-334-3	34-335-0	34-336-8	64.45	4	34-656-9	11.55

NOMINAL SIZE	GO MEMBER MEMBER PART NO.	NO GO MEMBER PART NO.	PRICE	DOUBLE END WITH HANDLE PART NO.	PRICE
M1.6 x 0.35	37-100-5	37-139-3	$61.45	37-178-1	$134.45
M1.8 x 0.35	37-101-3	37-140-1	61.45	37-179-9	134.45
M2 x 0.4	37-102-1	37-141-9	61.45	37-180-7	134.45
M2.2 x 0.45	37-103-9	37-142-7	61.45	37-181-5	134.45
M2.5 x 0.45	37-104-7	37-143-5	55.65	37-182-3	120.50
M3 x 0.5	37-105-4	37-144-3	55.65	37-183-1	120.50
M3.5 x 0.6	37-106-2	37-145-0	48.70	37-184-9	107.80
M4 x 0.7	37-107-0	37-146-8	48.70	37-185-6	107.80
M4.5 x 0.75	37-108-8	37-147-6	48.70	37-186-4	107.80
M5 x 0.8	37-109-6	37-148-4	48.70	37-187-2	107.80
M6 x 1	37-110-4	37-149-2	39.40	37-188-0	89.25
M7 x 1	37-111-2	37-150-0	39.40	37-189-8	89.25
M8 x 1	37-112-0	37-151-8	39.40	37-190-6	89.25
M8 x 1.25	37-113-8	37-152-6	39.40	37-191-4	89.25
M10 x 1.25	37-114-6	37-153-4	41.75	37-192-2	93.90
M10 x 1.5	37-115-3	37-154-2	41.75	37-193-0	93.90
M12 x 1.25	37-116-1	37-155-9	47.55	37-194-8	104.30
M12 x 1.75	37-117-9	37-156-7	47.55	37-195-5	104.30
M14 x 1.5	37-118-7	37-157-5	55.65	37-196-3	120.50
M14 x 2	37-119-5	37-158-3	55.65	37-197-1	120.50
M16 x 1.5	37-120-3	37-159-1	56.80	37-198-9	122.85
M16 x 2	37-121-1	37-160-9	56.80	37-199-7	122.85
M18 x 1.5	37-122-9	37-161-7	64.90	37-200-3	139.10
M18 x 2.5	37-123-7	37-162-5	64.90	37-201-1	139.10
M20 x 1.5	37-124-5	37-163-3	67.25	37-202-9	144.85
M20 x 2.5	37-125-2	37-164-1	67.25	37-203-7	144.85
M22 x 1.5	37-126-0	37-165-8	70.70	37-204-5	151.85
M24 x 2	37-127-8	37-166-6	78.80	37-205-2	170.35
M24 x 3	37-128-6	37-167-4	78.80	37-206-0	170.35
M27 x 2	37-129-4	37-168-2	100.85	37-207-8	213.25
M27 x 3	37-130-2	37-169-0	100.85	37-208-6	213.25
M30 x 2	37-131-0	37-170-8	119.35	37-209-4	232.95
M30 x 3.5	37-132-8	37-171-6	119.35	37-210-2	232.95
M33 x 2	37-133-6	37-172-4	119.35	37-211-0	232.95
M33 x 3.5	37-134-4	37-173-2	119.35	37-212-8	232.95
M36 x 3	37-135-1	37-174-0	143.70	37-213-6	282.75
M36 x 4	37-136-9	37-175-7	143.70	37-214-4	282.75
M39 x 3	37-137-7	37-176-5	158.80	37-215-1	314.05
M39 x 4	37-138-5	37-177-3	158.80	37-216-9	314.05

HANDLE ONLY SIZE	HANDLE ONLY PART NO.	HANDLE ONLY PRICE
000	34-650-2	$9.85
000	34-650-2	9.85
000	34-650-2	9.85
000	34-650-2	9.85
00	34-651-0	9.85
0	34-652-8	9.85
1	34-653-6	9.85
2	34-654-4	9.85
3	34-655-1	9.85
4	34-656-9	11.55
5	34-657-7	11.55



Go



No Go



Double End Handle Only

Certified Right Out of the Box!

Metric Taperlock Thread Plug Gages

- Certificate of calibration traceable to NIST.
- Thread dimensions as per ANSI, Class 6H.

Certified
Right Out of the Box!



34-444-0


34-434-1

SPI® Taper Pipe Thread Plug & Ring Gages (NPT)

- Certificate of calibration traceable to NIST.
- Handles are not included with single members.
- Thread dimensions as per ANSI B1.20.1.

NOMINAL SIZE	HANDLE SIZE	PLUG GAGES PART NO.	PRICE	RING GAGES PART NO.	PRICE	HANDLE SIZE	PLUG GAGE HANDLES PART NO.	PRICE
1/16 - 27	1	**34-433-3**	$106.30	**34-444-0**	$173.65	1	**34-653-6**	$9.85
1/8 - 27	2	**34-434-1**	75.75	**34-445-7**	131.65	2	**34-654-4**	9.85
1/4 - 18	3	**34-435-8**	82.55	**34-446-5**	137.15	3	**34-655-1**	9.85
3/8 - 18	3	**34-436-6**	88.20	**34-447-3**	154.85	3	**34-655-1**	9.85
1/2 - 14	4	**34-437-4**	99.50	**34-448-1**	174.75	4	**34-656-9**	11.55
3/4 - 14	4	**34-438-2**	118.75	**34-449-9**	188.05	4	**34-656-9**	11.55
1 - 11 1/2	5	**34-439-0**	126.65	**34-450-7**	221.20	5	**34-657-7**	11.55
1 1/4 - 11 1/2	5	**34-440-8**	150.40	**34-451-5**	251.05	5	**34-657-7**	11.55
1 1/2 - 11 1/2	5	**34-441-6**	163.95	**34-452-3**	293.10	5	**34-657-7**	11.55
2 - 11 1/2	5	**34-442-4**	195.60	**34-453-1**	349.50	5	**34-657-7**	11.55
2 1/2 - 8	6	**34-443-2**	235.15	**34-454-9**	416.95	6	**34-658-5**	16.80



Vermont Gage

Precision Thread Ring Gages

NOMINAL SIZE	GO MEMBER CLASS 2A PART NO.	NO GO RING CLASS 2A PART NO.	GO MEMBER CLASS 3A PART NO.	NO GO RING CLASS 3A PART NO.	PRICE
0 - 80	**52-558-4**	**52-606-1**	**52-654-1**	**52-702-8**	$182.65
1 - 64	**52-559-2**	**52-607-9**	**52-655-8**	**52-703-6**	153.20
1 - 72	**52-560-0**	**52-608-7**	**52-656-6**	**52-704-4**	153.20
2 - 56	**52-561-8**	**52-609-5**	**52-657-4**	**52-705-1**	147.70
2 - 64	**52-562-6**	**52-610-3**	**52-658-2**	**52-706-9**	147.70
3 - 49	**52-563-4**	**52-611-1**	**52-659-0**	**52-707-7**	147.70
3 - 56	**52-564-2**	**52-612-9**	**52-660-8**	**52-708-5**	147.70
4 - 40	**52-565-9**	**52-613-7**	**52-661-6**	**52-709-3**	125.30
4 - 48	**52-566-7**	**52-614-5**	**52-662-4**	**52-710-1**	125.30
5 - 40	**52-567-5**	**52-615-2**	**52-663-2**	**52-711-9**	116.90
5 - 44	**52-568-3**	**52-616-0**	**52-664-0**	**52-712-7**	116.90
6 - 32	**52-569-1**	**52-617-8**	**52-665-7**	**52-713-5**	116.90
6 - 40	**52-570-9**	**52-618-6**	**52-666-5**	**52-714-3**	116.90
8 - 32	**52-571-7**	**52-619-4**	**52-667-3**	**52-715-0**	124.35
8 - 36	**52-572-5**	**52-620-2**	**52-668-1**	**52-716-8**	124.35
10 - 24	**52-573-3**	**52-621-0**	**52-669-9**	**52-717-6**	124.35
10 - 32	**52-574-1**	**52-622-8**	**52-670-7**	**52-718-4**	124.35
12 - 24	**52-575-8**	**52-623-6**	**52-671-5**	**52-719-2**	123.15
12 - 28	**52-576-6**	**52-624-4**	**52-672-3**	**52-720-0**	123.15
1/4 - 20	**52-577-4**	**52-625-1**	**52-673-1**	**52-721-8**	118.40
1/4 - 28	**52-578-2**	**52-626-9**	**52-674-9**	**52-722-6**	118.40
5/16 - 18	**52-579-0**	**52-627-7**	**52-675-6**	**52-723-4**	118.40
5/16 - 24	**52-580-8**	**52-628-5**	**52-676-4**	**52-724-2**	118.40
3/8 - 16	**52-581-6**	**52-629-3**	**52-677-2**	**52-725-9**	126.70
3/8 - 24	**52-582-4**	**52-630-1**	**52-678-0**	**52-726-7**	126.70
7/16 - 14	**52-583-2**	**52-631-9**	**52-679-8**	**52-727-5**	126.70
7/16 - 20	**52-584-0**	**52-632-7**	**52-680-6**	**52-728-3**	126.70
1/2 - 13	**52-585-7**	**52-633-5**	**52-681-4**	**52-729-1**	128.55
1/2 - 20	**52-586-5**	**52-634-3**	**52-682-2**	**52-730-9**	128.55
9/16 - 12	**52-587-3**	**52-635-0**	**52-683-0**	**52-731-7**	154.70
9/16 - 18	**52-588-1**	**52-636-8**	**52-684-8**	**52-732-5**	154.70
5/8 - 11	**52-589-9**	**52-637-6**	**52-685-5**	**52-733-3**	154.70
5/8 - 18	**52-590-7**	**52-638-4**	**52-686-3**	**52-734-1**	154.70
3/4 - 10	**52-591-5**	**52-639-2**	**52-687-1**	**52-735-8**	192.30
3/4 - 16	**52-592-3**	**52-640-0**	**52-688-9**	**52-736-6**	192.30
7/8 - 9	**52-593-1**	**52-641-8**	**52-689-7**	**52-737-4**	216.00
7/8 - 14	**52-594-9**	**52-642-6**	**52-690-5**	**52-738-2**	216.00
1 - 8	**52-595-6**	**52-643-4**	**52-691-3**	**52-739-0**	253.95
1 - 12	**52-596-4**	**52-644-2**	**52-692-1**	**52-740-8**	253.95
1 - 14	**52-597-2**	**52-645-9**	**52-693-9**	**52-741-6**	253.95
1 1/8 - 7	**52-598-0**	**52-646-7**	**52-694-7**	**52-742-4**	272.70
1 1/8 - 12	**52-599-8**	**52-647-5**	**52-695-4**	**52-743-2**	272.70
1 1/4 - 7	**52-600-4**	**52-648-3**	**52-696-2**	**52-744-0**	301.65
1 1/4 - 12	**52-601-2**	**52-649-1**	**52-697-0**	**52-745-7**	301.65
1 3/8 - 6	**52-602-0**	**52-650-9**	**52-698-8**	**52-746-5**	316.50
1 3/8 - 12	**52-603-8**	**52-651-7**	**52-699-6**	**52-747-3**	316.50
1 1/2 - 6	**52-604-6**	**52-652-5**	**52-700-2**	**52-748-1**	365.60
1 1/2 - 12	**52-605-3**	**52-653-3**	**52-701-0**	**52-749-9**	365.60

SPI® Metric Thread Ring Gages



Go

- Certificate of calibration traceable to NIST.
- Thread dimensions as per ISO 1502.

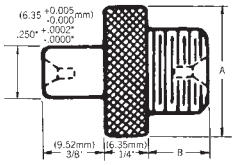
NOMINAL SIZE	GO RING PART NO.	NO GO RING PART NO.	PRICE
M1.6 X 0.35	**34-455-6**	**34-456-4**	$192.45
M1.8 X 0.35	**34-457-2**	**34-458-0**	192.45
M2 X 0.4	**34-459-8**	**34-460-6**	175.85
M2.2 X 0.45	**34-461-4**	**34-462-2**	175.85
M2.5 X 0.45	**34-463-0**	**34-464-8**	134.95
M3 X 0.5	**34-465-5**	**34-466-3**	119.45
M3.5X 0.6	**34-467-1**	**34-468-9**	119.45
M4 X 0.7	**34-469-7**	**34-470-5**	108.40
M4.5 X 0.75	**34-471-3**	**34-472-1**	108.40
M5 X 0.8	**34-473-9**	**34-474-7**	108.40
M6 X 1	**34-475-4**	**34-476-2**	101.75
M7 X 1	**34-477-0**	**34-478-8**	101.75
M8 X 1	**34-479-6**	**34-480-4**	101.75
M8 X 1.25	**34-481-2**	**34-482-0**	101.75
M10 X 1.25	**34-483-8**	**34-484-6**	107.30
M10 X 1.5	**34-485-3**	**34-486-1**	107.30
M12 X 1.25	**34-487-9**	**34-488-7**	117.25
M12 X 1.75	**34-489-5**	**34-490-3**	117.25
M14 X 1.5	**34-491-1**	**34-492-9**	130.50
M14 X 2	**34-493-7**	**34-494-5**	130.50
M16 X 1.5	**34-495-2**	**34-496-0**	134.95
M16 X 2	**34-497-8**	**34-498-6**	134.95
M18 X 1.5	**34-499-4**	**34-500-9**	184.70
M18 X 2.5	**34-501-7**	**34-502-5**	184.70
M20 X 1.5	**34-503-3**	**34-504-1**	201.30
M20 X 2.5	**34-505-8**	**34-506-6**	201.30
M22 X 1.5	**34-507-4**	**34-508-2**	201.30
M24 X 2	**34-509-0**	**34-510-8**	240.05
M24 X 3	**34-511-6**	**34-512-4**	240.05
M27 X 2	**34-513-2**	**34-514-0**	240.05
M27 X 3	**34-515-7**	**34-516-5**	240.05
M30 X 2	**34-517-3**	**34-518-1**	325.15
M30 X 3.5	**34-519-9**	**34-520-7**	254.40
M33 X 2	**34-521-5**	**34-522-3**	254.40
M33 X 3.5	**34-523-1**	**34-524-9**	254.40
M36 X 3	**34-525-6**	**34-526-4**	276.50
M36 X 4	**34-527-2**	**34-528-0**	304.15
M39 X 3	**34-529-8**	**34-530-6**	304.15
M39 X 4	**34-531-4**	**34-532-2**	304.15



No Go

Certified
Right Out of the Box!









Tapped Hole Location Gages

- Hardened and precision ground.
- Shaft diameter 0.250" + 0.0002" x 3/8" long 6.35 mm + 0.005 mm x 9.53 mm long.
- All diameters concentric within .0002" T.I.R.
- Right hand thread.

THREAD	A	B	PART NO.	PRICE
2-56 UNC	5/16"	1/4"	**31-946-7**	$141.95
4-40 UNC	5/16"	1/4"	**31-947-5**	123.20
5-40 UNC	5/16"	1/4"	**31-948-3**	123.20
6-32 UNC	5/16"	1/4"	**31-949-1**	123.20
6-40 UNF	5/16"	1/4"	**31-950-9**	114.15
8-32 UNC	5/16"	1/4"	**31-951-7**	123.20
Set of 12 Gages, 2 each of above sizes in fitted wooden case			**31-945-9**	$1,509.20

THREAD	A	B	PART NO.	PRICE
10-24UNC	5/16"	1/4"	**31-956-6** *	$94.65
1/4-20UNC	3/8"	3/8"	**31-957-4** *	94.65
5/16-18UNC	1/2"	3/8"	**31-958-2** *	94.65
3/8-16UNC	1/2"	3/8"	**31-959-0** *	94.65
7/16-14UNC	7/8"	3/8"	**31-960-8** *	94.65
1/2-13UNC	7/8"	3/8"	**31-961-6** *	94.65
5/8-11UNC	7/8"	3/8"	**31-962-4** *	94.65
3/4-10UNC	1"	1/2"	**31-963-2**	141.95
UNC Set of 14 Gages, 2 each of numbers marked (*) as above in fitted wooden case			**31-955-8**	$1,425.85

THREAD	A	B	PART NO.	PRICE
10-32UNF	5/16"	1/4"	**31-971-5** †	$110.00
1/4-28UNF	3/8"	3/8"	**31-972-3** †	110.00
5/16-24UNF	1/2"	3/8"	**31-973-1** †	110.00
3/8-24UNF	1/2"	3/8"	**31-974-9** †	110.00
7/16-20UNF	7/8"	3/8"	**31-975-6** †	110.00
1/2-20UNF	7/8"	3/8"	**31-976-4** †	110.00
5/8-18UNF	7/8"	3/8"	**31-977-2** †	110.00
UNF Set of 14 Gages, 2 each of above sizes in fitted wooden case			**31-970-7**	$1,509.20

THREAD	A	B	PART NO.	PRICE
M 1.6 x .35	7.937	6.35	**31-981-4**	$152.65
M 2.0 x .40	7.937	6.35	**31-982-2**	152.90
M 2.5 x .45	7.937	6.35	**31-983-0**	152.90
M 3.0 x .50	7.937	6.35	**31-984-8**	152.90
M 4.0 x .70	7.937	6.35	**31-985-5**	152.90
M 5.0 x .80	9.525	6.35	**31-986-3**	152.90
M 6.0 x 1.00	9.525	6.35	**31-987-1**	152.90

THREAD	A	B	PART NO.	PRICE
M 8.0 x 1.25	12.700	12.70	**31-988-9**	$152.90
M 10 x 1.50	12.700	12.70	**31-989-7**	152.90
M 12 x 1.75	19.050	12.70	**31-990-5**	154.85
M 16 x 2.00	19.050	12.70	**31-991-3**	154.85
M 20 x 2.50	23.812	12.70	**31-992-1**	154.85



Master - Setting Ring Gages

For comparative gauging, calibration and the setting of internal measuring tools

- Made from oil hardened non-shrinking steel.
- Hardened and tempered to 62 RC.
- Actual dimensions duly etched.
- Cryogenic treatment for long-term dimensional stability.
- Calibrated at 20° C under standards room conditions.

Inch

SIZE	ACCURACY	TAPER/ OVALITY	PART NUMBER	PRICE
0.100"	±0.00004"	0.000012"	**12-446-1**	$116.60
0.160"	±0.00005"	0.000015"	**12-447-9**	96.00
0.175"	±0.00005"	0.000015"	**10-708-6**	96.00
0.225"	±0.00005"	0.000015"	**10-709-4**	96.00
0.240"	±0.00005"	0.000015"	**12-448-7**	96.00
0.350"	±0.00005"	0.000015"	**10-718-5**	76.60
0.500"	±0.00006"	0.000019"	**10-719-3**	76.60
0.650"	±0.00006"	0.000019"	**10-728-4**	76.60
1.000"	±0.00008"	0.000024"	**10-738-3**	85.75
1.400"	±0.00008"	0.000028"	**10-739-1**	102.90
1.800"	±0.00008"	0.000028"	**12-449-5**	137.15
2.000"	±0.00010"	0.000031"	**10-748-2**	141.75
2.800"	±0.00010"	0.000031"	**10-749-0**	147.45
3.600"	±0.00012"	0.000039"	**10-750-8**	160.00
5.000"	±0.00016"	0.000047"	**10-753-2** *	443.70
7.000"	±0.00016"	0.000047"	**10-756-5** *	528.10
9.000"	±0.00019"	0.000055"	**10-759-9** *	562.70
11.000"	±0.00023"	0.000062"	**10-762-3** *	625.50

*Setting frame

Metric

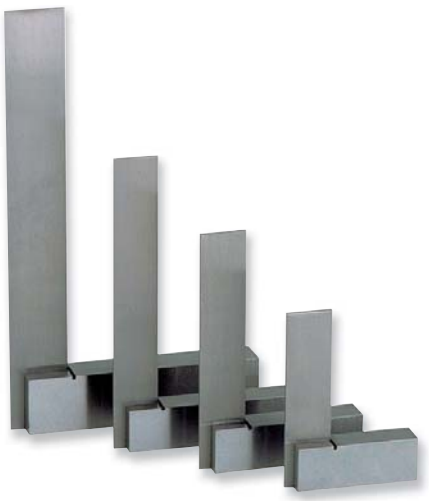
SIZE	ACCURACY (MM)	TAPER/ OVALITY (MM)	PART NUMBER	PRICE
4	±0.0013	0.0004	**14-351-1**	$90.95
5.5	±0.001	0.0004	**14-352-9**	90.95
8	±0.0013	0.0004	**14-353-7**	90.95
10	±0.001	0.0004	**14-354-5**	90.95
16	±0.001	0.0005	**14-355-2**	90.95
25	±0.0015	0.0006	**14-356-0**	113.65
35	±0.0015	0.0007	**14-357-8**	113.65
50	±0.002	0.0008	**14-358-6**	113.65
70	±0.0025	0.0008	**14-359-4**	113.65
90	±0.003	0.001	**14-360-2**	136.35
125	±0.004	0.0012	**14-361-0**	562.70

Setting Ring Gages

- Hardened steel.
- Wooden box.
- Short Form Certificate of Calibration included.
- 2 year warranty.

SIZE	ACCURACY	PART NUMBER	PRICE
5.5"	±0.00016"	**17-686-7**	$445.45
7.5"	±0.00019"	**17-688-3**	1,170.80
9.5"	±0.00023"	**17-690-9**	1,948.90
11.5"	±0.00023"	**17-692-5**	2,565.90





4 Pc. Machinist's Steel Squares

- Precision ground blades and beams.
- Blade hardened.
- True right angles inside and outside.

DESCRIPTION	PART NO.	PRICE
2", 3", 4" & 6"	**51-822-5**	$52.30
4", 6", 9" & 12"	**51-823-3**	114.40

Machinist Squares and Sets

- Manufactured to workshop grade specifications.
- Hardened spring steel blades are permanently secured to beam to ensure rigidity.
- Precision ground for straightness and parallelism.
- Working edges of blades lapped to accuracy.
- Blade length measured from inner edge of beam to end of blade.



13-634-1

LINEAR DIMS. BLADE	BEAM	ACCURACY SQUARE	PARALLEL	PART NO.	PRICE
2"	2"	0.0010"	0.0005"	**13-624-2**	$15.60
3"	2½"	0.0011"	0.0006"	**13-625-9**	16.10
4"	3"	0.0012"	0.0006"	**13-626-7**	16.90
6"	4"	0.0014"	0.0007"	**13-627-5**	18.50
9"	5½"	0.0017"	0.0009"	**13-628-3**	41.35
12"	7½"	0.0020"	0.0010"	**13-629-1**	69.75

DESCRIPTION	PART NO.	PRICE
3 Pc Set: 2, 3, 4"	**13-632-5**	$50.45
3 Pc Set: 2, 4, 6"	**13-633-3**	52.60
4 Pc Set: 2, 3, 4, 6"	**13-634-1**	64.40
4 Pc Set: 4, 6, 9, 12"	**13-635-8**	109.45

Quality Hardened Squares with Straight Edges

Class N with Thin Blade and Wide Beam

- Accurate right angles both inside and outside.
- Beams and blades are accurately ground and lapped for straightness and parallelism.
- Beam is grooved at inner corner for clearance of burrs and dirt.
- Hardened to RC 55.
- Accuracy: .0002" +L/50,000 where "L" is length of blade in inches.



30-079-8

Blade lengths are approximate

BLADE LENGTH	BASE LENGTH	PART NUMBER	PRICE
2½"	1½"	**30-079-8**	$24.15
3⅛"	2"	**30-080-6**	32.75
5"	3"	**30-081-4**	53.65
6¼"	4"	**30-082-2**	50.15
7⅞"	5"	**30-083-0**	68.10
10½"	6⅜"	**30-084-8**	67.60



30-124-2

Quality Hardened Squares with Straight Beveled Edges

Accuracy Class H with Beveled Edges

- Accurate right angles both inside and outside.
- Made from single piece of fully seasoned tool steel.
- Blades beveled on both edges of each side.
- Beam is grooved at inner corner for clearance of burrs and dirt.
- Beams and blades are accurately ground and lapped for straightness and parallelism.
- Hardened to RC 55
- Accuracy: .0008" +L/10,000 where "L" is length of blade in inches.

Blade lengths are approximate

BLADE LENGTH	BASE LENGTH	PART NUMBER	PRICE
2½"	1½"	**30-124-2**	$32.15
3⅛"	2"	**30-125-9**	37.50
5"	3"	**30-126-7**	53.55
6¼"	4"	**30-127-5**	64.30
7⅞"	5"	**30-128-3**	96.40



3 Pc. Set

Hardened Steel Squares & Set

Accuracy Class 2 with Straight Edge

- Hardened to RC 55.
- Base and blades are accurately ground and lapped.
- Beam is grooved at inner corner.

DESCRIPTION	PART NO.	PRICE
3 Pc. Set (3⅛", 5" and 6¾")	**14-578-9**	$84.90

Individual Squares

BLADE L	BASE L	ACCURACY	PART NUMBER	PRICE
3⅛"	2"	0.0011"	**14-572-2**	$27.90
5"	3"	0.0013"	**14-573-0**	32.20
6¾"	4"	0.0015"	**14-574-8**	35.40
8½"	5⅛"	0.0017"	**14-575-5**	50.40
10½"	6⅜"	0.0019"	**14-576-3**	86.90



10-175-8

brown & sharpe

Workshop Square Sets

- Square within 0.0006".
- Complete in shop-hardened protective molded case.
- Workshop grade.
- Sizes in sets:

Blade	Beam
2"	1½"
3"	2½"
4"	3"
6"	4"

DESCRIPTION	PART NO.	PRICE
4 Pc. Set (2", 3, 4" & 6" blades)	**10-175-8**	$115.45
3 Pc. Set (2", 4" & 6" blades)	**10-176-6**	92.60



Solid Squares

- Made from high quality tool steel.
- Squares have true right angles inside & outside.
- Beams and blades are precision ground.
- Blade is hardened.
- Length of blade is measured from inner edge of beam.
- Accuracy specs: per every 4" of length.

Precision Grade

BLADE	BEAM	SQRNS.*	PRLLSM.*	PART NO.	PRICE
2"	1 1/2"	0.0005"	0.0002"	**30-555-7**	$69.85
3"	2 1/2"	0.0006"	0.0003"	**30-556-5**	74.45
4"	3"	0.0006"	0.0003"	**30-557-3**	95.70
6"	4"	0.0007"	0.0003"	**30-558-1**	125.70
9"	6"	0.0009"	0.0004"	**30-559-9**	183.95
12"	8"	0.0010"	0.0005"	**30-560-7**	229.05

*Sqrns.=Squareness, Prllsm.=Parallism

Workshop Grade

BLADE	BEAM	SQRNS.*	PRLLSM.*	PART NO.	PRICE
2"	1 1/2"	0.0010"	0.0005"	**30-525-0**	$13.55
3"	2 1/2"	0.0011"	0.0006"	**30-526-8**	14.85
4"	3"	0.0012"	0.0006"	**30-527-6**	16.15
6"	4"	0.0014"	0.0007"	**30-528-4**	20.05
9"	6"	0.0017"	0.0009"	**30-529-2**	39.85
12"	8"	0.0020"	0.0010"	**30-530-0**	57.05
18"	10"	0.0020"	0.0013"	**30-531-8**	166.30
24"	12"	0.0031"	0.0016"	**30-532-6**	412.75

*Sqrns.=Squareness, Prllsm.=Parallism

Diemaker's Square Set

- Use for precise miniature layouts.
- Hardened and ground with very fine finish - extremely accurate.
- Set includes: 3 hardened beveled edge squares; 3/4", 1 1/4", 2 3/8" plus 1 1/2" triangular straight edge with handle complete in a fitted case.
- Straight edge sides are machined in the middle for clearance of burs and dirt.
- Specifications of Squares:

Beam	Blade
1 15/16"	2 15/16"
1 1/8"	1 9/16"
3/4"	1"



12-497-4

DESCRIPTION	PART NO.	PRICE
Diemaker's Square Set	**12-497-4**	$129.45

Suburban Magnetic Cylinder Squares

- Designed to easily check squareness on component parts.
- Base is perpendicular to shaft with 0.0001" over the length of the square.
- Magnetic base eliminates clamping distortion and speeds set-up.
- Manufactured from steel selected and normalized to insure stability and uniformity.
- Supplied in fitted wood case.



96-225-8

LENGTH	BASE DIA.	SHAFT DIA.	SHAFT LENGTH	PART NUMBER	PRICE
4 1/4"	1 7/16"	1/2"	3 1/2"	**96-225-8**	$446.55
6 1/2"	3 3/8"	1"	5 1/2"	**96-226-6**	526.30

Indicator and Cylindrical Square sold separately



Squarol

- Precision squareness checking device with use of cylindrical square.
- Hardened and lapped base with 4 height-positions reference ring.
- Unique design allows low-reach checking to 3/8".
- Accepts all dovetail test indicators of 5/32" dia. stem.
- Sensitive fine adjustment.
- Height range 3/8 - 5".

DESCRIPTION	PART NO.	PRICE
Squarol	**30-612-6**	$333.30

Steel Straight Edges

Square & Beveled 60°

- Made of the finest tool steel.
- Precision ground to rigid quality standards.
- Nongraduated.
- Beveled models are beveled on both sides.

L	W	THICK.	EDGE FLATNESS	PARALLELISM	SQUARE PART NO.	PRICE	BEVELED PART NO.	PRICE
12"	1 13/32"	5/16"	0.00047"	0.00094"	77-640-1	$43.55	77-630-2	$55.05
18"	1 13/32"	5/16"	0.00047"	0.00094"	77-641-9	61.90	77-631-0	73.45
24"	1 13/32"	5/16"	0.00067"	0.0013"	77-642-7	80.20	77-632-8	123.75
36"	2 13/32"	3/8"	0.00083"	0.0016"	77-643-5	160.40	77-633-6	189.05
48"	2 13/32"	3/8"	0.0011"	0.002"	77-644-3	245.15	77-634-4	269.25
60"	2 3/4"	3/8"	0.0011"	0.002"	77-645-0	284.10	77-635-1	332.20
72"	2 3/4"	3/8"	0.0015"	0.0029"	77-646-8	418.10	77-636-9	481.15
96"	2 3/4"	17/32"	0.0018"	0.0036"	77-647-6	672.85	77-637-7	715.70
120"	2 3/4"	17/32"	0.0021"	0.0043"	77-648-4*	850.25	77-638-5*	972.60

* Truck shipment.



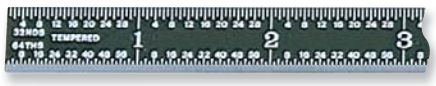
Square



Beveled

SPI® Flexible Steel Rules

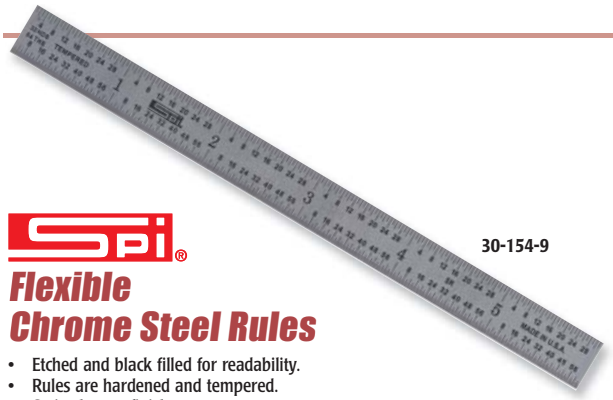




- Made of hardened and tempered steel.
- Durable finishes for rust and wear durability.
- Satin Chrome: Precisely etched, then black filled.
- Easy View: Precisely etched, then white filled.

- Graduations
  - 3R - 32nds, 64ths, 10ths, 50ths
  - 4R - 8ths, 16ths, 32nds, 64ths
  - 5R - 32nds, 64ths, 10ths, 100ths
  - 10R - 32nds, 64ths
  - 12R - 50ths, 100ths
  - 16R - 32nds, 64ths, 50ths, 100ths
  - E/M - 32nd, 64ths, ½mm, 1mm
  - * D/M - 10ths, 50ths, ½mm, 1mm
  - †D/M - 10ths, 100ths, ½mm, 1mm
  - M - ½mm, 1mm, ½mm, 1mm

SIZE	TYPE	WIDTH	THICK -NESS	SATIN CHROME FINISH PART NO.	SATIN CHROME FINISH PRICE	EZ VIEW® FINISH PART NO.	EZ VIEW® FINISH PRICE	STAINLESS STEEL PART NO.	STAINLESS STEEL PRICE
6"	3R	½"	0.020"	**13-860-2**	$8.75	**13-910-5**	$5.65	**13-880-0**	$6.40
6"	4R	½"	0.020"	**13-861-0**	8.75	**13-911-3**	5.65	**13-881-8**	6.40
6"	5R	½"	0.020"	**13-862-8**	8.75	**13-912-1**	5.65	**13-882-6**	6.40
6"	16R	½"	0.020"	**13-863-6**	8.75	**13-913-9**	5.65	**13-883-4**	6.40
6"/150 mm	E/M	½"	0.020"	**13-864-4**	8.75	**13-914-7**	5.65	**13-884-2**	6.40
6"/150 mm	†D/M	½"	0.020"	**14-681-1**	8.75	–	–	–	–
6"/150 mm	*D/M	½"	0.020"	**14-682-9**	8.75	–	–	–	–
150 mm	M	½"	0.020"	**14-680-3**	8.75	–	–	**14-465-9**	6.40
12"	3R	½"	0.020"	**13-865-1**	16.95	**13-915-4**	9.30	**13-885-9**	10.90
12"	4R	½"	0.020"	**13-866-9**	16.95	**13-916-2**	9.30	**13-886-7**	10.90
12"	5R	½"	0.020"	**13-867-7**	16.95	**13-917-0**	9.30	**13-887-5**	10.90
12"	16R	½"	0.020"	**13-868-5**	16.95	**13-918-8**	9.30	**13-888-3**	10.90
12"/300 mm	E/M	½"	0.020"	**13-869-3**	16.95	**13-919-6**	9.30	**13-889-1**	10.90
12"/300 mm	*D/M	½"	0.020"	**14-683-7**	16.95	–	–	–	–
12"/300 mm	†D/M	½"	0.020"	**14-684-5**	16.95	–	–	–	–
300 mm	M	½"	0.020"	**14-685-2**	16.95	–	–	–	–
18"	3R	¾"	0.020"	**13-870-1**	26.00	**13-920-4**	20.10	–	–
18"	4R	¾"	0.020"	**13-871-9**	26.00	**13-921-2**	20.10	–	–
18"	5R	¾"	0.020"	**13-872-7**	26.00	**13-922-0**	20.10	–	–
18"	16R	¾"	0.020"	**13-873-5**	26.00	**13-923-8**	20.10	–	–
18"/450 mm	E/M	¾"	0.020"	**13-874-3**	26.00	**13-924-6**	20.10	–	–
18"/450 mm	†D/M	¾"	0.020"	**14-686-0**	26.00	–	–	–	–
450 mm	M	¾"	0.020"	**14-687-8**	26.00	–	–	–	–
24"	3R	¾"	0.020"	**13-875-0**	39.50	**13-925-3**	23.65	–	–
24"	4R	¾"	0.020"	**13-876-8**	39.50	**13-926-1**	23.65	–	–
24"	5R	¾"	0.020"	**13-877-6**	39.50	**13-927-9**	23.65	–	–
24"	16R	¾"	0.020"	**13-878-4**	39.50	**13-928-7**	23.65	–	–
24"/600 mm	E/M	¾"	0.020"	**13-879-2**	39.50	**13-929-5**	23.65	–	–
24"/600 mm	†D/M	¾"	0.020"	**14-688-6**	39.50	–	–	–	–
600 mm	M	¾"	0.020"	**14-689-4**	39.50	–	–	–	–
36"	4R	¾"	0.020"	**13-953-5**	74.80	–	–	–	–
36"	5R	¾"	0.020"	**13-954-3**	74.80	–	–	–	–
36"	16R	¾"	0.020"	**13-955-0**	74.80	–	–	–	–
36"/900 mm	E/M	¾"	0.020"	**13-956-8**	74.80	–	–	–	–
900 mm	M	¾"	0.020"	**13-957-6**	74.80	–	–	–	–
48"	4R	¾"	0.020"	**13-960-0**	112.20	–	–	–	–
48"	5R	¾"	0.020"	**13-962-6**	112.20	–	–	–	–
48"	16R	¾"	0.020"	**13-963-4**	112.20	–	–	–	–
48"/1200 mm	E/M	¾"	0.020"	**13-961-8**	112.20	–	–	–	–
1200 mm	M	¾"	0.020"	**13-964-2**	112.20	–	–	–	–
72"	10R	¾"	0.020"	**13-965-9**	210.95	–	–	–	–
72"	12R	¾"	0.020"	**13-966-7**	210.95	–	–	–	–



SPI® Flexible Chrome Steel Rules

- Etched and black filled for readability.
- Rules are hardened and tempered.
- Satin chrome finish.

- Graduations
  - 4R - 8ths, 16ths, 32nds, 64ths
  - 5R - 32nds, 64ths, 10ths, 100ths
  - 16R - 32nds, 64ths, 50ths, 100ths

MADE IN USA

SIZE	TYPE	WIDTH	THICK -NESS	PART NUMBER	PRICE
6"	4R	½"	0.015"	**30-153-1**	$11.50
6"	5R	½"	0.015"	**30-154-9**	11.50
6"	16R	½"	0.015"	**30-155-6**	11.50
12"	4R	½"	0.015"	**30-156-4**	22.45
12"	5R	½"	0.015"	**30-157-2**	22.45
12"	16R	½"	0.015"	**30-158-0**	22.45
24"	4R	¾"	0.020"	**30-159-8**	63.35
24"	5R	¾"	0.020"	**30-160-6**	63.35
24"	16R	¾"	0.020"	**30-161-4**	63.35

PI® Tapes
Precision Diameter Tapes
Quick and easy method of reading true diameter of round and out-of-round forms

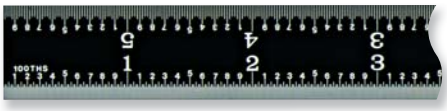
- Tapes are manufactured in temperature controlled facilities to insure accuracy.
- All graduations are engraved and etched on a ground surface.
- Tapes read to 0.001" diameter.
- Accuracy: ±0.001" to 144".
- Certificate traceable to NIST furnished with each tape.





MEAS. RANGE	PART NO.	PRICE
0.5 – 7"	**13-430-4**	$139.45
2 – 12"	**13-431-2**	139.45
2 – 24"	**13-432-0**	218.90
12 – 24"	**13-433-8**	151.75
12 – 36"	**13-434-6**	233.80
24 – 36"	**13-435-3**	164.25
24 – 48"	**13-436-1**	246.35
36 – 48"	**13-437-9**	175.65
48 – 60"	**13-438-7**	198.90
60 – 72"	**13-439-5**	218.90
72 – 84"	**13-440-3**	233.80
84 – 96"	**13-441-1**	261.25
96 – 108"	**13-442-9**	273.45
108 – 120"	**13-443-7**	295.00
120 – 132"	**13-444-5**	320.70
132 – 144"	**13-445-2**	326.35

SPI® Rigid Steel Rules



- Made of hardened and tempered steel.
- Durable finishes for rust and wear durability.
- Satin Chrome: Precisely etched, then black filled.
- Easy View: Precisely etched, then white filled.
- Micro-fine graduations:
  - 3R - 32nds, 64ths, 10ths, 50ths
  - 4R - 8ths, 16ths, 32nds, 64ths
  - 5R - 32nds, 64ths, 10ths, 100ths
  - 16R - 32nds, 64ths, 50ths, 100ths
  - E/M - 32nds, 64ths, 1/2 mm, 1 mm
  - D/M - 10ths, 100ths, 1/2 mm, 1 mm
  - M - 1/2 mm, 1 mm, 1/2 mm, 1 mm



SIZE	TYPE	WIDTH	THICK -NESS	SATIN CHROME FINISH PART NO.	PRICE	EZ VIEW® FINISH PART NO.	PRICE
6"	3R	3/4"	0.04"	**13-840-4**	$9.30	**13-890-9**	$6.40
6"	4R	3/4"	0.04"	**13-841-2**	9.30	**13-891-7**	6.40
6"	5R	3/4"	0.04"	**13-842-0**	9.30	**13-892-5**	6.40
6"	16R	3/4"	0.04"	**13-843-8**	9.30	**13-893-3**	6.40
6"/150 mm	E/M	3/4"	0.04"	**13-844-6**	9.30	**13-894-1**	6.40
6"/150 mm	D/M	3/4"	0.04"	**14-453-5**	9.30	–	–
150 mm	M	3/4"	0.04"	**14-454-3**	9.30	–	–
12"	3R	1.0"	0.04"	**13-845-3**	17.70	**13-895-8**	10.55
12"	4R	1.0"	0.04"	**13-846-1**	17.70	**13-896-6**	10.55
12"	5R	1.0"	0.04"	**13-847-9**	17.70	**13-897-4**	10.55
12"	16R	1.0"	0.04"	**13-848-7**	17.70	**13-898-2**	10.55
12"/300 mm	E/M	1.0"	0.04"	**13-849-5**	17.70	**13-899-0**	10.55
12"/300 mm	D/M	1.0"	0.04"	**14-456-8**	17.70	–	–
300 mm	M	1.0"	0.04"	**14-457-6**	17.70	–	–
18"	3R	1 1/8"	0.04"	**13-850-3**	27.50	**13-900-6**	20.90
18"	4R	1 1/8"	0.04"	**13-851-1**	27.50	**13-901-4**	20.90
18"	5R	1 1/8"	0.04"	**13-852-9**	27.50	**13-902-2**	20.90
18"	16R	1 1/8"	0.04"	**13-853-7**	27.50	**13-903-0**	20.90
18"/450 mm	E/M	1 1/8"	0.04"	**13-854-5**	27.50	**13-904-8**	20.90
18"/450 mm	D/M	1 1/8"	0.04"	**14-458-4**	27.50	–	–
450 mm	M	1 1/8"	0.04"	**14-459-2**	27.50	–	–
24"	3R	1 1/8"	0.04"	**13-855-2**	42.20	**13-905-5**	24.70
24"	4R	1 1/8"	0.04"	**13-856-0**	42.20	**13-906-3**	24.70
24"	5R	1 1/8"	0.04"	**13-857-8**	42.20	**13-907-1**	24.70
24"	16R	1 1/8"	0.04"	**13-858-6**	42.20	**13-908-9**	24.70
24"/600 mm	E/M	1 1/8"	0.04"	**13-859-4**	42.20	–	–
24"/600 mm	D/M	1 1/8"	0.04"	**14-460-0**	42.20	–	–
600 mm	M	1 1/8"	0.04"	**14-461-8**	42.20	–	–
36"	4R	1 1/4"	0.04"	**13-948-5**	88.10	–	–
36"	5R	1 1/4"	0.04"	**13-949-3**	88.10	–	–
36"	16R	1 1/4"	0.04"	**13-950-1**	88.10	–	–
36"/900 mm	E/M	1 1/4"	0.04"	**13-951-9**	88.10	–	–
900 mm	M	1 1/4"	0.04"	**13-952-7**	88.10	–	–
48"	4R	1 1/4"	0.04"	**13-958-4**	137.50	–	–
48"/1200 mm	E/M	1 1/4"	0.04"	**13-959-2**	137.50	–	–

SIZE	TYPE	WIDTH	THICK -NESS	TEMPERED STEEL FINISH PART NO.	PRICE
6"	4R	3/4"	0.04"	**14-462-6**	$7.85
12"	4R	1.0"	0.04"	**14-464-2**	12.65



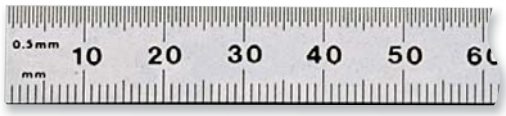
SPI® Adjustable Hook Rules - Satin Chrome Finish

- Tool steel, hardened and tempered.
- Hard chrome finish - no glare.
- Furnished with adjustable hook.
- Thickness: 0.040"
- Micro-fine graduations:
  - 4R - 8ths, 16ths, 32nds, 64ths
  - 16R - 32nds, 64ths, 50ths, 100ths
  - E/M - 32nds, 64ths, 1/2 mm, 1 mm

SIZE	TYPE	WIDTH	PART NO.	PRICE
6"	4R	3/4"	**13-932-9**	$15.80
6"	16R	3/4"	**13-933-7**	15.80
6"	E/M	3/4"	**13-934-5**	15.80
12"	4R	1"	**13-935-2**	21.80
12"	16R	1"	**13-936-0**	21.80
12"	E/M	1"	**13-937-8**	21.80
18"	4R	1 1/8"	**13-938-6**	33.55
18"	16R	1 1/8"	**13-939-4**	33.55
18"	E/M	1 1/8"	**13-940-2**	33.55
24"	4R	1 1/8"	**13-941-0**	38.60
24"	16R	1 1/8"	**13-942-8**	38.60
24"	E/M	1 1/8"	**13-943-6**	38.60







Flexible

Starrett® Full Flexible Steel Rules

- Satin chrome finish.
- STARRETT® #C304SRE-12 has 1/32" end graduations at both ends, one side.
- Graduations:
  - 3R - 32nds, 64ths, 10ths, 50ths
  - 4R - 8ths, 16ths, 32nds, 64ths
  - 5R - 32nds, 64ths, 10ths, 100ths
  - 6R - 50ths, 50ths, 10ths, 10ths
  - 9R - 64ths only, 16ths, 32nds
  - 16R - 32nds, 64ths, 50ths, 100ths
  - Eng./Met. - 32nds, 64ths, 1 mm, 1/2 mm
  - Dec./Met. - 10ths, 50ths, 1 mm, 1/2 mm
  - Metric - 1 mm, 1/2 mm, 1 mm, 1/2 mm

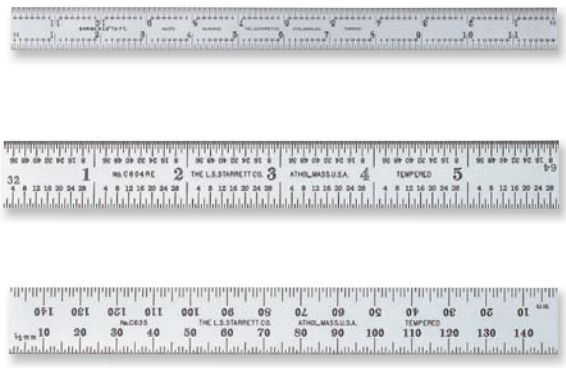
SIZE	GRAD.	WIDTH	MODEL #	PART NO.	PRICE
6"	3R	1/2"	C303R-6	**10-835-7**	$25.00
6"	3R	3/4"	C303SR-6	**11-406-6** *	29.60
6"	4R	1/2"	C304R-6	**10-836-5**	25.55
6"	4R	3/4"	C304SRE-6	**10-837-3** *	29.60
6"	5R	1/2"	C305R-6	**10-838-1**	26.25
6"	6R	1/2"	C306R-6	**11-407-4**	25.00
6"	9R	1/2"	C309R-6	**11-408-2**	25.50
6"	16R	1/2"	C316R-6	**10-839-9**	27.30
150 mm	Metric	1/2"	C330-150	**11-409-0**	25.55
6"/150 mm	Eng./Met.	1/2"	C331-150	**11-410-8**	29.05
6"/150 mm	Dec./Met.	1/2"	C334-150	**10-840-7**	30.65
12"	3R	1"	C303SR-12	**11-411-6**	55.05
12"	4R	1/2"	C304R-12	**11-412-4**	54.10
12"	4R	1"	C304SRE-12	**11-413-2** *	58.75
12"	5R	1/2"	C305R-12	**11-414-0**	53.00
12"	16R	1/2"	C316R-12	**11-415-7**	58.75
12"/300 mm	Eng./Met.	1/2"	C331-300	**11-416-5**	55.05
300 mm	Metric	1/2"	C334-300	**11-417-3**	63.25
300 mm	Metric	1"	C335S-300	**11-418-1** *	65.35
18"	5R	3/4"	C305R-18	**11-419-9**	86.20
18"	16R	3/4"	C316R-18	**11-420-7**	95.45
24"	3R	1"	C303SR-24	**11-421-5**	134.30
24"	4R	3/4"	C304R-24	**11-422-3**	115.90
24"	5R	3/4"	C305R-24	**11-423-1**	120.85
24"	16R	3/4"	C316R-24	**11-424-9**	134.30

*Semi-flexible

Accessories

DESCRIPTION	RULE WIDTH	MODEL #	PART NO.	PRICE
Case for 6" Rules	1/2"	55433	**11-427-2**	$6.95
Case for 6"Rules	3/4"	55434	**11-428-0**	8.50
Rule Holder	3/4" - 1 9/16"	50304	**11-429-8**	143.85

MEASURING



Rigid

Starrett®
Rigid Steel Rules

- STARRETT® #C636ME-150 includes graduations 1/32", 1/2 mm on one side and 1/64", 1mm on reverse.
- STARRETT® #C604RE-6 and C604RE-12 includes graduations in 32nds on both ends, one side.
- Graduations:
  4R - 8ths, 16ths, 32nds, 64ths
  6R - 50ths, 50ths, 10ths, 10ths
  7R - 16ths, 32nds, 64ths, 100ths
  16R - 32nds, 64ths, 50ths, 100ths
  Dec./Met. - 10ths, 50ths, 1 mm, 1/2 mm
  Metric - 1 mm, 1/2 mm, 1 mm, 1/2 mm

Satin Chrome Finish

SIZE	GRAD.	WIDTH	MODEL #	PART NO.	PRICE
1"	4R	1/2"	C604R-1	**11-430-6**	$21.40
2"	4R	1/2"	C604R-2	**11-431-4**	21.85
3"	4R	9/16"	C604R-3	**11-432-2**	22.70
4"	4R	5/8"	C604R-4	**11-433-0**	25.00
6"	4R	3/4"	C604RE-6	**10-854-8**	29.60
6"	4R	3/4"	C604R-6	**10-842-3**	27.35
6"	4R	3/4"	CD604R-6	**11-434-8** *	35.05
6"	4R	3/4"	CH604R-6	**11-435-5** †	34.05
6"	6R	3/4"	C606R-6	**11-436-3**	27.30
6"	7R	3/4"	C607R-6	**11-437-1**	31.20
6"	16R	3/4"	C616R-6	**11-438-9**	32.75
6"/150 mm	Dec./Met.	3/4"	C636ME-150	**11-439-7**	30.10
150 mm	Metric	3/4"	C637-150	**11-440-5**	28.35
12"	4R	1"	C604R-12	**11-441-3**	45.00
12"	4R	1"	C604RE-12	**11-442-1**	55.05
12"	4R	1"	CD604R-12	**11-443-9** *	65.30
12"	4R	1"	CH606R-12	**11-444-7** †	61.25
12"	6R	1"	C606R-12	**11-445-4**	46.55
12"	16R	1"	C616R-12	**11-446-2**	62.60
18"	4R	1 1/8"	C604R-18	**11-447-0**	88.40
24"	4R	1 1/4"	C604R-24	**11-448-8**	113.80
36"	4R	1 1/4"	C604R-36	**11-449-6**	210.90
36"	16R	1 1/4"	C416R-36	**11-450-4**	392.05
48"	4R	1 1/2"	C604R-48	**11-451-2**	274.15
48"	16R	1 1/4"	C416R-48	**11-452-0**	666.50
72"	4R	1 1/2"	C404R-72	**11-453-8**	710.85
72"	16R	1 1/2"	C416R-72	**11-454-6**	905.40

*Adjustable Double Hook Style † Hook Style

Tempered Steel Finish

SIZE	GRAD.	WIDTH	MODEL #	PART NO.	PRICE
6"	4R	3/4"	604R-6	**11-455-3**	$24.20
6"	4R	3/4"	DH604R-6	**11-456-1** *	32.30
6"	4R	3/4"	H604R-6	**11-457-9** †	31.20
12"	4R	1"	604R-12	**11-458-7**	35.55
12"	4R	1"	H604R-12	**11-459-5** †	47.35
12"	4R	1"	DH604R-12	**11-460-3** *	56.45

*Adjustable Double Hook Style † Hook Style

SPI®
Pocket Rules - Stainless Steel



13-930-3

- Hardened and tempered.
- Includes pocket clip.
- Micro-fine graduations:
  10R/D - 32nds, 64ths, Decimal equivalent chart on opposite face
  10R - 32nds, 64ths
  Eng./Met./D - 64ths, 1 mm, Metric equivalent on opposite face

SIZE	TYPE	WIDTH	PART NO.	PRICE
6"	10R/D	1/2"	**13-930-3**	$7.75
6"	10R	1/4"	**13-931-1**	7.20
6"	Eng./Met./D	1/2"	**13-976-6**	7.00

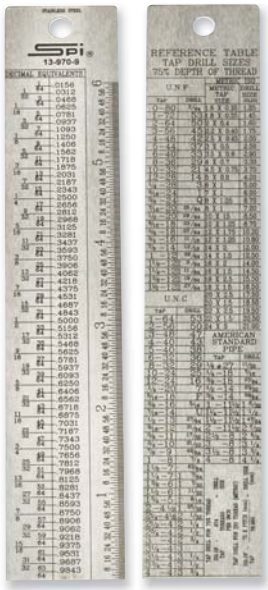
SPI®
6" 10R Rule w/Decimal Equivalents



13-977-4

- 10R - 64th, 32nd.
- Made of tempered spring steel with no glare satin chrome finish.
- One side has accurate, machine-divided graduations.
- Reverse side has legible table of fractions and decimal equivalents.

DESCRIPTION	PART NO.	PRICE
6" 10R Rule w/Decimal Equivalents	**13-977-4**	$16.65

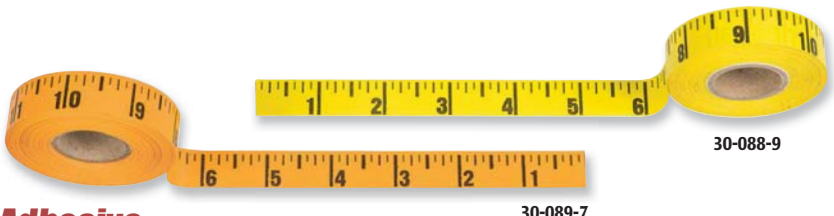


13-970-9

SPI®
6" Rule with Reference Table

- Stainless steel, 6" measuring range.
- Reference table for machinists, toolmakers, mechanics, etc.
- Front: Tap drill sizes recommended for 75% depth of thread.
- Back: Decimal equivalents table in 64ths from 1/64 to 63/64".

DESCRIPTION	PART NO.	PRICE
Rule w/Reference Table	**13-970-9**	$9.75



30-088-9

30-089-7

Adhesive Tape Measures
Easy to Read

NEW

MADE IN USA

- Sticks to any surface.
- Numbers run from left to right – reapeating yard stick, or right to left.
- Tape runs equivalent to 3 ft. and repeats 20 times.

DESCRIPTION	TAPE COLOR	PART NO.	PRICE
Left to Right	Yellow	**30-088-9**	$26.00
Right to Left	Orange	**30-089-7**	26.00

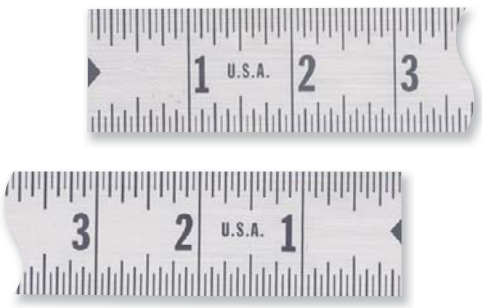
Mylar Adhesive Backed Rules

Horizontal and Vertical

- Rules adhere to any surface for a convenient, low-profile measuring guide.
- Show continuous inches (mm) except where noted.

Material:

- Mylar - Non-marring, non-conductive and non-corrosive rules are 6 mils thick (4 mils vinyl, 1 mil mylar top coat, 1 mil adhesive).
- The rules are more flexible and thinner than metal rules which adhere better to surfaces that are not smooth.
- The 3" wide rules have large numbers and black markings.
- Rules are furnished in 4' segments unless noted.



Horizontal



Vertical

Horizontal Rules with Adhesive Back

GRADUATION	LENGTH (FT)	WIDTH	COLOR	LEFT TO RIGHT PART NO.	PRICE	RIGHT TO LEFT PART NO	PRICE
1/32"	1'	1/2"	Silver	32-671-0	$3.35	32-672-8	$3.35
1/32"	3'	1/2"	Silver	32-673-6	9.25	32-674-4	9.25
1/32"	6'	1/2"	Silver	32-675-1	16.45	32-676-9	16.45
1/32"	9'	1/2"	Silver	32-677-7	20.55	32-678-5	20.55
1/32"	12'	1/2"	Silver	32-679-3	26.85	32-680-1	26.85
1/16"	1'	1/2"	Clear	32-681-9	3.35	32-682-7	3.35
1/16"	1'	1/2"	Silver	32-683-5	3.35	32-684-3	3.35
1/16"	1'	1 1/4"	Silver	32-685-0	3.90	32-686-8	3.90
1/16"	1'	1 1/4"	Clear	32-687-6	3.90	32-688-4	3.90
1/16"	1' 6"	1 1/4"	Silver	32-689-2	5.45	32-690-0	5.45
1/16"	3'	1/2"	Clear	32-691-8	9.25	32-692-6	9.25
1/16"	3'	1/2"	Silver	32-693-4	9.25	32-694-2	9.25
1/16"	3'	1 1/4"	Clear	32-695-9	9.50	32-696-7	9.50
1/16"	3'	1 1/4"	Silver	32-697-5	9.50	32-698-3	9.50
1/16"	6'	1/2"	Clear	32-699-1	16.45	32-700-7	16.45
1/16"	6'	1/2"	Silver	32-701-5	16.45	32-702-3	16.45
1/16"	6'	1 1/4"	Clear	32-703-1	17.50	32-704-9	17.50
1/16"	6'	1 1/4"	Silver	32-705-6	17.50	32-706-4	17.50
1/16"	9'	1/2"	Clear	32-707-2	20.55	32-708-0	20.55
1/16"	9'	1/2"	Silver	32-709-8	20.55	32-710-6	20.55
1/16"	9'	1 1/4"	Clear	32-711-4	22.10	32-712-2	22.10
1/16"	9'	1 1/4"	Silver	32-713-0	22.10	32-714-8	22.10
1/16"	12'	1/2"	Clear	32-715-5	23.10	32-716-3	23.10
1/16"	12'	1/2"	Silver	32-717-1	23.10	32-718-9	23.10
1/16"	12'	1 1/4"	Clear	32-719-7	29.50	32-720-5	29.50
1/16"	12'	1 1/4"	Silver	32-721-3	29.50	32-722-1	29.50
1/16"	18'	1"	Silver	32-723-9	43.35	32-724-7	43.35
1/16"	24'	1/2"	Silver	32-725-4	43.35	32-726-2	43.35
1/16"	24'	1"	Silver	32-727-0	54.40	32-728-8	54.40
1/16"	30'	1/2"	Silver	32-729-6	78.50	32-730-4	78.50
1/16"	48'	1"	Silver	32-731-2	100.00	32-732-0	100.00
1/16"	60'	1"	Silver	32-733-8	114.85	32-734-6	114.85
1/4"	7'6"	3"	Yellow	32-735-3 *	27.25	32-736-1 *	27.25
1/4"	15'	3"	Yellow	32-737-9 *	51.85	32-738-7 *	51.85
1/4"	22' 6"	3"	Yellow	32-739-5 *	70.00	–	–
1/4"	30'	3"	Yellow	32-740-3 *	86.15	–	–
1/4"	45'	3"	Yellow	32-741-1 *	109.00	–	–
1/4"	60'	3"	Yellow	32-742-9 *	142.80	–	–
1mm	1m	12.7mm	White	32-743-7 †	10.00	32-744-5 †	10.00
1mm	2m	12.7mm	White	32-745-2 †	17.25	32-746-0 †	17.25
1mm	3m	12.7mm	White	32-747-8 †	23.10	32-748-6 †	23.10
1mm	4m	12.7mm	White	32-749-4 †	25.15	32-750-2 †	25.15

* Furnished in 7.5' lengths. † Graduations and length measurements in metric.

Horizontal-Half Scale with Adhesive Back

GRADUATION	LENGTH (FT)	WIDTH	COLOR	LEFT TO RIGHT PART NO.	PRICE	RIGHT TO LEFT PART NO	PRICE
1/8"	1' 6"	1"	Silver	32-799-9	$5.95	32-800-5	$5.95
1/8"	3'	1"	Silver	32-801-3	5.95	32-802-1	5.95
1/8"	6'	1"	Silver	32-803-9	10.85	32-804-7	10.85

Vertical Rules with Adhesive Back

GRADUATION	LENGTH (FT)	WIDTH	COLOR	BOTTOM TO TOP PART NO.	PRICE	TOP TO BOTTOM PART NO.	PRICE
1/16"	1'	1/2"	Clear	32-751-0	$3.35	32-752-8	$3.35
1/16"	1'	1 1/4"	Clear	32-753-6	3.90	32-754-4	3.90
1/16"	1'	1 1/4"	Silver	32-755-1	3.90	32-756-9	3.90
1/16"	1'6"	1 1/4"	Silver	32-757-7	4.90	32-758-5	4.90
1/16"	3'	1/2"	Clear	32-759-3	7.75	32-760-1	7.75
1/16"	3'	1 1/4"	Clear	32-761-9	8.75	32-762-7	8.75
1/16"	3'	1 1/4"	Silver	32-763-5	8.75	32-764-3	8.75
1/16"	6'	1/2"	Clear	32-765-0	14.90	32-766-8	14.90
1/16"	6'	1 1/4"	Clear	32-767-6	15.70	32-768-4	15.70
1/16"	6'	1 1/4"	Silver	32-769-2	15.70	32-770-0	15.70
1/16"	9'	1/2"	Clear	32-771-8	20.00	32-772-6	20.00
1/16"	9'	1 1/4"	Clear	32-773-4	22.10	32-774-2	22.10
1/16"	9'	1 1/4"	Silver	32-775-9	22.10	32-776-7	22.10
1/16"	12'	1/2"	Clear	32-777-5	21.35	32-778-3	21.35
1/16"	12'	1 1/4"	Clear	32-779-1	28.00	32-780-9	28.00
1/16"	12'	1 1/4"	Silver	32-781-7	28.00	32-782-5	28.00
1/10"	3'	1/2"	White	32-783-3	8.25	32-784-1	8.25
1/10"	6'	1/2"	White	32-785-8	14.90	32-786-6	14.90
1/10"	9'	1/2"	White	32-787-4	18.75	32-788-2	18.75
1/10"	12'	1/2"	White	32-789-0	26.80	32-790-8	26.80
1/4"	4'	3"	Yellow	32-791-6 *	16.20	–	–
1/4"	6'	3"	Yellow	32-792-4 *	23.10	–	–
1/4"	8'	3"	Yellow	32-793-2 *	29.50	–	–
1/4"	12'	3"	Yellow	32-794-0 *	41.35	–	–
1/4"	20'	3"	Yellow	32-795-7 *	59.50	–	–
1/4"	24'	3"	Yellow	32-796-5 *	66.95	–	–
1/4"	32'	3"	Yellow	32-797-3 *	87.15	–	–
1/4"	36'	3"	Yellow	32-798-1 *	99.00	–	–

* Furnished in 4' segments.

Half Scale

- Rules are 1" wide and have 1/8" graduations.
- The rules color are silver with black markings.
- Have many applications which include creating half-scale plans, framing, printing and finding the center of a roll.
- On a half-scale rule, each 1/2" measured reads 1".
- The rules are 2 mils thick mylar with 1 mil of extra mylar coating.

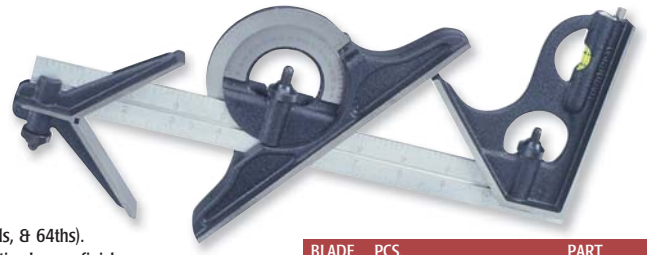
Vertical-Half Scale with Adhesive Back

GRADUATION	LENGTH (FT)	WIDTH	COLOR	BOTTOM TO TOP PART NO.	PRICE	TOP TO BOTTOM PART NO.	PRICE
1/8"	1' 6"	1"	Silver	32-805-4	$10.85	32-806-2	$10.85
1/8"	3'	1"	Silver	32-807-0	17.50	32-808-8	17.50

SPI® Combination Square Sets

- Accuracy meets Federal Specifications.
- Blades are fully hardened and tempered. Finished in baked enamel.
- Square head has level and scriber point.
- Micro-fine blade graduations.
- Sets with cast head or with hardened head.
- Graduations:
  - **4R:** 8ths, 16ths, 32nds, 64ths
  - **16R:** 32nds, 64ths, 50ths, 100ths
  - **Inch/Metric:** 1mm, 64ths, 32nds, ½mm
  - **Metric:** 1mm, ½mm, 1mm, ½mm

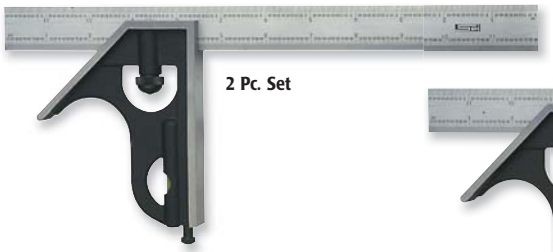
brown & sharpe Combination Square Sets

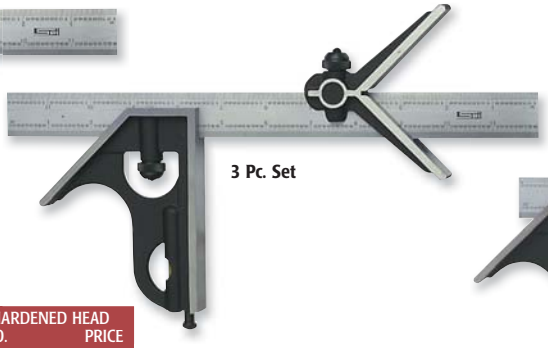


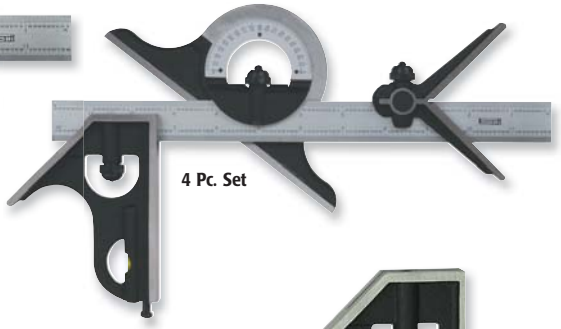
- 4R Graduated blade (8ths, 16ths, 32nds, & 64ths).
- Hardened and tempered blade with satin-chrome finish.
- Hardened center and square head, with baked enamel finish.
- Square head has integrated leveling vial and hardened steel scriber.
- Protractor is non-hardened and has integrated leveling vial.
- 2 pc. sets include: Blade & square.
- 3 pc. sets include: Blade, square and center head.
- 4 pc. sets include: Blade, square, center head and protractor.

BLADE SIZE	PCS. IN SET	MODEL #	PART NUMBER	PRICE
12	2	599-401-1204-1	**10-174-1**	$118.65
12	4	599-438-1204-1	**10-177-4**	266.15
12	3	599-400-1204-1	**10-187-3**	168.15
24	2	599-401-2404-1	**10-190-7**	169.20
24	3	599-400-2404-1	**10-192-3**	229.05
24	4	599-438-2404-1	**10-319-2**†	343.00

† reversible protractor head


2 Pc. Set


3 Pc. Set


4 Pc. Set

2 Pc. Sets - with Square Head & Blade

BLADE LENGTH	GRADUATION	SET W/CAST HEAD PART NO.	PRICE	SET W/HARDENED HEAD PART NO.	PRICE
6"	4R	**13-250-6**	$54.60	**13-350-4**	$64.50
6"	16R	**13-251-4**	58.30	**13-351-2**	69.45
6"	E/M	**13-252-2**	54.60	**13-352-0**	64.50
12"	4R	**13-253-0**	65.75	**13-353-8**	70.70
12"	16R	**13-254-8**	68.20	**13-354-6**	76.90
12"	E/M	**13-255-5**	65.75	**13-355-3**	70.70
18"	4R	**13-256-3**	88.05	**13-356-1**	106.65
18"	16R	**13-257-1**	94.25	**13-357-9**	112.85
18"	E/M	**13-258-9**	88.05	**13-358-7**	106.65
24"	4R	**13-259-7**	106.65	**13-359-5**	113.80
24"	16R	**13-260-5**	110.40	**13-360-3**	125.25
24"	E/M	**13-261-3**	106.65	**13-361-1**	113.80

3 Pc. Sets - with Square Head, Center Head & Blade

BLADE LENGTH	GRADUATION	SET W/CAST HEAD PART NO.	PRICE	SET W/HARDENED HEAD PART NO.	PRICE
6"	4R	**13-262-1**	$90.55	**13-362-9**	$107.90
6"	16R	**13-263-9**	105.45	**13-363-7**	125.25
6"	E/M	**13-264-7**	90.55	**13-364-5**	107.90
12"	4R	**13-265-4**	112.85	**13-365-2**	133.95
12"	16R	**13-266-2**	116.60	**13-366-0**	140.15
12"	E/M	**13-267-0**	112.85	**13-367-8**	133.95
18"	4R	**13-268-8**	142.65	**13-368-6**	169.90
18"	16R	**13-269-6**	146.35	**13-369-4**	174.90
18"	E/M	**13-270-4**	142.65	**13-370-2**	169.90
24"	4R	**13-271-2**	163.70	**13-371-0**	195.95
24"	16R	**13-272-0**	171.15	**13-372-8**	204.60
24"	E/M	**13-273-8**	163.70	**13-373-6**	195.95

4 Pc. Sets - with Square Head, Center Head, Protractor & Blade

BLADE LENGTH	GRADUATION	SET W/CAST HEAD PART NO.	PRICE	SET W/HARDENED HEAD PART NO.	PRICE
12"	4R	**13-274-6**	$141.40	**13-374-4**	$179.85
12"	16R	**13-275-3**	146.35	**13-375-1**	187.30
12"	E/M	**13-276-1**	141.40	**13-376-9**	179.85
18"	4R	**13-277-9**	166.20	**13-377-7**	212.10
18"	16R	**13-278-7**	169.90	**13-378-5**	217.05
18"	E/M	**13-279-5**	166.20	**13-379-3**	212.10
24"	4R	**13-280-3**	179.85	**13-380-1**	218.25
24"	16R	**13-281-1**	182.35	**13-381-9**	224.50
24"	E/M	**13-282-9**	179.85	**13-382-7**	218.25

Combination Square Accessories

SIZE	HEAD TYPE	CAST HEAD PART NO.	PRICE	HARDENED HEAD PART NO.	PRICE
6"	Square	**13-283-7**	$32.25	**13-383-5**	$39.70
12"-24"	Square	**13-284-5**	36.00	**13-384-3**	49.65
6"	Center	**13-285-2**	24.80	**13-385-0**	39.70
12"-24"	Center	**13-286-0**	27.30	**13-386-8**	39.70
12"-24"	Non-Reversible Protractor	**13-287-8**	62.05	–	–


Square Head


Center Head


Protractor


Blade


Clamp Screw

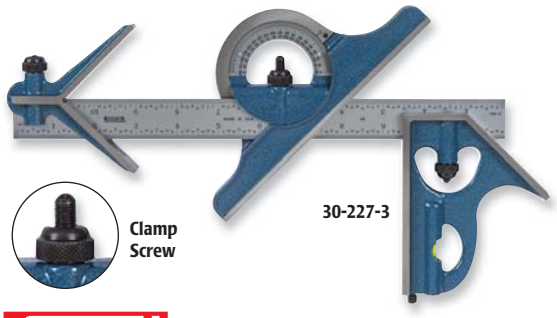
Replacement Blades

- Made to federal specifications.
- Fully hardened and tempered and satin chrome finish.
- Interchangeable with all popular makes of combination squares.
- Graduations:
  - **4R:** 8ths, 16ths, 32nds, 64ths
  - **16R:** 32nds, 64ths, 50ths, 100ths
  - **Inch/Metric:** 1mm, 64ths, 32nds, ½mm
  - **Metric:** 1mm, ½mm, 1mm, ½mm

BLADE LENGTH	GRADUATION	PART NO.	PRICE
6"	4R	**13-450-2**	$32.25
6"	16R	**13-451-0**	33.50
6"	E/M	**13-452-8**	31.65
12"	4R	**13-453-6**	44.70
12"	16R	**13-454-4**	47.15
12"	E/M	**13-455-1**	45.90
18"	4R	**13-456-9**	63.25
18"	16R	**13-457-7**	70.70
18"	E/M	**13-458-5**	63.25
24"	4R	**13-459-3**	76.90
24"	16R	**13-460-1**	81.90
24"	E/M	**13-461-9**	76.90

Clamp Screw Assembly

DESCRIPTION	PART NO.	PRICE
6" Clamp Screw	**13-241-5**	$4.90
12", 18" & 24" Clamp Screw	**13-242-3**	4.90



SPI®
12" Combination Square Sets

- Blades are fully hardened and tempered.
- Durable, easy to read satin chrome finish.
- High contrast, micro-fine blade graduations.
- Square/Miter head features a level vial and hardened scribe tool.
- Protractor scale graduated from 0 - 180 degrees in both directions.
- Reversible protractor head on hardened sets.
- Furnished in fitted case.
- Graduations:
  - **4R:** 8ths, 16ths, 32nds, 64ths
  - **16R:** 32nds, 64ths, 50ths, 100ths
  - **Inch/Metric:** 1mm, 64ths, 32nds, ½mm

MADE IN USA

2 Pc. Sets - with Square/Miter Head & Machinist's Blade

BLADE LENGTH	GRADUATION	SET W/CAST HEAD PART NO.	SET W/CAST HEAD PRICE	SET W/HARDENED HEAD PART NO.	SET W/HARDENED HEAD PRICE
12"	4R	**30-222-4**	$103.00	**30-223-2**	$112.00
12"	16R	**30-224-0**	111.50	**30-225-7**	125.00

4 Pc. Sets - with Square/Miter Head, Center Head, Protractor Head & Machinist's Blade

BLADE LENGTH	GRADUATION	SET W/CAST HEAD PART NO.	SET W/CAST HEAD PRICE	SET W/HARDENED HEAD PART NO.	SET W/HARDENED HEAD PRICE
12"	4R	**30-226-5**	$189.00	**30-227-3**	$225.00
12"	16R	**30-228-1**	195.00	**30-229-9**	290.00
12"	E/M	**30-230-7**	239.90	**30-231-5**	249.00

Clamp Screw Assembly

DESCRIPTION	PART NO.	PRICE
12", 18" & 24" Clamp Screw	**07-353-6**	$4.90



SPI®
Adjustable Double Squares

- Ideal for precision layout work.
- Highly accurate.
- Meets Federal Specifications.
- Blades are fully hardened and tempered.
- Precision ground satin chrome blades for easy reading.
- Can be used as a parallel or as a double square.

4R: Graduation – 8ths, 16ths, 32nds, 64ths
16R: Graduation – 32nds, 64ths, 50ths, 100ths
Inch/Metric: Graduation – 1 mm, 64ths, 32nds, ½ mm

BLADE LENGTH	GRADUATION	PART NUMBER	PRICE
4"	4R	**13-191-2**	$37.65
4"	16R	**13-192-0**	37.65
4"	Inch/Metric	**13-193-8**	37.65
6"	4R	**13-194-6**	42.30
6"	16R	**13-195-3**	42.30
6"	Inch/Metric	**13-196-1**	42.30

Starrett®
Combination Squares

- Surfaces are accurately ground.
- Square head includes:
  - Reversible lock bolt.
  - Scriber.
  - Spirit level
- Blades:
  - Tempered Steel, Satin Chrome Finish.
  - 4R grad: (8ths, 16ths, 32nds & 64ths).
  - 16R grad: (32nds, 64ths, 50ths & 100ths).
  - Quick read 32nds & 64ths.



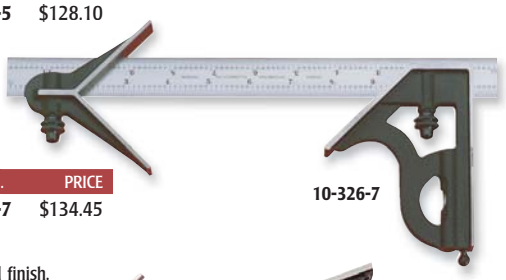
2 Pc. Combo Square - C33H-12-4R

- Machine-divided blade has very sharp, accurate graduations and is easy to read.
- 2 Pc. set includes: 12" blade (4R) and square head.

DESCRIPTION	PART NO.	PRICE
Starrett® 2 Pc. Combo Square	**10-817-5**	$128.10

3 Piece Set - 11HC-12-4R

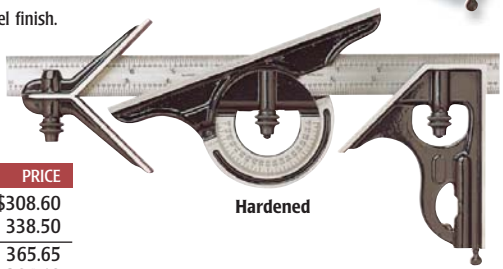
- 3pc. set includes 12" blade (4R), center head and square head.
- Heads are stable cast iron.
- Square head slides smoothly.



DESCRIPTION	PART NO.	PRICE
Starrett® 3 piece Combo Square	**10-326-7**	$134.45

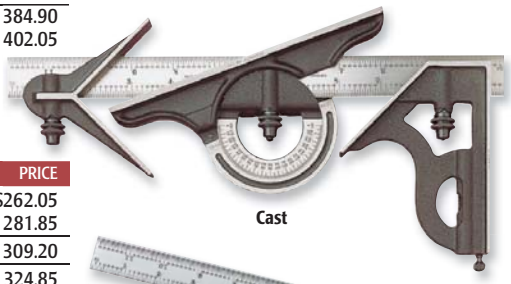
4 Piece sets

- Hardened heads feature smooth black enamel finish. Cast heads have black wrinkle finish.
- Blades in sets have natural steel finish.
- Reversible protractor head features 180° scale and integrated spirit level.



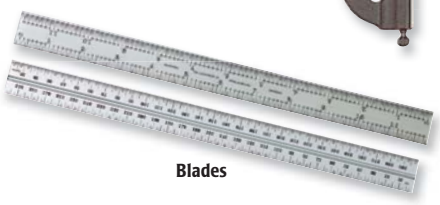
Hardened Center & Square Heads

BLADE SIZE	GRADUATION	PART NO.	PRICE
12"	4R	**10-970-2**	$308.60
12"	16R	**10-971-0**	338.50
18"	4R	**10-972-8**	365.65
18"	16R	**10-346-5**	384.10
24"	4R	**10-347-3**	384.90
24"	16R	**10-973-6**	402.05



Cast Iron Center & Square Heads

BLADE SIZE	GRADUATION	PART NO.	PRICE
12"	4R	**10-974-4**	$262.05
12"	16R	**10-345-7**	281.85
18"	4R	**10-348-1**	309.20
24"	4R	**10-349-9**	324.85



Satin Chrome Blades

GRADUATION	LENGTH	PART NO.	PRICE
4R	12	**10-967-8**	$56.45
4R	24	**10-968-6**	131.15
16R	24	**10-969-4**	151.50

STANLEY
12" Combination Square

- Blade is coated to resist rust and has clearly marked graduations (8ths, 16ths, & 32nds).
- Square head features:
  - Die cast metal body.
  - Machined working surfaces.
  - Level vial and scratch awl are built into the handle.
  - Adjusting knob and awl knob are solid brass.



DESCRIPTION	PART NO.	PRICE
Stanley® 12" Combination Square	**97-825-4**	$24.40

MEASURING



CRESCENT Lufkin

Pee Wee® Pocket Tapes

- Pocket size ideal for home or office.
- High strength case.
- Yellow clad blades.
- Flexible blade with bold graduations.
- Power retraction operation.

Short Tape Blade Styles

A16 Yellow Clad

- ¼" width only.
- Black markings one side only.
- Consecutive inches to 1/16ths bottom edge, first 12" to 1/32nds.
- Stud marks every 16".

BLADE LENGTH	BLADE WIDTH	BLADE STYLE	LUFKIN MODEL #	PART NUMBER	PRICE
6'	¼"	A16	W616	**21-404-9**	$9.15
10'	¼"	A16	W6110	**21-405-6**	13.45



CRESCENT Lufkin

Mezurall™ Power Tapes

- Chrome plated case with belt clip.
- Yellow clap blades.
- Power retraction operation.

Short Tape Blade Styles

A1 Yellow Clad

- ½" width only.
- Black and red markings one side only.
- Graduated feet and inches to 1/16ths top edge.
- Graduated inches to 1/16ths bottom edge, first 12" to 1/32nds.
- Instantaneous foot readings.
- Stud marks every 16".

A11 Yellow Clad

- Black and red markings one side only.
- Top edge graduated and numbered inches.
- Bottom edge to millimeters, numbered consecutive millimeters with red number at each decimeter.

BLADE LENGTH	BLADE WIDTH	BLADE STYLE	LUFKIN MODEL #	PART NUMBER	PRICE
8'	½"	A1	W928	**21-396-7**	$16.70
10'	½"	A1	W9210	**21-397-5**	17.80
12'	½"	A1	W9212	**21-398-3**	18.55
10'/3 m	½"/13 mm	A11	W9210ME	**21-399-1**	17.45

CRESCENT Lufkin

Series P1000 Power Tapes

Inch /Metric

- Bright yellow blade has clear easy-to-read numbers.
- Hi-Viz® orange case with rubber cushion to protect from impact and improves grip.
- Fits easily into most tape holsters.
- Cushioned blade return.



Short Tape Blade Styles

A13 Yellow Clad

- ½"/13 mm and ¾"/19 mm widths.
- Black and red markings one side only.
- Top edge to 1/16ths, continuous inches; feet and decimeters marked in red.
- Bottom edge graduated to millimeters, numbered consecutive centimeters.

BLADE LENGTH	BLADE WIDTH	BLADE STYLE	LUFKIN MODEL #	PART NUMBER	PRICE
10'/3 m	½"/ 13 mm	A13	PHV1023CME	**21-401-5**	$9.65
16'/5 m	¾"/19 mm	A13	PHV1035CME	**21-402-3**	16.00

CRESCENT Lufkin

Series P2000 Power Tapes

- Bright yellow blade has clear easy-to-read numbers.
- Lightweight, high strength chrome finish case.
- Case designed to fit perfectly in the hand.
- Fits easily into most tape holsters.
- Cushioned blade return.
- Removable blade clip.



Short Tape Blade Styles

A1 Yellow Clad

- ½" width only.
- Black and red markings one side only.
- Graduated feet and inches to 1/16ths top edge.
- Graduated inches to 1/16ths bottom edge, first 12" to 1/32nds.
- Instantaneous foot readings.
- Stud marks every 16".



A2 Yellow Clad

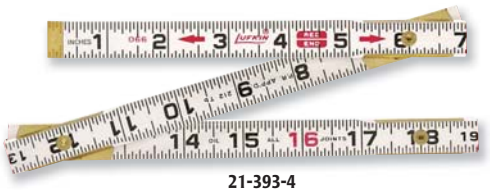
- ¾" width only.
- Black and red markings one side only.
- Graduated feet and inches to 1/16ths top edge.
- Graduated inches to 1/16ths bottom edge, first 12" to 1/32nds.
- Instantaneous foot readings.
- Stud marks every 16".

A5 Yellow Clad

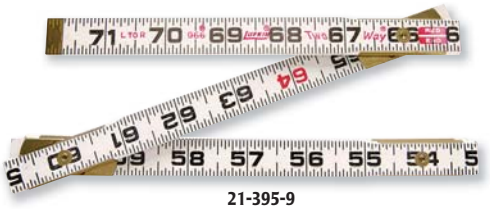
- 1" width only.
- Black and red markings one side only.
- Consecutive inches to 16ths.
- Stud marks every 16".
- Truss marks every 19.2".
- Instantaneous foot readings.



BLADE LENGTH	BLADE WIDTH	BLADE STYLE	LUFKIN MODEL #	PART NUMBER	PRICE
10'	½"	A1	P2210	**21-407-2**	$15.10
12'	½"	A1	P2212	**21-408-0**	16.10
12'	¾"	A2	P2312N	**21-409-8**	17.40
16'	¾"	A2	P2316N	**21-410-6**	21.55
25'	1"	A5	P2125	**21-411-4**	25.25
33'	1"	A5	P2133	**21-412-2**	29.85



21-393-4



21-395-9

CRESCENT Lufkin

Red End® Folding Wood Rules

- Size: 6' L x 5/8" W

Red End®

NEW

- Marked on both sides, both edges.
- Graduated to 1/16ths both edges; 16" stud centers marked in red.

Red End® Two-Way

- For measuring left to right, right to left.
- Marked on both sides.
- Graduated in feet, inches and 1/16ths on both sides and edges.
- Flat inside markings lie close to the work.

DESCRIPTION	LUFKIN MODEL #	PART NUMBER	PRICE
Red End®	T066N	**21-393-4**	$18.45
Red End® w/Inside Markings	066FN	**21-394-2**	19.05
Red End® Two-Way	966N	**21-395-9**	20.45



97-051-7

STANLEY

Tape Rules

- Polymer-coated blade withstands abrasion.
- High impact ABS case for durability.
- 16" and 19.2" stud center markings simplify framing jobs.
- Corrosion-resistant Tru-zero end hook for accurate measurements.
- Case color: yellow.

LENGTH (FT./M)	WIDTH	GRADUATION	STANLEY #	PART NUMBER	PRICE
12'	1/2"	1/16"	30-485	**97-048-3**	$7.95
16'	3/4"	1/16"	30-495	**97-049-1**	9.05
16'/5m	3/4"	1/16"/1cm	30-496	**97-050-9**	7.55
25'	1"	1/16"	30-455	**97-051-7**	17.55
25'	1"	1/16"	30-454	**97-052-5** *	14.55
26'/8m	1"	1/16"/1cm	30-456	**97-053-3**	16.85
30'	1"	1/16"	30-464	**97-054-1**	16.80

*Fractional measurements denoted on blade

STANLEY

PowerLock® Tape Rules



97-828-8

- Stanley's exclusive PowerLock® feature provides positive blade lock with no creeping. Slide lock front for easy operation.
- Mylar® polyester film extends life of entire blade.
- 16" and 19.2" stud center markings simpilify framing jobs.
- Corrosion-resistant Tru-zero end hook for accurate measurements.
- Chrome case.

PowerLock® Classic Tape Rules

- Chrome high-impact ABS case is job site tough.
- 7' blade standout (except 97-827-0).

BLADE LENGTH	BLADE WIDTH	STANLEY® MODEL#	PART NUMBER	PRICE
16'	3/4"	33-116	**97-827-0**	$17.40
25'	1"	33-425	**97-828-8**	22.05
30'	1"	33-430	**97-829-6**	24.40



97-829-6

PowerLock® Metal Case Tape Rules

- Cast-metal case is durable and suitable for heavy-duty use.

BLADE LENGTH	BLADE WIDTH	STANLEY® MODEL#	PART NUMBER	PRICE
12'	1/2"	33-212	**30-860-1**	$13.60
12'	3/4"	33-312	**97-826-2**	15.65



97-826-2

STANLEY

FatMax® Tape Measures w/Blade Armor®



97-196-0

NEW

- Blade Armor® on the first 6" of the blade to reduce blade breakage.
- Entire blade is coated in Mylar®.
- 3-rivet end-hook grabs side, top or bottom for easy measuring.
- Stud markings at 16" and 19.2".
- Forward blade lock.
- Rubber cushion grip and high-impact yellow ABS case.
- 11" standout.
- Belt clip.



97-200-0

BLADE LENGTH	BLADE WIDTH	GRADUATIONS	STANLEY MODEL #	PART NUMBER	PRICE
16'	1 1/4"	1/16"	33-716	**97-196-0**	$40.30
25'	1 1/4"	1/16"	33-725	**97-197-8**	41.80
26'/8 m	1 1/4"	1/32", 1/16", 1.00 mm	33-726	**97-198-6**	43.65
30'	1 1/4"	1/16"	33-730	**97-199-4**	43.15
35'	1 1/4"	1/16"	33-735	**97-200-0**	49.25

STANLEY

Open Reel Fiberglass Long Tape Rules

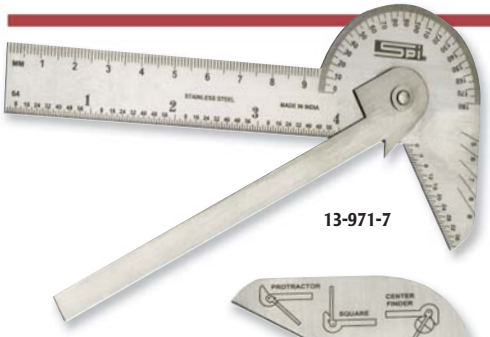
NEW



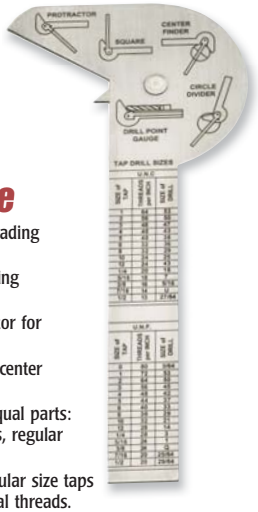
93-453-9

- 1/2" wide blade with easy-to-read markings.
- 2-sided blade graphics with fractional inch/decimal foot scales.
- Polymer-coated blade withstands abrasion.
- High-impact ABS case with durable rubber grip holds up to heavy use.
- Corrosion-resistant Tru-zero folding end hook for accurate measurements.
- Color: yellow/black.

BLADE LENGTH	STANLEY MODEL #	PART NUMBER	PRICE
100'	34-790	**93-453-9**	$20.80
200'	34-793	**93-454-7**	28.10



13-971-7



Multi-Use Rule and Gage

- 4" Stainless steel quick reading 64ths and metric scale.
- Drill point gage for checking 118° drill points.
- Square and bevel protractor for measuring and layout.
- Center finder for locating center of shafts and circles.
- Circle divider – up to 9 equal parts: Divides circles into sectors, regular polygons, and polygrams.
- Tap drill table shows popular size taps with drill sizes for National threads.

DESCRIPTION	PART NO.	PRICE
Multi-Use Rule and Gage	**13-971-7**	$14.75



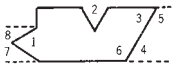
14-190-3

Angle Gage Set

- Use to quickly check angles.
- Can be used instead of a protractor.
- Has 18 leaves, each with a different angle.
- Made of finest hardened spring steel.
- Accuracy: ±0.5 degree.
- Dimensions: 3⅝" long x 51/64" wide x ¼" thick
- Angle blades included: 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 14, 14.5, 15, 20, 25, 30, 35, 45°.

DESCRIPTION	PART NO.	PRICE
Angle Gage Set	**14-190-3**	$60.45

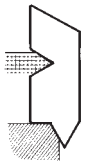




Angles 1, 2, 3, 4 are primary
Angles 5, 6, are complementary
Angles 7, 8 are 1/2 primary



Gaging of angles of adjoining inside/outside diameters or flat surfaces.



Gaging of I.D. and O.D. chamfers. Included angles are easily verified.



Gaging of the countersink angles of drilled and tapped holes.



Gaging of primary and complementary angles from a surface plate.



13-719-0

Countersink Angle Gage

- Easily verifies countersink angles.
- Graduated in 32nds for depth measurement.
- Accuracy: ±15 minutes.
- Standard angles are 60, 82, 90, 100, 110 and 120°.

DESCRIPTION	PART NO.	PRICE
Countersink Angle Gage	**13-719-0**	$21.35



12-187-0

Combination Depth & Angle Gages

- Hardened steel head with 2½" base.
- Angles: 30°, 45°, 60° both sides.
- Accuracy:
  Angle: ±30 minutes
  Rule: ±0.0008"
- Stainless steel blade: 6" x 7/32" with 32nds and 64ths graduations.
- Rod: Non-graduated, for holes under 3/32" diameter.

DESCRIPTION	PART NO.	PRICE
Head w/Blade	**12-187-0**	$20.30
Head w/Blade and Rod	**13-188-8**	22.65

Angle Gages

- Manufactured from stainless steel, satin finished.
- 18 individual gages for easy use.
- Eight gaging surfaces per gage. Accuracy ±30 Min.
- Precision finished edges for accurate checking.
- Each gage checks primary, ½ primary and complementary angles.
- Sharp cornered workpieces can be checked at all 8 angles except below 50° on primary angle 2.
- Quick and accurate inspection of angles and I.D. or O.D. chamfers – in or out of the machine.
- Positioning of lathe tools for chamfers.
- Inspecting angles on ground form tools and cutters.
- Fast set-ups and fixturing of workpieces.
- Eliminates time consuming measuring set-ups.
- Indispensible for every inspector, tool maker, machinist, layout and draftsman.

PRIMARY ANGLE	½ PRIMARY ANGLE	COMPLEMENTARY ANGLE	PART NUMBER	PRICE
5°	2° 30'	175°	**31-380-9** *	$5.95
10°	5°	170°	**31-381-7** *	5.95
15°	7° 30'	165°	**31-382-5** *	5.95
20°	10°	160°	**31-383-3**	5.95
25°	12° 30'	155°	**31-384-1**	5.95
30°	15°	150°	**31-385-8**	5.95
35°	17° 30'	145°	**31-386-6**	5.95
40°	20°	140°	**31-387-4**	5.95
45°	22° 30'	135°	**31-388-2**	5.95
50°	25°	130°	**31-389-0**	5.95
55°	27° 30'	125°	**31-390-8**	5.95
60°	30°	120°	**31-391-6**	5.95
65°	32° 30'	115°	**31-392-4**	5.95
70°	35°	110°	**31-393-2**	5.95
75°	37° 30'	105°	**31-394-0**	5.95
80°	40°	100°	**31-395-7**	5.95
85°	42° 30'	95°	**31-396-5**	5.95
90°	45°	90°	**31-397-3**	5.95
Set of above 18 gages in vinyl pouch			**31-375-9**	$93.60

* Angle 2 omitted.



50-344-1



50-364-9

Individual Radius Gages

- Each gage has radius marked on it.
- Stainless steel hardened with chrome finish.

SIZE	PART NO.	PRICE
1/64"	50-344-1	$7.25
1/32"	50-345-8	4.35
3/64"	50-346-6	4.35
1/16"	50-347-4	4.35
5/64"	50-348-2	4.35
3/32"	50-349-0	4.35
7/64"	50-350-8	4.35
1/8"	50-351-6	4.35
9/64"	50-352-4	4.35
5/32"	50-353-2	4.35
11/64"	50-354-0	4.35
3/16"	50-355-7	4.35
–	–	–

SIZE	PART NO.	PRICE
13/64"	50-356-5	$4.35
7/32"	50-357-3	4.35
15/64"	50-358-1	4.35
1/4"	50-359-9	4.35
17/64"	50-360-7	4.35
9/32"	50-361-5	4.95
5/16"	50-362-3	4.95
11/32"	50-363-1	4.95
13/32"	50-364-9	4.95
7/16"	50-365-6	4.95
15/32"	50-366-4	4.95
1/2"	50-367-2	4.95
Holder	50-368-0	12.95



51-097-4



50-140-3



50-141-1

Radius Gage Sets

- Each gage has radius marked with its size.
- Satin chrome finish.
- 5 different gaging surfaces.
- Ideal for checking convex and concave radii.

Fractional Sets

NO. OF PCS.	MEAS. RANGE MIN. - MAX. (IN.)	INCREMENTS (IN.)	HOLDER	PART NUMBER	PRICE
25	1/64 – 1/2	1/16 – 17/64 x 1/64, 9/32 – 1/2 x 1/32	Yes	50-140-3	$56.95
8	9/16 - 1	1/16	Yes	50-141-1	126.60
8	1 1/16 – 1 1/2	1/16	No	50-142-9	248.95
8	1 9/16 - 2	1/16	No	50-143-7	392.85

Decimal Sets

NO. OF PCS.	MEAS. RANGE MIN. - MAX. (IN.)	INCREMENTS (IN.)	HOLDER	PART NUMBER	PRICE
26	0.010 – 0.500	0.010 – 0.030 x 0.005, 0.040 – 0.100 x 0.010, 0.120 – 0.300 x 0.020, 0.350 – 0.500 x 0.050	Yes	51-097-4	$102.60
10	0.550 – 1.00	0.05	Yes	50-015-7	102.25

Metric Set

NO. OF PCS.	MEAS. RANGE MIN. - MAX.	INCREMENTS	HOLDER	PART NUMBER	PRICE
26	0.5 – 13 mm	0.50 mm	Yes	50-144-5	$92.80



SPI® Classic Radius Gage Sets

Made in Japan

- Made of rust-proof steel, satin chrome finish.
- Each gage is marked with its radius size.
- Each gage has 5 measuring surfaces for convex and concave radii.
- Accuracy:
  - up to 1" ±0.0012"
  - 1 1/16" to 2" ±0.002"
  - up to 25 mm ±0.03 mm
- All sets furnished in vinyl case.

DESCRIPTION	PART NO.	PRICE
25 Piece Set, with holder, 1/64 to 17/64" in increments of 64ths and 9/32" to 1/2" by 32nds.	30-310-7	$112.70
8 Piece Set, without holder, 9/16" to 1" in increments of 16ths.	30-685-2	209.00
8 Piece Set, without holder, 1 1/16" to 1 1/2" in fractions of 16ths.	30-686-0	521.90
8 Piece Set, without holder, 1 9/16" to 2" in fractions of 16ths.	30-687-8	910.50
26 Piece Set, with holder, 0.010" - 0.025" increments of 0.005" 0.030" - 0.100" increments of 0.010" 0.120" - 0.300" increments of 0.020" 0.350" - 0.500" increments of 0.050"	30-688-6	202.25
Metric 26 Piece Set, with holder 0.5 to 13 mm in increments of 0.5 mm	31-310-6	108.60

Individual Radius Gages

SIZE	PART NO.	PRICE
1/64"	30-720-7	$9.05
1/32"	30-721-5	9.05
3/64"	30-722-3	9.05
1/16"	30-723-1	9.05
5/64"	30-724-9	9.05
3/32"	30-725-6	9.05
7/64"	30-726-4	9.05
1/8"	30-727-2	9.05
9/64"	30-728-0	9.05
5/32"	30-729-8	9.05
11/64"	30-730-6	9.05
3/16"	30-731-4	9.05
13/64"	30-732-2	9.05

SIZE	PART NO.	PRICE
7/32"	30-733-0	$9.05
15/64"	30-734-8	9.05
1/4"	30-735-5	9.05
17/64"	30-736-3	9.05
9/32"	30-737-1	13.55
5/16"	30-738-9	13.55
11/32"	30-739-7	13.55
3/8"	30-740-5	13.55
13/32"	30-741-3	13.55
7/16"	30-742-1	13.55
15/32"	30-743-9	13.55
1/2"	30-744-7	13.55

MEASURING

Starrett® Radius Gage Sets



10-963-7

- Provides fast check of radii. Five different gaging surfaces.
- Ideal for checking convex and concave radii.
- Includes 4" holder with adjustable nut to hold blades.
- Each gage is clearly marked.
- Stainless steel, hardened with chrome finish.
- Furnished in plastic case.

Fractional Sets

NO. OF PIECES	MEASURING RANGE	INCREMENTS	HOLDER	STARRETT MODEL #	PART NUMBER	PRICE
25	1/64 - 1/2"	1/64 - 17/64" x 1/64", 9/32 - 1/2" x 1/32"	Yes	S167CHZ	**10-963-7**	$197.25
24	1/32 - 1/2"	1/32 - 17/64" x 1/64", 9/32 - 1/2" x 1/32"	No	S167CZ	**10-202-0**	164.70
17	1/64 - 17/64"	1/64 - 17/64" x 1/64"	Yes	S167AHZ	**10-203-8**	135.10
16	1/32 - 1/2"	1/32 - 1/2" x 1/32"	No	S167DZ	**10-204-6**	113.00

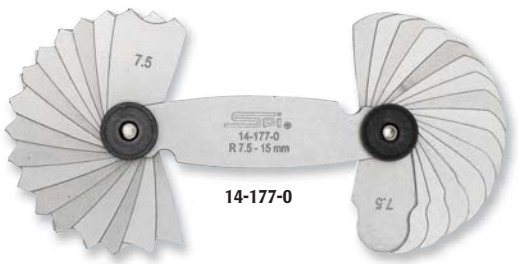
Decimal Sets

NO. OF PIECES	MEASURING RANGE	INCREMENTS	HOLDER	STARRETT MODEL #	PART NUMBER	PRICE
26	0.010 - 0.500"	0.010 - 0.025 X 0.005, 0.030 - 0.100 x 0.010, 0.120 - 0.300 x 0.020, 0.350 - 0.500 x 0.050	No	SD167GZ	**10-205-3**	$239.20
26	0.010 - 0.500"	0.010 - 0.025 X 0.005, 0.030 - 0.100 x 0.010, 0.120 - 0.300 x 0.020, 0.350 - 0.500 x 0.050	Yes	SD167GHZ	**10-206-1**	261.25
19	0.020 - 0.500"	0.020 - 0.300 X 0.020, 0.350 - 0.500 x 0.050,	No	SD167FZ	**10-207-9**	194.60
19	0.020 - 0.500"	0.020 - 0.300 X 0.020, 0.350 - 0.500 x 0.050,	Yes	SD167FHZ	**10-208-7**	219.85

Metric Sets

NO. OF PIECES	MEASURING RANGE	INCREMENTS	HOLDER	STARRETT MODEL #	PART NUMBER	PRICE
21	1.0 - 15 mm	1 - 7 mm x 0.50 mm 8 - 15 mm x 1.00 mm	No	S167MCZ	**10-209-5**	$175.40
22	0.5 - 15 mm	0.5 - 7 mm x 0.50 mm 8 - 15 mm x 1.00 mm	Yes	S167MCHZ	**10-210-3**	209.80

SPI® Radius Gages



14-177-0

- A very useful gage for tool makers, machinists, mechanics, etc.
- Accuracy: ±0.005"
- For checking concave and convex radii.
- Concave on one leaf, convex on separate leaf.
- Each leaf is clearly marked.
- Has knurled locking nut.

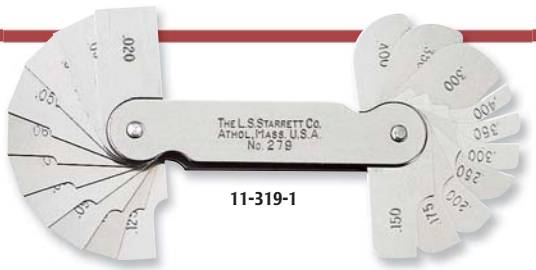
Inch

RANGE	GRADS	NO. OF LEAVES	PART NUMBER	PRICE
1/32 - 17/64"	1/64"	16	**14-174-7** *	$26.00
1/32 - 1/4"	1/64"	30	**14-178-8**	45.45
17/64 - 1/2"	1/64"	32	**14-175-4**	45.45

*Convex and concave on each leaf.

Metric

RANGE (MM)	GRADS (MM)	NO. OF LEAVES	PART NUMBER	PRICE
1.00 - 7.00	0.25	34	**14-176-2**	$22.50
7.50 - 15.00	0.50	32	**14-177-0**	32.45



11-319-1

Starrett® Fillet or Radius Gage

0.020 - 0.400" Range

- External and internal radius on each gage.
- Leaves are specially shaped for use in any position.
- Each leaf is stamped with the radius size.
- 20 Leaf Gage
  - 9 leaves with concave and convex radii from 0.020 – 0.100" inclusive by 0.10"
  - 4 leaves with concave and convex radii from 0.125 – 0.200" inclusive by 0.025"
  - 1 leaf with concave and convex radii of 0.250"
  - 3 leaves with concave radii only from 0.300 – 0.400" inclusive by 0.050"
  - 3 leaves with convex radii only from 0.300 – 0.400" inclusive by 0.050"
- Starrett® model #279.

DESCRIPTION	PART NO.	PRICE
Fillet or Radius Gage	**11-319-1**	$72.30



10-453-9



10-454-7

Mitutoyo Metric Screw Pitch Gages

- Narrow leaf design permits checking both external and internal threads, even in holes not accessible with wide leaf type gages.

18 leaves 0.4 - 7.0 mm Pitch, 60° Threads

- 0.4, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7
- Model #188-121

DESCRIPTION	PART NO.	PRICE
18 Leaves: 0.4 - 7.0 mm Pitch	**10-453-9**	$23.55

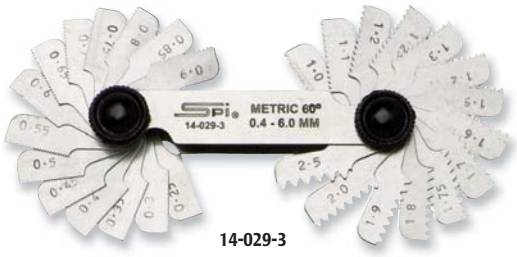
21 leaves 0.4 - 7.0 mm Pitch, 60° Threads

- 0.4, 0.5, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7
- Model #188-122

DESCRIPTION	PART NO.	PRICE
21 Leaves: 0.4 - 7.0 mm Pitch	**10-454-7**	$39.25

SPI® Classic
Metric Screw Pitch Gages
For Standard 60° V Threads

- Made of tempered steel
- Locking device at each end.
- Each leaf is marked for thread size.
- Narrow leaf design permits checking both internal and external threads.



14-029-3

20 Leaves: .4 - 6.0 mm Pitch

- .4, .45, .5, .6, .7, .75, .8, 1.0, 1.25, 1.5, 1.75, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0 mm

DESCRIPTION	PART NO.	PRICE
20 Leaves: .4 - 6.0 mm Pitch	**14-029-3**	$13.60

28 Leaves: .25 - 2.5 mm Pitch

- .25, .30, .35, .40, .45, .50, .55, .60, .65, .70, .75, .80, .85, .90, 1.0, 1.1, 1.2, 1.25, 1.3, 1.4, 1.5, 1.6, 1.7, 1.75, 1.8, 1.9, 2.0, 2.5 mm

DESCRIPTION	PART NO.	PRICE
28 Leaves: .25 - 2.5 mm Pitch	**14-030-1**	$16.90



14-030-1

28 Leaves: Inch 4 - 56 TPI/ Metric 0.5 - 6 mm Pitch

- 4, 6, 8, 10, 11, 11.5, 12, 13, 16, 20, 28, 32, 40, 56, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6 mm

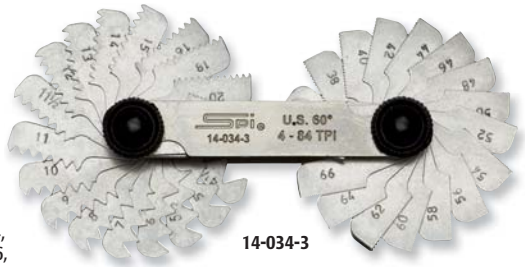
DESCRIPTION	PART NO.	PRICE
28 Leaves: 4 - 56/0.5 - 6 mm Pitch	**14-032-7**	$22.10



Made in Japan

SPI® Classic
Screw Pitch Gages
For American National or U.S. Standard 60° V Threads

- Precision sets of screw pitch gages.
- Knurled locking knob for securing in position.
- Narrow leaf design permits checking both external and internal threads.



14-034-3

51 Leaves 4 - 84 Pitch

- 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84.

DESCRIPTION	PART NO.	PRICE
51 Leaves 4-84 Pitch	**14-034-3**	$34.90

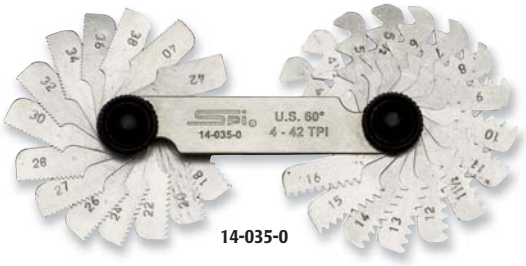


Made in Japan

30 Leaves 4 - 42 Pitch

- 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16,18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42.

DESCRIPTION	PART NO.	PRICE
30 Leaves 4-42 Pitch	**14-035-0**	$23.25



14-035-0

28 Leaves 40 - 80 Pitch

- 4, 4½, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 24, 27, 28, 32, 36, 40, 44, 48, 56, 64, 72, 80.

DESCRIPTION	PART NO.	PRICE
28 Leaves 40-80 Pitch	**14-036-8**	$22.10

30 Leaves 6 - 60 Pitch

- 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 48, 50, 56, 60.

DESCRIPTION	PART NO.	PRICE
30 Leaves 6-60 Pitch	**14-037-6**	$23.25



10-964-5

Starrett®
Screw Pitch Gages
English or Metric

- For gaging of V, American National, or U.S. Standard 60° threads.
- Knurled thumb nut for locking in position.
- Narrow leaf design permits checking both external and internal threads - even in small holes.

27 Leaves 2 1/2 - 28 Pitch

- 2¼, 2⅜, 2½, 2⅝, 2¾, 2⅞, 3, 3¼, 3½, 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 24, 28
- Starrett® model #50588

DESCRIPTION	PART NO.	PRICE
30 Leaves 2½ - 28 Pitch	**11-092-4**	$66.40

28 Leaves 4 - 80 Pitch

- 4, 4½, 5, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 16, 18, 20, 24, 27, 28, 32, 36, 40, 44, 48, 56, 64, 72, 80
- Starrett® model #52486

DESCRIPTION	PART NO.	PRICE
28 Leaves 4 - 80 Pitch	**11-093-2**	$47.15

30 Leaves 4 - 42 Pitch

- 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42
- Starrett® model #50035

DESCRIPTION	PART NO.	PRICE
30 Leaves 4 - 42 Pitch	**11-094-0**	$45.50

30 Leaves 6 - 60 Pitch

- 6, 7, 8, 9, 10, 11, 11-1/2, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 48, 50, 56, 60
- Starrett® model #52485

DESCRIPTION	PART NO.	PRICE
30 Leaves 6 - 60 Pitch	**11-095-7**	$51.45

51 Leaves: 4 - 84 Pitch

- First Corner 17 Leaves: 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18
  Second Corner 17 Leaves: 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50
  Third Corner 17 Leaves: 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84
- Starrett® model #52484-472

DESCRIPTION	PART NO.	PRICE
51 Pc. Screw Pitch Gage Set	**10-964-5**	$86.15

28 Leaves: 0.25 - 2.50 mm Pitch

- 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 1.0, 1.1, 1.2, 1.25, 1.3, 1.4, 1.5, 1.6, 1.7, 1.75, 1.8, 1.9, 2.0, 2.5 mm
- Starrett® model #50589-165M

DESCRIPTION	PART NO.	PRICE
28 Leaves: 0.25 - 2.50 mm Pitch	**10-523-9**	$49.50

28 Leaves: 0.50 - 11.50 mm Pitch

- 0.50, 0.75, 1.0, 1.1, 1.25, 1.50, 1.75, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5 mm with 60° center gage.
- Starrett® model #50591-159M

DESCRIPTION	PART NO.	PRICE
28 Leaves: 0.50 - 11.50 mm Pitch	**10-541-1**	$62.45



10-196-4



10-197-2



10-198-0

Mitutoyo

Pitch Gages

with Locking Device on Each End

30 Leaves 4-42 Pitch

- 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42
- Model #188-111

DESCRIPTION	PART NO.	PRICE
30 Leaves 4 - 42 Pitch	**10-196-4**	$29.35

51 Leaves 4-84 Pitch

- 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84
- Model #950-253

DESCRIPTION	PART NO.	PRICE
51 Leaves 4 - 84 Pitch	**10-197-2**	$49.35

51 Leaves 4-42 Pitch; 0.4 - 7 mm

- 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38, 40, 42

  mm: 0.4, 0.5, 0.7, 0.75, 0.8, 0.9, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7
- Model #188-151

DESCRIPTION	PART NO.	PRICE
51 Leaves 4 - 42; 0.4 - 7 mm Pitch	**10-198-0**	$50.00



14-033-5

Made in Japan

SPI® Classic

Acme Screw Pitch Gage

- For grinding and setting tools when cutting Acme threads.
- Angles and edges hardened and ground.
- Pitches included: 1, 1⅓, 1½, 1¾, 2, 2½, 3, 4, 5, 6, 7, 8, 9 and 10.

DESCRIPTION	PART NO.	PRICE
Acme Screw Pitch Gage	**14-033-5**	$29.40

SPI® Classic

Acme Screw Pitch Gages

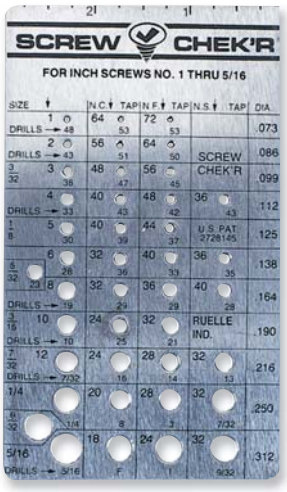
- Precision made from corrosion resistant stainless steel.
- Contains all standard Acme 29° blades, 3½" long, from 1 to 12 pitch, or 30° metric standard blades from 2 to 20 mm pitch.

DESCRIPTION	PART NO.	PRICE
29° Acme Gage, foldaway holder with 16 blades; 1, 1⅓, 1½, 1¾, 2, 2½ 3, 3½, 4 to 10 and 12 pitch	**30-187-9**	$87.95
30° Metric Gage, foldaway holder with 12 blades; 2 to 10, 12, 16 and 20 mm pitch	**30-188-7**	87.95

Made in Japan



30-187-9



13-342-1

Screw Checker Gages

- Ingenious gage quickly tells you size, pitch, tap drill sizes, clearance drill sizes, tap series, length and basic diameter of American, Unified and Metric machine screws.
- Straightens bent screws and cleans up rusty or battered threads.
- Perfect for holding screws for cutting, filing or altering heads.
- Includes complete instructions, drill chart, conversion table and chart, and how to straighten and cut screws using checkers.
- Made of chrome plated steel.

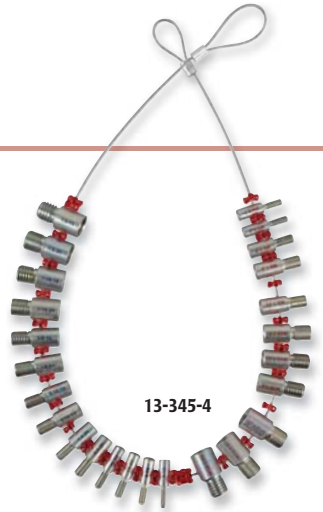
TYPE	MEAS. RANGE	PART NUMBER	PRICE
Inch	#1 – 5/16"	**13-342-1**	$20.70
Metric	M2 – M7	**13-343-9**	23.85
Metric	M8 – M14	**13-344-7**	24.85

Thread Detective

Precise & Easy to Use Thread Identifier for Nuts & Bolts

- Thread sizes are permanently stamped on each gage.
- Inch sizes: #6, #8, #10, ¼" thru ½"
- Metric sizes: M4 thru M12.

DESCRIPTION	PART NO.	PRICE
Thread Detective	**13-345-4**	$41.35



13-345-4

Top Quality
Contour Gages
Great for Checking Molds or Dies and Making Patterns

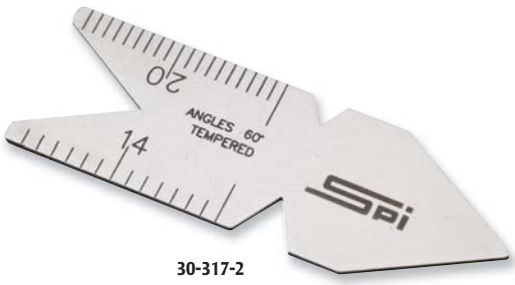
Simply hold one edge against work piece and push against the ends of stainless steel pins on the other edge until they contact the work piece.

- Easily conforms to curved shapes.
- Quickly and easily check concaves, convexes and radii.
- Maximum width of gaging area: 1/4" less than overall width
- Maximum depth of gaging area: 1 15/16"
- Pin diameter: 0.031"



13-446-0

OVERALL WIDTH	PART NUMBER	PRICE
6"	**13-446-0**	$42.65
12"	**13-447-8**	136.65



30-317-2

SPI®
Center Gage

- Accuracy meets federal specifications.
- Tool steel, tempered.
- Accuracy: ±30 minutes.
- Notches have clearance slots.
- Tables for double depth American National Thread.
- Micro fine graduations: 14ths, 20ths on one side, 24th, 32nds on reverse side.

DESCRIPTION	PART NO.	PRICE
Center Gage	**30-317-2**	$17.33

Starrett®
Center Gages

- Extremely handy for use in grinding and setting screw cutting tools.
- Meets American National or U.S. 60°, Whitworth or English 55° and Mertic 60° standards.
- Very useful for finding number of threads per inch through graduations in 14ths, 20ths, 24ths and 32nds of an inch on (C391) and (C396).
- Graduations on (C938M) are in mm and 1/2 mm.
- 10-841-5 gage also has a table of double depths of threads for determining size of tap drills.
- Made of spring-tempered steel with satin chrome finish.
- Ground gaging surfaces.



10-841-5

DESCRIPTION	MODEL #	PART NO.	PRICE
60° American National Standard	C391	**10-841-5**	$27.25
55° Whitworth or English Standard	C396	**10-298-8**	32.20
60° Metric Standard	C398M	**10-299-6**	31.05



13-150-8

SPI®
Round Bar Center Finder

- Accurately and quickly locates the center of round work pieces.
- Shank is held in collet or chuck and center is easily indicated by visual alignment of etched lines.
- Satin chrome finish.
- 3" capacity.

DESCRIPTION	PART NO.	PRICE
Round Bar Center Finder	**13-150-8**	$19.00



30-190-3

SPI®
American Standard & Wire Gages

- Made of heavy gage hardened steel 62 RC.
- Heat treated Carbon Steel.
- Satin chrome finish, no glare.
- Accuracy: +0.0002", -0.00015"
- Gaging slots meet Federal Specifications.
- Front face shows gage size, back shows decimal equivalents adjacent to each slot.

MADE IN USA

DESCRIPTION	PART NO.	PRICE
American Standard Gage for measuring wire diameter and non-ferrous sheets with copper, aluminum and wrought iron.	**30-190-3**	$41.65
U.S. Standard Gage for measuring steel, plate iron and uncoated sheet metal.	**30-189-5**	41.65



13-944-4

SPI®
American Standard & Wire Gages

- Made of heavy gage hardened steel 62 RC.
- Satin chrome finish, no glare.
- Accuracy: +0.0002", -0.0001"
- Gaging slots meet Federal Specifications.
- Front face shows gage size, back shows decimal equivalents adjacent to each slot.

DESCRIPTION	PART NO.	PRICE
American Standard and B&S Gage for measuring wire diameter and non-ferrous sheets with copper, aluminum and wrought iron.	**13-944-4**	$28.15
U.S. Standard Gage for measuring steel, plate iron and uncoated sheet metal.	**13-945-1**	28.15

MEASURING

Drill Gages
Fractional - Wire Gages- Letter Size

- Made of heavy gage steel, machined and ground to close tolerances.
- Hole sizes and decimal equivalents steel stamped.
- **Fractional -** 29 measuring holes for determining twist drill sizes from 1/16" to 1/2" in 1/64" increments. Shows drill sizes in inches and decimal equivalents.
- **Wire Gages -** Used to gage and select the correct twist drill and steel drill rod. Each hole shows the size number and the corresponding decimal equivalents.
- **Letter Size -** Used to select or check drill sizes from A - Z. Each hole is marked by letter and its decimal equivalents from 0.234" through 0.413" diameter.

SIZES	PART NO.	PRICE
1/16 - 1/2"	**30-232-3**	$31.80
#1 - 60	**30-233-1**	33.45
A - Z	**30-234-9**	33.45

MADE IN USA



30-234-9

Drill Gages
Fractional - Wire Gages- Letter Size

- Made of heavy gage steel, machined and ground to close tolerances.
- Hole sizes and decimal equivalents steel stamped.
- Approximate dimensions: 6" x 2 1/2"
- Fractional increments: 64ths

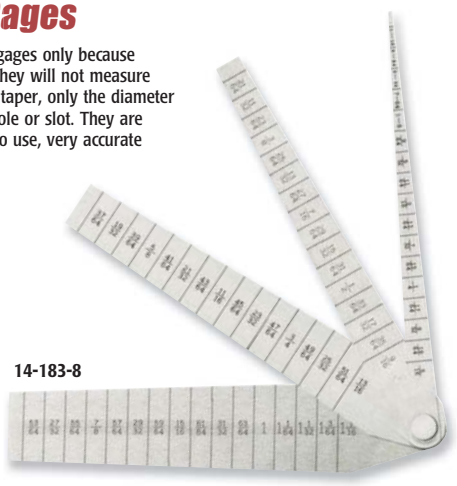
SIZES	PART NO.	PRICE
1/16 - 1/2"	**14-187-9**	$17.30
1 - 60	**14-188-7**	18.95
61 - 80	**14-189-5**	25.60
A - Z	**14-186-1**	25.60

14-187-9



Taper Gages

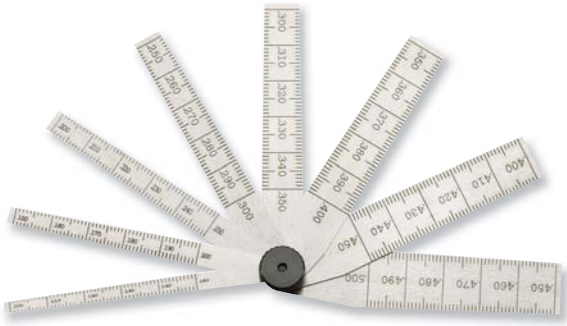
Named "taper" gages only because of their shape. They will not measure the angle of the taper, only the diameter of the tapered hole or slot. They are quick and easy to use, very accurate and convenient.



14-183-8

- For rapid, accurate checking of inside diameters of tubing.
- Thin, tapered leaves graduated in 64ths" to measure inside diameters or widths.
- Accuracy: ±0.002"
- Approximately 5 1/4" long x 1" wide.

NO. LEAVES	RANGE	LENGTH	PART NO	PRICE
4	1/16 – 1 1/16"	5 1/4"	**14-183-8**	$85.25



14-184-6

- For determining hole sizes in dies and other work.
- Made of tempered steel.
- Accuracy: ±0.002"
- Locking nut to secure leaves in any position.
- Graduated in thousands of an inch and 0.02 mm.

NO. LEAVES	RANGE	LENGTH	PART NO.	PRICE
8	0.100 - 0.500"	2 1/2"	**14-184-6**	$91.15
10	2 – 12 mm	64 mm	**14-185-3**	91.15

Taper Gages

- For measuring ID of tubing, holes, slot widths, flange face to face dimensions.
- Accuracy: ±0.004"
- Approximately 6" long.

MEASURING RANGE	PART NO.	PRICE
1/32 - 5/8"/1 - 15 mm	**14-180-4**	$34.30
5/8 - 1 3/16"/15 - 30 mm	**14-181-2**	45.75

14-180-4





13-967-5

Drill Point Gages

- To check drills with 118° point angles.
- Sliding Head graduated in 32nds to verify equal length of cutting edges.
- Rule graduated in 64ths and 32nds on one side; 16ths and 8ths on reverse side.
- Accuracy: ±0.008"
- Removable end clip.
- Head only fits steel rules 3/4" wide x 0.040" thick.

DESCRIPTION	PART NO.	PRICE
Sliding Head w/6" Rule	**13-967-5**	$36.15
Sliding Head Only	**13-968-3**	19.85



14-170-5

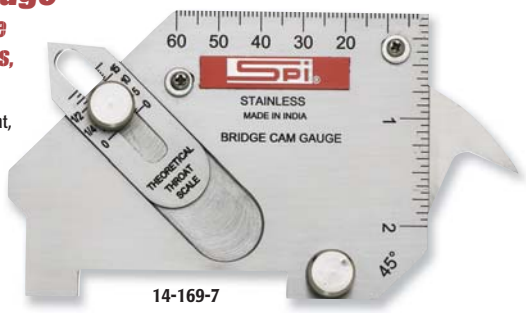
Fillet Weld Gage
Check Fillet Welds from 1/8" to 1"

- Heavy-duty 420 stainless steel construction.
- Inch/decimal/metric reading.
- Accuracy: ±0.005"
- Size: 4" L x 1 1/4" W x 1/32" Thick.
- Use single arc corners for determining if the welds are concave (undersize).
- The set of seven blades come in handy 2" x 4 1/2" pocket case weighing only 4 oz.

DESCRIPTION	PART NO.	PRICE
Fillet Weld Gage	**14-170-5**	$58.25

Bridge Cam Welding Gage

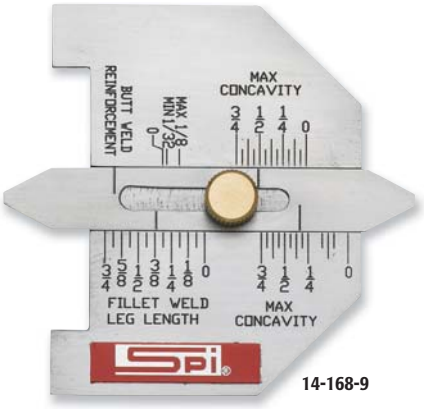
This versatile cam-type weld gage can be used for checking surfaces, angles, depths, etc.



14-169-7

- Can measure fit-up bevels, weld reinforcement, fillet weld leg length, undercuts and pits, throat of fillet weld, angles to 60° height of weld metal, and misalignments.
- High quality stainless steel construction.
- Quick and accurate measurement of most common weld sizes.
- Accuracy: ±0.005", ±0.5 degree
- Readings in Inch and Metric.
- Adjustable scale compensates for wear on pointer.

DESCRIPTION	PART NO.	PRICE
Bridge Cam Welding Gage	**14-169-7**	$157.65



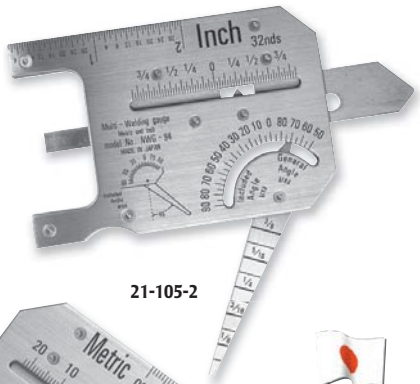
14-168-9

Automatic Weld Size Welding Gage

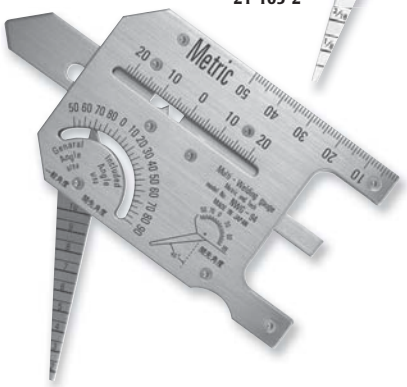
For accurate calibration of butt and fillet type welds. Checks size of fillet welds, permissible tolerance of convexity, concavity, and reinforcement of butt welds.

- Stainless steel, pocket size construction.
- Inch readings.
- Accuracy: ±0.005"
- Convexity and concavity sizes preset in accordance with AWS D1-1.

DESCRIPTION	PART NO.	PRICE
Weld Size Welding Gage	**14-168-9**	$46.15



21-105-2



Made in Japan

Multi-Welding Gage

Use For Measurement of Bead Build-Up During Welding, Including groove, Fillet, Throat, Root and More

- Stainless steel.
- Size: 2⅜" L x 3½" W
- Scale: 2" x 1/32 nds
- Accuracy: +0.008"

DESCRIPTION	PART NO.	PRICE
Multi-Welding Gage	**21-105-2**	$72.60

G.A.L. Gage Co. Skew-T-Fillet Weld Gage & Calculator

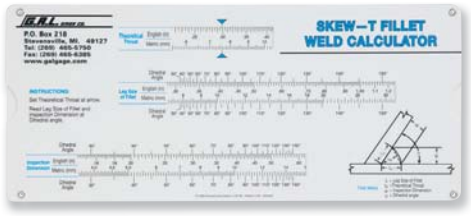
Measures Fillet or Groove Welds Between Members at 90° or Skewed Members



31-101-9

Weld Gage

- Stainless steel.
- Measures angles of intersecting members welds at acute angles, wets at obtuse angles and fillet weld leg sizes when intersecting members are at 90°
- Size: 2½" L x 5⅛" W.



31-102-9

Calculator

- A handy compilation of mathematical relationships between leg length, throat skew angles and inspection dimensions.

DESCRIPTION	PART NO.	PRICE
Weld Gage	**31-101-9**	$193.85
Calculator	**31-102-7**	40.30

Universal Sliding Bevel

Straight slot allows for a wide variety of adjustments and angle settings not easily obtained with ordinary bevels



12-498-2

- Contains straight and offset slots on 6" adjustable blade.
- Duplicate any angle.
- Accuracy: ±.25 degree
- Handle is 3½" long with a straight slot.

DESCRIPTION	PART NO.	PRICE
Universal Sliding Bevel	**12-498-2**	$29.00

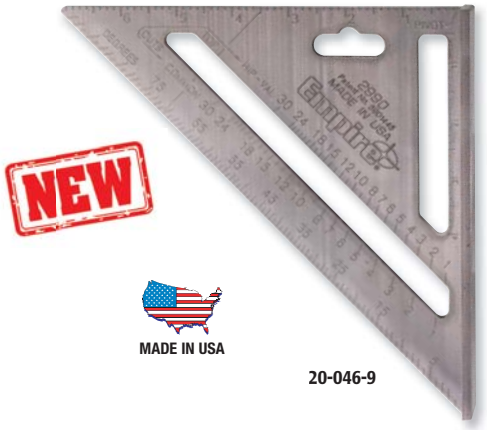
Starrett® Universal Bevel



11-461-1

- Bevel has both offset and straight slots in the blade.
- Straight slots allow for a wide variety of adjustment and angle settings that are impossible to obtain with many ordinary bevels.
- Blade is 6" and the stock is 3½".
- Bevel can be set to duplicate an angle from a master.
- Starrett® model #47

DESCRIPTION	PART NO.	PRICE
Universal Bevel	**11-461-1**	$125.05



20-046-9

Empire Rafter Squares

- Solid aluminum extruded square will not bend or break.
- Graduated scribe notches for smooth "pulling" of layout lines.
- Deep stamped.
- 12" model has conversion tables for common application needs.

LENGTH	MFG'S #	PART NO.	PRICE
7"	2990	**20-046-9**	$10.35
12"	3990	**20-047-7**	19.50



20-149-1

JOHNSON 7" Digital Angle Locator & Ruler

Ideal for Checking and Transferring Angles

- Digitally displays in degrees.
- Stainless steel scale in 1/32nd and mm.
- Easy two button operation.
- Zero button sets any point to zero.
- Lock function enables the blades to lock at any angle.
- Automatic shut-off after 6 minutes without use.
- Battery: CR2032 included
- D.O.T Regulated. Shipped via ground freight only. No collect shipments.

Specifications

Accuracy Angle:	±0.3°
Resolution:	0.1°
Ruler Tolerance:	0.010" over length of tool
Temperature Range:	32° F to 122° F (0° C to 50° C)

DESCRIPTION	PART NO.	PRICE
7" Digital Angle Locator & Ruler	**20-149-1**	$37.00
Repl. Battery (CR2032)	**07-319-7**	2.55

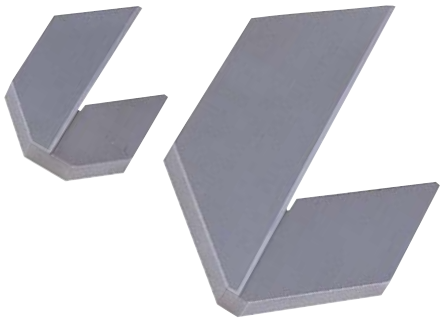
SPI Gear Tooth Gage

- Use to find the pitch of gears.
- Has 14 leaves with 6 to 80 range of pitches.
- Accuracy: ±0.002"
- Gages are 2" long, made of stainless steel.
- Pitches included: 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36, 40, 48, 64 and 80.

DESCRIPTION	PART NO.	PRICE
Gear Tooth Gage	**14-041-8**	$63.65



14-041-8



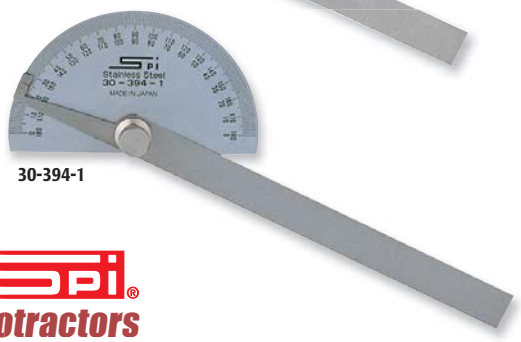
SPI Center Squares

- Eliminates the need for cumbersome combination square set.
- Has 90 degree V and beveled edge for easy finding and scribing centers.

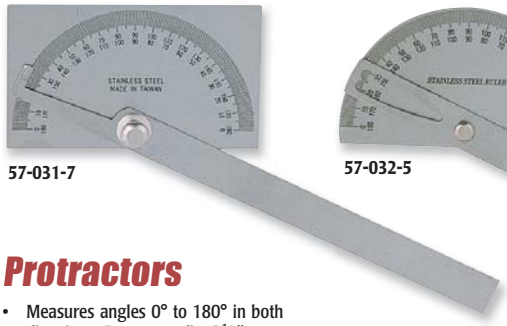
DESCRIPTION	PART NO.	PRICE
1½" Center Square	**51-856-3**	$13.00
3" Center Square	**51-857-1**	22.85



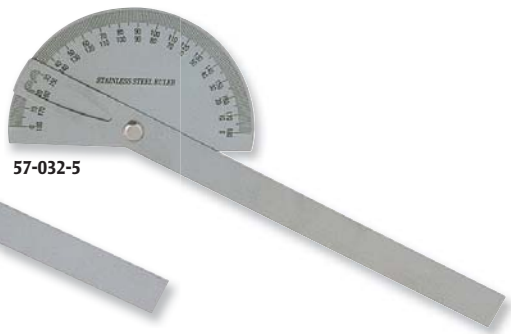
30-393-3



30-394-1



57-031-7



57-032-5

Protractors

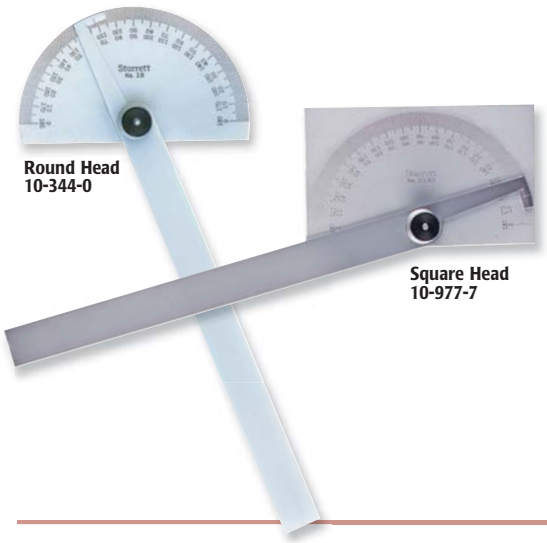
- Measures angles 0° to 180° in both directions. Protractor dia. 3½".
- Graduated in increments of 1°.
- Friction and lock nut combination. Satin chrome finish.

DESCRIPTION	PART NO.	PRICE
Square Head	**57-031-7**	$13.60
Half Round	**57-032-5**	13.60

SPI Protractors

- Measures angles from 0 - 180°.
- Made of chrome steel – Satin chrome finish.
- Accuracy: ±0.5 degree
- Lock nut – Diameter of protractor dial 3½".

DESCRIPTION	PART NO.	PRICE
Rectangular Protractor Head	**30-393-3**	$35.95
Half-Round Protractor Head	**30-394-1**	29.90



Starrett® Stainless Steel Protractors

- Permanently etched graduations from 0° to 180° in both directions.
- 6" protractor arm. 3⅜" wide by 2" high head.
- Satin chrome finish.

TYPE	STARRETT® MODEL #	PART NUMBER	PRICE
Square	C183	**10-977-7**	$90.95
Half-Round	C19	**10-344-0**	90.95



SPI® Dial Reading Bevel Protractor

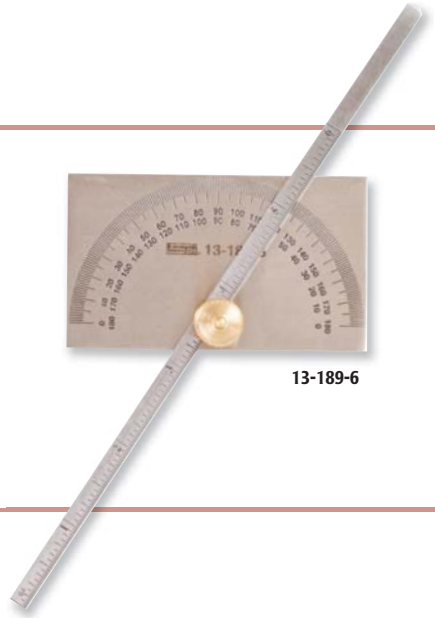
- Advanced design displays 10° digital read-out in dial window.
- Indicator pointer shows each degree and each 5 minutes of angle.
- Made of tempered stainless steel.
- Accuracy: ±5 arc minutes
- Clockwise or counter clockwise readings.
- Blade length: 6"

DESCRIPTION	PART NO.	PRICE
Dial Reading Bevel Protractor	**13-684-6**	$174.40

SPI® Protractor & Depth Gage

- Easy to read etched graduations from 0° to 180° in both directions.
- 6" x ¼" rule is graduated in 32nds and 64ths.
- Head size: 3⅜" wide by 2" high.
- Spring tension nut secures rule to any desired depth or angle.

DESCRIPTION	PART NO.	PRICE
Protractor & Depth Gage	**13-189-6**	$30.30

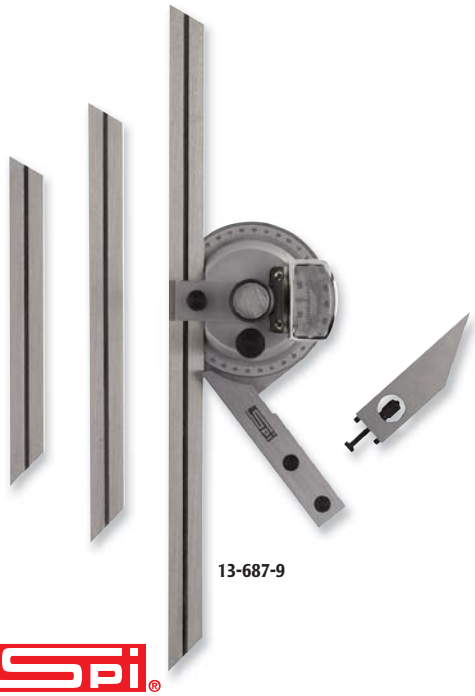




Starrett® Protractor & Depth Gage

- Easy reading etched graduations from 0° to 180° in both directions. Rule is graduated in 32nds and 64ths.
- Head size 3⅜" wide x 2" high.
- Spring tension nut secures rule to any desired depth or angle.
- Blade length: 6".
- Starrett® model # C493B.

DESCRIPTION	PART NO.	PRICE
Starrett® Protractor & Depth Gage	**10-976-9**	$90.95



SPI® Universal Bevel Protractor

For additional flexibility of measurements. Acute angle attachment. Three blades also included: 6", 8" and 12".

- Hardened stainless steel, rust and wear resistant for long life.
- Flush reading, no parallax error, gives a high degree of accurate measurements.
- With magnifier for easier and faster readings.
- Fine adjustment for measuring or setting of minute angles.
- Positive rigid locking clamps.
- Dial graduations: 1°, Vernier graduations: 5 minutes.

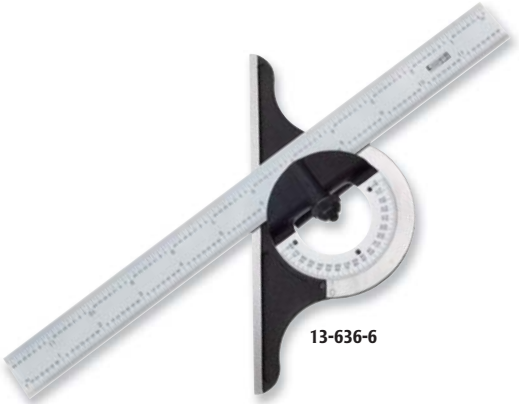
DESCRIPTION	PART NO.	PRICE
Universal Bevel Protractor	**13-687-9**	$244.40

SPI® Bevel Protractors

Cast Head

- Your choice of graduated 12" rule.
- Round head design.
- Maximum measuring range: 180°
- Dial graduation: 0 - 180°

RULE GRAD.	PART NO.	PRICE
4R	**13-636-6**	$101.00
E/M	**13-637-4**	108.50
16R	**13-638-2**	108.50
Clamp Screw	**13-242-3**	4.90



SPI® Electronic Universal Protractor



Ground Ship ONLY

- Hardened stainless steel.
- Measuring range: 0 - 360°
- Range selection: 1 x 360°, 2 x 180°, 4 x 90°.
- Dual reading LCD display arc minutes/decimal degrees.
- Acute angle attachment, 6" and 12" blades included.
- Fine adjustment.
- Preset function.
- Resolution: 30"
- Accuracy: ±5'
- D.O.T. Regulated. Shipped via ground freight only. No collect shipments.

DESCRIPTION	PART NO.	PRICE
Electronic Universal Protractor	**13-164-9**	$299.50
Repl. Battery	**07-319-7**	2.55

Mitutoyo Digital Universal Protractor



Ground Ship ONLY

- Precision ground stainless steel construction.
- Inch-Metric conversion.
- Zero set anywhere in range.
- Auto power on/off.
- Data output function makes it easy to see the statistical data.
- Can be attached to height gages.
- Setting preset value.
- Removable blade.
- Specifications
  - Blade: 12"
  - Display: LCD – 5 digit (-) sign, character height 6.5 mm
  - Measuring Range: -360° ~ +360°
  - Resolution: 1' (0.01°)
  - Accuracy: ±2' (±0.03)
  - Repeatability: 1' (0.01°)
  - Mass: 1.45 lbs. (569g)
  - Dust/Water Protection Level: IP40
  - Function: Zero, Direction Select, Data Output/Data Hold, Preset, Switchable Seagesimal or Decimal Notation
  - Max. Response Speed: 3 RPS
  - Battery: Lithium Battery (CR2032) 1 Pc. (07-319-7)
- D.O.T. regulated. Shipped via ground freight only. No UPS Cosignee or Collect shipments. No collect shipments.

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
Digimatic Universal Protractor	187-552	**10-096-6**	$1,180.00
Clamp Box for Inch Height Gages	950749	**10-097-4**	35.00
Clamp Box for Metric Height Gages	950750	**10-098-2**	35.00
6" Blade	187-105	**10-099-0**	35.00
40" SPC Output Cable	905338	**10-993-4**	39.05
80" SPC Output Cable	905409	**10-991-8**	45.40
Repl. Lithium Battery (CR2032)	-	**07-319-7**	2.55

SPI® Universal Bevel Protractor

With Dial & Micrometer Readings

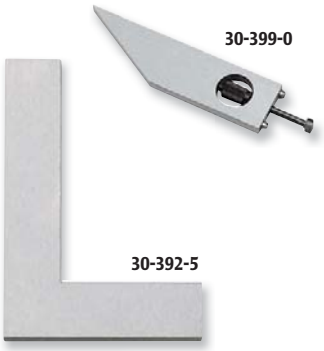


- One degree increments on dial and sharp 1 minute graduation on worm geared micrometer.
- Full 360° range, 4 x 90°.
- Built-in magnifier for very precise reading of degree scale.
- Black and red numbers for measurements in both directions.
- Quick disengagement for rapid course positioning.
- Measuring face and blades are made of hardened stainless steel.
- Head and micrometer satin chrome plated.
- Supplied with 12" plus 6" blades and reference square.
- Complete in fitted case.

DESCRIPTION	PART NO.	PRICE
Universal Bevel Protractor	**30-390-9**	$678.10

Replacement Parts

DESCRIPTION	PART NO.	PRICE
Reference Square	**30-392-5**	$96.20
12" Blade	**30-396-6**	73.30
6" Blade	**30-397-4**	53.80
Height Gage Attachment Clamp	**30-398-2**	34.35
Acute Angle Attachment	**30-399-0**	76.60







SPI® Magnetic Base Protractor

Machined V-Base and leg ends have strong magnetic pull making it easy to secure to the work piece.

- Used for tool rooms and machine shops to find center of round stock and to make angular adjustments.
- 2 3/8" dial face has machine-divided graduations to 1 degree in four 90° quadrants.
- Maximum V-Opening: 3 3/16"
- Overall length of legs: 4 13/16"
- Accuracy: ±1/2 degree
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Magnetic Base Protractor	**13-244-9**	$179.45

Empire Magnetic Polycast® Protractor



- Magnetic base and back.
- Easy reading dial with adjustable angle pointer.

DESCRIPTION	PART NO.	PRICE
Magnetic Polycast® Protractor	**10-470-3**	$21.00



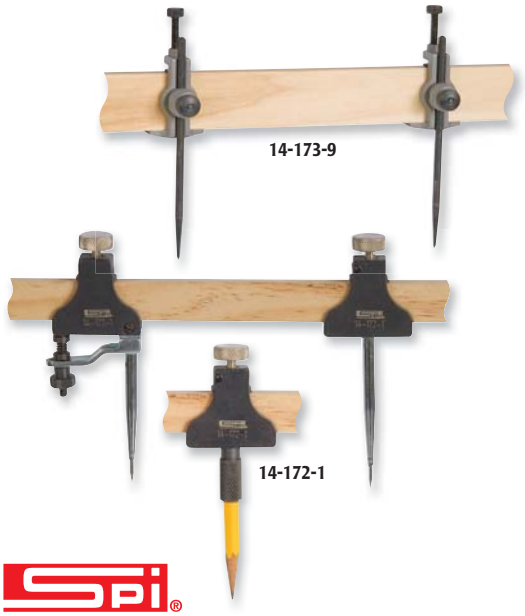
10-849-8

Ground Ship ONLY

Starrett® Angle Meter

- Large, readable scale for accurate readings from 0 - 90° in any quadrant.
- Magnetic base frees hands when used on ferrous surfaces.
- Measures any angle for pitch or slope.
- Handy rise, run, angle and pitch information on back of tool.
- Red Plastic Finish.
- Model #AM-2
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Starrett® Angle Meter	**10-849-8**	$17.90



14-173-9

14-172-1

SPI® Trammel Heads

- Trammels scribe arcs and lay out circles too large for ordinary compasses and dividers and can be used to accurately transfer measurements.
- Beams to attach trammel heads (not included) can be made of wood, aluminum, steel, etc.

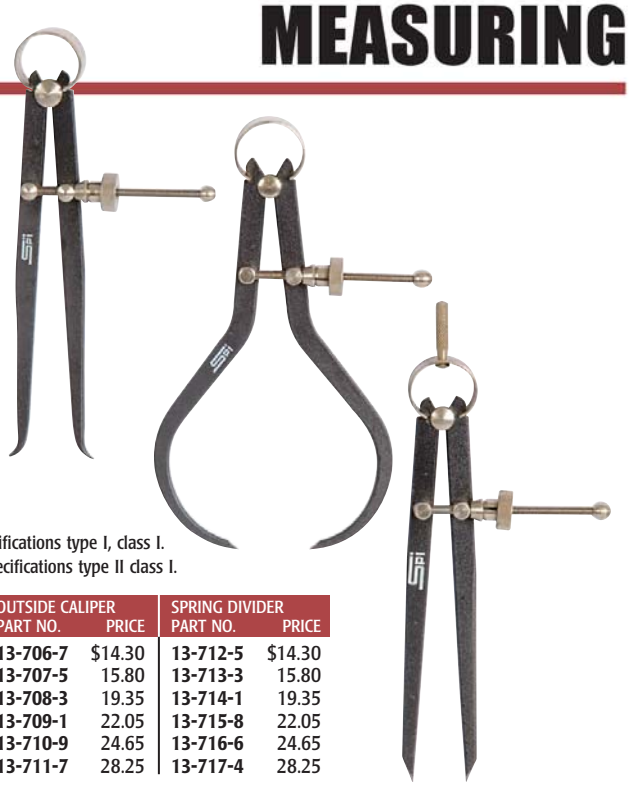
Adjustable Trammel - 14-173-9

- Supplied with two identical heads and scribes.
- Scribes can be removed for sharpening or can be replaced with a pencil or ball point pen.
- Use with beams (not included) from 5/8" to 1 1/2".

Precision Adjustable Trammel - 14-172-1

- Supplied with one head with fixed scribe and one head with fine adjustment scribe.
- Scribes can be replaced with a pencil holder (included)
- Use with beams (not included) from 3/8" to 3/4" or smaller.

DESCRIPTION	PART NO.	PRICE
Adjustable Trammel	**14-173-9**	$57.65
Precision Adjustable Trammel	**14-172-1**	63.55



SPI® QUICK-NUT Spring Calipers

Inside & Outside Models

- QUICK-NUT Means Fast and Easy Adjustments.
- Fully hardened with tempered joints, springs and washers.
- Polished steel finish.
- Inside calipers meet Federal Specifications type I, class I.
- Outside calipers meet Federal Specifications type II class I.

RANGE	INSIDE CALIPER PART NO.	PRICE	OUTSIDE CALIPER PART NO.	PRICE	SPRING DIVIDER PART NO.	PRICE
3"	**13-700-0**	$14.30	**13-706-7**	$14.30	**13-712-5**	$14.30
4"	**13-701-8**	15.80	**13-707-5**	15.80	**13-713-3**	15.80
6"	**13-702-6**	19.35	**13-708-3**	19.35	**13-714-1**	19.35
8"	**13-703-4**	22.05	**13-709-1**	22.05	**13-715-8**	22.05
10"	**13-704-2**	24.65	**13-710-9**	24.65	**13-716-6**	24.65
12"	**13-705-9**	28.25	**13-711-7**	28.25	**13-717-4**	28.25



14-153-1

SPI® Thickness Feeler Gages

- Made from hardened and ground feeler gage stock.
- Locknut secures one or more leaves in position.
- Each leaf clearly marked with thickness.

NO. OF LEAVES	MIN.	MAX.	LENGTH	PART NUMBER	PRICE
9	0.0015"	0.015"	3"	**14-150-7**	$18.95
15	0.0015"	0.200"	3"	**14-152-3**	46.25
26	0.0015"	0.035"	3"	**14-153-1**	30.55

SPI® Tapered Leaf Thickness Gages

8 Tapered Leaves

- 6" long x 1/2" wide.
- .002, .003, .004, .006, .008, .010, .012, .015".

DESCRIPTION	PART NO.	PRICE
8 Tapered Leaves	**14-147-3**	$26.10

9 Tapered Leaves

- 3" long x 1/2" wide.
- .0015, .002, .003, .004, .006, .008, .010, .012, .015".

DESCRIPTION	PART NO.	PRICE
9 Tapered Leaves	**14-148-1**	$19.55

26 Tapered Leaves

- 3" long x 1/2" wide.
- 0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025".

DESCRIPTION	PART NO.	PRICE
26 Tapered Leaves	**14-154-9**	$21.35



14-154-9


10-966-0

Starrett®
Tapered Leaf Thickness Gages

- Leaves made of the finest tempered-steel, carefully finished to correct thickness, individually tested and marked with thickness.
- Locking device permits securely locking one or more leaves in position.
- Leaves easily removed or replaced.
- Rugged, substantial steel case protects leaves.

8 Tapered Leaves

- Size: 1/2 - 1/4" W x 6" L
- .002, .003, .004, .006, .008, .010, .012, .015"
- Starrett® model #50652-172CT.

DESCRIPTION	PART NO.	PRICE
8 Tapered Leaves	**10-723-5**	$60.25

9 Tapered Leaves

- Size: 1/2 - 1/4" W x 3 1/32" L
- .0015, .002, .003, .004, .006, .008, .010, .012, .015"
- Starrett® model #50650-172AT.

DESCRIPTION	PART NO.	PRICE
9 Tapered Leaves	**10-724-3**	$41.60

26 Tapered Leaves

- Size: 1/2 - 1/4" W x 3 1/32" L
- .0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025"

DESCRIPTION	PART NO.	PRICE
26 Tapered Leaves	**10-966-0**	$76.15


13-163-1

SPI®
Planer & Shaper Gage

- Sets shaper & planer tools quickly and easily.
- Set the gage with caliper, micrometer or surface gage and simply bring the cutting tool in contact with the gage for a reliable starting point.
- Use with a dial indicator and large level plates for planing.
- 6 1/4" maximum range without the 3" extension rod.

DESCRIPTION	PART NO.	PRICE
Planer and Shaper Gage	**13-163-1**	$207.95

SPI®
Thickness Gage Sets


91-343-4

- Choose from inch or metric sets.
- Made of tempered steel.
- Hardened to RC 45.
- Thickness clearly etched on each leaf.
- Plastic case with individual blade pockets.
- Accuracy meets federal specifications.
- **Inch sets: 6.0" length x 1/2" wide**
  .001, .0015, .002, .003, .004, .005, .006, .007, .008, .009, .010, .012, .014, .015, .016, .018, .020, .022, .024, .025,
- **Metric sets: 152 mm length x 12.7 mm wide:**
  .05, .10, .15, .20, .25, .30, .35, .40, .45, .50, .55, .60, .65, .70, .75, .80, .85, .90, .95, 1.00

DESCRIPTION	PART NO.	PRICE
20 Pc. Set/Inch	**91-343-4**	$42.50
20 Pc. Set/Metric	**91-344-2**	42.50

PRECISION BRAND
Plastic Thickness Gage Fan Blade Sets



61-676-3

MADE IN USA

- 1/2" wide blades.
- 13 Thickness Gages: Decimal/Metric/Color

.001"/.025mm/Amber	.010"/.254mm/Brown
.0015"/.038mm/Purple	.0125"/.318mm/Black
.002"/.051mm/Red	.015"/.381mm/Pink
.003"/.076mm/Green	.020"/.508mm/Yellow
.004"/.102mm/Tan	.025"/.635mm/White
.005"/.127mm/Blue	.030"/.762mm/Coral
.0075"/.191mm/Matte	

- Riveted together for on-site convenience.
- Blades are non-conductive, non-sparking, non-marring and free from corrosion.
- Made of the highest quality of plastic:
  0.001 – 0.005 is polyester
  0.0075 – 0.030 is vinyl
- Furnished in a sturdy vinyl case.

DESCRIPTION	PART NO.	PRICE
5" Fan Blade Set	**61-676-3**	$33.45
12" Fan Blade Set	**61-677-1**	51.35


61-679-7

PRECISION BRAND
20 Pc. 5" Stainless Steel Poc-Kit® Thickness Gage Assortment


MADE IN USA

- 1/2" wide blades.
- 20 Thickness Gages: Decimal/Metric

(2) .001"/.025mm	.004"/.102mm	.008"/.203mm	.015"/.381mm
(2) .0015"/.038mm	.005"/.127mm	.009"/.229mm	.020"/.508mm
(2) .002"/.051mm	.006"/.152mm	.010"/.254mm	.025"/.635mm
(2) .003"/.076mm	.007"/.178mm	.012"/.305mm	.031"/.787mm

- Each blade is clearly etched with thickness in decimal and metric.
- Ends are rounded and edges are smooth for safety.
- Material: 300 series stainless steel
- Rockwell hardness: C scale 45 -55
- Furnished in a vinyl case with individual blade pockets.

DESCRIPTION	PART NO.	PRICE
20 Pc. 5" Stainless Steel Poc-Kit® Thickness Gage Assort.	**61-679-7**	$128.10

MADE IN USA

NEW



61-059-2

PRECISION BRAND

20 Pc. Poc-Kit®
Steel Feeler Gage Assortments

- ½" wide blades.
- 5" Poc-Kit® Set: Decimal/Metric

.001"/.025mm	.005"/.127mm	.010"/.254mm	.018"/.457mm
.0015"/.038mm	.006"/.152mm	.012"/.305mm	.020"/.508mm
.002"/.051mm	.007"/.178mm	.014"/.356mm	.022"/.559mm
.003"/.076mm	.008"/.203mm	.015"/.381mm	.024"/.610mm
.004"/.102mm	.009"/.229mm	.016"/.406mm	.025"/.635mm

- 12" "The Big" Poc-Kit® Set: Decimal/Metric

.001"/.025mm	.005"/.127mm	.010"/.254mm	.018"/.457mm
.0015"/.038mm	.006"/.152mm	.012"/.305mm	.020"/.508mm
.002"/.051mm	.007"/.178mm	.014"/.356mm	.022"/.559mm
.003"/.076mm	.008"/.203mm	.015"/.381mm	.025"/.635mm
.004"/.102mm	.009"/.229mm	.016"/.406mm	.030"/.762mm

- Each blade is clearly etched with thickness.
- Ends are rounded and edges are smooth for safety.
- Material: C1095 spring steel
- Furnished in a vinyl case with individual blade pockets.

DESCRIPTION	PART NO.	PRICE
5" Poc-Kit® Feeler Gage Assort.	**61-059-2**	$52.00
12" "The Big" Poc-Kit® Feeler Gage Assort.	**61-060-0**	99.10

Starrett®
Thickness Gage

- Leaves made of the finest tempered-steel, carefully finished to correct thickness, individually tested and marked with thickness.
- Locking device permits securely locking one or more leaves in position.
- Leaves easily removed and replaced.
- Rugged, substantial steel case protects leaves.



10-965-2

NO. OF LEAVES	MEASURING RANGE	LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
8	0.002, .003, .004, .005, .006, .008, .010, .015"	½" x 12"	172E	**10-066-9**	$80.30
9	0.0015, .002, .003, .004, .006, .008, .010, .012, .015"	½" x 3 1/32"	172A	**10-067-7**	40.25
13	0.0015, .002, .003, .004, .006, .008, .010, .020, .030, .040, .075, .100, .200"	½" x 4½"	467	**10-068-5**	102.40
26	.0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024 and .025".	½" x 3 1/32"	66	**10-965-2**	67.95
31	.0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025, .026, .028 .030, .032 and .035"	½" x 3 1/32"	66B	**10-069-3**	77.25



61-678-9

PRECISION BRAND

NEW

20 Pc. 5" Brass Poc-Kit®
Thickness Gage Assortment

MADE IN USA

- ½" wide blades.
- 20 Thickness Gages: Decimal/Metric

.001"/.025mm	.005"/.127mm	.010"/.254mm	.018"/.457mm
.0015"/.038mm	.006"/.152mm	.012"/.305mm	.020"/.508mm
.002"/.051mm	.007"/.178mm	.014"/.356mm	.022"/.559mm
.003"/.076mm	.008"/.203mm	.015"/.381mm	.025"/.635mm
.004"/.102mm	.009"/.229mm	.016"/.406mm	.030"/.762mm

- Each blade is clearly etched with thickness in decimal and metric.
- Ends are rounded and edges are smooth for safety.
- Material: CDA 260 alloy brass
- Rockwell hardness: 30T scale 56 - 78
- Furnished in a vinyl case with individual blade pockets.

DESCRIPTION	PART NO.	PRICE
20 Pc. 5" Brass Poc-Kit® Thickness Gage Assort.	**61-678-9**	$103.20



61-058-4

PRECISION BRAND

NEW

20 Pc. 5" Metric Poc-Kit®
Steel Feeler Gage Assortment

- 127 (5") mm long x 12.7 mm (½") wide blades.
- 20 Thickness Gages:

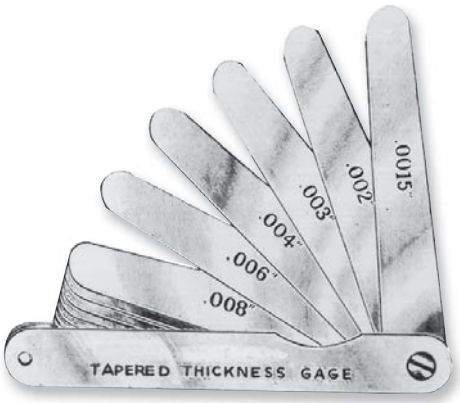
.05 mm	.30 mm	.55 mm	.80 mm
.10 mm	.35 mm	.60 mm	.85 mm
.15 mm	.40 mm	.65 mm	.90 mm
.20 mm	.45 mm	.70 mm	.95 mm
.25 mm	.50 mm	.75 mm	1.00 mm

- Each blade is clearly etched with thickness.
- Ends are rounded and edges are smooth for safety.
- Material: C1095 spring steel
- Rockwell hardness: C scale 45 - 62
- Furnished in a vinyl case with individual blade pockets.

DESCRIPTION	PART NO.	PRICE
20 Pc. Metric Poc-Kit® Feeler Gage Assort.	**61-058-4**	$76.95

Mitutoyo

Tapered Leaf Thickness Gage



10-887-8

- 3" long, 1/2" wide, tapering to a 1/4" round end.
- 26 tapered leaves.
- Sizes: .0015, .002, .0025, 003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025.
- Mitutoyo #950-252.

DESCRIPTION	PART NO.	PRICE
Mitutoyo® Leaf Thickness Gage	**10-887-8**	$28.05



11-464-5



11-468-6

Starrett®

Metric Thickness Gages

Straight or Taper

- Leaves made of the finest tempered-steel, carefully finished to correct thickness, individually tested and marked with thickness.
- Locking device permits securely locking one or more leaves in position.
- Leaves easily removed and replace.
- Rugged, substantial steel case protects leaves.

Straight Leaves

NO. OF LEAVES	MEASURING RANGE	LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
20	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.0 mm	12.7 x 77 mm	66MA	**11-464-5**	$67.75
13	0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50 mm	12.7 x 77 mm	173MA	**11-465-2**	68.80
13	0.04, 0.05, 0.06, 0.07, 0.08, 0.10, 0.15, 0.20, 0.30, 1.0, 2.0, 3.0, 5.0 mm	12.7 x 114 mm	467MA	**11-466-0**	108.15

Tapered Leaves

NO. OF LEAVES	MEASURING RANGE	LENGTH	STARRETT MODEL #	PART NUMBER	PRICE
13	0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50 mm	12.7 x 77 mm	173MAT	**11-467-8**	$64.10
13	0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50 mm	12.7 x 152 mm	173MCT	**11-468-6**	83.85



91-345-9

SPI®

Thickness Gage- Feeler Stock

1/2 x 12"/12.7 mm x 300 mm

- Inch Stock: 38 different thicknesses from 0.001 - 0.040".
- Metric Stock: 26 different thicknesses from 0.03 - 1.00 mm.
- Made of the finest tempered steel.
- Each piece marked with thickness.
- Rounded ends with no sharp edges.

Inch

THICKNESS	PART NO.	PRICE	THICKNESS	PART NO.	PRICE
0.0010"	**91-352-5**	$3.05	0.0180"	**91-371-5**	$1.45
0.0015"	**91-353-3**	2.10	0.0190"	**91-372-3**	1.45
0.0020"	**91-354-1**	2.10	0.0200"	**91-373-1**	1.45
0.0025"	**91-355-8**	2.10	0.0210"	**91-374-9**	1.45
0.0030"	**91-356-6**	2.10	0.0220"	**91-375-6**	1.45
0.0040"	**91-357-4**	1.65	0.0230"	**91-376-4**	1.45
0.0050"	**91-358-2**	1.65	0.0240"	**91-377-2**	1.45
0.0060"	**91-359-0**	1.65	0.0250"	**91-378-0**	1.45
0.0070"	**91-360-8**	1.65	0.0260"	**91-379-8**	1.45
0.0080"	**91-361-6**	1.65	0.0270"	**91-380-6**	1.45
0.0090"	**91-362-4**	1.45	0.0280"	**91-381-4**	1.45
0.0100"	**91-363-2**	1.45	0.0290"	**91-382-2**	1.45
0.0110"	**91-364-0**	1.45	0.0300"	**91-383-0**	1.45
0.0120"	**91-365-7**	1.45	0.0310"	**91-384-8**	1.75
0.0130"	**91-366-5**	1.45	0.0320"	**91-385-5**	1.75
0.0140"	**91-367-3**	1.45	0.0330"	**91-386-3**	1.75
0.0150"	**91-368-1**	1.45	0.0340"	**91-387-1**	1.75
0.0160"	**91-369-9**	1.45	0.0350"	**91-388-9**	1.75
0.0170"	**91-370-7**	1.45	0.0400"	**91-389-7**	3.20

Inch Sets

DESCRIPTION	PART NO.	PRICE
32 pc. set containing 1 of each from .001 - .030"	**91-345-9**	$58.85
108 pc. set containing 12 of each: .0015, .002, .003, .004, .006, .008, .010, .012, .015"	**91-347-5**	127.50

Metric

THICKNESS (MM)	PART NUMBER	PRICE	THICKNESS (MM)	PART NUMBER	PRICE
0.03	**91-390-5**	$3.95	0.40	**91-404-4**	$1.75
0.04	**91-391-3**	2.95	0.45	**91-405-1**	1.75
0.05	**91-392-1**	2.95	0.50	**91-406-9**	2.30
0.06	**91-393-9**	2.95	0.55	**91-407-7**	2.30
0.07	**91-394-7**	2.95	0.60	**91-408-5**	2.30
0.08	**91-396-2**	2.30	0.65	**91-409-3**	2.30
0.09	**91-397-0**	2.30	0.70	**91-395-4**	2.30
0.10	**91-398-8**	2.30	0.75	**91-410-1**	2.30
0.15	**91-399-6**	1.75	0.80	**91-411-9**	2.30
0.20	**91-400-2**	1.75	0.85	**91-412-7**	2.30
0.25	**91-401-0**	1.75	0.90	**91-413-5**	2.95
0.30	**91-402-8**	1.75	0.95	**91-414-3**	2.95
0.35	**91-403-6**	1.75	1.00	**91-415-0**	2.95

Metric Set

DESCRIPTION	PART NO.	PRICE
14 pc. set containing 1 of each from 0.03 - 0.06, 0.08 and 0.10 - 0.50 mm in 0.05 mm increments.	**91-346-7**	$34.90

Feeler Gage Stock Rolls



91-461-4

- For gaging clearance, narrow slots and gear play.
- Also for shimming in fixture and die work.
- Marked every 6" with a line and thickness.
- Type C 1095 high carbon steel.
- Tolerance: ±0.0002"
- 25' length x ½" wide roll.
- RC 48-52.
- Supplied in cardboard box.

Inch

THICKNESS	PART NO.	PRICE	THICKNESS	PART NO.	PRICE
0.0010"	**91-416-8**	$55.60	0.0180"	**91-435-8**	$22.25
0.0015"	**91-417-6**	27.80	0.0190"	**91-436-6**	22.25
0.0020"	**91-418-4**	27.80	0.0200"	**91-437-4**	22.25
0.0025"	**91-419-2**	27.80	0.0210"	**91-438-2**	22.25
0.0030"	**91-420-0**	27.80	0.0220"	**91-439-0**	22.25
0.0040"	**91-421-8**	24.55	0.0230"	**91-440-8**	22.25
0.0050"	**91-422-6**	24.55	0.0240"	**91-441-6**	22.25
0.0060"	**91-423-4**	24.55	0.0250"	**91-442-4**	22.25
0.0070"	**91-424-2**	24.55	0.0260"	**91-443-2**	22.25
0.0080"	**91-425-9**	24.55	0.0270"	**91-444-0**	22.25
0.0090"	**91-426-7**	22.25	0.0280"	**91-445-7**	22.25
0.0100"	**91-427-5**	22.25	0.0290"	**91-446-5**	22.25
0.0110"	**91-428-3**	22.25	0.0300"	**91-447-3**	22.25
0.0120"	**91-429-1**	22.25	0.0310"	**91-448-1**	33.35
0.0130"	**91-430-9**	22.25	0.0320"	**91-449-9**	33.35
0.0140"	**91-431-7**	22.25	0.0330"	**91-450-7**	33.35
0.0150"	**91-432-5**	22.25	0.0340"	**91-451-5**	33.35
0.0160"	**91-433-3**	22.25	0.0350"	**91-452-3**	33.35
0.0170"	**91-434-1**	22.25	0.0400"	**91-453-1**	33.35

Metric

THICKNESS (MM)	PART NUMBER	PRICE	THICKNESS (MM)	PART NUMBER	PRICE
0.03	**91-454-9**	$33.35	0.40	**91-467-1**	$15.60
0.04	**91-455-6**	20.05	0.45	**91-468-9**	15.60
0.05	**91-456-4**	20.05	0.50	**91-469-7**	15.60
0.06	**91-457-2**	20.05	0.55	**91-470-5**	15.60
0.07	**91-458-0**	15.60	0.60	**91-471-3**	15.60
0.08	**91-459-8**	15.60	0.65	**91-472-1**	15.60
0.09	**91-460-6**	15.60	0.70	**91-473-9**	15.60
0.10	**91-461-4**	15.60	0.75	**91-474-7**	15.60
0.15	**91-462-2**	15.60	0.80	**91-475-4**	15.60
0.20	**91-463-0**	15.60	0.85	**91-476-2**	15.60
0.25	**91-464-8**	15.60	0.90	**91-477-0**	19.00
0.30	**91-465-5**	15.60	0.95	**91-478-8**	19.00
0.35	**91-466-3**	15.60	1.00	**91-479-6**	20.05


91-348-3


91-349-1

Feeler Gage Holders

- Holds above inch gages from 0.001" to 0.025" or metric gages from 0.03 mm to 0.6 mm.
- Protects thin gages when there being used.
- Double ended holder can be set-up as GO-NO GO.

DESCRIPTION	PART NO.	PRICE
Single End Holder	**91-348-3**	$17.25
Double End Holder	**91-349-1**	22.15

ProGauge II® Magnetic Coating Thickness Gage

MAGNETIC PAINT THICKNESS GAUGE



31-125-8

- Measures the thickness of non-ferrous coating on steel.
- Range: 1 to 15 mils
- For use in automotive and insurance adjusters.
- Includes: heavy-duty case and instruction book complete with information on automotive paint thickness and factory specifications.

DESCRIPTION	PART NO.	PRICE
Magnetic Coating Thickness Gage	**31-125-8**	$76.55

Coating Thickness Gage

The SPI coating thickness gauge can perform two different methods of calculating thickness measurement by utilizing the characteristics of both eddy current and magnetic induction.

- Testing performance is both nondestructive and extremely accurate.
- Sleek state of the art thickness gauge easily detects the thickness of non-magnetic coating on a magnetic substrate (ferrous) or an insulating coating on a non-magnetic conductive substrate (nonferrous).
- Can be used in many areas of industry including automotive, manufacturing, general engineering, commercial inspection, etc.
- Flip display for reading upside down.
- Includes: unit, 2 substrate samples (steel, aluminum), 4 calibrated thickness samples, operation manual, batteries, and carrying case.



15-144-9

Main Technical Data

- Measuring range: 0 - 1000 µm max. or 0 - 40 mils.
- Guaranteed tolerance: ±(2 µm+3%) ±(0.1 mils +3%).
- Display: 3 digits (digit height = 15 mm).
- Min. measuring area: 0.2" x 0.2" (5 mm x 5 mm).
- Min. radius of curvature: Convex: 0.12" (3 mm), Concave: 1.2" (30 mm).
- Min. substrate thickness: Ferrous: 20 mils (0.5 mm), Nonferrous: 2 mils (50 µm).
- Calibration: zero calibration, foil calibration.
- Max. surface temperature of test object: 302° F (contact time max. is 2 seconds).
- Memory: 10 measurements.
- Power source: 1 AAA battery.
- Dimensions: 4.25" x 1.80" x 0.885".
- Weight: 2.7oz.

DESCRIPTION	PART NO.	PRICE
Coating Thickness Gage	**15-144-9**	$519.35
Repl. Batteries (4 pk.)	**60-187-2**	3.95

Classic Loupes

See Pg. 195

Made in Japan



40-151-3


40-153-9

DeFelsko®
PosiTest® DFT Coating Thickness Gages
For Powder Coaters, Paint Applicators & Contractors and Coating Inspectors



31-134-0

Two Models
- **PosiTest DFT Ferrous (Model 31-135-7)** Measures non-magnetic coatings on steel
- **PosiTest DFT Combo (Model 31-134-0)** Measures both non-magnetic coatings on steel AND non-conductive coatings on aluminum, brass, etc. Automatically recognizes the substrate and takes a measurement.

Features:
- Fast, repeatable measurements.
- Ready to measure - No calibration required for most applications.
- Range: 0-40 mils and 0-100 µm.
- Accuracy: ±(0.1mils + 3%)/±(2 µm + 3%).
- ZERO feature for rough or curved surfaces.
- 1 Point Calibration Adjustment feature for adjusting to the known thickness of a shim placed over rough or curved surfaces.
- Displays the moving average for up to the last 10 measurements.
- Handy RESET feature when no zero reference is available.
- Strong, wear resistant, ruby-tipped probe.
- Flip Display for right-side-up viewing in any position.
- Audible and visual measurement indication.
- V-groove in probe for positioning on cylindrical parts.
- Basic instructions on the back of each gage.
- Mils/Microns switchable.
- Built-in wrist strap for added convenience and safety.
- Long Form Certificate of Calibration traceable to NIST.
- Conforms to National and International standards, including ASTM D7091 and ISO 2808.
- Complete with: Built-in probe, wrist strap, precision plastic shims, hard shell storage case, AAA alkaline battery, Instructions and protective lends shield.

DESCRIPTION	PART NO.	PRICE
PosiTest DFT Combo	**31-134-0**	$867.90
PosiTest DFT Ferrous	**31-135-7**	618.30

SPI®
Ultrasonic Thickness Gage

A hand held microprocessor-controlled thickness gage specifically designed for measuring metallic and non-metallic materials such as steel, aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave-conductor with parallel top and bottom surfaces.

- Used in many areas of industry.
- Extremely easy to use.
- Can perform precise measurements on various types of raw materials, component parts and assembled machinery.
- Can also be used to monitor all types of pipes and pressure vessels for loss of thickness due to corrosion or erosion.
- After a simple calibration to a known thickness or sound velocity, the gauge will give accurate readings in inches or millimeters.
- Includes: base unit (w/built-in calibration block), 5 MHz dual sensor probe, 2 oz. bottle of couplant gel, AAA battery set, operation manual and carrying case.
- Specifications:

Display Type:	Large 4-Digit LCD
Min. Display Unit:	0.001"/0.1 mm
Measuring Range:	0.04 - 8" (0.1 mm - 200 mm) in steel w/standard probe (other values depending on material)
Low Limit Steel Pipes:	Min. dia. 0.8 x 0.1" (20 x 3 mm)
Display Accuracy:	±0.01 mm
Sound Velocity Range:	1640 - 29,527 Ft./S (500 - 9000 m/s)
Operating Temp.:	32° to 122°F (-5° to 40°C)
Frequency:	5 MHz
Update Range:	4 Hz
Power Supply:	1.5V AAA alkaline batteries (4 pc.)
Battery Life: Approx.:	250 hours/battery set
Dimensions:	4.9 x 2.6 x 0.9" (161 x 69 x 32 mm)
Weight:	0.7 Lbs. (300g)
Operating Current:	<20 mA (3V)



15-145-6

DESCRIPTION	PART NO.	PRICE
Ultrasonic Thickness Gage	**15-145-6**	$634.20
Repl. Batteries (4 pk.)	**60-187-2**	3.95



15-993-9

SPI®
Pocket Vibration Meters

NEW

- Measuring range: RMS vibration velocity 0.1 mm/s to 199.9 mm/s
- Frequency range: 10 HZ to 1000 Hz
- Display: 3.5 digit LCD
- Integrated accelerometer.
- Last valve hold.
- Auto shut-off.
- Power supply: (2) 1.5V button cell batteries
- Dimensions: 150 x 22 x 18 mm
- Furnished in fitted case.
- Certificate of calibration included.
- 2 year warranty.

DESCRIPTION	PART NO.	PRICE
Inch Pocket Vibration Meter	**15-993-9**	$359.50
Metric Pocket Vibration Meter	**15-992-1**	359.50
Repl. Battery (#375/303)	**07-310-6**	2.25

GAR
Surface Finish Comparators

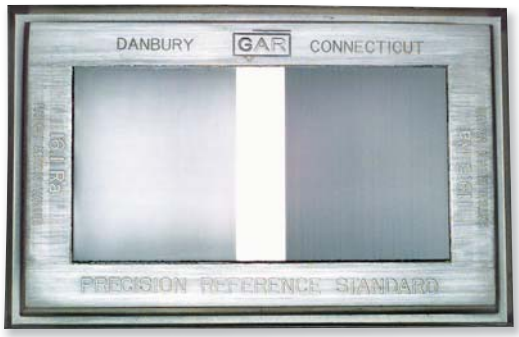
- Conventional machining microfinish comparator: Twenty-two replicated machined surface finish specimens with examples of six different machining processes calibrated in microinches (µ).
- Supplied in a leatherette case with instructions & engineering data.
- Machined surface microfinish comparator.

Type of Process	Finish Range Gaged (µ)
Lapping	2, 4, 8
Blanchard Grinding	16, 32
Conventional Grinding	8, 16, 32, 63
Shape Turning	32, 63, 125, 250, 500
Milling	63, 125, 250, 500
Profiling	63, 125, 250, 500

DESCRIPTION	PART NO.	PRICE
S-22	**30-690-2**	$101.45
S-22 Certified	**30-691-0**	382.05



30-690-2



30-694-4

GAR

Reference Calibration Standards

- Ra values 119.5 and 16.1 includes certification traceable to NIST.
- Made of electroformed nickel and is rhodium plated for surface abrasion resistance.
- Supplied in a leather case.
- Available with certification traceable to NIST.
- Serialized and calibrated standards are also available.

DESCRIPTION	PART NO.	PRICE
PRS	**30-694-4**	$248.05
PRS Certified	**30-696-9**	653.95



30-695-1

SPI® Classic

Surface Roughness Standards

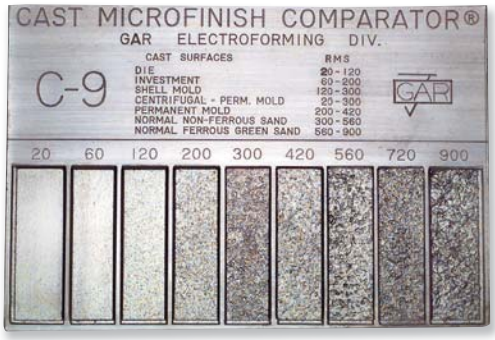
- Economy Set of 30 specimens, 7/8" x 3/8" electro formed, solid nickel.
- Ideal for use by draftsman, engineers, machinists, etc.
- Each type of surface finish is truly and consistently reproduced, offering a realistic idea of the feel, appearance and texture of the machined components.
- Conforms to S.A.E. and military specifications for visual and tactile inspections.
- Set includes:
  - 3 pcs. Flat Lapping — 2, 4 and 8 µ"
  - 3 pcs. Reaming — 16, 32 and 63 µ"
  - 6 pcs. Grinding — 2, 4, 8, 16, 32 and 63 µ"
  - 6 pcs. Horizontal Milling — 16, 32, 63, 125, 250 & 500 µ"
  - 6 pcs. Vertical Milling — 16, 32, 63, 125, 250 & 500 µ"
  - 6 pcs. Turning — 16, 32, 63, 125, 250 & 500 µ"
- Instructions and graph correlating inch and metric surface finish values plus ISO "N" scale included in set.
- Complete in special wallet.

DESCRIPTION	PART NO.	PRICE
Surface Roughness Standards Set	**30-695-1**	$142.00

GAR

C-9 Cast Microfinish Comparator

- Nine replicated cast surface finsh specimens ranging from 20 - 900 microinches (µ).
- Supplied in a leatherette case with engineering data & instructions.



30-692-8

CASTING PROCESS	FINISH RANGE GAGED (µ)
Die Surface	20 - 120 RMS
Investment Surface	60 - 200 RMS
Shell Mold	120 - 300 RMS
Centrifugal Perm Mold	20 - 300 RMS
Permanent Mold	200 - 420 RMS
Normal Non-Ferrous Sand	300 - 560 RMS
Normal Ferrous Green Sand	560 - 900 RMS

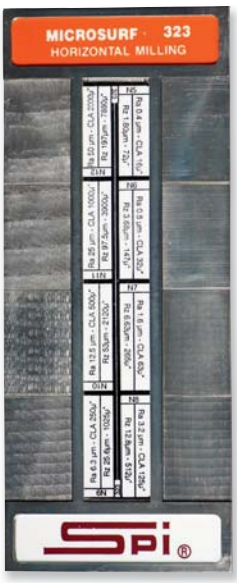
DESCRIPTION	PART NO.	PRICE
C-9 Cast Microfinish Comparator	**30-692-8**	$111.75

SPI®

Micro Surface Finish Comparator Plates

Material: Solid Electroformed Nickel

- Molded into metal frames.
- Lightweight (2.5 oz) in fitted wallets.
- Fits right into pocket - 2 1/16" L x 5" W overall size.
- Individual specimens: 5/8" L x 1" W.
- Used by Q.C. inspectors, line supervisors, machinists, draftsmen, designers, etc.
- Wallets contain durable instruction cards allowing user to assess roughness by sight and touch.
- Plates are marked in AA (micro inches), Ra (µm) and Rz as well as "N" numbers.
- All plates conform to SAE and MIL Specs. Manufactured to ANSI-B-46.1-1978. Military Standard 45662.



14-446-9

MACHINING METHOD	NO. OF SPECIMENS	R_a M	MEASURING RANGE AA "	N#	PART NUMBER	PRICE
Surface Grinding	8	0.025-3.2	1,2,4,8,16, 32,63,125	1-8	**14-440-2**	$118.15
Cylindrical Grinding	8	0.025-3.2	1,2,4,8,16, 32,63,125	1-8	**14-441-0**	118.15
Face Turning (flat)	8	0.4-50	16,32,63,125,250, 500,1000,2000	5-12	**14-442-8**	118.15
Cylindrical Turning	8	0.4-50	16,32,63,125,250, 500,1000,2000	5-12	**14-443-6**	118.15
End Milling	8	0.4-50	16,32,63,125,250, 500,1000,2000	5-12	**14-444-4**	118.15
Reaming & Drilling	8	0.4-12.5	Reaming 16,32,63,125 Drilling 63,125,250,500	5-10	**14-445-1**	118.15
Horizontal Milling	8	0.4-50	16,32,63,125,250, 500,1000,2000	5-12	**14-446-9**	118.15
Shaping or Planing	8	0.8-100	32,63,125,250, 500,1000,2000,4000	6-13	**14-447-7**	118.15
Belt Sanding	6	0.10-3.2	4,8,16,32,63,125	3-8	**14-448-5**	118.15
Vertical Grinding	6	0.2-6.3	8,13,62,63,125,250	4-9	**14-449-3**	118.15
Honing	6	0.05-1.6	2,4,8,16,32,63	2-7	**14-450-1**	118.15
Polishing	5	0.0125-020	0.5,1,2,4,8	0-4	**14-451-9**	118.15

Surface Finish Comparator



98-728-9

- Handy and inexpensive for engineers, inspectors, purchasing agents, craftsmen, etc.
- Accurate - exact reproductions.
- Range of 18 specimens - 16 to 500 microinches.
- Versatile - specimens include mill, end mill, grinding, shape turning and flame cut.
- Made of tough, scratch resistance, ABS unbreakable plastic.
- Color: black.
- Complete with plastic wallet.

DESCRIPTION	PART NO.	PRICE
Surface Finish Comparator	**98-728-9**	$16.20



30-693-6

Surface Finish Comparator

- For use with Electrical Discharge Machining.
- Nine replicated EDM Surface Finishes: 16, 24, 32, 45, 63, 90, 125, 180 & 250 microinches (µ).
- Supplied in a leatherette case with engineering data and instructions.

DESCRIPTION	PART NO.	PRICE
Surface Finish Comparator – EDM	**30-693-6**	$94.35



61-026-1

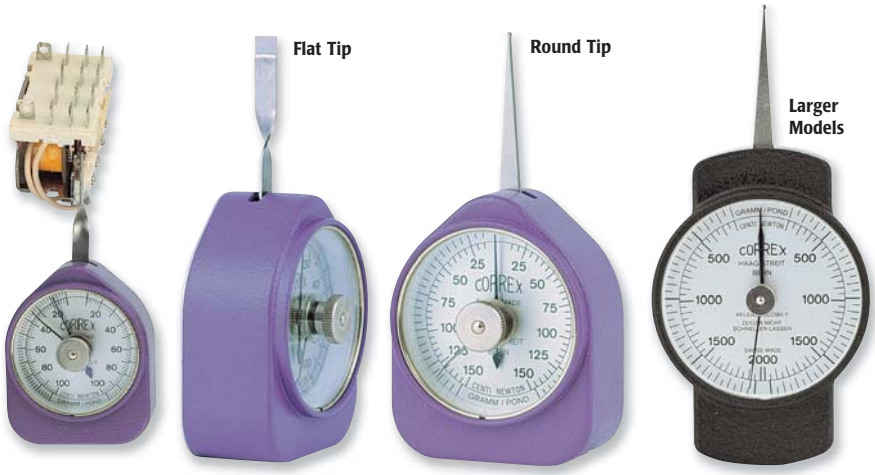
Roughness Standards

- Helps avoid costly under or over-finishing.
- Pocket-size gage has 22 precision surfaces for comparing surface finishes.
- Includes lapped, ground, turned and milled specimens, ranging from 2 to 500 microinches.
- Made to ASA standard B46 2.1955.
- Dimensions, 5" x 2" with plastic pouch.

DESCRIPTION	PART NO.	PRICE
Roughness Standards	**61-026-1**	$81.15

CORREX Tension/Compression Gages

- The ideal instrument to measure, calibrate and standardize the pressure or power to actuate fine mechanisms and spring tensions of:
  - MICRO SWITCHES AND RELAYS
  - ELECTRIC CONTACTS
  - BUSINESS MACHINES
  - COMMUNICATION INSTRUMENTS
  - PRECISION INSTRUMENTS & GAGES
  - CONTROLS WITH ADJUSTABLE FRICTION TORQUE
  - AUTOMOTIVE PARTS ETC.
- Maximum reading pointer eliminates reading errors, stops at highest force measured except .3 – 3 and .6 – 6 gages.
- Measurements can be made in both directions, clockwise or counterclockwise.
- Unbreakable glass protects the dial.
- Available with flat or round feeler tips.
- Furnished in protective case.



ACCURACY:
±0.01 X maximum dial reading + actual test reading.

RANGE IN GRAMS	GRADUATION GRAMS	DIAL DIA.	WEIGHT	FEELER LENGTH	WITH FLAT FEELER TIP PART NO.	WITH ROUND FEELER TIP PART NO.	PRICE
.3 - 3	1/10	1½"	4 oz.	1¼"	**31-001-1**	**31-016-9**	$275.20
.6 - 6	1/5	1½"	4 oz.	1¼"	**31-002-9**	**31-017-7**	275.20
2 - 15	½	1½"	4 oz.	1¼"	**31-003-7**	**31-018-5**	288.35
3 - 30	1	1½"	4 oz.	1¼"	**31-004-5**	–	288.35
5 - 50	1	1½"	4 oz.	1¼"	**31-005-2**	**31-020-1**	288.35
10 - 100	2	1½"	4 oz.	1¼"	**31-006-0**	**31-021-9**	288.35
15 - 150	5	1½"	4 oz.	1¼"	**31-007-8**	**31-022-7**	290.95
25 - 250	5	1½"	4 oz.	1¼"	**31-008-6**	**31-023-5**	290.95
50 - 500	10	2½"	9 oz.	1¾"	**31-009-4**	**31-024-3**	557.60
100 - 1000	20	2½"	9 oz.	1¾"	**31-010-2**	**31-025-0**	557.60
200 - 2000	50	2½"	9 oz.	1¾"	**31-011-0**	**31-026-8**	618.35

SPI® Hardness Testing File Set



98-720-6

- Practical, inexpensive method to quickly determine approx. hardness of heat treated work-pieces and materials.
- Indispensable for every machinist and heat treater.
- Handy, color coded set of 6 testing files covers nominal hardnesses from 40 RC to 65 RC in increments of 5 RC.
- Special curved design for easy access in hard to reach places.

DESCRIPTION	PART NO.	PRICE
Hardness Testing File Set	**98-720-6**	$136.45

Individual Testing Files

COLOR	PART NO.
40 RC Red	98-721-4
45 RC Yellow	98-722-2
50 RC Light Green	98-723-0
55 RC Dark Green	98-724-8
60 RC Blue	98-725-5
65 RC Black	98-726-3
Price	$31.40 ea.





14-416-2

Portable Surface Roughness Tester

Portable and Robust for Efficient Use in the Work Shop, Yet Delicately Precise for Inspection.

- Ra - average roughness
- Rz - (RTM) mean roughness depth (DIN)
- Meets ANSI, ISO, DIN & Mil specifications.
- Roughness in microinch or micrometers.
- Includes probe and standard (NIST traceable).
- Digital display located on top.
- Easy to read LCD readout.
- Out of range Hi/Low indicator.
- Battery low indicator.
- Uses 9V battery for approx. 3000 measurements.
- Furnished in fitted case.



Roughness tester placed on standard for calibration.

Accessories

- **Standard probes:** For use on most surface roughness applications. Use 0.0002" probe if Rz values are measured (DIN 4768).
- **Small bore probes:** Measure small bores with minimum inside diameter 0.197"/5.0 mm and up to 0.590"/15.0 mm deep.
- **Traverse chisel probe:** Gage sharp edges or small outside diameters where probe is parallel with the edge to be measured.
- **Parallel chisel probe:** Gage sharp edges or small outside diameters where probe is perpendicular to axis of traverse.
- **Groove bottom probe:** Measure the bottoms of "O" ring grooves, recesses and holes to a depth of 0.236"/6.0 mm.
- **Stand:** To hold the Surface Roughness Tester at a required angle with 4" height adjustment.



14-417-0 14-420-4 14-423-8

Specifications

Overall Dimensions:	Approx. 5.5" x 3" x 1"
Measuring Range:	Ra – 1µ" to 250µ"/0.03µm to 6.35µm Rz* – 8µ" to 999µ"/0.2µm to 25.3µm
Display Resolution:	1µ"/.01µm
Max Stylus Force:	1500mfg/15.0mN

PARAMETER	TRAVERSE LENGTH	EVALUATION LENGTH	# OF CUTOFFS
Ra/Rz	0.075"/2.0 mm	0.030"/0.08 mm	1
	0.135"/3.5 mm	0.090"/2.4 mm	3
	0.195"/5.0 mm	0.150"/4.0 mm	5

DESCRIPTION	PART NO.	PRICE
Tester with 0.0002" Probe	**14-416-2**	$1,641.85
Tester with 0.0004" Probe	**14-415-4**	1,641.85
9V Battery - 12 pack	**60-191-4**	35.60

Accessories

DESCRIPTION	PART NO.	PRICE
Stand	**14-424-6**	$407.25
0.0002" Standard Probe	**14-418-8**	521.70
0.0004" Standard Probe	**14-417-0**	521.70
0.0002" Small Bore Probe	**14-420-4**	713.85
0.0004" Small Bore Probe	**14-419-6**	713.85
Traverse Chisel Probe	**14-421-2**	713.85
Parallel Chisel Probe	**14-422-0**	713.85
Groove Bottom Probe	**14-423-8**	713.85



14-424-6



11-502-2

Mitutoyo

Ground Ship ONLY

Surftest Portable Surface Roughness Tester

External output to SPC, RS-232C and USB

- The USB interface allows data to be transferred to spreadsheet or other software.
- Program allows the creation of inspection record tables using a Microsoft Excel Macro.
- 2.4" color backlit display is switchable to vertical, horizontal, left and right hand views.
- Built-In rechargeable battery allows about 1,000 measurements on a full 4 hour charge.
- Displays both total and sectional measurement results as well as evaluation curve, BAC, ADC and waveform.
- Internal memory can store up to 10 measurement conditions and 1 measurement result.
- Optional SD card can store up to 500 measurement conditions, 10,000 measurement results and 500 image data.
- Auto-sleep function can be set from 10 seconds to 10 minutes.
- Functions like calibrations, measuring conditions, parameter and display setting can be password protected.
- Compatible with JIS'82, JIS'94, JIS'01, ISO, ANSI, abd VDA standards.
- Roughness Parameters: Ra, Rq, Rz, Ry, Rp, Rv, Rt, R3z, Rsk, Rku, Rc, RPc, RSm, Rmax, Rz1max, S,HSC; RzJIS, Rppi, Rlr, Rmr, Rmr(c), Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo, RPM, tp, Htp, R, Rx, AR, RΔa, RΔq, Rδc
- Complete with cable, roughness specimen, AC adapter and calibration stage.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	MITUTOYO #	PART NO.	PRICE
Surftest Portable Surface Roughness Tester	178-561-02A	**11-502-2**	$2,370.00

Standard Accessories

DESCRIPTION	MITUTOYO #	PART NO.	PRICE
Cable for Drive Unit	12AAA882	**11-503-0**	$103.00
Precision Roughness Specimen In/mm	178-602	**11-504-8**	183.00
AC Adapter	12BAK728	**11-505-5**	62.90
Calibration Stage	12BAK700	**11-506-3**	3.20

Optional Accessories

DESCRIPTION	MITUTOYO #	PART NO.	PRICE
Standard Detector	178-390	**11-507-1**	$456.00
Soft Material Detector	178-391	**11-508-9**	456.00
Small Hole Detector	178-392	**11-509-7**	697.00
Extra Small Hole Detector	178-393	**11-510-5**	697.00
Deep Groove Detector	178-394	**11-511-3**	697.00
Precision Roughness Specimen	178-601	**11-512-1**	183.00
SPC Output Cable (40" Long)	936937	**10-985-0**	45.50
SPC Output Cable (80" Long)	965014	**10-998-3**	54.50
Support Feet	12AAA216	**11-517-0**	139.00
Flat Surface Nosepiece	12AAA217	**11-518-8**	140.00
Cylinder Surface Nosepiece	12AAA218	**11-519-6**	140.00
Vertical Measure Adapter	12AAA219	**11-520-4**	44.50
Magnetic Stand Adapter 3/8"	12AAA220	**11-521-2**	45.20
Magnetic Stand Adapter 8 mm	12AAA221	**11-522-0**	45.20
Height Gage Adapter 9 mm x 9 mm	12AAA222	**11-523-8**	102.00
Height Gage Adapter 1/4" x 1/2"	12AAA233	**11-524-6**	102.00
Extension Rod 50 mm	12AAA210	**11-525-3**	172.00

Mahr FEDERAL

Pocket Surf® IV Kits

- Performs traceable surface roughness measurements on a wide variety of surfaces.
- Use in production, on the shop floor and in the laboratory.
- Can be used in any position—Horizontal, Vertical, Upside down or anything in between.
- Measures any one of 4 switch selectable parameters:
  - Ry - maximum roughness depth
  - Ra - average roughness
  - Rmax - maximum roughness depth (DIN)
  - Rz - mean roughness depth (DIN), also called Rtm
- Easy to read LCD located on top of the unit for optimum visibility.
- Integrated data output for SPC processing.
- 4 switchable probe positions: axial (closed or folded), 90°, 180° and 270°.
- Solidly built with a durable cast aluminum housing for accurate reliable surface finish measuring.
- Meets ANSI B46.1, ISO and DIN standards, MIL specifications and their surface roughness measurements are traceable to the NBS.
- Pocket Surf® Kit includes:
  - – Pocket Surf
  - – General Purpose Probe
  - – Certified Reference Specimen
  - – Riser plate
  - – 9V battery
  - – Screwdriver
  - – Fitted case



12-000-6

DESCRIPTION	MFR'S #	PART NO.	PRICE
with 0.0002"/5 µm Probe	2191802	**32-000-2**	$2,917.30
with 0.0004"/10 µm Probe	2191800	**12-000-6**	2,917.30

Specifications:

Overall Dimensions:	5½" L x 3" W x 1" H 140 mm x 76 mm x 25 mm
Weight:	Approx. 14 oz./435 g
Measuring Ranges:	R_y – 8µ to 999µ"/0.2µm to 25.3µm R_a – 1µ to 250µ"/0.03µm to 6.35µm R_{max}* – 8µ to 999µ"/0.2µm to 25.3µm R_z* – 8µ to 999µ"/0.2µm to 25.3µm
Display Resolution:	1µ"/0.01µm
Digital Readout:	LCD – 3 Digit with Out of Range (high or Low) and "battery low" signals
Traverse Speed:	.2"/5.08 mm per second
Cutoff:	.030"/0.8 mm
Power:	9-Volt consumer type alkaline battery
Battery Capacity:	Approx. 2,500 measurements
Operating Temperature:	50° to 113° F/10° to 45° C

(*)Per DIN 4768

Accessories


13-319-9

Universal Stand

- A heavy-duty stand equipped with an adjustable bracket to hold the Pocket Surf for measuring workpieces up to 8.375"/213 mm tall.

DESCRIPTION	PART NO.	PRICE
Universal Stand	**13-319-9**	$1,841.80


13-320-7

Adjustable Height Stand

- A compact convenient fixture with bracket to hold the Pocket Surf. Designed for measurements on a granite surface plate or any flat working surface to a max. height of 4.375"/111 mm.

DESCRIPTION	PART NO.	PRICE
Adjustable Height Stand	**13-320-7**	$493.45


13-321-5

Bottom Plate

- For measuring short cylindrical workpieces less than 3.5"/89 mm long for the "closed" probe position. Also for workpieces with short O.D.'s from .25"/6.35 mm (minimum 1.5"/38 mm long).

DESCRIPTION	PART NO.	PRICE
Bottom Plate	**13-321-5**	$189.90


13-322-3

Vee Adapter Kit

- Attaches to bottom of Pocket Surf allowing for convenient hand-held measurements of hard to reach cylindrical surfaces like crankshaft journals. Great for parts diameters from .19"/5.0 mm to 5"/125 mm.

DESCRIPTION	PART NO.	PRICE
Vee Adapter Kit	**13-322-3**	$449.10


13-323-1

Bore Adapter Kit

- For timesaving hand held measurement of bores without having to attach the workpiece. For all inside diameters from 1"/25mm to 6"/150 mm and depths from 1"/25 mm to 2.4"/60 mm.

DESCRIPTION	PART NO.	PRICE
Bore Adapter Kit	**13-323-1**	$415.85


13-324-9

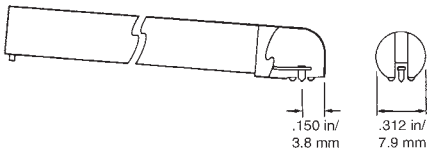
Portable Vee Fixture

- For measuring small parts with outside diameters from .125"/3.1 mm and for lengths from 1"/25 mm minimum. Includes setting pin.

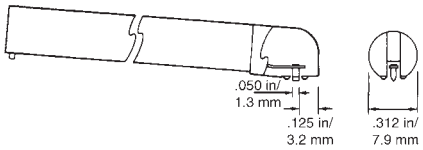
DESCRIPTION	PART NO.	PRICE
Portable Vee Fixture	**13-324-9**	$139.95

Additional Accessories

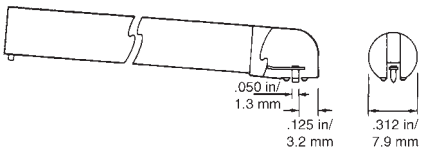
DESCRIPTION	PART NO.	PRICE
Setting Pin	**13-325-6**	$6.60
Certified Reference	**13-333-0**	375.10



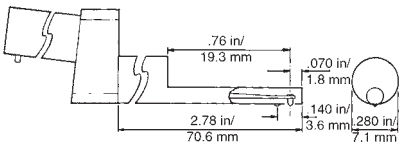
DESCRIPTION	PART NO.	PRICE
General Purpose Probe For most surface roughness applications 90° conical diamond stylus, .0004"/10µm Radius	**13-326-4**	$677.60
General Purpose Probe For most surface roughness applications 90° conical diamond stylus, .0002"/5µm Radius	**13-330-6**	677.60



DESCRIPTION	PART NO.	PRICE
Transverse Chisel Probe For gaging sharp edges or small O.D.'s where Probe is aligned with axis of traverse (closed). 90° sapphire chisel, .0004"/10µm Radius	**13-327-2**	$847.00

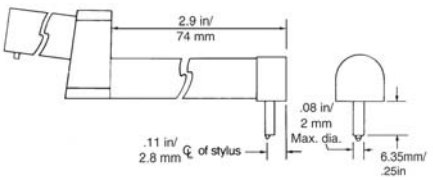


DESCRIPTION	PART NO.	PRICE
Parallel Chisel Probe For gaging sharp edges or small O.D's where probe is perpendicular (90°- to 270° position) to axis of traverse. 90° sapphire chisel, .0004"/10µm Radius	**13-328-0**	$847.00



DESCRIPTION	PART NO.	PRICE
Small Bore Probe For gaging small bores .125"/3.2 mm minimum I.D. and a depth of .75"/19 mm 90° conical diamond stylus, .0004"/10µm Radius	**13-329-8**	$898.05
Small Bore Probe** For gaging small bores .125"/3.2 mm minimum I.D. and a depth of .75"/19 mm 90° conical diamond stylus, .0002"/5µm Radius	**13-331-4**	898.05

(**) Can only be used in 180° position with the Pocket Surf supported in a height stand or other fixture



DESCRIPTION	PART NO.	PRICE
Groove Bottom Probe** For measuring the bottom of grooves, recesses and small holes to depths of .25"/6.35 mm. 90° conical diamond stylus, .0004"/10µm Radius	**13-332-2**	$898.05

(**) Can only be used in 180° position with the Pocket Surf supported in a height stand or other fixture

SPI®

Portable Hardness Tester

State of the art, digital hardness tester designed to test large, hard metal parts



15-140-7

- Automatic conversion to these hardness scales: Rockwell B and C, Brinell, Vicker and Shore & Leeb.
- Measuring ranges:
  20-68 HRC, 13-100 HRB, 20-894 HB, 45-950 HV, 14-100 HSD, 10-900 HLD
- Accuracy: ±1 HRC
- Easy-to-use keypad operation.
- Large LCD display with back light.
- Low battery indicator.
- Specifications:
  - Accuracy: ±0.5% (Referred to L = 800, ±6L units) L = Leeb
  - Measuring Range: 200-960 HL
  - Materials: Steel & cast steel, alloy tool steel, stainless steel, gray cast iron, spheroidal iron, cast aluminum
  - Operating Temp.: 5 to 104° F
  - Battery Type: 4-AA Batteries
- Memory and output via RS232.
- Dimensions: 10" L x 12" H x 5" Depth
- Weight: 11 Lbs.
- Includes: Unit, impact device "D", calibrated test block, battery set, cleaning brush, operation manual and carrying case.

DESCRIPTION	PART NO.	PRICE
Portable Hardness Tester	**15-140-7**	$1,471.80
Repl. Batteries - AA (Pkg. of 4)	**60-188-0**	3.80

Portable Steel Hardness Tester

Equivalent to Rockwell C Scale



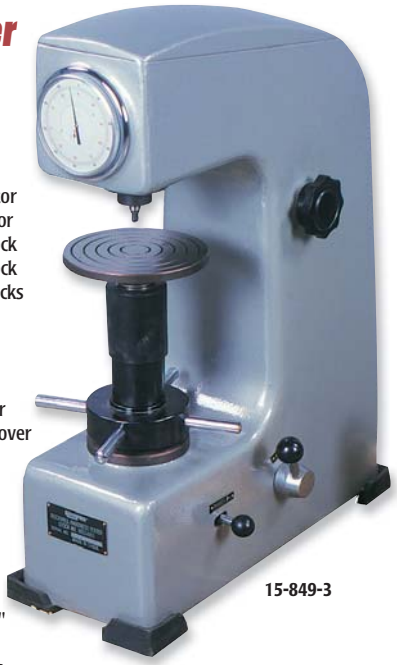
52-342-3

- A hand-held impact indenter drives a 1/16" diameter carbide ball into the sample with a calibrated impact. The impression diameter is read directly with a microscope containing a calibrated reticle.
- Range: 20 to 65 HRC
- Accuracy: ±1.5 points
- Includes:
  - Hand-held impact indenter
  - Illuminated 60X measuring microscope (Illuminated system is a Mini Maglite® coupled to a fiber optic light pipe)
  - 2 AAA batteries
  - Test block
  - Hardness conversion chart
  - Instructions
  - Carrying case

DESCRIPTION	PART NO.	PRICE
Portable Steel Hardness Tester	**52-342-3**	$1,064.75

Rockwell Type Hardness Tester

With Automatic Weight Selection for Rockwell "A", "B" and "C" Scales


15-849-3

Accessories Included:

- 120° Diamond Penetrator
- 1/16" Steel Ball Penetrator
- (1) Rockwell A. Test Block
- (1) Rockwell B. Test Block
- (3) Rockwell C. Test Blocks
- 5 3/4" dia. Testing Anvil
- 2 3/16" dia. Testing Anvil
- 2 3/16" dia. Testing Anvil with "V" groove
- Protective Spindle Cover
- Dust Resistant Plastic Cover
- (2) Screwdrivers
- Instruction Manual

Specifications:

- Full Load: 60, 100, 150kg
- Preset Load: 10kg
- Throat depth: 5 1/4"
- Size of Base: 7 1/4" dia. X 18"
- Machine Ht: 24 1/2"
- Approx. Net Weight: 150 lbs.
- Shipped via truck, freight collect.

DESCRIPTION	PART NO.	PRICE
Rockwell Type Hardness Tester	**15-849-3**	$1,626.90

SPI® Hardness Testers

Dial or Digital


15-818-8

- Use Rockwell A, B, C and F scales for measuring hardness.
- Standards: EN-ISO 6508 and ASTM-E18.
- Resolution: 0.5 of a Rockwell unit.
- Test Loads: 10 kgf preload; 60, 100, 150 kgf load.
- Measuring Range: 20 - 100 RH
- Testing Space: Vertical - 6.7"/170 mm;
  Horizontal - 6.5"/165 mm (from centerline)
- High quality precision instrument for measuring hardness with ease of operation; precise and durable.
- Electronic model contains large backlit display with load progress bar, automatic loading, unloading and holding of test force.
- Dimensions: 34" H x 17" W x 25" Depth
- Accessories included:
  - Diamond Rockwell indentor 1/4" shank
  - Rockwell ball indentor: 1/16"
  - ±60 HRC test block
  - ±25 HRC test block
  - ±85 HRC test block
  - Flat anvil: 60 mm
  - Large flat anvil: 150 mm
  - V-Block anvil: 40 mm
  - Adjustable feet
  - Protective spindle cover

DESCRIPTION	WEIGHT LBS.	PART NUMBER	PRICE
Dial Hardness Tester	230	**15-817-0** *	$2,786.50
Digital Hardness Tester	240	**15-818-8** *	3,472.20

*Shipped via truck, freight collect.


15-828-7

Brinell Portable Hardness Tester

Designed to Test the Brinell Hardness value on different metals. This tester is especially suited for the technician to use wherever portability and simplicity are a requirement.

- Designed for use on non-austenitic steels only.
- Furnished with calibration block.
- 20X microscope.
- Measuring Range: 450 H.B.S.
- Diameter of Steel Ball: 3/8"
- Dimensions: 1" dia. X 5" high.
- Weight: 1 1/4 lbs.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Hardness Tester	**15-828-7**	$435.80
Test Block	**15-829-5**	77.75



20-137-6

Replacement Penetrators & Indenter

Fits All Hardness Testers

- 1/4" shank.

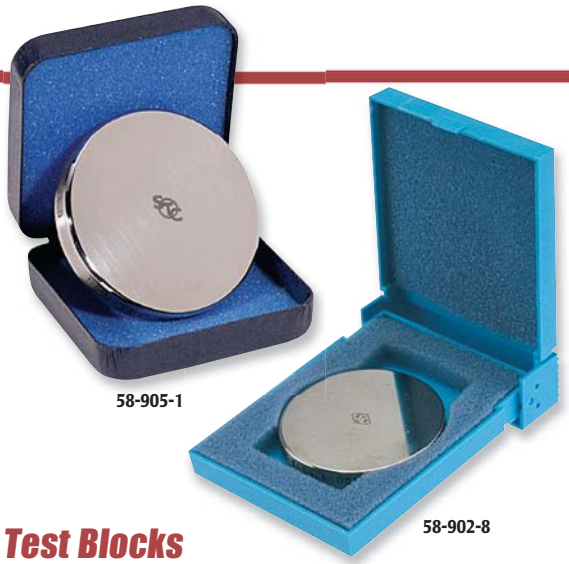
DESCRIPTION	EXTRA BALLS	PART NUMBER	PRICE
Diamond Sphero - Conical	–	**20-134-3**	$182.25
1/16" Ball Penetrator	50	**20-135-0**	209.90
1/8" Ball Penetrator	8	**20-136-8**	179.95
1/4" Ball Penetrator	2	**20-137-6**	267.30
1/2" Ball Penetrator	1	**20-138-4**	306.40
Scale Type C Indenter	–	**20-139-2**	194.50

SPI® Standard Test Blocks

- Standard test blocks provide an easy means of checking your tester's accuracy.
- Periodic testing on a regular basis is recommended.
- Comparing a test reading of the block with the hardness number on the test block will indicate whether or not the instrument needs attention.
- A surface rating of less than 5 micro-inches (CLA), indicates that both test and supporting surfaces are flat and parallel prior to being calibrated.
- Order the hardness range and scale which is approximately the same as the work you will be testing.
- Approximate sizes: 1 1/2" L x 2 1/2" W x 1/2" H



HARDNESS	PART NO.	PRICE EA.
20 - 30 RC	**12-535-1**	$36.30
35 - 55 RC	**12-536-9**	36.30
60 - 70 RC	**12-537-7**	36.30
80 - 88 RA	**12-538-5**	36.30
85 - 95 RB	**12-539-3**	36.30



58-905-1

58-902-8

Test Blocks

- Used to determine the accuracy of hardness testers.
- Large test blocks: Manufactured and certified to ASTM standards; supplied with a certificate of accuracy.
- Standard test blocks: 2" Dia. X 0.3125" thick.
- Large test blocks: 2.375" Dia. X 0.370" thick.
- Each block is supplied in a fitted case.

Standard Steel Test Blocks

RANGE	PART NO.	PRICE
Low Range C 25	**58-899-6**	$117.20
Mid Range C 45	**58-900-2**	117.20
High Range B 90	**58-901-0**	117.20
High Range C 62	**58-902-8**	117.20

Large Steel Test Blocks

RANGE	PART NO.	PRICE
Low Range A 60	**58-903-6**	$122.15
Low Range B 40	**58-904-4**	122.15
Low Range C 25	**58-905-1**	122.15
Mid Range B 60	**58-906-9**	122.15
Mid Range C 45	**58-907-7**	122.15
High Range B 90	**58-908-5**	122.15
High Range C 62	**58-909-3**	122.15



10-046-1

Mitutoyo

Rockwell Test Block Calibration Set

For Rockwell/Rockwell Superficical Type Hardness Tesing Machine

- Scale Set Include: 3 Test Blocks, Indenter & Certificates of Verification to ASTM E.18
- C Scale Set Includes:
  - Test Blocks: HRC60/65, HRC40/45, HRC20/25
  - Indenter: Diamond

DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
C Scale Set	64BAA241	**10-046-1**	$788.85



15-137-3



17-669-3



15-138-1



15-809-7

SPI®

Digital Durometers

Shore A & D

- Designed to test the hardness of plastic and rubber materials.
- Ergonomic, lightweight design assists in taking precise and consistent measurements.
- Measuring range: 0 - 100 HSA/HSD
- Resolution: 0.5 H
- Deviation: <1%H
- Accuracy: ±1 HSA/HSD
- Furnished in fitted case.

Durometer Test Block Kit:

- Shore A consists of 7 color coded test blocks ranging from Ha 30s to Ha 90s.
- Shore d consists of 3 color coded test blocks ranging from Ha 30s to Ha 90s.
- Durometer results should be within ±2 durometer points of stated test block value.

Test Stands

- Used to improve the accuracy and reproducibility of digital durometer hardness tester readings by ensuring that the pressure foot is exactly parallel to the specimen table.

Shore A

DESCRIPTION	PART NO.	PRICE
Digital Shore Durometer	**15-136-5**	$256.20
Test Block Kit	**15-138-1**	169.65
Test Stand	**17-669-3**	282.75

Shore D

DESCRIPTION	PART NO.	PRICE
Digital Shore Durometer	**15-137-3**	$256.20
Test Block Kit	**15-809-7**	148.95
Test Stand	**17-668-5**	333.50
Repl. Battery	**07-310-6**	2.25



59-027-3

imada.com

Asker® Durometers

Super EX Series

- Super EX durometers offer portability, ease of operation and nondestructive measurement with high repeatability for plastic and rubber hardness testing.
- Use for testing the hardness of rubber and plastic materials.
- Heavy-duty metal cases.
- Accuracy: ±1 point.
- EX-A – (Shore A) flat point indenter type – for normal rubber.
- EX-D – (Shore D) cone point indenter type – for hard rubber and plastics.

MODEL #	MEAS. FORCE	PART NO.	PRICE
EX-A	1 kgf	**59-027-3**	$403.90
EX-D	5 kgf	**59-028-1**	403.90

MEASURING

Portable Durometers
For Checking the Hardness of Non-Metallic Surfaces

- Model A – For soft rubber, plastics, and elastometers
- Model D – For hard rubber and plastics



59-415-0

Model 1600 (Standard Dial)

- Large dial.
- Full 360° sweep.
- Superior ½ point accuracy.
- Includes custom-made carrying case.
- Conforms to ASTM D-2240 and NIST traceable.
- Size: 2.25" x 6.125" H.

MODEL	PART NO.	PRICE
A	**59-415-0**	$484.80
D	**59-416-8**	484.80



59-419-2

Model 1500 (Vest Pocket)

- Ultra lightweight.
- Excellent for hard to reach places.
- Virtually unbreakable.
- Precision construction.
- NIST Traceable.
- Holds reading until reset.
- Furnished with leather pouch.
- Size: .5" x 4.5" H.

MODEL	PART NO.	PRICE
A	**59-419-2**	$313.70
D	**59-420-0**	313.70

Clean-Up Magnets
Quickly and Safely Clean up Iron, Steel Chips and Waste

See Pg. 408



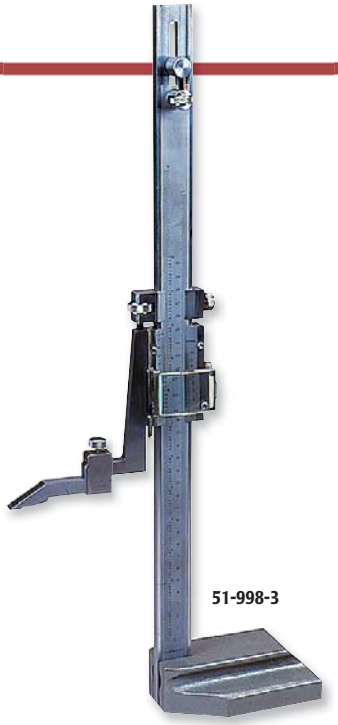
50-310-2

Ground Ship ONLY

TOP QUALITY Vernier Height Gages

- Crisp 0.001" graduations.
- Swing-away magnifier for easier reading.
- Adjustable scale compensates for wear.
- Surfaces are hardened, ground and micro-lapped.
- Fine adjustment and lock.
- Satin chrome finish.
- Off-set carbide scriber and straight steel scriber included.
- Supplied in fitted case.

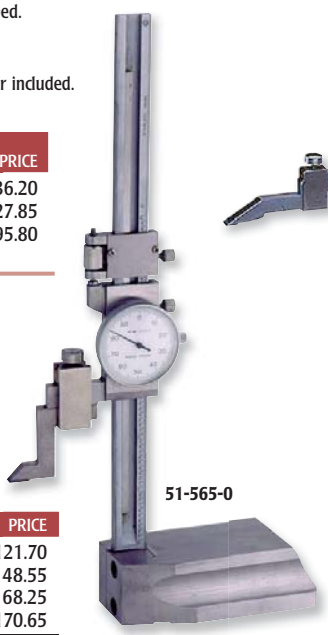
MEASURING RANGE	GRADUATIONS	PART NUMBER	PRICE
0 - 12"	±.001"	**51-998-3**	$136.20
0 - 18"	±.001"	**51-999-1**	227.85
0 - 24"	±.001"	**52-000-7**	295.80



51-998-3

Single Beam Dial Height Gages

- Fine adjustment and lock.
- Made of stainless steel with carbide tipped scriber.
- Shock proof.
- Complete with fitted case.



51-565-0

RANGE	GRADUATION	PART NO.	PRICE
0 – 6"	0.001"	**51-565-0**	$121.70
0 – 8"	0.001"	**52-536-0**	148.55
0 – 12"	0.001"	**52-537-8**	168.25
0 – 12"	0.001"	**52-538-6** *	170.65
0 – 300 mm	0.02 mm	**52-539-4**	205.25
Repl. Scriber		**52-540-2**	23.50

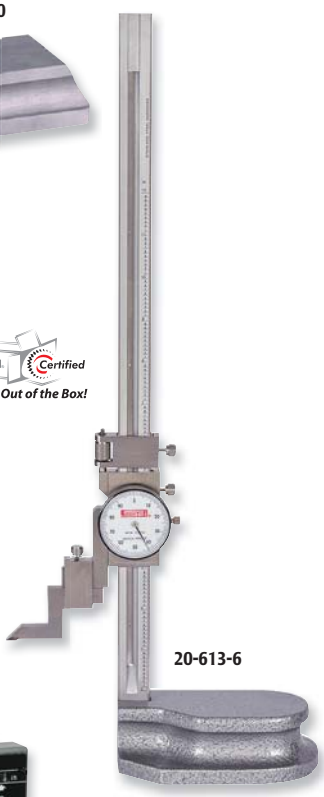
*Black face.

SPI® Dial Height Gages

Certified Right Out of the Box!

- Fine adjustment and lock.
- Shockproof.
- Stainless steel.
- Carbide tipped scriber.
- Graduations: 0.001"
- Scriber shank dia.: 0.233" W x 0.340" H
- Short Form Certificate of Calibration included.
- 2 year warranty.

RANGE	ACCURACY	PART NO.	PRICE
0 - 6"	±0.001"	**20-611-0**	$251.24
0 - 8"	±0.0015"	**20-612-8**	274.17
0 - 12"	±0.0015"	**20-613-6**	320.08



20-613-6

Digit Counter Double Beam Height Gages

- Double digit counter can be zero-set at any height within range by pressing zero-reset button.
- 1" dial reading digit counter.
- Graduations: 0.001"
- Features a large feed wheel for coarse & fine vertical adjustments.
- Carbide tipped scriber.
- Bottom surface hardened & ground.
- Supplied in fitted case.

RANGE	PART NO.	PRICE
0 – 12"	**50-369-8**	$215.70
0 – 18"	**50-370-6**	319.85
0 – 20"	**50-371-4**	365.60
0 – 24"	**50-372-2**	444.10



50-369-8

SPI®

Digit Counter Dial Height Gages

Height Gage with Dual Direction Digit Counter

- Large dial indicator and error-proof digital counter makes these gages easy to read.
- The double digital counter can be zero-set at any height within range.
- The digital counter has two displays which separately register upward and downward movements from preset reference points
- 0.100" Graduations provide quick coarse readings with 0.001" graduations on indicator for fine readings.
- All gages feature a large feed wheel, which facilitates coarse and fine vertical adjustments.
- Scriber shank dia.: 0.354" x 0.354"
- Carbide tipped scriber.
- Stainless steel beams.
- Bottom surface of the base is hardened, ground and lapped for maximum flatness.
- With fine-adjusting wheel and lock.
- Short Form Certificate of Calibration included.
- 2 year warranty.

Certified
Right Out of the Box!



11-561-8

RANGE	ACCURACY	PART NO.	PRICE
12"	±0.0015"	**11-561-8**	$317.85
18"	±0.002"	**11-562-6**	447.85
20"	±0.002"	**11-563-4**	506.95
24"	±0.002"	**11-564-2**	589.65

Mitutoyo

Dial & Digit Counter Height Gages

Easy to Read Large Dial
Plus Double Digital Counter

- Dial and digital counters can be Zero-Set at any height.
- 2 Display digital counter separately registers upward and downward movements.
- Sensitive feed wheel provides coarse and fine vertical adjustments.
- Bottom surface of base is hardened, ground and lapped.
- Chrome plated beams.
- Carbide-tipped scriber and scriber clamp are included.
- Graduation: 0.001"



10-001-6

MEASURING RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 12"	±.0015"	192-150	**10-001-6**	$975.00
0 - 18"	±.002"	192-151	**10-002-4**	1,355.00
0 - 24"	±.002"	192-152	**10-003-2**	1,755.00
0 - 40"	±.003"	192-153	**10-004-0**	3,835.00
Replacement Scriber		900258	**11-060-1**	58.85

Mitutoyo

Digimatic Height Gages

An ideal height gage for non-output applications with an easy to grasp base.

- Large, easy to read LCD display has a resolution of 0.0005"/0.01 mm.
- ABS/INC counting modes allow the height gage to measure from the plate or feature to feature.
- Inch/Metric conversion and ± counting make working from the print easier, without a lot of pencil and paper computations.
- Carbide tipped scriber for sharp, clean lines.
- Large dia. feed wheel and a fine feed knob give better slider movement control.



11-846-3

RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 12"/0 - 300 mm	±0.001"	192-630-10	**11-846-3**	$1,500.00
0 - 18"/0 - 450 mm	±0.002"	192-631-10	**11-847-1**	2,060.00
0 - 24"/0 - 600 mm	±0.002"	192-632-10	**11-848-9**	2,620.00
0 - 40"/0 - 1000 mm	±0.003"	192-633-10	**11-849-7**	4,960.00
Output Cable 40"		905338	**10-993-4**	39.05
Output Cable 80"		905409	**10-991-8**	45.40
Repl. Battery (SR44)			**07-310-6**	2.25



20-189-7

11-959-4

SPI®

Digital Height Gages

Absolute Encoder Technology

- Large LCD display.
- Inch / Metric conversion at any position.
- Heavy duty hardened stainless steel beam.
- Data cable to connect indicators to height gages included.
- SPC/USB data output (uses cable 11-967-7, sold separately).
- Zero setting at any position.
- Resolution 0.0005"/0.01 mm
- Manual On/Off power.
- Carbide tipped scriber.
- Indicator bar for travel indicator included.
- Smooth slider feed wheel.
- Battery CR2032 included.
- Furnished in fitted case.
- D.O.T. regulated. Shipped via ground freight only. No collect shipments.
- 2 year warranty.

Connect with SPI Absolute Digital Indicators or SPI Absolute Digital Indicator Probes

- Connecting an SPI Absolute Digital Indicator or Indicator Probe to the height gage will increase the resolution of the height gage display to 0.00005".
- Origins are set to height gage and indicator simultaneously.
- Height gage **can not** be moved up or down after origins have been set.

RANGE	ACCURACY	PART NO.	PRICE
0 - 12"/0 - 300 mm	±0.001"/±0.02 mm	**11-959-4**	$565.10
0 - 18"/0 - 450 mm	±0.002"/±0.05 mm	**11-960-2**	668.95
0 - 24"/0 - 600 mm	±0.0025"/±0.06 mm	**11-961-0**	769.65
0 - 0.5" SPI Absolute Digital Indicator		**11-965-1**	168.10
0 - 1" SPI Absolute Digital Indicator		**11-966-9**	187.35
0 - 1" SPI Absolute Digital Indicator Probe		**20-187-1**	141.85
0 - 2" SPI Absolute Digital Indicator Probe		**20-188-9**	175.40
0 - 4" SPI Absolute Digital Indicator Probe		**20-189-7**	228.80
SPC/USB Interface & Cable		**11-967-7**	123.45
Repl. Battery		**07-310-6**	2.25

SPI® Electronic Height Gages

Single Beam

- Inch/Metric conversion at any position.
- Zero-setting at any position.
- Carbide tipped scriber.
- Resolution: 0.0005"
- Smooth slider feed wheel.
- Large LCD display.
- Manual On/Off power.
- Short Form Certificate of Calibration included.
- 2 year warranty.

Certified Right Out of the Box!



15-372-6

RANGE	ACCURACY	PART NO.	PRICE
0 - 12"/0 - 300 mm	±0.0015"/±0.04 mm	**15-372-6**	$448.45
0 - 18"/0 - 450 mm	±0.0015"/±0.04 mm	**15-373-4**	523.00
0 - 24"/0 - 600 mm	±0.003"/±0.07 mm	**15-374-2**	597.70
Repl. Battery		**07-310-6**	2.25



15-986-3

SPI® Electronic Height Gages

Double Beam

- Inch/Metric conversion at any position.
- Zero-setting at any position.
- Carbide tipped scriber.
- Scriber shank dia.: 0.354" x 0.354"
- Micro-adjustable wheel.
- Large LCD display.
- Resolution: 0.001"/0.01 mm
- Manual On/Off power.
- Battery: 357/303 included.
- Short Form Certificate of Calibration included.
- 2 year warranty.

Certified Right Out of the Box!

RANGE	ACCURACY	PART NO.	PRICE
0 - 12"/300 mm	±0.001"/0.02 mm	**15-985-5**	$616.70
0 - 18"/450 mm	±0.0015"/0.03 mm	**15-986-3**	801.65
0 - 24"/600 mm	±0.002"/0.03 mm	**11-199-7**	942.50
Repl. Battery (357/303)		**07-310-6**	2.25

Mitutoyo Heavy-Duty Digimatic Height Gages

Designed to reduce the time it takes for part layout and measurement.

- Optional bi-directional touch probe improves efficiency and reliability of measurements.
- Large, easy to read 0.0005"/0.01 mm resolution LCD display.
- ABS/INC counting modes allow the height gage to measure from the plate or feature to feature.



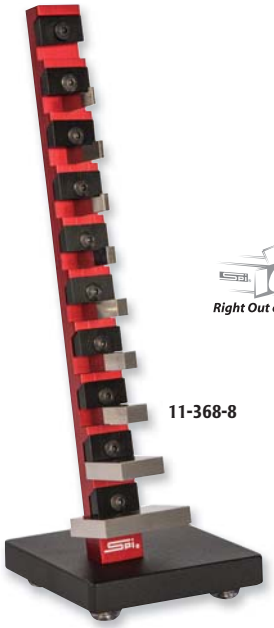
11-850-5

- Inch/Metric conversion and ± counting make working from the print easier, without a lot of pencil and paper computations.
- SPC output for easy data capture.
- Large dia. feed wheel and a fine feed knob give better slider movement control.
- Standard 5.9 long carbide tipped scriber for sharp, clean lines.

RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 12"/0 - 300 mm	±0.001"	192-670-10	**11-850-5**	$1,730.00
0 - 18"/0 - 450 mm	±0.0015"	192-671-10	**11-851-3**	2,220.00
0 - 24"/0 - 600 mm	±0.0015"	192-672-10	**11-852-1**	2,850.00
0 - 40"/0 - 1000 mm	±0.0025"	192-673-10	**11-853-9**	5,350.00

Accessories

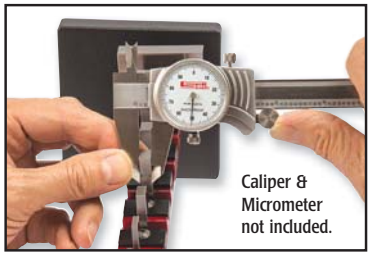
DESCRIPTION	MITUTOYO MODEL #	PART NUMBER	PRICE
Standard Long Scriber	905201	**11-854-7**	$160.00
Scriber Clamp	901385	**11-855-4**	20.50
2-Direction Touch Probe	192-008	**11-856-2**	809.00
Output Cable 40"	905338	**10-993-4**	39.05
Output Cable 80"	905409	**10-991-8**	45.40
L-Shape Cable 1M (SPC)	905691	**11-857-0**	37.85
L-Shape Cable 2M (SPC)	905692	**11-858-8**	45.30
Repl. Battery (357/303)		**07-310-6**	2.25



11-368-8

Certified Right Out of the Box!





Caliper & Micrometer not included.

SPI® Caliper/Micrometer Calibration Kit

Perfect for Calibrating and Checking Accuracy

- 12 Pc. Kit includes:
  - 12" Stand
  - 9 - Grade 0 Gage Blocks: 0.0625, 0.100, 0.125, 0.200, 0.250, 0.300, 0.500, 1.00, 2.00"
  - Optical Flat:
  - 3 mm T-handle hex wrench
- Accuracy: 0.00005"
- Material: Steel
- Certificate of calibration traceable to NIST.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Caliper/Micrometer Calibration Kit	**11-368-8**	$238.20

Mitutoyo

HDS Digimatic Height Gages

With Output for SPC

- With Absolute Encoder, which has unlimited response speed and eliminates zero setting on power up.
- Heavy-duty main beam.
- Large, easy to read 0.0005"/0.01 mm resolution LCD display.
- ABS/INC counting modes allow the height gage to measure from the plate or feature to feature.
- Inch/Metric conversion and ± counting make working from the print easier, without a lot of pencil and paper computations.
- SPC output for easy data capture.
- An ergonomic designed base and easy to reach feed wheel reduce operator fatigue.
- 20,000 hour average battery life reduces downtime.



11-859-6



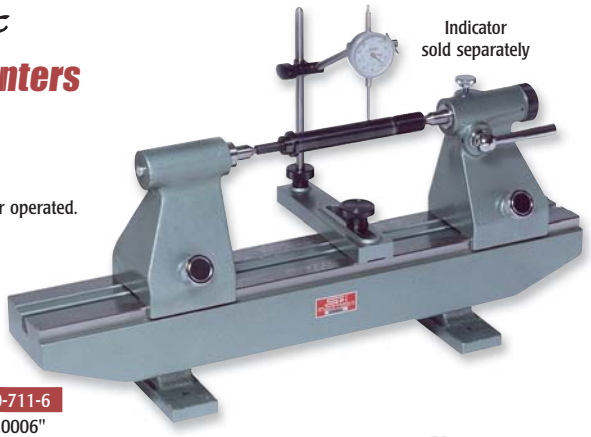
11-860-4

RANGE	ACCURACY	MITUTOYO MODEL #	PART NUMBER	PRICE
0 - 8"/0 - 200 mm	±0.001"	570-244	**11-859-6**	$620.00
0 - 12"/0 - 300 mm	±0.0015"	570-312	**11-860-4**	612.00
0 - 18"/0 - 450 mm	±0.002"	570-313	**11-861-2**	859.00
0 - 24"/0 - 600 mm	±0.002"	570-314	**11-862-0**	1,100.00
0 - 40"/0 - 1000 mm	±0.003"	570-248	**11-863-8**	3,700.00
40" SPC Output Cable		905338	**10-993-4**	39.05
80" SPC Output Cable		905409	**10-991-8**	45.40
Repl. Battery SR44			**07-310-6**	2.25

GAGE COMPATABILITY	MITUTOYO MODEL #	SCRIBERS PART NO.	PRICE	MITUTOYO MODEL #	SCRIBER CLAMPS PART NO.	PRICE
570-244	900173	**11-059-3**	$46.40	–	–	–
570-312/313/314	900258	**11-060-1**	58.85	901385	**11-855-4**	$20.50
570-248	905201	**11-854-7**	160.00	901385	**11-855-4**	20.50

SPI® Classic Heavy Duty Bench Centers

- For accurate checking of concentricity on cylindrical workpieces.
- 5/8" x 60° MT2 centers are hardened and precision ground.
- Tail stock center is spring loaded and lever operated.
- Easy positive locking of clamps.
- Heavy duty cast iron bed for added stability.
- Adjustable vertical post assembly included (indicator optional).



Indicator sold separately



Made in Japan

Bench Center Tolerances

PART NO.	30-710-8	30-711-6
Center Height:	0.0002"	0.0006"
Bed Flatness:	0.0003"	0.0004"
Center Parallelism to Bed:	0.0004"	0.0008"
Center to Center Alignment:	0.0002"	0.0003"

DIST. BETWEEN CENTERS	CENTER HEIGHT	MAX. LOAD (LBS.)	OVERALL LENGTH	WEIGHT (LBS.)	PART NUMBER	PRICE
15.75"	5.90"	55	29.50"	106	**30-710-8***	$1,849.85
31.50"	9.44"	110	47.25"	330	**30-711-6***	4,425.90

*Shipped via truck, freight collect.

Mitutoyo Bench Centers

- Used with a dial test indicator (optional), the Bench Center provides precision measurement of concentricity verification on cylindrical workpieces.
- Indicator clamp included. (Holding stem dia.: 9.53 mm/0.375")
- Attachment dia.: 3/8"



10-033-9

CENTER-TO-CENTER	WORKPIECE CAPACITY DIA.	PARALLELISM OF CENTERS	FLATNESS OF SURFACE	WEIGHT (LBS.)	MITUTOYO MODEL #	PART NUMBER	PRICE
5.9"	3.8"	0.0002"	0.0004"	17.5	967-203-10	**10-033-9**	$709.00
11.8"	5.8"	0.0002"	0.0006"	35.0	967-201-10	**10-034-7**	1,280.00

CALCULATED INDUSTRIES®

Machinist Calc® Pro 2

Advanced Machining Math & Materials

See Pg. 324

NEW



31-099-5



Starrett®
Cross Test Levels & Plumbs
Light Weight and Compact

No. 134
- Made from cast iron with a satin nickel finish.
- The level has two vials at right angles for cross test leveling without moving the tool and a plumb level at the top for checking squareness.
- Size: 2" x 3"/50 x 75 mm

No. 136
- The level has two vials at right angles which permit leveling in both directions without moving the level from the work.
- Black wrinkle finish and a ground reference surface.
- Size: $2^{3}/_{4}$" x $2^{3}/_{4}$"/70 x 70 mm

DESCRIPTION	MODEL #	PART NO.	PRICE
With Cross Test & Plumb Vials	134	**10-199-8**	$61.30
With Cross Test Vial	136	**10-200-4**	44.00



10-478-6

Empire
True Blue Magnetic Torpedo Levels
Ground Ship ONLY
Heavy-Duty Aluminum Frame
- Accurate to within .0005" per inch in all 10 level and plumb working conditions.
- Vial reads plumb, level and 45°.
- Strong holding magnet edge.
- V groove working edge.
- D.O.T. Regulated. Shipped via ground freight only.

LENGTH	VIALS	MFG'S #	PART NO.	PRICE
9"	3	EM-81.9	**10-478-6**	$14.05
12"	4	EM-81.12	**10-480-2** †	16.30

† Includes powerful full length magnetic edge and Vari-Pitch™ vial which reads slopes in $^{1}/_{8}$" increments.

STANLEY
Lighted Magnetic Shockresistant Torpedo Level
Heavy-Duty Aluminum Frame Assures Accuracy and Durability
- Lighted vials for visibility in low light working conditions.
- Open vials provides maximum readability.
- Non-marring feet can be used on finished surfaces without causing damage.
- Water resistant.
- Length 9"
- 3 Vials.
- Model # 43-512



10-078-4

DESCRIPTION	PART NO.	PRICE
Lighted Torpedo Level	**10-078-4**	$15.15



58-802-0

Master Precision Levels
- Use for accurately checking the work of machinists and toolmaker's, the setting up of machinery and other work that requires extreme level accuracy.
- The body of the level is made of cast iron.
- Base is lapped for extreme accuracy as table.
- Main level vial graduated to 10 second accuracy (1 division equals 0.0005" per 10").

LENGTH	PART NO.	PRICE
8"	**58-802-0**	$170.85
10"	**58-803-0**	219.05



11-369-6

Starrett®
Pocket Levels
- Another extremely useful Starrett® level that fits handily in the pocket with no sharp edges.
- Made from hexagonal stock with convex ends and satin nickel-plated finish.

SIZE	MODEL #	PART NO.	PRICE
$2^{1}/_{2}$"	135A	**11-369-6**	$33.50
$3^{1}/_{2}$"	135B	**11-370-4**	36.65



31-925-1

Empire
Polycast® 9" Torpedo Levels
- POLYCAST® frame is light weight and non-marring.
- Tapered design for easy in and out of pocket.
- Hang hole for ease of storage.
- 3 durable acrylic vials read plumb, level and 45°.
- 20-049-3 has magnetic edge for hand free use.



20-049-3

NEW

MADE IN USA

Ground Ship ONLY

DESCRIPTION	MFG'S #	PART NO.	PRICE
Polycast® Torpedo Level	33-9	**20-048-5**	$6.20
Polycast® Magnetic Torpedo Level	331-9	**20-049-3***	7.35

* D.O.T. regulated. Shipped via ground freight only.

Inspection Block Levels
- Heat insulating top plate with glass.
- Exceptional resistance to shock.
- Flat plus vee bearing surfaces.
- Stabilized cast iron base.
- Maximum clarity of bubbles.
- Cross and main vial easily adjustable.
- Hex key wrench for adjusting screws.
- Furnished in fitted case.

Made in Japan

SIZE L X W	SENSITIVITY PER 10" INCH	SENSITIVITY PER 10" SECONDS	BASE FLATNESS	PART NUMBER	PRICE
8" x $1^{7}/_{8}$"	0.0005"	10	0.0004"	**31-925-1**	$336.65
8" x $1^{7}/_{8}$"	0.0001"	2	0.0004"	**31-926-9**	544.60



10-704-5



10-086-7

SMARTTOOL™ Digital Levels

Serves as a Level or a Plumb

Permits you to find level and plumb in two ways. For quick references use the sensitive bubble vials. For highly precise work, use the digital display on the sensor module.

- LCD readout measures 3 different ways: Degrees, % of slope and pitch (rise over run).
- Can be used upside down, display reverses to right side up.
- Alternate zero. Provides zero selection anywhere.
- Hold button for freezing a reading.
- Beeper function can be activated to sound at level and plumb.
- Angle copy feature.
- Acrylic bubble vials for quick reference.
- Easy to self calibrate.
- Heavy-duty aluminum.
- Module made of unbreakable ABS polymer.
- Low battery indicator. Automatic shut-off after being idle for 6 minutes.
- Operates on standard 9V battery.
- Carrying case sold separately.



10-706-0

Specifications

Measuring Range:	360° (0 x 90°)
Resolution:	0.1°
Accuracy:	0.1°
Temperature Range:	20° F to 140° F

L X W X H	PART NO.	PRICE
24" x 1.0" x 2.4"	**10-704-5**	$191.85
48" x 1.0" x 2.5"	**10-705-2**	202.00

Carrying Cases

- Yellow and black padded vinyl case has an adjustable strap.

LENGTH	PART NO.	PRICE
24"	**10-706-0**	$28.45
48"	**10-707-8**	46.70

SMARTTOOL™ Builder's Digital Angle Finder

Compact Size Yet Full of Features

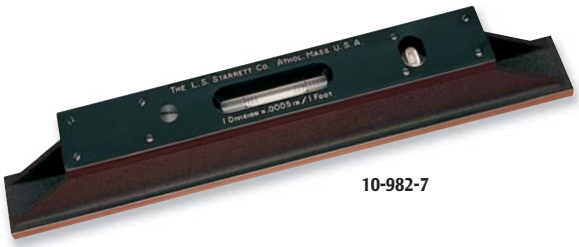
- LCD readout measures 3 different ways: Degrees, % of slope and pitch (rise over run).
- Can be used upside down, display reverses to right side up.
- Alternate zero. Provides zero selection anywhere.
- Hold button for freezing a reading.
- Beeper function can be activated to sound at level and plumb.
- Angle copy feature.
- Easy to self calibrate.
- Made of unbreakable ABS polymer.
- Low battery indicator. Automatic shut-off after being idle for 6 minutes.
- Operates on standard 9V battery.
- 6½" long.

Specifications

Measuring Range:	360° (4 x 90°)
Resolution:	0.1°
Accuracy:	0.1°
Temperature Range:	20° F to 140° F

DESCRIPTION	PART NO.	PRICE
Builder's Digital Angle Finder	**10-086-7**	$172.50





10-982-7

Starrett® Machinist's Levels

- Ground and graduated main vial.
- 12" model has a plumb vial and 18" model has a double plumb vial.
- Main vials are adjustable.
- Bearing surfaces are accurately machined and finished and include a involuted groove.
- An involute longitudinal groove between bearing flats provides seating on round work.
- With the cross test level, it is possible to level simultaneously in both directions by canting the level sideways on round work. This prevents inaccuracies in main vial reading. Cross test vial on all except 4" model (10-978-5).
- 6", 8" and 12" models have graduations that are approximately 80 - 90 seconds or 0.005" per foot.

LENGTH	STARRETT® MODEL #	PART NUMBER	PRICE
4"	98-4	**10-978-5**	$118.75
6"	98-6	**10-979-3**	139.20
8"	98-8	**10-980-1**	173.70
12"	98-12	**10-981-9**	242.60
12"	98Z-12	**10-642-7** *	328.95
18"	98-18	**10-643-5**	406.65
18"	98Z-18	**10-644-3** *	518.80

* Finished wood case included

Replacement Tube & Plug Assemblies

LENGTH	STARRETT® MODEL #	PART NUMBER	PRICE
4"	64496	**10-645-0**	$94.75
6"	64497	**10-646-8**	99.45
8"	64498	**10-647-6**	122.30
12"	64499	**10-648-4**	141.05
18"	64500	**10-649-2**	183.85

Starrett® 15" Precision Master Level

- Especially useful for setting up and maintaining high speed machinery.
- Quickly test for exact variation of levelness of machinery and make any necessary adjustments.
- Ground and graduated main vial of 10-second accuracy; one division equals ½ thousandth (0.0005) of an inch per foot, or 0.04 mm per meter.
- Main vials have seven graduations on each side of the bubble.
- Auxiliary level vial shows lateral position and assists in horizontal setting.
- Level vials are positioned so breakage is reduced to a minimum.
- Special alloy iron used to obtain freedom from thermal effects.
- Castings are thoroughly seasoned and machined.
- Reference surface is scraped.
- Nonmachined surfaces have a black wrinkle finish.
- Insulation from handling by means of top plate of nonconductive material.
- Base length: 15".
- Wooden case included.
- Starrett® model #199Z.

DESCRIPTION	PART NO.	PRICE
Starrett® 15" Master Level	**10-982-7**	$953.00



11-983-4

Digital Mini Protractor

- Range: 360° all 4 sides with 0 - 90°.
- Dimension: 2.2" x 2.2" x 1.2"
- Resolution: 0.05°
- Repeatability: 0.1°
- Accuracy: ±0.2°
- Auto shut-off after 3 - 5 min.
- Zero & hold button.
- Magnets on bottom and 2 side walls.
- Low battery warning.
- 9 volt battery included.

DESCRIPTION	PART NO.	PRICE
Digital Mini Protractor	**11-983-4**	$81.76
2 pk. 9V Batteries	**60-150-0**	9.70



13-770-3

Digital Protractor

Ground Ship ONLY

This protractor provides an immediate digital reading of any angle in a full circle with 0-90°-0-90°-0 readings. The machined aluminum frame is rigid and light with a precise platform that allows the sensor and its microprocessor circuit to provide high accuracy throughout the entire 360° range.

- Four 90° quadrants for display purposes.
- Calibrates in minutes without any special fixtures.
- HOLD button for freezing a reading in an unreadable position.
- ABS/ZERO button allows 2 measuring modes, Standard and Alternate Reference.
- V-grooves on top and bottom for use on curved surfaces.
- Angle displayed upright regardless of Protractor position.
- Supplied in fitted case.
- D.O.T. Regulated. Shipped via ground freight only.

Specifications

Measuring Range:	360° (0-90°-0-90°-0)
Resolution:	0.1°
Operating Temperature Range:	23°F to 122°F −5° to +50° C
Power:	3V, Lithium cell
Accuracy:	± 0.1° -level ±10 ± 0.1° -plumb ±10 ± 0.2° -max. error in between
Size:	6" L x 1 1/4" W x 2 3/8" H
Weight:	10.2 oz.

DESCRIPTION	PART NO.	PRICE
Digital Protractor	**13-770-3**	$179.25
Repl. Battery	**07-319-7**	2.55

Square Inspection Block Spirit Levels

With Stabilized Cast Iron Base

- 2 Sides with flat bearing surfaces and 2 sides with flat and Vee bearing surfaces.
- Heat insulating top plate with glass.
- Width: 1 9/16"
- Maximum clarity of bubbles.
- Cross and main vial easily adjustable.
- Hex key wrench for adjusting screws.
- Furnished in fitted case.

Made in Japan

SIZE	SENSITIVITY PER 10" INCH	SECONDS	BASE FLATNESS	PART NUMBER	PRICE
8" x 8"	0.0005"	10	0.0001"	**31-878-2**	$828.50
8" x 8"	0.0001"	2	0.0001"	**31-879-0**	927.00



31-878-2

Spi Classic Spirit Levels



31-050-8



31-060-7



31-080-5

Machinists Levels

- High levelling accuracy at economy prices.
- Ideal for the machinist, toolmaker and for setting up machinery etc.
- Cross and main vial – main vial is easily adjustable.
- Flat plus Vee bearing surfaces, width 1 3/32".

SIZE	SENSITIVITY PER 10" INCH	SECONDS	PART NUMBER	PRICE
6"	0.001"	20	**31-050-8** *	$193.05
8"	0.001"	20	**31-051-6** *	202.10
8"	0.0005"	10	**31-052-4** †	233.85
12"	0.001"	20	**31-053-2** *	252.70
12"	0.0005"	10	**31-054-0** †	293.15
Vial (0.001" Sensitivity)			**02-095-8** *	60.00
Vial (0.0005" Sensitivity)			**02-094-1** †	60.40
Vial (0.0001" Sensitivity)			**02-093-3** †	152.35

Inspection Block Levels

- Maximum clarity of the bubbles.
- Heat insulating top plate with glass.
- Stabilized cast iron base with hardened surfaces.
- Flat plus Vee bearing surfaces, width 1 9/16".
- Exceptional resistance to shock.
- Cross vial and main vial easily adjustable.
- Furnished in fitted wooden case.

SIZE	SENSITIVITY PER 10" INCH	SECONDS	BASE FLATNESS	PART NUMBER	PRICE
8"	0.0005"	10	0.0002"	**31-060-7** *	$451.70
8"	0.0001"	2	0.0001"	**31-061-5** †	738.45
12"	0.0005"	10	0.0002"	**31-062-3** *	556.05
12"	0.0001"	2	0.0001"	**31-063-1** †	863.25
Vial (0.0005" Sensitivity)				**02-111-3** *	47.85
Vial (0.0001" Sensitivity)				**02-093-3** †	152.35
Vial (0.0001" Sensitivity)				**02-093-3** †	152.35

Inspection Square Block Levels

- Maximum clarity of the bubbles.
- Heat insulating top plate with glass.
- Stabilized cast iron base with hardened surfaces.
- 2 sides with flat bearing surfaces and 2 sides with flat plus Vee bearing surfaces. Width 1 9/16".
- Cross and main vial easily adjustable.
- Furnished in fitted wooden case.

SIZE	SENSITIVITY PER 10" INCH	SECONDS	BEARING FLATNESS	PART NUMBER	PRICE
8 x 8"	0.0005"	10	0.00025"	**31-080-5** *	$1,033.60
8 x 8"	0.0001"	2	0.00025"	**31-081-3** †	1,650.50
Vial (0.0005" Sensitivity)				**02-111-3** *	47.85
Vial (0.0001" Sensitivity)				**02-093-3** †	152.35

SPI • TRONIC Digital Levels





SPI® Classic
Pro 360 Digital Level

MADE IN USA

- The PRO 360 is a revolutionary angle measuring tool.
- Multi-functional. Digital Level, 360° Protractor and Inclinometer.
- Instant LCD display of level, tilt, true vertical or any angle in between to highest accuracy, one tenth of a degree reading.
- Use upside down, display reverses to right side up.
- Deviation from the true plane is measurable through full 360° (4 x 90°).
- Floating zero! Provides zero selection anywhere within its 360° range.
- Hold button freeze! Displays reading for convenient out of sight measurements.
- Reset plus Superset self-calibration modes.
- High-impact machined aluminum frame houses a rugged electronic sensor, custom circuitry and the liquid crystal display.
- Top plate has V-groove for accurate registration on curved or cylindrical surfaces.
- Tapped #6-32 holes in baseplate for special mountings.
- Operates on standard 9V Alkaline battery for up to 500 hours of operation. Battery included.
- Low battery indicator. Automatic shutoff.
- Plastic case included.

Specifications

Measuring Range:	360° (4 x 90°)
Resolution:	0.1°
Accuracy:	± 0.1° -level ±10° ± 0.1° -plumb ±10° ± 0.2° -max. error
Repeatability:	Same as accuracy
Cross Axis Error:	<0.2° up to 20°
Operating Temperature Range:	–5° to +50° C
Storage Temperature Range:	–20° to +65° C
Size:	6.0" x 1.2" x 2.3" H
Weight:	10.2 oz.

DESCRIPTION	PART NO.	PRICE
Pro 360 Digital Level	**31-038-3**	$265.95
Replacement Case	**31-042-5**	80.30

Pro 3600 Data Logger Software

- Records data from the Pro 3600 Digital Level onto a computer.
- Recording can be triggered with an SPI footswitch 31-041-7
- After data is collected, the Export" key will send it to an existing Microsoft® Excel program for future analysis.

DESCRIPTION	PART NO.	PRICE
Pro 3600 Data Logger Software	**31-029-2**	$87.20

*Excel is a registered trademark of Microsoft Corp. Excel and footswitch not included.



31-029-2

SPI Exclusive Feature!



When a sub-plate is mounted over the V-groove the level's frame will be distorted. That's why the SPI PRO 360 & 3600 Exclusively feature the V-groove on top and a flat bottom with two 6-32 threaded holes for mounting to sub-bases or fixtures.



SPC Cable with Footswitch sold separately

MADE IN USA

SPI® Classic
SPI•TRONIC Digital Level
PRO 3600 with 0.01° Resolution & SPC Output

- Advanced generation of the very popular SPI•TRONIC Digital Level PRO 360.
- Instant LCD display with resolution of 0.01° up to ±10°.
- PRO 3600 features SPC output and greater accuracy.
- Multi functional Digital Level, 360° Protractor and Inclinometer.
- Instant LCD display of level, tilt, true vertical or any angle in between.
- Deviation from the true plane is measurable through full 360° (4 x 90°).
- Floating zero! Provides zero selection anywhere within its 360° range.
- Hold button freeze! Displays reading for convenient out of sight measurements.
- Reset plus Superset self-calibration modes.
- High-impact machined aluminum frame houses a rugged electronic sensor, custom circuitry and the liquid crystal display.
- Top plate has V-groove for accurate registration on curved or cylindrical surfaces.
- Tapped #6-32 holes in baseplate for special mountings.
- Operates on standard 9V Alkaline battery for up to 500 hours of operation. Battery included.
- Plastic case included.
- Low battery indicator. Automatic shutoff.

Specifications

Measuring Range:	360° (4 x 90°)
Resolution:	0.01° (0° to ±10°) 0.10° (10° to 90°)
Accuracy:	0 - 10° ± 0.05° 10 - 80° ± 0.20° 80 - 90° ± 0.10°
Repeatability:	± 0.05°
Cross Axis Error:	Minimal
Serial Port:	
Type:	RS-232
Connector:	10 Pin, Rectangular
Operating Temperature Range:	–5° to +50° C
Storage Temperature Range:	–20° to +65° C
Size:	6.0" x 1.2" x 2.3" H
Weight:	10.4 oz.

DESCRIPTION	PART NO.	PRICE
Pro 3600 Digital Level	**31-040-9**	$413.75
SPC Cable with Foot Switch	**31-041-7** *	177.45
Replacement Case	**31-042-5**	80.30

*Foot switch (31-041-7) - Connects a PRO3600 to a computer for Statistical Process Control and allows reading to be sent when foot switch is depressed. Includes foot switch, 9 pin female connector with a 4' cable and 8' cable that connects to the level. Please inquire for custom cable lengths.

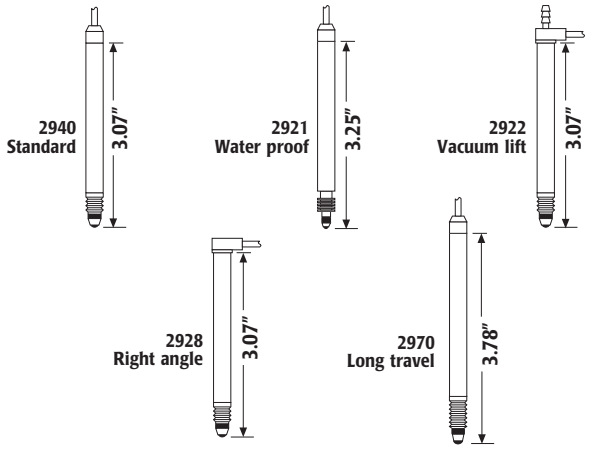
MEASURING

PRETEC Electronic Measuring Probes



SPI® Classic

Swiss Made



- New series of half bridge PRETEC probes has been designed to make them compatible with most other brands of amplifiers.
- Adaptability to other amplifiers is accomplished by a switchable bridge in the connector.
- Measuring piston moves on 32 ball bearings and has roller guide for radial stability.
- Hard-chrome plated 8 mm dia. stem.
- Contact point with 2.5 mm dia. carbide ball and 2.5 mm thread.
- Connector with 6½ ft. cable.

MEASURING TRAVEL	PRE-& POST-TRAVEL	REPEAT-ABILITY	LINE-ARITY	MEASURING FORCE	MODEL	PART NUMBER	PRICE
±.079"	**	0.00000078"	.3%	2.11 oz.	2940	**31-880-8**	$577.00
±.040"	***	0.00000078"	.3%	2.11 oz.	2922	**31-881-6**	746.95
±.040"	***	0.00000078"	.3%	2.82 oz.	2921	**31-882-4**	1,024.20
±.040"	**	0.00000078"	.3%	2.11 oz.	2928	**31-884-0**	634.00
±.118"	***	0.000019"	.5%	2.82 oz.	2970	**31-885-7**	1,112.75

**) Pre-travel adjustable to max. 0.043", post-travel adjustable to max. 0.094".
***) Pre-travel factory set to 0.023", post-travel set to 0.094"

DESCRIPTION	PART NO.	PRICE
1 Reduction Bushing 8 mm to ⅜" dia.	**30-299-2**	$8.40

Lever Head 2952

- Exceptional adaptability.
- Adjustable measuring travel ± 0.040".
- Adjustable measuring force 0 - 0.88 oz.
- Pre-travel max. 0.043", post-travel max. 0.094
- Repeatability 0.000019". Linearity .3%.
- Connector with 6½ ft. cable.
- Parallel movement, no cosine error.
- Variety of carbide and ruby contact points with 1.6 mm thread available.

DESCRIPTION	PART NO.	PRICE
Lever Head 2952	**31-887-3**	$1,268.60



31-887-3



Comparator stand and probe not included.

SPI® Classic

SPI•TRONIC Analog Comparator

Inch/Metric

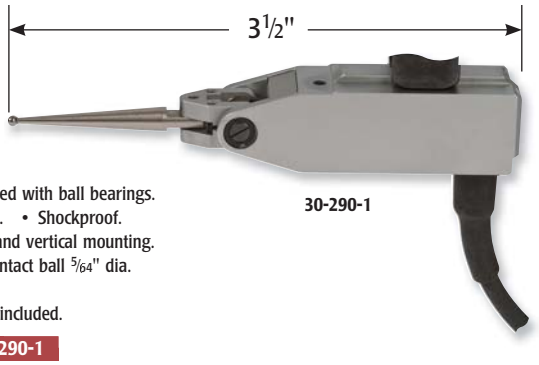
- Easy to operate Analog Comparator, ideal for the machine shop.
- 2 independent measuring channels, A and B with 4 single functions: +A, −A, +B, −B and 4 functions for sum or differential readings: +A+B, +A−B, −A+B and −A−B.
- Dual scale 3-0-3 and 10-0-10 meter with tolerance markers.
- Operates with Tesa & Pretec measuring probes.
- Red, green and yellow tolerance classification lamps for undersize, o.k. and oversize measuring results.
- RS 232C data output.
- Splash proof and sealed for dust.
- Built-in switch for 110V or 220V operation.
- Externally accessible zero and calibration controls.
- Size 6" x 8" x 8" high. Weight 7 lbs.
- Analog; 5 inch and 5 metric measuring ranges.

INCH		METRIC	
RANGE	READING	RANGE	READING
±.0003"	.000010"	±10µm	0,5µm
±.001"	.000050"	±30µm	1µm
±.003"	.0001"	±100µm	5µm
±.010"	.0005"	±300µm	10µm
±.030"	.001"	±1000µm	50µm

DESCRIPTION	PART NO.	PRICE
SPI•TRONIC Analog Comparator	**31-842-8**	$895.20

TESA®

Multi-Angle Lever Head



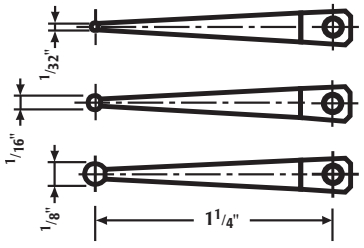
30-290-1

- Automatic reversal. Equipped with ball bearings.
- Can be adjusted over 180°. • Shockproof.
- 2 dovetails for horizontal and vertical mounting.
- Interchangeable carbide contact ball 5/64" dia.
- Dull chromed finish.
- Connector with 7 Ft. cable included.

PART NO.	30-290-1
Gaging pressure	10 grams
Repeatability	0.000002"
Spindle pre-travel	0.002"
Measuring travel	±0.012"
Free travel	0.002"
PRICE	$844.10

Carbide Contact Points

SIZE	
⅛" Dia. x 1¼" Long	On Request
1/16" Dia. x 1¼" Long	On Request
1/32" Dia. x 1¼" Long	On Request



HERTEL
Production Grade Tooling Since 1947

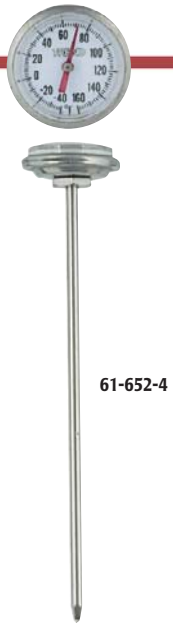
Multiple Flute Fine Tooth M-42 Cobalt Ball Roughing End Mills



See Pg. 514



61-661-5



61-652-4

Thermometers

- Great for quick checking of cutting fluids, spindle oils and all types of liquids.
- Handy for air conditioning repair.
- Stainless steel probe.
- Digital Thermometer: Consolidate Min/Max memory. F°/C° Range: 14°F to 392°F or -10°C to 200°C.
- Dial Thermometer. Three models (ranges shown below). 5" length X .150" dia. 304 Stainless steel.

TYPE	RANGE	PART NO.	PRICE
Digital	F°/C° – LCD	**61-661-5**	$29.65
Dial	-40°F to 160°F	**61-652-4**	22.45
Dial	0°F to 200° F	**61-653-2**	22.45
Dial	50°F to 550°F	**61-654-0**	22.45

51-423-2



CE

EXTECH INSTRUMENTS

Digital Sound Level Meter

- Use for OSHA regulatory compliance testing, machine noise testing, noise ordinance law enforcement and community noise compliance testing.
- A and C weighting, provide 1.5 dB accuracy.
- Tripod mount.
- 0.1 dB resolution.
- Max hold with reset button.
- Large 0.5" 3½ digit LCD display.
- Meets ANSI and IEC 651 Type 2 standards.
- High and Low measuring ranges: Low: 35 to 90 dB, High: 75 to 130 dB.
- Built-in calibration check (94 dB).
- Analog DC/AC conditioned outputs of 10mV/dB.
- Utilizes 0.49" (12.3 mm) condenser microphone.
- Dimensions: 9.5" X 2.7" X 1" (241 X 69 X 25 mm).
- Complete with hard vinyl case and 9V battery.

ACCURACY	EXTECH® MODEL#	PART NUMBER	PRICE
1.5 dB	407736	**51-423-2**	$363.55

EXTECH INSTRUMENTS

Infrared Thermometer

With Built-In Laser Pointer

- Large LCD with backlighting.
- Built-in laser pointing to improve aim.
- Temperature readings in Fahrenheit or Celsius.
- Fixed emissivity (.95) covers 95% of surface applications.
- Narrow field of views.
- Audible and visible out-of-range indicator.
- Automatic data hold.
- Pocket size meter.
- Complete with 9V battery.

TEMPERATURE RANGE	EXTECH #	PART NO.	PRICE
0 to 600F/-32 to 320 C	42529	**51-364-8**	$114.60



51-364-8

51-476-0



GENERAL®

Hygro-Thermometer w/Clock

- Functions:
  - Simultaneous digital display of Relative Humidity (RH) and Temperature.
  - Min/Max memory.
  - °F to °C switchable.
  - 24 hour clock display w/alarm and snooze button.
- Ranges:
  - Temperature: 14° to 122°F (-10° to 50°C).
  - Humidity: 10% to 95% RH.
- Accuracy:
  - Temperature: ± 1.8°F (±1°C).
  - Humidity ± 5% RH.
- Wall mount or desk-top stand.
- Includes one AAA battery.

DESCRIPTION	PART NO.	PRICE
Hygro-Thermometer w/Clock	**51-476-0**	$53.35



51-419-0

EXTECH INSTRUMENTS

1/8 DIN Panel Tachometer

- Measures RPMs from 5 to 99,990 with microprocessor quartz crystal accuracy of 0.05% +1 digit.
- Resolution from 0.1 RPM (5 - 1000 RPM) to 1 RPM (1000 to 9999 RPM) to 10 RPM (10,000 to 99,999 RPM)
- Large 4 digit LED display updates once per second.
- A pulse is measured when a ferrous object passes by sensor.
- Powered by: 115/230 VAC 50/60Hz.
- Dimensions: 3.8 x 1.89 x 2.36"
- Panel cutout: 3.62 x 1.77"
- Weight: 13.9 oz. (297g).

Choice of Sensors (both include 6' cable)

- Proximity Sensor: designed for target distance of 0.1" (3 mm), covers range to 36,000 RPM (600Hz).
- Photoelectric Sensor: with target distance of 0.4" (10 mm) and range to 6000 RPM (1KHz).

DESCRIPTION	EXTECH® MODEL #	PART NUMBER	PRICE
1/8 DIN Panel Tachometer	461950	**51-419-0**	$203.40
Proximity Sensor	461955	**51-420-8**	51.55
Photoelectric Sensor	461957	**51-421-6**	146.10

MEASURING

Pocket Optical Tachometers

Use for Contact and Non-Contact Measurements

- **PT-99:** Battery powered non-contact tachometer. Operates up to 36". Red LED light source.
- **PLT200:** Battery powered, 32 function direct reading tachometer which is programmable in both inch and metric linear rates. Works both on contact and optical. Operates up to 25' from reflective target using a laser light source.
- **PLT200 Kit:** Includes PLT200 Tach, Remote Contact Assembly which includes: one concave and one convex contact tip and a 10 cm linear contact wheel, one carrying case, and one 5' roll of t-5 reflective tape.

MODEL #	PT-99	PLT200
Display:	5 Digits, 5 Alphanumeric LCD	5 Digits, 5 Alphanumeric LCD
Speed Ranges (RPM) Optical: Contact:	 5 – 200,000	 5 – 200,000 0.5 – 20,000
Resolution (RPM): Fixed:	Auto Ranging: 0.001 to 1 RPM 1 Digit	0.001 to 10RPM (range dependent) –
Totalizer: Timer:	N/A	1 - 999,990 (events or length) N/A 99:59.9 Min, sec., tenths
Accuracy: Optical: Contact:	 0.01% or ±1 Digit N/A	 ±0.001% of reading ±1.0% of reading
Operating Range:	2" to 36", ±45° from perpendicular	2" to 25', ±70° from perpendicular
Memory:	Max, Min, Last	Max, Min, Last
Power:	(2) AA 1.5Vdc batteries, included (60 Hour Life)	(2) AA 1.5Vdc batteries, included (30 Hour Life)
Enviromental:	40° to 105° F	40° to 105° F
Dimensions:	6.92" x 2.4" x 1.6"	6.92" x 2.4" x 1.6"
Weight:	7 oz.	7 oz.
NIST Traceable Certificate of Calibration Included	No	Yes



98-663-8


98-664-6

DESCRIPTION	PART NO.	PRICE
PT-99	**98-662-0**	$225.75
PLT200	**98-663-8**	301.00
PLT200 Kit	**98-664-6**	424.15

for 150 Watt Units

DESCRIPTION	PART NO.	PRICE
Reflective Tape (5' roll)	**98-905-3**	$20.20
Remote Optical Sensor (For Model 98-664-6 (ONLY)	**98-904-6**	195.65

EXTECH INSTRUMENTS

Tachometer

Provides Precise RPM Readings with or without Contact

- Incorporates both a photo and contact tachometer into one instrument.
- Large 0.4", 5-digit LCD Digital Display.
- Measures from 5 to 99,999 RPM in photo mode.
- Simple operations: Turn on, contact rotating object with sensor tip, allow reading to stabilize (approx. 2 seconds), and read RPM with excellent precision.
- Linear surface speed measurements are from 0.2 to 6560 ft/min or 0.05 to 1999.9 m/min.
- Includes an attachable surface wheel which enables tachometer to read surface measurements of moving webs or other linear moving objects.
- Holds last reading for 5 minutes and recalls min/max readings.
- Autoranging with 0.05% RPM accuracy of full scale. Achieve 0.1 RPM resolution from 5 to 999.9 RPM and 1 RPM resolution at higher ranges up to 19999 RPM.
- Complete with cone, RPM sensor tip, surface speed wheel, 4-1.5 volt AA batteries and carrying case.



51-415-8

DESCRIPTION	EXTECH® MODEL #	PART NUMBER	PRICE
Photo/Contact Tachometers	461895	**51-415-8**	$312.60
Contact Tach. Repl. Wheel Set	461899	**51-418-2**	29.15

EXTECH INSTRUMENTS

Tachometer/Stroboscope

Non-Contact Motion and RPM Measurements

- Performs both Tachometer RPM measurement and Stroboscopic speed and motion analysis.
- Large 0.4", 5-digit LCD Digital Display.
- Character on display reverses direction depending on measurement mode you are in.
- Non-contact Tachometer measurements of 5 to 100,000 RPM/FPM.
- Strobe measurements: 100 to 100,000 PRM/FPM.
- Tachometer memory stores last, maximum and minimum readings.
- Stroboscope coarse and fine flash rate adjustments in three ranges.
- 0.1% basic accuracy with 0.1 RPM resolution.
- Microprocessor based with quartz crystal oscillator to maintain high accuracy.
- Battery operation brings motion analysis to any location. Complete with 4-1.5v AA batteries, operation manual and carry case.
- Extech® model #461825.



51-416-6

DESCRIPTION	PART NO.	PRICE
Photo/Strobe Tachometers	**51-416-6**	$449.10

Mitutoyo

Digital Tachometers

Compact and Easy to Read

- Includes: 6" master wheel, funnel adapter, cone adapter, operating instructions and carrying case
- NIST Certificate.
- Model 10-074-3 has Laser Diode Detection and a combination of Contact and Non-Contact Measurement and includes 35 reflective tabs.

MITUTOYO MODEL #	PH-100A Contact	PH-200LC Contact/Non-Contact
Revolutions Per Minute RPM:	1.0 – 25,000	
Rotation Speed		Non-Contact 6.0 - 99,999 RPM Contact 6.0 – 25,000 RPM
Surface Speed (Using 6" Wheel)	0.1 – 3,809.8 meters/Min., 3 – 99,999 inches/Min., 0.2 – 12,499 feet/Min. 4,166.4 yards/Min	1.0 –3.8098 meters/Min., 36 – 99,999 inches/Min., 3.0 – 12,499 feet/Min. 4,166.4 yards/Min.
Length (Using 6" Wheel)	0.01 – 99,999 meters, 1 – 99,999 inches 0.1 – 99,999 feet 0.01 – 99,999 yards	0.2 – 99,999 meters, 0.5 – 99,999 feet, 0.2 – 99,999 yards
Total Number Of Revolutions:	0.1 – 99,999	1 – 99,999
Measuring Accuracy Resolution Surface, Speed, Length	1.0 – 599.5 RPM: ±1RPM, 600.0 – 25,000 RPM: ±0.006% and ±0.5 digit ±0.4% and ±1 digit	6.0 – 599.9 RPM: ±1RPM, 600.0 – 99,999 RPM: ±0.006% and ±0.5 digit ±0.4% and ±1 digit
Display Size:	5 digit 0.47" (12 mm) height LCD	
Memory Function:	14 Readings are stored in memory and retained for 5 minutes (Last, Maximum, Minimum, Average and 10 selectable measurements)	
Update Time:	1 Second	
Detection:	Optical coupler, 20 pulses per revolution	Laser Diode
Auto Power Off Function:	5 Minutes	
Batteries:	3 AA 1.5 Volts	
Low Battery Indicator:	Flashing "LO BAT" display	
Over Range Indicator:	Flashing "OVR" display	
Operating Temperature:	32° – 113° F (0-45° C)	
Construction:	ABS Resin	
Dimensions:	4.83" L x 2.52" W x 1.24" H	4.55" L x 2.52" W x 1.24" H
PART NUMBER	**10-073-5**	**10-074-3**
PRICE EACH	$283.00	$352.00



10-074-3



59-018-2



59-017-4



59-025-7

Ground Ship ONLY

imada.com

Digital Push/Pull Force Gage Kits

- Large reversible easy-to-read LCD display.
- Push button selectable for pounds, kilograms and Newton units.
- Selectable real time or peak mode operation.
- RS-232, Digimatic, and analog outputs.
- Programmable high/low setpoints with LCD indicators.
- Overload capacity 200% F.S.
- Display updates: 10 times/second.
- Accuracy: ±0.2% F.S., ±1 LSD.
- Overload alarm and low battery indicator.
- Works on internal NI-MH batteries or AC adapter.
- D.O.T. Regulated. Shipped via ground freight only.

Standard Kits Contain:

- Push/Pull force gage
- Set of 6 measuring adapters
- AC adapter/charger
- Hard carrying case

Deluxe Kits Contain:

- Push/Pull force gage
- Set of 6 measuring adapters
- AC adapter/charger
- Hard carrying case

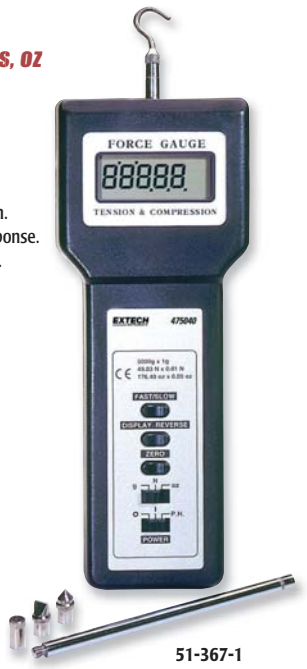
CAPACITY						
OUNCES/ POUNDS	GRAMS/ KILOGRAMS	NEWTONS	KIT TYPE	AMADA MODEL #	PART NUMBER	PRICE
7.0 oz.	200 g	2N	Standard	DS2-0.4	**59-017-4**	$906.30
18.0 oz.	500 g	5N	Standard	DS2-1	**59-018-2**	906.30
11.0 Lbs.	5 kg	50N	Standard	DS2-11	**59-020-8**	906.30
44.0 Lbs.	20 kg	200N	Standard	DS2-44	**59-021-6**	906.30
110.0 Lbs.	50 kg	500N	Standard	DS2-110	**59-022-4**	906.30
220.0 Lbs	100 kg	1,000N	Standard	DS2-220	**59-023-2**	1,196.70
1,100.0 Lbs.	500 kg	5,000N	Deluxe	Z2H-1100	**59-025-7**	1,805.70

EXTECH INSTRUMENTS

Digital Force Gages

Push/Pull Measurements in kg, lbs, oz and Newton Units

- Exclusive load cell measurement transducer.
- Over range, low battery and advanced function indication.
- Zero adjust push-button and peak hold switch.
- Selectable fast (0.2 secs.)/slow (0.6 secs.) response.
- 5 digits, 0.4" (10 mm) LCD reversible display.
- Complete with hook adapter for tension, compression adapters (flat, cone and chisel head), 5" extension rod, six "AA" batteries and carrying case.
- Dimensions: 8.9" x 3.3" x 1.5"



51-367-1

Model # 475040

- 5000g, 176 oz. and 49 Newtons measurement capacity.
- Accuracy (23°C): ±0.5% + 2 digit

Model # 475044

- 20kg, 44.1 lbs, 196 Newtons push/pull measurement capacity.
- Accuracy (23°C): ±0.4% + 1 digit

DESCRIPTION	MODEL #	PART NO.	PRICE
5kg Force Gage	475040	**51-367-1**	$441.45
20kg Force Gage	475044	**51-363-0**	575.85

OHAUS

Compact Scales

Lightweight and Portable



32-625-6

- Low profile design.
- Easy operation with two clearly marked buttons.
- Auto shut-off after 5 minutes no activity (battery operation only).
- Pan size: 5.75" x 5.25"
- Scale dimensions: 8" L x 5.5" W x 1.5" H
- Weighing units: g, lb:oz, Newton, oz.
- Operating temperature: 65° to 77°F (18° to 25°C) at 10% to 80% relative humidity, non-condensing.
- Power: 3 AA alkaline batteries (included) or AC adapter (included).
- Low battery indicator.

WT. CAP (g)	READIBILITY (g)	MODEL #	PART NO.	PRICE
200	0.1	CS200	**32-625-6**	$127.65
2000	1	CS2000	**32-626-4**	127.70
5000	1	CS5000	**32-627-2**	213.65
2000	1	CS2000P	**32-628-0** *	144.80
5000	2	CS5000P	**32-629-8** *	234.55

* Includes US postal chart.



38-001-4



38-003-0

LASERAIM®
Laser Micro Module™ Alignment & Positioning Tools

- Miniature alignment lasers can be attached to any flat 1" x 1" surface.
- Lens options: dot, vari-length line, 90° split, cross, vari brightness & dotted line.
- Operates on both 5 Volts DC or 110 Volts AC (includes 6 ft. power cord).
- Dot size: adjustable dot size at close range – 1" @ 150 ft.
- Dot shape: Elliptical.
- Maximum range: HOTDOT® 500 ft. (dot image), ULTRASHOT® – 1,000 ft. (dot image).

DESCRIPTION	PART NO.	PRICE
Micro Module Kit 500 ft. – HOTDOT®	**38-001-4**	$219.00
Micro Module Kit 1000 ft. – ULTRASHOT®	**38-002-2**	567.30

LASERAIM®
Straightshot™ Laser Alignment & Positioning Tools

- Use the entire laser beam for alignment.
- Dot sizes: 1/32" @ 3', 1/16" @ 5', 1/8" @ 25 – 50', 1" @ 300'.
- Straight line alignment to 0.0156".
- DOT shape: Elliptical adjacent to circular at 50 ft. or less.
- HOTDOT® Laser 10X brighter.
- Over 30 hours of continuous battery life (battery not included) or 110 volt continuous power.
- 90° beam splitting lens projects 2 dot images onto surface. 90° apart. Great for corner layout.

DESCRIPTION	PART NO.	PRICE
3/4" Dia. 500 ft. 110V	**38-003-0**	$595.70
3/4" 500 ft. Battery Powered	**38-004-8**	563.40
1" Dia. 1000 ft. 110V	**38-005-5**	549.00
1" Dia. 1000 ft. Battery Powered	**38-006-3**	768.50

Accessories

DESCRIPTION	PART NO.	PRICE
Vari-Length Line Lens	**38-007-1**	$228.40
90° Beamsplitting Lens	**38-008-9**	255.50
(2) Daylight Reflective Targets	**38-009-7**	31.00
Laser Battery	**38-010-5**	18.65

OHAUS

Calibration Masses

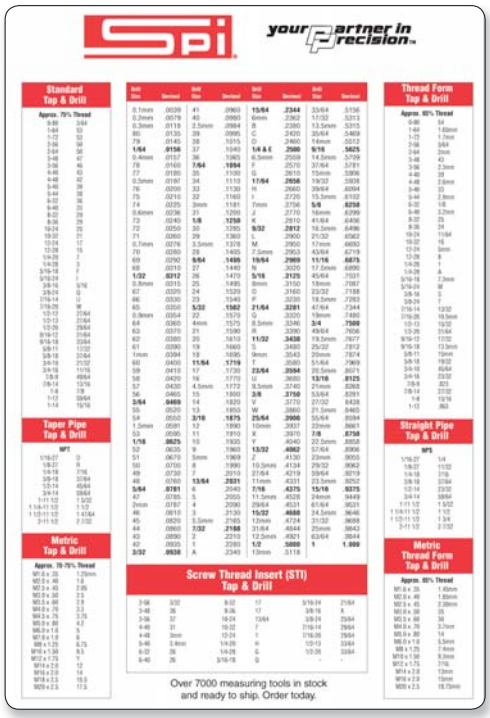
- Weight tolerance ranges from ASTM Class 2 to Class 6.
  - Classes 6 is for checking portable and mechanical balances.
  - Class F masses come with cast iron pipe handles and are for calibrating bench scales.

Class 6

WEIGHT (G)	OHAUS MODEL #	PART NUMBER	PRICE
1	51013-00	**32-657-9**	$21.10
2	51023-00	**32-658-7**	21.10
5	51053-00	**32-659-5**	21.10
10	51014-00	**32-660-3**	14.95
500	51055-00	**32-665-2**	67.80

Class F

WEIGHT (LBS.)	OHAUS MODEL #	PART NUMBER	PRICE
25	77491-25	**32-668-6**	$197.40
50	77491-50	**32-669-4**	279.65



98-034-2

SPI®

Decimal Equivalent Wall Chart

Fraction, Wire Gage, Letter & Metric Sizes

- Decimal equivalents for fraction, letter, number, and metric sizes to 1".
- English/Metric conversion.
- English/Metric tap-drill reference.
- Straight and taper pipe tap-drill reference.
- Holes punched in each corner for easy wall mounting, 22" W x 32" H.

DESCRIPTION	PART NO.	PRICE
Decimal Equivalent Wall Chart	**98-034-2**	$5.60

OHAUS

Classical Mechanical Balances

- Notched and tiered beams for ease in reading, positive poise positioning for repeatability, specific gravity weighing, magnetically damped, zero adjust compensator, choice of 5 weighing platforms.

Triple Beam Balances

- Capacity: 610 g
- Calibrations:
  Front beam: 10 g x 0.1 g
  Middle beam: 500 g x 100 g
  Ream beam: 100 g x 10 g
- Dimensions: 18" L x 12" W x 9" H



32-630-6

PLATFORM	DIMESIONS	OHAUS #	PART NO.	PRICE
Stainless Steel Pan (Removable)	6" Dia. x 0.80" D	710-00	**32-630-6**	$250.75
Stainless Steel Pan w/Tare* (Removable)	6" Dia. x 0.80" D	710-T0	**32-631-4**	281.00
Polypropylene Scoop	12" L x 6" W x 2 3/4" D	720-00	**32-632-2**	265.40
Stainless Steel Scoop	11.9" L x 7.38" W x 1.69" D	720-S0	**32-633-0**	307.35
Aluminum Animal Box	9" Dia. x 6" H	730-00	**32-634-8**	320.45
Stainless Steel Plate	6" dia.	750-S0	**32-635-5**	191.40
Stainless Steel Plate w/Tare*	6" dia.	760-00	**32-636-3**	244.65

* Tare range: 225 g

Dial-O-Gram® Balances

- Capacity: 610 g
- Calibrations:
  Front beam: Tare 225 g
  Middle beam: 500 g x 100 g
  Ream beam: 100 g x 10 g
  Dial: 10 g x 0.1 g
- Dimensions: 18" L x 12" W x 9" H
- Tare range: 225 g



32-638-9

PLATFORM	DIMESIONS	OHAUS #	PART NO.	PRICE
Stainless Steel Pan (Removable)	6" Dia. x 0.80" D	1610-00	**32-638-9**	$372.20
Stainless Steel Plate	6" Dia.	1650-00	**32-639-7**	325.55

KANT TWIST® MADE IN U.S.A. PATENTS APPLIED FOR

See Pgs. 289 - 290

6 Pc. T-Handle Clamp Set

See Pg. 290

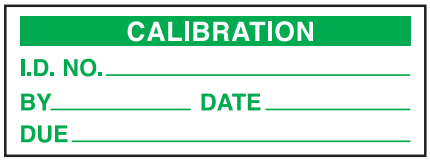


98-025-0



Grips for T-Handle Clamps

See Pg. 289



14-011-1

Clear Cover Calibration Labels

Protect the integrity of your information with our Clear Cover Labels

- The clear polyester cover, with adhesive back, is pre-positioned on one side of the label and seals down over the variable data you have entered.
- This clear cover also prevents tampering and alteration and protects your information from spills, soil, and abrasion.
- Size: 1 3/4" x 5/8"
- Material: M304 permanent adhesive, write on vinyl.
- Write-on label with pens, pencils, felt tip, typewriter and rubber stamps.
- M712 clear polyester adhesive cover, pre-attached.
- Package quantity: 144

COLOR	PART NO.	PRICE/PKG.
Green/White	**14-011-1**	$27.95
Blue/White	**14-012-9**	27.95
Red/White	**14-013-7**	27.95
Orange/White	**14-014-5**	27.95
Black/White	**14-015-2**	27.95
Lt. Green/White	**14-016-0**	27.95



14-100-2

Removable Adhesive Calibration Labels

- They have a special write-on surface and will stick permanently to most surfaces, but can be removed cleanly when necessary.
- Size: 2" x 1/2"
- Material: M10 removable adhesive backed vinyl with write-on surface.
- Write-on label with pens, pencils, felt tip, typewriter and rubber stamps.

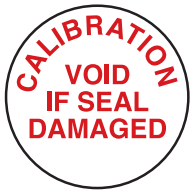
TITLE	COLOR	PART NO.	PRICE/PKG.
Accepted	Green/White	**14-100-2**	$13.85
Calibration	Green/White	**14-101-0**	13.85
Passed Inspection	Green/White	**14-102-8**	13.85
Calibration Not Required	Red/White	**14-103-6**	13.85
Out of Calibration Do Not Use	White/Red	**14-104-4**	13.85
Shelf Life	Black/White	**14-105-1**	13.85
Calibrate Before Each Use	Red/White	**14-106-9**	13.85
Limited Calibration	Black/Yellow	**14-107-7**	13.85
Rejected	Red/White	**14-108-5**	13.85
For Reference Only	Red/White	**14-109-3**	13.85
Not in Calibration System	Red/White	**14-110-1**	13.85

Security Seals – Vinyl

- Maintain the integrity of your products with tamper resistant security seals.
- Reveals any attempt at removal.
- Printed red on white.
- Size: 3/4" diameter
- Material: M4031 destructible vinyl with permanent adhesive.
- Package quantity: 200



14-000-4



14-001-2

TITLE	PART NO.	PRICE/PKG.
Void if Seal Damaged	**14-000-4**	$27.00
Calibration Void if Seal Damaged	**14-001-2**	27.00



14-017-8

Circular Clear Cover Calibration Labels

These labels are the answer for small flat areas on the frame of calipers, micrometers, etc.

- The clear polyester cover prevents tampering with important data.
- Size: 1/2" diameter
- Material: M304 permanent adhesive, write on vinyl.
- Write-on label with pens, pencils, felt tip, typewriter and rubber stamps.
- M712 clear polyester adhesive cover, pre-attached.
- Package quantity: 200

DESCRIPTION	PART NO.	PRICE/PKG.
Circular Clear Cover Calibration Labels	**14-017-8**	$27.70

Miniature Clear Cover Calibration Labels

If Space is Limited These Small Labels May be the Answer

- Same features as our larger labels.
- Small 1" x 5/8" size.
- Material: M304 permanent adhesive, write on vinyl.
- Write-on label with pens, pencils, felt tip, typewriter and rubber stamps.
- M712 clear polyester adhesive cover, pre-attached.
- Package quantity: 140



14-006-1

COLOR	PART NO.	PRICE/PKG.
Green	**14-005-3**	$26.85
Red	**14-006-1**	26.85
Orange	**14-007-9**	26.85
Black	**14-008-7**	26.85
Lt. Green	**14-009-5**	26.85
Blue	**14-010-3**	26.85

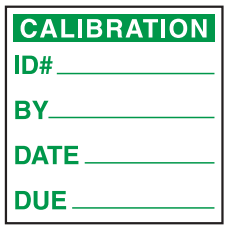
Wrap-Up Calibration Labels – Vinyl

Ideal for hard-to-mark gages and small measuring devices

- Flexible labels will easily wrap around tool frames or thimble of micrometers.
- Material: 2147 pressure sensitive clear vinyl with a write-on surface.
- Write-on label with pens, pencils, felt tip, typewriter and rubber stamps.
- The information is protected from alteration, spills, and abrasion.
- Color: Green



14-004-6



14-002-0
14-003-8

SIZE L x W	WRITE-ON AREA L x W	PKG. QTY.	PART NUMBER	PRICE/ PKG.
6" x 1"	1" x 1"	30	**14-002-0**	$18.00
3" x 1"	1" x 1"	60	**14-003-8**	18.00
6" x 1/4"	2 1/8" x 1/4"	120	**14-004-6**	18.00

OPTICS









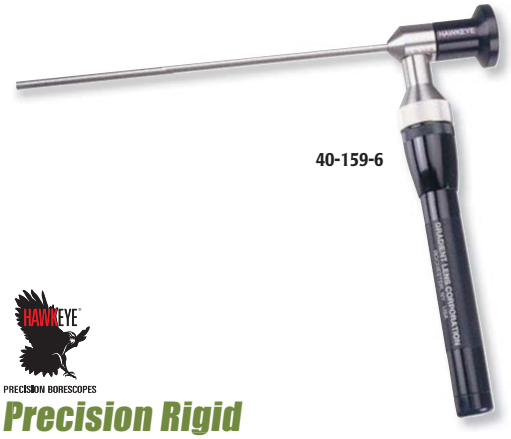


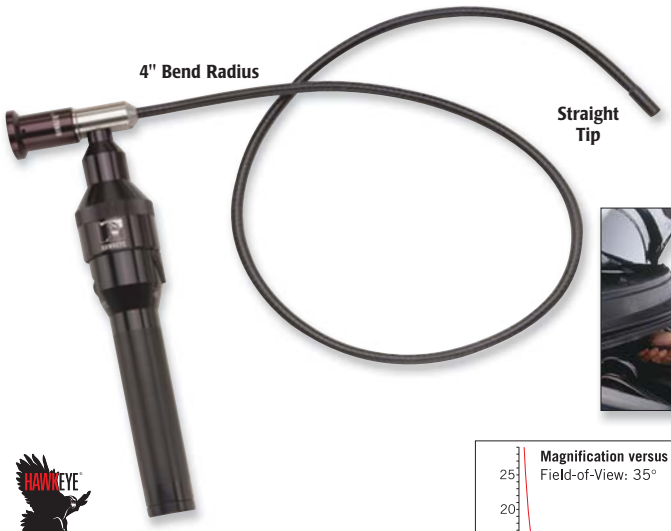






OPTICS









Precision Rigid Borescope & Kit with Krypton Light Source

Can Accept Standard High-Power Fiber Optic Light Guides and Is Video Adaptable

- High intensity Tungsten Halogen light source with fiber optic cable.
- Portable illuminated borescope allows close inspection of bores, cylinders, mold cavities and more.
- Reveals critical detail in any bore larger than 0.160" (4.2 mm).
- Diameter: 0.165"
- Working length: 7" (175 mm)
- Overall length: 9"
- Field of view: 40°
- Magnification @ 5 mm: 12.5X .

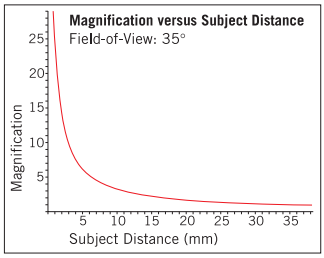
DESCRIPTION	PART NO.	PRICE
Borescope	**40-159-6**	$728.45
Borescope with Slim Mirror Tube for a Rotating 90° Directional View	**40-160-4**	1,069.65

Borescopes

18,000 Fiber Optic Strands Provide Extremely Clear Image!

- View areas that a rigid unit cannot access.
- NOVA light with Xenon lamp. NiCd battery.
- Carrying case with die-cut foam included.
- Accepts mount for video and digital cameras.
- Includes battery and charger.
- 90º mirror attachment included.
- Shaft coating resists water, hydrocarbons, and most chemicals.

DESCRIPTION	PART NO.	PRICE
Flexible Borescope	**40-399-8**	$3,168.00



SPECIFICATIONS	
Cable Length	39.4" (1 meter)
Outside Diameter	.310"
Bend Radius	4"
Direction of View	0º & 90º (with Included Mirror Tip)
Focal Distance	0.5" to infinity
Light Post	ACMI
Field of View	40°

Precision Rigid Borescopes & Kits

For Inside Inspection of Pipes, Tubes Valves, Meters, Bores, Cylinders, Cross-Holes and More

- Portable, with built-in light source.
- Bright clear images, straight-on or with a 90° view.
- Adjustable Focus: focus from infinity to virtually "in-contact".
- Fiber optics carry the light to the borescopes distal end.

- **Borescope Kits include:**
  - Borescope
  - Sideways™ 90° adapter
  - Mini-Maglite® Light Source
  - 2 AA Batteries
  - Care and Maintenance Instructions
  - ABS Carrying Case
- **Deluxe Borescope Kits include:**
  - Borescope
  - Sideways™ 90° adapter
  - Rechargeable SuperNOVA™ Light and Charger (8X brighter then Mini-Maglite®)
  - Care and Maintenance Instructions
  - Lockable PRO Aluminum Carrying Case





Not for Medical or Veterinary use.

Borescopes Only

TYPE	DIAMETER	WORKING LENGTH	PART NUMBER	PRICE
Slim	0.165	7	**41-000-1**	$857.10
Super Slim	0.098	4	**41-001-9**	1,304.50

Borescopes Kits

TYPE	DIAMETER	WORKING LENGTH	PART NUMBER	PRICE
Slim	0.165	7	**40-400-4**	$1,119.10
Slim	0.165	12	**40-401-2**	1,185.30
Slim	0.165	17	**40-402-0**	1,251.55
Hardy	0.250	7	**40-403-8**	1,185.30
Hardy	0.250	12	**40-404-6**	1,251.55
Hardy	0.250	17	**40-405-3**	1,317.75
Super Slim	0.098	4	**40-406-1**	1,582.60
Super Slim	0.098	8	**40-407-9**	1,648.85

Deluxe Bore Scopes Kits

TYPE	DIAMETER	WORKING LENGTH	PART NUMBER	PRICE
Slim	0.165	7	**41-010-0**	$1,644.35
Slim	0.165	12	**41-011-8**	1,771.35
Slim	0.165	17	**41-012-6**	1,898.30
Hardy	0.250	7	**41-013-4**	1,771.35
Hardy	0.250	12	**41-014-2**	1,898.30
Hardy	0.250	17	**41-015-9**	2,025.30
Super Slim	0.098	4	**41-016-7**	1,898.30
Super Slim	0.098	8	**41-017-5**	2,025.30
MicroSlim	0.073	3	**41-018-3**	2,244.80
MicroSlim	0.073	5	**41-019-1**	2,406.20

HAWKEYE PRECISION BORESCOPES

Side Ways™ 90° Adapters for Borescopes

Allows the Hawkeye Boroscope User to See Sideways as Well as Straight Ahead



- Now get 0° and 90° views from one scope.
- Much lower cost than using separate direct and prism scopes.
- Enables viewing of 360° perpendicular "panoramas" without rotating the borescope.
- High quality mirrors deflect the Hawkeye borescope view by 90° giving a side ways view.
- Coated front-surface mirror.
- Distortion – free with single image from surface only.
- Strong stainless steel construction.
- Knurled knob rotates tube.

DESCRIPTION	SCOPE DIA.	WORKING LENGTH	PART NUMBER	PRICE
Slim™	0.165"	7"	**40-112-5**	$181.10
Slim™	0.165"	12"	**40-113-3**	196.85
Slim™	0.165"	17"	**40-114-1**	212.60
Hardy™	0.250"	7"	**40-115-8**	196.85
Hardy™	0.250"	12"	**40-116-6**	212.60
Hardy™	0.250"	17"	**40-117-4**	228.35
Super Slim™	0.090"	4"	**40-118-2**	244.05
MicroSlim™	0.070"	3"	**40-119-0**	258.25

vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Mango Click Deburring Tool

See Pg. 544



82-193-4



40-196-8

SPI® Classic Standard Microscopes

- Compact design for easy and accurate measurements of holes, meshes, printed letters, etc.
- Extremely high resolving power.
- Handy ring for accurate focal adjustment.
- Photo etched reticle.
- Detachable rubber eye piece.

MAGNIFICATION	FIELD OF VIEW	GRADUATION	MEASURING RANGE	PART NUMBER	PRICE
25x	0.130"	0.002"	0.120"	**40-196-8**	$309.48
50x	0.078"	0.0010"	0.062"	**40-200-8**	295.00
100x	0.033"	0.0005"	0.031"	**40-203-2**	320.90
Repl. Plastic Stand				**05-800-8**	7.25

SPI® Classic Center Scope

- Adapts to any machine spindle with maximum accessibility to the operator.
- 45X magnification for optical position accuracy of 0.0001".
- Single dash line reticle for easy observation of the work reference line.
- Unique compensation of spindle runout by adjustment screw.
- Straight shank ½" dia. Eye piece angle 60°.
- Field of view: 0.100" dia. Focal length: ⅝".
- Optional Edge Block to locate the edge of any workpiece to the spindle axis, and optional V-Block Gage for precision centering of a v-block to the spindle for cross axis boring.



Edge Block
40-121-6



V-Block Gage
40-122-4



40-120-8

DESCRIPTION	PART NO.	PRICE
Center Scope in Fitted Case	**40-120-8**	$495.85
Edge Block	**40-121-6**	84.30
V-Block Gage	**40-122-4**	66.95

MADE IN USA



40-149-7

45X Centering Scope

- Enables operator to locate work for drilling, boring, etc., on vertical milling machines, jig borers or drill presses.
- Edges, lines or punch marks on work piece can be quickly located or centered relative to the axis of the machine spindle.
- To use, simply place instrument in machine, locate lines on work to match crosshair lines in viewing aperture.
- Knurled sleeve on lower end of scope is turned to compensate for misalignment.
- The work layout intersection is now in the exact center of the spindle axis, ready for cutting tool.
- True position accuracy ±0.0001".
- Crosshair reticle for use as reference of X and Y axis.
- Overall height: 3". Shank dia. ⅜".
- Eyepiece angle 60°.
- Field of view ⅛". Working distance 1" from lens.

DESCRIPTION	PART NO.	PRICE
45X Centering Scope	**40-149-7**	$365.35

OPTICS

ABRASIVES

INDUSTRIAL PERFORMANCE GRADE

Shop Rolls - Assortment Packs

See Pg. 554



64-167-0

PREMIUM PRODUCTION QUALITY

Abrasive Hand Pads

See Pg. 555



"MAGIC" Abrasive Belt & Disc Cleaners

See Pg. 557



88-150-8

88-149-0

Deluxe Stereo Zoom Microscope

- The three dimensional Stereo Zoom Microscope provides crisp, erect, normal images over a super wide field of view for industrial applications such as electronic and small parts inspections.
- This rugged all metal constructed scope provides both continuous magnification from 6.5X - 45X and long working distances for viewing difficult parts.

Optical System:

- 10X Super Widefield Eyepieces are 45° inclined with dual diopter adjustments.
- Interpupillary adjustment form 36 mm - 75 mm.
- A 7:1 range stepless magnification enables 6.5X - 45X continuous magnification.
- Viewing head rotates 360°.
- Rubber eyeguards for eye protection come with each unit.
- Conveniently located side zoom control knobs.

Illumination System:

- 8-mode, high intensity illumination system.
- Low-voltage transformer base with built in 6V/15W halogen and 5W fluorescent.
- Rotating knob for Incident (top) provides variable intensity control for halogen illumination.
- Transmitted (bottom) fluorescent illumination.
- 4 Way switch enables top, bottom, top/bottom and off.

Base & Arm:

- Rack and pinion focusing.
- Large 6¾" W x 9¾" deep base w/95 mm frosted glass plate.
- The frame is all metal with an enamel finish.



12-504-7

DESCRIPTION	PART NO.	PRICE
Deluxe Zoom Microscope	**12-504-7**	$1,367.30
Eyepiece WF 10X (Pair)	**12-509-6**	99.55
Eyepiece WF 20X (Pair)	**12-511-2**	136.85
Eyepiece WF 25X (Pair)	**12-512-0**	175.30
Top Lamp	**12-514-6**	28.05
Bottom Lamp	**12-515-3**	28.05



12-502-1

Microscope on a Boom Stand

- Specifications:
  - Vertical Post: Square
  - Zoom Objective: 0.65X - 4.5X
  - Eyepiece: 10X
  - Total Magnification: 6.5X - 45X
  - Field of View Diameter: 30 - 4.4 mm
  - Work Distance Changeable: 95 mm
  - Pupil Distance: 51 - 82 mm

DESCRIPTION	PART NO.	PRICE
Microscope on a Boom Stand	**12-502-1**	$1,491.70

Stereo Microscope

Dual Illuminators for Reflected & Transmitted Lighting

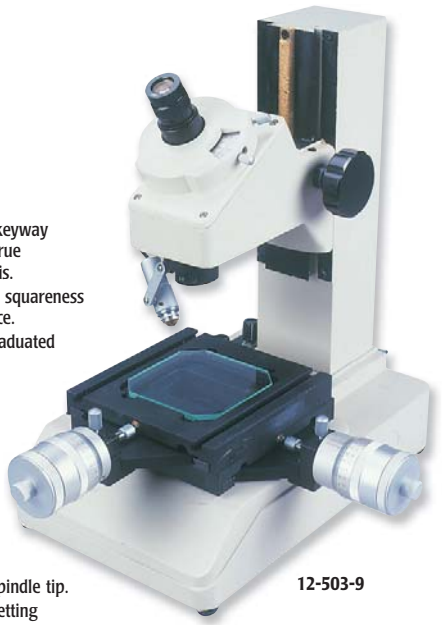


40-107-5

- 10x eyepieces, binoculars, widefield.
- Diopter adjustment.
- Paired 1X and 3X objectives.
- Interpupillary distance adjustable 51 mm to 75 mm.
- Inclined binocular head rotates 360°.
- Rack and pinion focusing with positive safety stops, tension adjustment and slip clutch.
- Large 4 1/2" to 6 5/8" stage with frosted stage plate.
- Dual illuminators with 4-way switch allows for both transmitted and incident stage illumination.
- Metal construction.
- 110 volt, 15 watt tungsten bulbs.
- Attractive finish is acid and reagent resistant.

DESCRIPTION	PART NO.	PRICE
Stereo Microscope 10x + 30x	**40-107-5**	$449.50
Bulb 110V/15W	**40-108-3**	8.30

SPI® Toolmaker's Microscope



12-503-9

- 30X lens (15X eyepiece lens and 2X objective lens).
- 90° broken crosshair reticle.
- 67 mm working distance.
- Crossed roller bearings and keyway stage construction ensure a true linear traverse in X and Y axis.
- Large dovetail assures 2 axis squareness in relation to the stage surface.
- The eyepiece protractor is graduated in 1° increments.
- The eyepiece and angle can be measured in 6 minute increments.

Measuring Heads:

- Range: 1".
- Functions: Bidirectional graduation for versatile measurement.
- Provided with non-rotation spindle tip.
- Floating timble allows zero setting at any spindle position.
- Specifications:
  - Graduation: Micrometer head: 0.0001" (0.00254 mm)
    Angle dial: 10
    Vernier: 6'
  - XY Stage: Feeding Range: With gauge block: 50 mm x 50 mm (2" x 2")
  - Eyepiece: Magnification: 15X
    Field Number: 13
  - Objective: Magnification: 2X
    Working Distance: 67 mm

Packaging:

- Micrometer Head: 2
- Spare Bulb: 1
- Spare Fuse: 1
- Power Cord: 1
- Grounding Wire: 1
- User's Manual: 1
- Steel Gage Blocks: 2

DESCRIPTION	PART NO.	PRICE
Toolmaker's Microscope	**12-503-9**	$2,190.40



31-154-8



31-155-5



31-156-3

Dolan Jenner

Fiber-Lite® Illuminators

- Mates securely with standard microscopy light guides, eliminating all adapters.
- Side door provides easy access to lamp and optional filter holder.
- Cold light illumination with a 200 hour lamp life.
- Built-in handle stays out of the way.
- Unit is cool to the touch.
- MI-150 models have complete 0 - 100% intensity control providing full variation in brightness.
- Minimal light leakage for photo-sensitive applications.
- Small footprints – fits in tight spaces.
- 115 or 230 VAC 50/60 Hz for worldwide applications.
- UL, CE and C-UL approved for global use.

DESCRIPTION	LAMP TYPE VOLTS	LAMP TYPE WATTS	LAMP TYPE TYPE	MODEL #	PART NUMBER	PRICE
Standard Illuminator 0-100% intensity control	21	150	EKE	MI-150	**31-154-8**	$464.80
Ring Light System 0-100% intensity control	21	150	EKE	MI-150RL	**31-155-5**	922.40
Dual Gooseneck System 0-100% intensity control	21	150	EKE	MI-150DG	**31-156-3**	832.45
Single Gooseneck System 0-100% intensity control	21	150	EKE	MI-150SG	**31-157-1**	735.35

Accessories

for 30 Watt Units

DESCRIPTION	PART NO.	PRICE
Replacement 10.8 V, 30 Watt Halogen Bulb	**31-162-1**	$55.55
Replacement Fuse	**31-163-9**	8.20
Single Gooseneck Fiber Optics	**31-164-7**	163.00

for 150 Watt Units

DESCRIPTION	PART NO.	PRICE
Fiber Optic Ring Light, OAL: 39" PVC	**31-158-9**	$476.70
Dual Gooseneck Fiber Optics, OAL: 23" SST	**31-159-7**	302.85
Replacement 21 V, 150 Watt Halogen Bulb	**31-160-5**	27.90
Focusing Lens	**31-161-3**	50.90

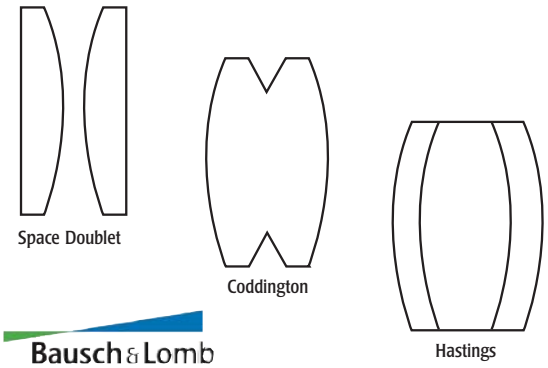
OPTICS



40-144-8



40-138-0



Bausch & Lomb

Styles of Lenses

All Bausch & Lomb Loupes are made from crown glass or optical grade plastics and are clear from internal flaws. Lens surfaces are finished to optic standards with no waves or surface defects to distort vision.

Magnifier Lens Systems

- **Space Doublet** (Double Lens magnifier)
  Achieves limited correction. Consists of 2 plano-convex lenses with air space between.
- **Coddington**
  This is a single lens with a groove diaphragm around its circumference. The thickness of the lens aids correction.
- **Hastings**
  Two meniscus concave elements cemented to a double convex element. Two kinds of glass are used.

SPI® Classic 7X Mini Comparator - 1" Dia.

- Simple compact design comparator with Double type achromatic lens.
- Focusing ring with smooth multiple threads for sharp images.
- Body height: $^{27}/_{32}$"
- Accepts standard 1" dia. reticles #1 through #13, (Part No. 40-081-2 to 40-093-7).

DESCRIPTION	PART NO.	PRICE
Mini Comparator 7X with #5 (40-085-3) reticle	**40-144-8**	$90.05

SPI® Classic Zoom Comparator

- Continuous zooming magnification from 8X to 16X with click stops at 8X, 10X, 12X, 14X and 16X.
- Field of view: 0.788" to 0.394" dia.
- Size: 2.56" x 1.77" dia.
- Diopter adjustment ring: +2.5D to – 5D
- Reticle with 0.005"/0.1 mm graduation included, $1^{3}/_{8}$" dia. reticle 40-241-2 to 40-253-7 listed with 10X Comparators also fit.

DESCRIPTION	PART NO.	PRICE
Zoom Comparator	**40-138-0**	$411.50
Clear Tube	**05-805-7**	Call
Black Retaining Ring	**06-534-2**	Call

SPI® Profile Projectors

- Inspect parts with surface and/or profile illumination.
- Solid, stable steel construction.
- X & Y table positioning through ball screws (0.1"/rev.) with quick disconnect for fast positioning.
- Excellent quality optical system provides clear images and accurate magnification.
- Error of contour is less than 0.08% of the illumination.
- 10X magnification.
- Screen diameter: 12" with a crosshair and a line at 45° and one line 30°/60° for quick angle checking.
- Hood reduces glare from overhead lights.
- Illumination: 24V/150W halogen lamp with 3 fans to disperse heat, adjustable for light intensity.
- Easy access to mirror for calibration.
- Power source: 110V/220V (AC), 50/60Hz, 400W total power.
- Resolution (X/Y axis): 0.0004"/0.001 mm, 0.00002"/0.0005 mm.
- Measuring accuracy: 4.0+L/25 µm; L = measuring length.



15-540-8
Truck Collect

TABLE SIZE	GLASS STAGE	STAGE TRAVEL X	Y	Z	PART NUMBER	PRICE
13.3" x 5.9"	6.8" x 3.9"	5.9"	2.0"	3.5"	**15-540-8**	$8,443.20
15.9" x 8.9"	10.2" x 6.3"	7.8"	3.9"	3.5"	**15-541-6**	10,857.25



12-526-0
Truck Collect

SPI® 12" Optical Comparator with Profile and Surface Illumination

- Supplied with 3 Lenses: 10, 20 and 40X.
- Accuracy:
  - Surface: ±15%
  - Contour: ±1%
- Furnished complete with:
  - 2 SPI® dial indicators (1" and 2" Travel)
  - Large 12" x 3" t-slot stage with 6" horizontal and $2^{1}/_{2}$" vertical travel
  - 12" 1 quadrant protractor screen
  - Rotatable screen with fine adjustment
  - 5 minute vernier
  - Overlay clips
  - Exclusive high and low intensity profile illumination switch

DESCRIPTION	PART NO.	PRICE
12" Optical Comparator	**12-526-0**	$2,038.35



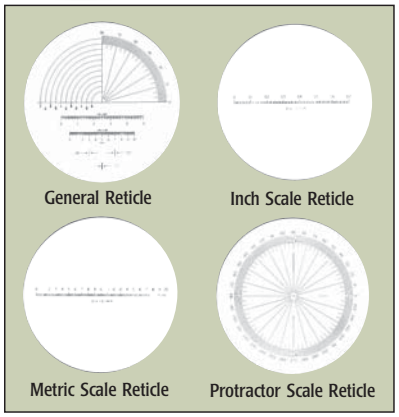
Bausch & Lomb

Pocket Comparators

- Pocket Comparator, adjustable for individual focus, providing a flat, distortion-free image.
- Leather case (included) can hold all 4 optional reticles.
- Hastings style lens.
- Interchangeable reticles (sold separately).
- Reticles fit both 7X and 10X loupes.

MAG[1]	F.D.[2]	DIO.[3]	PART NO.	PRICE
7X	1.5"/3.9	28D	**40-231-3**	$99.95
10X	1.0"/2.5	40D	**40-254-5**	100.50

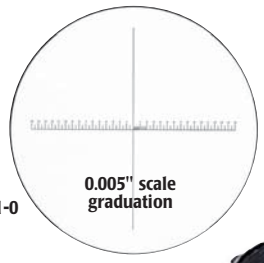
1=Magnification 2=Focal Distance 3=Diopter



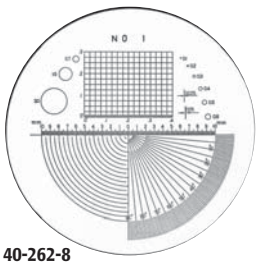
Reticles (Sold Separately)

- General Purpose Reticle, measures radii from 1/16" to 3/8", angles in single degrees to 90°, .005" and 0.01 mm scales, line widths of 0.001", 0.002", 0.003".
- Inch Scale Reticle, 3/4" in .005" intervals.
- Metric Scale Reticle, 20 mm in 0.1 mm intervals.
- Protractor Scale Reticle, 360° in single degrees.

DESCRIPTION	PART NO.	PRICE
General Purpose	**40-255-2**	$57.10
Inch Scale	**40-256-0**	57.10
Metric Scale	**40-257-8**	57.10
Protractor Scale	**40-258-6**	57.10



40-261-0

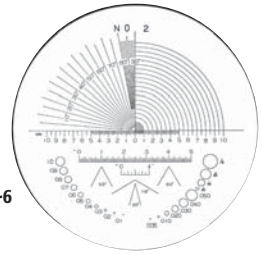


40-262-8





40-147-1

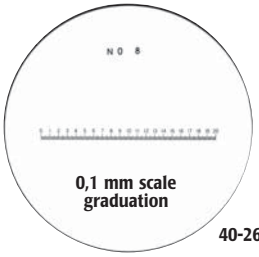


40-263-6

Spi Classic
High Power 15X Pocket Comparator 1" Dia.

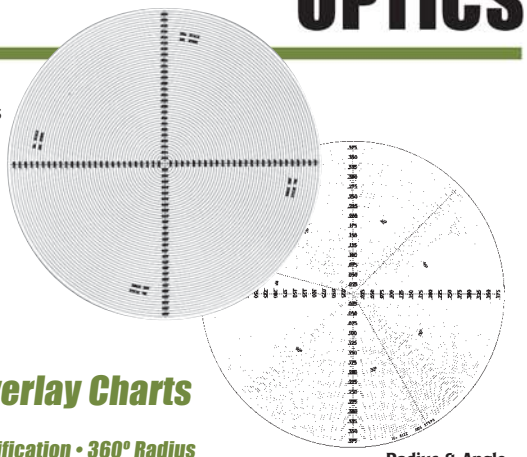
- Unique four lens system for high precision viewing with 15X magnification.
- Precision ground glass reticle 1" dia. with very sharp 0.005" scale graduation.
- Visual field: 0.550" dia.
- Handy ring with accurate focal adjustments.
- Furnished in fitted etui.

DESCRIPTION	PART NO.	PRICE
High Power Pocket Comparator 15X with 40-261-0 reticle	**40-147-1**	$176.40
Reticle #13	**40-261-0**	34.00
Reticle #1	**40-262-8**	34.00
Reticle #2	**40-263-6**	34.70
Reticle #8	**40-264-4**	34.00



40-264-4

360° Radius
40-373-3



14" Overlay Charts

Four Magnification • 360° Radius

MAGNIFICATION 10X	20X	50X	100X	PART NUMBER	PRICE
.010" .20 mm	.005" .10 mm	.002" .04 mm	.001" .02 mm	**40-373-3**	$211.75

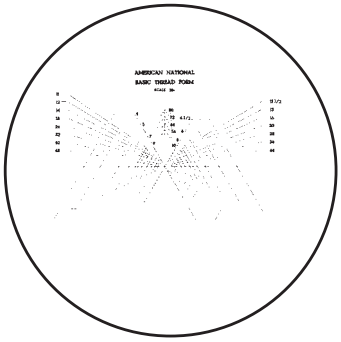
Radius & Angle
40-369-1

Four Magnification • Radius & Angle (15°, 30°, 45°, 60° & 75°)

MAGNIFICATION 10X	20X	50X	100X	PART NUMBER	PRICE
.005" .20 mm	.0025" .10 mm	.001" .04 mm	.0005" .02 mm	**40-369-1**	$211.75

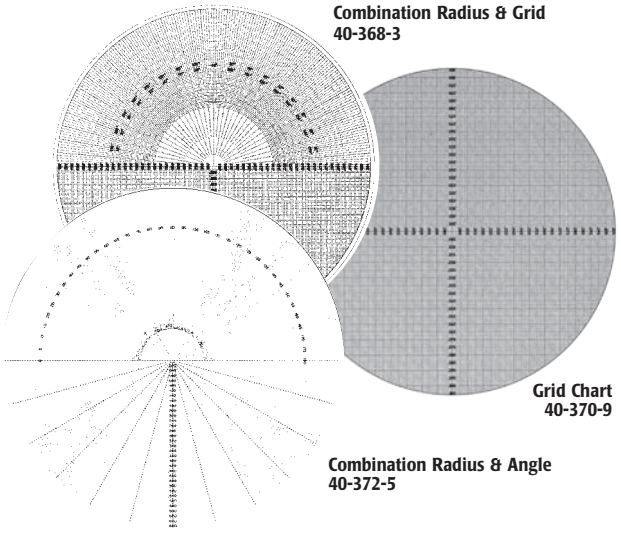
10X Thread Form Overlay Chart

- American National Basic Thread Format.
- For checking thread angles, root crest-forms and depth, from 4 to 80 pitch threads.



DESCRIPTION	PART NO.	PRICE
Thread Form Overlay Chart	**40-371-7**	$211.75

Combination Radius & Grid
40-368-3



Grid Chart
40-370-9

Combination Radius & Angle
40-372-5

- Clear, transparent Mylar charts are photo-etched and dyed.
- Width of lines varies between .004" and .006".

MAGNIFICATION	INCREMENTS	DESCRIPTION	PART NUMBER	PRICE
10x	.005"	Combo, Radius & Grid	**40-368-3**	$211.75
20x	.002"	Combo, Radius & Grid	**40-374-1**	231.15
10x	.010"	Standard Grid Chart	**40-370-9**	211.75
20x	.005"	Standard Grid Chart	**40-375-8**	231.15
10x	.010"	Combo,Radius & Angle	**40-372-5**	211.75
20x	.005"	Combo,Radius & Angle	**40-380-8**	231.15

OPTICS


40-142-2

Made in Japan


40-146-3


40-145-5


40-143-0


40-148-9

SPI® Classic
7X Deluxe Pocket Comparators 1" Dia.

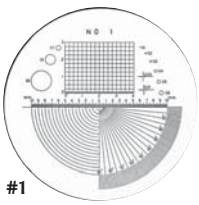
- Pocket-size measuring and inspection comparator.
- 7x magnification, Kellner type, achromatic lens, (3 elements, 2 groups) for sharp, undistorted images.
- Highly accurate measurements are obtained with sharp photo etched reticles as shown.
- Body height $2^{5}/_{16}$".
- The Illuminator accepts both the 40-141-4 and 40-142-2 comparators. Provides excellent illumination for precision work.
- Illuminator and comparator sold separately.

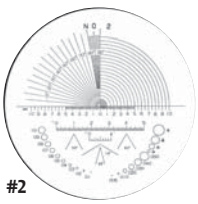
DESCRIPTION	PART NO.	PRICE
7X Comparator with #5 reticle 1" dia., in case.	**40-141-4**	$95.15
7X Comparator with #5 reticle 1" dia., including Illuminator 40-143-0 in fitted case.	**40-140-6**	124.00
7X Comparator with #5, #1, #7, #8 and #12 reticle 1" dia., in fitted case.	**40-142-2**	192.60
Illuminator (requires 2 C-batteries, not included).	**40-143-0**	18.30
12 pack C Batteries	**60-189-8**	24.60

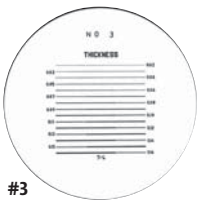
SPI® Classic
10X Deluxe Pocket Comparators $1\,^{3}/_{8}$" Dia.

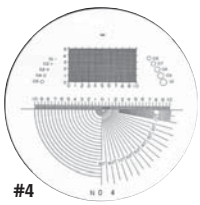
- Deluxe type measuring and inspection comparator.
- Wide visual field – $1\,^{3}/_{8}$".
- Photo etched large reticles.
- 10X magnification achromatic lens, precision ground for sharp, undistorted images.
- Handy ring for accurate focal adjustments.
- Illuminator and Comparator sold separately.

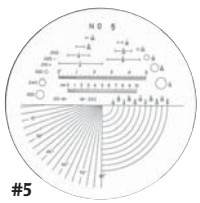
DESCRIPTION	PART NO.	PRICE
10X Deluxe Comparator with #5 reticle, $1\,^{3}/_{8}$" dia., in a fitted leather case.	**40-145-5**	$147.60
10X Deluxe Comparator with #1, #5, #7, #8 and #12 reticle, $1\,^{3}/_{8}$" dia., in fitted case.	**40-146-3**	212.75
Illuminator (requires 2 C-batteries, not included).	**40-148-9**	19.80
Clear Tube	**05-805-7**	Call
Black Retaining Ring	**06-534-2**	Call
12 pack C Batteries	**60-189-8**	24.60

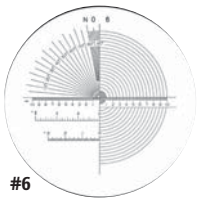

#1

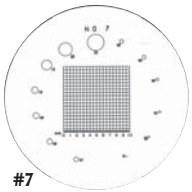

#2

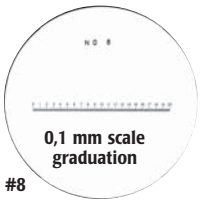

#3


#4


#5

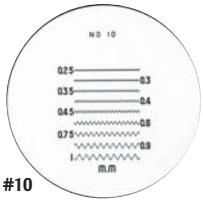

#6

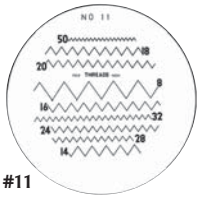

#7

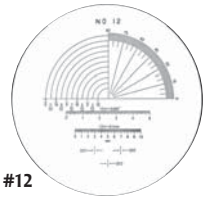


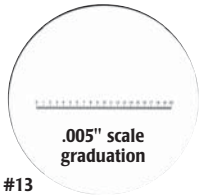
#8


#9


#10


#11


#12



#13

Individual Reticles, 1" Dia.

DESCRIPTION	PART NO.	PRICE	DESCRIPTION	PART NO.	PRICE
Reticle #1	**40-081-2**	$21.05	Reticle #8	**40-088-7**	$21.05
Reticle #2	**40-082-0**	21.05	Reticle #9	**40-089-5**	21.05
Reticle #3	**40-083-8**	21.05	Reticle #10	**40-090-3**	21.05
Reticle #4	**40-084-6**	21.05	Reticle #11	**40-091-1**	21.05
Reticle #5	**40-085-3**	21.05	Reticle #12	**40-092-9**	21.05
Reticle #6	**40-086-1**	21.05	Reticle #13	**40-093-7**	21.05
Reticle #7	**40-087-9**	21.05	–	–	–

Individual Reticles, $1\,^{3}/_{8}$" Dia.

DESCRIPTION	PART NO.	PRICE	DESCRIPTION	PART NO.	PRICE
Reticle #1	**40-241-2**	$23.55	Reticle #7	**40-247-9**	$23.55
Reticle #2	**40-242-0**	23.55	Reticle #8	**40-248-7**	23.55
Reticle #3	**40-243-8**	23.55	Reticle #9	**40-249-5**	23.55
Reticle #4	**40-244-6**	23.55	Reticle #10	**40-250-3**	23.55
Reticle #5	**40-245-3**	23.55	Reticle #11	**40-251-1**	23.55
Reticle #6	**40-246-1**	23.55	Reticle #12	**40-252-9**	23.55
–	–	–	Reticle #13	**40-253-7**	23.55

Flashlight Magnifiers

For the Toolmaker, Hobbyist, Machinist & Collector



40-026-7



40-027-5



40-028-3

7X Magnification Flashlight 1¼" Dia. Lens

- Body and end cap are chrome plated steel.
- Plastic head.
- Uses 2 size C batteries (not included).

DESCRIPTION	PART NO.	PRICE
7X Magnification Flashlight	**40-026-7**	$30.85

3.5X Magnification Flashlight Loupe

- 2" lens diameter, perfect for viewing hard to see angles.
- Frame is high impact stryol, which is elastic.
- Uses 2 size C batteries (not included).

DESCRIPTION	PART NO.	PRICE
3.5X Magnification Flashlight Loupe	**40-027-5**	$68.25

3.5X Magnification Flashlight

- Large 3" dia lens
- Head body and end cap are chrome plated steel.
- Plastic head.
- Uses 2 size C batteries (not included)

DESCRIPTION	PART NO.	PRICE
3.5X Magnification Flashlight	**40-028-3**	$51.45
2 Pack C Batteries	**60-151-8**	6.95

Bausch & Lomb

Loupes



40-216-4



40-237-0

Coddington 10X Lighted Loupe

- 19.8 mm dia. lens, 1" focal distance, 40 Diopters.
- Uses two AA penlight batteries (not included).

DESCRIPTION	PART NO.	PRICE
Coddington 10X Lighted Loupe	**40-216-4**	$46.40

5X Aspheric Magnifier

- Aspheric lenses assure edge to edge clarity.
- 2" focal distance, 20 diopter.

DESCRIPTION	PART NO.	PRICE
5X Aspheric Magnifier	**40-237-0**	$13.70



40-190-1

Bausch & Lomb

Double Lens Magnifier

- 3.5X magnification.
- Uses two plano-convex glass lenses for a "corrected" wide, flat field.
- Focal Distance: 3"
- Diopers: 14D
- Lens size: 1⅝"

DESCRIPTION	PART NO.	PRICE
Double Lens Magnifier	**40-190-1**	$55.40

Stereoptic® Magnifiers

Great Vision-Aid for Techinical Bench Work, Inspection & Quality Control

- Distortion-free optically correct lenses.
- Up to 48 square inches field of view.
- Can add additional lenses to a single lens unit to double magnification power.
- Focal distance: Up to 13"
- Flexible 16" arm.
- U.L. approved with 9' grounded cord.



Optional Light
52-039-5
Sold Separately

52-036-1

DESCRIPTION	MAG.	LENS SIZE W X L	PART NUMBER	PRICE
2.5X Single Lens Unit	2.5x	6" x 8"	**52-035-3**	$251.45
3X Single Lens Unit	3x	6" x 6"	**52-036-1**	208.80

Accessories

DESCRIPTION	PART NO.	PRICE
2.5X Additional Lens	**52-037-9**	$224.75
3X Additional Lens	**52-038-7**	182.20
115 V, 20 Watt Halogen Lamp	**52-039-5**	150.35

SHOP GRADE

Eye Loupes

- Lenses made of clear optical glass, ground and polished to give sharp images with minimum eye fatigue.
- Plastic body.
- Handy for inspecting cutting edges on tools.

MAG.	PART NO.	PRICE
2X	**52-092-4**	$4.25
3X	**52-093-2**	5.25
4X	**52-094-0**	7.40
5X	**52-096-5**	9.50
10X	**52-097-3**	11.65



52-092-4

Sets

DESCRIPTION	PART NO.	PRICE
3 Pc. Set (2X, 5X, 10X)	**52-098-1**	$15.85
5 Pc. Set (2X, 3X, 4X, 5X, 10X)	**52-099-9**	19.65

OPTICS

Bausch & Lomb

Eye Loupes

Watchmaker's Loupe



40-220-6

- Shroud cuts glare, lightweight.
- High quality optics.

MAG.1	F.D.2	DIO.3	PART NO.	PRICE
5X	2"	20D	**40-219-8**	$19.10
10X	1"	40D	**40-220-6**	22.95
7X	1"	28D	**40-230-5**	19.10
4X	1"	16D	**40-232-1**	19.10

Premium Watchmaker's Loupe



40-235-4

- Hastings style loupe

MAG.1	F.D.2	DIO.3	PART NO.	PRICE
10X	1"/2.5"	40D	**40-235-4**	$77.55

1=Magnification 2=Focal Distance
3=Diopter 4=Maxium Magnification



40-233-9



40-229-7

Bausch & Lomb

Folding Loupes

Coddington 10X Magnifier

- 19.8 mm dia. lens, 1" focal distance, 40 Diopters.

DESCRIPTION	PART NO.	PRICE
Coddington 10X Magnifier	**40-233-9**	$42.80


40-223-0

Hastings Triplet Magnifier

- Swing-away nickel plated case.

MAG.1	F.D.2	DIO.3	PART NO.	PRICE
10X	1"/2.5"	40D	**40-229-7**	$64.16
7X	1.5"/3.9"	28D	**40-236-2**	63.90

1=Magnification 2=Focal Distance 3=Diopter


40-234-7

Folding Loupe

- Swing-away case of tough durable plastic serves as handle and protective case.

MAG.	NO. OF LENSES	FOCAL DISTANCE	DIOPERS	FOCAL DIA.	PART NUMBER	PRICE
4X	1	2.5"	16D	$1\frac{27}{64}$"	**40-223-0**	$22.94
4X - 9X	2	2.5 – 1.1"	16D – 36D	$\frac{29}{32}$"	**40-139-8**	33.96
5X - 20X	3	2.0 - 0.5"	20D – 80D	$\frac{51}{64}$" (2) $\frac{19}{32}$" (1)	**40-234-7**	40.45


50-340-9


50-341-7

Linen Testers 6X – 10X

- Single lens design.
- $\frac{1}{8}$" graduations.
- Material: aluminum
- Black finish.

MAG.	LENS DIA.	PART NUMBER	PRICE
6X	$1\frac{1}{8}$"	**50-340-9**	$26.55
6X	$1\frac{1}{8}$"	**50-341-7** *	35.05
8X	$\frac{3}{4}$"	**50-342-5**	30.75
10X	$\frac{1}{2}$"	**50-343-3**	30.85

* has indicating needle


52-034-6

3X Folding Pocket Magnifier

- 3X magnification.
- Swing away case serves as a handle.
- Glass lens.
- Focal length: 5"
- Lens size: $1\frac{59}{64}$"
- Leather pouch.

DESCRIPTION	PART NO.	PRICE
3X Folding Pocket Magnifier	**52-034-6**	$9.30


40-001-0

GENERAL®

2.5X Power Pocket Magnifier

- 2.5X magnification.
- Ground and polished optical glass.
- Lens dia.: 2"
- Focal length: 4"
- Folds into simulated black leather case for storage.

DESCRIPTION	PART NO.	PRICE
2.5X Power Pocket Magnifier	**40-001-0**	$12.55



40-019-2

GENERAL®

Folding Pocket Magnifier

Double Lens

- Fine quality magnifier for laboratory technicians, engineers, mechanics and inspectors.
- Case and lens rims are made of black molded plastic.

MAG.	NO. OF LENSES	FOCAL DIA.	FOCAL LENGTH	PART NUMBER	PRICE
8X	2 (4X)	1"	1.25"	**40-019-2**	$17.80



98-596-0

5X Eye Loupe

- Ideal for machinists, toolmakers, etc.

DESCRIPTION	PART NO.	PRICE
5X Eye Loupe	**98-596-0**	$11.70



Eye glasses Sold Separately.

40-173-7

Magnifying Loupes

- Universal mount, fits all types of eye glasses.
- Lightweight, precision ground lenses, one hand moves loupe on or off.

Single Loupes

DIAMETER	MAGNIFICATION	FOCAL LENGTH	PART NUMBER	PRICE
1"	7X	1½"	**40-161-2**	$53.80
1"	5X	2"	**40-162-0**	53.80
1"	4X	2½"	**40-163-8**	53.80
1"	3.3X	3"	**40-164-6**	53.80

Double Loupes

DIAMETER	MAGNIFICATION	FOCAL LENGTH	PART NUMBER	PRICE
1" & 1"	3 X 7X	3½ - 1½"	**40-171-1**	$75.25
1" & 1"	4 X 7X	2½ - 1½"	**40-173-7**	75.25

Opticaids® & Magna-Specs™



Magna-Spec

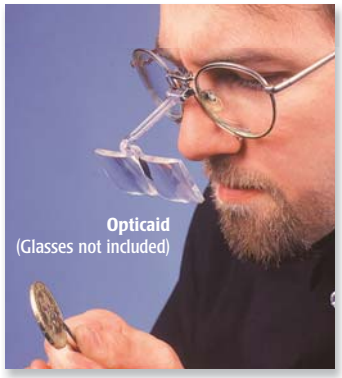
Opticaids®

- Clips on regular glasses or bifocals.
- Swings out of the line of vision when not in use.
- Ophthalmic-quality magnifying loupe.

Magna-Specs™

- Can be worn alone or over glasses.
- Lenses flip up out of sight.
- Supplied in hard protective case.

MAG.	FOCAL LENGTH	DIOPERS	OPTICAIDS PART NO.	OPTICAIDS PRICE	MAGNA-SPECS PART NO.	MAGNA-SPECS PRICE
1.75X	14"	3D	**51-061-0**	$29.70	**51-066-9**	$50.30
2X	10"	4D	**51-062-8**	29.70	**51-067-7**	50.30
2.5X	8"	5D	**51-063-6**	29.70	**51-068-5**	50.30
2.75X	6"	7D	**51-064-4**	29.70	**51-069-3**	50.30
3.5X	4"	10D	**51-065-1**	29.70	**51-070-1**	50.30





40-150-5
40-151-3
40-152-1



40-153-9

Made in Japan



40-166-1

Made in Japan



40-170-3

Made in Japan

Spi® Classic Loupes

- All purpose magnifier.
- Ideal for machinists, toolmakers and inspectors.

MAG.	PART NO.	PRICE
5X	**40-150-5**	$20.35
10X	**40-151-3**	32.50
22X	**40-152-1**	56.95
30X	**40-153-9**	88.00

Spi® Classic STEINHEIL Loupes

- High grade pocket size magnifiers in Steinheil system.
- Sliding frame serves as convenient handle for holding the loupe and protects both lens surfaces from dust and damage.

MAG.	PART NO.	PRICE
7X	**40-166-1**	$98.35
10X	**40-167-9**	96.25
14X	**40-168-7**	102.50
20X	**40-169-5**	102.50

Spi® Classic Magnetic Loupe

- High quality pocket magnifier 5X with two magnets on opposing sides.
- Conveniently attaches to calipers, height gages and other measuring instruments for increased readability.

DESCRIPTION	PART NO.	PRICE
Magnetic Loupe 5X	**40-170-3**	$25.95

OPTICS



41-005-0

FLEXBAR Inspecto-Scope

Ideal for Quick Inspections

- General inspection scope is ideal for magnifying and illuminating hard to see areas.
- This instrument reflects the same level of craftsmanship and precision as the most expensive medical instruments on today's market
- 4X magnification.
- Diameter of smallest end: .362"
- Diameter of largest end: .145"
- 3" Specula included.
- Powered by two C batteries (not included).
- Furnished with soft plastic carrying case.

DESCRIPTION	PART NO.	PRICE
Inspecto-Scopes	**41-005-0**	$200.65
Repl. Bulb	**41-006-8**	16.90
2 Pack C Batteries	**60-151-8**	6.95



40-198-4

SPI 25X & 50X Pocket Microscopes

- High quality magnifier for microscopic inspection.
- Convenient pocket clip.

Made in Japan

MAG.	PART NO.	PRICE
25X	**40-198-4**	$96.90
50X	**40-199-2**	138.10



40-195-0

MAGNA-LITE 200

- Larger version of battery operated magnifier.
- 3 1/4" dia. optical quality acrylic 2X lens.
- Overall length 9".
- Furnished complete with 4 replaceable AA batteries and GE PR17 bulb.

DESCRIPTION	PART NO.	PRICE
Magna-Lite 200 2X	**40-195-0**	$38.85

Bausch & Lomb Magna-Bar™ Magnifier

2X Magnification

- Magnifier **doubles** the height of letters, lie directly on the page and require no focusing; magnify two lines of type at a time and are easily moved down the page at the user's reading speed.
- 5 1/4" long and covers the full page width of most books.



40-099-4

DESCRIPTION	PART NO.	PRICE
Magna-Bar™	**40-099-4**	$7.25



40-209-9

Bausch & Lomb 2X Compact Lighted Magnifier

Great for Reading in Low Light Conditions or Where Convenience is Important

- Push buttons to release lens, again to light the lamp.
- Lens: 1 1/2" L x 1 1/2" W.
- 2 AAA batteries included.
- Stores in it's own protective case.

DESCRIPTION	PART NO.	PRICE
2X Compact Lighted Magnifier	**40-209-9**	$15.20



50-035-5

Metal Magnifiers - 3X to 20X

Two-in-One Type

- Designed to fit easily in your hand.
- Each magnifier has two different magnification powers.
- All with chrome finish.
- Furnished in a plastic pouch.

MAG.	LENS DIA.	PART NUMBER	PRICE
20X 10X	5/16" 9/16"	**50-035-5**	$20.95
20X 10X	5/16" 13/16"	**50-036-3**	30.45
15X 8X	9/16" 1 1/16"	**50-037-1**	34.60
3X 5X	13/16" 13/16"	**50-038-9**	22.20
3X 4X 5X	13/16" 13/16" 13/16"	**50-039-7**	24.10

MAGNA-LITE

- Illuminating magnifier with 1 1/4" square, lightweight acrylic lens.
- Battery operated light beam illuminates the magnified area to provide perfect viewing.
- Overall length 4 3/4".
- Furnished complete with 2 replaceable AAA batteries and type 222 bulb.

DESCRIPTION	PART NO.	PRICE
Magna-Lite 100-TW 5X w/Attached Tweezers	**40-189-3**	$40.30
Magna-Lite 100 5X	**40-192-7**	18.40
Magna-Lite 300 10X	**40-194-3**	30.65



40-189-3

40-192-7
40-194-3

MAGNI-FOCUSERS Interchangeable "Flip-Up" Lens Design



40-265-1



40-270-1



40-124-0



40-282-6

The Magni-Focuser with Light and Auxiliary Lens has an amazing 8,000 Candle Power Xenon beam laser spot. An Extremely valuable tool for doctors, dentists, laboratory technicians, jewelers, electronic assemblers, photographers, quality controllers and hobbyists.

- For close-up , hands free work and precise quality control
- Switch from regular to magnified vision instantly
- Can be worn over regular or safety glasses
- Shatter resistant, optical acrylic lens
- Soft, pliable contoured padded vinyl head band adjusts to any size head for a perfect fit.
- Focal range 4" to 20" and magnifying power from 1.75x to 5.25x
- Lens size 3 1/8" x 1 1/8"
- One interchangeable lens plate supplied with each model
- Additional replacement interchangeable lens available

MAGNI-FOCUSERS

MAG.	FOCUSING DISTANCE	WITHOUT LIGHT PART NO.	PRICE	WITH LIGHT PART NO.	PRICE
1.5X	20"	**40-265-1**	$28.90	**40-124-0**	$108.55
1.75X	14"	**40-266-9**	39.20	**40-125-7**	108.55
2.00X	10"	**40-123-2**	39.20	**40-126-5**	108.55
2.25X	8"	**40-267-7**	39.20	**40-127-3**	108.55
2.75X	6"	**40-268-5**	39.20	**40-128-1**	108.55
3.50X	4"	**40-269-3**	39.20	**40-129-9**	108.55

MAGNI-FOCUSER w/Auxilary Hi-Power Lens

Have an auxiliary monocular 3.50x magnification lens attachment for one eye. Swing up or down. The auxiliary lens can be added on to any model.

WITHOUT LENS MAG.	WITHOUT LENS FOCUSING DISTANCE	WITH LENS MAG.	WITH LENS FOCUSING DISCTANCE	WITHOUT LIGHT PART NO.	PRICE	WITH LIGHT PART NO.	PRICE
1.75X	14"	4.25x	4"	**40-270-1**	$46.65	**41-026-6**	$113.90
2.00X	10"	4.50x	3.50"	–	–	**41-027-4**	113.90
2.25X	8"	4.75x	3"	**40-271-9**	46.65	**41-028-2**	113.90
2.75X	6"	5.25x	2"	**40-272-7**	46.65	**41-029-0**	113.90

Auxilary Lens Attachment

DESCRIPTION	PART NO.	PRICE
3.5X Lens Only	**40-273-5**	$9.80

Lens Plate Only

POWER	PART NO.	PRICE	POWER	PART NO.	PRICE
1.5X	**40-274-3**	$14.75	3.5X	**40-278-4**	$19.35
1.75X	**40-275-0**	16.75	4.25X	**40-279-2**	22.20
2.00X	**41-025-8**	15.05	4.75X	**40-280-0**	22.20
2.25X	**40-276-8**	16.75	5.25X	**40-281-8**	23.45
2.75X	**40-277-6**	16.75	–	–	–

Special Bi-Focal Version

- Conveniently eliminates the need to switch lens units since two powers of magnication are available in one lens unit.

Lens Plate Only

DESCRIPTION	PART NO.	PRICE
1.75X & 2.25 Power	**40-282-6**	$43.80
2.00X & 2.75 Power	**40-283-4**	43.80



14-159-8

SPI® Magnifiers

- Magnifiers have lenses made of three precision ground elements cemented together to provide the best image possible in a hand-held magnifier.
- Lens diameter is 0.83".

MAGNIFICATION	PART NO.	PRICE
10x	**14-158-0**	$42.25
15x	**14-159-8**	44.55
20x	**14-160-6**	46.90
30x	**14-161-4**	48.10

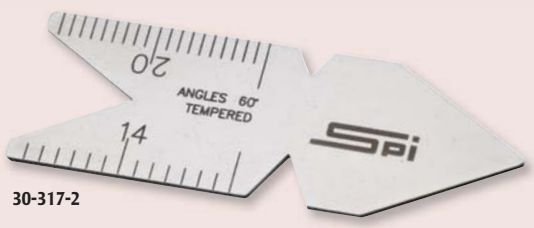
MAG-MATE® Inspection Mirrors & Magnifiers



97-783-5

- Mirrors have a slim profile and have joints that can swivel and/or rotate.
- Flex mirror – can be bent to a permanent position or the inside stiffening wire can be removed to snake it into position.

MIRROR TYPE	MIRROR MATERIAL	MIRROR SIZE W x L	LENGTH	EXTENDED LENGTH	PART NUMBER	PRICE
Round	Glass	1 1/2" Dia.	4 1/2"	24"	**97-390-9**	$17.35
Rectangular	Glass	2" x 1 1/4"	6 1/2"	36 1/2"	**97-391-7**	13.75
Square	Acrylic	2" x 2"	7"	29"	**97-784-3**	16.80
Rectangular	Glass	2 1/2" x 3 1/2"	7 1/4"	32 3/4"	**97-783-5**	23.20
Rectangular	Stainless Steel	2" x 2 1/2"	7"	28 1/2"	**97-392-5**	34.70
Rectangular	Glass	2 1/4" x 2 1/2"	7 1/2"	36 1/2"	**97-393-3**	22.95
Magnifier	Glass	2 1/4" x 2 1/2"	7 1/4"	36 1/2"	**97-394-1**	26.80
Flex	Acrylic	1 7/8" x 2 1/4"	25"	-	**97-395-8**	35.20



30-317-2

SPI® Center Gage
See Pg. 151

OPTICS



Magni-Visor
40-178-6



40-158-8



40-157-0

Spi® Classic MAGNI-VISOR

- Unique dual lens system. Outer lens 2.2X and 8 1/4" focal length. Inner "flip-down" lens for total 3.3X magnification, 4 5/16" focal length.

DESCRIPTION	PART NO.	PRICE
Magni-Visor	**40-178-6**	$64.20

Spi® Classic Light Loupe

- Crystal-clear 10X lens, shielded by a hard plastic holder.
- Built-in light for clear vision in dark.
- Requires 2 C batteries (not included).

DESCRIPTION	PART NO.	PRICE
Light Loupe	**40-158-8**	$48.45

Spi® Classic Parasite Loupe

- High grade crown glass lens with very sharp and clear magnified image.
- 3" dia. lens 2.5X with imbedded small lens 7/8" dia. for 5X compound magnification.
- Overall length: 6 1/2"

DESCRIPTION	PART NO.	PRICE
Parasite Loupe	**40-157-0**	$67.85



40-181-0

Optivisor with Optilupe

40-187-7 Optilupe

OPTIVISOR

- Comfortable, adjustable headband.
- Optical glass lenses ground and polished to precision optical standard for superior magnification.
- Optilupe, for additional magnification for all models, optional.

MAG.	FOCAL LENGTH	COMPLETE SET PART NO.	COMPLETE SET PRICE	REPLACEMENT LENS PART NO.	REPLACEMENT LENS PRICE
1 1/2X	20"	**40-181-0**	$68.55	**06-030-1**	$38.75
1 3/4X	14"	**40-182-8**	68.55	**06-031-9**	38.75
2X	10"	**40-180-2**	68.55	**06-032-7**	38.75
2 1/2X	8"	**40-183-6**	68.55	**06-033-5**	38.75
2 3/4X	6"	**40-184-4**	68.55	**06-034-3**	40.80
3 1/2X	4"	**40-185-1**	68.55	**06-035-0**	40.80
Optilupe	(2 1/2X)	**40-187-7**	16.90		



40-285-9

Bushnell Powerview Binoculars

- Designed and built for durability and quality performance.
- Soft rubber covering and the patented "Insta-Focus" focusing system.
- Adjustable neck strap and protective carrying case included.

MAGNIFICATION	PART NO.	PRICE
8 x 21	**40-285-9**	$34.50

Lens Cleaning

- Perfect for cleaning safety glasses, optical measuring tools, computer screens, glass or plastic.
- Silicone type provides anti-fog protective shields.
- Non-Silicone also provides anti-fog and anti-static properties.
- These safety glass cleaners contain silicon to provide and anti-fog film.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.





40-319-6



56-174-6

Cleaning Towels

- 100 pcs. pre-moistened and individually wrapped towels.

DESCRIPTION	PART NO.	PRICE
Cleaning Towels	**56-174-6**	$11.95



Ground Ship ONLY

40-227-1
40-228-9

Cleaning Station

- Includes spray bottle and supply of pull-out tissues.
- 8 oz. cleaning solution, 760 tissues.

DESCRIPTION	PART NO.	PRICE
Cleaning Station	**40-319-6**	$10.20

Plastic Cleaning Station

- 760 tissues.
- Dimensions: 10" height x 5 1/8" wide x 7 5/8" across.

DESCRIPTION	PART NO.	PRICE
Plastic Station/Silicone	**40-227-1**	$14.40
Plastic Station/Non-Silicone	**40-228-9**	14.40

Large Station

- 1,520 tissues.
- Dimensions: 11 1/2" height x 3" wide x 5 3/8" across.

DESCRIPTION	PART NO.	PRICE
Large Station/Silicone	**40-225-5**	$22.35
Large Station/Non-Silicone	**40-226-3**	23.00



40-225-5
40-226-3



MACHINE ACCESSORIES







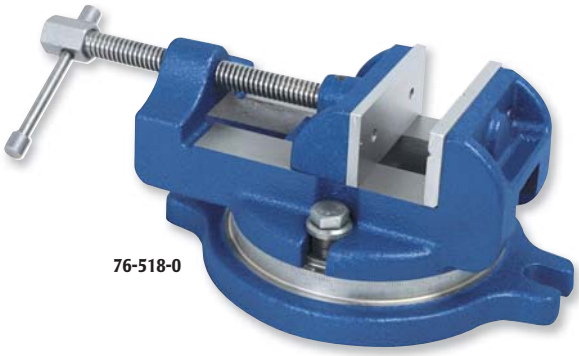








MACHINE ACCESSORIES

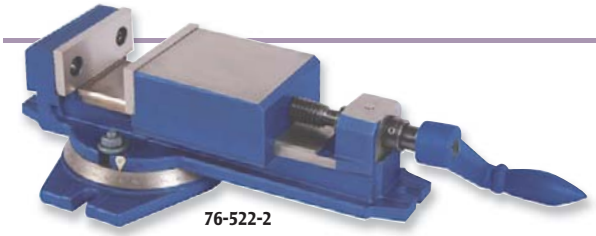


76-518-0

TOP QUALITY
Light-Duty Milling Machine Vises
Use For Milling & Grinding

- Fine grain cast iron body.
- Trapezoidal thread lead screw.
- Hardened & ground replaceable jaws.
- Fixed jaw has one horizontal and one vertical groove.
- Removable vise swivels 360° on base.
- Mounting lugs on both vise and base make mounting quick and easy.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WT. LBS.	VISE ONLY PART NO.	PRICE	WT. LBS.	VISE WITH SWIVEL BASE PART NO.	PRICE
3"	3"	1 1/2"	2 11/16"	9"	8	**76-515-6**	$144.05	11	**76-518-0**	$216.05
4"	4"	1 3/4"	3 3/8"	11 3/4"	16	**76-516-4**	199.00	23	**76-519-8**	297.80
6"	6"	2"	3 7/8"	14 1/2"	34	**76-517-2**	434.50	48	**76-520-6**	579.70



76-522-2

TOP QUALITY
Standard-Duty Milling Machine Vises w/Swivel Base
Use For Milling & Grinding

- Fine grain cast iron body.
- Trapezoidal thread lead screw.
- Hardened & ground replaceable jaws.
- Less than 0.001" jaw deflection at 4,000 Lbs. clamping pressure.
- Vise swivels 360° on base.
- Mounting lugs on both vise and base make mounting quick and easy.
- Jaw surface is square to 0.0015". Bed and base are parallel to 0.002".

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	1 1/2"	4 9/16"	14 1/2"	33	**76-521-4**	$167.00
6"	6"	2 1/8"	6"	20 1/8"	86	**76-522-2**	334.85

SHOP GRADE
Precision Milling Machine Vises

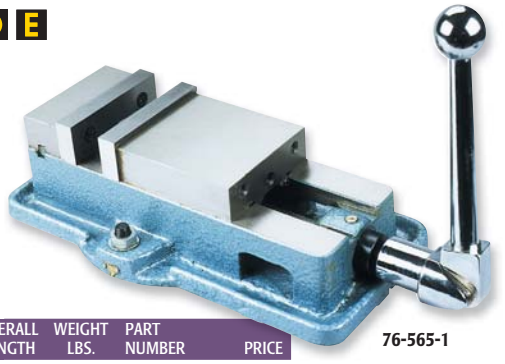


76-240-1

- Outstanding clamping power and positive downforce on movable jaw through hardened spherical segment.
- Cast parts are made from highest grade (80,000 PSI) ductile iron.
- Flame hardened bed on all models.
- Body precision ground top and bottom.
- Jaws are ground all around and topped off as matched sets.
- The lead screw is fully enclosed for maximum protection.
- Thrust needle bearing collar reduces friction and increases clamping pressure.
- Interchangeable jaw plates, hardened and ground. Can be mounted in 4 different positions for various applications.

VISE SIZE	JAW WIDTH	OVERALL LENGTH	OVERALL HEIGHT	MAX. JAW OPENING	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	13.040"	3.485"	3.875"	45	**76-229-4**	$455.15
5"	5"	14.300"	3.950"	4.600"	70	**76-230-2**	507.80
6"	6"	17.300"	4.720"	7.500"	105	**76-240-1**	513.15

SHOP GRADE
Precision Milling Machine Vises

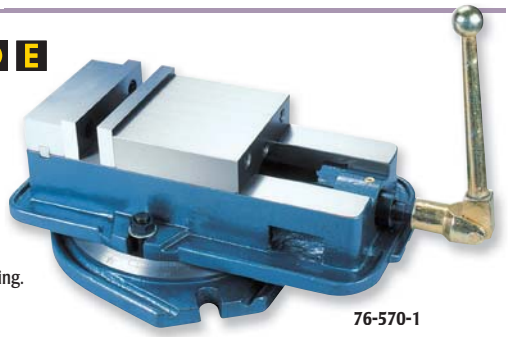


76-565-1

- Made from gray cast iron.
- Removable hinged handle for fast locking.
- Provide better clamping pressure.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4.00"	1 1/4"	3.70"	12 3/8"	30	**76-563-6**	$178.00
5"	4.35"	1 3/8"	3.94"	14 3/8"	46	**76-564-4**	210.55
6"	5.90"	1 1/2"	6.22"	16.85"	56	**76-565-1**	247.50
6"	7.50"	1 1/2"	4.93"	17.20"	66	**76-566-9**	298.90
8"	8.00"	1 15/16"	6.10"	20.00"	105	**76-567-7**	552.40

SHOP GRADE
Precision Milling Machine Vises with Swivel Base



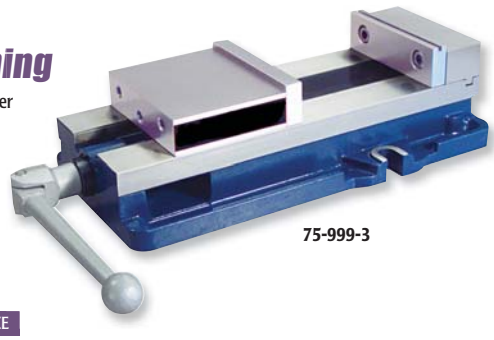
76-570-1

- Made from gray cast iron.
- Removable hinged handle for fast locking.
- Provide better clamping pressure.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4.00"	1 1/4"	4.96"	12 3/8"	33	**76-568-5**	$191.85
5"	4.35"	1 3/8"	5.25"	14 3/8"	59	**76-569-3**	242.55
6"	5.90"	1 1/2"	6.22"	16.85"	74	**76-570-1**	329.25

TE-CO

6" Vise with 9" Opening



75-999-3

- Rigid main screw design allows for higher torque loads and clamping force.
- Hardened vise bed and jaw plates.
- Bed height held to size 2.875" ±0.0005".
- Base width: 8.75"
- Base length: 17".
- Height: 4.62".
- Weight: 75 lbs.

DESCRIPTION	PART NO.	PRICE
6" Machine Vise	**75-999-3**	$547.35

SHOP GRADE

Tite-Lock Milling Machine Vises with Swivel Base


76-572-7

- Tite-Lock positive clamping; 1/2 lb. of vertical clamping for every 1 lb. of horizontal pressure.
- Sliding surface of the bed is flame hardened and ground.
- Bed is cast from ductile iron to 80,000 psi.
- 360° swivel base.
- Swivel base thrust collar designed with needle bearings.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	1 5/16"	4 31/32"	15 3/16"	46	**76-572-7**	$215.60
6"	6"	1 3/4"	6 7/32"	19 1/8"	105	**76-573-5**	285.70
6"	7 1/2"	1 1/2"	4 3/8"	16 3/4"	105	**76-574-3**	312.75
8"	7 1/2"	2"	5 5/16"	21 3/4"	105	**76-575-0**	417.45

SHOP GRADE

6" Angle Tight Milling Machine Vise

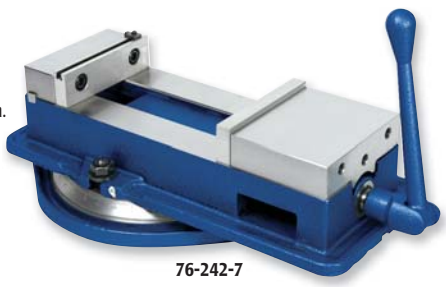

76-576-8

- Can be used with multiple vise set-ups.
- Can be mounted 3 ways; horizontal, left and right sides.
- Thrust bearing increases clamping power by 80%.
- Spherical segment facilitates multi-directional alignment eliminating jaw lift and work tilt.
- Body is made of 80,000 psi ductile iron.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
6"	5 1/2"	1 3/4"	4.80"	17"	60	**76-576-8**	$403.85

TOP QUALITY

6" Milling Machine Vises

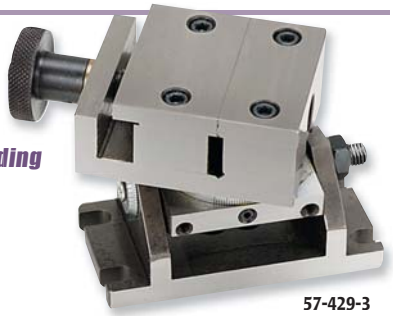

76-242-7

- Made from FC25 fine grain cast iron.
- Trapezoidal thread lead screw.
- Removable base swivels 360°.
- Replaceable hardened and ground jaw plates.
- Base parallel to 0.002".
- Jaw surface square to 0.0015".
- Jaw deflection less than 0.001" at 4,000 lbs. clamping pressure.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
6"	7 1/2"	1 3/4"	4 5/8"	18 1/2"	78	**76-241-9**	$509.95
6"	8 3/4"	1 5/8"	6 1/4"	19 1/2"	109	**76-242-7**	513.50

Mini Precision Tilt & Swivel Vise

Use For Jig Boring, Jig Grinding, Precision Milling,Drilling or Grinding


57-429-3

- Tolerance: ±0.0004"
- Graduated on the tilt and the swivel.
- Equipped with removable jig plates for grinding or milling.
- Use as a fixed vise by removing the swivel attachment.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2 1/4"	17/32"	25/32"	3 3/4"	5 5/8"	2	**57-429-3**	$290.00

59 Pc. R8 Tooling Package

For Bridgeport® Type Milling Machines

6" Precision Milling Machine Vise with Swivel Base


6" Milling Vise w/ Swivel Base

- 6 1/4" jaw opening.
- Removable hinged handle for fast locking.
- No need to hammer workpiece.
- Provides better clamping pressure.
- Weight: 95 lbs.


52 Pc. Clamping Kit

52 Pc. Clamping Kit

- 24 - 1/2"-13 studs: 4 each 3", 4", 5", 6", 7" & 8"
- 4 - coupling nuts
- 6 - 5/8" t-slot nuts
- 6 - flange nuts
- 6 - serrated end clamps
- 6 - 1" wide step block pairs
- Storage rack.

6 Pc. R8 Collet Set

- Sizes: 1/8" - 3/4"


R8 Collet

DESCRIPTION	PART NO.	PRICE
59 Pc. R8 Tooling Package	**97-959-1**	$410.05

WILTON

3 Axis 6" Milling Machine Vise w/Swivel Base

For Applications That Require Machining On An Angle


66-839-2

- Made of close grained, high tensile seasoned castings.
- Ergonomic steel handle with spring loaded ball attachment.
- Durable polychromatic finish.
- Jaw hardness 55 ±3 RC.
- Set any angle 45° each side of center & 90° vertical Indexing.
- Graduated 360° swivel base can be set at any angle along the vertical axis.

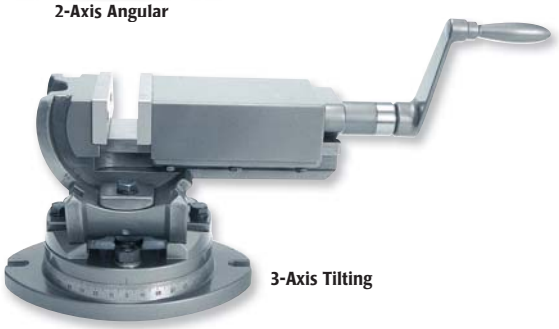
JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
6"	6"	1 3/4"	13 1/4"	19"	119	**66-839-2**	$2,090.00

MACHINE ACCESSORIES

TOP QUALITY
2 & 3 Axis Milling Machine Vises w/Swivel Base
For Applications That Require Machining On An Angle



2-Axis Angular



3-Axis Tilting

2-Axis Angular Vises

- Set any angle 45° each side of center.
- Made from close grained high tensile seasoned cast iron with hardened and ground jaws.
- Graduated 360° swivel base can be set at any angle along the vertical axis.
- All angular slides have positive locking clamps for firm and rigid clamping.
- Ergonomic spring loaded steel handle for stress free operation.
- Milled slot in base allows for secure clamping of the vise to the table.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2"	2"	1"	4 1/2"	8 1/8"	8	**76-654-3**	$239.85
3"	3"	1 5/16"	5 5/8"	11 1/4"	21	**76-655-0**	394.25
4"	4"	1 1/2"	7 5/8"	14 5/8"	42	**76-656-8**	486.90
5"	5"	1 3/4"	8 1/2"	17 3/4"	71	**76-657-6**	747.60
6"	6"	1 3/4"	10 5/16"	22 1/4"	97	**76-658-4**	895.05

3-Axis Tilting Vises

- Great for Milling, drilling, grinding, shaping and jig boring operations.
- 2 angular slides.
- Set any angle 45° each side of center & 90° vertical Indexing.
- Graduated 360° swivel base can be set at any angle along the vertical axis.
- All angular slides have positive locking clamps for firm and rigid clamping.
- Ergonomic spring loaded steel handle for stress free operation.
- Milled slot in base allows for secure clamping of the vise to the table.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2"	2"	1"	5 3/8"	8"	9	**76-662-6**	$324.30
3"	3"	1 5/16"	8"	11 3/4"	25	**76-663-4**	610.45
4"	4"	1 1/2"	7 1/4"	16 1/2"	51	**76-665-9**	845.75
6"	6"	2	13 1/4"	19"	121	**76-664-2** *	811.75

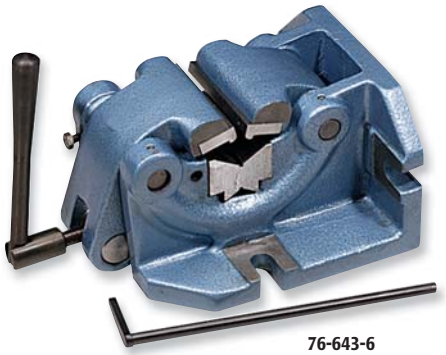
* Truck shipment.

Universal 3-Way Angle Vises

- Set any angle 45° each side of center & 90° vertical Indexing.
- Graduated 360° swivel base can be set at any angle along the vertical axis.
- All angular slides have positive locking clamps for firm and rigid clamping.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3 1/2"	1 1/4"	6 5/16"	16"	37	**76-659-2**	$555.10
4"	4.17"	1 1/2"	7 1/4"	20"	73	**76-660-0**	702.00
5"	5 3/4"	1 1/2"	8 1/2"	25"	98	**76-661-8**	945.20

SHOP GRADE
Self-Centering Milling Machine Vise



76-643-6

- 4" wide hardened steel replaceable jaws.
- Capacity: 1/2" to 2 1/2" round parts.
- Work rests on V-block made of hardened and ground steel.
- Has adjustable sliding rod to set work in proper position.
- Vise ends are ground so vise can be used vertically or horizontally.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	2 3/8"	1"	7 11/16"	11 27/64"	50	**76-643-6**	$397.90

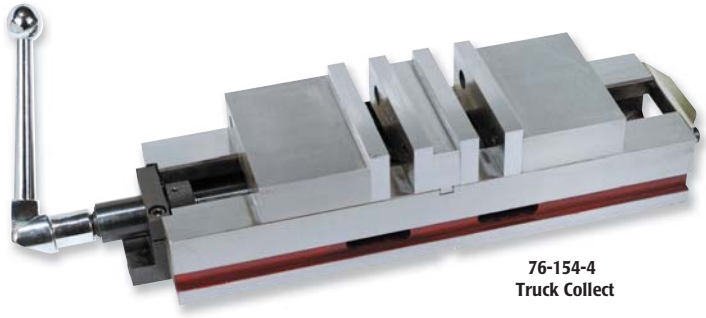
TOP QUALITY
Self-Centering Milling Machine Vise
Now Quickly Center Jobs Automatically & Accurately



76-644-4

- Use in applications where the same operation is to be performed on workpieces of varying sizes.
- Rotating the crank handle automatically adjusts workpiece to the center.
- Centric clamping makes it quick and easy to mill slots and grooves.
- Accurate set up of jobs with only a single machine setting.
- Made of high tensile seasoned cast iron with fully hardened & ground tool steel jaws.
- Swivel base rotates a full 360°.
- Hold down slots for secure clamping to the table.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	1 1/2"	6 3/8"	10 3/4"	32	**76-644-4**	$478.75



76-154-4
Truck Collect

SHOP GRADE
Double Direction Precision CNC Machine Vise
Designed for Medium to High Volume CNC Production

- Anti-tilt mechanism eliminates lift of movable jaw.
- Reversible jaws can be changed from standard to step.
- Ductile cast iron is precision ground.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
6 1/4"	4"	2"	5"	24"	100	**76-154-4**	$868.25

SHOP GRADE
2 Pc. Quick Clamp Milling Machine Vises
Handles Extra Long Workpieces

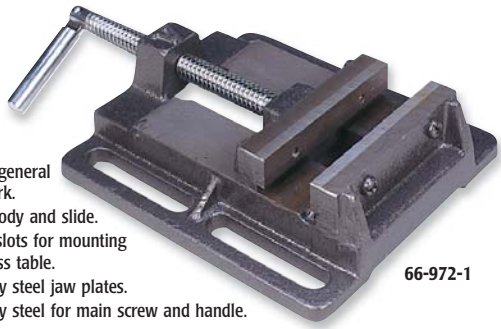


76-523-0

- Now utilize the full length of the machine table.
- Jaws are hardened and precision ground.
- Machined keyways for quick accurate setup.

JAW WIDTH	HEIGHT	WEIGHT LBS.	PART NUMBER	PRICE
6"	3"	25	**76-523-0**	$201.95
8"	3 1/4"	35	**76-524-8**	260.00

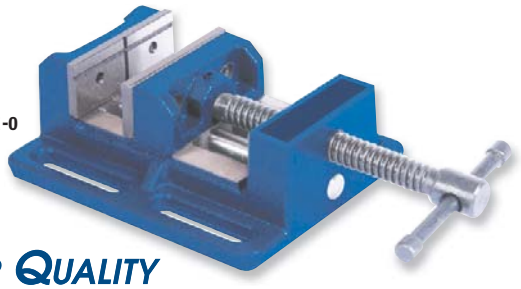
SHOP GRADE
Low Profile Drill Press Vises



66-972-1

- Sturdy for general drilling work.
- Cast iron body and slide.
- 4 lug bolt slots for mounting to drill press table.
- High quality steel jaw plates.
- High quality steel for main screw and handle.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	0.59"	1.77"	7.28"	8	**66-859-0**	$25.70
4"	4"	0.84"	2.05"	8.45"	9	**66-972-1**	63.25
5"	4 5/8"	0.89"	2.33"	9.65"	10	**66-973-9**	84.00
6"	5 1/2"	0.98"	2.40"	10.86"	13	**66-974-7**	118.60



76-721-0

TOP QUALITY
Low Profile Drill Press Vises

- Use for drilling, tapping and reaming.
- Made from FC25 fine grain cast iron.
- Trapezoidal thread lead screw.
- 4 lug bolt slots for mounting to drill table.
- Replaceable jaw has "V" groove for holding round stock.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/8"	2 7/16"	6 9/16"	10	**76-721-0**	$50.25
4"	4"	1 1/2"	2 7/8"	7 9/16"	15	**76-722-8**	61.85
6"	6"	2"	3 9/16"	10 15/16"	36	**76-723-6**	145.25
8"	8"	2"	3 9/16"	15 7/16"	54	**76-724-4**	218.05

WILTON
Low Profile Drill Press Vises

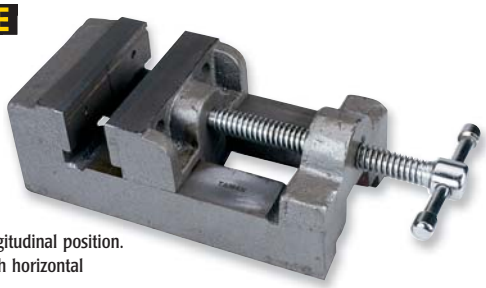


66-716-2

- Use for drilling, tapping and reaming.
- Hardened steel jaws have"V" groove for holding round stock both vertically & horizontally.
- Fine grain cast iron castings.
- 4 shoulder slots for quick mounting to drill table.
- Black oxide coated ACME threaded screw for consistent clamping pressure.
- Bases & beds parallel to ±0.001".

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/8"	2 7/16"	5 1/2"	8	**66-716-2**	$54.00
4"	4"	1 1/2"	2 7/8"	6"	12	**66-717-0**	86.00
6"	6"	2"	3 9/16"	8 1/2"	30	**66-718-8**	200.00
8"	8"	2"	3 9/16"	11"	50	**66-719-6**	316.10

SHOP GRADE
Drill Press Vises



66-981-2

- Sturdy and rigid vises for general drill press and light milling machine work.
- Body and slide made from selected quality cast iron.
- Acme threaded main screw and handle are made of quality steel.
- Can be used in horizontal, vertical and longitudinal position.
- High quality steel jaw plates, fixed jaw with horizontal & vertical V-groove.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
1 1/2"	1 1/2"	7/8"	1 3/4"	5	3	**66-879-8**	$24.10
2 1/2"	2.34"	1.1"	2 1/4"	7 1/4"	6	**66-981-2**	47.65
3 1/2"	3.30"	1.1"	2 3/4"	8 1/2"	9.5	**66-982-0**	68.85
4"	3 3/4"	1.2"	3"	10 1/4"	17	**66-983-8**	95.55

TOP QUALITY
Industrial Drill Press Vises

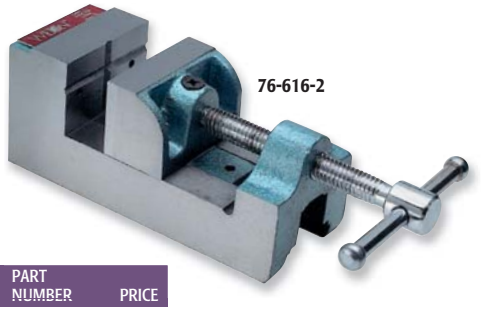


76-725-1

- Bed & base are parallel to 0.004".
- Jaw surface is square to 0.002".
- Fixed jaw is "V" grooved to hold round stock.
- Groove machined on both sides for quick mounting to table.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	1 1/2"	2 11/16"	7 5/16"	10	**76-725-1**	$72.85
6"	6"	2"	3 1/2"	11 15/16"	28	**76-726-9**	130.65

WILTON
Drill Press Vise



76-616-2

- Precision ground sides and front face allows bottom, side or front positions.
- Body and side ground parallel and square to ensure jaw alignment.
- Smooth moving jaw.
- Cross patterned 90° V-groove in fixed jaw.

JAW WIDTH	JAW OPENING	JAW DEPTH	OVERALL HEIGHT	WT. (LBS.)	PART NUMBER	PRICE
2 1/2"	2 9/16"	1 1/2"	2 5/8"	6	**76-616-2**	$99.95
3"	3 1/8"	1 3/4"	3"	10	**76-618-8**	116.00

MACHINE ACCESSORIES

Industrial Drill Press Vises

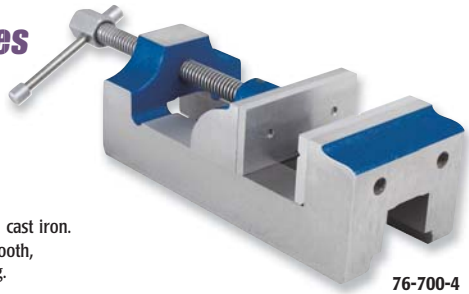


66-727-9

- Precision machine on all sides.
- Can be used in 4 positions; horizontal, right side, left side or on the end.
- Fine grain cast iron casting.
- Hardened steel jaws.
- Precision ground for square and parallel to ±0.0001 per inch.
- Hardened "V" grooved jaws to hold round stock both vertically and horizontally.
- Black oxide coated screw for consistent clamping pressure.

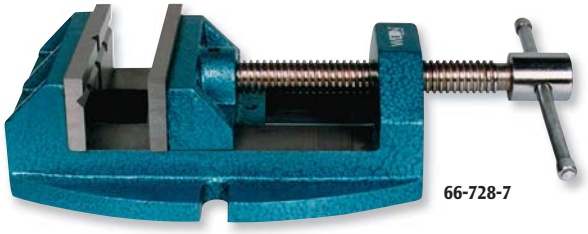
JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	1 1/2"	2 3/4"	7 1/4"	10	**66-726-1**	$80.45
6"	6"	2"	3 1/2"	12"	35	**66-727-9**	244.70

Top Quality Drill Press Vises


76-700-4

- General use on drill presses or for light milling.
- Can be used in 4 positions; horizontal, right side, left side or on the end.
- Made of solid and fine grain cast iron.
- Precision ground bar for smooth, accurate travel and clamping.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
1 1/2"	1 1/2"	1"	1 13/16"	5 1/8"	2	**76-700-4**	$60.85
2 7/16"	2 1/2"	1 1/2"	2 9/16"	7 1/4"	6	**76-701-2**	74.50
2 7/16"	3"	1 1/2"	2 9/16"	7 1/4"	5	**76-702-0**	73.75
4"	4"	1 3/4"	3 1/4"	10 3/4"	18	**76-704-6**	170.05
6"	6"	2"	4"	14"	37	**76-705-3**	518.35


66-728-7

Versatile Drill Press Vises with Continuous Nut

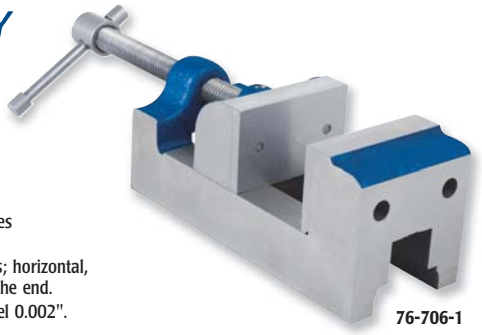
Heavy-Duty with Large Workload Capacity

- Precision ground high grade cast iron casting.
- Hardened steel replaceable "V" grooved jaws firmly hold round, flats and irregularly shaped stock both vertically and horizontally.
- ACME spindle threads for continuous smooth operation and clamping with maximum holding power.
- Precision machine on all sides.
- Can be used in 4 positions; horizontal, right side, left side or on the end.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	2 3/4"	1 7/8"	3 1/4"	8 1/2"	6	**66-728-7**	$128.05
4"	4"	2 1/8"	3 1/2"	10 1/4"	12	**76-720-2**	192.30
5"	5"	2 1/8"	4 1/2"	12 3/4"	24	**66-729-5**	256.10

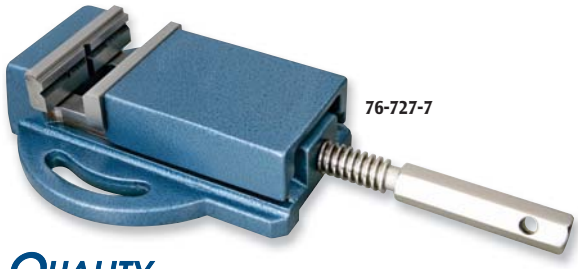
Top Quality Ground Drill Press Vises

Ground on 5 Sides & Both Jaws


76-706-1

- General use on drill presses or for light milling.
- Can be used in 4 positions; horizontal, right side, left side or on the end.
- Ground square and parallel 0.002".

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
1 1/2"	1 5/8"	1"	1 13/16"	5"	2	**76-706-1**	$132.35
2 7/16"	2 5/8"	1 1/2"	2 9/16"	7 1/8"	6	**76-707-9**	177.05
4"	4"	1 3/4"	3 1/4"	10 3/4"	18	**76-708-7**	271.80

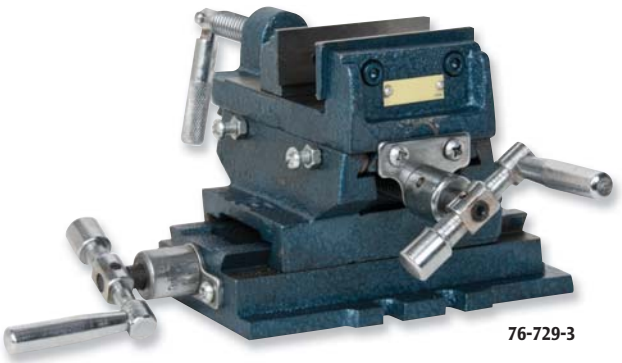

76-727-7

Top Quality Super Precision Drill Press Vises

Rugged Design for the Professional

- Beefy design is great for drilling, tapping and reaming operations.
- Made from close grain aged cast iron.
- Bed is ground for smooth and consistent jaw movement.
- Jaws are hardened and ground, with cross patterned 90° V-grooves in the stationary jaw for holding round pieces both horizontally and vertically.

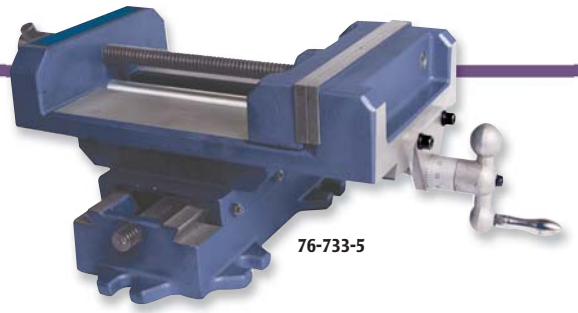
JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3 3/16"	3 1/2"	1"	2 1/4"	11 1/4"	13	**76-727-7**	$159.95
4"	4"	1 1/4"	2 5/8"	13 1/2"	20	**76-728-5**	228.95


76-729-3

SHOP GRADE Cross-Slide Drill Press Vises

- Heavy-duty cross vise moves in both horizontal and longitudinal directions for centering the work piece.
- Good for clamping soft materials like wood, aluminum and copper.

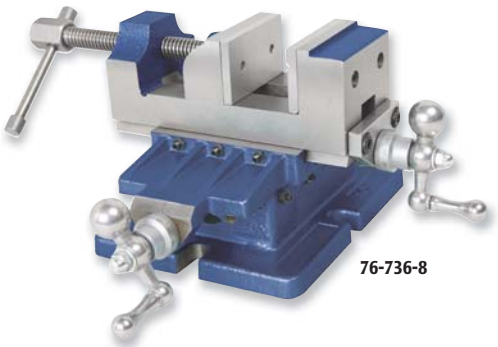
JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	2 1/4"	1"	4 3/4"	5.438"	12.6	**76-729-3**	$102.55
6"	5 3/4"	1 1/2"	6 1/4"	11 1/2"	36.8	**76-732-7**	212.80


76-733-5

TOP QUALITY
Cross-Slide Drill Press Vises

- Heavy-duty cross vise moves in both horizontal and longitudinal directions for centering the work piece.
- Made from FC25 close grain cast iron.
- Trapezoidal thread lead screw.
- All sliding surfaces are machined.
- Adjustable gib plates.
- Replaceable steel jaw plates.
- "V" groove in jaw for holding round stock.
- Index collar graduated in 0.1 mm increments.

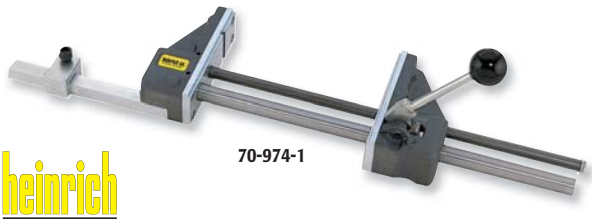
JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/8"	5 5/8"	5 1/2"	18.7	**76-733-5**	$127.75
6"	6"	2"	7 1/4"	8"	59.4	**76-734-3**	238.95
8"	8"	2"	7 1/4"	8"	83.6	**76-735-0**	314.75


76-736-8

TOP QUALITY
X-Y Axis Drill Press Vise

- Accurately moves the work piece in two 2 directions for precise positioning.
- Made from FC25 fine grain cast iron.
- Trapezoidal thread lead screw.
- Dial graduated in 0.001" increments.
- Cross-slide travel 3 1/2" x 4".
- Vise can be removed from the base.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 3/4"	5 1/2"	12"	29	**76-736-8**	$721.20


70-974-1

heinrich
GET A GRIP WITH HEINRICH

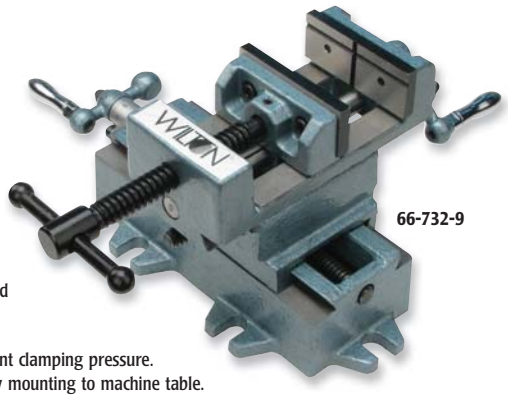
Grip-Master Safety Drill Press Vise
Quick-Set By Sliding Movable Jaw Into Position

- Quick-Acting - Opens to 12 3/4"
- Press on lever advances jaw locking workpiece securely.
- Built-in recessed parallel jaws hold work square.
- Vertical V-Groove in jaw grips on rounds.
- Mounts on drill press table and swings away when not in use.

JAW WIDTH	JAW OPENING	JAW DEPTH TO BARS	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
5 21/32"	12 3/4"	3"	1 3/4"	27 3/8"	13	**70-974-1**	$329.00

WILTON

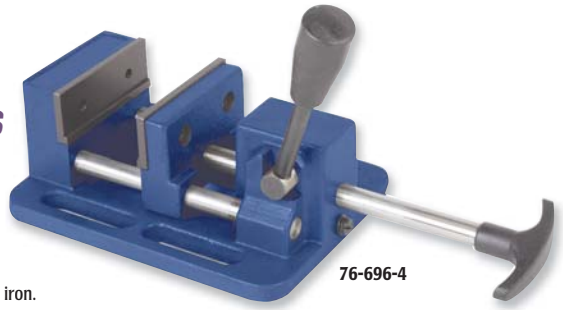
Cross-Slide Drill Press Vise


66-732-9

- Moves vise in two directions for accurate positioning of the work piece.
- Cast side knobs accurately dial in 0.1mm increments.
- Hardened "V" groove jaws hold round stock vertically and horizontally.
- Fine grain cast iron castings.
- Black oxide coated screw for consistent clamping pressure.
- Durable base has 5 bolt lugs for easy mounting to machine table.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/8"	5 5/8"	6"	16	**66-732-9**	$159.65
4"	4"	1 3/8"	5 3/4"	7"	20	**66-733-7**	199.75
5"	5"	1 1/2"	6"	8 1/2"	45	**66-734-5**	319.15
6"	6"	2"	7 1/4"	9 1/2"	59	**66-735-2**	434.00
8"	8"	2"	7 1/4"	11"	77	**66-736-0**	599.25

TOP QUALITY
Quick Release Drill Press Vises

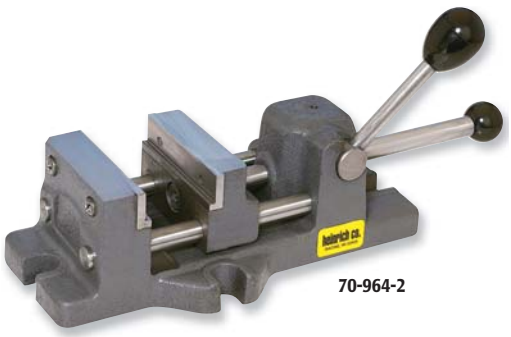

76-696-4

- Quick lock and release of workpiece.
- Trapezoidal thread lead screw.
- Adjustable screw for custom clamping forces.
- Replaceable jaw is ground flat.
- Made from FC25 fine grain cast iron.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	BASE SIZE LENGTH	BASE SIZE WIDTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/16"	2 3/4"	7 1/4"	5 3/8"	10	**76-696-4**	$63.20
4"	4"	1 3/8"	3 9/16"	11 3/16"	5 3/4"	24	**76-697-2**	178.50
6"	6"	1 5/8"	4 5/16"	14 5/8"	9 3/16"	35	**76-698-0**	238.50
8"	8"	1 5/8"	4 1/2"	18 1/2"	11 3/8"	44	**76-699-8**	328.75

heinrich
GET A GRIP WITH HEINRICH

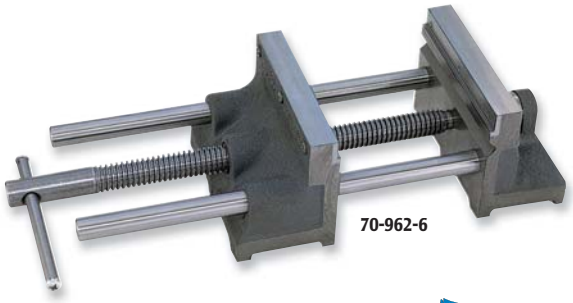
Quick Release Drill Press Vises


70-964-2

- Push or pull on center bar knob for quick lock and release of workpiece.
- Adjustable holding pressure from 400 to 1100 Lbs.
- Hollow base for clear thru drilling.
- Recessed parallel jaw inserts.
- Hardened & ground bars and locking mechanism.

JAW WIDTH	JAW OPENING	JAW DEPTH	WEIGHT LBS.	VISE PART NO.	PRICE	V-BLOCK ATTACHMENT PART NO.	V-BLOCK ATTACHMENT PRICE
3"	3"	1 1/4"	10	**70-964-2**	$199.95	**70-970-9**	$53.85
4"	4 11/16"	1 5/16"	24	**70-965-9**	285.65	**70-971-7**	62.15
6"	6 3/16"	1 13/16"	34	**70-966-7**	374.80	**70-972-5**	80.65
8"	8 3/16"	2"	50	**70-967-5**	530.35	**70-973-3**	100.75

MACHINE ACCESSORIES



70-962-6

heinrich
GET A GRIP WITH HEINRICH

MADE IN USA

6" & 8" Grip-Master Drill Press Vises

Can Be Used On All 3 Sides

- Sides precision ground at right angles to jaws.
- Horizontal V-Groove holds round stock for side end drilling.
- Work is quickly leveled on removable recessed parallel jaw inserts (5/8" deep).
- Ample clearance from jaw step to table.

JAW WIDTH	JAW OPENING	JAW DEPTH TO BARS	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
6"	10"	2"	4 1/8"	17 5/8"	22	**70-962-6**	$159.95
8"	10"	2 1/2"	5"	18"	39	**70-963-4**	228.95

WILTON

Cam Action Vises

- Easily move the center knob to set jaw, locking lever cams the jaw 3/32" exerting a holding pressure from 400 to 1,100 lbs.



Cam Action Vise

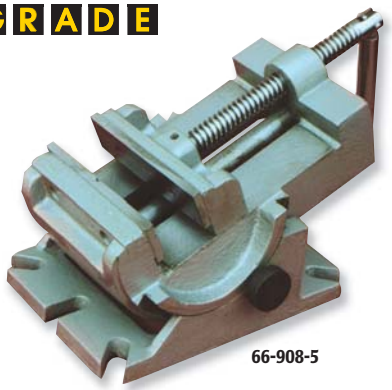
- Recessed parallel steel jaw inserts level work and can be removed to accommodate jig and fixture components.
- Bars and locking mechanism are hardened and ground.

JAW WIDTH	JAW OPENING	JAW DEPTH	WT. (LBS.)	PART NUMBER	PRICE
3"	3"	1 1/4"	10	**76-614-7**	$209.80
4"	4 11/16"	1 5/16"	18	**76-627-9**	238.80
6"	6 3/16"	1 13/16"	35	**76-628-7**	403.25
8"	8 3/16"	2"	53	**76-629-5**	509.35

SHOP GRADE

Cradle Style Angle Vise

- Full 90° horizontal to vertical adjustment.
- One V-groove and one plain jaw plates.
- Two bolt lugs on the base for setting on machine table.



66-908-5

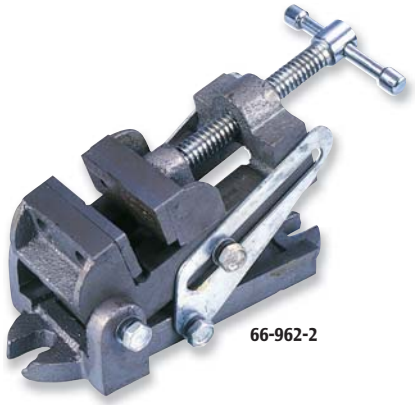
JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4 1/2"	4 1/4"	1.50"	4.33"	7 1/2"	14	**66-908-5**	$87.55

SHOP GRADE

Drill Press Angle Vises

For Machining On An Angle

- Made from high quality steel.
- Quickly adjust from 0° to 90°.
- Screw and handle high quality steel with ACME threaded screw and hexagonal head for tight clamping.
- Hinge pin hole is precision drilled and reamed to eliminate lateral play.



66-962-2

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2 1/2"	2"	1.35"	2.87"	7.59"	10	**66-962-2**	$55.30
3 1/2"	3 5/16"	1.35"	3.23"	9.13"	17	**66-963-0**	65.15
4 1/2"	3 3/4"	1.62"	3.70"	11"	22	**66-964-8**	103.45

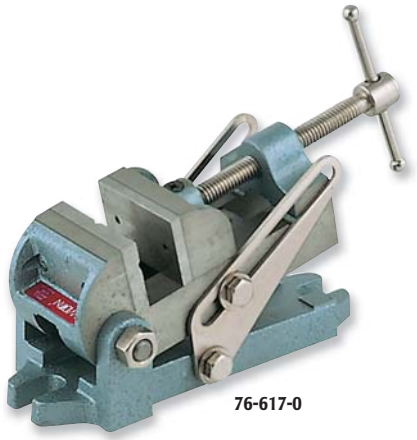
WILTON

Angle Vises

For Machining On An Angle

Precision Ground Drill Press Vises

- Combines features of a drill press vise with quick angle adjustment.
- Can be indexed 0° to 90° with calibrated scale.
- Can be used in 4 positions; horizontal, left and right sides and on the end.
- All sides ground at 90° to adjacent side.
- Removable jaws.
- Jaws have horizontal and vertical "V" grooves for holding rounds.
- Holds irregularly shaped materials easily without special fixtures.



76-617-0

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2 1/2"	2 1/2"	1 1/2"	4 1/2"	10 5/8"	10	**76-617-0**	$102.00
3 1/8"	3 1/8"	1 3/4"	4 1/2"	13 1/4"	16	**76-619-6**	154.00

Cradle Style Angle Vises

- For drilling, tapping and reaming.
- Cradle design with 90° vertical indexing and scaled in 1° increments.
- Side tommy-bar for secure locking at any increment from 0° to 90°.
- Pin hard stops at 0°, 15°, 30°, 45°, 60°, 75°, and 90°.
- Black oxide coated screw for consistent clamping pressure.
- Beds and bases parallel to ±0.001".
- Base dia: 6 1/2" x 6 1/2"



76-648-5

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/8"	4"	6"	12	**76-647-7**	$86.00
4"	4"	1 1/2"	4 1/2"	7 1/4"	17	**76-648-5**	138.30

SHOP GRADE

Precision Toolmaker's Vises

With V-Grooved Jaw



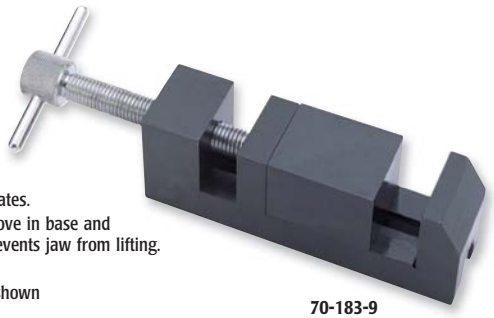
66-988-7

- Precision quality.
- Squareness: 0.0002", Parallelism 0.0001".
- One piece body construction, hardened and ground.

JAW WIDTH	JAW OPENING	JAW DEPTH	OVERALL LENGTH	PART NUMBER	PRICE
2 3/8"	2 1/8"	1"	6 3/4"	**66-988-7**	$162.75
3 7/8"	4 3/4"	1 9/16"	11 1/4"	**66-989-5**	359.50

brown & sharpe

Toolmaker's Vise



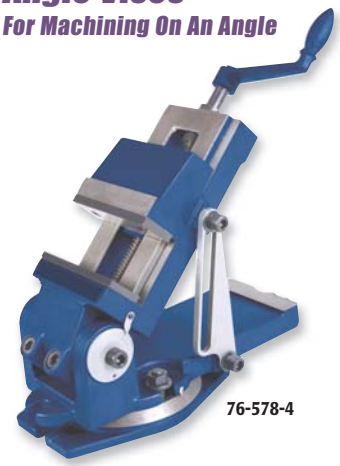
70-183-9

- Handy for use in drilling, fitting and laying out work on surface plates.
- Tongue on large jaw slides in groove in base and is held in place by a strap that prevents jaw from lifting.
- 1 15/16" capacity.
- Furnished with two steel jaws as shown

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	WT. LBS.	PART NUMBER	PRICE
7/8"	2 7/32"	7/8"	1 1/8"	2	**70-183-9**	$184.90

Top Quality Angle Vises

For Machining On An Angle



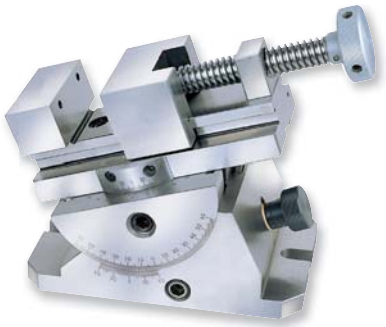
76-578-4



76-579-2



76-581-8



76-583-4



76-584-2

Precision Adjustable Angle Milling Vise

- Full 90° adjustment from horizontal to vertical.
- Bed and base are parallel to 0.004".
- Jaw surface is square to 0.002".
- Stationary jaw base.
- Base has 5/8" keyways and 2 bolt slots.
- 360° swivel base - removable.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	1 3/4"	5 15/16"	12 1/4"	36	**76-577-6**	$400.40

Heavy-Duty Angle Milling Machine Vise

- Bed and base are parallel to 0.004".
- Jaw surface is square to 0.002".
- Vise can be adjusted to 45° in 1° increments and securely locked in position.
- Graduated 360° swivel base can be set at any angle.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
6"	6"	2"	7 1/2"	19 7/8"	119	**76-578-4**	$524.80

Grooved Steel Adjustable Angle Vises

- Full 90° adjustment from horizontal to vertical.
- Bed and base are parallel to 0.004".
- Jaw surface is square to 0.002".
- Base has 5/8" keyways and 2 bolt slots.
- Vise secured by precision locking bolts.
- Stationary jaws.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
1 1/2"	1 1/2"	1"	2 7/16"	5 7/8"	4	**76-579-2**	$110.30
2 1/2"	2 1/2"	1 1/2"	3 3/8"	8 5/8"	10	**76-580-0**	127.25

Industrial Angle Vises

- Full 90° adjustment from horizontal to vertical.
- Graduated 360° swivel base can be set at any angle.
- Bed and base are parallel to 0.004".
- Jaw surface is square to 0.002".
- Base has 5/8" keyways and 2 bolt slots.
- Vise secured by precision locking bolts.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
4"	6"	1 1/8"	6 1/4"	12"	35	**76-581-8**	$192.00
4"	6"	2"	7.43"	17 3/4"	107	**76-582-6**	381.15

Precision Universal Vise

- Horizontal swivel through 360°.
- 45° vertical tilt.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2 3/4"	3"	1 3/16"	5.38"	6.28"	29	**76-583-4**	$1,992.45

Cradle Style Angle Vises

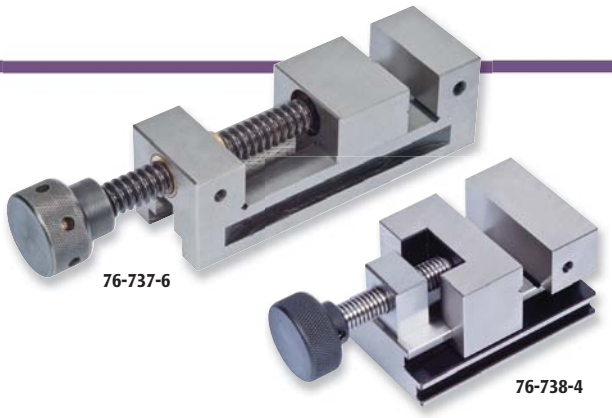
- Quick set-up tool-less locking with pin stops at 0°, 15°, 30°, 45°, 60°, 75°, and 90°.
- Scale indexed in 1° increments from 0° to 90°.
- Cradle has a 90° vertical scale in 1° graduations.
- Jaw surface is square to 0.002".
- Hand tightening mechanism allows secure locking in all positions.
- Base has 1/2" shoulder slots for bolting.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	3"	1 1/8"	4 1/8"	8 5/8"	14	**76-584-2**	$73.55
4"	4"	1 1/2"	4 1/2"	9 7/16"	20	**76-585-9**	96.40

MACHINE ACCESSORIES

TOP QUALITY
Toolmaker's Vises

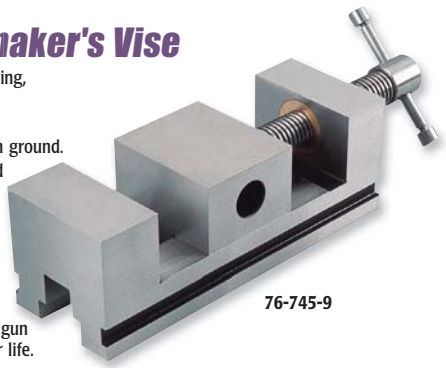
JAW W	JAW OPENING	JAW DEPTH	HEIGHT	WT. (LBS.)	SURFACE HARDENED TO	PARALLELISM	SQUARENESS	PART NUMBER	PRICE
2"	2 1/2"	1"	2"	6.6	RC 50-55	0.00012"	0.0002"	**76-737-6**	$299.90
2 13/32"	1 1/4"	1"	2"	3.5	RC 58-62	0.00008"	0.00008"	**76-738-4**	811.25
2 1/2"	3"	1 1/4"	2 1/2"	8.3	RC 50-55	0.00012"	0.0002"	**76-739-2**	407.30
2 3/4"	4"	1 3/16"	2 7/16"	14.0	RC 56-58	0.00012"	0.0002"	**76-741-8**	875.35
2 7/8"	3 3/4"	1.35"	2.8"	11.5	RC 55-60	0.00012"	0.0002"	**76-742-6**	405.55
2 7/8"	3 7/8"	1 3/8"	3"	12.0	RC 50-55	0.0001"	0.0002"	**76-743-4**	487.45
4"	5"	1.7"	3.7"	28.0	RC 50-55	0.00012"	0.0002"	**76-744-2**	629.65


76-737-6

76-738-4

TOP QUALITY
Precision Steel Toolmaker's Vise

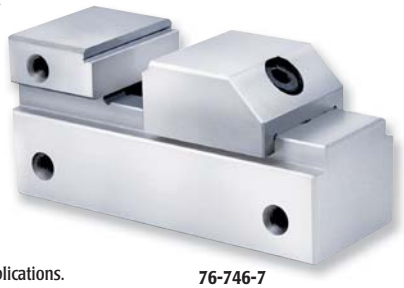
- Use in tool manufacturing on grinding, milling, engraving and jig boring machines.
- Use in layout work on surface plates.
- Made from selected tool steel and precision ground.
- Solid one piece body construction hardened (55-60 RC) and tempered for stability.
- Movable jaw is slightly narrower than the base allowing the vise to be used on either side and on the base.
- Screw type clamping is through a threaded spindle with precision cut square threads.
- Vise spindle moves in a specially designed gun metal bushing for reduced wear and longer life.


76-745-9

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	WEIGHT LBS.	PART NUMBER	PRICE
2 3/4"	3"	1 9/16"	4 1/4"	12.3	**76-745-9**	$499.95

TOP QUALITY
Precision Toolmaker's Insert Vises

- Vise is designed to be placed into a larger vise for working with very small work pieces.
- Suitable for use in EDM applications.


76-746-7

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
1"	13/16"	3/8"	1 1/4"	2.55	1	**76-746-7**	$112.55
1"	13/16"	3/8"	1 3/16"	2.55	1	**76-748-3***	180.20

*Stainless Steel

SHOP GRADE
Mini Precision Vise

- 440 Stainless Steel. Hardness 56 RC.
- Ideal for wire-cut & drill-type EDM, where water is used as dielectric fluid.
- Squareness and parallelism within 0.0002".


57-036-6

JAW WIDTH	JAW HEIGHT	JAW OPENING	JAW LENGTH	PART NUMBER	PRICE
15/16"	0.40"	1/2"	2 1/2"	**57-036-6**	$135.90

TOP QUALITY
Precision Toolmaker's Vises

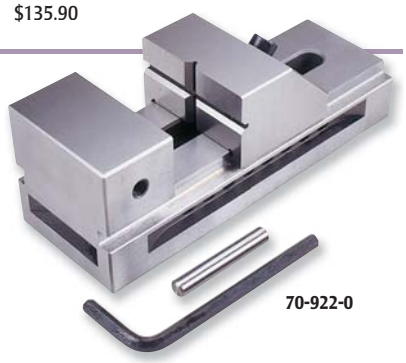

76-749-1

- Parallelism: within 0.00012"
- Squareness: within 0.00020"

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2"	2 1/2"	1"	2"	5 1/2"	4	**76-749-1**	$173.35
3 1/2"	5"	1 3/4"	3 1/2"	9 1/4"	16	**76-750-9**	388.05

SHOP GRADE
Precision Screwless Vises

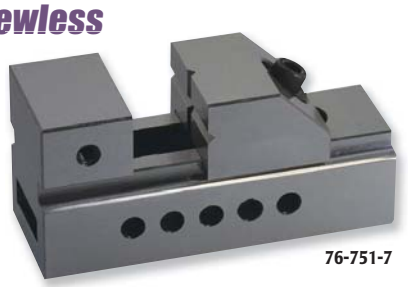
- A quality precision screwless vise made from tool steel.
- Heat treated to 58-62 RC.
- Each part is precision ground square and parallel to 0.0002" including the jaws and vertical vees.


70-922-0

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2"	2 1/2"	1"	2"	5 1/2"	4	**70-921-2**	$139.80
2 1/2"	3 3/8"	1 1/4"	2 1/2"	7"	4 1/2	**70-922-0**	190.80
2 7/8"	4"	1 1/2"	3.40"	8"	10	**70-918-8**	199.70
2 7/8"	4"	1 3/8"	2 5/8"	7 1/2"	8.90	**70-919-6**	214.20
3 1/2"	4 7/8"	1 9/16"	3.30"	9 1/4"	16	**70-923-8**	366.60
4"	4 7/8"	1 3/4"	3 1/2"	9 5/8"	23	**70-924-6**	411.60

TOP QUALITY
Precision Screwless Vises

- High precision screwless vises are suitable for all machining operations.
- Made from heat treated tool steel.
- Hardened to RC 55 - 60.


76-751-7

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
1"	1 1/2"	0.787"	1.890"	4.0"	2.20	**76-751-7**	$202.20
2"	3"	0.984"	2.087"	5.9"	3.96	**76-752-5**	203.60
3"	4"	1.378"	2.756"	7.6"	9.46	**76-754-1**	238.95
3"	5"	1.575"	3.150"	9.4"	16.50	**76-755-8**	395.10
4"	6"	1.772"	3.543"	9.8"	22.00	**76-756-6**	503.95
5"	6"	1.969"	3.937"	11.4"	33.00	**76-757-4**	861.10
6"	7"	1.969"	3.937"	13.2"	44.00	**76-758-2**	1,023.75

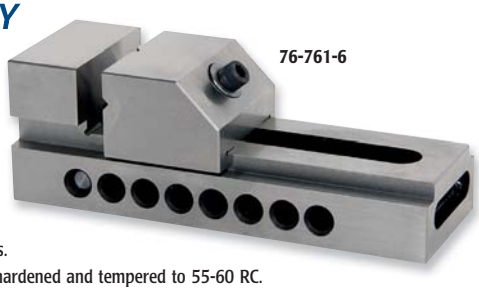
TOP QUALITY Precision Vises


76-759-0

- Made of case hardened steel.
- Holes and locking set screw allow for adjustable positions.
- One piece body construction.
- Vees in sliding jaw square and parallel to ±0.0005".

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2"	2 3/8"	2 1/2"	1.96"	5 1/2"	4.4	**76-759-0**	$94.55
3"	3 3/8"	4"	2.60"	7 1/2"	9.0	**76-760-8**	158.45

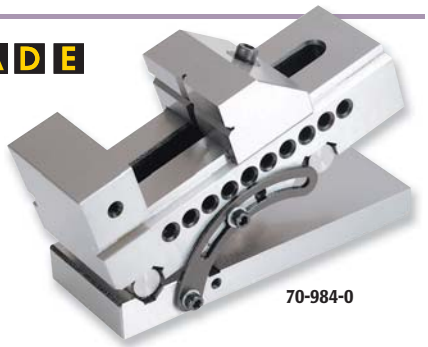
TOP QUALITY Super Precision Toolmaker's Screwless Vises


76-761-6

- Rapid positioning notches.
- Selected tool steel, fully hardened and tempered to 55-60 RC.
- Precision ground surfaces.
- Movable jaw is slightly narrower than the base, enabling the vise to be used on either side in addition to the base.
- Horizontal and vertical Vee grooves in the sliding jaw for holding of round jobs.
- Jaw pressure on workpiece is forward and downward for repeatable positioning and maximum holding power.

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
2"	3 1/8"	1"	2"	5 1/2"	3.96	**76-761-6**	$233.00
3"	3 3/4"	1 3/8"	2 1/2"	7"	7.04	**76-762-4**	326.35

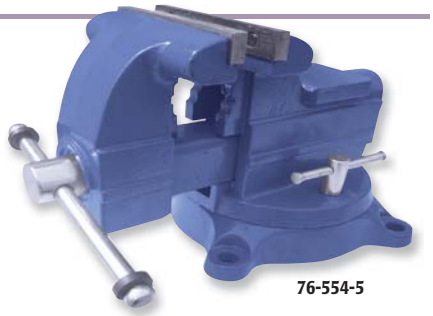
SHOP GRADE Super Precision Sine Vise


70-984-0

- Made from fine quality alloy steel, heat treated to 58 - 62 RC.
- Parallelism and squareness: 0.0004".

JAW WIDTH	JAW OPENING	JAW DEPTH	HEIGHT	OVERALL LENGTH	WEIGHT LBS.	PART NUMBER	PRICE
3"	4"	1 1/4"	3 5/8"	7 1/2"	17.8	**70-984-0**	$234.15

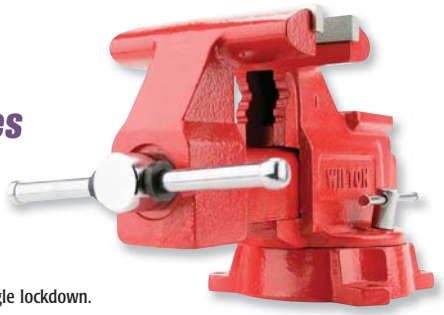
TOP QUALITY Utility Bench Vises


76-554-5

- Cast Iron.
- Replaceable steel top jaws.
- Built-in pipe jaws.
- Single lockdown.
- 180° locking swivel base.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
4 1/2"	4"	2 5/8"	1/8"	2"	16	**76-554-5**	$118.70
5 1/2"	5"	3 7/16"	1/8"	2 1/2"	35	**76-555-2**	119.00
6 1/2"	5 1/2"	3 11/16"	1/8"	2 1/2"	44	**76-556-0**	155.95
6"	6"	4 3/16"	1/8"	3"	66	**76-557-8**	245.10
8"	7 1/2"	4 1/2"	1/8"	3"	80	**76-558-6**	274.85

WILTON Utility Bench Vises


76-505-7

- Rugged 30,000 psi ductile iron casting.
- Large anvil for forming and shaping materials.
- Replaceable steel serrated jaws.
- Built-in pipe jaws.
- 180° locking swivel base with single lockdown.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
4 1/2"	4"	2 5/8"	1/8"	2"	20	**76-505-7**	$118.15
5 1/2"	5"	3 1/4"	1/8"	2 1/2"	29	**76-506-5**	146.95
6 1/2"	5 1/2"	3 13/16"	1/8"	2 1/2"	42	**76-507-3**	203.45
6 1/4"	6"	4 3/16"	1/8"	3"	64	**76-508-1**	273.80
8"	7 1/2"	4 1/2"	1/8"	3"	86	**76-509-9**	385.55

SHOP GRADE Workshop Bench Vises


76-682-4

- Removable hardened steel jaw faces.
- Baked enamel finish.
- Locking swivel base.

JAW WIDTH	JAW OPENING	THROAT DEPTH	WT. LBS.	PART NUMBER	PRICE
4"	3 1/2"	2.3"	20	**76-682-4**	$70.90
5"	4"	2.7"	27	**76-683-2**	80.40
6"	5"	3"	42	**76-684-0**	111.05

TOP QUALITY Workshop Bench Vises


76-692-3

- Cast Iron.
- Replaceable steel top jaws
- Built-in pipe jaws
- Double lockdowns
- 360° locking swivel base

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WT. LBS.	PART NUMBER	PRICE
4"	4"	2 3/4"	5/8"	2"	22	**76-692-3**	$61.80
5"	5"	3"	5/8"	2 3/8"	31	**76-693-1**	71.25
6"	6"	3 1/2"	5/8"	2 1/2"	42	**76-694-9**	127.10
8"	8"	4"	5/8"	3"	70	**76-695-6**	157.50

WILTON Workshop Bench Vises

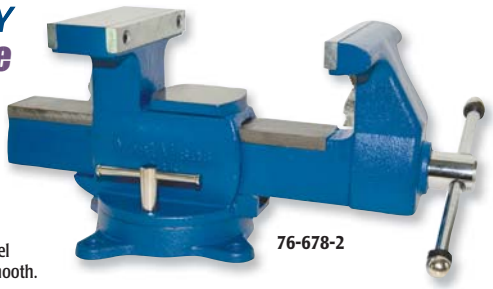

76-550-3

- Cast Iron.
- Replaceable serrated top jaws.
- Built-in pipe jaws.
- Double lockdowns.
- 360° locking swivel base.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	2 3/4"	5/8"	2"	23.2	**76-550-3**	$126.95
5"	5"	3"	5/8"	2 3/8"	30.1	**76-551-1**	146.35
6"	6"	3 1/2"	5/8"	2 1/2"	45.7	**76-552-9**	194.10
8"	8"	4"	3/4"	3"	70.4	**76-553-7**	260.95

MACHINE ACCESSORIES

Top Quality Multi-Purpose Mechanic's Bench Vises

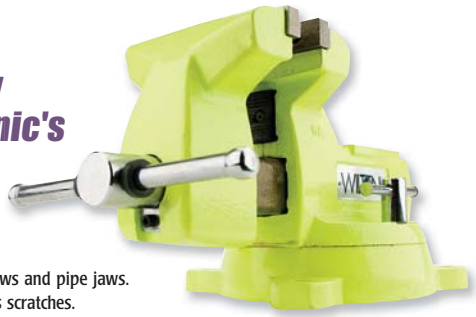


76-678-2

- Reversible front jaw.
- 360° swivel base with 2 lockdowns.
- Replaceable hardened steel top jaws; serrated and smooth.
- Replaceable hardened steel serrated pipe jaws are removable and designed to securely grip pipe.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
5 1/2"	6"	3 3/4"	1/8"	3"	50	**76-677-4**	$143.15
6 1/2"	11"	4"	1/8"	3 1/2"	53	**76-678-2**	426.25
8"	13"	4 3/4"	1/8"	3 1/2"	77	**76-679-0**	562.75

WILTON High-Visibility Safety Mechanic's Bench Vises



76-675-8

- OSHA safety color.
- 360° swivel base and double lockdowns.
- Replaceable serrated top jaws and pipe jaws.
- Tough durable finish resists scratches.
- Straight line totally enclosed spindle and nut.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
5"	5 1/4"	3 3/4"	1/4"	2 1/2"	50	**76-675-8**	$302.00
6"	5 3/4"	4 1/8"	1/4"	3 1/2"	64	**76-676-6**	510.00

WILTON Heavy-Duty Mechanic's Bench Vises



76-666-7

- Heavy-Duty 30,000 psi casting.
- Replaceable hardened steel top and pipe jaws.
- Large anvil work surface.
- Rotates 360° and has double lockdowns for maximum stability.
- Powder coated paint resists scratches and provides a tough durable finish.
- Sealed spindle protects all moving parts from dust and moisture.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
4"	4 1/2"	3 7/16"	1/4"	2"	37	**76-666-7**	$221.15
5"	5 1/4"	3 3/4"	1/4"	2 1/2"	53	**76-667-5**	308.10
6"	5 3/4"	4 1/8"	1/4"	3 1/2"	69	**76-668-3**	404.60
8"	8 1/4"	4 3/4"	1/4"	3 1/2"	92	**76-669-1**	637.40

Top Quality Mechanic's Bench Vises



76-610-5

- Cast Iron.
- Replaceable hardened steel top and pipe jaws.
- Large anvil work surface.
- Rotates 360° and has double lockdowns for maximum stability.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
4"	4 1/2"	3 7/16"	1/4"	2"	38	**76-610-5**	$114.10
5"	5 1/4"	3 3/4"	1/4"	2 1/2"	52	**76-611-3**	166.25
6"	5 3/4"	4 1/8"	1/4"	3 1/2"	64	**76-612-1**	278.85

Top Quality High-Visibility Safety Mechanic's Bench Vises



76-670-9

- 360° swivel base with 2 lockdowns.
- Replaceable hardened steel serrated jaws.
- Permanent pipe jaws.
- OSHA safety color.

JAW WIDTH	JAW OPENING	THROAT DEPTH	PIPE CAPACITY MIN.	PIPE CAPACITY MAX.	WEIGHT LBS.	PART NUMBER	PRICE
4"	4"	2 1/4"	1/4"	1 1/2"	19	**76-670-9**	$119.95
5"	5"	2 5/8"	1/2"	1 1/2"	27	**76-671-7**	158.05
6"	6"	3"	1/2"	2"	36	**76-672-5**	202.55
8"	8"	3 1/2"	3/4"	2 1/4"	49	**76-673-3**	291.70
10"	10"	4"	7/8"	2 5/8"	59	**76-674-1**	409.20

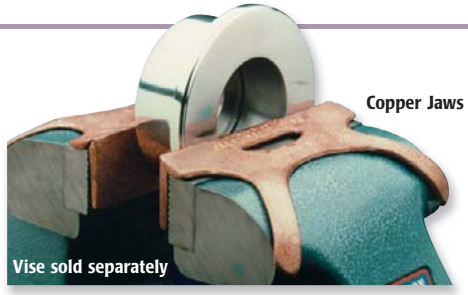
PANAVISE®



70-912-1

- Tilt, turn and rotation, all controlled by just one convenient knob and split ball feature.
- Vise head and locking unit independently rotate 360°.
- Tilt action 180° to any position from horizontal to vertical.
- Robust vise with replaceable nylon jaws.
- Jaw width 2 1/2". Jaw opening 2 1/4".
- Overall height 6 3/4". Base dia. 5".
- Three lugs in base provides easy, permanent bench mounting or optional baseplate mounting.
- Attractive gray/green hammertone finish.

DESCRIPTION	PART NO.	PRICE
Panavise with Nylon Jaws	**70-912-1**	$79.95
Baseplate 8 1/2" dia.	**70-913-9**	32.45
Pair of Nylon Jaws	**70-914-7**	6.15
Pair of Plated Steel Jaws	**70-915-4**	13.15



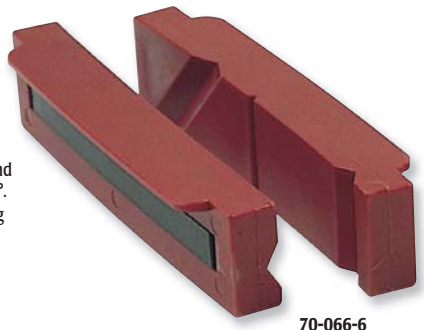
WILTON Copper Jaws for Bench Vises

- Prevents marring the surface of softer metals and to protect jaw faces.
- Jaw caps have polished faces and pliable copper extentions for sure grip fit on any make vise.
- Fits any bench vise 3" - 8".

JAW WIDTH	PART NUMBER	PRICE PER PAIR
3"	**76-620-4**	$36.40
3 1/2"	**76-621-2**	42.00
4"	**76-622-0**	52.90
4 1/2"	**76-623-8**	54.10
5"	**76-624-6**	76.90
8"	**76-626-1**	149.40

FLEXBAR

Magnetic "Soft Jaw" Vise Liners



70-066-6

- 5" long for use on all vises.
- One jaw has horizontal Vee-groove, second jaw has 2 vertical Vee's plus 1 Vee at 45°.
- Overlap configuration for easy positioning to assure parallel set-up.
- Nylon material.
- Length of jaw: 5".
- Priced per pair.

DESCRIPTION	PART NO.	PRICE
Magnetic "Soft Jaw" Vise Liners	**70-066-6**	$21.15

Soft Jaws

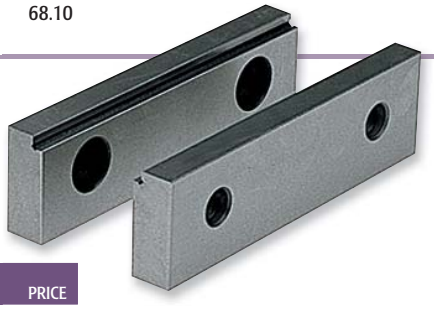


- Fits Kurt Anglock, SPI Lock-Tight and Parlec vises.
- Made of 6061 Aluminum, precision machined.
- Ideal for quick and easy NC or manual set-ups, reduces down time.
- Reusable, economical.
- Priced per pair.

VISE SIZE	JAW DIMENSIONS	PART NO.	PRICE
4"	5/8 x 1 1/4 x 4 1/16"	**70-952-7**	$31.90
5"	3/4 x 1 1/2 x 5 1/8"	**70-953-5**	31.90
6"	3/4 x 2 x 6"	**70-954-3**	34.60
8"	1 1/8 x 2 1/4 x 8 1/8"	**70-955-0**	68.10

Step Jaws

For Precision Economy Vises



- Adds flexibility in clamping of workpieces.
- Hardened and ground finish.
- Priced per pair.

VISE SIZE	STEP DIMENSION WIDTH	STEP DIMENSION DEPTH	PART NUMBER	PRICE
4"	.138"	.157"	**76-605-5**	$84.55
5"	.138"	.157"	**76-606-3**	121.30
6"	.177"	.197"	**76-607-1**	225.35
8"	.216"	.236"	**76-608-9**	213.30

Millsoft Vise Jaws

Fits Kurt Anglock & Chick Vises



- Steel vise jaws made from C1018 cold roll steel (can be hardened by user).
- Aluminum vise jaws made from 6061-T6 bar stock.
- Priced per pair.

VISE SIZE	HEIGHT	LENGTH	WIDTH	STEEL PART NO.	STEEL PRICE	ALUMINUM PART NO.	ALUMINUM PRICE
4"	1 1/2"	4"	3/4"	-	-	**70-740-6**	$59.65
4"	1 1/2"	4 1/8"	1"	**70-736-4**	$27.60	**70-741-4**	25.60
4"	1 3/4"	4 1/8"	3"	**70-737-2**	43.80	**70-742-2**	25.60
6"	2"	6 1/8"	1"	**70-738-0**	45.50	**70-743-0**	46.55
6"	2"	6 1/8"	1 1/2"	**70-739-8**	70.95	**70-744-8**	53.20
6"	2"	6 1/8"	2"	-	-	**70-745-5**	63.40
6"	2 1/2"	6"	1"	-	-	**70-746-3**	70.80
6"	3"	6"	1"	-	-	**70-747-1**	76.95
6"	3"	6"	1 1/2"	-	-	**70-748-9**	78.35
8"	2 1/2"	8 1/8"	1"	-	-	**70-749-7**	56.15
8"	2 1/2"	8 1/8"	1 1/4"	-	-	**70-750-5**	67.40



31-480-7

Stop-Loc

Collet/Chuck Stop

A Lathe & Mill Vise Tool

Stop-Lock-Remove and You're Ready to Machine

- For CNC and manual lathes and milling machines.
- Self-centering.
- Unobstructed viewing.
- Mill both sides of your stock without a stop in the way.
- Change dull drills (up to 3/4" dia.) in your turret.
- Also great as a ruler for visual reference.
- Gage lengths up to 5 1/2" long.
- Can be used on all stock shapes up to 3" round.

DESCRIPTION	PART NO.	PRICE
Collet/Chuck Stop	**31-480-7**	$19.95

SHOP GRADE

Mill Stop



77-018-0

- Provides rigid placement stop for milling set-ups when using vises or angle plates.
- Can be used as holder for spray mist.
- 1/2" hole for T-Slot.
- 3/8" dia. rod with 1/4" step.

DESCRIPTION	PART NO.	PRICE
Mill Stop	**77-018-0**	$25.35



MADE IN USA

58-815-2

Mill Stop

- Rigid placement stop for milling set-ups with vises or angle plates.
- Use as holder for spray mist.
- 1/2" hole for T-Slot machine mounting
- 3/8" dia. rod with 1/4" step.
- 10" stop rod.
- Base dimensions: 2" x 4 1/2".
- Overall Height: 7 1/4"

DESCRIPTION	PART NO.	PRICE
Mill Stop	**58-815-2**	$49.95

Milling Machine Vise Pivot Workstop

Unique Hinged Workstop



58-808-7

- Swing it out of the way for clearance.
- Accurately and quickly relocate the stop for repeat set-ups.
- Quick positioning.

DESCRIPTION	PART NO.	PRICE
Milling Machine Vise Pivot Workstop	**58-808-7**	$124.50

MACHINE ACCESSORIES



Work Stops

- Fits Kurt Anglock, SPI Lock-Tight, Parlec and Yuasa Acculock vises.
- Quick mounting, accurate, positive positioning for repetitive jobs.

DESCRIPTION	PART NO.	PRICE
For 3" to 4" Vises	**58-809-5**	$57.20
For 5" and 6" Vises	**58-810-3**	61.20
For 8" Vises	**58-811-1**	79.60

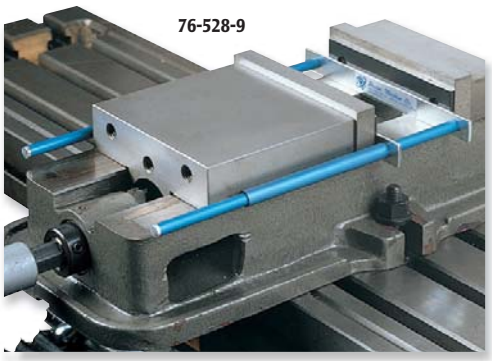
SHOP GRADE

5-Axis Milling Stop



- 5-Axis adjustment moves the stop to any position your job requires.
- The 1/4" stop rod can be modified, replaced or extended with a longer piece of bar stock.
- Locking lever can be positioned at 360° to avoid interference.
- T-Nut to fit 5/8" table slots.

DESCRIPTION	PART NO.	PRICE
5-Axis Milling Stop	**95-111-1**	$149.95



Parallel Separator

- Spring loaded Parallel Separator holds parallels securely in place.
- Can be used on vises up to 6" jaw width.
- Eliminates the frustrating, repetitive and time consuming job of repositioning parallels.

DESCRIPTION	PART NO.	PRICE
Parallel Separator	**76-528-9**	$68.95







Work Stops

Standards For Various Brand Machine Vises

- Spring loaded work stop clamp for vises with a minimum protrusion of 1/16".
- Hardened steel body with 2 hardened guide pins.

RANGE	WIDTH	HEIGHT	STEP	PART NO.	PRICE
3/8" - 3/4"	1"	.38"	.28"	**70-945-1**	$21.50
1/2" - 7/8"	1 1/2"	.50"	.38"	**70-949-3**	21.50

For narrow jaws, less than 1/2" (70-945-1) and less than 5/8" (70-949-3), the spring has to be removed.

Deluxe Workstops

- Two ground pins, one on each end, for positive location.
- Two movable steel balls, activated by 2 thumbscrews, provide positive clamping power.
- Hard anodized aluminum body.

DESCRIPTION	PART NO.	PRICE
Work Stop for 3/4" Thick Jaws	**70-950-1**	$29.30
Work Stop for 7/8" Thick Jaws	**70-951-9**	29.30

TOP QUALITY Quickie Vise Handles

- Speeds up opening and closing of machine vises.
- Provides faster and more efficient production.
- Fits all vises with 3/4" hex.
- Short turning radius for clamping of more delicate parts.
- Machined anodized aluminum.
- Use permanently on CNC vises and with any standard handle.







DESCRIPTION	PART NO.	PRICE
Single Position Quick Handle	**76-424-1**	$19.58
Double Position Quick Handle	**76-425-8**	34.90



TOP QUALITY Speed Handles

A True Time Saver

- Fits all standard vises and will facilitate fast opening and closing of jaws.

SIZE	HEX SIZE	PART NUMBER	PRICE
4"	9/16"	**70-137-5**	$29.95
5"	5/8"	**70-138-3**	29.95
6"	3/4"	**70-179-7**	29.95
8"	7/8"	**70-139-1**	29.95

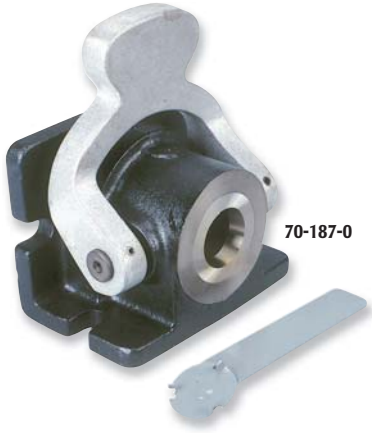
SHOP GRADE

Horizontal & Vertical 5C Collet Fixture

Uses 5C Collets

- Hardened and ground spindle.
- Two position heavy casting.
- Collets are held dead length.
- Quick acting lever.
- Height: 4".
- Base: 6" x 4 1/2".

DESCRIPTION	PART NO.	PRICE
5C Collet Fixture	**70-187-0**	$187.95



KALAMAZOO INDUSTRIES, INC.

5C Collet Fixture for Chucks

- For short runs using a 5C collet.
- Lock and release at the front.
- Heavy-duty.
- All steel hardened and ground.
- Drilled and tapped holes at rear of collet chuck for mounting to a plate.
- Hex key included.
- Size: 3" W x 3½" L

Pin and collet not included



70-221-7

DESCRIPTION	PART NO.	PRICE
5C Collet Fixture for Chucks	**70-221-7**	$526.31

SHOP GRADE

Horizontal/Vertical 5C Collet Fixture

Change Collets Quickly and Easily

- Max capacity: 1⅛"
- Cam for positive lock and release of collet.
- Retains positive relation to base.
- Can be adjusted or changed without disturbing set-up.
- 4" H x 5" W x 3¾" L



78-310-0

DESCRIPTION	PART NO.	PRICE
Horizontal/Vertical 5C Collet Fixture	**78-310-0**	$163.05

5C Collet Fixture – Horizontal & Vertical

- Holds all 5C collets.
- Cam-operated sleeve for opening and closing standard 5C collets.
- Collet remains in fixed position for positive depth control.
- Spring loaded handle can be indexed to any desired position for safety and ease of operation while mounted vertically or horizontally.
- Max capacity: 1 1/16"
- Size: 4" H x 5" W x 3¾" L



59-041-4

DESCRIPTION	PART NO.	PRICE
5C Collet Fixture	**59-041-4**	$390.75

KALAMAZOO INDUSTRIES, INC.

Horizontal & Vertical 5C Collet Fixture

Uses 5C Collets

- Hardened and ground spindle.
- Two position heavy casting.
- Collets are held dead length.
- Quick acting lever.
- Max capacity: 1⅛"
- Height: 4".
- Base: 6" x 4½".



70-188-8

DESCRIPTION	PART NO.	PRICE
5C Collet Fixture	**70-188-8**	$398.35

Vertical 5C Collet Vise

Uses 5C Collets

- Mounted on ground flat base for vertical use only.
- Uses any standard 5C collet for a capacity up to 1⅛" round.
- Also accepts hex and square collets.
- Height: 4⅜".
- Small movement of lever opens and closes collet.



34-871-4

DESCRIPTION	PART NO.	PRICE
Vertical 5C Collet Vise	**34-871-4**	$89.95

Vertical & Horizontal 5C Collet Vise

- Uses any standard 5C collet, for a capacity up to 1⅛" round.
- A small movement of the lever opens and closes the collet.
- Mounted on an angle plate, this may be used in either a vertical or horizontal position.



32-569-6

DESCRIPTION	PART NO.	PRICE
Vertical & Horizontal 5C Collet Vise	**32-569-6**	$114.95



34-870-6

SHOP GRADE

5C Positive Lock Collet Fixture

- Uses standard 5C collets.
- Collet does not move up or down.
- Retains positive relation to base.
- With cam lock and positive release.
- Can be adjusted or changed without disturbing set-up.
- Max capacity: 1⅛"

HEIGHT	BASE	PART NO.	PRICE
3¾"	5¼" x 3⅝"	**34-870-6**	$119.95

SHOP GRADE

5C Collet Block Chucks & Set

- Uses all standard 5C type collets.
- Made with square and hex bodies.
- Used for machining round, square, or hex shaped parts or cross drilling at 60° or 90° intervals.
- Blocks are supplied with standard ring closer.
- Quick acting cam lever closer available, optional.
- Blocks can be held directly on a magnetic chuck or in a vise.
- Hardened tool steel.
- Capacity: 1/16" - 1⅛".
- Accuracy: Precision ground square and parallel to ±0.0005".

Set of Block Chucks (Collets not included)



34-976-1

34-975-3

34-977-9

DESCRIPTION	PART NO.	PRICE
Square with Standard Closer	**34-975-3**	$59.00
Hex with Standard Closer	**34-976-1**	59.00
Quick Acting Lever Collet Closer	**34-977-9**	35.25
Complete Set of All Three	**34-978-7**	129.55

22 Pc. Collet Block Chuck & 5C Collet Set

Set includes:

- 3 collet block chucks.
- 18 Pc. 5C collets: 1/16" - 1⅛".
- 1 - 72 Pc. Collet rack.

DRAWBAR THREAD	FACE DIA.	BODY LENGTH	PART NUMBER	PRICE
1.47 x 24	1 15/32"	3 9/32"	**34-979-5**	$255.10

MACHINE ACCESSORIES

Harig

Uni-Dex 5C Collet Indexing Fixture



- Ultra-precise, for efficient use in drilling, boring, milling, grinding, EDM and inspection.
- One-piece, hardened steel body.
- Ball and race integral preloaded bearing for high concentricity and minimum deflection.
- Dial graduated 360° in 1° increments.
- Index pin and 24 division index plate for quick indexing every 15° to ± 15 seconds non-cumulative.
- Adjustable stop and pin for precise positioning with sine arrangement for locating between indexes.
- One 1/2" dia. 5-C Collet included.

CENTER HEIGHT	THROUGH HOLE Ø	HUB DIA.	HEIGHT	LENGTH	BASE WIDTH	WEIGHT LBS.
3.0	1 1/4"	2.20	5"	3 1/16"	4 1/8"	10.5

DESCRIPTION	PART NO.	PRICE
Uni-Dex 5C Collet Indexing Fixture	**70-135-9**	$3,443.62
Face Plate, 5 1/4" dia.	**70-136-7**	267.65

SHOP GRADE
5C Spin Index Fixture & Set

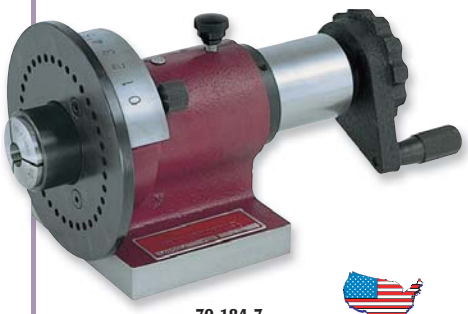


- A multi-purpose indexing fixture designed to extend the work capabilities of surface grinders, drill presses and all types of milling machines.
- Accepts 5C collets to 1 1/8" capacity.
- Indexing plate with precise 36 hole pattern.
- Base Size: 5" x 5".
- 10 vernier holes for 1° indexing.
- Spindle travels 2 1/16" for flute grinding.
- Hardened and ground spindle with lock.
- Specifications: Dividing Spindle Concentricity: 0.0004" Cylindrical Center Bore (per 1") Concentricity: 0.0012" Spindle Center Line Parallelism to Base:0.0004"
- Set includes 5C collets 1/4, 3/8, 1/2, 3/4, 1"

DESCRIPTION	PART NO.	PRICE
5C Spin Index (Jig)	**65-094-5**	$112.30
5C Spin Index w/5C Collets	**65-194-3**	159.95

SUBURBAN

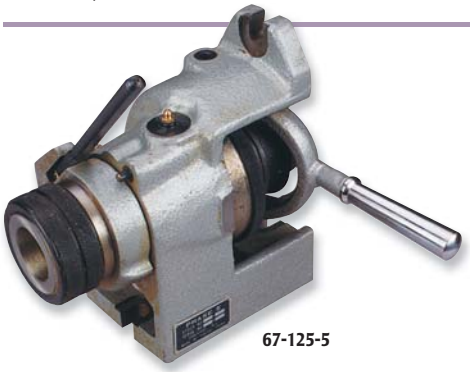
5C Spin-Dex



MADE IN USA

- Indexing and grinding fixture saves time and extends the capabilities on surface grinders, drill presses, milling machines and inspection equipment.
- Hardened and ground spindle, 0.0005" T.I.R.
- 1 1/4" through hole.
- 3 7/8" X 4 5/32" base ground parallel to spindle.
- 2 5/16" spindle travel for flute grinding.
- Square & Parallel: 0.0002"
- Indexing plate with 36 ground holes for direct indexing in 10° increments and graduations in 5° increments.
- 10 vernier holes for 1° indexing.
- Center height: 2 3/4".
- Sides of base ground parallel to spindle axis.

DESCRIPTION	PART NO.	PRICE
5C Spin-Dex	**70-184-7**	$905.70



phase II

Horizontal - Vertical 5C Collet Indexers

- Spindle is manufactured with tapered seat in body frame.
- Lever operated collet closer with 100:1 leverage ratio.
- Front mounted ratchet control for rapid indexing.
- Furnished with a 24 space indexing plate.
- Dividing spindle concentricity: 0.0002".
- Cylindrical center bore (per 1"): 0.0008".
- Spindle centerline parallelism: 0.0008".
- Base to face squareness: 0.0008".
- Center slot to dividing spindle concentricity: 0.0008".
- Lateral offset of center slot of dividing spindle: 0.0008".
- Max capacity: 1 1/8"

DESCRIPTION	TYPE OF DESIGN	PART NO.	PRICE
Indexer	Single Lever	**67-125-5**	$518.35
Tailstock		**67-126-3**	318.75

SUBURBAN

Mini-Master™ Spin Index Fixture



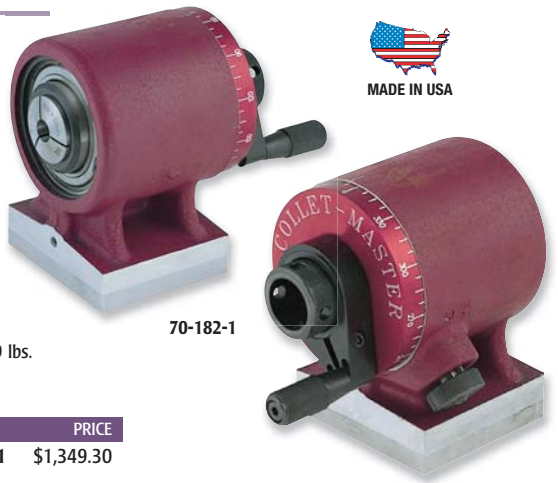
- 72-Position index plate allows a hard stop every 5° ±15 arc seconds.
- Uses standard ER-25 collets.
- Max. spindle runout: 0.0002" T.I.R.
- 5/8" Through hole.
- 1 7/8" Center height.
- 3" Height is ideal for small machine setups.
- Base is ground square and parallel with spindle axis within 0.0002".
- Weight: 4 lbs.
- Fitted wooden case and collet wrench included.

DESCRIPTION	PART NO.	PRICE
Mini Master™ Index Fixture	**70-240-7**	$1,009.20

SUBURBAN

Collet - Master

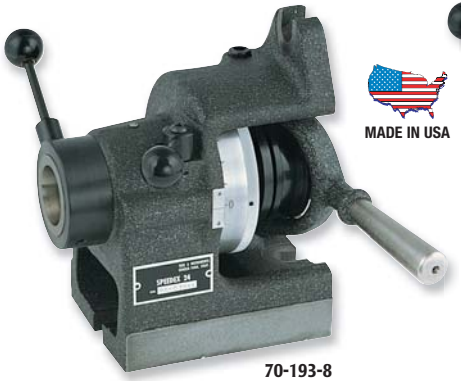
5C Spin-Indexing & Grinding Fixture



MADE IN USA

- The ideal fixture for grinding cylindrical, angular and concentric forms on punches, etc.
- Uses all standard 5C collets.
- 48 index positions, accuracy ±45 seconds.
- Spindle runs on two sealed, preloaded ball bearings within 0.0001" T.I.R.
- 1 1/4" through hole.
- Hardened base, 3 3/4" x 3 1/2", is ground square and parallel to spindle within 0.0002".
- Center height: 3 5/8", overall height: 5 1/2", weight: 9 lbs.
- Overall length: 6 1/2".
- Collet draw bar and fitted case included.

DESCRIPTION	PART NO.	PRICE
5C Spin-Indexing & Grinding Fixture	**70-182-1**	$1,349.30



70-193-8

MADE IN USA



70-194-6

FINN

SPEED-DEX 24

5C Precision Indexing Fixture

- For vertical or horizontal use.
- 5C collet spindle hardened and precision ground.
- Spindle accuracy: 0.0005".
- 24 position index plate, hardened & precision ground for 2, 3, 4, 6, 8, 12 and 24 divisions.
- Exclusive ratchet lever design for convenient indexing in either direction as well as for direct engagement.
- Blockouts for odd or even indexing in any 15° increment.
- Center height: 4".
- Capacity: 1 1/8".
- Chuck adapters are hardened and ground on all critical dimensions. They offer complete seating and secure locking into 5C collet shank hole.

DESCRIPTION	PART NO.	PRICE
Speed-Dex 24	**70-193-8**	$1,720.45

FINN

SPEED-DEX 360

5C Precision Indexing Fixture

- One degree indexing. Fully engraved dial: 0 - 360°.
- Multiple teeth engaged for extreme index accuracy.
- Hardened and ground index wheel and taper plunger.
- For vertical or horizontal use.
- 5C collet spindle hardened and precision ground.
- Exclusive ratchet lever design for convenient indexing in either direction as well as for direct engagement.
- Center height: 4".
- Capacity: 1 1/8".
- 4" x 5" base with 5/8" key.
- Chuck adapters are hardened and ground on all critical dimensions. They offer complete seating and secure locking into 5C collet shank hole.
- Patent No. 3661403.

DESCRIPTION	PART NO.	PRICE
Speed-Dex 360	**70-194-6**	$1,882.85



52-332-4

Punch Former & Radius Wheel Dresser

- Maximum diameter workplace: 32 mm (1 1/4").
- V-Block: 30 mm (1 3/16").
- Center Height: 80 mm (3 1/2").
- V-Block adjusting system: rack & pinion.
- Indexing divisions: 24 (every 15°) ±10 seconds.
- Angle setting: by sine system – gage blocks.
- Roundness: 0.002 mm (0.0001").
- Parallelism: within 0.002 mm/100 mm (0.0001" in 4").
- Squareness: within 0.005 mm/100 mm (0.0002" in 4").
- Construction: hardened tool steel throughout.
- Dressing arm included.
- Weight: 7.7 kg (17.0 lbs.).

DESCRIPTION	PART NO.	PRICE
Punch Former & Radius Wheel Dresser	**52-332-4**	$1,240.00

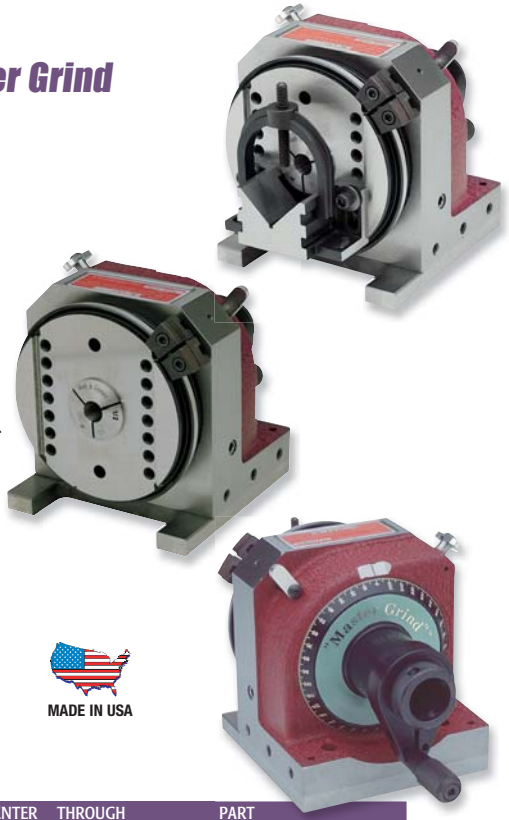
Accessories

DESCRIPTION	PART NO.	PRICE
Replacement Dressing Arm	**52-333-2**	$199.00
Angle Block Attachment	**52-334-0** *	199.00

* Makes angle tangent to radius

SUBURBAN

Sine System Master Grind



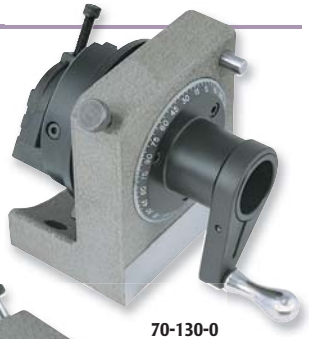
- Designed and built for grinding round and angular shaped parts, forms on punches, EDM electrodes, etc.
- Multi-purpose high precision grinding jig.
- Greater versatility. 5C Collet adapter and v-block setup in one fixture.
- Extra large v-block capacity of 1 5/8".
- V-Block and clamp included.
- Collet draw tube for all 5C collets included.
- 72 position index plate for quick, hard index every 5° ±15 arc seconds.
- Built-in sine bar with 2 stops to accurately set angles between hard index locations.
- Dial graduated 360° in 1° increments.
- Double row tapered roller bearings: 4" dia.
- Spindle runout maximum: 0.00005".
- All faces hardened and precision ground square and parallel within 0.0002".
- Compatible with the popular SPI Sine System 1.
- Supplied complete in fitted wooden case.

MADE IN USA

SINE SYSTEM	DIMENSIONS	CENTER HEIGHT	THROUGH HOLE	WEIGHT	PART NUMBER	PRICE
1	5 3/16" Lg. x 5" x 5 1/2" H	3"	1 1/4"	22 lbs.	**77-460-4**	$2,962.35

Harig

Universal Grinding Fixture



70-130-0

- Ideal for grinding various shaped punches and for convenient use in inspection, light milling, jig-boring, jig-grinding, radius dressing and machining electrodes.
- One-piece, hardened steel body.
- Ball and race integral preloaded bearing for high concentricity and minimum deflection.
- Dial graduated 360° in 1° increments.
- 24 division index plate for quick indexing every 15° to ± 15 seconds non-cumulative.
- Extra precise angular settings with the sine system, using adjustable stop and pin provided.
- V-Block adjusting screw for easy positioning to ±0.0001".
- Single screw locks V-Block in place without deflection.



Radius Dresser Arm
70-131-8



V-BLOCK CAPACITY	CENTER HEIGHT	THROUGH HOLE Ø	HEIGHT	LENGTH	BASE WIDTH	WEIGHT LBS.
1 1/4"	3.00"	1 1/4"	5"	3 1/16"	4 1/8"	16

DESCRIPTION	PART NO.	PRICE
Universal Grinding Fixture	**70-130-0**	$4,192.65
Radius Dresser Arm	**70-131-8**	222.15
Face Plate, 6" dia.	**70-132-6**	308.00

MACHINE ACCESSORIES


76-003-3

SHOP GRADE
Standard Milling & Drilling Table

Low silhouette table for light-duty work. Table fastens readily to the machine by means of a central base bolt.

- Adjustable gibs.
- 0.100" per dial revolution.
- Rotatable and graduated 360°, locks by two set screws and internal locking shoes.
- 4⅝" diameter base with integral 1⅛" long base bolt for mounting.

TABLE W x L	HEIGHT	TRAVEL LONG	TRAVEL CROSS	WEIGHT LBS.	PART NUMBER	PRICE
7" x 7"	4¼"	5"	5"	18	**76-003-3**	$296.60


76-004-1

SHOP GRADE
Compound Slide Milling & Drilling Table

Table has a heavy-duty rugged slide used in all kinds of positioning, milling, drilling, microscope viewing and staging. Adjustable gibs for heavy loads.

- Locking screws allow table to lock in place.
- "U" slots for bolts up to ⅝".
- Cross travel: 7½".
- Long travel: 11"

TABLE W x L	HEIGHT	BASE W x L	T-SLOTS	WEIGHT LBS.	PART NUMBER	PRICE
6" x 19"	5"	8 x 10½"	9/16"	56	**76-004-1**	$307.15

SHOP GRADE
Adjustable 2MT Tailstock


70-189-6

- Solid cast iron body.
- Base dimensions 3¼" x 5⅛".
- Center travel 1".
- Center height 4" – adjustable 0.08".
- Weight 6 lbs.
- Ideal for use with Speed-Dex Indexing Fixtures.

DESCRIPTION	PART NO.	PRICE
Adjustable Tailstock	**70-189-6**	$162.75

SHOP GRADE
Tilting Angle Tables w/Swivel Bases
Save Set-Up Time


76-013-2

- Sturdy and rugged machined casting.
- Crank handle and worm gear swivels table 45° each side of vertical.
- Vernier on table calibrated in degrees.
- Table features 3 T-slots.
- 360° swivel base vernier calibrated in degrees.

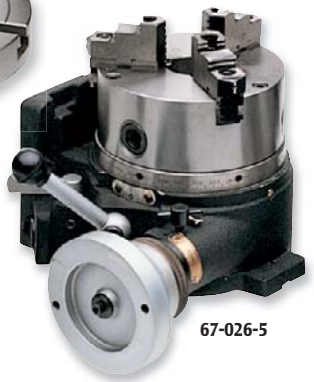
Approximate Dimensions

WIDTH *	OVERALL LENGTH	HEIGHT	T-SLOT	WEIGHT LBS.	PART NUMBER	PRICE
8.7"	10"	5.3"	0.393"	26	**76-011-6**	$1,395.65
12.0"	14"	7.3"	0.472"	88	**76-012-4**	1,939.70
17.2"	19"	9.4"	0.630"	221	**76-013-2** †	2,329.45

† Truck shipment.

SHOP GRADE
Super Spacers




67-026-5

- Reversible jaws.
- 360° graduated ring.
- 24 position master index plate with six masking plates included for rapid indexing for divisions of 2, 3, 4, 6, 8 and 12.
- 10 second vernier.
- Chuck and faceplate included.
- Indexing accuracy: 3 minute max.
- Indexing repeatability: 30 seconds.
- Squareness base to chuck: 0.0012" max.
- Parallelism of chuck face to base: 0.0008".
- Concentricity of mounting flange: 0.0008".
- Shipped via truck collect.

SIZE	CENTER HEIGHT	FACE PLATE	CHUCK CENT. HOLE	WT. LBS.	PART NUMBER	PRICE
8"	6.100"	10"	2.25	166	**67-026-5**	$2,378.15

24 Position Spacers
Common Features


51-206-1



- Direct indexing with 24 position master plate and 6 masking plates for 2, 3, 4, 6, 8 and 12 positions.
- Spindle lock for extra rigidity.
- 360° graduation with adjustable zero mark.
- Accurate to 5 minutes, repeatability 30 sec.
- 6½" dia. 3-jaw chuck with reversible top jaws.
- ⅝" key ways for alignment keys.
- Horizontal height: 6.14".
- Vertical center height: 5.12".
- Thru hole diameter: 1.73".

24 Position Super Spacer

- 8" diameter face plate included.
- 90:1 ratio worm gear with graduated micrometer drum for use as a rotary table.
- Adjustable vernier reading on micrometer drum 10 seconds.
- Horizontal height: 7.02".
- Weight: 105 lbs.
- Includes Common Features noted above.

DESCRIPTION	PART NO.	PRICE
24 Position Super Spacer	**51-206-1**	$1,901.50

24 Position Simple Spacer

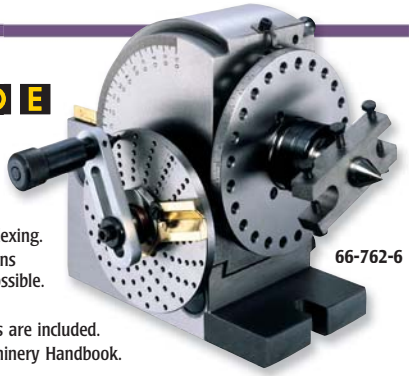
- Horizontal height 6.14".
- Includes Common Features noted above.
- Weight: 64 lbs.

DESCRIPTION	PART NO.	PRICE
24 Position Spacer	**51-250-9**	$1,026.80


51-250-9

SHOP GRADE

Semi-Universal Dividing Heads



66-762-6

- Can be used for direct and indirect indexing.
- Differential indexing from 2-50 divisions and certain numbers up to 380 are possible.
- Includes head, plates and tailstock.
- Instruction manual and indexing tables are included.
- Indexing tables also found in the Machinery Handbook.

SIZE	OVERALL LENGTH	WIDTH	HEIGHT	CENTER HEIGHT	TAPER SIZE (B&S)	WEIGHT LBS.	PART NUMBER	PRICE
8"	7.441"	5.512"	6.811"	3.94"	2MT	52	**66-762-6**	$1,053.60
12"	11.535"	6.142"	8.661"	5.04"	3MT	79	**66-763-4**	1,433.20
$10^{3}/_{32}$"	9.960"	6.420"	8.660"	5.04"	B&S #9	75	**66-764-2** *	1,113.50

*Truck Shipment

Ultra Short 3 Jaw Scroll Chucks

Type JF 3D 3 Jaw 2 3/4" Dia. with Hardened, Reversible Jaws



70-225-8

Swiss Made

Outside diameter over knurled clamping ring	$2^{27}/_{32}$"
Height of chuck	$^{5}/_{8}$"
Jaw height	$^{7}/_{16}$"
Jaw width	$^{25}/_{64}$"
Center hole	$^{5}/_{16}$"
Bolt circle	$^{43}/_{64}$"
I.D. Clamping capacity	$^{41}/_{64}$" - $2^{3}/_{8}$"
O.D. Clamping capacity	0 - $2^{7}/_{8}$"
Weight	1 lb.

DESCRIPTION	PART NO.	PRICE
3 Jaw Scroll Chuck $2^{3}/_{4}$" Dia.	**70-225-8**	$1,236.00
5C Shank	**70-226-6**	336.45

Type 3Z 3 Jaw 4" Dia. with Internal and External Jaws



70-220-9

Outside diameter over knurled clamping ring	$4^{1}/_{2}$"
Height of chuck	$1^{5}/_{16}$"
Jaw height	$^{21}/_{32}$"
Jaw width	$1^{5}/_{32}$"
Center hole	$1^{1}/_{4}$"
Mounting flange dia.	1.969"
Height of flange	$^{5}/_{32}$"
I.D. Clamping capacity	$^{7}/_{8}$" - $3^{3}/_{4}$"
O.D. Clamping capacity	0 - $4^{1}/_{8}$"
Weight	5 lbs.

DESCRIPTION	PART NO.	PRICE
3 Jaw Scroll Chuck 4" Dia.	**70-220-9**	$2,287.00
5C Shank	**70-222-5**	882.45



Swiss Made

Ultra Short 6 Jaw & 8 Jaw Scroll Chucks

- Especially suitable for small lathes, grinders, mills, turning and indexing fixtures or where low height, overhang and weight become critical.
- High concentricity.
- Ideal for holding fragile parts.
- High spiral scroll for quick action jaw movement.
- Knurled clamping ring for convenient hand operation.
- Jaws sold separately.

Type J-F

SPECIFICATIONS	J-F 55 6 JAW 2" DIA.		J-F 150 8 JAW 6" DIA.	
Outside diameter Over knurled ring	$2^{1}/_{4}$"		6"	
Height of chuck	$^{17}/_{32}$"		1"	
Max. jaw height	$^{11}/_{32}$"		$^{45}/_{64}$"	
Center hole	$^{5}/_{16}$"		$^{5}/_{8}$"	
Bolt circle	$^{9}/_{16}$"		$1^{3}/_{32}$"	
Clamping capacity	$^{13}/_{32}$" - $1^{7}/_{8}$"		1 - $5^{29}/_{32}$"	
Weight	1 lb.		6 lbs.	
	PART NO.	PRICE	PART NO.	PRICE
Chuck Without Jaws	**70-250-6**	$926.35	**70-270-4**	$1,754.95

Jaws

	SET OF 6 PART NO.	PRICE	SET OF 8 PART NO.	PRICE
A Internal chucking	**70-251-4**	$341.50	**70-271-2**	$655.75
B External chucking	**70-252-2**	341.50	**70-272-0**	655.75
C Internal/External	**70-253-0**	341.50	**70-273-8**	731.65
W Soft jaws	**70-254-8**	341.50	**70-274-6**	731.65

Shanks (not shown)

	PART NO.	PRICE	PART NO.	PRICE
Straight $^{3}/_{4}$" dia.	**70-257-1**	$382.73	–	–
Straight $1^{1}/_{2}$" dia.	–	–	**70-277-9**	$375.84
5C Shank	–	–	**70-278-7**	371.85

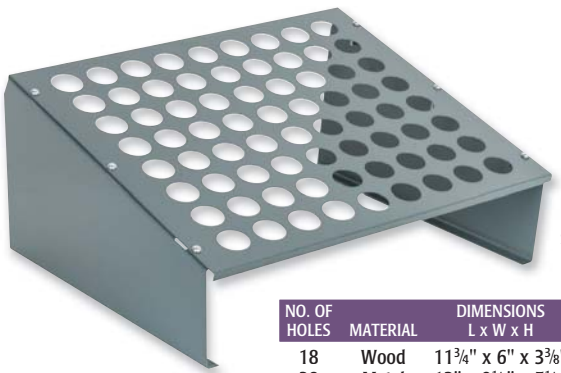
SHOP GRADE

5C Collet Racks



98-212-4

Collets sold separately



98-398-1

NO. OF HOLES	MATERIAL	DIMENSIONS L x W x H	PART NUMBER	PRICE
18	Wood	$11^{3}/_{4}$" x 6" x $3^{3}/_{8}$"	**98-396-5**	$60.85
30	Metal	12" x $9^{1}/_{2}$" x $5^{1}/_{2}$"	**98-212-4**	20.25
72	Metal	$15^{1}/_{2}$" x 8" x $12^{1}/_{2}$"	**98-398-1**	50.40

MACHINE ACCESSORIES

SHOP GRADE
5C Round Collets & Sets
Hardened & Ground Throughout

- Outside Thread: 1.240 x 20 RH.
- Inside Thread: 1.041 x 24 RH.



68-853-1



34-899-5

SIZE	PART NUMBER	PRICE
1/32"	66-837-6	$12.70
3/64"	66-838-4	12.70
1/16"	68-551-1	12.70
5/64"	68-552-9	12.70
3/32"	68-553-7	12.70
7/64"	68-554-5	12.70
1/8"	68-555-2	12.70
9/64"	68-498-5	12.70
5/32"	68-556-0	12.70
11/64"	68-557-8	12.70
3/16"	68-558-6	12.70
13/64"	68-559-4	12.70
7/32"	68-560-2	12.70
15/64"	68-561-0	12.70
1/4"	68-562-8	12.70
17/64"	68-563-6	12.70
9/32"	68-564-4	12.70
19/64"	68-565-1	12.70
5/16"	68-566-9	12.70
21/64"	68-567-7	12.70
11/32"	68-568-5	12.70
23/64"	68-569-3	12.70
3/8"	68-570-1	12.70
25/64"	68-571-9	12.70

SIZE	PART NUMBER	PRICE
13/32"	68-572-7	$12.70
27/64"	68-573-5	12.70
7/16"	68-574-3	12.70
29/64"	68-575-0	12.70
15/32"	68-576-8	12.70
31/64"	68-577-6	12.70
1/2"	68-578-4	12.70
33/64"	68-579-2	12.70
17/32"	68-580-0	12.70
35/64"	68-581-8	12.70
9/16"	68-582-6	12.70
37/64"	68-842-4	12.70
19/32"	68-843-2	12.70
39/64"	68-844-0	12.70
5/8"	68-845-7	12.70
41/64"	68-846-5	12.70
21/32"	68-847-3	12.70
43/64"	68-848-1	12.70
11/16"	68-849-9	12.70
45/64"	68-850-7	12.70
23/32"	68-851-5	12.70
47/64"	68-852-3	12.70
3/4"	68-853-1	12.70
49/64"	68-854-9	12.70

SIZE	PART NUMBER	PRICE
25/32"	68-855-6	$12.70
51/64"	68-856-4	12.70
13/16"	68-857-2	12.70
53/64"	68-858-0	12.70
27/32"	68-859-8	12.70
55/64"	68-860-6	12.70
7/8"	68-861-4	12.70
57/64"	68-862-2	12.70
29/32"	68-863-0	12.70
59/64"	68-864-8	12.70
15/16"	68-865-5	12.70
61/64"	68-866-3	12.70
31/32"	68-867-1	12.70
63/64"	68-868-9	12.70
1"	68-869-7	12.70
1 1/64"	68-870-5	12.70
1 1/32"	68-871-3	12.70
1 3/64"	68-872-1	12.70
1 1/16"	68-873-9	12.70
1 5/64"	68-874-7	12.70
1 3/32"	68-875-4	12.70
1 7/64"	68-876-2	12.70
1 1/8"	68-877-0	12.70
–	–	–

Sets - Case Not Included

SIZE (IN.)	NO. OF PCS.	PART NO.	PRICE
1/16 - 1 1/8 x 16ths	18	34-899-5	$168.55
1/16 - 1 1/8 x 32nds	35	34-900-1	345.15
1/16 - 1 1/8 x 64ths	69	34-901-9	644.95

SHOP GRADE
5C Metric Round Collets
Hardened & Ground Throughout

- External Thread: 1.240-20; Internal Thread: 1.041-24.



34-906-8

- Accuracy/T.I.R.: 3 - 10mm 0.0007" 11 -26 mm 0.0011"

SIZE (MM)	PART NUMBER	PRICE
3	34-902-7	$18.70
4	34-903-5	18.70
5	34-904-3	18.70
6	34-905-0	18.70
7	34-906-8	18.70
8	34-907-6	18.70
9	34-908-4	18.70
10	34-909-2	18.70
11	34-910-0	18.70
12	34-911-8	18.70
13	34-912-6	18.70
14	34-913-4	18.70

SIZE (MM)	PART NUMBER	PRICE
15	34-914-2	$18.70
16	34-915-9	18.70
17	34-916-7	18.70
18	34-917-5	18.70
19	34-918-3	18.70
20	34-919-1	18.70
21	34-920-9	18.70
22	34-921-7	18.70
23	34-922-5	18.70
24	34-923-3	18.70
25	34-924-1	18.70
26	34-925-8	18.70

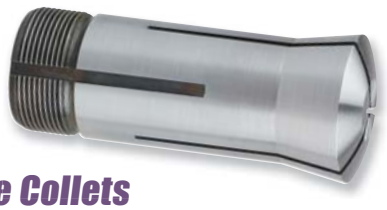
LYNDEX NIKKEN
5C Round Collets



- Outside Thread 1.238 x 20 R.H., Inside Thread 1.041 x 24 R.H.
- Accuracy/T.I.R.: 3/64" - 25/64" 0.007", 13/32" - 1 1/8" 0.011"

SIZE	PART NUMBER	PRICE EACH
3/64"	68-583-4	$36.80
1/16"	68-584-2	36.80
5/64"	68-585-9	36.80
3/32"	68-586-7	36.80
7/64"	68-587-5	36.80
1/8"	68-588-3	32.90
9/64"	68-589-1	32.90
5/32"	68-590-9	32.90
11/64"	68-591-7	32.90
3/16"	68-592-5	32.90
13/64"	68-593-3	32.90
7/32"	68-594-1	32.90
15/64"	68-595-8	32.90
1/4"	68-596-6	32.90
17/64"	68-597-4	32.90
9/32"	68-598-2	32.90
19/64"	68-599-0	32.90
5/16"	68-600-6	32.90
21/64"	68-601-4	32.90
11/32"	68-602-2	32.90
23/64"	68-603-0	32.90
3/8"	68-604-8	32.90
25/64"	68-605-5	32.90
13/32"	68-606-3	32.90
27/64"	68-607-1	32.90
7/16"	68-608-9	32.90
29/64"	68-609-7	32.90
15/32"	68-610-5	32.90
31/64"	68-611-3	32.90
1/2"	68-612-1	32.90
33/64"	68-613-9	32.90
17/32"	68-614-7	32.90
35/64"	68-615-4	32.90
9/16"	68-616-2	32.90
37/64"	68-878-8	32.90

SIZE	PART NUMBER	PRICE EACH
19/32"	68-879-6	$32.90
39/64"	68-880-4	32.90
5/8"	68-881-2	32.90
41/64"	68-882-0	32.90
21/32"	68-883-8	32.90
43/64"	68-884-6	32.90
11/16"	68-885-3	32.90
45/64"	68-886-1	32.90
23/32"	68-887-9	32.90
47/64"	68-888-7	32.90
3/4"	68-889-5	32.90
49/64"	68-890-3	32.90
25/32"	68-891-1	32.90
51/64"	68-892-9	32.90
13/16"	68-893-7	32.90
53/64	68-894-5	32.90
27/32"	68-895-2	32.90
55/64"	68-896-0	32.90
7/8"	68-897-8	32.90
57/64"	68-898-6	32.90
29/32"	68-899-4	32.90
59/64"	68-900-0	32.90
15/16"	68-901-8	32.90
61/64"	68-902-6	32.90
31/32"	68-903-4	32.90
63/64"	68-904-2	32.90
1"	68-905-9	32.90
1 1/64"	68-906-7	32.90
1 1/32"	68-907-5	32.90
1 3/64"	68-908-3	32.90
1 1/16"	68-909-1	32.90
1 5/64"	68-910-9	32.90
1 3/32"	68-911-7	32.90
1 7/64"	68-912-5	32.90
1 1/8"	68-913-3	32.90



LYNDEX NIKKEN
5C Hex & Square Collets

- Inside thread 1.041 x 24 R.H.
- Outside thread 1.236 x 20 R.H.

SIZE	HEX COLLETS PART NO.	HEX COLLETS PRICE	SQUARE COLLETS PART NO.	SQUARE COLLETS PRICE
1/8"	68-617-0	$45.50	68-630-3	$45.50
3/16"	68-618-8	45.50	68-631-1	45.50
1/4"	68-619-6	45.50	68-632-9	45.50
5/16"	68-620-4	45.50	68-633-7	45.50
3/8"	68-621-2	45.50	68-634-5	45.50
7/16"	68-622-0	45.50	68-635-2	45.50
1/2"	68-623-8	45.50	68-636-0	45.50
9/16"	68-624-6	45.50	68-637-8	45.50
5/8"	68-625-3	45.50	68-638-6	45.50
11/16"	68-626-1	45.50	68-639-4	45.50
3/4"	68-627-9	45.50	68-640-2	45.50
13/16"	68-628-7	45.50	–	–
7/8"	68-629-5	45.50	–	–

- Accuracy/T.I.R.: 1/8" - 3/16" 0.008" 1/4" - 7/8" 0.012"


Hex Collet


Square Collet

SHOP GRADE

5C Hex & Square Collets

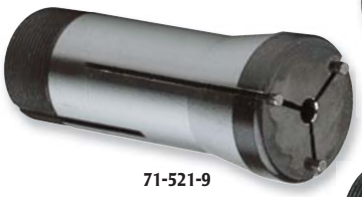
- Within 0.005" TIR 1" from face.
- Inside thread 1.041 x 24 R.H.
- Outside thread 1.240 x 20 R.H.

SIZE	HEX COLLETS PART NO.	PRICE	SQUARE COLLETS PART NO.	PRICE
1/8"	**35-670-9**	$25.35	**35-693-1**	$25.35
5/32"	**35-671-7**	25.35	**35-694-9**	25.35
3/16"	**35-672-5**	25.35	**35-695-6**	25.35
7/32"	**35-673-3**	25.35	**35-696-4**	25.35
1/4"	**35-674-1**	25.35	**35-697-2**	25.35
9/32"	**35-675-8**	25.35	**35-698-0**	25.35
5/16"	**35-676-6**	25.35	**35-699-8**	25.35
11/32"	**35-677-4**	25.35	**35-700-4**	25.35
3/8"	**35-678-2**	25.35	**35-701-2**	25.35
13/32"	**35-679-0**	25.35	**35-702-0**	25.35
7/16"	**35-680-8**	25.35	**35-703-8**	25.35
15/32"	**35-681-6**	25.35	**35-704-6**	25.35
1/2"	**35-682-4**	25.35	**35-705-3**	25.35
17/32"	**35-683-2**	25.35	**35-706-1**	25.35
9/16"	**35-684-0**	25.35	**35-707-9**	25.35
19/32"	–	–	**35-708-7**	25.35
5/8"	**35-685-7**	25.35	**35-709-5**	25.35
11/16"	**35-686-5**	25.35	**35-710-3**	25.35
23/32"	**35-687-3**	25.35	–	–
3/4"	**35-688-1**	25.35	**35-711-1**	25.35
25/32"	**35-689-9**	25.35	–	–
13/16"	**35-690-7**	25.35	–	–
27/32"	**35-691-5**	25.35	–	–
7/8"	**35-692-3**	25.35	–	–

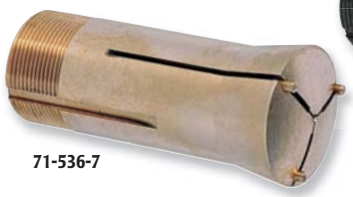
SHOP GRADE

5C Emergency Collets


71-535-9


71-521-9


71-537-5


71-536-7

- Soft head for easy machining.
- Precision ground taper and collar.
- 5C collet head: 1½" dia.
- Collet 5C-E with ¼" hole features ⅜" extra length on the face.

COLLET	HOLE	MATERIAL	PART NO.	PRICE
5C-E	1/4"	Steel	**71-520-1**	$23.55
5C-E2	1/8"	Steel	**71-521-9**	23.55
5C-E1	1/16"	Steel	**71-522-7**	16.95
5C	*	Nylon	**71-535-9**	18.15
5C	.059"	Brass	**71-536-7**	39.30
5C	1/16"	Brass	**71-538-3**	33.65
5C	.118"	Steel	**71-537-5**	29.50

* Furnished with 3 clips for precision machining of desired bore.

5C Collet Holders

An alternate way to hold tools in the turret of your lathe or CNC turning center using 5C collets.

- Reduces your dependence on odd-ball sockets and sleeves.
- Replaces drill chucks as toolholders.
- Eliminates clearance problems.
- Each holder includes an adjustable threaded stop.


Colllets sold separately

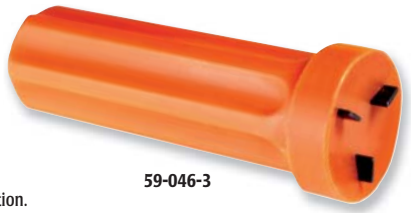
59-043-0



HOLD. DIA.	PART NO.	PRICE
1½"	**59-042-2**	$126.60
1¾"	**59-043-0**	139.25
2"	**59-044-8**	150.15
2½"	**59-045-5**	184.30

5C or R8 Collet Wrench

- Insert and remove 5C collets or R8 collets from nose piece of all CNC lathes with ease.
- Only wrench with a concaved face for perfect alignment.
- One-piece molded construction – strong high-Impact plastic with a steel insert.
- Large tapered handle for easy use.
- Bright florescent colors for easy location.


59-046-3

DESCRIPTION	PART NO.	PRICE
5C or R8 Collet Wrench	**59-046-3**	$27.95

MITEE-BITE PRODUCTS LLC

Collet Wrenches

For 5C, 16C and 3J Collets


97-338-8


97-337-0


97-339-6

- Simplifies insertion and removal of collets in the spindle nose on CNC lathes.
- Constructed with steel head and fins for greater strength and durability.
- The bright red handle makes it easy to locate and is designed to be comfortable to the hand.

COLLET SIZE	FINS	PART NUMBER	PRICE
5C	3	**97-337-0**	$48.80
16C	3	**97-338-8**	63.65
3J	4	**97-339-6**	65.25

SHOP GRADE

5C Step Collets

Machinable

- 1⅛" thick flange.
- Especially designed for larger and odd shaped pieces.
- Has a machinable face, ground sleeve and taper.
- Can be heat treated after machining or used as is.
- Made of 1065 steel.


34-970-4

FACE DIA.	PILOT HOLE SIZE	PART NUMBER	PRICE
2"	1/4"	**34-970-4**	$54.50
3"	5/16"	**34-971-2**	58.90
4"	5/16"	**34-972-0**	84.05
5"	5/16"	**34-973-8**	113.15
6"	5/16"	**34-974-6**	138.30

MACHINE ACCESSORIES

SHOP GRADE
5C Fixture Mounts



- A lathe tool for use in place of face plate fixtures.
- Quick mounting and dismounting.
- Repeat accuracy.
- Soft head for easy machining.
- Heat treated tool steel shank.
- Precision ground all over.
- Black oxide finish.

71-470-9

FACE DIA.	HEAD LENGTH	PART NUMBER	PRICE
2"	1"	**71-470-9**	$55.25
2"	2"	**71-471-7**	46.15
2"	3"	**71-472-5**	48.50
3"	1"	**71-473-3**	54.30
3"	2"	**71-494-9**	58.80
3"	3"	**71-475-8**	63.25
4"	1"	**71-476-6**	65.15
4"	2"	**71-477-4**	68.50
4"	3"	**71-478-2**	80.95
5"	1"	**71-479-0**	87.30
6"	1"	**71-480-8**	90.65



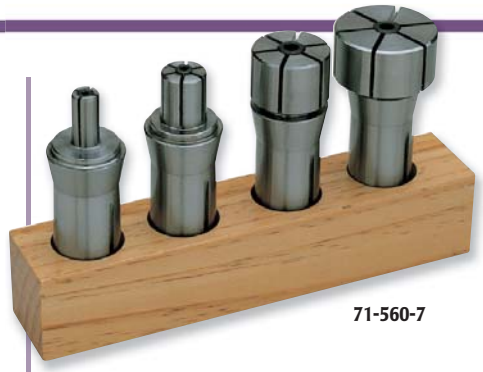
69-096-6

DUNHAM

Straight Shank Expanding Mandrels

- These mandrels have a straight shank, which can be held in a 3-jaw lathe chuck or any other chucking device.
- Expansion is accomplished by manually tightening the tapered front-face located screw.
- Machine slotted member, so that full expansion is slightly larger than ID or part.
- Requires no special adapters.

BODY LENGTH	FACE DIA.	MACHINABLE RANGE	SHANK DIA.	PART NUMBER	PRICE
1"	0.63"	5/16" – 5/8"	3/8"	**69-096-6**	$52.70
1"	1 1/4"	1/2" – 1 1/4"	3/4"	**69-097-4**	59.35
1 1/2"	1 1/4"	1/2" – 1 1/4"	3/4"	**69-098-2**	67.65
1 1/2"	2"	3/4" – 2"	3/4"	**69-099-0**	133.70
2"	3 3/4"	3/4" – 3 3/4"	1"	**69-100-6**	152.35



71-560-7

Expanding 5C Collet Kit

- Highly effective expansion up to 0.006".
- Soft head for easy machining.
- Heat treated tool steel 5C collet shank, precision ground over all.
- One piece construction.
- Head width 1".
- Kit includes collets No. 1 to No. 4 in fitted stand, range 5/16"- 1 15/16".

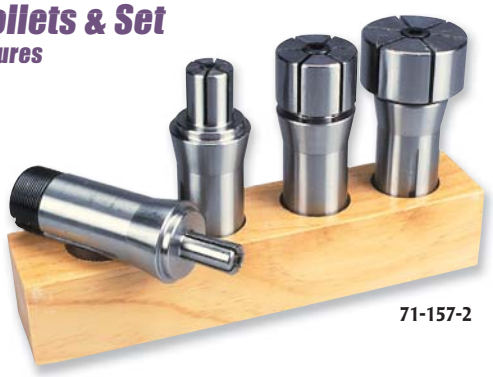
DESCRIPTION	PART NO.	PRICE
Expanding 5C Collet Kit	**71-560-7**	$140.45

Replacement Collets

DESCRIPTION	RANGE	PART NO.	PRICE
Collet No. 1	0.312 - 0.468"	**71-561-5**	$33.45
Collet No. 2	0.437 - 0.800"	**71-562-3**	33.45
Collet No. 3	0.750 - 1.437"	**71-563-1**	33.45
Collet No. 4	0.750 - 1.937"	**71-564-9**	33.45

SHOP GRADE
5C Expanding Collets & Set
Fits All 5C Closers & Fixtures

- Great for holding small parts by the inside diameter.
- Soft head for easy machining.
- Can be machined and re-machined to different diameters.
- Once the collet is seated, it will not draw back into the spindle, as a result shoulder widths are held to within ±0.001".



71-157-2

Individual Expanding Collets

BODY LENGTH	RANGE MIN.	RANGE MAX.	PART NUMBER	PRICE
1"	1/4"	1/2"	**71-130-9**	$45.15
1"	7/16"	1"	**71-131-7**	47.55
1"	3/4"	1 1/2"	**71-132-5**	47.55
1"	3/4"	2"	**71-133-3**	84.60
1"	3/4"	2 1/2"	**71-134-1**	103.60
1"	3/4"	3"	**71-135-8**	132.35
1"	3/4"	4"	**71-136-6**	148.65
1 1/2"	3/4"	1 1/2"	**71-137-4**	83.95
1 1/2"	3/4"	2"	**71-138-2**	102.25
1 1/2"	3/4"	2 1/2"	**71-139-0**	118.05
1 1/2"	3/4"	3"	**71-140-8**	145.60
1 1/2"	3/4"	4"	**71-141-6**	155.95
2"	3/4"	1 1/2"	**71-142-4**	93.40
2"	3/4"	2"	**71-143-2**	118.05
2"	3/4"	2 1/2"	**71-144-0**	$132.35
2"	3/4"	3"	**71-145-7**	155.95
2"	3/4"	4"	**71-146-5**	177.00
2"	3/4"	5"	**71-147-3**	234.75
2 1/2"	3/4"	1 1/2"	**71-148-1**	123.65
2 1/2"	3/4"	2"	**71-149-9**	132.35
2 1/2"	3/4"	2 1/2"	**71-150-7**	147.75
2 1/2"	3/4"	3"	**71-151-5**	177.00
3"	3/4"	1 1/2"	**71-152-3**	132.35
3"	3/4"	2"	**71-153-1**	147.75
3"	3/4"	2 1/2"	**71-154-9**	156.95
3"	3/4"	3"	**71-155-6**	180.00
3"	3/4"	4"	**71-156-4**	197.50
–	–	–	–	–

4 Pc. 5C Expanding Collet Set

- 1" body length with 1/4" - 2" range.
- Includes wooden rack.

DESCRIPTION	PART NO.	PRICE
4 Pc. 5C Expanding Collet Set	**71-157-2**	$206.75



70-004-7

DUNHAM

16C & 3J Expanding Collets

Dunham collets provide an expanding member to locate and hold work from the inside using 16C or 3J spindles.

- Rigid one piece body/mandrel construction.
- No draw back gives positive end length.
- Internal collet chucking.
- Special collet configurations available.
- Actuated by machine draw tube or collet fixture.
- Body made of Ledloy-12L14–easily machinable by customer to desired diameter.

BODY LENGTH	MACHINABLE RANGE	FACE DIA.	16C PART NO.	PRICE	3J PART NO.	PRICE
1"	.75" – 1.437"	1.5"	**70-004-7**	$219.40	**70-013-8**	$386.60
2"	.75" – 1.437"	1.5"	**70-005-4**	311.95	**70-014-6**	408.10
3"	.75" – 1.437"	1.5"	**70-006-2**	316.85	**70-015-3**	447.75
1"	.75" – 1.937"	2"	**70-007-0**	355.95	**70-016-1**	447.75
2"	.75" – 1.937"	2"	**70-008-8**	363.65	**70-017-9**	454.65
3"	.75" – 1.937"	2"	**70-009-6**	390.80	**70-018-7**	477.85
1"	.75" – 2.937"	3"	**70-010-4**	479.20	**70-019-5**	607.10
2"	.75" – 2.937"	3"	**70-011-2**	499.25	**70-020-3**	627.70
3"	.75" – 2.937"	3"	**70-012-0**	500.15	**70-021-1**	652.55

LYNDEX NIKKEN

3J Emergency Collet

- Hardened threads.
- External Thread: 1.988 - 20RH
- 1/16 pilot hole.



51-529-6

DESCRIPTION	PART NO.	PRICE
3J Emergency Collet	**51-529-6**	$124.95


59-066-1

5C Precision Interchangeable Internal Expanding Collets & Adapter

Machinable Interchangeable Heads

- Made of special alloy steel.
- Allows parts changing without stopping machine.
- Conventional draw bar movement with spindle in motion.
- Collet will not push out or pull in.
- Holds linear dimensions.
- Black oxide finish.

Individual Expanding Collets

BODY LENGTH	RANGE MIN.	RANGE MAX.	PART NUMBER	PRICE
5/8"	5/16"	9/16"	**59-054-7**	$55.90
1"	1/2"	1"	**59-055-4**	56.05
1"	1/2"	1 1/2"	**59-056-2**	61.70
1"	1/2"	2"	**59-057-0**	69.85
1"	1/2"	2 1/2"	**59-058-8**	86.60
1"	1/2"	2 15/16"	**59-059-6**	103.90
1"	1/2"	3 15/16"	**59-060-4**	122.30
1"	1/2"	4 15/16"	**59-061-2**	146.20
1 3/4"	1/2"	1"	**59-062-0**	63.80
1 3/4"	1/2"	1 1/2"	**59-063-8**	70.60
1 3/4"	1/2"	2"	**59-064-6**	83.45
1 3/4"	1/2"	2 1/2"	**59-065-3**	95.80

Adapter

DESCRIPTION	PART NO.	PRICE
5C Adapter	**59-066-1**	$124.05


71-158-0

SHOP GRADE

5C Universal Collet Stop Set

Converts 5C Collets to Ejector Type

- Fits directly into collet.
- Locks securely into solid stop or spring ejector stop collets.

Set includes:

- Stop body with spring ejector assembly.
- 1 each 1/4" and 1/2" diameter ejectors.
- 2 extra springs.
- 1 each 1/4" and 1/2" diameter solid stops.

DESCRIPTION	PART NO.	PRICE
5C Universal Collet Stop Set	**71-158-0**	$37.90

LYNDEX NIKKEN

16C Emergency Steel Collet

Used on Larger Capacity Machines

- External Thread: M47.5 x P1.75 RH
- Internal Thread: 1 11/16 - 20 RH
- 1/16" pilot hole.
- Hardened threads.

DESCRIPTION	PART NO.	PRICE
16C Emergency Steel Collet	**51-519-7**	$124.20


51-519-7


78-299-5


78-300-1

SHOP GRADE

5C Solid Adjustable Collet Stops

Use For Fast & Easy Positioning

- Equipped with a screwdriver slot in the end of the stud.
- 7/16 - 20 internal thread.

STUD LENGTH	STUD DIA.	PART NUMBER	PRICE
4"	0.950"	**78-299-5**	$12.60
8"	0.430"	**78-300-1**	43.50

TE-CO

5C Collet Stops


71-490-7

5C Adjustable Collet Stop

- Fully threaded adjustment screw.
- Thread size: 3/8" - 24.
- Fits collets with internal threads.

DESCRIPTION	PART NO.	PRICE
5C Adjustable Collet Stop	**71-490-7**	$18.45


71-491-5

5C Collet Stop Extension Tube

- The ideal accessory to add 3" length to the collet stop.
- Conveniently locates long parts – 2 or more of these tubes can be coupled for any length to desired stop.

DESCRIPTION	PART NO.	PRICE
Collet Stop Extension Tube	**71-491-5**	$33.15

5C Collet Stop Wrench

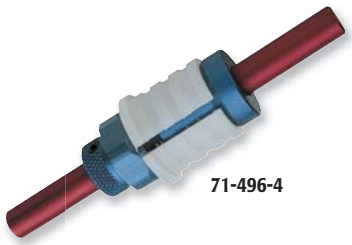
- Tightening or removing collet stops made easy!
- Saves time and prevents damage to precision 5C collets.
- Inside shape of wrench mates perfectly with collet and key-way of collet.

DESCRIPTION	PART NO.	PRICE
Collet Stop Wrench	**71-492-3**	$25.80
Collet Stop Set – combining adjustable stop, extension tube and stop wrench	**71-493-1**	69.20


71-492-3
Collet Not Included

MACHINE ACCESSORIES





5C Collet Speed Stop

- Ingenious design Expanding Collet Stop.
- The patented Delrin sleeve expands tightly inside the collet, forming a solid grip which eliminates push-back.
- Fits all standard 5C collets with threaded I.D. or through hole.
- Easy to lock and unlock with a 7/8" wrench.
- Lightweight aluminum construction eliminates possible vibrations.
- 3/8" dia. stop bar is adjustable with a set-screw.
- Optional precision machined Spring Ejector Rod with 3 steel tips 1/4", 3/8" and 1/2" dia.

DESCRIPTION	PART NO.	PRICE
5C Collet Speed Stop	**71-496-4**	$43.75
Speed Stop Spring Ejector	**71-497-2**	43.75



SHOP GRADE

5C Collet Stop Set

Made of Mild Steel for Easy Modifications

- Set screws hold stop rods firmly.
- Quick adjusting-No nut to adjust.

Set includes:

- Stop body plus 4 stop rods.
- Stop rods turned to 1/8", 1/2", 3/4" and 1".
- Stop rod ends can be machined.

DESCRIPTION	PART NO.	PRICE
5C Collet Stop Set	**71-159-8**	$43.25



SHOP GRADE

R8 To Morse Taper Adapters

Hardened and Ground Throughout

INSIDE TAPER	OUTSIDE TAPER	PART NUMBER	PRICE
2 MT	R8	67-131-3	$38.75
3 MT	R8	67-132-1	38.75

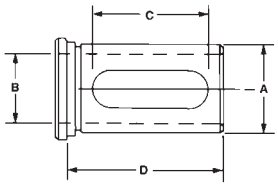


CNC Tool Holder Bushing - Type "C"

for CNC, Turret & Chucking Machines

- Precision machined hardened and ground concentric.





BUSHING DIA. A	STD. BORE SIZE B	SLOT LENGTH C	LENGTH UNDER HEAD D	PART NUMBER	PRICE EACH
1 1/4"	3/8"	2 7/8"	3 1/4"	**67-150-3**	$81.95
1 1/4"	1/2"	2 7/8"	3 1/4"	**67-151-1**	81.95
1 1/4"	5/8"	2 7/8"	3 1/4"	**67-152-9**	81.95
1 1/4"	3/4"	2 7/8"	3 1/4"	**67-153-7**	81.95
1 1/4"	7/8"	2 7/8"	3 1/4"	**67-154-5**	81.95
1 1/4"	1"	2 7/8"	3 1/4"	**67-155-2**	81.95
1 1/2"	1/2"	3"	3 3/8"	**67-156-0**	87.40
1 1/2"	5/8"	3"	3 3/8"	**67-157-8**	87.40
1 1/2"	3/4"	3"	3 3/8"	**67-158-6**	87.40
1 1/2"	7/8"	3"	3 3/8"	**67-159-4**	87.40
1 1/2"	1"	3"	3 3/8"	**67-160-2**	87.40
1 1/2"	1 1/4"	3"	3 3/8"	**67-161-0**	87.40
1 3/4"	1/2"	3 1/8"	3 1/2"	**67-162-8**	92.85
1 3/4"	5/8"	3 1/8"	3 1/2"	**67-163-6**	92.85
1 3/4"	3/4"	3 1/8"	3 1/2"	**67-164-4**	92.85

BUSHING DIA. A	STD. BORE SIZE B	SLOT LENGTH C	LENGTH UNDER HEAD D	PART NUMBER	PRICE EACH
1 3/4"	7/8"	3 1/8"	3 1/2"	**67-165-1**	$92.85
1 3/4"	1"	3 1/8"	3 1/2"	**67-166-9**	92.85
1 3/4"	1 1/4"	3 1/8"	3 1/2"	**67-167-7**	92.85
1 3/4"	1 1/2"	3 1/8"	3 1/2"	**67-168-5**	92.85
2"	1/2"	3 5/8"	4"	**67-169-3**	96.90
2"	5/8"	3 5/8"	4"	**67-170-1**	96.90
2"	3/4"	3 5/8"	4"	**67-171-9**	96.90
2"	1"	3 5/8"	4"	**67-173-5**	96.90
2"	1 1/4"	3 5/8"	4"	**67-174-3**	96.90
2"	1 1/2"	3 5/8"	4"	**67-175-0**	96.90
2"	1 3/4"	3 5/8"	4"	**67-176-8**	96.90
2 1/2"	1/2"	4 1/8"	4 1/2"	**67-177-6**	140.60
2 1/2"	5/8"	4 1/8"	4 1/2"	**67-178-4**	202.90
–	–	–	–	–	–
–	–	–	–	–	–



SHOP GRADE

R8 Round Collets & Sets

Hardened & Ground Throughout

7/16 - 20 Drawbar Thread - R8

- T.I.R. 0.0007"

SIZE	PART NUMBER	PRICE
1/16"	**34-872-2**	$12.60
3/32"	**34-873-0**	12.60
1/8"	**68-500-8**	12.70
5/32"	**68-501-6**	12.70
3/16"	**68-502-4**	12.70
7/32"	**68-503-2**	12.70
1/4"	**68-504-0**	12.70
9/32"	**68-505-7**	12.70
5/16"	**68-506-5**	12.70
11/32"	**68-507-3**	12.70
3/8"	**68-508-1**	12.70
13/32"	**68-509-9**	12.70
7/16"	**68-510-7**	12.70
15/32"	**68-511-5**	12.70

SIZE	PART NUMBER	PRICE
1/2"	**68-512-3**	$12.70
17/32"	**68-513-1**	12.70
9/16"	**68-514-9**	12.70
19/32"	**68-515-6**	12.70
5/8"	**68-516-4**	12.70
21/32"	**68-517-2**	12.70
11/16"	**68-518-0**	12.70
23/32"	**68-519-8**	12.70
3/4"	**68-520-6**	12.70
25/32"	**68-521-4**	12.70
13/16"	**68-522-2**	12.70
27/32"	**68-523-0**	12.70
7/8"	**68-524-8**	12.70
1"	**68-943-0**	15.85

Sets

DESCRIPTION	NO. OF PCS.	PART NO.	PRICE
1/16 - 7/8 x 16ths	14	**34-874-8** *	$169.20
1/16 - 7/8 x 32nds	27	**34-875-5** *	326.35
1/8 - 3/4 x 16ths	11	**34-876-3**	118.95
1/8 - 7/8 x 16ths	13	**34-877-1**	169.50
1/8 - 7/8 x 32nds	25	**34-878-9**	228.85

*Includes wooden rack.

LYNDEX NIKKEN

R-8 Round Collets



- Hardened and ground throughout.
- 7/16" - 20 drawbar thread - R8.
- Accuracy/T.I.R.: 1/16" - 3/8" 0.007" 3/32" - 1" 0.011"

SIZE	PART NO.	PRICE
1/16"	**68-525-5**	$28.95
3/32"	**68-526-3**	28.95
1/8"	**68-499-3**	31.05
5/32"	**68-527-1**	27.60
3/16"	**68-528-9**	27.60
7/32"	**68-529-7**	27.60
1/4"	**68-530-5**	27.60
9/32"	**68-531-3**	27.60
5/16"	**68-532-1**	27.60

SIZE	PART NO.	PRICE
11/32"	**68-533-9**	$27.60
3/8"	**68-534-7**	27.60
13/32"	**68-535-4**	27.60
7/16"	**68-536-2**	27.60
15/32"	**68-537-0**	27.60
1/2"	**68-538-8**	27.60
17/32"	**68-539-6**	27.60
9/16"	**68-540-4**	27.60
19/32"	**68-541-2**	27.60

SIZE	PART NO.	PRICE
5/8"	**68-542-0**	$27.60
21/32"	**68-543-8**	27.60
11/16"	**68-544-6**	27.60
23/32"	**68-545-3**	27.60
3/4"	**68-546-1**	27.60
25/32"	**68-547-9**	27.60
13/16"	**68-548-7**	27.60
27/32"	**68-549-5**	27.60
7/8"	**68-550-3**	27.60



35-118-9



67-129-7

SHOP GRADE

R8 End Mill Holders & Set

- Standard grade suitable for most shop requirements.
- Sizes 3/16" - 1/2" will hold double end mills.
- Sizes 5/8" & Up for single end mills only.

HOLE DIA.	PART NO.	PRICE
3/16"	**35-118-9**	$52.05
3/8"	**35-119-7**	52.05
1/2"	**35-120-5**	52.05
5/8"	**35-121-3**	54.00
3/4"	**35-122-1**	58.15
7/8"	**35-123-9**	62.85
1"	**35-124-7**	62.85
1 1/4"	**35-125-4**	71.30
1 1/2"	**35-126-2**	95.15

8 Piece Set

- Hole dia.: 3/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1" and 1 1/4".
- Supplied in plastic case.

DESCRIPTION	PART NO.	PRICE
R8 End Mill Holder Set	**67-129-7**	$253.95



34-880-5

SHOP GRADE

R8 Round Metric Collets & Set

Hardened & Ground Throughout 7/16 - 20 RH Thread

SIZE (MM)	PART NUMBER	PRICE	SIZE (MM)	PART NUMBER	PRICE
2	**34-879-7**	$14.75	12	**34-889-6**	$14.75
3	**34-880-5**	14.75	13	**34-890-4**	14.75
4	**34-881-3**	14.75	14	**34-891-2**	14.75
5	**34-882-1**	14.75	15	**34-892-0**	14.75
6	**34-883-9**	14.75	16	**34-893-8**	14.75
7	**34-884-7**	14.75	17	**34-894-6**	14.75
8	**34-885-4**	14.75	18	**34-895-3**	14.75
9	**34-886-2**	14.75	19	**34-896-1**	14.75
10	**34-887-0**	14.75	20	**34-897-9**	14.75
11	**34-888-8**	14.75			

Set

DESCRIPTION	NO. OF PCS.	PART NO.	PRICE
2 - 20 mm x 1 mm	19	**34-898-7** *	$246.75

*Includes rack.

Straight Shank Shell Mill Arbors

- Hardened and ground.

STRAIGHT SHANK DIA.	PILOT DIA.	RANGE OF STANDARD SHELL MILL DIA.	PART NUMBER	PRICE
1/2"	1/2"	1 1/4" - 1 1/2"	**67-145-3**	$134.35
3/4"	1	2 1/4" - 2 3/4"	**67-147-9**	150.35





R-8 Shank Shell Mill Arbors

Standard Grade

- Hardened and ground throughout to assure maximum concentricity.

PILOT DIA.	RANGE OF SHELL MILL DIA.	PART NUMBER	PRICE
1/2"	1 1/4" - 1 1/2"	**67-135-4**	$61.95
3/4"	1 3/4" - 2	**67-136-2**	68.60
1"	2 1/4" - 2 3/4"	**67-137-0**	71.65
1 1/4"	3" - 3 1/2"	**67-138-8**	64.55
1 1/2"	4" - 5"	**67-139-6**	104.65
Set of above 5		**66-909-3**	335.15

Slitting Saw & Stub Milling Machine Arbor



- Made of high quality tool steel.
- Heat treated and precision ground surfaces.
- Ground right hand thread.

SHANK	ARBOR NUMBER	ARBOR DIA.	LENGTH OF SHOULDER TO NUT	THREAD OF NUT RH	PART NUMBER	PRICE
R-8	R8S1	1"	2"	1" - 14	**66-740-2**	$232.90

SHOP GRADE

Slitting or Slotting Saw Arbors



- Made of high quality, heat treated and precision ground tool steel.
- Rust resistant black oxide finish.
- The spring loaded mechanism readily accepts saw blades with hole diameters from 1/2" to 1".
- Arbor screw: 5/16" - 24

SHANK DIA.	OVERALL LENGTH	FITS HOLE SIZES	PART NUMBER	PRICE
1/2"*	2 3/8"	1/2, 5/8, 3/4, 7/8, 1"	**66-745-1**	$25.15
1/2"	3"	3/8"	**66-744-4**	27.80
R8	5"	1/2, 5/8, 3/4, 7/8, 1"	**66-746-9**	48.30

* with Weldon flat.



98-214-0 Collets sold separately

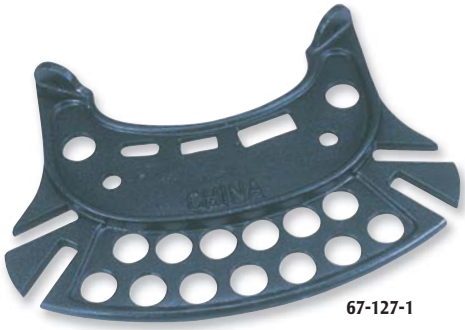
SHOP GRADE

R8 Collet Rack

- Easy to mount on the side of your machine with two 1/4" screws.
- Holds 16 pcs. of R8 collets.
- Closed cover protects collets from chips at all times.
- Baked enamel paint finish.

DESCRIPTION	PART NO.	PRICE
R8 Collet Rack	**98-214-0**	$25.35

MACHINE ACCESSORIES



67-127-1

R-8 Collet Tool Tray & 13 Pc. Collet Set

- R-8 collet tool tray holds 13 R-8 collets.
- Made of sturdy aluminum casting which does not scratch.
- Attaches to any milling machine with 2 screws (supplied).
- Design of tray permits dirt and chips to fall through.
- Dimensions: approximately 14" W x 9" D.
- 13 pc. collet set includes 1/8" to 7/8" collets.

DESCRIPTION	PART NO.	PRICE
R-8 Collet Tool Tray	**67-127-1**	$31.85
R-8 Collet 13 Pc. Set w/Tool Tray	**67-128-9**	178.05



34-980-3

Huot

Collet Racks

- 14 gage steel finished with epoxy, powder paint.
- Mountable on bench top.
- Protects, stores, and organizes collets.

TYPE OF COLLETS	COLLETS HELD	PART NUMBER	PRICE
11 Series ER/RD/DR	49	**34-980-3**	$75.45
16 Series ER/RD/DR	50	**34-981-1**	75.45
20 Series ER/RD/DR	36	**34-982-9**	75.45
25 Series ER/RD/DR	48	**34-983-7**	75.45
32 Series ER/RD/DR	40	**34-984-5**	75.45
40 Series ER/RD/DR	27	**34-985-2**	75.45
50 Series ER/RD/DR	21	**34-986-0**	75.45
DA100	36	**34-987-8**	75.45
DA180	48	**34-988-6**	75.45
DA200	49	**34-989-4**	75.45
DA300	49	**34-990-2**	75.45
TG75	40	**34-991-0**	75.45
TG100	27	**34-992-8**	75.45
TG150	21	**34-993-6**	75.45

Collet Racks

- Made from hi-impact plastic.

R-8 Collet Rack

- Innovative design for 52 collets.
- Holds more on 1 rack.
- Holds 14 larger tool holders.
- Holds full set and emergency collets.
- Angled seat area - more secure hold.

DESCRIPTION	PART NO.	PRICE
R-8 Collet Rack	**98-201-7**	$59.95



98-201-7

5C Collet Rack

- Holds 76 collets, 1 full set and 14 specials & emergency collets.
- Angled seat area.

DESCRIPTION	PART NO.	PRICE
5C Collet Rack	**98-204-1**	$69.95



98-204-1



No-Mar Brass Hammers

See Pg. 390

No-Mar Lead Hammers

See Pg. 390



90-516-6

SHOP GRADE

R8 Collet Set & Rotating Collet Rack

R8 Storage Collet Rack

- Holds 11 R-8 Collets.
- Mount on any flat surface of the machine, on a bench or wall.
- Rotates for quick and easy selection of collet sizes.
- Collets are firmly seated in angular pockets for easy placement or removal.
- Made of long lasting ABS plastic.

11 Pc. R8 Collet Set w/Rack

- 1/8" thru 3/4" by 16ths.

DESCRIPTION	PART NO.	PRICE
R8 Rotating Collet Rack	**90-360-9**	$30.40
11 Pc. R8 Collet Set w/Holder	**90-516-6**	119.70

ETM

ER Collet Sets

- Highly accurate spring action collets.
- Hardened and ground.
- Each set includes stand.



68-726-9

SERIES	NO. OF PIECES	RANGE OF SET (IN.)	PART NUMBER	PRICE
ER-11	7	.020 - .275	**68-726-9**	$301.40
ER-16	10	.020 - .393	**68-727-7**	409.45
ER-20	12	.039 - .511	**68-728-5**	501.35
ER-25	15	.039 - .629	**68-729-3**	649.65
ER-32	18	.078 - .787	**68-730-1**	816.30
ER-40	23	.118 - 1.023	**68-731-9**	1,160.35
ER-50	12	.433 - 1.260	**68-732-7**	1,490.30

SHOP GRADE

ER Series Collets & Sets

- Individual ER-11, 16, 20, 25, 32, 40 collets.



SIZE	ER-11 PART NUMBER	PRICE	ER-16 PART NUMBER	PRICE	ER-20 PART NUMBER	PRICE	ER-25 PART NUMBER	PRICE	ER-32 PART NUMBER	PRICE	ER-40 PART NUMBER	PRICE
1/32"	68-641-0	$22.90	68-648-5	$20.35	–	–	–	–	–	–	–	–
1/16"	68-642-8	22.90	68-649-3	20.35	68-658-4	$20.85	68-670-9	$24.50	–	–	–	–
3/32"	68-643-6	22.90	68-650-1	20.35	68-659-2	20.85	68-671-7	21.50	68-685-7	$23.15	–	–
1/8"	68-644-4	22.90	68-651-9	20.35	68-660-0	20.85	68-672-5	21.50	68-686-5	23.15	68-703-8	$28.25
3/16"	68-645-1	22.90	68-652-7	20.35	68-661-8	20.85	68-673-3	21.50	68-687-3	23.15	68-704-6	28.25
7/32"	68-646-9	22.90	68-653-5	20.35	68-662-6	20.85	68-674-1	21.50	68-688-1	23.15	68-705-3	28.25
1/4"	68-647-7	22.90	68-654-3	20.35	68-663-4	20.85	68-675-8	21.50	68-689-9	23.15	68-706-1	28.25
5/16"	–	–	68-655-0	20.35	68-664-2	20.85	68-676-6	21.50	68-690-7	23.15	68-707-9	28.25
11/32"	–	–	68-656-8	20.35	68-665-9	20.85	68-677-4	21.50	68-691-5	23.15	68-708-7	28.25
3/8"	–	–	68-657-6	20.35	68-666-7	20.85	68-678-2	21.50	68-692-3	23.15	68-709-5	28.25
13/32"	–	–	–	–	68-667-5	20.85	68-679-0	21.50	68-693-1	23.15	68-710-3	28.25
7/16"	–	–	–	–	68-668-3	20.85	68-680-8	21.50	68-694-9	23.15	68-711-1	28.25
1/2"	–	–	–	–	68-669-1	20.85	68-681-6	21.50	68-695-6	23.15	68-712-9	28.25
17/32"	–	–	–	–	–	–	68-682-4	21.50	68-696-4	23.15	68-713-7	28.25
9/16"	–	–	–	–	–	–	68-683-2	21.50	68-697-2	23.15	68-714-5	28.25
5/8"	–	–	–	–	–	–	68-684-0	21.50	68-698-0	23.15	68-715-2	28.25
21/32"	–	–	–	–	–	–	–	–	68-699-8	23.15	68-716-0	28.25
11/16"	–	–	–	–	–	–	–	–	68-700-4	23.15	68-717-8	28.25
3/4"	–	–	–	–	–	–	–	–	68-701-2	23.15	68-718-6	28.25
25/32"	–	–	–	–	–	–	–	–	68-702-0	23.15	68-719-4	28.25
13/16"	–	–	–	–	–	–	–	–	–	–	68-720-2	28.25
27/32"	–	–	–	–	–	–	–	–	–	–	68-721-0	28.25
7/8"	–	–	–	–	–	–	–	–	–	–	68-722-8	28.25
15/16"	–	–	–	–	–	–	–	–	–	–	68-723-6	28.25
31/32"	–	–	–	–	–	–	–	–	–	–	68-724-4	28.25
1"	–	–	–	–	–	–	–	–	–	–	68-725-1	28.25

CENTAUR PRECISION TOOLS INC.

100 TG Series Single Angle Collets



- Full 1/64" range of collapse.
- Precision-ground and concentric within 0.0005" TIR at collet nose assembled with chuck.
- Accurate gripping on drill margins.
- Interchangeable with all TG type collets.
- NOTE: Collet must be assembled into nose piece before inserting into chuck.

COLLET CAP.	PART NUMBER	PRICE EACH
3/32"	71-885-8	$26.25
7/64"	71-886-6	26.25
1/8"	71-887-4	26.25
9/64"	71-888-2	26.25
5/32"	71-889-0	26.25
11/64"	71-890-8	26.25
3/16"	71-891-6	26.25
13/64"	71-892-4	26.25
7/32"	71-893-2	26.25
15/64"	71-894-0	26.25
1/4"	71-895-7	26.25
17/64"	71-896-5	26.25
9/32"	71-897-3	26.25
19/64"	71-898-1	26.25
5/16"	71-899-9	26.25
21/64"	71-900-5	26.25
11/32"	71-901-3	26.25
23/64"	71-902-1	26.25
3/8"	71-903-9	26.25
25/64"	71-904-7	26.25
13/32"	71-905-4	26.25
27/64"	71-906-2	26.25
7/16"	71-907-0	26.25
29/64"	71-908-8	26.25
15/32"	71-909-6	26.25
31/64"	71-910-4	26.25
1/2"	71-911-2	26.25
17/32"	71-913-8	26.25
35/64"	71-914-6	26.25

COLLET CAP.	PART NUMBER	PRICE EACH
9/16"	71-915-3	$26.25
37/64"	71-916-1	26.25
19/32"	71-917-9	26.25
39/64"	71-918-7	26.25
5/8"	71-919-5	26.25
41/64"	71-920-3	26.25
21/32"	71-921-1	26.25
43/64"	71-922-9	26.25
11/16"	71-923-7	26.25
45/64"	71-924-5	26.25
23/32"	71-925-2	26.25
47/64"	71-926-0	26.25
3/4"	71-927-8	26.25
49/64"	71-928-6	26.25
25/32"	71-929-4	26.25
51/64"	71-930-2	26.25
13/16"	71-931-0	26.25
53/64"	71-932-8	26.25
27/32"	71-933-6	26.25
55/64"	71-934-4	26.25
7/8"	71-935-1	26.25
57/64"	71-936-9	26.25
29/32"	71-937-7	26.25
59/64"	71-938-5	26.25
15/16"	71-939-3	26.25
61/64"	71-940-1	26.25
31/32"	71-941-9	26.25
63/64"	71-942-7	26.25
1"	71-943-5	26.25

Collet Sets

- Furnished in wooden case.

SERIES	NO. OF PIECES	RANGE OF SET	PART NUMBER	PRICE
ER-16	10	1/32" - 3/8"	78-301-9	$169.50
ER-20	12	1/16" - 1/2"	78-302-7	227.45
ER-25	15	1/16" - 5/8"	78-303-5	297.80
ER-32	18	3/32" - 3/4"	78-304-3	359.00
ER-40	23	1/8" - 1"	78-305-0	529.00



78-303-5

PARLEC Measurably Better

DA-100 Double Angle Collets & Sets

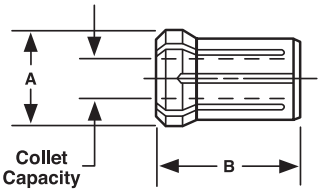


- Full 1/32" range of collapse. A DA-100 1/4" collet will grip a 7/32" drill securely and accurately.
- Concentric within 0.0005" TIR.
- Self-release for rapid easy operation.
- **Important Note:** Inserting the cutting tool less than two-thirds of the gripping length into the collet can influence the coolant sealing performance and damage the collet permanently.

Individual Collets

COLLET CAP.	PART NUMBER	PRICE
3/64"	79-766-2	$28.00
1/16"	79-767-0	21.00
5/64"	79-768-8	21.00
3/32"	79-769-6	21.00
7/64"	79-770-4	21.00
1/8"	79-771-2	16.00
9/64"	79-772-0	16.00
5/32"	79-773-8	16.00
11/64"	79-774-6	16.00
3/16"	79-775-3	16.00
13/64"	79-776-1	16.00
7/32"	79-777-9	16.00
15/64"	79-778-7	16.00
1/4"	79-779-5	16.00
17/64"	79-780-3	16.00
9/32"	79-781-1	16.00
19/64"	79-782-9	16.00

COLLET CAP.	PART NUMBER	PRICE
5/16"	79-783-7	$16.00
21/64"	79-784-5	16.00
11/32"	79-785-2	16.00
23/64"	79-786-0	16.00
3/8"	79-787-8	16.00
25/64"	79-788-6	16.00
13/32"	79-789-4	16.00
27/64"	79-790-2	16.00
7/16"	79-791-0	16.00
29/64"	79-792-8	16.00
15/32"	79-793-6	16.00
31/64"	79-794-4	16.00
1/2"	79-795-1	16.00
33/64"	79-796-9	16.00
17/32"	79-797-7	16.00
35/64"	79-798-5	16.00
9/16"	79-799-3	16.00



Specifications:

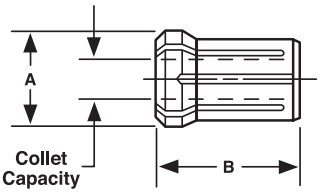
DA SERIES	DIA. A	LENGTH B	CAP. RANGE
100	0.769"	1.44"	3/64" - 9/16"

Collet Sets

SIZE	NO. OF PCS.	PART NUMBER	PRICE
1/4" - 9/16" x 1/32nds	11	79-800-9	$159.00
1/8" - 9/16" x 1/32nds	15	79-801-7	228.00
1/4" - 9/16" x 1/64ths	21	79-802-5	328.00
1/8" - 9/16" x 1/64ths	29	79-803-3	465.00

MACHINE ACCESSORIES





Specifications

DA SERIES	DIA. A	LENGTH B	CAP. RANGE
180	1.035"	1.62"	3/64" - 3/4"

PARLEC Measurably Better

DA-180
Double Angle Collets & Sets

- Full 1/32" range of collapse. A DA-180 3/8" collet will grip a 11/32" drill securely and accurately.
- Concentric within 0.0005" TIR.
- Self-release for rapid easy operation.
- **Important Note:** Inserting the cutting tool less than two-thirds of the gripping length into the collet can influence the coolant sealing performance and damage the collet permanently.

Individual Collets

COLLET CAP.	PART NUMBER	PRICE
3/64"	**79-804-1**	$33.00
1/16"	**79-805-8**	30.00
5/64"	**79-806-6**	30.00
3/32"	**79-807-4**	30.00
7/64"	**79-808-2**	30.00
1/8"	**79-809-0**	23.00
9/64"	**79-810-8**	23.00
5/32"	**79-811-6**	23.00
11/64"	**79-812-4**	23.00
3/16"	**79-813-2**	23.00
13/64"	**79-814-0**	23.00
7/32"	**79-815-7**	23.00
15/64"	**79-816-5**	23.00
1/4"	**79-817-3**	18.00
17/64"	**79-818-1**	18.00
9/32"	**79-819-9**	18.00
19/64"	**79-820-7**	18.00
5/16"	**79-821-5**	18.00
21/64"	**79-822-3**	18.00
11/32"	**79-823-1**	18.00
23/64"	**79-824-9**	18.00
3/8"	**79-825-6**	15.00
25/64"	**79-826-4**	15.00

COLLET CAP.	PART NUMBER	PRICE
13/32"	**79-827-2**	$15.00
27/64"	**79-828-0**	15.00
7/16"	**79-829-8**	15.00
29/64"	**79-830-6**	15.00
15/32"	**79-831-4**	15.00
31/64"	**79-832-2**	15.00
1/2"	**79-833-0**	15.00
33/64"	**79-834-8**	15.00
17/32"	**79-835-5**	15.00
35/64"	**79-836-3**	15.00
9/16"	**79-837-1**	15.00
37/64"	**79-838-9**	15.00
19/32"	**79-839-7**	15.00
39/64"	**79-840-5**	15.00
5/8"	**79-841-3**	15.00
41/64"	**79-842-1**	15.00
21/32"	**79-843-9**	15.00
43/64"	**79-844-7**	15.00
11/16"	**79-845-4**	15.00
45/64"	**79-846-2**	15.00
23/32"	**79-847-0**	15.00
47/64"	**79-848-8**	15.00
3/4"	**79-849-6**	15.00

Collet Sets

SIZE	NO. OF PCS.	PART NO.	PRICE
1/16" - 3/4" x 1/64ths	12	**79-850-4**	$222.00
1/4" - 3/4" x 1/32nds	17	**79-851-2**	277.00
1/8" - 3/4" x 1/32nds	21	**79-852-0**	369.00
1/4" - 3/4" x 1/64ths	33	**79-853-8**	538.00
1/16" - 3/4" x 1/64ths	45	**79-854-6**	837.00

Double Angle Collet Racks
Made From Treated Hardwood



79-902-3

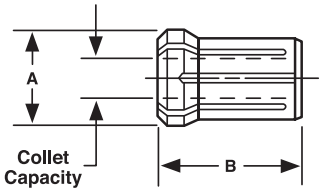
FOR USE WITH	NO. OF HOLES	DIMENSIONS L x W x HT.	PART NUMBER	PRICE
100 DA Collets	21	8 1/2" x 4" x 1 1/4"	**79-901-5**	$45.75
180 DA Collets	36	14" x 6" x 1 1/2"	**79-902-3**	49.15
200 DA Collets	21	6 7/8" x 3 1/4" x 1"	**79-903-1**	41.20
300 DA Collets	21	8" x 3 3/4" x 1"	**79-904-9**	28.65

PARLEC Measurably Better

DA-200
Double Angle Collets & Sets



- Full 1/32" range of collapse. A DA-200 5/16" collet will grip a 9/32" drill securely and accurately.
- Concentric within 0.0005" TIR.
- Self-release for rapid easy operation.
- **Important Note:** Inserting the cutting tool less than two-thirds of the gripping length into the collet can influence the coolant sealing performance and damage the collet permanently.



Specifications

DA SERIES	DIA. A	LENGTH B	CAP. RANGE
200	0.539"	1.18"	3/64" - 25/64"

Individual Collets

COLLET CAP.	PART NUMBER	PRICE
3/64"	**79-855-3**	$28.00
1/16"	**79-856-1**	28.00
5/64"	**79-857-9**	31.00
3/32"	**79-858-7**	31.00
7/64"	**79-859-5**	31.00
1/8"	**79-860-3**	15.00
9/64"	**79-861-1**	15.00
5/32"	**79-862-9**	15.00
11/64"	**79-863-7**	15.00
3/16"	**79-864-5**	15.00
13/64"	**79-865-2**	15.00
7/32"	**79-866-0**	15.00

COLLET CAP.	PART NUMBER	PRICE
15/64"	**79-867-8**	$15.00
1/4"	**79-868-6**	15.00
17/64"	**79-869-4**	15.00
9/32"	**79-870-2**	15.00
19/64"	**79-871-0**	15.00
5/16"	**79-872-8**	15.00
21/64"	**79-873-6**	15.00
11/32"	**79-874-4**	15.00
23/64"	**79-875-1**	15.00
3/8"	**79-876-9**	15.00
25/64"	**79-877-7**	15.00
–	–	–

Collet Sets

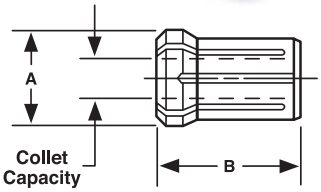
SIZE	NO. OF PCS.	PART NO.	PRICE
1/8" - 3/8" x 1/32nds	9	**79-878-5**	$131.00
1/16" - 3/8" x 1/32nds	11	**79-879-3**	181.00
1/16" - 3/8" x 1/64ths	21	**79-880-1**	351.00

PARLEC Measurably Better

DA-300 Double Angle Collets & Sets

- Full 1/32" range of collapse. Example: 300 series collet 1/4" capacity will grip a drill measuring 7/32" diameter securely and accurately.
- Concentric within 0.0005" TIR.
- Self-release for rapid easy operation.
- **Important Note:** Inserting the cutting tool less than two-thirds of the gripping length into the collet can influence the coolant sealing performance and damage the collet permanently.





Specifications

DA SERIES	DIA. A	LENGTH B	CAP. RANGE
300	0.375"	1.00"	1/32" - 1/4"

Individual Collets

COLLET CAP.	PART NUMBER	PRICE
3/64"	**79-882-7**	$28.00
1/16"	**79-883-5**	23.00
5/64"	**79-884-3**	23.00
3/32"	**79-885-0**	23.00
7/64"	**79-886-8**	23.00
1/8"	**79-887-6**	15.00
9/64"	**79-888-4**	15.00

COLLET CAP.	PART NUMBER	PRICE
5/32"	**79-889-2**	$15.00
11/64"	**79-890-0**	15.00
3/16"	**79-891-8**	15.00
13/64"	**79-892-6**	15.00
7/32"	**79-893-4**	15.00
15/64"	**79-894-2**	15.00
1/4"	**79-895-9**	15.00

Collet Sets

SIZE	NO. OF PCS.	PART NO.	PRICE
1/8" - 1/4" x 1/32nds	5	**79-896-7**	$72.00
1/16" - 1/4" x 1/32nds	7	**79-897-5**	118.00
3/64" - 1/4" x 1/32nds	8	**79-898-3**	146.00
1/8" - 1/4" x 1/64ths	9	**79-899-1**	130.00
3/64" - 1/4" x 1/64ths	14	**79-900-7**	253.00

ER Series Spring Collets

SERIES	MAJOR DIA. A	OAL B
ER-11	0.452"	0.710"
ER-16	0.670"	1.062"
ER-20	0.830"	1.230"
ER-25	1.020"	1.390"
ER-32	1.300"	1.578"
ER-40	1.620"	1.810"



- Collet range is .040" due to revolutionary "X-TRA FLEX DESIGN".
- Tools NEVER GET STUCK in holder due to unique "Built in Self-Release design".
- Any size from 0.020" to 1.020" may be held.
- Where one collect leaves off, the next size picks up.
- An infinite range between minimum and maximum capacities.

NOMINAL SIZE	COLLET RANGE MIN.	MAX.	ER-11 PART NUMBER	PRICE EACH	ER-16 PART NUMBER	PRICE EACH	ER-20 PART NUMBER	PRICE EACH
1/32"	0.020	0.040	**68-733-5**	$53.25	**68-740-0**	$53.25	–	–
1/16"	0.040	0.080	**68-734-3**	53.25	**68-741-8**	53.25	**68-750-9**	$59.20
3/32"	0.080	0.120	**68-735-0**	40.05	**68-742-6**	38.65	**68-751-7**	38.15
1/8"	0.120	0.160	**68-736-8**	40.05	**68-743-4**	38.65	**68-752-5**	38.15
3/16"	0.160	0.200	**68-737-6**	40.05	**68-744-2**	38.65	**68-753-3**	38.15
7/32"	0.200	0.236	**68-738-4**	40.05	**68-745-9**	38.65	**68-754-1**	38.15
1/4"	0.236	0.275	**68-739-2**	40.05	**68-746-7**	38.65	**68-755-8**	38.15
5/16"	0.275	0.315	–	–	**68-747-5**	38.65	**68-756-6**	38.15
11/32"	0.315	0.354	–	–	**68-748-3**	38.65	**68-757-4**	38.15
3/8"	0.354	0.393	–	–	**68-749-1**	38.65	**68-758-2**	38.15
13/32"	0.393	0.433	–	–	–	–	**68-759-0**	38.15
7/16"	0.433	0.472	–	–	–	–	**68-760-8**	38.15
1/2"	0.472	0.511	–	–	–	–	**68-761-6**	38.15

NOMINAL SIZE	COLLET RANGE MIN.	MAX.	ER-25 PART NUMBER	PRICE EACH	ER-32 PART NUMBER	PRICE EACH	ER-40 PART NUMBER	PRICE EACH
1/16"	0.040	0.080	**68-762-4**	$60.55	–	–	–	–
3/32"	0.080	0.120	**68-763-2**	38.70	**68-777-2**	$43.00	–	–
1/8"	0.120	0.160	**68-764-0**	38.70	**68-778-0**	43.00	**68-794-7**	$50.05
3/16"	0.160	0.200	**68-765-7**	38.70	**68-779-8**	43.00	**68-795-4**	50.05
7/32"	0.200	0.236	**68-766-5**	38.70	**68-780-6**	43.00	**68-796-2**	50.05
1/4"	0.236	0.275	**68-767-3**	38.70	**68-781-4**	43.00	**68-797-0**	50.05
5/16"	0.275	0.315	**68-768-1**	38.70	**68-782-2**	43.00	**68-798-8**	50.05
11/32"	0.315	0.354	**68-769-9**	38.70	**68-783-0**	43.00	**68-799-6**	50.05
3/8"	0.354	0.393	**68-770-7**	38.70	**68-784-8**	43.00	**68-800-2**	50.05
13/32"	0.393	0.433	**68-771-5**	38.70	**68-785-5**	43.00	**68-801-0**	50.05
7/16"	0.433	0.472	**68-772-3**	38.70	**68-786-3**	43.00	**68-802-8**	50.05
1/2"	0.472	0.511	**68-773-1**	38.70	**68-787-1**	43.00	**68-803-6**	50.05
17/32"	0.511	0.511	**68-774-9**	38.70	**68-788-9**	43.00	**68-804-4**	50.05
9/16"	0.551	0.590	**68-775-6**	38.70	**68-789-7**	43.00	**68-805-1**	50.05
5/8"	0.590	0.629	**68-776-4**	38.70	**68-790-5**	43.00	**68-806-9**	50.05
21/32"	0.629	0.669	–	–	**68-791-3**	43.00	**68-807-7**	50.05
11/16"	0.699	0.708	–	–	**68-792-1**	43.00	**68-808-5**	50.05
3/4"	0.708	0.748	–	–	**68-793-9**	43.00	**68-809-3**	50.05
25/32"	0.748	0.787	–	–	–	–	**68-810-1**	50.05
13/16	0.787	0.826	–	–	–	–	**68-811-9**	50.05
27/32"	0.826	0.866	–	–	–	–	**68-812-7**	50.05
7/8"	0.866	0.905	–	–	–	–	**68-813-5**	50.05
15/16"	0.905	0.944	–	–	–	–	**68-814-3**	50.05
31/32"	0.944	0.984	–	–	–	–	**68-815-0**	50.05
1"	0.984	1.020	–	–	–	–	**68-816-8**	50.05

ER-16 Straight Shank Extension



SHANK DIA.	SHANK L	PART NO.	PRICE
3/4"	2 1/2"	**69-162-6**	$144.05
3/4"	4"	**69-163-4**	165.65
3/4"	6"	**69-164-2**	191.00

Mini ER-16 Collet Chuck

Symmetrical One-Piece Extended Construction for High RPM Machining Centers for CAT-V & BT Flange

- One ER-16 collet chuck and one ER-16 micro-precision collet ONLY are needed for your small cutting tool to reach a deep, narrow pocket and perform accurate, interference-free machining.
- Within 0.0002" operating accuracy.
- Collets sold separately.



69-155-0

TAPER SIZE	LENGTH	PART NUMBER	PRICE
CAT40	2.75	**69-155-0**	$198.00
CAT40	3.94	**69-156-8**	198.00
CAT40	5.91	**69-157-6**	228.00
CAT50	3.94	**69-158-4**	279.00
CAT50	5.91	**69-159-2**	347.25
BT40	3.94	**69-973-6**	268.55
BT40	5.91	**69-974-4**	268.55
Optional Wrench for Mini ER-16 Collet Chucks		**68-833-3**	25.75

ER Straight Shank Collet Chucks & Extensions



Stubby Collet Chucks

- Ideal for hard-to-machine surfaces.
- Inside back-up screw LH thread included.
- Locknut included.
- Made from high grade alloy steel.

Stubby Collet Chucks

COLLET SERIES	SHANK DIA	OAL	PART NUMBER	PRICE
ER-11	1/2"	3.50"	**34-994-4**	$93.45
ER-11	5/8"	3.50"	**34-995-1**	106.40
ER-16	5/8"	3.65"	**34-996-9**	122.20
ER-16	3/4"	3.65"	**34-997-7**	116.45
ER-20	1"	3.75"	**34-998-5**	130.85
ER-25	1"	6.10"	**34-999-3**	179.70
ER-25	1 1/4"	6.10"	**35-000-9**	158.15
ER-32	1"	6.20"	**35-001-7**	194.10
ER-32	1 1/4"	6.20"	**35-002-5**	172.55
ER-32	1 1/2"	6.20"	**35-003-3**	165.35

Collet Chuck Extension

- Locknut and back-up screw included.

Collet Chuck Extensions with Locknut and Back Up Screw

COLLET SERIES	SHANK DIA.	SHANK LENGTH	LOCKNUT DIA.	LOCKNUT LENGTH	HEX WRENCH SIZE	PART NUMBER	PRICE
ER-11	1/2"	6.65"	0.62"	0.47"	9/16"	**35-004-1**	$102.55
ER-11	5/8"	6.67"	0.62"	0.00"	9/16"	**35-005-8**	116.25
ER-16	5/8"	7.10"	0.86"	0.68"	13/16"	**35-006-6**	138.50
ER-16	3/4"	7.10"	0.86"	0.68"	13/16"	**35-007-4**	126.50
ER-16	1"	7.20"	0.86"	0.68"	13/16"	**35-008-2**	138.50
ER-20	1"	7.20"	1.10"	0.78"	9/16"	**35-009-0**	143.60
ER-25	1 1/4"	7.25"	1.36"	0.84"	1 1/4"	**35-010-8**	188.00

Replacement Locknuts

- Replacement locknuts for the collet chucks listed above.

COLLET SERIES	PART NUMBER	PRICE
ER-11	**35-011-6**	$33.55
ER-16	**35-012-4**	42.80
ER-20	**35-013-2**	51.95
ER-25	**35-014-0**	58.70
ER-32	**35-015-7**	70.45

MACHINE ACCESSORIES

SHOP GRADE
ER Straight Shank Stubby Collet Chucks & Extensions



Stubby Collet Chucks

- Great for hard to machine surfaces.
- Inside left hand threaded back-up screw and locknut Included.
- Made from high grade alloy steel.

Stubby Collet Chucks

COLLET SERIES	SHANK DIA.	OVERALL LENGTH	PART NUMBER	PRICE
ER-11	1/2"	3.50"	**68-944-8**	$76.95
ER-11	5/8"	3.50"	**68-945-5**	87.75
ER-16	5/8"	3.65"	**68-948-9**	101.10
ER-16	3/4"	4.93"	**68-949-7**	96.20
ER-20	1"	3.75"	**68-953-9**	107.50
ER-25	1"	6.10"	**68-955-4**	147.95
ER-25	1 1/4"	6.10"	**68-956-2**	130.65
ER-32	1"	6.20"	**68-958-8**	159.80
ER-32	1 1/4"	6.20"	**68-959-6**	142.50
ER-32	1 1/2"	6.20"	**68-960-4**	136.60

Collet Chuck Extensions

- Complete with locknut and back-up screw.

COLLET SERIES	SHANK DIA.	SHANK LENGTH	LOCKNUT DIA.	LOCKNUT LENGTH	HEX WRENCH SIZE	PART NUMBER	PRICE
ER-11	1/2"	6.65"	0.62"	0.47"	9/16"	**68-946-3**	$115.65
ER-11	5/8"	6.67"	0.62"	0.47"	9/16"	**68-947-1**	104.55
ER-16	5/8"	7.10"	0.86"	0.68"	13/16"	**68-950-5**	106.55
ER-16	3/4"	7.10"	0.86"	0.68"	13/16"	**68-951-3**	111.50
ER-16	1"	7.20"	0.86"	0.68"	13/16"	**68-952-1**	106.55
ER-20	1"	7.20"	1.10"	0.78"	1"	**68-954-7**	124.35
ER-25	1 1/4"	7.25"	1.36"	0.84"	1 1/4"	**68-957-0**	166.70

Replacement Locknuts & Wrenches

COLLET SERIES	LOCKNUTS PART NO.	PRICE	WRENCHES PART NO.	PRICE
ER-11	**68-961-2**	$24.65	**68-995-0**	$9.50
ER-16	**68-962-0**	29.65	**68-996-8**	10.25
ER-20	**68-963-8**	33.40	**68-997-6**	11.35
ER-25	**68-964-6**	37.35	**68-998-4**	17.40
ER-32	**68-965-3**	45.25	**68-999-2**	17.75

Straight Shank Extension & Morse Taper Collet Chucks



ER-20

SHANK DIA.	SHANK LENGTH	PART NUMBER	PRICE
3/4"	2 1/2"	**69-175-8**	$179.60
3/4"	4"	**69-176-6**	210.50
3/4"	6"	**69-177-4**	210.50
MT2	–	**69-178-2**	229.25

ER-25

SHANK DIA.	SHANK LENGTH	PART NUMBER	PRICE
3/4"	2"	**76-139-5**	$201.35
3/4"	4"	**76-140-3**	272.40
MT2	–	**76-141-1**	232.40

Tanged End



SHOP GRADE
Morse Taper End Mill Holders with Tang End

- Hardened and ground throughout for maximum concentricity.

MORSE TAPER	HOLE DIA.	PART NUMBER	PRICE
2MT	3/16"	**68-966-1**	$26.45
2MT	3/8"	**68-967-9**	26.45
2MT	1/2"	**68-968-7** *	26.45
2MT	5/8"	**68-969-5** *	27.90
3MT	3/16"	**68-970-3**	34.10
3MT	3/8"	**68-971-1**	41.80
3MT	1/2"	**68-972-9**	34.10
3MT	5/8"	**68-973-7** *	36.70
3MT	3/4"	**68-974-5** *	37.25
4MT	3/8"	**68-975-2**	38.95
4MT	1/2"	**68-976-0**	41.70
4MT	5/8"	**68-977-8**	43.65
4MT	3/4"	**68-978-6**	40.30
4MT	7/8"	**68-979-4** *	46.15
4MT	1"	**68-980-2** *	46.15
5MT	3/8"	**68-981-0**	53.95
5MT	1/2"	**68-982-8**	53.95
5MT	5/8"	**68-983-6**	52.30
5MT	3/4"	**68-984-4**	55.15
5MT	7/8"	**68-985-1**	64.20
5MT	1"	**68-986-9** *	60.50
5MT	1 1/4"	**68-987-7** *	71.70

*For single end mills only.

Double Angle Collet Chuck Extension

Straight Shank

- Ideal for machining hard-to-reach surfaces.
- For use on CNC Mills.
- Manufactured from high grade, heat-treated alloy steel.
- Black oxide finish for corrosion prevention.
- Comes equipped with inside back-up screw and lock nut.



TAPER SIZE	SHANK DIA.	OAL	LOCK NUT DIA.	LOCK NUT LENGTH	HEX WRENCH SIZE	MAX. DIA. THRU SHANK	CHUCK CAPACITY	PART NUMBER	PRICE
DA-300	1/2"	6.80"	0.56"	1.00"	1/2"	1/4"	1/64 – 1/4"	**68-838-2**	$83.70
DA-200	3/4"	7.10"	0.81"	1.34"	11/16"	3/8"	1/64 – 3/8"	**68-839-0**	99.70
DA-100	1"	7.30"	1.06"	1.54"	7/8"	9/16"	1/4 – 3/8"	**68-840-8**	107.05
DA-180	1 1/4"	7.30"	1.43"	1.54"	1 1/4"	3/4"	1/32 – 3/4"	**68-841-6**	132.45

Replacement Clamping Nuts for ETM Collet Chucks



COLLECT CHUCK MODEL	PART NO.	PRICE EA.
ER-11	**68-826-7**	$50.85
ER-16	**76-143-7**	61.90
ER-20	**68-828-3**	62.00
ER-25	**68-829-1**	67.85
ER-32	**68-830-9**	66.00
ER-40	**68-831-7**	82.90

Replacement Wrenches for Collet Chucks



COLLECT CHUCK MODEL	PART NO.	PRICE EA.
ER-11	**68-832-5**	$28.15
ER-16	**68-833-3**	25.75
ER-20	**68-834-1**	30.30
ER-25	**68-835-8**	31.65
ER-32	**68-836-6**	30.30
ER-40	**68-837-4**	41.70



Drawbar End

SHOP GRADE

Morse Taper End Mill Holders with Drawbar End

- Hardened and ground throughout for maximum concentricity.
- Drawbar thread size 5/8" - 11.

MORSE TAPER	HOLE DIA.	PART NUMBER	PRICE
5MT	3/8"	**68-988-5**	$120.50
5MT	1/2"	**68-989-3**	96.35
5MT	5/8"	**68-990-1**	104.35
5MT	3/4"	**68-991-9**	124.20
5MT	7/8"	**68-992-7**	112.20
5MT	1"	**68-993-5**	150.55
5MT	1 1/4"	**68-994-3**	164.65



NMTB to Morse Taper Adapters

- For adapting Morse Taper tool to milling machines with 30, 40, or 50 NMTB spindles.
- Threads for drawbar:
  No. 30 Taper - 1/2" - 13
  No. 40 Taper - 5/8" - 11
  No. 50 Taper - 1" - 8

INSIDE MORSE TAPER	SHANK SIZE	PART NO.	PRICE
2MT	40	**69-397-8**	$99.50
3MT	40	**69-398-6**	103.05
4MT	40	**69-399-4**	182.70
5MT	40	**69-400-0**	113.50
4MT	50	**69-403-4**	169.30
5MT	50	**69-404-2**	261.70

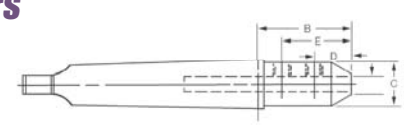
COLLIS TOOL CORPORATION THE TOOLHOLDER PEOPLE

Precision Morse Taper End Mill Holders

Tanged End



70-414-8



- Ground shank and hole.
- Heat treated to provide durable accuracy.

MORSE TAPER	ARBOR HOLE SIZE	PROJ. B	NOSE DIA. C	SET SCREW SPACING	D	E	PART NUMBER	PRICE
5MT	3/4"	2 3/4"	1 3/4"	5/8 - 18	1"	–	**70-413-0**	$158.65
5MT	1"	2 15/16"	2 3/8"	3/4 - 16	1 1/8"	2 1/8"	**70-414-8**	223.50
5MT	1 1/4"	3 5/32"	2 5/8"	3/4 - 16	1 1/8"	2 1/8"	**70-415-5**	242.10
5MT	2"	4 13/16"	3 3/4"	1 1/4"	1 3/8"	2 7/8"	**70-416-3**	511.65
6MT	1 1/4"	3 7/8"	2 5/8"	3/4 - 16	1 1/8"	2 1/8"	**70-417-1**	238.60
6MT	2"	4 13/16"	3 3/4"	1 1/4"	1 3/8"	2 7/8"	**70-418-9**	511.65



R8



30 & 40

SHOP GRADE

NMTB Taper Reducing Adapters

Hardened and Ground Throughout

- For changing from National Standard Taper to R8. #30 & 40.

INSIDE TAPER	NST TAPER	PART NO.	PRICE
R8	40	**35-113-0**	$215.40
R8	50	**35-114-8**	308.75
30	40	**35-115-5**	262.20
30	50	**35-116-3**	296.70
40	50	**35-117-1**	296.70

NMTB Shank End Mill Holders

- Thread for drawbars:
  No. 30 Taper - 1/2" - 13
  No. 40 Taper - 5/8" - 11
  No. 50 Taper - 1" - 8
- Holders 7/8" and larger are fitted with 2 set screws.
- Hardened and ground throughout to assure maximum concentricity.
- Will take double end mills except where specified.

NMTB TAPER	END MILL SHANK. DIA.	STANDARD GRADE IMPORT PART NO.	PRICE
30	3/16"	**69-284-8**	$83.50
30	3/8"	**69-285-5**	83.50
30	1/2"	**69-286-3**	83.50
30	5/8"	**69-287-1**	61.65
30	3/4"	**69-288-9**	83.00
30	7/8"	**69-289-7**	102.25
30	1"	**69-290-5**	102.25
40	3/16"	**69-291-3**	94.35
40	3/8"	**69-292-1**	94.35
40	1/2"	**69-293-9**	94.35
40	5/8"	**69-294-7**	94.35
40	3/4"	**69-295-4**	94.35
40	7/8"	**69-296-2**	103.90

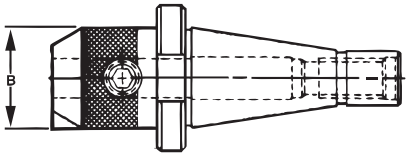
NMTB TAPER	END MILL SHANK. DIA.	STANDARD GRADE IMPORT PART NO.	PRICE
40	1"	**69-297-0**	$103.90
40	1 1/4"	**69-298-8**	113.85
40	1 1/2"	**69-299-6**	113.85
50	3/8"	**69-300-2**	129.30
50	1/2"	**69-301-0**	133.60
50	5/8"	**69-302-8**	133.60
50	3/4"	**69-303-6**	133.60
50	7/8"	**69-331-7**	151.80
50	1"	**69-332-5**	151.80
50	1 1/4"	**69-333-3**	151.80
50	1 1/2"	**69-334-1**	209.95
50	2"	**69-335-8**	209.95
–	–	–	–



MACHINE ACCESSORIES



70-423-9



COLLIS TOOL CORPORATION THE TOOLHOLDER PEOPLE

NMTB Shank End Mill Holders

Precision Milling Machine Holders for Straight Shank End Mills

- End Mills are securely held by one or two set screws.

NMTB 30 Drawbar Thread Size ½" - 13

END MILL SHANK DIA.	B	PART NUMBER	PRICE
3/16"	0.69"	**70-419-7**	$149.15
1/4"	0.69"	**70-420-5** *	149.15
5/16"	1.00"	**70-421-3** *	149.15
3/8"	1.00"	**70-422-1**	149.15
3/4"	1.75"	**70-423-9** *	149.15

NMTB 40 Drawbar Thread Size ⅝" - 11

END MILL SHANK DIA.	B	PART NUMBER	PRICE
3/16"	0.69"	**70-424-7**	$157.10
1/4"	0.69"	**70-425-4**	157.10
5/16"	1.00"	**70-426-2**	157.10
3/8"	1.00"	**70-427-0**	157.10
1/2"	1.38"	**70-428-8**	157.10
5/8"	1.62"	**70-429-6**	157.10
3/4"	1.88"	**70-430-4**	157.10
7/8"	2.00"	**70-431-2**	157.10
1"	2.00"	**70-432-0** *	157.10
1 1/4"	2.38"	**70-433-8** *	192.80

NMTB 50 Drawbar Thread Size 1" - 8

END MILL SHANK DIA.	B	PART NUMBER	PRICE
1/4"	0.69"	**70-434-6**	$215.25
5/16"	1.00"	**70-435-3**	215.25
1/2"	1.38"	**70-436-1**	215.25
5/8"	1.62"	**70-437-9**	215.25
3/4"	1.75"	**70-438-7**	215.25
7/8"	2.00"	**70-439-5**	215.25
1"	2.38"	**70-440-3**	215.25
1 1/4"	2.62"	**70-441-1** *	239.05
1 1/2"	2.88"	**70-442-9** *	250.65
2"	3.75"	**70-443-7** *	341.75

*Accommodates single-end mills only

SHOP GRADE

CNC Keyless Drill Chucks

- Uni-body construction to achieve maximum rigidity.
- Extra holding power with spanner wrench (included).
- Compact design.
- Concentricity within ± 0.0002".



71-759-5

TAPER	FLANGE	RANGE	THREAD	L	PART NO.	PRICE
40	V	0 - 1/2"	5/8" - 11	3.74"	**71-759-5**	$345.70
50	V	0 - 1/2"	1" - 8	4.10"	**71-760-3**	363.60
40	BT	0 - 1/2"	M16 x 2.0	3.75"	**71-761-1**	342.70

ALBRECHT

Wrench-Lock Drill Chucks with Integral Shank

For Portable Tools

- Integral shank for more accuracy, rigidity, and reduction of cost.
- Possibility of chuck slippage is eliminated.
- Wrench included for additional tightening force.
- Max. RPM: 6,500



71-666-2

RANGE	SHANK TYPE	PART NO.	PRICE
1/32 – 1/2"	CAT40	**71-666-2**	$622.30
1/16 – 5/8"	CAT40	**71-667-0**	701.50
1/16 – 5/8"	CAT50	**71-668-8**	816.45
1/32 – 1/2"	BT40	**71-669-6**	622.30



CAT Series
35-184-1



BT Series
35-182-5

SHOP GRADE

CNC Toolholder Tightening Fixtures

Horizontal/Vertical

- Multiple uses on toolholder taper BT and CAT.
- Designed for max. protection of toolholder.
- Compact design for mounting on work table or tool cart.

SHANK TAPER	BASE LENGTH	PART NUMBER	PRICE
BT30	8.26"	**35-182-5**	$258.00
BT40	8.26"	**35-183-3**	104.25
CAT30	8.26"	**35-184-1**	104.25
CAT40	8.26"	**35-185-8**	325.00
BT50	11.02"	**35-186-6**	104.25
CAT50	11.02"	**35-187-4**	258.00



98-097-9



SHOP GRADE

Tool Holding Fixture

for CAT or BT 40/50 Toolholders

- Change end mills, drills, collets and retention knobs quickly and securely.
- Made from 6061 anodized aluminum with steel key.
- Four counter bored screw holes on base for mounting on workbench, toolbox or side of machine.
- Can be assembled for horizontal or vertical use.
- Adjustable handle, can be lifted and turned to any desired position.

DESCRIPTION	PART NO.	PRICE
CAT 40	**98-097-9**	$93.25
CAT 50	**98-098-7**	112.15

COLLIS TOOL CORPORATION THE TOOLHOLDER PEOPLE

Cat V-Flange Collet Chucks



- AT3 shanks.
- Precision ground.
- 0.0002" TIR at the nose.

V-Flange Double Angle Collet Chucks

- Features precision ground compression nut for quick change and interchange with other manufacturer's toolholders for maximum flexibility.

V-Flange ER Collet Chucks

- Allows user precise accurate gripping within 0.0003".
- Improves tool life.
- Higher productivity.
- Threaded thru holes for back up screw.
- Coolant thru.

Double Angle

TAPER TYPE	COLLET SERIES	PROJECTION GAGE LINE TO HOSE END	NUT DIA.	MODEL NUMBER	PART NUMBER	PRICE
CAT40	DA100	3.500"	1.390"	76132	**69-179-0**	$229.75
CAT40	DA180	2.950"	1.690"	76012	**69-180-8**	229.75
CAT40	DA180	4.000"	1.690"	76133	**69-181-6**	237.80
CAT40	DA200	2.730"	1.130"	76032	**69-182-4**	229.75

ER

TAPER TYPE	COLLET SERIES	PROJECTION GAGE LINE TO HOSE END	NUT DIA.	MODEL NUMBER	PART NUMBER	PRICE
CAT40	ER16	2.500"	1.080"	76052	**69-184-0**	$262.55
CAT40	ER16	3.000"	1.080"	75480	**69-185-7**	262.55
CAT40	ER32	3.000"	1.970"	75486	**78-334-0**	257.55
CAT50	ER16	3.000"	1.080"	75810	**78-330-8**	311.65
CAT50	ER32	4.000"	1.970"	75822	**78-338-1**	328.05
CAT50	ER32	6.000"	1.970"	75817	**78-339-9**	360.90

SHOP GRADE

Taper Spindle Wipers

Maintain Spindle Accuracy and Improve Contact



97-306-5

- Wipers use cotton material to clean spindles.
- Taper type: NT, MAS BT, DIN69 871-A DAT.

TAPER SIZE	PART NO.	PRICE
30	**97-306-5**	$30.70
40	**97-307-3**	35.05
50	**97-308-1**	61.30



40-138-0

Spi® Classic

Zoom Comparator

See Pg. 190

Made in Japan

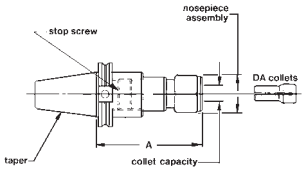
PARLEC Measurably Better

CAT V-Flange Collet Chucks

35-017-3



- Constructed of alloy steel for long, durable service life.
- Hardened to RC 52-56 for long service life.
- Shiny taper with black oxide finish for the best combination of accuracy and durability.
- Through-spindle coolant capability.



Single Angle

TAPER	COLLET SERIES	COLLET SIZE RANGE	PROJ. A	PART NUMBER	PRICE	REPL. COLLET NUT PART NO.	PRICE
CAT40	TG-75	1/16 - 3/4"	3"	**35-016-5**	$147.45	**35-065-2**	$73.20
CAT40	TG-100	3/64 - 1"	3"	**35-017-3** *	124.10	**35-066-0**	62.60
CAT40	TG-100	3/64 - 1"	5"	**35-018-1** *	163.30	**35-066-0**	62.60
CAT40	TG-100	3/32 - 1"	6.5"	**35-019-9**	141.00	**35-066-0**	62.60
CAT40	TG-100	1/2 - 1 1/2"	4.87"	**35-020-7**	285.20	**35-066-0**	62.60
CAT50	TG-100	3/64 - 1"	3"	**35-021-5** *	170.65	**35-066-0**	62.60
CAT50	TG-100	3/64 - 1"	3.5"	**35-022-3** *	181.30	**35-066-0**	62.60
CAT50	TG-100	3/32 - 1"	5.5"	**35-023-1**	198.30	**35-066-0**	62.60
CAT50	TG-100	3/32 - 1"	7.5"	**35-024-9**	216.30	**35-066-0**	62.60
CAT50	TG-150	1/2 - 1 1/2"	3"	**35-025-6**	291.50	**35-067-8**	130.40
CAT50	TG-150	1/2 - 1 1/2	3.5"	**35-026-4**	291.50	**35-067-8**	130.40
CAT50	TG-150	3/32 - 1"	5.5"	**35-027-2**	297.90	**35-067-8**	130.40
CAT50	TG-150	1/2 - 1 1/2"	7.5"	**35-028-0**	312.70	**35-067-8**	130.40

* 3/32 - 1" Collet Size Range

Double Angle

TAPER	COLLET SERIES	COLLET SIZE RANGE	PROJ. A	PART NUMBER	PRICE	REPL. COLLET NUT PART NO.	PRICE
CAT40	DA-180	1/32 - 3/4"	2.95"	**35-029-8**	$169.60	**35-068-6**	$41.40
CAT40	DA-180	1/32 - 3/4"	3.38"	**35-030-6**	179.20	**35-068-6**	41.40
CAT40	DA-180	1/32 - 3/4"	5.15"	**35-031-4**	224.80	**35-068-6**	41.40
CAT40	DA-200	1/64 - 3/8"	2.73"	**35-032-2**	169.60	**35-069-4**	37.10
CAT40	DA-200	1/64 - 3/8"	3"	**35-033-0**	179.20	**35-069-4**	37.10
CAT40	DA-200	1/64 - 3/8"	5"	**35-034-8**	224.80	**35-069-4**	37.10
CAT40	DA-300	1/32 - 1/4"	3.25"	**35-035-5**	179.20	**35-070-2**	32.90
CAT40	DA-300	1/32 - 1/4"	5.15"	**35-036-3**	224.80	**35-070-2**	32.90
CAT50	DA-180	1/64 - 3/8"	3.38"	**35-037-1**	235.40	**35-068-6**	41.40
CAT50	DA-180	1/64 - 3/8"	6.15"	**35-038-9**	238.50	**35-068-6**	41.40
CAT50	DA-180	1/64 - 3/8"	8.15"	**35-039-7**	282.00	**35-068-6**	41.40

ER

TAPER	COLLET SERIES	COLLET SIZE RANGE	PROJ. A	PART NUMBER	PRICE	REPL. COLLET NUT PART NO.	PRICE
CAT40	ER-16	0.020 - 0.433"	2.5"	**35-040-5**	$218.40	**35-071-0**	$38.20
CAT40	ER-16	0.020 - 0.433"	3"	**35-041-3**	208.80	**35-071-0**	38.20
CAT40	ER-16	0.020 - 0.433"	5"	**35-042-1**	230.10	**35-071-0**	38.20
CAT40	ER-20	0.039 - 0.511"	3"	**35-043-9**	212.00	**35-072-8**	42.40
CAT40	ER-20	0.039 - 0.511"	4"	**35-044-7**	216.30	**35-072-8**	42.40
CAT40	ER-20	0.039 - 0.511"	6"	**35-045-4**	239.50	**35-072-8**	42.40
CAT40	ER-25	0.039 - 0.629"	2"	**35-046-2**	214.15	**35-073-6**	48.80
CAT40	ER-25	0.039 - 0.629"	4"	**35-047-0**	224.70	**35-073-6**	48.80
CAT40	ER-25	0.039 - 0.629"	6"	**35-048-8**	248.05	**35-073-6**	48.80
CAT40	ER-32	0.078 - 0.787"	3"	**35-049-6**	222.55	**35-074-4**	53.00
CAT40	ER-32	0.078 - 0.787"	4"	**35-050-4**	222.75	**35-074-4**	53.00
CAT40	ER-32	0.078 - 0.787"	6"	**35-051-2**	247.05	**35-074-4**	53.00
CAT40	ER-40	0.118 - 1.181"	4"	**35-052-0**	220.50	**35-075-1**	82.70
CAT40	ER-40	0.118 - 1.181"	6"	**35-053-8**	277.70	**35-075-1**	82.70
CAT50	ER-16	0.020 - 0.433"	4"	**35-054-6**	243.95	**35-071-0**	38.20
CAT50	ER-16	0.020 - 0.433"	6"	**35-055-3**	261.90	**35-071-0**	38.20
CAT50	ER-20	0.039 - 0.511"	4"	**35-056-1**	254.40	**35-072-8**	42.40
CAT50	ER-20	0.039 - 0.511"	6"	**35-057-9**	268.30	**35-072-8**	42.40
CAT50	ER-20	0.039 - 0.511"	8"	**35-058-7**	337.20	**35-072-8**	42.40
CAT50	ER-25	0.039 - 0.629"	4"	**35-059-5**	258.70	**35-073-6**	48.80
CAT50	ER-25	0 039 - 0 629"	6"	**35-060-3**	277.70	**35-073-6**	48.80
CAT50	ER-32	0.078 - 0.787"	4"	**35-061-1**	260.80	**35-074-4**	53.00
CAT50	ER-32	0.078 - 0.787"	6"	**35-062-9**	280.90	**35-074-4**	53.00
CAT50	ER-40	0.118 - 1.181"	4"	**35-063-7**	268.35	**35-075-1**	82.70
CAT50	ER-40	0.118 - 1.181"	6"	**35-064-5**	303.40	**35-075-1**	82.70

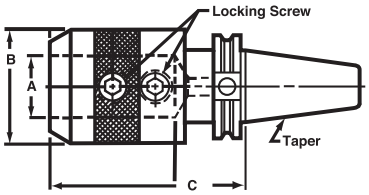
MACHINE ACCESSORIES

PARLEC Measurably Better

Cat V Flange End Mill Holders

Through Spindle Coolant Capability

- Constructed from alloy steel for long durable service life.
- Hardened to 56-60 RC.
- Shiny taper with black oxide finish on the nose for the best combination of accuracy and durability.
- Through spindle coolant capability.




75-723-7

CAT 40

HOLE DIA. A	NOSE DIA. B	PROJE-CTION C	PART NUMBER	PRICE
1/8"	.690"	1.75"	**75-708-8**	$106.80
1/8"	.690"	2.50"	**75-709-6**	94.75
1/8"	1.0"	3.00"	**75-710-4**	161.15
3/16"	.690"	1.75"	**75-711-2**	106.80
3/16"	.690"	2.50"	**75-712-0**	94.70
3/16"	1.0"	3.00"	**75-713-8**	131.95
3/16"	1.0"	6.00"	**75-714-6**	157.05
1/4"	.880"	1.75"	**75-715-3**	94.70
1/4"	.880"	2.50"	**75-716-1**	94.70
1/4"	1.0"	3.00"	**75-717-9**	94.70
1/4"	1.0"	6.00"	**75-718-7**	117.95
5/16"	1.0"	1.75"	**75-719-5**	106.75
5/16"	1.0"	2.50"	**75-720-3**	106.75
5/16"	1.0"	6.00"	**75-721-1**	172.20
3/8"	1.0"	1.75"	**75-722-9**	95.70
3/8"	1.0"	2.50"	**75-723-7**	106.75
3/8"	1.0"	4.50"	**75-724-5**	130.90
3/8"	1.0"	6.00"	**75-725-2**	161.25
7/16"	1.25"	1.75"	**75-726-0**	105.70
7/16"	1.25"	2.62"	**75-727-8**	95.70
1/2"	1.75"	1.75"	**75-728-6**	95.70
1/2"	1.25"	2.62"	**75-729-4**	95.70
1/2"	1.25"	4.00"	**75-730-2**	130.90
1/2"	1.25"	6.00"	**75-731-0**	147.05
9/16"	1.25"	2.62"	**75-732-8**	159.15
9/16"	1.75"	1.75"	**75-733-6**	144.05
5/8"	1.75"	1.75"	**75-734-4**	95.70
5/8"	1.5"	2.75"	**75-735-1**	112.80
5/8"	1.5"	3.00"	**75-736-9**	95.70
5/8"	1.5"	6.00"	**75-737-7**	137.00
3/4"	1.75"	1.75"	**75-738-5**	106.75
3/4"	1.75"	3.00"	**75-739-3**	112.80
3/4"	1.75"	3.50"	**75-740-1**	95.70
3/4"	1.75"	6.00"	**75-741-9**	129.00
7/8"	2.0"	1.75"	**75-742-7**	131.95
7/8"	1.75"	3.50"	**75-743-5**	146.05
7/8"	1.88"	3.75"	**75-744-3**	106.85
1"	2.0"	1.75"	**75-745-0**	106.80
1"	2.0"	3.00"	**75-746-8**	127.95
1"	2.0"	4.00"	**75-747-6**	106.80
1"	2.0"	6.00"	**75-748-4**	147.00
1 1/4"	2.25"	2.00"	**75-749-2**	117.90
1 1/4"	2.5"	4.00"	**75-750-0**	117.80
1 1/4"	2.5"	4.25"	**75-751-8**	161.15
1 1/4"	2.5"	6.00"	**75-752-6**	161.25
1 1/2"	2.62"	4.00"	**75-753-4**	133.95
1 1/2"	2.63"	4.62"	**75-754-2**	170.20
1 1/2"	2.62"	6.00"	**75-755-9**	185.30

CAT 50

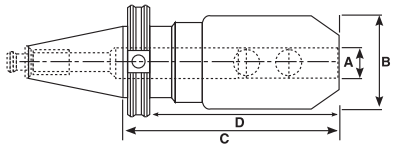
HOLE DIA. A	NOSE DIA. B	PROJE-CTION C	PART NUMBER	PRICE
1/8"	.690"	2.5"	75-756-7	$255.80
3/16"	.690"	2.0"	75-757-5	185.30
1/4"	.880"	2.5"	75-758-3	124.85
1/4"	.880"	4.5"	75-759-1	175.25
5/16"	1.0"	2.5"	75-760-9	181.30
5/16"	1.0"	4.5"	75-761-7	192.35
3/8"	1.0"	2.5"	75-762-5	143.05
3/8"	1.0"	4.5"	75-763-3	145.00
3/8"	1.0"	6.5"	75-764-1	185.25
3/8"	1.0"	8.0"	75-765-8	190.45
7/16"	1.25"	2.62"	75-766-6	174.25
1/2"	1.25"	2.62"	75-767-4	143.05
1/2"	1.25"	4.62"	75-768-2	145.00
1/2"	1.25"	6.62"	75-769-0	168.20
1/2"	1.25"	8.0"	75-770-8	193.25
9/16"	1.5"	2.62"	75-771-6	188.35
5/8"	1.5"	3.75"	75-772-4	146.10
5/8"	1.5"	5.75"	75-773-2	161.25
5/8"	1.5"	7.75"	75-774-0	192.30
3/4"	2.75"	1.63"	75-775-7	145.10
3/4"	1.75"	3.75"	75-776-5	146.10
3/4"	1.75"	5.75"	75-777-3	139.95
3/4"	1.75"	7.75"	75-778-1	192.30
7/8"	1.88"	3.75"	75-779-9	145.00
7/8"	1.88"	5.75"	75-780-7	213.60
1"	2.75"	1.63"	75-781-5	145.05
1"	2.0"	4.0"	75-782-3	145.00
1"	2.0"	6.0"	75-783-1	151.15
1"	2.0"	8.0"	75-784-9	176.30
1 1/4"	2.75"	2.63"	75-785-6	163.20
1 1/4"	2.5"	4.0"	75-786-4	151.05
1 1/4"	2.5"	6.0"	75-787-2	167.20
1 1/4"	2.5"	8.0"	75-788-0	189.35
1 1/2"	2.75"	2.62"	75-789-8	189.35
1 1/2"	2.75"	4.0"	75-790-6	150.15
1 1/2"	2.75"	6.0"	75-791-4	195.40
1 1/2"	2.75"	8.0"	75-792-2	215.50
2"	3.75"	5.62"	75-793-0	226.60
2"	3.75"	7.62"	75-794-8	300.10
2"	3.75"	9.62"	75-795-5	314.20
2 1/2"	4.0"	6.50"	75-796-3	297.20

COLLIS TOOL CORPORATION THE TOOLHOLDER PEOPLE

CAT V-Flange End Mill Holders



- Precision ground - guaranteed within ±0.0002 TIR at the nose.
- Certified AT3 traverse ground shanks.




75-430-9

PARLEC Measurably Better

CAT Jacobs Taper Arbors

- Constructed of alloy steel for long, durable service life.
- Hardened to 56-60 RC.
- Shiny taper with black oxide finish for the best combination of accuracy and durability.
- Taper T.I.R. ≤.0002"
- Parsymmetry™ design for high-speed operation.

CAT 40 Retention Knob Thread Size 5/8" - 11

JACOBS TAPER	GAGE LENGTH	SMALL DIA.	PART NUMBER	PRICE
2JT	1.50"	0.559"	**75-430-9**	$104.15
3JT	1.50"	0.811"	**75-431-7**	104.15
4JT	1.50"	1.124"	**75-432-5**	151.60
6JT	1.50"	0.676"	**75-433-3**	104.05
33JT	1.50"	0.624"	**75-434-1**	104.15

CAT 50 Retention Knob Thread Size 1 - 11

JACOBS TAPER	GAGE LENGTH	SMALL DIA.	PART NUMBER	PRICE
2JT	1.50	0.559	**75-435-8**	$154.65
3JT	1.50	0.811	**75-436-6**	154.70
4JT	1.50	1.124	**75-437-4**	154.65
6JT	1.50	0.676	**75-438-2**	154.65
33JT	1.50	0.624	**75-439-0**	153.55

CAT 40 Retention Knob Thread Size 5/8" - 11

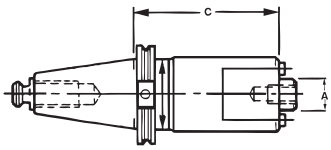
A END MILL SHANK DIA.	B - NOSE PROJECTION DIA.	C - PROJECTION GAGE TO LINE NOSE END	D - PROJECTION FLANGE TO NOSE END	MODEL NUMBER	PART NUMBER	PRICE
1/8"	0.50"	2.38"	2.38"	68070	**69-218-6**	$167.10
3/16"	0.69"	3.00"	2.25"	68071	**69-219-4**	133.95
1/4"	0.69"	2.50"	1.75"	67688	**69-220-2**	119.85
1/4"	0.69"	3.00"	2.25"	68072	**69-221-0**	133.95
5/16"	1"	2.50"	1.75"	67689	**69-222-8**	119.85
3/8"	1"	2.50"	1.75"	67690	**69-223-6**	119.85
3/8"	1"	4.50"	3.75"	67780	**69-224-4**	148.05
1/2"	1.75"	1.75"	1.00"	67781	**69-225-1**	126.90
1/2"	1.25"	2.62"	1.87"	67691	**69-226-9**	133.95
1/2"	1.25"	4.62"	3.87"	67781	**69-227-7**	148.05
5/8"	1.75"	1.75"	1.00"	68082	**69-228-5**	126.90
5/8"	1.62"	3.75"	3.00"	67692	**69-229-3**	133.95
3/4"	1.75"	1.75"	1.00"	68083	**69-231-9**	126.90
3/4"	1.75"	3.75"	3.00"	67693	**69-232-7**	141.10
3/4"	1.75"	5.75"	5.00"	67783	**69-233-5**	162.10
7/8"	2"	4.00"	4.00"	67694	**69-234-3**	141.10
1"	2"	1.75"	1.00"	68084	**69-235-0**	138.15
1"	2.25"	4.00"	3.25"	67695	**69-236-8**	141.10
1"	2.25"	6.00"	5.25"	67785	**69-237-6**	162.10
1 1/4"	2.25"	2.00"	1.25"	68085	**69-238-4**	155.05
1 1/4"	2.5"	4.25"	3.50"	67696	**69-239-2**	162.10
1 1/4"	2.5"	6.25"	5.50"	67786	**69-240-0**	173.40

CAT 50 Retention Knob Thread Size 1" - 8

A END MILL SHANK DIA.	B - NOSE PROJECTION DIA.	C - PROJECTION GAGE TO LINE NOSE END	D - PROJECTION FLANGE TO NOSE END	MODEL NUMBER	PART NUMBER	PRICE
3/8"	1"	2.50"	1.75"	67840	**69-241-8**	$162.10
3/8"	1"	4.50"	3.75"	67850	**69-242-6**	183.30
1/2"	1.38"	2.62"	1.87"	67841	**69-243-4**	162.10
1/2"	1.38"	4.62"	3.87"	67851	**69-244-2**	183.30
5/8"	1.62"	3.75"	3.00"	67842	**69-245-9**	162.10
5/8"	1.62"	5.75"	5.00"	67852	**69-246-7**	190.25
3/4"	1.75"	3.75"	3.00"	67843	**69-247-5**	162.10
3/4"	1.75"	5.75"	5.00"	67853	**69-248-3**	190.25
3/4"	1.75"	7.75"	7.00"	67863	**69-249-1**	204.45
7/8"	2"	3.75"	3.00"	67844	**69-250-9**	162.10
1"	2.75"	2.62"	1.87"	67869	**69-262-4**	162.10
1"	2.25"	4.00"	3.25"	67845	**69-263-2**	176.30
1"	2.25"	6.00"	5.25"	67855	**69-264-0**	190.25
1 1/4"	2.5"	4.00"	3.25"	67846	**69-265-7**	176.30
1 1/4"	2.5"	6.00"	5.25"	67856	**69-266-5**	190.25
1 1/2"	2.75"	4.00"	3.25"	67847	**69-267-3**	183.30
1 1/2"	2.75"	6.00"	5.25"	67857	**69-268-1**	197.40
2"	3.75"	5.62"	4.87"	67848	**69-269-9**	267.90
2 1/2"	4.25"	6.00"	5.25"	67849	**69-270-7**	296.05



35-076-9



PARLEC Measurably Better

CAT V-Flange Shell Mill Holders

- Constructed of alloy steel for long, durable service life.
- Hardened to RC 56-60 for long service life.
- Shiny taper with black oxide finish for the best combination of accuracy and durability.
- Through-spindle coolant capability.

CAT-40 Retention Knob Thread Size 5/8" - 11

PILOT DIA. E	CUTTER RANGE	LOCK SCREW THREAD	PROJ. C	LOCK SCREW	PART NUMBER	PRICE
3/4"	1 3/4 - 2"	3/8 - 24	1.38"	75LS	**35-076-9**	$131.50
3/4"	1 3/4 - 2"	3/8 - 24	4.00"	N/A	**35-077-7**	177.15
3/4"	1 3/4 - 2"	3/8 - 24	1.50"	75LS	**35-078-5**	159.00
1"	2 1/4 - 2 3/4"	1/2 - 20	1.00"	10LS	**35-079-3**	173.90
1"	2 1/4 - 2 3/4"	1/2 - 20	2.00"	10LS	**35-080-1**	131.50
1"	2 1/4 - 2 3/4"	1/2 - 20	4.00"	10LS	**35-081-9**	177.15
1 1/4"	3 - 3 1/2"	5/8 - 18	1.62"	12LS	**35-082-7**	262.90
1 1/4"	3 - 3 1/2"	5/8 - 18	2.25"	12LS	**35-083-5**	139.90
1 1/4"	3 - 3 1/2"	5/8 - 18	4.00"	12LS	**35-084-3**	200.45
1 1/2"	4 - 5"	3/4 - 16	2.40"	15LS	**35-085-0**	156.95
1 1/2"	4 - 5"	3/4 - 16	4.00"	15LS	**35-086-8**	223.75

CAT-50 Retention Knob Thread Size 1 - 11

PILOT DIA. E	CUTTER RANGE	LOCK SCREW THREAD	PROJ. C	LOCK SCREW	PART NUMBER	PRICE
3/4"	1 3/4 - 2"	3/8 - 24	1.50"	75LS	**35-087-6**	$159.05
3/4"	1 3/4 - 2"	3/8 - 24	3.50"	75LS	**35-088-4**	205.65
3/4"	1 3/4 - 2"	3/8 - 24	5.50"	75LS	**35-089-2**	265.00
1"	2 1/4 - 2 3/4"	1/2 - 20	2.00"	10LS	**35-090-0**	165.40
1"	2 1/4 - 2 3/4"	1/2 - 20	4.00"	10LS	**35-091-8**	223.65
1"	2 1/4 - 2 3/4"	1/2 - 20	6.00"	10LS	**35-092-6**	278.80
1 1/4"	3 - 3 1/2"	5/8 - 18	1.50"	12LS	**35-093-4**	187.65
1 1/4"	3 - 3 1/2"	5/8 - 18	3.50"	12LS	**35-094-2**	223.60
1 1/4"	3 - 3 1/2"	5/8 - 18	5.50"	12LS	**35-095-9**	288.45
1 1/2"	4 - 5"	3/4 - 16	2.40"	15LS	**35-096-7**	198.30
1 1/2"	4 - 5"	3/4 - 16	4.00"	15LS	**35-097-5**	242.80
1 1/2"	4 - 5"	3/4 - 16	6.00"	15LS	**35-098-3**	311.70
2"	5 1/2 - 6"	1 - 14	2.40"	20LS	**35-099-1**	235.25
2"	5 1/2 - 6"	1 - 14	4.00"	20LS	**35-100-7**	333.90
2"	5 1/2 - 6"	1 - 14	6.00"	20LS	**35-101-5**	414.50
2 1/2"	6 - 8"	1 - 14	2.40"	25LS	**35-102-3**	325.50
2 1/2"	6 - 8"	1 - 14	4.00"	25LS	**35-103-1**	403.90



35-558-6

Plastic CNC Tool Racks

Used with Tool Storage System

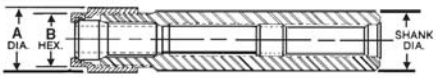
- 16" L x 7" W x 5" H.
- 10-Tool capacity.
- Portable.

TAPER SIZE	PART NO.	PRICE
CAT-30	**35-558-6**	$39.95
CAT-40	**35-559-4**	39.95

"Stubby" Double Angle Collet Chucks

- Ideal for use on manual & CNC chuckers, CNC lathes & screw machines.
- Back-up screw included.





DA COLLET SERIES	SHANK DIA.	OAL	A DIA.	B HEX SIZE	MAX. DIA. THROUGH SHANK	COLLET CHUCK PART NUMBER	COLLET CHUCK PRICE EACH	REPL. LOCK NUT PART NUMBER	REPL. LOCK NUT PRICE EACH
300	0.500"	3.60"	0.56"	1/2"	1/4"	**69-191-5**	$99.75	**69-198-0**	$24.55
200	0.625"	3.75"	0.75"	11/16"	3/8"	**69-192-3**	106.70	**69-199-8**	26.05
200	0.750"	3.80"	0.81"	3/4"	3/8"	**69-193-1**	117.75	**69-200-4**	28.15
100	1.000"	4.00"	1.06"	7/8"	9/16"	**69-194-9**	126.75	**69-214-5**	31.75
180	1.250"	6.20"	1.56"	1 3/8"	3/4"	**69-195-6**	159.75	**69-215-2**	54.90
180	1.500"	6.20"	1.56"	1 3/8"	3/4"	**69-196-4**	171.30	**69-215-2**	54.90

MACHINE ACCESSORIES

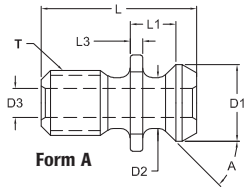


35-140-3

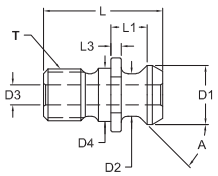
CNC Toolholder Retention Knobs

Retention Knob Safety! - Retention knobs are not intended to last forever. Your Safety Program must include Retention Knob Inspections. Knobs must be visually inspectedfor damage and checked for tightness every time the tool in the holder is changed.

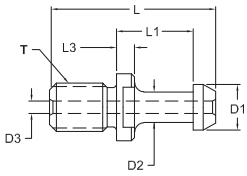
Every 2 or 3 years, depending on use, knobs should be removed from the holder and Magnetic Particle Inspected. Any Retention Knobs showing indications of cracking must be discarded. If your machine is in a crash, or releases a tool prematurely, this is an indication that either the Retention Knob Fingers, Finger Guide, Belleville Washers in the Spindle, or the Retention Knob is damaged. **The machine tool should not be used until inspected by Maintenance Personnel.** In this case all the retention knobs in the machine should be checked for cracks or damage immediately.



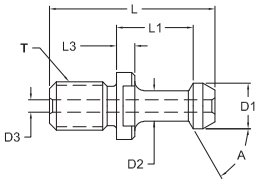
Form A



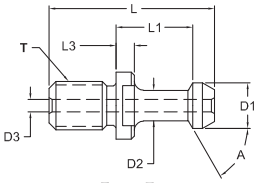
Form B



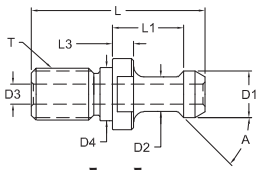
Form C



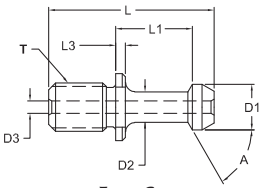
Form D



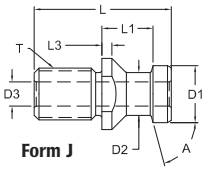
Form E



Form F



Form G



Form J

FORM DWG.	"T" THREADS DIA./ PITCH	"A" ANGLE RAD. (°)	"D1" KNOB DIA. (IN.)	"D2" NECK DIA. (IN.)	"D3" HOLE DIA. (IN.)	"D4" PILOT DIA. (IN.)	"L" OAL (IN.)	"L1" L. (IN.)	"L3" FLANGE THICK. (IN.)	PART NUMBER	PRICE
BT-30											
F	M12 x 1.75	45	0.428	0.271	–	0.490	1.699	0.710	0.19	**35-127-0**	$21.00
F	M12 x 1.75	60	0.428	0.271	–	0.490	1.699	0.710	0.19	**35-128-8**	25.00
BT-40											
B	M16 x 2	45	0.740	0.491	0.280	0.669	1.650	0.440	0.12	**35-130-4**	$33.00
B	M16 x 2	45	0.740	0.490	–	0.669	1.853	0.552	0.23	**35-131-2**	40.00
D	M16 x 2	90	0.589	0.391	–	0.669	2.362	1.100	0.23	**35-132-0**	31.00
F	M16 x 2	15	0.748	0.550	–	0.669	2.126	0.905	0.28	**35-133-8**	25.00
F	M16 x 2	15	0.748	0.550	0.276	0.669	2.126	0.905	0.28	**35-134-6**	30.00
F	M16 x 2	45	0.589	0.391	0.197	0.669	2.362	1.100	0.23	**35-135-3**	38.00
F	M16 x 2	45	0.589	0.391	–	0.669	2.362	1.100	0.23	**35-669-1**	25.00
F	M16 x 2	60	0.589	0.394	0.197	0.669	2.363	1.100	0.24	**35-136-1**	38.00
F	M16 x 2	60	0.589	0.391	–	0.669	2.362	1.100	0.23	**35-137-9**	25.00
CT-40											
B	5/8-11	45	0.740	0.490	0.281	0.635	1.624	0.440	1.60	**35-139-5**	$20.00
C	5/8-11	90	0.589	0.391	0.197	–	2.136	0.988	0.23	**35-140-3**	21.00
D	5/8-11	90	0.589	0.391	–	0.635	2.250	0.988	0.23	**35-143-7**	25.00
D	5/8-11	90	0.589	0.391	–	0.635	2.037	0.775	0.19	**35-144-5**	37.00
E	5/8-11	60	0.588	0.392	0.197	–	2.130	0.988	0.23	**35-145-2**	38.00
F	5/8-11	45	0.589	0.392	–	0.635	2.250	0.988	0.24	**35-149-4**	25.00
F	5/8-11	45	0.589	0.392	0.200	0.635	2.250	0.988	0.24	**35-150-2**	32.00
F	5/8-11	60	0.589	0.391	–	0.635	2.250	0.988	0.23	**35-151-0**	25.00
G	5/8-11	15	0.744	0.549	–	–	1.884	0.787	0.28	**35-152-8**	25.00
G	5/8-11	15	0.744	0.549	0.276	–	1.884	0.787	0.28	**35-153-6**	32.00
G	5/8-11	45	0.588	0.392	–	–	2.265	1.000	0.24	**35-154-4**	25.00
G	5/8-11	45	0.589	0.404	–	–	2.298	1.137	0.19	**35-155-1**	30.00
G	5/8-11	45	0.589	0.404	0.157	–	2.298	1.137	0.19	**35-156-9**	35.00
G	5/8-11	45	0.589	0.391	–	–	2.130	0.988	0.13	**35-157-7**	25.00
G	5/8-11	45	0.589	0.391	0.157	–	2.130	0.988	0.13	**35-158-5**	32.00
G	5/8-11	60	0.589	0.391	–	–	2.130	0.988	0.13	**35-159-3**	32.00
J	5/8-11	75	0.746	0.550	0.281	–	1.880	0.789	0.18	**35-160-1**	32.00
BT-50											
D	M24 x 3	90	0.904	0.667	–	0.983	3.340	1.376	0.39	**35-162-7**	$35.00
F	M24 x 3	45	0.904	0.667	0.250	0.983	3.340	1.376	0.39	**35-163-5**	40.00
F	M24 x 3	45	0.904	0.667	–	0.983	3.340	1.376	0.39	**35-164-3**	28.00
F	M24 x 3	60	0.904	0.667	–	0.983	3.340	1.376	0.39	**35-165-0**	35.00
CT-50											
A	1-8	45	1.140	0.820	–	–	2.300	0.700	0.20	**35-166-8**	$24.00
A	1-8	45	1.140	0.820	0.468	–	2.300	0.700	0.20	**35-167-6**	24.00
B	1-8	45	1.140	0.820	0.390	1.026	2.300	0.700	0.20	**35-168-4**	35.00
B	1-8	45	1.140	0.820	0.468	1.031	2.300	0.700	0.20	**35-169-2**	37.00
C	1-8	90	0.904	0.669	–	–	3.080	1.388	0.40	**35-170-0**	28.00
C	1-8	90	0.904	0.667	–	–	3.071	1.376	0.39	**35-171-8**	28.00
D	1-8	90	0.904	0.669	0.250	1.026	3.240	1.388	0.40	**35-173-4**	33.00
F	1-8	45	0.899	0.663	–	1.026	3.350	1.376	0.41	**35-178-3**	28.00
F	1-8	45	0.899	0.663	0.390	1.026	3.350	1.376	0.41	**35-179-1**	33.00
F	1-8	60	0.904	0.667	–	1.026	3.350	1.376	0.39	**35-180-9**	28.00
J	1-8	75	1.101	0.825	0.468	–	2.645	0.990	0.20	**35-181-7**	40.00

CAUTION:

Use of incorrect retention knob can result in serious damage and personal injury. When in doubt about the dimensions of your knob, Email Technical Support **techsupport@swissprec.com** with details of machine, make and model number.



SHOP GRADE

Circular Saw Arbors

- Steel, heat treated shanks.
- Ideal for precision slotting and trimming of small parts.

3/8" dia. Shanks for Sawblades 0.001 to 0.093"

FLANGE DIA.	SAW BLADE HOLE DIA.	PART NO.	PRICE
1/2"	1/4"	**96-061-7**	$29.05
5/8"	3/8"	**96-062-5**	33.70
3/4"	1/2"	**96-063-3**	35.15
Set of above 3 arbors with wrenches on fitted base		**96-064-1**	105.45

1/2" dia. Shanks for Sawblades 0.001 to 0.1"

FLANGE DIA	SAW BLADE HOLE DIA.	PART NO.	PRICE
1/2"	1/4"	**96-065-8**	$29.60
5/8"	3/8"	**96-066-6**	33.95
3/4"	1/2"	**96-067-4**	35.40
Set of above 3 arbors with wrenches on fitted base		**96-068-2**	109.55
1" flange for 5/8" dia. sawblade hole, with 5/8" dia. shank		**96-069-0**	49.95



Straight Shank Arbor

R8 Arbor

Semi-Flush Milling Arbors

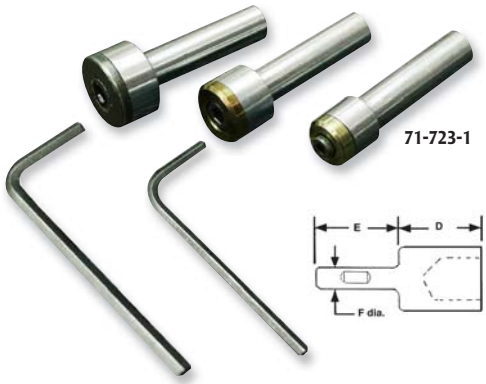
Arbors are recommended for slitting saws and milling cutters up to 1/2" thick. They are made up of 4 pieces consisting of the arbor, key, arbor holder and coupling nut. It works on a "pull through" principle. The cutter slips onto the arbor, the threaded end is then pushed through the arbor holder and is held in by a coupling nut at the opposite end of the cutter.

- Machine's drawbar threads into the coupling nut like a standard arbor to hold the arbor and the cutter in place.
- Arbor holder is of alloy steel, hardened and ground to eliminate cutter runout.
- OAL: 4.80".
- Steel keys assure positive drive of both clamping faces, as well as the cutter.
- Wide cutters can be recessed to accommodate the 0.16" arbor shoulder to provide full flush capacity.

SHANK TAPER	ARBOR DIA.	BODY LENGTH	OD	PART NUMBER	PRICE
1" SS	1"	7/8"	1 1/2"	**58-910-1**	$406.90
1" SS	1 1/4"	7/8"	1 7/8"	**58-911-9**	436.30
R8	1"	7/8"	1 1/2"	**58-912-7**	406.90
R8	1 1/4"	7/8"	1 7/8"	**58-913-5**	436.30

SHOP GRADE

Precision Slitting & Slotting Long Reach Saw Arbors



- Hardened and ground.
- Deep low profile caps give extra support and less vibration.

Standard

- For general purpose slitting saw applications.
- Weldon type shank.
- Tolerances: 0.001" concentricity shank (F) to bore (A) and 0.001" squareness to clamping face (C).

Precision

- When tenths are what you need
- Engineered for carbide cutters or where accuracy is a must
- Weldon shank with 3/4" flats.
- Tolerances: 0.0004" concentricity

ARBOR SIZE A	SHANK DIA. F	FLANGE DIA. B	SHANK LENGTH E	BODY LENGTH D	CAP. THICK. C	STANDARD PART NUMBER	STANDARD PRICE	PRECISION PART NUMBER	PRECISION PRICE
1/4"	1/2"	1/2"	1.70"	1.00"	0.125"	**71-709-0**	$35.60	**71-717-3**	$78.35
3/8"	1/2"	5/8"	1.70"	1.18"	0.125"	**71-710-8**	37.05	**71-718-1**	81.55
1/2"	1/2"	3/4"	1.70"	1.37"	0.125"	**71-711-6**	39.00	**71-719-9**	85.80
5/8"	3/4"	1"	2.03"	1.50"	0.125"	**71-712-4**	42.90	**71-720-7**	94.40
1"	3/4"	1 1/2"	2.03"	1.75"	0.160"	**71-713-2**	49.25	**71-721-5**	108.35
1 1/4"	3/4"	1 3/4"	2.03"	2.00"	0.220"	**71-714-0**	50.20	**71-722-3**	110.45
Set of 3 Long Reach Arbors 1/4", 3/8", 1/2"						**71-715-7**	96.55	**71-723-1**	189.00
Set of 3 Long Reach Arbors 5/8", 1", 1 1/4"						**71-716-5**	122.00	**71-724-9**	268.30

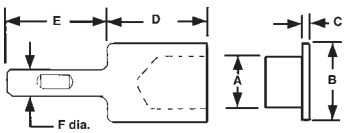
Precision Slitting & Slotting Long Reach Saw Arbors



66-300-5



66-308-8



- Hardened and ground.
- Deep low profile caps gives extra support and less vibration.

Standard Tolerance Arbors

- Tolerance: 0.003" concentricity shank (F) to bore (A) and 0.001" squareness to clamping face (C).
- General purpose slitting/saw applications.
- Weldon shanks.

Precision Tolerance/Gold Arbors when Tenths are What You Need

- Tolerance: 0.0004" concentricity shank (F) to bore (A) and 0.0004" squareness to clamping face (C).
- Engineered for carbide cutters or where accuracy is a must.
- Weldon flat on 3/4" shanks.

SAW ID A	B	C	D	E	F	STANDARD PART NO.	STANDARD PRICE EA.	GOLD SERIES PART NO.	GOLD SERIES PRICE EA.
0.250"	0.500"	0.080"	1.000"	1.700"	0.500"	**66-293-2**	$54.40	**66-301-3**	$168.55
0.375"	0.625"	0.080"	1.180"	1.700"	0.500"	**66-294-0**	56.70	**66-302-1**	194.95
0.500"	0.750"	0.095"	1.370"	1.700"	0.500"	**66-295-7**	59.85	**66-303-9**	217.75
0.625"	1.000"	0.122"	1.500"	2.030"	0.750"	**66-296-5**	65.80	**66-304-7**	231.45
1.000"	1.500"	0.160"	1.750"	2.030"	0.750"	**66-297-3**	75.40	**66-305-4**	270.80
1.250"	1.750"	0.220"	2.000"	2.030"	0.750"	**66-298-1**	76.90	**66-306-2**	284.20
Set of 3 Long Reach Arbors 0.250, 0.375 - 0.500						**66-299-9**	147.55	**66-307-0**	524.95
Set of 3 Long Reach Arbors 0.625, 1.000 - 1.250						**66-300-5**	186.40	**66-308-8**	705.10

MACHINE ACCESSORIES



66-701-4

SHOP GRADE
Running Bushings for Milling Machine Arbors

- Bushings are hardened and ground parallel and perpendicular to ensure maximum holding power, a rigid set-up and accurate machining operations.
- Guaranteed not to have run-out in excess of 0.01 mm/0.00039".
- Bushings have standard keyway which permits keying to the arbor to prevent rotation and excessive heat generation.

HOLE DIA.	O.D.	LENGTH	PART NUMBER	PRICE
1"	1 5/8"	2 5/8"	**66-701-4**	$32.70
7/8"	1 7/8"	3 1/8"	**66-703-0**	32.70
1"	1 7/8"	3 1/8"	**66-704-8**	32.70
1 1/4"	1 7/8"	3 1/8"	**66-705-5**	32.70
7/8"	2 1/8"	3 3/4"	**66-706-3**	44.00
1"	2 1/8"	3 3/4"	**66-707-1**	44.00
1 1/4"	2 1/8"	3 3/4"	**66-708-9**	44.00
1 1/2"	2 1/8"	3 3/4"	**66-709-7**	44.00
1"	2 3/4"	4 1/4"	**66-711-3**	56.45
1 1/4"	2 3/4"	4 1/4"	**66-712-1**	56.45
1 1/2"	2 3/4"	4 1/4"	**66-713-9**	56.45
2"	2 3/4"	4 1/4"	**66-714-7**	56.45

Milling Machine Arbor Accessories

Arbor Nuts

- Arbor Nuts are hardened.
- Ground thread & shoulder.

FOR ARBOR DIAMETER	THREAD SIZE	RIGHT HAND PART NO.	PRICE
7/8"	7/8" - 14	**66-720-4**	$17.95
1"	1" - 14	**66-721-2**	19.20
1 1/4"	1 1/4" - 12	**66-722-0**	28.70
1 1/2"	1 1/2" - 12	**66-723-8**	35.85
2"	2" - 12	**66-724-6**	40.70
2 1/2"	2 1/2" - 12	**66-725-3**	47.70





Arbor Spacers with Keyways

- Solid Spacers, hardened and precision ground.
- Standard keyway lapped to ensure parallelism and true running of milling cutters

WIDTH OF SPACER	7/8" HOLE 1 3/8" O.D. PART NO.	PRICE	1" HOLE 1 1/2" O.D. PART NO.	PRICE	1 1/4" HOLE 1 3/4" O.D. PART NO.	PRICE	1 1/2" HOLE 2 1/8" O.D. PART NO.	PRICE	2" HOLE 2 3/4" O.D. PART NO.	PRICE
1/16"	**66-580-2**	$5.55	**66-600-8**	$6.35	**66-620-6**	$6.85	**66-640-4**	$9.55	–	–
3/32"	**66-581-0**	5.55	**66-601-6**	6.35	**66-621-4**	6.85	**66-641-2**	22.65	–	–
1/8"	**66-582-8**	5.55	**66-602-4**	6.00	**66-622-2**	6.85	**66-642-0**	9.55	**66-662-8**	$30.25
3/16"	**66-583-6**	5.55	**66-603-2**	5.90	**66-623-0**	6.85	**66-643-8**	9.55	**66-663-6**	20.80
1/4"	**66-584-4**	5.55	**66-604-0**	6.40	**66-624-8**	7.90	**66-644-6**	10.35	**66-664-4**	34.05
5/16"	**66-585-1**	5.55	**66-605-7**	6.40	**66-625-5**	8.00	**66-645-3**	10.75	**66-665-1**	37.15
3/8"	**66-586-9**	5.55	**66-606-5**	7.40	**66-626-3**	8.00	**66-646-1**	12.45	**66-666-9**	38.45
7/16"	**66-587-7**	7.20	**66-607-3**	7.95	**66-627-1**	9.55	**66-647-9**	12.30	–	–
1/2"	**66-588-5**	7.20	**66-608-1**	7.95	**66-628-9**	10.15	**66-648-7**	13.10	**66-668-5**	43.50
5/8"	**66-589-3**	7.90	**66-609-9**	9.50	**66-629-7**	11.00	**66-649-5**	14.75	–	–
3/4"	**66-590-1**	8.75	**66-610-7**	11.00	**66-630-5**	12.30	**66-650-3**	15.90	**66-670-1**	51.25
7/8"	**66-591-9**	11.10	**66-611-5**	12.90	**66-631-3**	13.10	**66-651-1**	16.75	–	–
1"	**66-592-7**	11.10	**66-612-3**	12.90	**66-632-1**	14.20	**66-652-9**	18.95	**66-672-7**	58.10
1 1/4"	**66-593-5**	11.10	**66-613-1**	15.90	**66-633-9**	20.40	**66-653-7**	36.35	**66-673-5**	65.80
1 1/2"	**66-594-3**	11.95	**66-614-9**	17.50	**66-634-7**	20.70	**66-654-5**	22.25	–	–
2"	**66-595-0**	18.20	**66-615-6**	20.60	**66-635-4**	23.00	**66-655-2**	26.70	**66-675-0**	86.20
3"	**66-596-8**	23.75	**66-616-4**	26.65	**66-636-2**	28.55	**66-656-0**	34.10	**66-676-8**	107.60



SHOP GRADE
Precision Drill Chucks
3 Jaw, with Key

- Heavy duty precision drill chucks with high gripping power.
- Thrust ball bearings for high speed drilling.
- All parts are hardened and precision ground for superior concentricity.

RANGE	TAPER	DIA.	LENGTH OPEN	LENGTH CLOSED	PART NUMBER	PRICE
1/32 - 3/8"	J2	1.77"	2.20"	2.52"	**71-767-8**	$60.85
1/32 - 1/2"	J6	2.44"	2.95"	3.74"	**71-769-4**	71.00
Replacement key for 71-769-4					**71-756-1**	6.50



71-738-9



71-739-7

Jacobs®
SoftGrip™ Keyless Drill Chucks
For AC/DC/Pneumatic Rotary Hammer Drills
Series 3000 & 6000

- SoftGrip™ sleeve for easier, more comfortable tightening and more grip torque for preventing your hands from being irritated during frequent tightening.
- Increases grip torque up to 300% over standard bite chucks.
- Anti-lock mechanism prevents chuck from locking open.
- **Series 6000** with Hammerlock® provides a positive locking mechanism, which prevents loosening in hammer and other high vibration applications.

SERIES	CAPACITY	MOUNT	PART NO.	PRICE
3000	1/16" – 1/2"	3/8" - 24	**71-738-9**	$38.15
6000	1/16" – 1/2"	1/2" - 20	**71-739-7**	81.35


71-600-1

Jacobs® Adapt-A-Drive® Drill Chuck

For Portable Tools

- Converts any cordless screwdriver to a multi-purpose mini-drill for bit sizes up to 1/4".
- Easy conversion.
- Integral hex mount locks the Adapt-A-Drive® chuck into the screwdriver bit socket.
- Ideal for starting screw holes in hard-to-reach spaces.

MOUNT	CAPACITY	PART NO.	PRICE
1/4 Hex	0.028" – 0.250"	**71-600-1**	$33.80

Jacobs® Super Chuck Keyed Ball Bearing Drill Chucks

- Specially engineered for heavy duty close tolerance production drilling.
- Ideal for use on jig borers, milling machines, lathes and radial drill presses.
- Ball bearing construction maximizes gripping force and drilling accuracy.
- Jaws are centerground for absolute straightness and alignment.
- All working components are hardened for maximum wear resistance.


71-742-1

RANGE	MOUNT	KEY	PART NO.	PRICE
0 - 3/8"	JT 2	K32	**71-740-5**	$139.85
0 - 1/2"	JT 3	K3	**71-741-3**	204.20
1/8 - 5/8"	JT 3	K4	**71-742-1**	231.80
1/8 - 3/4"	JT 4	K4	**71-743-9**	348.20
3/8 - 1"	JT 5	K5	**71-744-7**	469.70

Plain Bearing Keyed Drill Chucks

- The JACOBS plain Bearing Chucks are the world's most widely used.
- Medium duty for use on all types of floor, bench or portable machinery.
- Jaws are specially treated and centerground to ensure extended life and high gripping power.
- All working components are hardened and ground.


71-747-0

RANGE	MOUNT	KEY	PART NO.	PRICE
.080 - 1/2"	JT33	K32	**71-746-2**	$124.05
0 - 3/8"	3/8" - 24	K2	**71-747-0**	112.55
.080 - 1/2"	1/2" - 20	K32	**71-748-8**	116.50

Wedge Sets

- Tapered steel blades used in pairs to disassemble chucks from arbors and spindles.



FOR TAPER	PART NO.	PRICE	FOR TAPER	PART NO	PRICE
JT 1	**71-749-6**	$16.60	JT 3	**71-751-2**	$16.60
JT 2	**71-750-4**	16.60	JT 6	**71-752-0**	16.60

Note: To remove JT 4 and JT 5 Drill Chucks, combine JT 3 and JT 6 Wedge Sets.

Replacement Keys



KEY	PART NO.	PRICE	KEY	PART NO.	PRICE
K30	**71-753-8**	$5.55	K 3	**71-756-1**	$6.50
K32	**71-754-6**	11.00	K 4	**71-757-9**	13.25
K 2	**71-755-3**	6.25	K 5	**71-758-7**	23.75


35-190-8

Drill Chuck Keys

For Plain Bearing & Ball Bearing Chucks

KEY #	USED ON JACOBS CHUCK	PART NO.	PRICE
K0	0, OB	**35-190-8**	$4.00
K1	1A, 1B	**35-191-6**	3.60
K2	2A, 2B	**35-192-4**	4.90
K3	6A, 6AE, 6B, 34, 34B, 34KD, 34PD, 3, 3A, 3AE, 3B, 3KD, 3PD, 14N, 55B, 56B, 58B, 75A	**35-193-2**	5.10
K7	7, 7B	**35-194-0**	3.80
K30	30, 30B, 31B, 31BA, 8 1/2N	**35-195-7**	3.90
K32	34-33 C	**35-196-5**	3.80

4-Way Master Chuck Keys


35-188-2

- Master Key will fit all popular drill chucks.
- Properly marked eliminating the need for different types of keys.

Small 4-Way Key For Jacobs Chuck No.'s

7BA3/8	SM4G61-T2	26BA1/2	SM8K64-T1
31BA1/2	KM4G61-T1	8 1/2N	DC4G61-T1
20BA3/8	DC8K61-T1	31-01	SM8K33-T1
22BA3/8	SM8K61	31-02	DC4G61-T2
22KG3/8	SM4G61-T1	225BA	74K
24BA3/8	SM1G61	29A33	31BA3/8

Large 4-Way Key For Jacobs Chuck No.'s

3A	3B5/8	36	33BA1/23
3KD	32BA1/2	36KD	33BA5/8
3PD	35B1/2	36PD	11N
34-02	36B5/8	2A	14N
34-06	36B3/4	33	16N
34-33	2BA3/8	3326A	18N
34-33C	33BA3/8	33KD	3326E

DESCRIPTION	PART NO.	PRICE
Small 4 Way Key	**35-188-2**	$29.95
Large 4 Way Key	**35-189-0**	31.95


72-014-4

Keyless Drill Chucks

- For exacting production line and tool room use.
- Easily closed by hand.
- The greater the load it grips, the tighter it becomes. Does not slip.
- Hardened, ground, and accurately made.
- An excellent value for all shops.

MOUNT	CAPACITY	PART NO.	PRICE
1JT	0 – 5/16"	**72-014-4**	$114.70
2JT	0 – 3/8"	**72-015-1**	119.95
33JT	0 – 3/8"	**72-016-9**	119.95
6JT	0 – 1/2"	**72-017-7**	114.15
33JT	0 – 1/2"	**72-018-5**	114.15
6JT	1/8 – 5/8"	**72-019-3**	151.25

ALBRECHT High Precision Drill Chucks

3 Jaw, Keyless



- All working parts ground and hardened to exact specifications for lasting accuracy and life.
- Every part interchangeable.
- Special thrust bearing.
- For precision work as well as for heavy duty drilling.
- Convenient hand locking, self-tightening.

MODEL	RANGE	TAPER	PART NO.	PRICE
15-J0*	0 - 1/16"	J0	**71-610-0***	$449.85
30-J0	0 - 1/8"	J0	**71-609-2**	353.55
30-J1	0 - 1/8"	J1	**71-611-8**	353.55
65-J1	0 - 1/4"	J1	**71-612-6**	310.30
100-J2	0 - 3/8"	J2	**71-613-4**	350.90
100-J33	0 - 3/8"	J33	**71-614-2**	350.90
130-J33	1/32 - 1/2"	J33	**71-615-9**	387.90
130-J6	1/32 - 1/2"	J6	**71-616-7**	387.90
160-J6	1/8 - 5/8"	J6	**71-617-5**	438.00

* With graduated dial for accurate pre-setting of jaw opening.

MACHINE ACCESSORIES

SHOP GRADE
Ultra Precision Drill Chucks
3-Jaw, Keyless

- Super heavy duty ultra precision drill chucks.
- Normal gripping power when hand tightened. Double the torque when used with a spanner wrench.
- Closer tolerances assure excellent runout accuracy.
- Especially suitable for CNC machining centers; will not loosen up with instant spindle stop and reverse.


71-764-5

RANGE	TAPER	DIA.	LENGTH OPEN	LENGTH CLOSED	PART NUMBER	PRICE
0 - 3/8"	J2	1.69"	3.19"	3.62"	**71-762-9**	$103.45
0 - 3/8"	J33	1.69"	3.19"	3.62"	**71-763-7**	112.80
0 - 1/2"	J33	2.03"	3.62"	4.06"	**71-764-5**	127.90
0 - 1/2"	J6	2.03"	3.62"	4.06"	**71-765-2**	127.90
1/8 - 5/8"	J6	2.28"	3.74"	4.25"	**71-766-0**	137.85

Spanner Wrenches

DESCRIPTION	PART NO.	PRICE
For chucks with 0 - 3/8" range	**71-774-4**	$8.90
For chucks with 0 - 1/2" range	**71-775-1**	8.90
For chucks with 1/8 - 5/8" range	**71-776-9**	8.90



Shanks

SIZE	TAPER	PART NO.	PRICE
3/8" dia. straight	J0	**71-670-4**	$8.60
3/8" dia. straight	J1	**71-671-2**	8.60
3/8" dia. straight	J2	**71-672-0**	8.60
1/2" dia. straight	J0	**71-674-6**	9.20
1/2" dia. straight	J1	**71-675-3**	9.20
1/2" dia. straight	J2	**71-676-1**	9.20
1/2" dia. straight	J33	**71-677-9**	9.20
1/2" dia. straight	J6	**71-678-7**	9.20
3/4" dia. straight	J33	**71-680-3**	13.15
3/4" dia. straight	J6	**71-681-1**	13.15
3/4" dia. straight	J4	**71-682-9**	13.15
1" dia. straight	J2	**71-705-8**	14.10
1" dia. straight	J3	**71-706-6**	14.10
1" dia. straight	J33	**71-707-4**	14.10
1" dia. straight	J6	**71-708-2**	14.10
MT 1	J1	**71-684-5**	9.85
MT 1	J2	**71-685-2**	9.85
MT 2	J1	**71-688-6**	10.10
MT 2	J2	**71-689-4**	10.10
MT 2	J3	**71-701-7**	10.20
MT 2	J33	**71-690-2**	10.10
MT 2	J6	**71-691-0**	10.10
MT 2	J4	**71-692-8**	10.10
MT 3	J3	**71-693-6**	12.35
MT 3	J33	**71-694-4**	12.35
MT 3	J6	**71-695-1**	12.35
MT 3	J4	**71-696-9**	12.35
MT 4	J3	**71-702-5**	20.25
MT 4	J33	**71-697-7**	20.25
MT 4	J6	**71-698-5**	20.25
MT 4	J4	**71-699-3**	20.25
R-8	J2	**71-704-1**	23.70
R-8	J3	**71-703-3**	23.70
R-8	J33	**71-686-0**	23.70
R-8	J6	**71-687-8**	23.70


71-770-2

SHOP GRADE
Drill Chucks with Integrated Shank

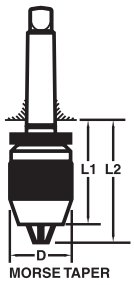
RANGE	TAPER	DIA.	LENGTH OPEN	LENGTH CLOSED	PART NUMBER	PRICE
0 - 1/2"	3/4"	2.00"	5.75"	6.22"	**71-770-2**	$185.05
0 - 1/2"	MT 2	2.00"	6.46"	6.93"	**71-771-0**	188.15
0 - 1/2"	MT 3	2.00"	7.16"	7.64"	**71-772-8**	185.25
0 - 1/2"	R-8	2.00"	6.70"	7.12"	**71-773-6**	185.40

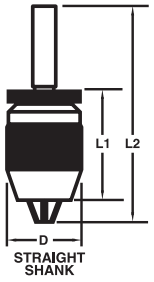
Spanner Wrenches

DESCRIPTION	PART NO.	PRICE
For chucks with 0 - 3/8" range	**71-774-4**	$8.90
For chucks with 0 - 1/2" range	**71-775-1**	8.90
For chucks with 1/8 - 5/8" range	**71-776-9**	8.90

ALBRECHT
Classic Plus Keyless Drill Chucks with Integral Shank

- Integral shank design is more compact than a combined drill chuck and arbor, resulting in greater accuracy and rigidity and larger work envelope.
- Integral shank eliminates the possibility of a chuck slipping on its arbor.
- Keyless operation.
- This unit is often less expensive than a separate chuck and arbor
- Self-tightening (clockwise rotation only).






71-601-9

SHANK TYPE	CAPACITY	MAX. RPM	D	L1	L2	PART NUMBER	PRICE
2MT	1/32 – 1/2"	7,000	2"	3 3/8"	3 7/8"	**71-601-9**	$471.45
3MT	1/32 – 1/2"	7,000	2"	3 3/8"	3 7/8"	**71-602-7**	473.80
4MT	1/32 – 1/2"	7,000	2"	3 7/16"	3 15/16"	**71-603-5**	499.50
R8	1/32 – 1/2"	7,000	2"	3 5/16"	3 13/16"	**71-604-3**	518.25
5/8 SS	1/32 – 1/2"	7,000	2"	3 1/8"	3 5/8"	**71-605-0**	469.20
3MT	1/8 – 5/8"	4,000	2 1/4"	3 1/2"	4 1/16"	**71-606-8**	526.80
4MT	1/8 – 5/8"	4,000	2 1/4"	3 9/16"	4 1/16"	**71-607-6**	553.05
R8	1/8 – 5/8"	4,000	2 1/4"	3 7/16"	3 15/16"	**71-608-4**	569.10

Jacobs®
Ball Bearing Taper Mounted Super Drill Chucks
With Import R8 Shank

- Ball bearing construction maximizes gripping force and drilling accuracy.
- One piece sleeve design eliminates cracks between driving teeth.
- Sleeve teeth, nose piece, and keyholes are through-hardened, providing outstanding wear resistance.

MOUNT	CAPACITY	PART NO.	PRICE
2JT	0 – 0.25"	**71-585-4**	$178.60
2JT	0 – 0.38"	**71-586-2**	195.60
3JT	0 – 0.50"	**71-587-0**	262.10
3JT	0.13" – 0.63"	**71-588-8**	293.35
4JT	0.13" – 0.75"	**71-589-6**	424.80


71-585-4

Micro Drill Adapters



- Precision sensitive drill adapter.
- Finger control.
- Reduced drill breakage.
- Easier small hole drilling.
- Multiple operations on a single set up.
- Consistant precision operation, runs without down time.
- Applicable in mills, lathes, drill presses and jig borers.
- 1/2" straight shank for ease of use in your machine with collet or chuck.
- 3/4" travel.
- Easy operation, grasp free turning ring, feed with gentle finger pressure, auto return upon release.
- Has 0 JT male taper.

DRILL CHUCK WITH ADAPTER	CHUCK CAP. MIN.	CHUCK CAP. MAX.	PART NUMBER	PRICE
Albrecht 15 - JO (Keyless)	0	1/16"	**71-635-7**	$488.50
Albrecht 30 - (Keyless)	0	1/8"	**71-636-5**	378.20
Jacobs - JO - Key Type	0	5/32"	**71-641-5**	168.75
Adapter Only			**71-643-1**	88.25
Adapter Only (Import)			**71-644-9**	35.55

Ultra Precision Drill Adapters



71-625-8

- Super sensitive adapter system makes small hole drilling easy and prevents drill breakage.
- Light spring tension retracts the drill to starting position.
- 3/4" travel of depth control.
- Hardened and precision ground shank 1/2" dia. 2" long.
- Permits quicker setup and sensitive drilling on big machines as well.
- With graduated dial for accurate pre-setting of jaw-opening.

DESCRIPTION	PART NO.	PRICE
Drill Adapter w/ball bearing collar & keyless chuck 0 - 1/16" range	**71-625-8**	$782.85

SHOP GRADE Drill Drifts



- Hardened forgings.
- Used for removing taper shanks from sleeves or spindles.
- Use size 1 for #1 Morse Taper, size 2 for #2 Morse Taper, etc.

51-844-9

Individuals

SIZE	FITS MORSE TAPER SOCKETS & SLEEVES NO.	PART NUMBER	PRICE EACH
1	1	**44-717-7**	$4.55
2	2	**44-718-5**	4.90
3	3	**44-719-3**	5.70
4	4-5-6	**44-720-1**	7.30

Sets

NO. OF PCS.	MORSE TAPER	PART NUMBER	PRICE EACH
3	1, 2, 3	**52-340-7**	$12.40
4	1, 2, 3, 4	**51-844-9**	14.80

SHOP GRADE Morse Taper Sleeves & Sets



66-699-0

- Hardened and precision ground to control concentricity.

MORSE TAPER INSIDE	MORSE TAPER OUTSIDE	SOFT WITH HARDENED TANG PART NO.	SOFT WITH HARDENED TANG PRICE EA.	HARDENED & GROUND THROUGHOUT PART NO.	HARDENED & GROUND THROUGHOUT PRICE EA.
1	2	**66-697-4***	$6.20	**44-670-8***	$6.95
1	3	**66-751-9**	9.35	**44-671-6**	9.05
1	4	**66-753-5**	12.95	**44-672-4**	17.20
1	5	**66-756-8**	23.55	**44-673-2**	22.10
2	3	**66-752-7***	9.35	**44-674-0***	9.30
2	4	**66-754-3**	14.35	**44-675-7**	16.30
2	5	**66-757-6**	21.45	**44-676-5**	21.85
3	4	**66-755-0***	14.35	**44-677-3***	16.30
3	5	**66-758-4**	22.85	**44-678-1**	30.05
4	5	**66-759-2***	21.55	**44-679-9***	30.05
4	6	**66-760-0**	71.45	**44-680-7**	68.50
5	6	**66-761-8**	69.40	**44-681-5**	68.50
4 Pc. Set		**66-698-2**	47.25	**66-699-0**	73.50

* Included in 4 pc. set.

Morse Taper Fitted Sockets

Soft with Hardened Tang or Hardened & Ground Throughout



35-217-9

MT HOLE	TAPER SHANK	OAL	SOFT W/HARDENED TANG PART NO.	SOFT W/HARDENED TANG PRICE	HARDENED/GROUND PART NO.	HARDENED/GROUND PRICE
1	2	6 1/4"	**35-217-9**	$14.00	**35-235-1**	$23.35
1	3	6 7/8"	**35-218-7**	16.00	**35-236-9**	27.45
1	4	7 1/2"	**35-219-5**	18.30	**35-237-7**	31.25
2	1	6 1/4"	**35-220-3**	12.95	**35-238-5**	24.65
2	2	6 7/8"	**35-221-1**	14.00	**35-239-3**	24.65
2	3	7 5/8"	**35-222-9**	16.00	**35-240-1**	28.70
2	4	8 1/2"	**35-223-7**	19.55	**35-241-9**	32.75
3	2	7 3/4"	**35-224-5**	19.55	**35-242-7**	32.75
3	3	8 1/2"	**35-225-2**	19.55	**35-243-5**	32.75
3	4	9 1/2"	**35-226-0**	19.55	**35-244-3**	32.75
3	5	10 1/2"	**35-227-8**	31.75	**35-245-0**	48.00
4	3	9 1/2"	**35-228-6**	29.20	**35-246-8**	48.00
4	4	10 1/2"	**35-229-4**	89.10	**35-247-6**	48.00
4	5	11 7/8"	**35-230-2**	29.20	**35-248-4**	48.00
4	6	14"	**35-231-0**	35.80	**35-249-2**	106.65
5	3	10 1/2"	**35-667-5**	67.50	—	—
5	4	11 7/8"	**35-232-8**	66.50	**35-250-0**	90.60
5	5	13 1/4"	**35-233-6**	66.50	**35-251-8**	90.60
5	6	15 3/8"	**35-234-4**	90.60	**35-252-6**	96.95

Dico Flex Shaft



87-636-7

- Convert your drill or bench motor to a powerful flex shaft machine.
- Versatile - reaches hard to get at places.
- Light - performs delicate or precision work without bulk and weight of drill.
- Constructed of heavy-duty steel internal cable, rugged vinyl covered spring, and self-lubricated ball bearing handle and drive.
- Use for drilling, polishing, buffing, deburring, or descaling.
- 1/4" drive post.
- 3/8 - 24 threaded spindle with keyless chuck.
- 40" length with a 0-1/4" chuck capacity.

DESCRIPTION	PART NO.	PRICE
Dico Flex Shaft	**87-636-7**	$60.15

MACHINE ACCESSORIES

Offset Boring Heads

- All models - not coolant through.



2" Diameter Heads

- $2^{13}/_{32}$" overall length, boring bar hole size $^1/_2$" rd., offset $^5/_8$".
- $^7/_8$" x 20 threaded back.
- Wide bearing surface assures maximum rigidity.
- The double hole bar holder permits a greater boring range without an extreme offset condition.
- Supplied with $^1/_2$" boring bar hole and $^1/_2$" cross hole.

DESCRIPTION	PART NO.	PRICE
2" Diameter Heads	**51-200-4**	$145.70



3" Diameter Heads

- $3^5/_{32}$" overall length, boring bar hole size $^3/_4$", cross hole size $^3/_4$", offset 1".
- $1^1/_2$" x 18 threaded back.
- Fine finishing cuts can be made with ease.
- The smooth feel of the dial screw assures you the exact measurement has been dialed-off.
- The adjusting screws are ground after hardening and a plainly marked dial face, in non-reflecting satin chrome, allows easy reading and adjustments of 0.001" or less.

DESCRIPTION	PART NO.	PRICE
3" Diameter Heads	**51-201-2**	$196.30



4" Diameter Heads

- $3^3/_4$" overall length, boring bar hole size 1", cross hole size 1", offset $1^5/_8$".
- $1^1/_2$" x 18 threaded back.
- This head fills the need for a sturdy, large capacity tool, yet weight and bulk are held to a minimum.
- The 2 hole bar holder increases the boring bar range without the necessity of an extreme offset adjustment.
- The cross hole as well as the double-hole bar holder will accept boring tools or boring bars with a 1" diameter shank.
- A single set screw on an improved gib locks the sliding bar holders in boring position.
- A $1^1/_2$" x 18 threaded back permits the adaptation of a variety of shanks.

DESCRIPTION	PART NO.	PRICE
4" Diameter Heads	**51-277-2**	$309.85

Boring Head w/R8 Shank

- Rugged construction for smooth, chatter-free operation.
- Precision boring head with integrated R8 shank.
- $^1/_2$" diameter vertical and cross holes.
- $2^1/_2$" head with $^3/_4$" offset travel.
- 0.001" direct reading micrometer dial.
- Black oxide finish.

DESCRIPTION	PART NO.	PRICE
Boring Head w/R8 Shank	**51-858-9**	$119.95





Boring Head Sets w/R8 Shank

2" Diameter Head • $^7/_8$" - 20 Threaded Back

- 2" boring head complete with R8 shank and $^1/_2$" shank boring bar set.

BORING BAR SET	NO. OF PIECES	PART NUMBER	PRICE
M-35 Cobalt	10	**51-136-0**	$239.00
C-6 Carbide	9	**51-137-8**	224.50

3" Diameter Head • $1^1/_2$" - 18 Threaded Back

- 3" boring head complete with R8 shank and $^3/_4$" shank boring bar set.

BORING BAR SET	NO. OF PIECES	PART NUMBER	PRICE
M-35 Cobalt	14	**51-138-6**	$367.50
C-6 Carbide	12	**51-139-4**	364.00

SHOP GRADE

Automatic Boring & Facing Heads

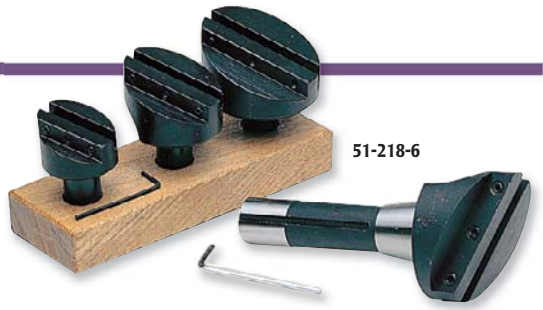
- Accuracy guaranteed within 0.0002" over $^3/_4$" travel.
- Permits automatic facing without stopping spindle.
- High precision tools designed for accurate tooling and production work.
- All working parts hardened and ground.
- R8 shank included.
- Carriage is operated manually when spindle is stopped.
- Automatic feed is accomplished while the spindle is turning.
- Automatic feed can be measured when using 0.0035" radial feed.



Specifications:

DESCRIPTION	35-197-3		35-198-1		
Dia. of Body	2.36"		3.54"		
Height (without Shank)	2.75"		3.74"		
No. of feeds per Rev.	1	2	1	2	3
(Radial) Automatic Feed per. Rev.	0.0025"	0.005"	0.0025"	0.005"	0.0075"
Radial Movement for 1 Grad. of Vernier	0.0005"		0.0005"		
Vertical Tool Positions	3		3		
Max. Capacity	$9^3/_4$"		$13^3/_4$"		
Min. Carriage	0.125"		0.2"		
Max. Carriage Movement (Radial)	$^3/_4$"		1.2"		
Boring Bar Diameter	$^1/_2$"		$^3/_4$"		
Weight	4.04 Lbs.		12.09 Lbs.		

NO. OF FEEDS	PART NO.	PRICE
2	**35-197-3**	$669.70
3	**35-198-1**	933.55



51-218-6

51-219-4

SHOP GRADE
Fly Cutters & Sets
Straight Shank or R8

Individual Cutters

- Counterbalanced to get smoother finishes.
- Hardened steel, machines up to 6" wide surface with standard tool bit.
- Tool bit replaces end mill single cutter design.

HEAD DIA.	SHANK SIZE	TOOL BIT SIZE	PART NUMBER	PRICE EACH
3/4"	1/2"	3/16"	**73-618-1**	$13.75
1 1/8"	1/2"	1/4"	**73-619-9**	15.35
1 1/2"	1/2"	5/16"	**73-620-7**	18.55
1 1/2"	3/4"	5/16"	**73-621-5**	49.35
2"	3/4"	5/16"	**73-622-3**	25.00
2 1/2"	3/4"	5/16"	**73-623-1**	27.45
2 1/2"	R8	5/16"	**51-219-4**	40.55

Straight Shank Sets (Tool Bits Not Included)

NO. OF PCS.	SHANK SIZE	HEAD DIA.	PART NUMBER	PRICE EACH
3	1/2"	3/4, 1 1/8, 1 1/2"	**73-624-9**	$39.95
3	3/4"	1 1/2, 2, 2 1/2"	**51-218-6**	56.05
5	1/2"	3/4, 1 1/8, 1 3/8, 2"		
	5/8"	2 1/2"	**73-625-6**	46.65
6	1/2"	3/4, 1 1/8, 1 1/2"		
	3/4"	1 1/2, 2, 2 1/2"	**73-626-4**	51.20

See Individual Cutters chart for Tool Bit sizes.



77-826-6

BILZ
Quick-Change Internal Coolant Rigid Tap Chucks
Cat V-Flange/ BT Flange BILZ Type WF

- Tap chuck for rigid applications
- Coolant through (50 bar/725 psi)

ADAPT. SIZE	SHANK	MAX. DIA.	TAP CAP.	PART NUMBER	PRICE
1	CAT 40	1.260"	0 - 9/16"	**77-826-6**	$393.65
1	CAT 50	1.260"	0 - 9/16"	**77-827-4**	433.15
2	CAT 40	1.968"	1/4 - 7/8"	**77-828-2**	457.00
2	CAT 50	1.968"	1/4 - 7/8"	**77-829-0**	496.45
1	BT 40	1.260"	0 - 9/16"	**77-830-8**	393.65
1	BT 50	1.260"	0 - 9/16"	**77-831-6**	433.15
2	BT 40	1.968"	1/4 - 7/8"	**77-832-4**	457.00
2	BT 50	1.968"	1/4 - 7/8"	**77-833-2**	496.45



1" Straight Shank Shown

R8 Shown

SHOP GRADE
Shanks for Boring Heads

7/8" x 20 Threads

TYPE	PART NO.	PRICE
No. 2 MT 3/8" x 16 Draw Bar Thread	**51-147-7**	$41.15
No. 2 MT Tang Type	**51-148-5**	41.15
No. 3 MT Tang Type	**51-149-3**	46.25
No. 4 MT Tang Type	**51-151-9**	56.45
R-8 Bridgeport	**51-198-0**	46.25
1/2" Dia. Straight Shank	**51-191-5**	23.20
3/4" Dia. Straight Shank	**51-193-1**	24.70
1" Dia. Straight Shank	**51-194-9**	28.75

1 1/2" x 18 Threads

TYPE	PART NO.	PRICE
No. 3 MT Tang Type	**51-152-7**	$55.55
No. 4 MT Tang Type	**51-153-5**	59.20
No. 5 MT Tang Type	**51-154-3**	84.60
R-8 Bridgeport	**51-199-8**	45.55
3/4" Dia. Straight Shank	**52-040-3**	37.90
1" Dia. Straight Shank	**51-195-6**	28.00
1 1/4" Dia. Straight Shank	**51-196-4**	44.00
1 1/2" Dia. Straight Shank	**51-197-2**	44.00

Reversible Tapping Heads

- Chatter free clutch has positive engagement which allows for a smoother, more accurate tapping operation.
- Unique double spring mechanism provides automatic feed and cushion drive.
- Preset torque control permits easy operation of tap brake torque control.
- Guaranteed depth control to ± 0.004".
- Radial float is self centering to compensate for hole center misalignment to 0.005".
- Two rubberflex collets included with each head.



71-653-0

Tapping Heads

MOUNT	TAPPING CAPACITY IN STEEL	MAX. SUGGESTED RPM	CLOCKWISE GEAR RATIO	CLOCKWISE COMPRESS	CLOCKWISE EXPANSION	COLLET REF. #	PART NUMBER	PRICE
J6	No. 0 - 1/4", M2 - M7	1,500	1:1.6	0.197"	0.140"	R10,R11	**71-653-0**	$696.30
J6	No. 8 - 1/2", M3 - M12	1,000	1:1 .75	0.197"	0.160"	R20,R21	**71-654-8**	863.05
20M x 2.5	5/16 - 3/4", M8-M20, 1/8, 1/4 NPT	600	1:1.7	0.236"	0.240"	R30,R31	**71-655-5**	1,010.60

Rubber Collets

TYPE	TAP CAPACITY	PART NO.	PRICE	TYPE	TAP CAPACITY	PART NO.	PRICE
R10	#0 - #10	**71-656-3**	$58.80	R21	1/4 - 1/2	**71-659-7**	$58.80
R11	#10 - 1/4	**71-657-1**	58.80	R30	5/16 - 5/8	**71-660-5**	58.80
R20	#4 - 1/4	**71-658-9**	58.80	R31	9/16 - 3/4	**71-661-3**	58.80

Arbors

TAPER	JT TAPER	PART NO.	PRICE	TAPER	JT TAPER	PART NO.	PRICE
2MT	6JT	**71-691-0**	$10.10	R8	6JT	**71-687-8**	$23.70
3MT	6JT	**71-695-1**	12.35	3MT	20mm	**71-663-9**	63.05
4MT	6JT	**71-698-5**	20.25	4MT	20mm	**71-664-7**	63.05
5MT	6JT	**71-662-1**	36.90	R8	20mm	**71-665-4**	84.50



Coolant Tester

See Pg. 303

MACHINE ACCESSORIES

BILZ
Quick-Change Reversing Tapping Attachments
Simple, Effective and Virtually Maintenance Free

- Self-reversing.
- Several different shank styles.
- For right and left hand tapping.
- For use on machines which may have manual feed and non-reversing spindles.
- 1/2" (#1 TA12) and 3/4" (#2 TA 20) capacity.
- TA series uses standard BILZ quick change adapters (#1 or #2), positive drive or torque control.
- Tapping attachments have 7/8-20 female threaded mount, shanks have 7/8-20 male thread.



77-779-7

Tapping Heads

ADAPTER SIZE	DESC.	PART NUMBER	PRICE
1	TA12-WF-BG	**77-779-7**	$769.65
2	TA20-WF-BG	**77-780-5**	926.20

Shanks

DESC.	PART NO.	PRICE
MT-2	**77-781-3**	$76.95
MT-3	**77-782-1**	84.40
MT-4	**77-783-9**	96.00
1/2" Dia. Straight	**77-784-7**	41.60
5/8" Dia. Straight	**77-785-4**	41.60
3/4" Dia. Straight	**77-786-2**	41.60
7/8" Dia. Straight	**77-787-0**	41.60
1" Dia. Straight	**77-788-8**	41.60
R-8	**77-789-6**	80.10
NMTB 30	**77-790-4**	165.95
NMTB 40	**77-791-2**	205.65



BILZ
Positive Tap Adapters

TAP SIZE	ADAPTER SIZE 0 PART NO.	PRICE	ADAPTER SIZE 1 PART NO.	PRICE	ADAPTER SIZE 2 PART NO.	PRICE	ADAPTER SIZE 3 PART NO.	PRICE
6 - 32	**77-692-2**	$55.85	**77-698-9**	$51.50	–	–	–	–
8 - 32	**77-693-0**	55.85	**77-699-7**	51.50	–	–	–	–
10 - 32	**77-694-8**	55.85	**77-700-3**	51.50	–	–	–	–
12 - 32	**77-695-5**	55.85	**77-701-1**	51.50	–	–	–	–
1/4"	**77-696-3**	55.85	**77-702-9**	51.50	**77-710-2**	$74.65	–	–
5/16"	**77-697-1**	55.85	**77-703-7**	51.50	**77-711-0**	74.65	–	–
3/8"	–	–	**77-704-5**	51.50	**77-712-8**	74.65	–	–
7/16"	–	–	**77-705-2**	51.50	**77-713-6**	74.65	–	–
1/2"	–	–	**77-706-0**	51.50	**77-714-4**	74.65	–	–
9/16"	–	–	**77-707-8**	51.50	**77-715-1**	74.65	–	–
5/8"	–	–	–	–	**77-716-9**	74.65	–	–
11/16"	–	–	–	–	**77-717-7**	74.65	–	–
3/4"	–	–	–	–	**77-718-5**	74.65	**77-725-0**	$202.95
13/16"	–	–	–	–	**77-719-3**	74.65	**77-726-8**	202.95
7/8"	–	–	–	–	**77-720-1**	74.65	**77-727-6**	202.95
15/16"	–	–	–	–	–	–	**77-728-4**	202.95
1"	–	–	–	–	–	–	**77-729-2**	202.95
1 1/8"	–	–	–	–	–	–	**77-730-0**	202.95
1 1/4"	–	–	–	–	–	–	**77-731-8**	202.95
1 3/8"	–	–	–	–	–	–	**77-732-6**	202.95
1/8" NPT SS	–	–	**77-708-6**	51.50	–	–	–	–
1/8" NPT LS	–	–	**77-709-4**	51.50	**77-721-9**	118.50	–	–
1/4" NPT	–	–	–	–	**77-722-7**	118.50	–	–
3/8" NPT	–	–	–	–	**77-723-5**	118.50	**77-733-4**	228.15
1/2" NPT	–	–	–	–	**77-724-3**	118.50	**77-734-2**	228.15
3/4" NPT	–	–	–	–	–	–	**77-735-9**	228.15
1" NPT	–	–	–	–	–	–	**77-736-7**	228.15

BILZ
Quick-Change Torque Adapters
Tap Adapters with Integral, Adjustable Torque Clutch Reduces Tap Breakage

- Modular, quick-change design.
- Suitable for use with through coolant taps.
- Used for right hand tapping.
- BILZ type WES.



77-811-8

ADAPTER SIZE	TAP. CAPACITY	PART NUMBER	PRICE
1	6	**77-799-5**	$124.65
1	8	**77-800-1**	124.65
1	10	**77-801-9**	124.65
1	12	**77-802-7**	124.65
1	1/4"	**77-803-5**	124.65
1	5/16"	**77-804-3**	124.65
1	3/8"	**77-805-0**	124.65
1	7/16"	**77-806-8**	124.65
1	1/2"	**77-807-6**	124.65
1	9/16"	**77-808-4**	124.65
1	1/8" SS Pipe	**77-809-2**	124.65
1	1/8" LS Pipe	**77-810-0**	124.65
2	1/4"	**77-811-8**	193.15
2	5/16"	**77-812-6**	193.15

ADAPTER SIZE	TAP. CAPACITY	PART NUMBER	PRICE
2	3/8"	**77-813-4**	$193.15
2	7/16"	**77-814-2**	193.15
2	1/2"	**77-815-9**	193.15
2	9/16"	**77-816-7**	193.15
2	5/8"	**77-817-5**	193.15
2	11/16"	**77-818-3**	193.15
2	3/4"	**77-819-1**	193.15
2	13/16"	**77-820-9**	193.15
2	7/8"	**77-821-7**	193.15
2	1/8" SS Pipe	**77-822-5**	243.80
2	1/4" Pipe	**77-823-3**	243.80
2	3/8" Pipe	**77-824-1**	243.80
2	1/2" Pipe	**77-825-8**	243.80
–	–	–	–

COLLIS TOOL CORPORATION THE TOOLHOLDER PEOPLE

Quick-Change Torque Adapters
Tap Adapters with Integral, Adjustable Torque Clutch Reduces Tap Breakage

- Modular, quick-change design.
- Suitable for use with through coolant taps.
- Used for right hand tapping.



69-090-9

ADAPTER SIZE	TAP. CAPACITY	PART NUMBER	PRICE
1	6	**69-080-0**	$146.90
1	8	**69-081-8**	146.90
1	10	**69-082-6**	146.90
1	1/4"	**69-084-2**	146.90
1	5/16"	**69-085-9**	146.90
1	3/8"	**69-086-7**	146.90
1	7/16"	**69-087-5**	146.90
1	1/2"	**69-088-3**	146.90
2	5/16"	**69-089-1**	212.20
2	3/8"	**69-090-9**	212.20
2	7/16"	**69-091-7**	212.20
2	1/2"	**69-092-5**	212.20
2	5/8"	**69-093-3**	212.20
2	3/4"	**69-094-1**	212.20
2	7/8"	**69-095-8**	212.20



PARLEC
Measurably Better

Positive Tap Adapters

TAP SIZE	ADAPTER SIZE 1 PART NO.	PRICE	ADAPTER SIZE 2 PART NO.	PRICE	ADAPTER SIZE 3 PART NO.	PRICE
6 - 32	75-674-2	$54.10	–	–	–	–
8 - 32	75-675-9	54.10	–	–	–	–
10 - 32	75-676-7	54.10	–	–	–	–
12 - 32	75-677-5	54.10	–	–	–	–
1/4"	75-678-3	54.10	–	–	–	–
5/16"	75-679-1	54.10	75-686-6	$68.90	–	–
3/8"	75-680-9	54.10	75-687-4	68.90	–	–
7/16"	75-681-7	54.10	75-688-2	68.90	–	–
1/2"	75-682-5	54.10	75-689-0	68.90	–	–
9/16"	75-683-3	54.10	75-690-8	68.90	–	–
5/8"	–	–	75-691-6	68.90	–	–
11/16"	–	–	75-692-4	68.90	–	–
3/4"	–	–	75-693-2	68.90	–	–
13/16"	–	–	75-694-0	68.90	75-699-9	$167.50
7/8"	–	–	75-695-7	68.90	75-700-5	167.50
15/16"	–	–	–	–	75-701-3	167.50
1"	–	–	–	–	75-702-1	167.50
1 1/8"	–	–	–	–	75-703-9	167.50
1 1/4"	–	–	–	–	75-704-7	167.50
1 3/8"	–	–	–	–	75-705-4	167.50
1/16" NPT	75-684-1	54.10	–	–	–	–
1/8" NPT SS	75-685-8	54.10	–	–	–	–
1/8" NPT LS	–	–	–	–	–	–
1/4" NPT	–	–	75-696-5	92.60	–	–
3/8" NPT	–	–	75-697-3	92.60	–	–
1/2" NPT	–	–	75-698-1	92.60	–	–
3/4" NPT	–	–	–	–	75-706-2	181.30
1" NPT	–	–	–	–	75-707-0	181.30

BILZ

Metric Quick-Change Positive Drive Tap Adapters

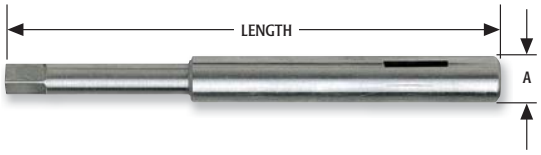
Metric Tap Sizes – DIN 371/376



BILZ Type WE

- The item is only for use with metric shanks.

ADAPTER SIZE	TAP CAP.	TYPE	PART NUMBER	PRICE
0	M3	DIN 371	77-749-0	$55.85
0	M4	DIN 371	77-750-8	55.85
0	M6	DIN 371	77-751-6	55.85
0	M8	DIN 371	77-752-4	55.85
0	M10	DIN 376	77-753-2	55.85
1	M3	DIN 371	77-754-0	57.15
1	M4	DIN 371	77-755-7	57.15
1	M6	DIN 371	77-756-5	57.15
1	M8	DIN 371	77-757-3	57.15
1	M10	DIN 371	77-758-1	57.15
1	M10	DIN 376	77-759-9	57.15
1	M12	DIN 376	77-760-7	57.15
1	M14	DIN 376	77-761-5	57.15
2	M6	DIN 371	77-762-3	84.40
2	M8	DIN 371	77-763-1	84.40
2	M8	DIN 376	77-764-9	84.40
2	M10	DIN 371	77-765-6	84.40
2	M10	DIN 376	77-766-4	84.40
2	M12	DIN 376	77-767-2	84.40
2	M14	DIN 376	77-768-0	84.40
2	M16	DIN 376	77-769-8	84.40
2	M18	DIN 376	77-770-6	84.40
2	M20	DIN 376	77-771-4	84.40
3	M18	DIN 376	77-772-2	202.95
3	M20	DIN 376	77-773-0	202.95
3	M22	DIN 376	77-774-8	202.95
3	M24	DIN 376	77-775-5	202.95
3	M27	DIN 376	77-776-3	202.95
3	M30	DIN 376	77-777-1	202.95
3	M33	DIN 376	77-778-9	202.95



Tap Extensions

- No set screws, collars, or collets required!
- Minimal shank diameters for close quarter tapping.
- Patented, for use with all standard shank machine and hand taps.

TAP SIZE	A	SQUARE OF TAP	4" LENGTH PART NO.	PRICE	6" LENGTH PART NO.	PRICE
#0 - #6	.250"	.109"	74-761-8	$63.90	74-781-6	$67.00
#8	.250"	.130"	74-762-6	63.90	74-782-4	67.00
#10	.250"	.152"	74-763-4	63.90	74-783-2	67.00
#12	.312"	.162"	74-764-2	67.00	74-784-0	70.10
1/4"	.375"	.190"	74-765-9	70.10	74-785-7	74.50
5/16"	.437"	.238"	74-766-7	76.05	74-786-5	78.85
3/8"	.500"	.284"	74-767-5	77.30	74-787-3	83.25
7/16"	.500"	.240"	74-768-3	77.30	74-788-1	83.25
1/2"	.500"	.274"	74-769-1	83.25	74-789-9	87.85
Special drift for easy removal of tap included with each Tap Extension.						
#0 - 1/4" Set of 5 tap Extensions			74-750-1	299.95	74-754-3	310.40
#0 - 1/2" Set of 9 tap Extensions			74-751-9	588.05	74-755-0	613.30

PRECISION BRAND

20 Pc. Poc-Kit® Steel Feeler Gage Assortments

See Pg. 159

NEW

MADE IN USA



61-059-2

PRECISION BRAND

Plastic Thickness Gage Fan Blade Sets

See Pg. 158



61-676-3

MACHINE ACCESSORIES



98-362-7

Micro Tap Guide

- You start every tap straight with this tool. A handy accessory for any machinist's tool box.
- Adjustable tension spring.
- Reversible tension pin for male & female hole centering of tap.
- 1/2" dia. hardened shank, knurled for easy handling.
- 3/16" dia. hardened tension pin.

DESCRIPTION	PART NO.	PRICE
Micro Tap Guide	**98-362-7**	$19.75

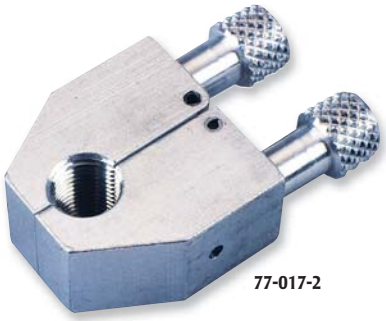


98-140-7

Quill Return

- Eliminates the problem of quill lock drag.
- Insures smooth, drag-free operation of the quill feed by retaining the lever in the unlocked position.
- Readily attaches to the locking lever.

DESCRIPTION	PART NO.	PRICE
Quill Return	**98-140-7**	$16.95



77-017-2

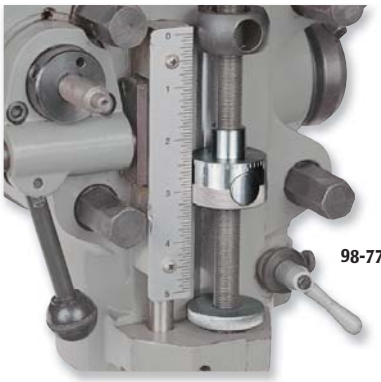
SHOP GRADE

Quill Stop For Bridgeport Type Mills

Clips On Quill For Rapid Depth Setting

- 0.020" fine adjustment.
- Top or bottom positioning.

DESCRIPTION	PART NO.	PRICE
Quill Stop	**77-017-2**	$12.45



98-779-2

Quick Adjusting Nut

- Time saving, fast adjustment of stop settings.
- To be used with existing stop screw.
- Fits all 1/2"-20 threads stop rods on Milling Machines, Drill Presses, Sheet Metal Brakes, Transfer Mechanisms.
- Simple depressing of push button moves the nut to desired stop position.
- Fine adjustment to within 0.001" by rotating graduated nut.

DESCRIPTION	PART NO.	PRICE
Quick Adjusting Nut	**98-779-2**	$59.95



76-008-2



KLEEN Slot Trays

- Use with most milling machines.
- Protects table and tools.
- Keeps chips from falling into T-Slots.

DESCRIPTION	PART NO.	PRICE
For 9" Table width	**76-008-2**	$33.45
For 10" Table width	**76-009-0**	33.45

CEDARBERG

Table Guard & Tote

- Keep your tools in easy reach.
- Stops chips from falling into "T" slots.
- Step-saver – easy way to carry your tools from work bench to machine tool.
- Specially grooved to fit right into table's "T" slots.
- Heavy duty plastic – won't dent, chip or peel.
- Set of two trays.

DESCRIPTION	PART NO.	PRICE
Table Guard & Tote	**62-025-2**	$30.85



62-025-2

Way Covers

- Protects the table bed and ways from damage.
- Easily installed.
- Rear Cover 30" L x 15" W.
- Front Cover 15" L x 15" W.



70-065-8

6 Pc. Set

- 4 saddle wipers.
- 2 knee wipers.



70-070-8

DESCRIPTION	PART NO.	PRICE
Front Knee Way Protector	**70-067-4**	$17.40
Upper Column & Rear Knee Protector	**70-068-2**	55.25
2 Pc. Set Table Bed Covers	**70-065-8**	69.55
4 Pc. Set w/Knee Protectors & Table Covers	**70-069-0**	104.60
6 Pc. Felt Set w/Saddle Knee Wipers	**70-070-8**	31.35



BRIDGEPORT J2, Long
(Standard BRIDGEPORT Mills)
58-804-6

BRIDGEPORT J1, Short
58-801-2

Drawbars

- O-ring on shaft prevents spacer from falling into mill head.
- Made from cold rolled steel with oxide finish.
- 7/16"-20 thread. Furnished in plastic case.

DESCRIPTION	PART NO.	PRICE
J2, Long	**58-804-6**	$32.95
J1, Short	**58-801-2**	26.75



57-925-0

SHOP GRADE Drawbar Hammer

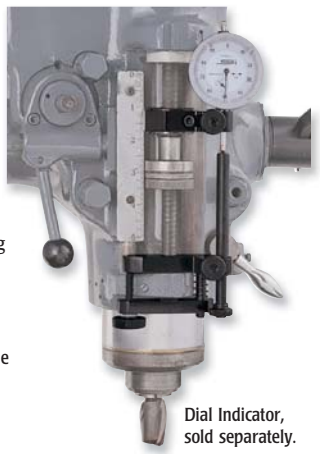
- 3/4" Socket for loosening drawbar.
- If spindle taper is locked to collet taper, a simple tap with brass hammer head will break them loose.
- Socket end fits other 3/4" bolts on vertical mills.

DESCRIPTION	PART NO.	PRICE
Drawbar Hammer	**57-925-0**	$29.95

DEEPOL

Positive Depth Control for BRIDGEPORT Mills J & 2J Heads

- DEEPOL offers a fast way to measure the true quill travel on your Bridgeport Mill very accurately by reading it on a travel indicator.
- Installed in seconds, no holes to be drilled.
- Covers the full 5" quill travel.
- Does not interfere with the fine feed Bridgeport wheel.
- Saves time. Can be mounted and removed by single clamping screw.



Dial Indicator, sold separately.

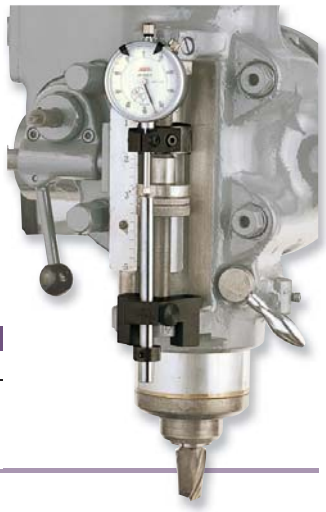
DESCRIPTION	PART NO.	PRICE
Deepol, without indicator	**98-207-4**	$118.35

QUILLMATE

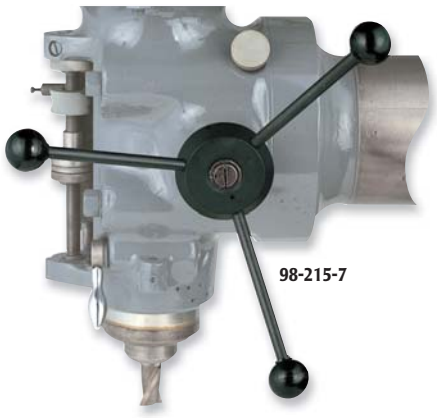
Positive Vertical Quill Control for All BRIDGEPORT Mills

- Solves the costly adjustment depth problems of the work spindle for boring, milling, drilling, etc.
- Installed in seconds. No holes to be drilled.
- Speeds operations and eliminates rejects.
- Fast positioning reference rod 5.000" ±0.0005", 3/8" dia. hardened and ground, covers entire quill travel.
- Self aligning indicator holders, universal base and precision stop ring included.

Shown with Dial Indicator Not included



DESCRIPTION	PART NO.	PRICE
Quillmate, Standard	**98-200-9**	$155.90
Quillmate, Super – Includes 1 additional stop ring and 2", 3" and 4" reference rods	**98-203-3**	194.85



98-215-7

Spider Handle

For All BRIDGEPORT Mills

- Replaces conventional Bridgeport handle in seconds.
- Particularly suitable for drilling.
- Heavy duty construction.

DESCRIPTION	PART NO.	PRICE
Spider Handle	**98-215-7**	$40.95

Right Angle Attachments for Bridgeport Mills

Milling Arbor Support

- Allows the use of the R-8 milling arbor to convert a vertical milling machine into a horizontal milling machine.

R-8 Right Angle Attachment

- Designed to simplify right angle work.
- Aligning pads for quick positioning.
- Accommodates R-8 collets.
- Body is made of ductile iron and uses sealed, high speed bearing to assure dependability and durability.
- Uses precision spiral bevel gears that are heat treated and ground alloy steel.



1" R-8 Milling Machine Arbor

- Made of heat treated and ground alloy steel.
- Spacers are ground parallel and square with the bore.
- Fits Import arbor support and Dorian arbor support with 1 5/8" dia. bearing.
- 8" spindle, 1 9/16" bushing dia.

Set includes:

- Right angle attachment head
- Milling arbor
- Collet locking (stud)
- Arbor support
- Wooden case for right angle head



DESCRIPTION	PART NO.	PRICE
Right Angle Head	**67-233-7**	$942.20
R-8 Arbor	**67-234-5**	350.85
Arbor Support w/50° Dovetail Angle	**67-235-2**	350.85
Right Angle Attachment Set	**67-236-0**	1,265.75

Note: A special Draw Bar is required when using right angle attachment.

MACHINE ACCESSORIES



Quick-Change Piston Type Lathe Tool Post Sets

- Each set consists of one piston type tool post and one each of 5 tool holders:
  - Style 1 - Boring and facing
  - Style 2 - Boring, turning and facing
  - Style 4 - Boring, heavy-duty
  - Style 7 - Universal parting blade
  - Style 10 - Knurling, facing and turning

TOOL POST SERIES	SWING	PART NUMBER	PRICE
100	Up to 12"	**35-208-8**	$518.95
200	10 - 15"	**35-209-6**	596.70
300	13 - 18"	**35-210-4**	750.60
400	14 - 20"	**35-211-2**	1,126.75

Wedge Type Tool Post Sets



Tool Post


Style 1



Style 4


Style 2

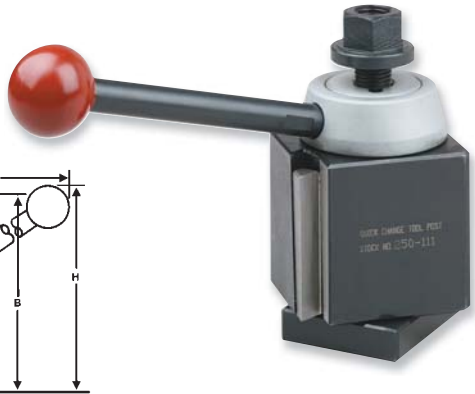

Style 7

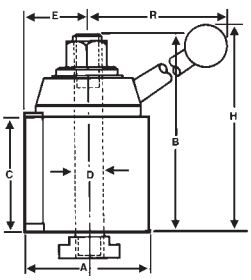

Style 10

- Each set consists of one wedge type tool post and one each of 5 tool holders:
  - Style 1 - Turning and facing
  - Style 2 - Boring, turning and facing
  - Style 4 - Boring, heavy-duty
  - Style 7 - Universal parting (cut-off)
  - Style 10 - Knurling, facing and turning

TOOL POST SERIES	SERIES	SWING	PHASE II PART NO.	PRICE	ALORIS PART NO.	PRICE
100	AXA	9 - 12"	**35-199-9**	$617.35	**35-204-7**	$1,007.65
200	BXA	10 - 15"	**35-200-5**	727.75	**35-205-4**	1,178.20
300	CXA	13 - 18"	**35-201-3**	956.25	**35-206-2**	1,524.95
400	CA	14 - 20"	**35-202-1**	1,225.30	**35-207-0**†	1,911.05
500	DA	17 - 48"	**35-203-9**	2,151.00	—	—

† Swing 14 - 22"





Wedge Type Quick Change Lathe Tool Posts

- Wedge Type Tool Post's advanced design provides built-in quick tool changing versatility with positive rigidity to meet the most exacting working tolerances.
- Quickly and easily installed on an engine, bench, or turret lathe for a wide range of options (from fine precise work to heavy duty cutting).
- T-nut may require machining.

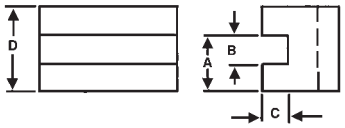
Wedge Type Tool Posts

TOOL POST SERIES	WIDTH A	B	C	D	E	OAH H	R	FITS LATHE SIZE	PART NUMBER	PRICE
100	2 1/2"	3 7/8"	2 1/4"	9/16"	1 3/8"	4 11/16"	5 3/4"	12"	**71-126-7**	$276.20
200	3"	4 5/8"	2 3/4"	5/8"	1 5/8"	5 9/16"	7 5/16"	10-15"	**71-127-5**	351.25
300	3 1/2"	5 1/8"	3"	3/4"	1 7/8"	6 1/8"	7 7/8"	13-18"	**71-128-3**	459.45
400	4"	6 1/4"	3 5/8"	7/8"	2 1/8"	7"	9"	14-20"	**71-129-1**	279.25

phase II

Quick-Change Lathe Toolholders

- All working parts hardened and ground
- Maximum rigidity for chatter-free performance
- Completely sealed for maintenance-free operation

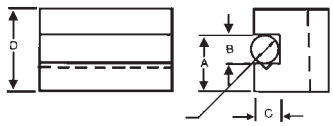




Turning & Facing Holders - Style No. 1

- Takes various sizes of bits.
- Turning and facing tools can be locked in together.
- Saves time and labor when changing operation.

SERIES	CENTERLINE DISTANCE A	MAX. CUTIING TOOL SIZE B	C	HT. D	TOOL BIT	PART NUMBER	PRICE
100 Dim. (AXA)	15/16"	1/2"	7/16"	1 1/2"	3/16 - 1/2"	**71-094-7**	$57.60
200 Dim. (BXA)	1 1/8"	5/8"	1/2"	1 3/4"	1/4 - 5/8"	**71-095-4**	60.50
300 Dim. (CXA)	1 7/16"	3/4"	5/8"	2 1/8"	1/4 - 3/4"	**71-096-2**	82.50
400 Dim. (CA)	1 11/16"	1"	3/4"	2 1/2"	1/2 - 1"	**71-097-0**	102.60
500 Dim. (DA)	2 3/16"	1 5/16"	1"	3 1/8"	1/2 - 1 1/4"	**35-212-0**	170.05

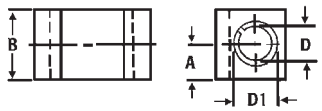




Boring, Turning & Facing Holders - Style No. 2

- "V" groove holds round shank boring bars and tools as well as square tool bits.
- Boring Bar not included.

SERIES	A	B	C	D	TOOL BIT	SHANK	PART NO.	PRICE
100 Dim. (AXA)	15/16"	1/2"	7/16"	1 1/2"	3/16 - 1/2"	7/16"	**71-098-8**	$58.25
200 Dim. (BXA)	1 1/8"	5/8"	1/2"	1 3/4"	1/4 - 5/8"	1/2"	**71-099-6**	66.70
300 Dim. (CXA)	1 7/16"	3/4"	3/4"	2 1/8"	1/2 - 3/4"	3/4"	**71-100-2**	87.70
400 Dim. (CA)	1 11/16"	1"	13/16"	2 1/2"	1/2 - 1"	13/16"	**71-101-0**	108.20
500 Dim. (DA)	2 3/16"	1 3/16"	1"	3 1/8"	3/4 - 1 1/4"	1 1/8"	**35-213-8**	178.60





Heavy-Duty Boring Bar Holders - Style No. 4 & 41

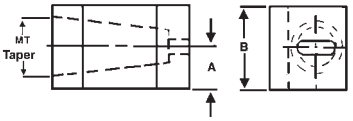
- Equipped with a split bushing to accommodate a boring bar of smaller diameter.
- It grips with extreme rigidity, cuts smoothly without chatter.
- Holders supplied with split bushing.

Style No. 4

SERIES	CENTERLINE DISTANCE A	HT. B	D1	INSIDE DIA. D	PART NUMBER	PRICE
100 Dim. (AXA)	3/4"	1 1/2"	3/4"	5/8"	**71-102-8**	$88.50
200 Dim. (BXA)	1"	2"	1"	3/4"	**71-103-6**	102.05
300 Dim. (CXA)	1"	2"	1"	3/4"	**71-104-4**	122.35
400 Dim. (CA)	1 1/4"	2 1/2"	1 1/4"	1"	**71-105-1**	148.80
500 Dim. (DA)	1 9/16"	3 1/8"	1 1/2"	1 1/4"	**35-214-6**	221.35

Style No. 41

SERIES	CENTERLINE DISTANCE A	HT. B	D1	INSIDE DIA. D	PART NUMBER	PRICE
100 Dim. (AXA)	7/8"	1 3/4"	1"	3/4"	**71-106-9**	$104.40
200 Dim. (BXA)	1"	2"	1 1/4"	1"	**71-107-7**	111.75
300 Dim. (CXA)	1 1/8"	2 1/4"	1 1/4"	1"	**71-108-5**	138.20
400 Dim. (CA)	1 3/8"	2 3/4"	1 1/2"	1 1/4"	**71-109-3**	163.15





Morse Taper Holders - Style No. 5 & 53

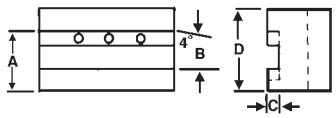
- Drills with carriage by using power feed instead of tail stock.
- Easily centered.
- For Nos. 2, 3 & 4 Morse Taper drills.
- Drill not included.

Style No. 5

SERIES	CENTERLINE DISTANCE A	B	TAPER HOLE SIZE	PART NO.	PRICE
100 Dim. (AXA)	3/4"	1 1/2"	2MT	**71-110-1**	$78.00
200 Dim. (BXA)	7/8"	1 3/4"	2MT	**71-111-9**	83.95
300 Dim. (CXA)	1"	2"	3MT	**71-112-7**	102.05
400 Dim. (CA)	1 1/4"	2 1/2"	3MT	**71-113-5**	128.40

Style No. 53

SERIES	CENTERLINE DISTANCE A	B	TAPER HOLE SIZE	PART NO.	PRICE
100 Dim. (AXA)	3/4"	1 1/2"	3MT	**71-114-3**	$104.40
200 Dim. (BXA)	7/8"	1 3/4"	3MT	**71-115-0**	111.75
300 Dim. (CXA)	1 1/16"	2 1/8"	4MT	**71-116-8**	123.15
400 Dim. (CA)	1 1/4"	2 1/2"	4MT	**71-117-6**	144.25

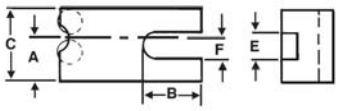




Universal Parting Blade Holders - Style No. 7

- For bevel as well as T-cut blades.
- Enables you to cut-off close to chuck.
- Absence of vibration prevents breaking blades.
- Blade additional.

SERIES	CENTERLINE DISTANCE A	B	C	HT. D	BLADE HT.	PART NUMBER	PRICE
100 Dim. (AXA)	13/16"	1/2"	3/16"	1 1/2"	1/2"	**71-118-4**	$89.20
200 Dim. (BXA)	1"	11/16"	3/16"	1 3/4"	11/16"	**71-119-2**	93.70
300 Dim. (CXA)	1 3/16"	3/4"	3/16"	2"	3/4"	**71-120-0**	114.05
400 Dim. (CA)	1 7/16"	7/8"	1/4"	2 1/2"	7/8"	**71-121-8**	115.80
500 Dim. (DA)	1 3/4"	1 3/16"	1/4"	2 3/4"	1 1/8"	**35-216-1**	197.00





Knurling, Facing & Turning Holders - Style No. 10

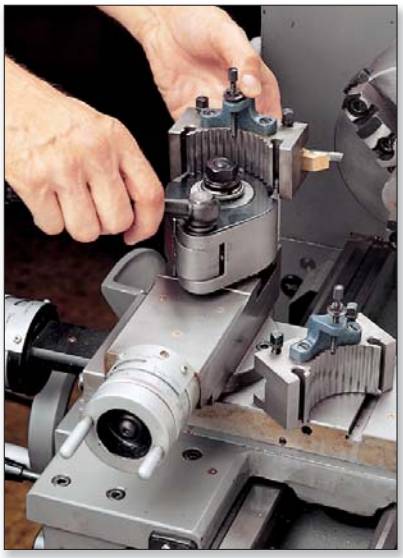
- For turning and facing as well as knurling.
- Supplied with a set of high speed precision ground lapped medium diamond knurls.
- Knurl Dimensions: 3/4 x 3/8 x 1/4" H.

SERIES	CENTERLINE DISTANCE A	MAX. CUTTING TOOL SIZE B	C	E	E1	TOOL BIT	PART NUMBER	PRICE
100 Dim. (AXA)	7/8"	1 9/16"	1 9/16"	1/2"	3/8"	3/16 - 1/2"	**71-122-6**	$108.80
200 Dim. (BXA)	1"	1 3/4"	1 3/4"	5/8"	1/2"	1/4 - 5/8"	**71-123-4**	123.15
300 Dim. (CXA)	1 3/16"	2"	2"	3/4"	5/8"	1/2 - 3/4"	**71-124-2**	141.25
400 Dim. (CA)	1 7/16"	2 1/2"	2 1/2"	1"	3/4"	1/2 - 1"	**71-125-9**	160.05
500 Dim. (DA)	1 7/8"	4 1/2"	3 1/8"	1 5/16"	1"	1/2 - 1 1/4"	**35-215-3**	225.15

MACHINE ACCESSORIES

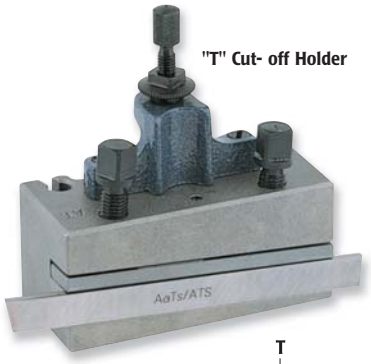
SWISS MULTIQUICK

40 Position Quick Change Tool Holder for all Lathes



0.0001" Accuracy

- Swiss precision and perfection; internationally acclaimed by the leaders in industry.
- All parts, toolposts and holders are manufactured from high quality chrome steel, thru hardened.
- The splines of the toolpost and holders are precision ground for 0.0001" repeat accuracy.
- Cam-lock handle rigidly locks and quickly releases toolholder.
- 40 different angles (every 9°) are conveniently selected from position dial with marker.
- No limitations as to the number and types of tools to be used.
- Correct height of cutting edge is easily and accurately adjusted by a special set-screw built into each holder.
- Tools can be re-ground without removal from toolholder – setting remains unaltered.
- Holders are interchangeable with most other brand 40 position toolposts.

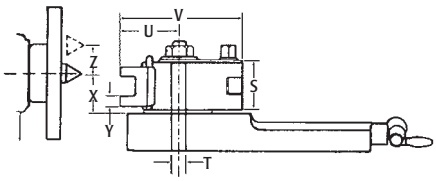


"T" Cut- off Holder



HSS Blades

"T" CUT-OFF HOLDERS FOR TOOLPOST	PART NO.	PRICE	HSS BLADES T	E	PART NO.	PRICE/EA.
Aa	**71-214-1**	$229.10	5/64"	3/8"	**71-341-2**	$93.40
A	**71-234-9**	285.75	7/64"	3/8"	**71-345-3**	91.35
B	**71-274-5**	445.10	1/8"	7/8"	**71-343-8**	108.65
C	**71-294-3**	604.95	3/16"	1"	**71-344-6**	117.25

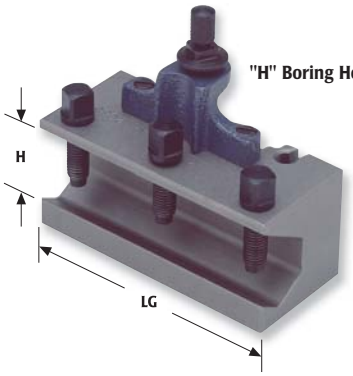


Toolposts

SIZE	PART NO.	PRICE	SET NO.*	PRICE
Aa	**71-210-9**	$466.90	**71-201-8**	$1,127.70
A	**71-230-7**	789.20	**71-203-4**	1,588.00
E	**71-250-5**	1,009.00	**71-205-9** †	2,029.00
B	**71-270-3**	1,188.00	**71-207-5** †	2,450.15
C	**71-290-1**	1,619.00	**71-209-1** †	3,542.95

*) Set includes Toolpost with two "D" Holders, one "H" Holder and one "T" Holder with HSS cut-off Blade.

†) for the two "D" holders, one each of the two sizes listed in this set are listed below.



"H" Boring Holder

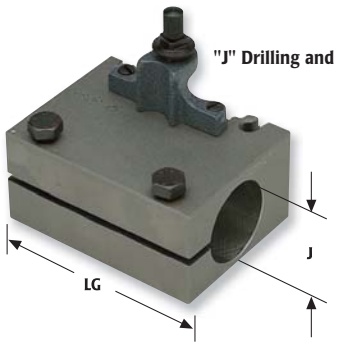
"H" Boring Holders

FOR TOOLPOST	D	L	PART NO.	PRICE
Aa	1/2"	2"	**71-215-8**	$175.10
A	3/4"	3 3/8"	**71-235-6**	221.30
E	1"	4"	**71-255-4**	295.40
B	1 1/4"	5 1/8"	**71-275-2**	373.55
C	1 31/32"	6 5/16"	**71-295-0**	611.55

Choosing the Right Size

SWISS MULTIQUICK	SIZE	Aa	A	E	B	C
Approx. Lathe Swing		up to 9"	6-13"	10"-18"	13"-20"	18"-30"
Max. Horse Power output		1	2	6	8	15
Height adjustment	Z	15/32"	35/64"	45/64"	3/4"	1 5/16"
Thickness	Y	15/64"	5/16"	11/32"	17/32"	19/32"
Minimum height*	X	47/64"	1 1/8"	1 9/64"	1 13/16"	2 3/16"
Overall length	V	2 3/4"	3 15/16"	5 21/64"	5 29/32"	7 7/8"
Length	U	1 3/16"	1 57/64"	2 11/16"	2 51/64"	3 15/16"
Max. bolt opening	T	1/2"	25/32"	3/4"	1 1/4"	1 3/16"
Height	S	1 1/2"	2 1/8"	2 5/8"	2 61/64"	4 1/8"

*) Based on using toolbit as per dimension D of "D" holder.



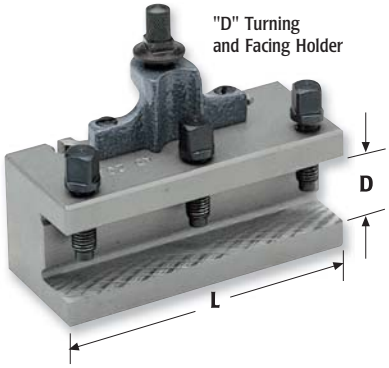
"J" Drilling and Boring Holder



"L" Morse Bushing

"J" Drilling and Boring Holders - "L" Morse Bushing

FOR TOOLPOST	Lg	J	L	PART NO.	PRICE
Aa	2"	5/8"		**71-216-6**	$198.95
A	3 3/8"	1 3/16"		**71-236-4**	273.55
Bushing		1 3/16"	MT 1	**71-241-4**	119.30
Bushing		1 3/16"	MT 2	**71-242-2**	119.30
E	4"	1 37/64"		**71-256-2**	330.90
Bushing		1 37/64"	MT 2	**71-262-0**	127.90
Bushing		1 37/64"	MT 3	**71-263-8**	146.20
Bushing		1 37/64"	MT 4	**71-264-6**	149.75
B	4 3/4"	1 37/64"		**71-276-0**	408.05
Bushing		1 37/64"	MT 2	**71-262-0**	127.90
Bushing		1 37/64"	MT 3	**71-263-8**	146.20
Bushing		1 37/64"	MT 4	**71-264-6**	149.75
C	6 5/16"	1 31/32"		**71-296-8**	653.70
Bushing		1 31/32"	MT 3	**71-266-1**	161.40
Bushing		1 31/32"	MT 4	**71-267-9**	164.95



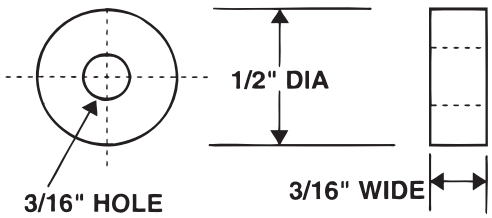
"D" Turning and Facing Holder

"D" Turning and Facing Holders

FOR TOOLPOST	D	L	PART NO.	PRICE
Aa	1/2"	2"	**71-211-7**	$175.10
A	3/4"	3 1/2"	**71-231-5**	217.75
E	3/4"	4"	**71-251-3**	263.40
E	1"	4"	**71-252-1**	272.05
B	1 1/4"	4 3/4"	**71-271-1**	361.85
B	1 1/4"	5 1/2"	**71-272-9**	384.20
C	1 9/16"	5 15/16"	**71-291-9**	506.50
C	1 9/16"	6 11/16"	**71-292-7**	506.50

Circular & Diametral Pitch Knurls - Full Face without Bevel - HSS & Cobalt - EP Series

Knurl Size 1/2" Dia. x 3/16" Wide x 3/16" Hole



Circular Pitch - HSS

TOOTH ANGLE	TPI	STRAIGHT PART NO.	R.H. DIAGONAL PART NO.	L.H. DIAGONAL PART NO.
90°	16	**35-560-2**	**35-570-1**	**35-578-4**
90°	20	**35-561-0**	**35-571-9**	**35-579-2**
90°	25	**35-562-8**	**35-572-7**	**35-580-0**
90°	30	–	**35-573-5**	**35-581-8**
90°	35	**35-563-6**	**35-574-3**	**35-582-6**
90°	40	**35-564-4**	**35-575-0**	**35-583-4**
90°	41	**35-565-1**	–	–
90°	47	**35-566-9**	–	–
70°	50	**35-567-7**	**35-576-8**	**35-584-2**
70°	53	**35-568-5**	–	–
70°	80	**35-569-3**	**35-577-6**	**35-585-9**
	Price	$14.45	$14.45	$14.45

Circular Pitch - Cobalt

TOOTH ANGLE	TPI	STRAIGHT PART NO.	R.H. DIAGONAL PART NO.	L.H. DIAGONAL PART NO.
90°	20	**35-586-7**	**35-593-3**	**35-600-6**
90°	25	**35-587-5**	**35-594-1**	**35-601-4**
90°	30	**35-588-3**	**35-595-8**	**35-602-2**
90°	35	**35-589-1**	**35-596-6**	**35-603-0**
70°	40	**35-590-9**	**35-597-4**	**35-604-8**
70°	50	**35-591-7**	**35-598-2**	**35-605-5**
70°	80	**35-592-5**	**35-599-0**	**35-606-3**
	Price	$20.00	$20.00	$20.00

Diametral Pitch - HSS

DIA. PITCH	STRAIGHT PART NO.	R.H. DIAGONAL PART NO.	L.H. DIAGONAL PART NO.
64	**35-619-6**	**35-623-8**	**35-627-9**
96	**35-620-4**	**35-624-6**	**35-628-7**
128	**35-621-2**	**35-625-3**	**35-629-5**
160	**35-622-0**	**35-626-1**	**35-630-3**
Price	$20.15	$20.15	$20.15

Diametral Pitch - Cobalt

DIA. PITCH	STRAIGHT PART NO.	R.H. DIAGONAL PART NO.	L.H. DIAGONAL PART NO.
64	**35-607-1**	**35-611-3**	**35-615-4**
96	**35-608-9**	**35-612-1**	**35-616-2**
128	**35-609-7**	**35-613-9**	**35-617-0**
160	**35-610-5**	**35-614-7**	**35-618-8**
Price	$28.15	$28.15	$28.15

IMPORT & KNURLCRAFT Revolving Head Knurling Tools

- Chamfered knurls supplied.
- Complete with one set each of fine, medium and coarse diagonal knurls.



35-644-4

SIZE OF HOLDER W	H	L	KNURL SIZE D	W	HOLE	IMPORT PART NO.	PRICE	KNURLCRAFT PART NO.	PRICE
5/16"	3/4"	5"	5/8"	5/16"	7/32"	**35-640-2**	$79.95	**35-644-4**	$444.15
3/8"	7/8"	5 1/2"	5/8"	5/16"	7/32"	**35-641-0**	79.95	**35-645-1**	470.50
1/2"	1 1/8"	6 1/2"	3/4"	3/8"	1/4"	**35-642-8**	84.95	**35-646-9**	502.40
5/8"	1 3/8"	7 1/2"	3/4"	3/8"	1/4"	**35-643-6**	87.05	**35-647-7**	573.60

Single Knurling Tool

- Complete with medium cut high speed steel knurl.
- Pitch: 21 TPI.
- Number of Teeth: 49.



35-666-7

SIZE OF HOLDER L	W	HT.	KNURL SIZE DIA.	W	HOLE	PART NUMBER	PRICE
4"	1/2"	1/2"	3/4"	1/4"	1/4"	**35-666-7**	$13.15

IMPORT & KNURLCRAFT Self-Centering Knurling Tools

- Complete with medium diamond pattern knurls.



35-631-1

SIZE OF HOLDER W	H	L	KNURL SIZE D	W	HOLE	IMPORT PART NO.	PRICE	KNURLCRAFT PART NO.	PRICE
5/16"	3/4"	5"	5/8"	5/16"	7/32"	**35-636-0**	$44.35	**35-631-1**	$357.40
3/8"	7/8"	5 1/2"	5/8"	5/16"	7/32"	**35-637-8**	44.35	**35-632-9**	357.40
1/2"	1 1/8"	6 1/2"	3/4"	3/8"	1/4"	**35-638-6**	56.60	**35-633-7**	400.75
5/8"	1 3/8"	7 1/2"	3/4"	3/8"	1/4"	**35-639-4**	58.00	**35-634-5**	438.65



35-662-6

35-649-3

CNC Single Knurl Bump Style Holders

- Single knurl holders include medium pitch straight pattern knurl.

SHANK SIZE	SERIES	KNURL DIA.	W	HOLE	LH SQ SHANK	RH SQ SHANK	ROUND SHANK	PRICE
5/16"	BP	5/16"	5/32"	1/8"	**35-648-5**	**35-655-0**	–	$121.20
1/2"	EP	1/2"	3/16"	3/16"	**35-649-3**	**35-656-8**	**35-662-6**	131.30
5/8"	GK	5/8"	1/4"	1/4"	**35-650-1**	**35-657-6**	**35-663-4**	140.35
3/4"	KP	3/4"	3/8"	1/4"	**35-651-9**	**35-658-4**	**35-664-2**	150.95
1"	KP	3/4"	3/8"	1/4"	**35-652-7**	**35-659-2**	**35-665-9**	150.95
3/4"	KR	3/4"	1/2"	1/4"	**35-653-5**	**35-660-0**	–	167.90
1"	KR	3/4"	1/2"	1/4"	**35-654-3**	**35-668-3**	–	167.90
1"	PH	1 1/4"	1/2"	1/2"	–	**35-661-8**	–	229.55

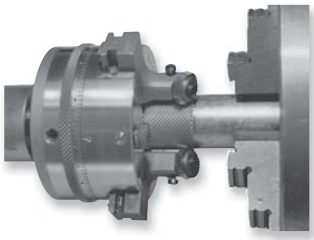
MACHINE ACCESSORIES

QUICK

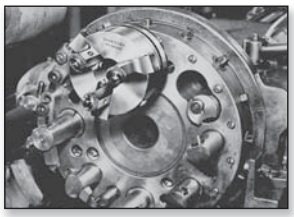
Diamond, Cross and Straight Knurling

Clean Cutting Action for Fast, High Quality Knurls — Every Time! ***Cut Clean Knurls in Most Metals and Plastics.***











STRAIGHT



DIAMOND



CROSS

- Simultaneous micrometer adjustment of the knurl cutter shaft to the workpiece diameter.
- Knurling with a cutting action and minimized pressure.
- Diamond or straight knurls.

Diamond and Cross Knurling Tools



Model LA/KF

Requires 2 Cutters 90°

TYPE	SHANK SIZE	LENGTH	CAPACITY	CUTTER DIA.	WEIGHT LBS.	PART NUMBER	PRICE
LA/KF	* 9/32" x 9/32" L	3 5/32"	1/16" - 1/2"	11/32"	1/4	**72-010-2**	$1,038.80
	* 5/16" x 5/16" L	3 5/32"	1/16" - 1/2"	11/32"	1/4	**72-011-0**	1,038.80
	* 3/8" x 3/8" L	3 5/32"	1/16" - 1/2"	11/32"	1/4	**72-012-8**	1,038.80
	* 1/2" x 1/2" L	3 5/32"	1/16" - 1/2"	11/32"	1/4	**72-013-6**	1,038.80

Knurling cutters are not included. Cutter diameter determines pitches available. See following pages. Cross Knurling requires 1 cutter 15° right and 1 cutter 15° left (on request).
* Right hand available on request.

Straight Knurling Tools



Model LA/FL

Requires 1 Cutter 30° Left

TYPE	SHANK SIZE	LENGTH	CAPACITY	CUTTER DIA.	WEIGHT LBS.	PART NUMBER	PRICE
LA/FL	9/32" x 9/32"	3 1/2"	1/16" - 1/2"	11/32"	1/4	**72-050-8**	$460.40
	5/16" x 5/16"	3 1/2"	1/16" - 1/2"	11/32"	1/4	**72-051-6**	460.40
	3/8" x 3/8"	3 1/2"	1/16" - 1/2"	11/32"	1/4	**72-052-4**	460.40
	1/2" x 1/2"	3 1/2"	1/16" - 1/2"	11/32"	1/4	**72-053-2**	460.40

Knurling cutters are not included. Cutter diameter determines pitches available. The type LA/FL is left hand cutting for left hand turning Lathes. Right hand cutting knurls for right hand turning Automatics can be furnished on special order. They require 1 cutter 30° right.

Replacement Parts

11/32" Cutters

DESCRIPTION	PART NO.	PRICE
Screw	**07-001-1**	$7.15
Washer	**07-010-2**	10.30
Bushing	**07-016-9**	22.45

9/16" Cutters

DESCRIPTION	PART NO.	PRICE
Screw	**07-002-9**	$7.15
Washer	**07-011-0**	29.15
Bushing	**07-017-7**	22.45

27/32" Cutters

DESCRIPTION	PART NO.	PRICE
Screw	**07-003-7**	$7.15
Washer	**07-012-8**	12.90
Bushing	**07-018-5**	31.40

Diamond, Cross and Straight Knurling Tools

For Turret Lathes, Turret-Type Automatics and in the Tailstock of Center Lathes

Diamond Knurl Requires 3 Cutters 90°
Straight Knurl Requires 2 Cutters 30° Left and 1 Cutter 30° Right*

MODEL	SHANK H	THROUGH HOLE F	CUTTER DIA	PART NUMBER	PRICE
STR/A	5/8"	.35"	9/16"	**72-094-6**	$1,959.05
	3/4"	.35"	9/16"	**72-095-3**	1,959.05
	1"	.59"	9/16"	**72-096-1**	1,959.05
	MT 2	.33"	9/16"	**72-097-9**	2,130.55
STR/B	1"	.59"	27/32"	**72-100-1**	2,585.25
	1 1/4"	.71"	27/32"	**72-101-9**	2,585.25
	1 1/2"	.98"	27/32"	**72-102-7**	2,585.25

Cross Knurling requires 2 cutters 15° right and 1 cutter 15° left (on request).
*Knurling Cutters are not included. See following page.

Replacement Parts

DESCRIPTION	PART NO.	PRICE
Screw for STR/A	**07-002-9**	$7.15
Washer for STR/A	**07-011-0**	29.15
Bushing for STR/A	**07-017-7**	22.45

DESCRIPTION	PART NO.	PRICE
Screw for STR/B	**07-003-7**	$7.15
Washer for STR/B	**07-012-8**	12.90
Bushing for STR/B	**07-018-5**	31.40



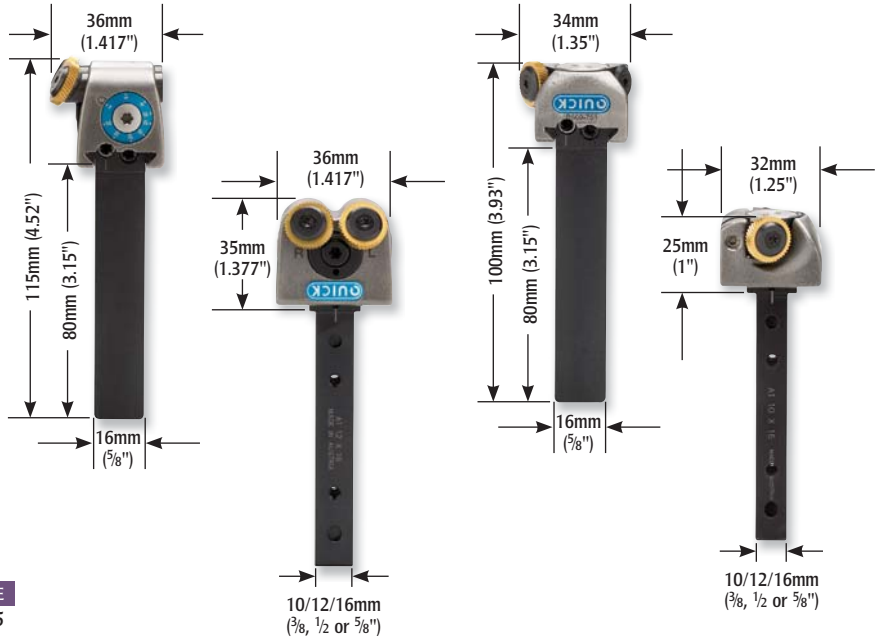
MODEL	STR/A	STR/B
Capacity	.16 - .98"	.20 - 2.17"
Bore of knurling head	.78"	1.38"
Depth of bore	1.00"	1.46"
Knurling head diameter	2.13"	3.75"
Length of knurling head	1.46"	2.05"
Length of wheel carrier	.59"	1.18"
Weight	1.76 lbs.	6.60 lbs.

QUICK Knurling Tools

Now . . . QUICK Knurling Tools newly designed to be used on Conventional Lathes and CNC Turning Centers as well as changeable from left to right and right to left hand cutting with the same head and shank..! Set Includes the Tools to Machine Diamond, Cross, Straight & Spiral Knurls.



72-170-4
consisting of:
A1/KF w/Shank 12 x 16mm (½" x ⅝")
A1/FL w/Shank 10 x 16mm (⅜" x ⅝")
Extra Shank 16 x 16mm (⅝" x ⅝")



Model A1/FL & A1/KF

Capacity:	3 - 50 mm (0.118 - 1.968")
Pitches:	0.4 - 1.2 mm (64-21)
Cutter Dia.:	14.5 mm (9/16")
Shank Height:	10, 12 or 16 mm (⅜", ½" or ⅝")
Shank Length:	80 mm (3.15")

DESCRIPTION	WEIGHT (LBS.)	PART NO.	PRICE
A1/Set KF-16/FL-12 & Shank 10	2.15	**72-170-4**	$2,737.15

For Diamond and Cross Knurls

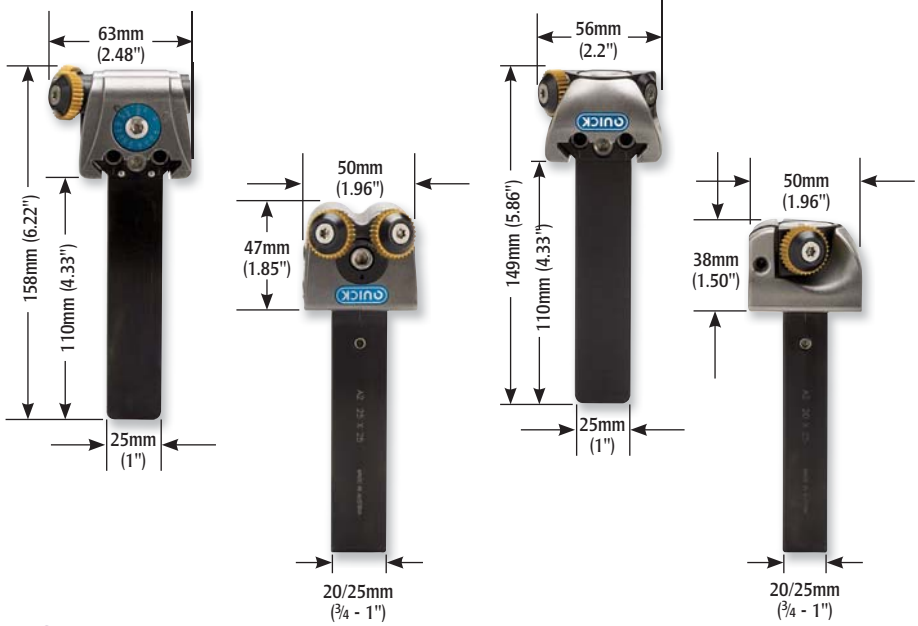
TYPE	SHANK SIZE	WEIGHT LBS.	PART NUMBER	PRICE
A1/KF-10	10 mm	1.30	**72-171-2**	$1,621.90
A1/KF-12	12 mm	1.35	**72-172-0**	1,621.90
A1/KF-16	16 mm	1.40	**72-173-8**	1,621.90

For Straight & Spiral Knurls

TYPE	SHANK SIZE	WEIGHT LBS.	PART NUMBER	PRICE
A1/FL-10	10 mm	1.15	**72-174-6**	$1,054.50
A1/FL-12	12 mm	1.20	**72-175-3**	1,054.50
A1/FL-16	16 mm	1.25	**72-176-1**	1,054.50



72-180-3
consisting of:
A2/KF w/Shank 25 x 25mm (1" x 1")
A2/FL w/Shank 20 x 25mm (¾" x 1")



Model A2/FL & A2/KF

Capacity:	5 - 250 mm (0.196 - 9.842")
Pitches:	0.4 - 2 mm (64-13)
Cutter Dia.:	21.5 mm (27/32")
Shank Height:	20 or 25 mm (¾" or 1")
Shank Length:	110 mm (4.33")

DESCRIPTION	WEIGHT (LBS.)	PART NO.	PRICE
A2/Set KF-25/FL-20	5.40	**72-180-3**	$3,391.80

For Diamond and Cross Knurls

TPE	SHANK SIZE	WEIGHT LBS.	PART NUMBER	PRICE
A2/KF-20	20 mm	3.40	**72-181-1**	$2,053.10
A2/KF-25	25 mm	3.60	**72-182-9**	2,053.10

For Straight & Spiral Knurls

TYPE	SHANK SIZE	WEIGHT LBS.	PART NUMBER	PRICE
A2/FL-20	20 mm	2.95	**72-183-7**	$1,242.65
A2/FL-25	25 mm	3.15	**72-184-5**	1,242.65

Knurling Cutters on next page

MACHINE ACCESSORIES



QUICK Knurling Cutters

- KF models require 2 ea. 90° cutters for diamond knurl pattern.
- FL models require 1 ea. 30° left or 1 ea. 30° right cutter for straight knurl pattern.
- STR models require 3 ea. 90° cutters for diamond knurl pattern, 2 ea. 30° left and 1 ea. 30° right cutters for straight knurl pattern.

PITCH	CUTTER	11/32" DIA. PART NO.	9/16" DIA. PART NO.	27/32" DIA PART NO.
	90°	**72-153-0**	**72-203-3**	**72-253-8**
64	30° right	**72-154-8**	**72-204-1**	**72-254-6**
0.4mm	30° left	**72-155-5**	**72-205-8**	**72-255-3**
	90°	**72-156-3**	**72-206-6**	**72-256-1**
51	30° right	**72-157-1**	**72-207-4**	**72-257-9**
0.5mm	30° left	**72-158-9**	**72-208-2**	**72-258-7**
	90°	**72-159-7**	**72-209-0**	**72-259-5**
42	30° right	**72-160-5**	**72-210-8**	**72-260-3**
0.6mm	30° left	**72-161-3**	**72-211-6**	**72-261-1**
	90°	**72-162-1**	**72-212-4**	**72-262-9**
32	30° right	**72-163-9**	**72-213-2**	**72-263-7**
0.8mm	30° left	**72-164-7**	**72-214-0**	**72-264-5**
	90°	**72-165-4**	**72-215-7**	**72-265-2**
25	30° right	**72-166-2**	**72-216-5**	**72-266-0**
1.0mm	30° left	**72-167-0**	**72-217-3**	**72-267-8**
	90°		**72-218-1**	**72-268-6**
21	30° right	–	**72-219-9**	**72-269-4**
1.2mm	30° left		**72-220-7**	**72-270-2**
	90°			**72-274-4**
17	30° right	–	–	**72-275-1**
1.5mm	30° left			**72-276-9**
	90°			**72-277-7**
16	30° right	–	–	**72-278-5**
1.6 mm	30° left			**72-279-3**
	90°			**72-280-1**
13	30° right	–	–	**72-281-9**
2.0mm	30° left			**72-282-7**
PRICE		$28.75	$35.95	$44.90

Value Priced

Quick Acting Knurling Tool Holder

For Use with Manual Lathes

- Designed to operate in a manner exerting no pressure on the lathe, compound, centers or feed screw.
- Easier and faster to set up and produce clean and sharp knurling with no double tracking.
- Complete with one pair of medium diamond pattern knurls – 3/4" x 3/8" x 1/4"

HOLDER SIZE	CAPACITY	SHANK	PART NO.	PRICE
6"	1/16" – 2 1/4"	5/8" x 1/2"	**65-000-2**	$89.95
8 1/4"	2 1/2" – 4 1/2"	3/4" x 5/8"	**65-001-0**	99.95



65-000-2



Precision Set with Interchangeable Tips

Universal Live Centers

- Made of high quality tool steel, hardened and precision ground.
- Sealed triple-bearing system.
- Seven easily interchangeable tips; 1 ea. 1/4", 5/16", 3/8", 1 1/4", 2 ea. 1/2" and 1 female.
- Maximum speed 2,000 RPM.

SHANK	PART NO.	PRICE
MT-2	**51-209-5**	$202.95
MT-3	**51-210-3**	206.35
MT-4	**51-211-1**	225.20

Tru-Bearing Live Centers

- Medium Duty, for general purpose shop use, 60° included angle.
- Accuracy within 0.0002".
- Point made of hardened steel alloy to 57 - 60 RC.

MORSE TAPER	PART NO.	PRICE
1	**51-322-6**	$70.85
2	**51-323-4**	73.25
3	**51-324-2**	74.00
4	**51-325-9**	91.00
5	**51-326-7**	105.60





Live Centers

- Made of high quality tool steel, hardened and precision ground.
- Sealed triple-bearing system.
- Maximum speed 2,000 RPM.

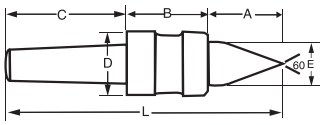
SHANK	PART NO.	PRICE
MT-2	**51-212-9**	$59.95
MT-3	**51-213-7**	66.75
MT-4	**51-214-5**	89.40

Long-Nose Live Centers

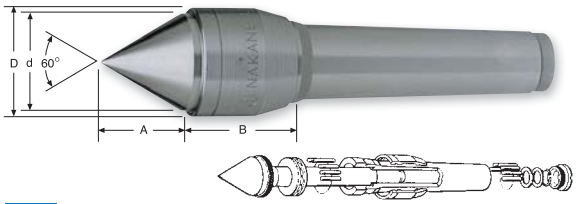
with 60° Included Angle

- For N/C & CNC Copying Lathes
- These N/C live centers are designed to keep dust, chips and coolant from the bearings.
- Accuracy guaranteed within 0.0002".
- Hardened RC 61-65 and ground.





MORSE TAPER	POINT LENGTH A	CASE LENGTH B	SHANK LENGTH C	OD D	POINT DIA. E	OAL L	PART NUMBER	PRICE
3	1.4"	1.7"	3.35"	1.775"	.875"	6.45"	**67-081-0**	$151.45
4	1.4"	1.7"	4.25"	1.750"	.875"	7.35"	**67-082-8**	179.45
5	2.50"	2.75"	5.350"	3.10"	1.575"	10.60"	**67-083-6**	378.15



NAKANE Live Centers

Made in Japan

- Exceptionally small head diameter makes this live center particularly ideal for use on copying lathes and for many applications where the approach to the tools may be critical, as well as in delicate turning operations.
- Two precision needle roller bearings and heavy duty thrust bearing.
- Main parts are made of bearing steel and nickel chrome molybdenum steel, heat treated and precision ground.
- Concentricity within 0.00012."

TAPER	d	D	A	B	MODEL #	PART NO.	PRICE
MT 2	0.94"	1.09"	0.78"	1.22"	LS-2	**70-772-9**	$262.50
MT 3	1.10"	1.27"	0.96"	1.42"	LS-3	**70-773-7**	301.80
MT 4	1.57"	1.77"	1.34"	2.05"	LS-4	**70-774-5**	436.95
MT 5	2.13"	2.44"	1.85"	2.32"	LS-5	**70-775-2**	805.65

Load Capacity in lbs.
Based on 2000 Hours Average Bearing Life.

TAPER	50 RPM THRUST	50 RPM RADIAL	250 RPM THRUST	250 RPM RADIAL	500 RPM THRUST	500 RPM RADIAL	1,000 RPM THRUST	1,000 RPM RADIAL
MT 2	616	781	360	462	286	374	226	295
MT 3	1020	1623	594	886	473	730	376	585
MT 4	1090	2090	1111	1254	880	990	699	792
MT 5	2539	2750	1485	1650	1179	1298	935	1034

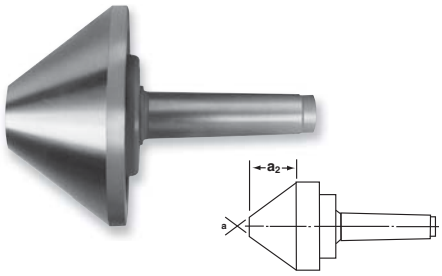
SHOP GRADE

Bull Nose Live Centers

For Piping or Tubing

The Bull Nose center has all the features of the live center, but with a larger rugged head for working with pipe and hollow shafts.

- Radial loads based on 500 RPM.
- Bearing sealed and waterproofed to assure long life and consistent accuracy.
- Accuracy: 0.0003"

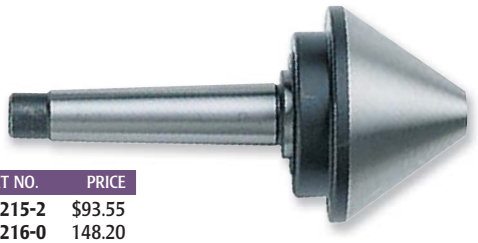


MORSE TAPER	OUTSIDE DIA.	MIN. CONE DIA.	HEAD L. a^2	OAL	ANGLE a	RADIAL LOAD (LBS.)	PART NUMBER	PRICE
2	2.480"	0.460"	2.480"	5.350"	70°	440	**34-866-4**	$81.15
3	3.070"	0.710"	3.030"	6.770"	70°	440	**34-867-2**	95.55
3	4.210"	1.250"	2.760"	6.500"	75°	660	**74-862-4***	190.20
4	5.040"	1.380"	3.270"	7.600"	75°	700	**34-868-0**	185.45
5	5.790"	1.380"	4.090"	9.580"	75°	1100	**34-869-8**	336.10

*Accuracy: 0.0005"

Bullnose Live Centers

- Made of high quality tool steel, hardened and precision ground.
- Sealed triple-bearing system.
- Maximum speed 1,200 RPM.



SHANK	MIN. DIA.	MAX. DIA.	TAPER	PART NO.	PRICE
MT-2	0.5"	2.4"	60°	**51-215-2**	$93.55
MT-3	1.3"	4.2"	70°	**51-216-0**	148.20
MT-4	1.5"	4.9"	75°	**51-217-8**	214.85

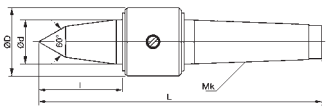
SHOP GRADE

CNC Triple Bearing Extended Point Live Centers

With 60° Included Angle



- Designed to keep dust, chips and coolant from getting inside the bearings.
- Hardened and ground to 61-65 Rockwell.
- Concentricity within 0.0002".



MORSE TAPER	OUTSIDE DIA. B	SHANK LENGTH C	OAL D	CASE LENGTH E	POINT LENGTH F	POINT LENGTH G	LOAD RATING (LBS.)	PART NUMBER	PRICE
2	1.417"	2.56"	5.059"	1.40"	1.36"	0.866"	594	**34-859-9**	$186.35
3	1.850"	3.24"	6.575"	2.00"	1.84"	1.181"	704	**34-860-7**	202.85
4	2.165"	4.10"	8.169"	2.22"	2.00"	1.378"	2200	**34-861-5**	271.50
5	2.736"	5.18"	10.197"	2.42"	2.72"	1.772"	3960	**34-862-3**	345.10



Spring Center

With 60° Included Angle

- Use for hand tapping.
- Mount center in a drill chuck or collet.
- Insert the hardened point in the center of the tapping fixture or in the center of the back of the tap.
- As the tap is turned the pressure provided by the center will follow the tap as it threads the hole assuring straight and accurate hand tapped threads.
- One size center can be used for all standard tapping applications.

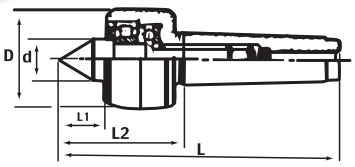
SHANK SIZE	SPRING TRAVEL	PART NUMBER	PRICE
1/2"	3/8"	**70-582-2**	$30.40

BISON

Precision and Super Precision Live Centers



- Machined from one piece of forging, hardened and precisely ground.
- Lubricated with a special grease and do not require any additional lubrication.
- Three precision high-quality bearings are protected by a special steel shield and neoprene seal.



MORSE TAPER	OUTSIDE DIA. (D)	POINT DIA. (d)	OAL (L)	POINT LENGTH (L1)	PROJECTION LENGTH (L2)	MAX. RPM	LOAD CAPACITY (LBS.)	PRECISION LIVE CENTERS ACCURACY	PRECISION LIVE CENTERS PART NUMBER	PRECISION LIVE CENTERS PRICE	SUPER PRECISION LIVE CENTERS ACCURACY	SUPER PRECISION LIVE CENTERS PART NUMBER	SUPER PRECISION LIVE CENTERS PRICE
1	1.50	0.59"	4.07"	0.70"	1.97"	5000	220	–	–	–	0.0002"	**67-094-3**	$196.70
2	1.57"	0.70"	4.74"	0.87"	2.22"	5000	460	0.0003"	**67-089-3**	$141.85	0.0001"	**67-095-0**	163.50
3	2.20"	0.98"	6.14"	1.12"	2.95"	4000	925	0.0003"	**67-090-1**	241.95	0.0001"	**67-096-8**	282.65
4	2.52"	1.10"	7.24"	1.24"	3.21"	3000	1,850	0.0003"	**67-091-9**	215.75	0.0001"	**67-097-6**	296.75
5	3.35"	1.61"	9.33"	1.77"	4.23"	2500	4,400	0.0004"	**67-092-7**	454.45	0.0002"	**67-098-4**	509.20
6	5.12"	2.48"	13.13"	2.52"	5.96"	2000	7,700	–	–	–	0.0002"	**67-099-2**	953.95

MACHINE ACCESSORIES

SHOP GRADE
3-Jaw Plain Back Self-Centering Lathe Chucks





Hardened Solid Jaws

Semi-Steel Body
- 0.003" T.I.R.

Hardened Solid Jaws Include:
- Two sets of one piece hard solid jaws.
- 1 chuck wrench.

Two-Piece Hardened Reversible Jaws Include:
- Two-piece American standard hard reversible jaws.
- 1 chuck wrench.

Hardened Solid Jaws

CHUCK DIA.	THRU HOLE	WT. (LBS.)	PART NUMBER	PRICE
3"	0.630"	5	**34-666-8**	$176.25
4"	0.860"	8	**34-667-6**	184.60
5"	1.180"	12	**34-668-4**	215.30
6"	1.570"	20	**34-669-2**	257.40
8"	2.550"	37	**34-670-0**	331.80
10"	2.750"	60	**34-671-8**	404.25

Chuck adapter required.



Two-Piece Hardened Reversible Jaws

Two-Piece Hardened Reversible Jaws

CHUCK DIA.	THRU HOLE	WT. (LBS.)	PART NUMBER	PRICE
6"	1.570"	20	**34-672-6**	$246.40
8"	2.550"	35	**34-673-4**	332.15
10"	3.150"	55	**34-674-2**	433.00
12"	3.930"	109	**34-675-9***	635.25
15"	5.320"	152	**34-676-7***	887.25

* Truck shipment.

BTC ZERO-SET®
3 & 6-Jaw Self-Centering Plain Back Scroll Lathe Chucks



3 Jaw Chuck

Semi-Steel Body
- Chucks set to "zero" with use of fine adjustment screws.
- 0.0005" T.I.R. repeatability on duplicate parts.
- Scroll and jaws made of high alloy steel.
- 2 piece reversible jaws are hardened and precision ground.

Standard Accessories:
- 1 set of two-piece hardened reversible jaws
- 1 chuck wrench.
- 1 set of mounting screws.



6 Jaw Chuck

Requires Chuck Adapter

CHUCK DIA.	THRU HOLE	WT. (LBS.)	3-JAW CHUCK PART NO.	PRICE	WT. (LBS.)	6-JAW CHUCK PART NO.	PRICE
6"	1.520"	26	**34-696-5**	$758.65	28	**34-700-5**	$941.35
8 1/4"	2.257"	60	**34-697-3**	1,009.00	63	**34-701-3**	1,306.95
10"	2.810"	86	**34-698-1**	1,339.30	90	**34-702-1***	1,673.60
12"	3.257"	133	**34-699-9***	1,544.30	140	**34-703-9***	2,008.90

*Truck shipment.

Chuck Adapters for 3-Jaw Self-Centering Plain Back Chucks



"D" Series

- Camlock stud length is adjustable to suit spindle.

"D" Series - For Camlock Spindles

CHUCK DIA.	SPINDLE NOSE	PART NUMBER	PRICE
6"	D1-4	**34-735-1**	$112.80
8"	D1-4	**34-736-9**	145.80
8"	D1-6	**34-737-7**	211.65
10"	D1-6	**34-738-5**	259.20
10"	D1-8	**34-739-3**	275.15
12"	D1-8	**34-740-1**	302.65
15"	D1-11	**34-741-9**	381.70

Threaded

CHUCK DIA.	SPINDLE NOSE	PART NUMBER	PRICE
6"	1 1/2-8	**34-742-7**	$266.05
6"	1 3/4-8	**34-743-5**	266.05
6"	2 1/4-8	**34-744-3**	266.05
6"	2 3/8-6	**34-745-0**	266.30
8"	2 1/4-8	**34-746-8**	303.20
10"	2 3/8-6	**34-747-6**	444.90



Threaded

SHOP GRADE
3-Jaw Self-Centering Direct Mounting "D" Series Lathe Chucks



Camloc Style

Semi-Steel Body
- Two-piece hardened jaws.

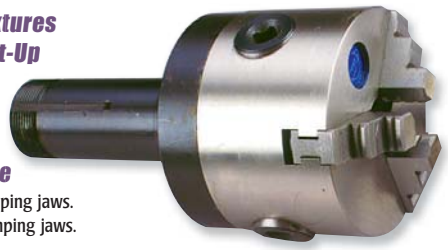
DIA.	TO FIT SPINDLE	THRU HOLE	WT. (LBS.)	PART NUMBER	PRICE
6"	D1-3	1.57"	31	**34-677-5**	$688.90
6"	D1-4	1.57"	31	**34-678-3**	439.55
8"	D1-4	1.96"	46	**34-679-1**	561.55
8"	D1-5	1.96"	46	**34-680-9**	920.95
8"	D1-6	1.96"	46	**34-681-7**	567.20
10"	D1-5	2.75"	82	**34-682-5***	1,234.40
10"	D1-6	2.75"	82	**34-683-3***	748.50
10"	D1-8	2.75"	82	**34-684-1**	777.20
12"	D1-6	3.93"	110	**34-685-8***	909.20
12"	D1-8	3.93"	110	**34-686-6***	909.20
12"	D1-11	3.93"	110	**34-687-4***	1,822.45
15"	D1-8	5.11"	150	**34-688-2***	1,546.15
15"	D1-11	5.11"	150	**34-689-0***	1,107.65

*Truck shipment.

SHOP GRADE
3 Jaw Self-Centering Chucks w/5C Mount

Use in 5C Spindles and Fixtures for Accurate and Quick Set-Up
- Repeatability: 0.003" T.I.R.

Complete w/2 Sets of Chuck Jaws for Increased Clamping Range
- 1 Set hardened steel internal clamping jaws.
- 1 Set hardened steel external clamping jaws.
- Chuck key.



71-499-8

CHUCK DIA.	WEIGHT LBS.	PART NUMBER	PRICE
3"	6.7	**71-498-0**	$243.10
4"	10.4	**71-499-8**	292.80



SHOP GRADE

4-Jaw Direct Mounting "D" Series Independent Lathe Chucks

Semi-Steel Body

- Two-piece hardened jaws.
- The reversible jaws and operating screws are made of high quality carbon steel.
- Jaws are hardened and precision ground.
- 1 set of jaws.
- 1 set of mounting screws.
- 1 hexagon wrench supplied with each chuck.

DIA.	TO FIT SPINDLE	THRU HOLE	WT. (LBS.)	PART NUMBER	PRICE
8"	D1-4	2.16"	35	**34-690-8**	$433.75
8"	D1-5	2.16"	35	**34-691-6**	439.00
10"	D1-5	2.95"	50	**34-692-4**	6,312.20
10"	D1-6	2.95"	50	**34-693-2**	612.20
12"	D1-6	3.74"	101	**34-694-0***	773.15
16"	D1-8	4.70"	141	**34-695-7***	1,075.45

*Truck shipment.



34-704-7

4-Jaw Independent Lathe Chucks with 5C Shank

Semi-Steel - 5C Shank

Precision chucks eliminate the problem of having to tear down a set-up on a lathe to switch to a 3 or 4 jaw chuck when working with a diameter that 5C or MT spindles aren't readily available for.

- Threaded end for positive end stop.
- 3/4" thru hole.

Standard Accessories:

- 1 hex key and one set of hardened steel jaws which are reversible for boarder clamping range.

BRAND	CHUCK DIA.	MAX. RPM	PART NUMBER	PRICE
Interstate	3"	4000	**34-704-7**	$236.25
Made in USA	3"	3000	**34-705-4** *	362.90

* 5C shank Made in USA with Interstate Chuck

3 Jaw Self-Centering Chuck w/5C Mount

When working with diameters that 5C or MT spindles don't readily accommodate, these precision chucks eliminate the need to tear down a lathe set-up just to switch to a 3 or 4 jaw chuck.

- Repeatability: 0.003" T.I.R.

Standard Accessories

- 1 Set hardened steel internal clamping jaws.
- 1 Chuck key.
- 2 Sets of hardened steel jaws; one set of internal holding and one set of external holding jaws for increased clamping range.

5C Shank Made in USA with Interstate® Chuck

CHUCK DIA.	WEIGHT LBS.	PART NUMBER	PRICE
3"	6.7	**57-057-2**	$298.95



57-057-2



SHOP GRADE

Lathe Chuck Keys

- Manufactured from alloy steel.
- Rockwell Hardness: 40 - 50 RC.
- Induction hardened keys for increased resistance to wear.

KEY SIZE	SQUARE SIZE	LENGTH OF BODY	PART NUMBER	PRICE
1/4"	1/4"	3 1/8"	**34-784-9**	$8.35
5/16"	5/16"	3 1/8"	**74-666-9**	13.00
3/8"	3/8"	3 1/8"	**34-785-6**	16.15
7/16"	7/16"	4"	**74-667-7**	16.45
1/2"	1/2"	4"	**74-668-5**	17.55
9/16"	9/16"	4"	**34-787-2**	17.55
5/8"	5/8"	4 3/4"	**34-786-4**	20.90
11/16"	11/16"	6 3/8"	**74-669-3**	21.95
3/4"	3/4"	5 1/2"	**74-670-1**	36.45

EAGLE ROCK®

Anti-Backlash Ring Sets

For Lathe Chucks

- For preloading and turning out chuck soft jaws on lathe.
- Standard set includes 48 rings from 1" to 3 15/16" dia. in 1/16" increments.
- Small stack set includes 16 rings from 1" to 1 15/16" dia. in 1/16" increments.
- Convenient wooden rack.

DESCRIPTION	PART NO.	PRICE
48 Pc. Anti-Backlash Ring Set	**66-160-3**	$490.30
16 Pc. Anti-Backlash Ring Set	**66-161-1**	159.75



66-160-3



35-859-8

Ground Ship ONLY

ROYAL PRODUCTS

5 Pc. Chuck Stop Set

- Easily locate short parts in a 3-jaw lathe chuck.
- Stop allows short parts to project past the chuck jaws, providing clearance for facing operations.
- Front and back locating surfaces are parallel within ±0.0004".
- Accommodates chuck jaws up to 55 mm (2 1/8") wide.
- Three strong magnets secure stop to chuck face.
- Set includes: 15, 20, 25, 30, and 35 mm stops.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
5 Pc. Chuck Stop Set	**35-859-8**	$523.90

MACHINE ACCESSORIES

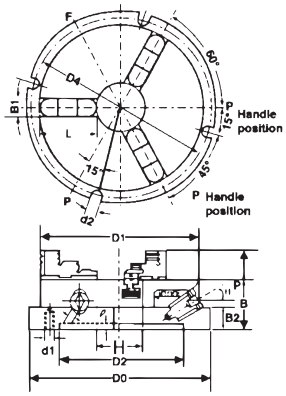
SHOP GRADE

Low Profile Milling Chucks

With Hard & Soft Top Jaws

- Excellent chucking power.
- 360° handle rotation.
- Angled keyway for tightening jaws eliminates need to position and reposition wrench.
- Thin line design allows bigger workpieces due to low profile.
- Angled keyway entry allows multiple chucks to be used near each other without interference.
- Built-in base plate.
- Protection against rust.
- Uses: machine centers, milling machines, gear cutting machines, drilling machines, slotting machines and many others.

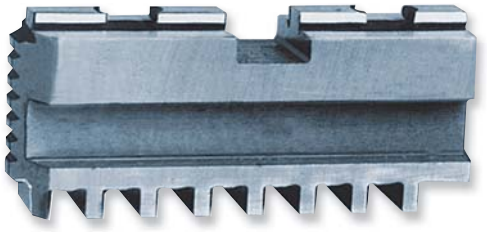




CHUCK DIA.	D1 (MM)	D2 (MM)	D3 (MM)	D4 (MM)	B (MM)	H (MM)	B1 (MM)	L (MM)	e (MM)	b (MM)	d1 (MM)	D0 (MM)	B2 (MM)	D2 (MM)	WT. (LBS.)	PART NUMBER	PRICE
6"	168	170	45	196	58	24	19	64	4	10	10	220	18	13	29	**74-640-4**	$1,783.60
8"	210	155	57	240	65	35	24	80	4	11	10	270	20	13	50	**34-788-0**	2,012.75
10"	255	190	70	290	73	35	28	95	4	12	12	315	20	16	74	**34-789-8**	2,514.20
10"	255	190	70	290	73	35	28	95	4	12	12	315	20	16	65	**34-791-4***	2,514.20
12"	305	230	100	340	80	45	30	110	5	14	12	370	22	16	93	**34-790-6**	3,453.05

*Hard Jaws Only

Maximum working diameter is the outside diameter of chuck. Maximum clamping size is allowed to overhang by about 10% of the maximum size.



Hard Master Jaw



Top Jaws

Hard Master & Top Jaws

For Bison Self-Centering Scroll Chucks

- When ordering sets, request a quantity of 1 and you will receive one set of the quantity listed.
- Bison jaws fit Bison Chucks only.

2 Jaw Set

CHUCK DIA.	HARD MASTER JAWS PART NO.	PRICE	TOP JAWS PART NO.	PRICE
8"	**34-748-4**	$178.70	–	–
10"	**34-749-2**	222.75	–	–

3 Jaw Set

CHUCK DIA.	HARD MASTER JAWS PART NO.	PRICE	TOP JAWS PART NO.	PRICE
5"	**34-750-0**	$183.45	**34-765-8**	$226.80
6"	**34-751-8**	217.10	**34-766-6**	278.20
8"	**34-752-6**	271.45	**34-767-4**	280.30
10"	**34-753-4**	434.05	**34-768-2**	328.15
12"	**34-754-2**	510.10	**34-769-0**	403.45
16"	**34-755-9**	531.80	**34-770-8**	550.35
20"	**34-756-7**	895.80	**34-771-6**	952.70
25"	**34-757-5**	1,113.85	–	–

4 Jaw Set

CHUCK DIA.	HARD MASTER JAWS PART NO.	PRICE	TOP JAWS PART NO.	PRICE
5"	**34-758-3**	$260.55	**34-772-4**	$363.20
6"	**34-759-1**	288.45	**34-773-2**	370.00
8"	**34-760-9**	315.75	**34-774-0**	440.10
10"	**34-761-7**	386.20	**34-775-7**	468.80
12"	**34-762-5**	574.45	**34-776-5**	564.40
16"	**34-763-3**	724.90	**34-777-3**	771.80
20"	**34-764-1**	1,427.60	**34-778-1**	1,273.65

6 Jaw Set

CHUCK DIA.	HARD MASTER JAWS PART NO.	PRICE	TOP JAWS PART NO.	PRICE
6"	–	–	**34-780-7**	$545.90
8"	–	–	**34-781-5**	661.45
10"	–	–	**34-782-3**	777.00
12"	–	–	**34-783-1**	955.35

SHOP GRADE

Punch Grinders

- Can be placed on the bed of a surface grinder for precision cylindrical grinding.
- Rollers are used to adjust the workpiece before grinding.
- Accuracy of the rollers is within 0.0002".
- Workpiece is turned with a crank handle.

Punch Grinder

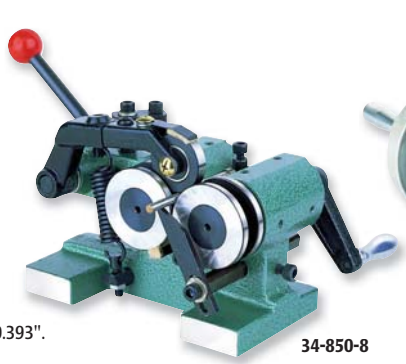
- For diameters from 0.059" to 1".

Small Punch Grinder

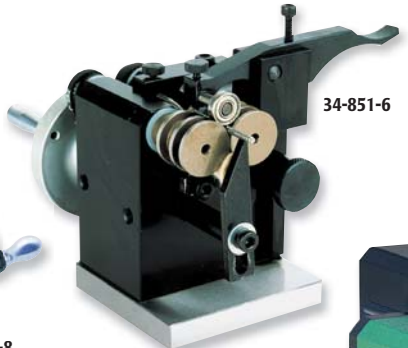
- For smaller work, diameters from 0.190" to 0.393".

Motorized Punch Grinder

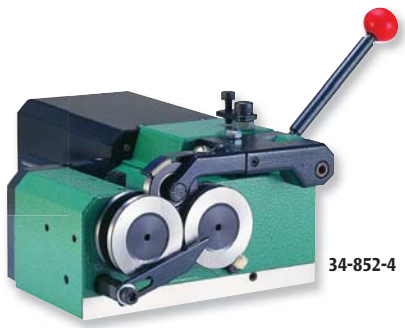
- Eliminates need to manually turn workpiece, permits additional operations such as taper grinding with a sine plate.
- For diameters from 0.059" to 1" and workpiece length up to 4.7" with a max. grinding length of 0.200" - 1.375".



34-850-8



34-851-6



34-852-4

DESCRIPTION	PART NO.	PRICE
Punch Grinder	**34-850-8**	$930.90
Small Punch Grinder	**34-851-6**	884.30
Motorized Punch Grinder	**34-852-4**	1,722.90



97-954-2

SPI®
7 Pc. Jack Screw Set

- 2¼" -3¼" range screw adjustment with added 1" and 2" extensions which can be used together or separately.
- Swivel cap and pointed screw for different applications.
- 1,000 lb. weight capacity.
- Plastic case included.

DESCRIPTION	PART NO.	PRICE
7 Pc. Jack Screw Set	**97-954-2**	$27.55



97-958-3

7 Pc. Jack Screw Set

- 2¼" -3⅜" range screw adjustment with added 1" and 2" extensions which can be used together or separately.
- Swivel cap and pointed screw for different applications.
- 1,000 lb. weight capacity.
- Furnished in fitted plastic case.

DESCRIPTION	PART NO.	PRICE
7 Pc. Jack Screw Set	**97-958-3**	$28.20



91-339-2

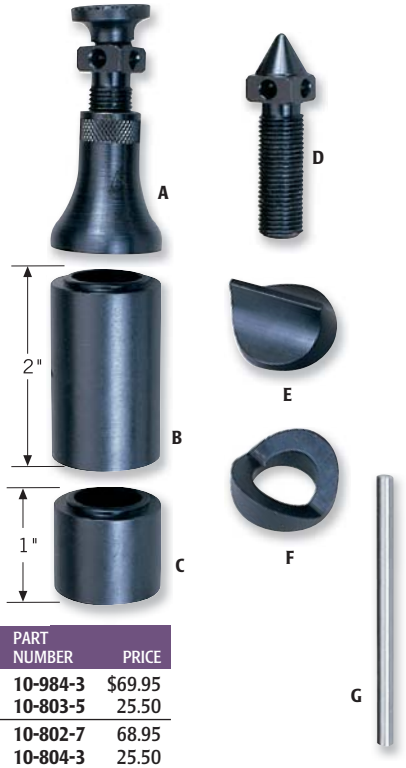
SPI®
4 Pc. Machinist's Jack Set

- Use anywhere leveling is necessary.
- Adjustable screw with tilting swivel head.
- 1" adjustment.
- 3" high min. and 4" high max.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
4 Pc. Machinist Jack Set	**91-339-2**	$28.95

Starrett®
"Little Giant" Jack Screw Sets

- Sets include a Jack (A), 2 extension bases (B & C), which can be used singly or together, an auxiliary pointed screw (D), supplied to be used in place of the screw with the swivel cap, extension base (E), to be used in places where it is not possible to obtain a bearing on a flat surface, extension V base (F), for use against a cylindrical form and adjusting handle (G).



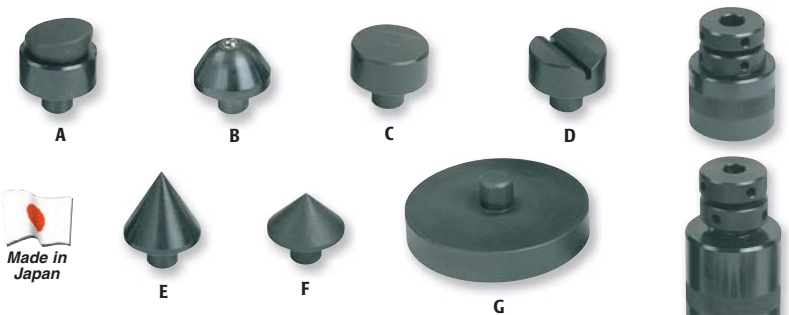
S190

- Jack base dia.: 1¼"
- Extensions (B) and (C) are 2" and 1", respectively.
- Max. height: 6⅜" with attachments.

S191

- Jack base dia.: 1"
- Extensions (B) and (C) are 1" and ½", respectively.
- Max. height: 3¾" with attachments.

DESCRIPTION	HEIGHT RANGE	JACK BASE DIA.	STARRETT MODEL #	PART NUMBER	PRICE
Jack Screw Set	2¼ - 3⅜"	1¼"	S190	**10-984-3**	$69.95
Jack Only		1¼"	190A	**10-803-5**	25.50
Jack Screw Set	1½ - 2¼"	1"	S191	**10-802-7**	68.95
Jack Only		1"	191A	**10-804-3**	25.50



Support Screw Jacks

- Safe and reliable, adjustable supports for workpieces.
- Designed for use with different styles of pads.
- Numerous applications to support workpieces of regular as well as irregular shapes and height levels in layout, machining and inspection.
- Jacks can be stacked to obtain various heights.
- Made from high grade steel.

SIZE	JACK DIA.	HEIGHT RANGE	CAP. (LBS.)	PART NO.	PRICE
1	1.57"	2.00 - 2.75"	3,080	**97-955-9**	$55.75
2	1.97"	4.00 - 5.90"	4,400	**97-956-7**	71.55
3	2.36"	5.90 - 9.80"	7,700	**97-957-5**	112.20

Pads

PAD DIA.	STYLE	PART NO.	PRICE
1"	A	**97-960-9**	$27.10
1"	B	**97-961-7**	26.20
1"	C	**97-962-5**	26.20
1"	D	**97-963-3**	24.95
1"	E	**97-964-1**	26.20
1"	F	**97-965-8**	24.95
2.36"	G	**97-966-6**	55.30

Sets in Fitted Wooden Base

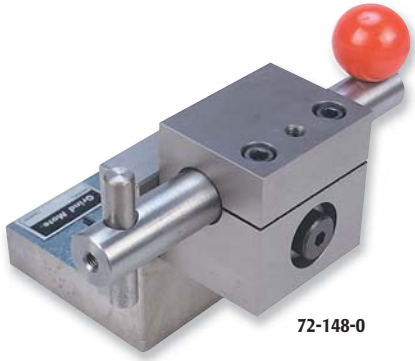
CONTENTS	PART NO.	PRICE
4 Jacks, 2 ea. Size 1 and 2 6 Pads, 1 ea. A to F	**97-950-0**	$415.40
4 Jacks, 2 ea. Size 2 and 3 6 Pads, 1 ea. A to F	**97-951-8**	520.80



MACHINE ACCESSORIES



51-160-0



72-148-0



72-168-8

Radius & Angle Dresser

- Easy, fast and accurate set-ups for radius and angle dressing.
- 12" capacity.
- Grinding wheels may be form-dressed to any combination of tangents and/or radii; either convex or concave.
- Dual pins allow radius setting with a micrometer or by inserting gage blocks.
- Accepts 3/8" dia. diamonds.
- Capacity: 12" dia. grinding wheel; convex radii 0 - 1 5/8" concave radii 5/8 - 1 5/8".
- Tangent travel 2" to either side of center.
- Center height 3".

DESCRIPTION	PART NO.	PRICE
Radius & Angle Dresser	**51-160-0**	$917.45

Mini Angle Dresser

For Surface Grinders

- Use for dressing angles on grinding wheels.
- Dresses wheel from below, avoiding the necessity of removing the grinder wheel guard.
- Angle can be accurately set with a protractor from any of the ground sides or base, or with a sine bar.
- Uses a 3/8" x 2" shank diamond, sold separately.
- Base is special analysis cast iron.
- Net weight: 7 lbs.

DESCRIPTION	PART NO.	PRICE
Mini Angle Dresser	**72-148-0**	$169.95
1/4 Carat Diamond in 3/8 x 2" Shank	**72-149-8**	25.35

Diamond Angle Dresser

For Grinding Wheels

- Time saving tool eliminates makeshift plates, parallel or clamp set-ups.
- Lever action keeps hands at a safe distance.
- Guide block and bar are hardened and ground.
- Dial is graduated 90° in each direction.
- Diamond travel is: 1"
- Can dress tangent angles when used with radius dresser.
- Diamond sold separately.

DESCRIPTION	PART NO.	PRICE
Diamond Angle Dresser	**72-168-8**	$299.95
1/4 Carat Diamond in 1/4 x 1" Shank	**72-169-6**	25.35



57-038-2

Arbors not included

Static Balancer

Wheel Type

- Great for balancing, straightening and alignment.
- Heaviest end will rotate to bottom.
- To balance, distribute weights until the piece remains static.
- Ideal for balancing grinding wheels, milling cutters, etc.
- True running discs, supported with low friction bearing for maximum performance.
- Maximum wheel dimensions: 16" dia., 6" width
- Weight: 36 lbs.

DESCRIPTION	PART NO.	PRICE
Static Balancer, Wheel Type	**57-038-2**	$597.85



Expanding Mandrels

- The expanding mandrel consists of two parts - a tapered arbor and a flexible sleeve,
- Usually seated with an arbor press.
- Sizes within a range may be obtained by moving the sleeve along the arbor.
- Sizes 1/2" through 7/8" have one sleeve, sizes 1" through 2" have two sleeves.
- Mandrels are hardened and ground.

SIZE RANGE	SHANK DIA.	SLEEVE LENGTH	ARBOR LENGTH	PART NUMBER	PRICE
1/2" - 9/16"	1/2"	2 1/2"	5"	**67-246-9**	$49.95
9/16" - 21/32"	19/32"	2 3/4"	6"	**67-247-7**	54.20
21/32" - 3/4"	21/32"	2 3/4"	6"	**67-248-5**	59.30
3/4" - 7/8"	3/4"	3 1/4"	7"	**67-249-3**	61.85
7/8" - 1"	7/8"	3 1/4"	7"	**67-250-1**	73.10
1" - 1 1/4"	1"	4"	9"	**67-251-9**	119.70
1 1/4" - 1 1/2"	1 1/4"	4"	9"	**67-252-7**	131.55
1 1/2" - 2"	1 1/2"	5"	11 1/2"	**67-253-5**	158.10

Expanding Mandrel Sets

SIZE RANGE	NO. OF MANDRELS	PART NO.	PRICE
1/2" - 1"	5	**67-254-3**	$254.60
1" - 2"	3	**67-255-0**	366.15
1/2" - 2"	8	**67-256-8**	516.80

SHOP GRADE

Lathe Dogs

- Malleable cast iron.
- Feature high tensile strength.
- Square head screw included.



Bent Tail

CAPACITY	PART NO.	PRICE	CAPACITY	PART NO.	PRICE
1/2"	**67-257-6**	$14.30	2"	**67-263-4**	$31.90
3/4"	**67-258-4**	15.85	2 1/2"	**67-264-2**	35.45
1"	**67-259-2**	17.85	3"	**67-265-9**	43.20
1 1/4"	**67-260-0**	20.30	4"	**67-266-7**	45.35
1 1/2"	**67-261-8**	22.30	5"	**77-374-7**	61.00
1 3/4"	**67-262-6**	25.40	6"	**77-375-4**	71.15

Straight Tail

CAPACITY	PART NO.	PRICE	CAPACITY	PART NO.	PRICE
1/2"	**67-267-5**	$15.85	1 1/4"	**67-270-9**	$23.15
3/4"	**67-268-3**	17.85	1 1/2"	**67-271-7**	25.40
1"	**67-269-1**	20.30	1 3/4"	**67-272-5**	30.10

TECH PRODUCTS
WWW.NOVIBES.COM

Machine Leveling Mounts



- Easy leveling.
- Isolate vibration and shock.
- Reduce installation and relocation costs.
- Meets OSHA anchoring standards.
- Material: High strength steel housing.
- Rides on Neoprene base.

Applications

- Injection molding machines
- Lathes
- Die casting machines
- Grinders
- Punch presses

Hex Bolt

HEX SIZE	PAD. HT.	BASE DIA.	BOLT LENGTH	MAX. LOAD (LBS.)	PART NUMBER	PRICE
3/8"	1.500"	3.125"	3	150	**35-301-1**	$29.75
3/8"	1.500"	3.125"	3	250	**35-302-9**	32.00
3/8"	1.500"	3.125"	3	500	**35-303-7**	32.00
1/2"	1.500"	4.750"	5	1000	**35-304-5**	41.15
3/4"	1.675"	6.250"	5	4500	**35-305-2**	52.55
3/4"	2.250"	9.000"	8	13000	**35-306-0**	132.55
10 mm	1.500"	80 mm	3	500	**35-307-8**	32.00
12 mm	1.500"	120 mm	5	1000	**35-308-6**	47.55
20 mm	1.675"	160 mm	5	4500	**35-309-4**	59.85

Square Bolt

HEX SIZE	PAD. HT.	BASE DIA.	BOLT LENGTH	MAX. LOAD (LBS.)	PART NUMBER	PRICE
1/2"	1.500"	4.750"	5	1000	**35-311-0**	$41.15
3/4"	1.675"	6.250"	5	4500	**35-312-8**	52.55
1"	2.250"	9.000"	8	13000	**35-313-6**	132.55
1"	2.500"	9.000"	8	13000	**35-314-4**	131.75

Universal Machine Mounts



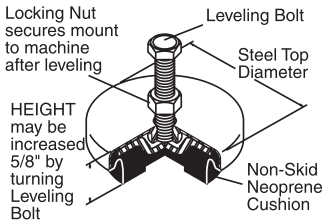
- For more efficient Machine Leveling, most practical Machine Installation and Machine Relocations.
- Unique leveling device, independent of the dampening element, provides the ultimate in weight-support distribution.
- Convex bottom of elastic body creates vacuum-holding to eliminate machine walking.
- Dampening element subdues machine vibration and prevents transmission of vibration and impact from external sources.
- Reduces noise for better working conditions.

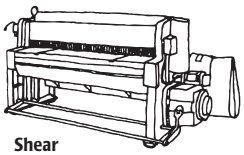


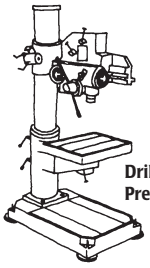
STYLE	A	B	C
Diameter	3 1/8"	4 3/4"	6 1/4"
Height incl. leveling plate	1 3/8"	1 9/16"	2 1/16"
Leveling adjustment	1/2"	1/2"	3/4"
Overall Height	5 1/8"	5 1/4"	7 1/4"
Length of bolt	4 3/4"	4 3/4"	6 3/4"
Shipping weight	2 lbs.	4 lbs.	7 lbs.
Fits machine bolt-hole diameter	1/2"	5/8"	13/16"
Load Range (each mount)			
—Machine Tools, general	900	2,100	4,900
—Presses, max. stroke per min.			
200 strokes	300	600	1,400
160 strokes	400	800	1,900
125 strokes	500	1,000	2,400

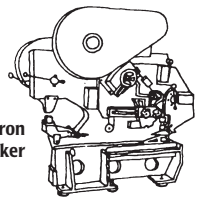
DESCRIPTION	PART NO.	PRICE EA.
Style A	**98-010-2**	$49.75
Style B	**98-011-0**	73.85
Style C	**98-012-8**	109.15

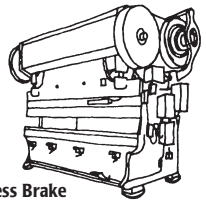












MASON INDUSTRIES, INC.

Neoprene Machinery Leveling Mounts

The simplicity of up to 5/8" leveling with a single bolt per location while providing shock and vibration isolation solves many problems. Friction is developed by the neoprene element, eliminating the need for bolting to the floor. The mounting is locked to the machine leg so it can travel to a new location with the machine. When production lines must be rearranged, this reduces downtime. Typical applications are punch presses, brakes, shears, lathes, milling machines and injection molding machines.

TYPE & SIZE	CAPACITY RANGE (LBS.)	STEEL TOP DIA.	HT.	LEVELING BOLT	BOLT L	PART NUMBER	PRICE
ML-3	100 - 500	3 1/2"	1 1/8"	1/2-13	3 1/2"	**35-297-1**	$44.40
ML-5	500 - 1000	5"	1 3/4"	1/2-13	5"	**35-298-9**	79.25
ML-6	1000 - 4000	3 1/2"	1 3/4"	3/4-10	5"	**35-299-7**	113.30
ML-8	4000 - 12000	8"	2	1-8	8"	**35-300-3**	238.00

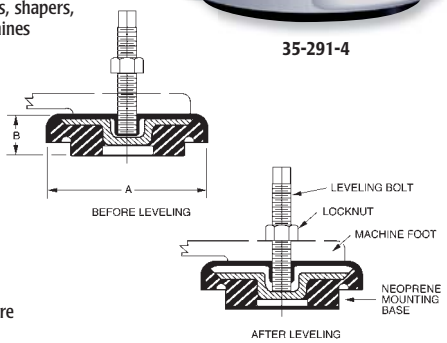
BARRYMOUNT®

LM Series Leveling Machinery Mounts



These general purpose shock and vibration mounts are ideal for CNC machines, punch presses, milling machines, lathes, grinders, boring mills, drill presses, broaches, brakes, die casting machines, gear hobbers, jig borers, riveters, sanders, saws, screw machines, shapers, wshear mixers, injection molding machines and many other types of equipment.

No drilling, bolting, gluing, shimming or cleanup compared to bolted foundations. Barrymount machinery mounts can save up to 90% in installation cost. Five standard size mounts, each with a broad load range, handle any size machine. For Punch Press applications between 150-300 Strokes Per Minute (SPM), reduce load rating of each mount by 50%. Above 300 SPM, consult your distributor. Leveling bolt and locknut are furnished with each LM Series mount.



LOAD RANGE RATING PER MOUNT (LBS.)	BASE O.D. A	BASE FREE HT. B	BOLT SIZE	BOLT L	WT. (LBS.)	PART NUMBER	PRICE
30 - 100	2"	1"	1/4-28	1 3/4"	0.25	**35-291-4**	$43.80
100 - 300	3 1/8"	1 1/2"	3/8-24	3"	1.25	**35-292-2**	43.80
300 - 1000	4 3/4"	1 1/2"	1/2-13	5"	2.31	**35-293-0**	59.55
1000 - 4200	6 5/16"	1 5/8"	3/4-10	5"	5.13	**35-294-8**	83.25
4000 - 13000	9"	2 1/2"	1-14	8"	12.88	**35-295-5**	182.95
4000 - 13000	9"	2 1/4"	1-14	8"	12.69	**35-296-3**	188.30

Note: All height dimensions indicate free height of mount under no load.

MACHINE ACCESSORIES

ROYAL PRODUCTS

Machine Leveling Mounts

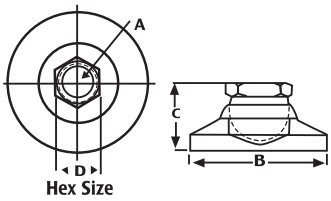
- These machine mounts effectively isolate vibration in two ways:
  1. By preventing one vibration-causing machine from disturbing other machines, and
  2. By insulating precision machinery from external causes of vibration.
- They meet OSHA requirements for secure anchoring by preventing machine "walking" without the need for bolting or cementing
- Unique leveling plate gives steady safe support when machine is being leveled and after it is secured
- A generous amount of vibration dampening material is used compared to other types of machine mounts
- Royal mounts isolate and stop structure-borne sound (strong vibrations), which can be harmful to workers and to materials


35-287-2

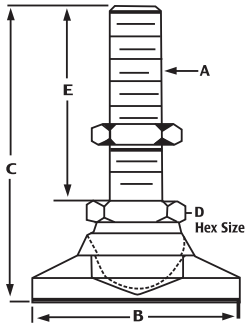
PART NO.	35-287-2	35-288-0	35-289-8	35-290-6
Mount #	#1	#2	#3	#4
Diameter	3 5/32"	4 23/32"	6 5/16"	6 5/16"
Height incl. Leveling Pad	1 5/8"	1 15/16"	2 5/16"	2 5/16"
Level Adjustment	7/8"	7/8"	1"	1"
Overall Height	5 1/4"	5 1/4"	7 1/2"	7 1/2"
Leveling Bolt	M12-1.25	M16-1.50	M20-1.50	M20-1.50
Leveling Bolt Length	4 25/32"	4 23/32"	6 7/8"	6 7/8"
Approx. Shipping Wt.	2 Lbs.	4 Lbs.	7 Lbs.	13 Lbs.
Load Range Per Mount (Lbs.) Non-Impact Machinery	100 - 1110	880 - 2200	1760 - 5500	3300 - 8800
Load Range Per Mount (Lbs.) For Injection Mold Machines	390	790	2180	5450
Presses: Max. SPM*				
125	150 - 440	440 - 880	880 - 3080	3080 - 5940
180	130 - 300	300 - 770	770 - 2420	2420 - 4290
200	110 - 260	260 - 550	550 - 1760	1760 - 2860
Price Each	$56.50	$98.25	$136.80	$264.80

* SPM=Strokes Per Minute


Light, Medium & Heavy-Duty Tapped




Light & Medium Duty




Heavy-Duty

Anti-Vibration Leveling Mounts with Bolt

These mounts have been designed to reduce transmitted vibration for high precision and computerized machinery. For best results in reducing transmitted vibration, use the mount which has the maximum load range which comes close to the specific weight required for your need. By following the above recommendation it is possible to reduce the transmitted vibration of most machinery up to 98%. All loads should be figured in pounds per leg. Example: 1200 pound machine with six legs would have a load of 200 pounds per leg.

Light-Duty

THREAD SIZE A	BASE DIA. B	OAL C	HEX SIZE D	BOLT L[1] E	MAX LOAD (LBS.)	WITH BOLT ZINC PART NO.	PRICE	WITH BOLT STAINLESS STEEL PART NO.	PRICE	TAPPED OAL C	TAPPED ZINC PART NO.	PRICE	TAPPED STAINLESS STEEL PART NO.	PRICE
3/8-16	1 1/4"	3 1/2"	5/8"	2"	50	**35-316-9**	$16.60	**35-334-2**	$50.50	1 1/2"	**35-349-0**	$13.55	**35-367-2**	$45.15
1/2-13	1 7/8"	3 3/4"	3/4"	2"	120	**35-317-7**	21.20	**35-335-9**	67.85	1 3/4"	**35-350-8**	17.60	**35-368-0**	57.90
5/8-11	2 1/2"	3 7/8"	7/8"	2"	220	**35-318-5**	37.75	**35-336-7**	112.50	1 7/8"	**35-351-6**	29.85	**35-369-8**	99.20
3/4-10	3"	4 1/8"	1 1/16"	2"	325	**35-319-3**	48.20	**35-337-5**	149.20	2 1/8"	**35-352-4**	41.85	**35-370-6**	126.75
1-8	4"	6"	1 3/8"	3 1/2"	590	**35-320-1**	59.95	**35-338-3**	187.95	2 1/2"	**35-353-2**	49.75	**35-371-4**	164.25
1 1/4-7	6"	6 7/8"	1 7/8"	4"	1350	**35-321-9**	101.50	–	–	2 7/8"	**35-354-0**	73.95	–	–

Medium-Duty

THREAD SIZE A	BASE DIA. B	OAL C	HEX SIZE D	BOLT L[1] E	MAX LOAD (LBS.)	WITH BOLT ZINC PART NO.	PRICE	WITH BOLT STAINLESS STEEL PART NO.	PRICE	TAPPED OAL C	TAPPED ZINC PART NO.	PRICE	TAPPED STAINLESS STEEL PART NO.	PRICE
3/8-16	1 1/4"	3 1/2"	5/8"	2"	100	**35-322-7**	$20.40	**35-339-1**	$62.50	1 1/2"	**35-355-7**	$17.35	**35-372-2**	$57.15
1/2-13	1 7/8"	3 3/4"	3/4"	2"	240	**35-323-5**	28.35	**35-340-9**	85.20	1 3/4"	**35-356-5**	24.00	**35-373-0**	80.85
5/8-11	2 1/2"	3 7/8"	7/8"	2"	440	**35-324-3**	46.70	**35-341-7**	139.50	1 7/8"	**35-357-3**	39.05	**35-374-8**	130.85
3/4-10	3"	4 1/8"	1 1/16"	2"	650	**35-325-0**	60.45	**35-342-5**	187.95	2 1/8"	**35-358-1**	53.05	**35-375-5**	178.25
1-8	4"	6"	1 3/8"	3 1/2"	1180	**35-326-8**	75.00	**35-343-3**	237.70	2 1/2"	**35-359-9**	64.80	**35-376-3**	215.25
1 1/4-7	6"	6 7/8"	1 7/8"	4"	2710	**35-327-6**	123.45	–	–	2 7/8"	**35-360-7**	78.30	–	–

Heavy-Duty

THREAD SIZE A	BASE DIA. B	OAL C	HEX SIZE D	BOLT L[1] E	MAX LOAD (LBS.)	WITH BOLT ZINC PART NO.	PRICE	WITH BOLT STAINLESS STEEL PART NO.	PRICE	TAPPED OAL C	TAPPED ZINC PART NO.	PRICE	TAPPED STAINLESS STEEL PART NO.	PRICE
3/8-16	1 1/4"	3 1/2"	5/8"	2"	995	**35-328-4**	$26.05	**35-344-1**	$89.25	1 1/2"	**35-361-5**	$25.50	**35-377-1**	$84.15
1/2-13	1 7/8"	3 3/4"	3/4"	2"	2400	**35-329-2**	35.20	**35-345-8**	120.15	1 3/4"	**35-362-3**	34.45	**35-378-9**	114.50
5/8-11	2 1/2"	3 7/8"	7/8"	2"	4400	**35-330-0**	56.10	**35-346-6**	184.90	1 7/8"	**35-363-1**	52.30	**35-379-7**	173.15
3/4-10	3"	4 1/8"	1 1/16"	2"	6500	**35-331-8**	75.00	**35-347-4**	238.20	2 1/8"	**35-364-9**	68.35	**35-380-5**	227.75
1-8	4"	6"	1 3/8"	3 1/2"	11800	**35-332-6**	103.05	**35-348-2**	326.70	2 1/2"	**35-365-6**	93.60	**35-381-3**	311.65
1 1/4-7	6"	6 7/8"	1 7/8"	4"	27100	–	–	–	–	2 7/8"	**35-366-4**	129.80	–	–

[1] For mounts with bolt.

Stud-Type Zinc, Nickel & Stainless Steel Leveling Devices

Inch

Styles Available:

- Zinc, nickel or stainless steel stud and steel base.
- Zinc, nickel or stainless steel stud and steel base with elastomer pad.
- Zinc, nickel or stainless steel stud and Delrin® base.
- Used to level: machinery, electronic equipment, scales, racks, benches, etc.
- Adjusts to uneven surfaces.
- Large diameter base support.
- 10° swivel off centerline.
- Zinc, nickel or stainless steel stud furnished with jam nuts.

Steel Base

- Tough, dependable base at a lower cost than stainless steel.

Stainless Steel Base

- For maximum protection against rust and corrosion.

Elastomer Pad

- Provides nonskid support.
- Protects floor or surface finish.
- Elastomer pad bonded to bottom of base.

Derlin® Base

- Provides high resistance to repeated impacts, moisture, solvents and heat up to 190°F.
- Natural (white) Delrin® plastic base.
- Protects floor or surface finish.



35-390-4

Zinc, Nickel or Stainless Steel Stud & Steel Base

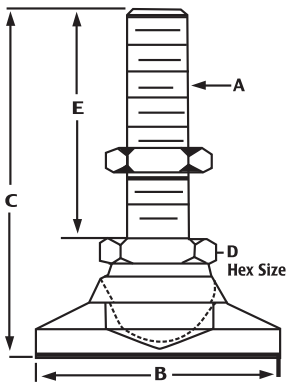
THREAD SIZE A	LOAD CAP. (LBS.)	HEX SIZE D	OAL C	BASE DIA. B	BOLT LENGTH E	ZINC PART NUMBER	NICKEL PART NUMBER	PRICE	STAINLESS PART NUMBER	PRICE
10-32	700	3/8"	1 1/2"	3/4"	1"	**35-390-4**	**35-397-9**	$6.15	**35-404-3**	$17.35
10-32	700	3/8"	2 1/2"	3/4"	2"	**35-391-2**	**35-398-7**	9.95	**35-405-0**	21.70
1/4-20	1000	1/2"	1 15/16"	1"	1 1/4"	**35-392-0**	**35-399-5**	7.15	**35-406-8**	23.75
1/4-20	1000	1/2"	3 3/16"	1"	2 1/2"	**35-393-8**	**35-400-1**	11.00	**35-407-6**	25.25
3/8-16	3750	5/8"	2 7/8"	1 1/4"	2"	**35-394-6**	**35-401-9**	9.70	**35-408-4**	28.85
3/8-16	3750	5/8"	4 7/8"	1 1/4"	4"	**35-395-3**	**35-402-7**	12.25	**35-409-2**	32.15
1/2-13	5000	3/4"	3 1/8"	1 7/8"	2"	**35-396-1**	**35-403-5**	12.25	**35-410-0**	34.70
1/2-13	5000	3/4"	5 1/8"	1 7/8"	4"	**35-411-8**	**35-418-3**	19.15	**35-425-8**	42.10
5/8-11	6000	7/8"	3 1/4"	2 1/2"	2"	**35-412-6**	**35-419-1**	16.60	**35-426-6**	66.30
5/8-11	6000	7/8"	5 1/4"	2 1/2"	4"	**35-413-4**	**35-420-9**	30.10	**35-427-4**	72.45
3/4-10	7400	1 1/16"	3 1/2"	3"	2"	**35-414-2**	**35-421-7**	23.75	**35-428-2**	88.00
3/4-10	7400	1 1/16"	5 1/2"	3"	4"	**35-415-9**	**35-422-5**	36.25	**35-429-0**	94.65
1-8	22000	1 3/8"	5 3/8"	4"	3 1/2"	**35-416-7**	**35-423-3**	43.35	**35-430-8** *	100.25
1-8	22000	1 3/8"	7 7/8"	4"	6"	**35-417-5**	**35-424-1**	47.20	**35-431-6**	130.05

* OAL: 6 1/8", Bolt Length: 4 1/4"

Zinc, Nickel or Stainless Steel Stud & Steel Base with Elastomer Pad

THREAD SIZE A	LOAD CAP. (LBS.)	HEX SIZE D	OAL C	BASE DIA. B	BOLT LENGTH E	ZINC PART NUMBER	NICKEL PART NUMBER	PRICE	STAINLESS PART NUMBER	PRICE
10-32	150	3/8"	1 1/2"	3/4"	1"	**35-432-4**	–	$7.65	–	–
10-32	700	3/8"	2 1/2"	3/4"	2"	**35-433-2**	**35-439-9** †	11.50	**35-442-3** †	$27.05
1/4-20	200	1/2	1 15/16"	1"	1 1/4"	**35-434-0**	–	8.20	–	–
1/4-20	1000	1/2	3 3/16"	1"	2 1/2"	**35-435-7**	**35-440-7** *	10.75	**35-443-1** *	22.70
3/8-16	300	5/8"	2 7/8"	1 1/4"	2"	**35-436-5**	–	10.20	–	–
3/8-16	3750	5/8"	4 7/8"	1 1/4"	4"	**35-437-3**	**35-441-5**	13.30	**35-444-9**	32.40
1/2-13	700	3/4"	3 1/8"	1 7/8"	2"	**35-438-1**	–	15.05	–	–
1/2-13	5000	3/4"	5 1/8"	1 7/8"	4"	**35-445-6**	**35-452-2**	22.20	**35-456-3**	48.45
5/8-11	1200	7/8"	3 1/4"	2 1/2"	2"	**35-446-4**	–	21.70	–	–
5/8-11	6000	7/8"	5 1/4"	2 1/2"	4"	**35-447-2**	**35-453-0**	32.15	**35-457-1**	76.25
3/4-10	1800	1 1/16"	3 1/2"	3"	2"	**35-448-0**	–	29.60	–	–
3/4-10	7400	1 1/16"	5 1/2"	3"	4"	**35-449-8**	**35-454-8**	42.85	**35-458-9**	102.80
1-8	2000	1 3/8"	5 3/8"	4"	3 1/2"	**35-450-6**	–	36.50	–	–
1-8	2000	1 3/8"	7 7/8"	4"	6"	**35-451-4**	**35-455-5**	52.55	**35-459-7**	129.05

* Thread Size: 10-32 † Thread Size: 1/4-20



Zinc, Nickel or Stainless Steel Stud & Delrin® Base

THREAD SIZE A	LOAD CAP. (LBS.)	HEX SIZE D	OAL C	BASE DIA. B	BOLT LENGTH E	ZINC PART NUMBER	NICKEL PART NUMBER	PRICE	STAINLESS PART NUMBER	PRICE
10-32	150	3/8"	1 1/2"	3/4"	1"	**35-460-5**	**35-467-0**	$5.90	**35-474-6**	$11.25
10-32	150	3/8"	2 1/2"	3/4"	2"	**35-461-3**	**35-468-8**	7.95	–	–
1/4-20	200	1/2"	11 15/16"	1"	1 1/4"	**35-462-1**	**35-469-6**	6.65	**35-476-1**	14.55
1/4-20	200	1/2"	3 3/16"	1"	2 1/2"	**35-463-9**	**35-470-4**	9.95	**35-477-9**	15.85
3/8-16	300	5/8"	2 7/8"	1 1/4"	2"	**35-464-7**	**35-471-2**	8.45	**35-478-7**	15.60
3/8-16	300	5/8"	4 7/8"	1 1/4"	4"	**35-465-4**	**35-472-0**	12.50	**35-479-5**	18.90
1/2-13	700	3/4"	3 1/8"	1 7/8"	2"	**35-466-2**	**35-473-8**	13.05	**35-480-3**	22.45
1/2-13	700	3/4"	5 1/8"	1 7/8"	4"	**35-481-1**	**35-488-6**	17.60	**35-495-1**	28.05
5/8-11	1200	7/8"	3 1/4"	2 1/2"	2"	**35-482-9**	**35-489-4**	22.20	**35-496-9**	35.20
5/8-11	1200	7/8"	5 1/4"	2 1/2"	4"	**35-483-7**	**35-490-2**	27.55	**35-497-7**	43.35
3/4-10	1800	1 1/16"	3 1/2"	3"	2"	**35-484-5**	**35-491-0**	40.55	**35-498-5**	50.75
3/4-10	1800	1 1/16"	5 1/2"	3"	4"	**35-485-2**	**35-492-8**	39.80	**35-499-3**	55.60
1-8	2000	1 3/8"	5 3/8"	4"	3 1/2"	**35-486-0**	**35-493-6**	48.45	**35-500-8**	77.80
1-8	2400	1 3/8"	7 7/8"	4"	6"	**35-487-8**	**35-494-4**	52.05	**35-501-6**	96.40

MACHINE ACCESSORIES

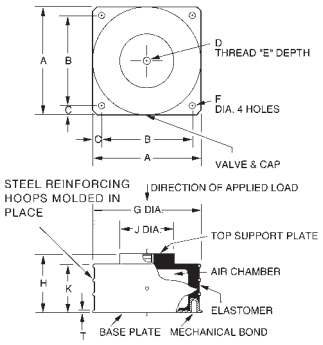
BARRYMOUNT®

SLM Series Pneumatic Leveling Mounts

The Stabl-Levl machinery mount is a pneumatic elastomeric mount, well-suited for applications requiring higher deflection isolators. The SLM's mechanical bond design incorporates a positive locking system to ensure performance, safety and reliability. Vibration can be reduced as much as 95%. The high stability horizontal to vertical stiffness ratio is one-to-one, insuring excellent stability without the need for lateral restraints. The thick walled elastomeric construction provides maximum safety. Ideal applications for the Barrymount Stabl-Levl SLM Series machinery mounts are punch presses, blowers, clickers, forging hammers, measuring equipment, shakers, vibrators, air compressors and numerous other types of industrial equipment.

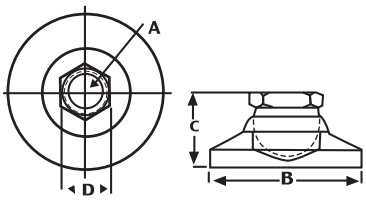


35-383-9



LOAD RANGE (LBS.)	BASE PLATE SQUARE SIZE A	BOLT HOLE SPACING B	BOLT HOLES TO EDGE CLEARANCE C	THREAD SIZE D	THREAD DEPTH E	BOLT HOLE SIZE F	PAD DIA. G	OVERALL HT. H	TOP PLATE DIA. J	PAD HT. K	BASE THICKNESS T	WT. (LBS.)	PART NUMBER	PRICE
75 - 300	4.19"	3.50"	0.34"	1/2-13	0.54"	0.29"	4.14"	2.50"	2.06"	1.94"	0.12"	1 1/2	**35-383-9**	$134.80
150 - 600	5.13"	4.25"	0.44"	1/2-13	0.54"	0.29"	4.99"	3.50"	2.38"	2.94"	0.12"	3 1/4	**35-384-7**	155.65
300 - 1200	6.88"	6.00"	0.44"	1/2-13	0.54"	0.29"	6.74"	3.50"	3.75"	2.94"	0.12"	5 1/2	**35-385-4**	207.05
600 - 2400	10.00"	8.50"	0.75"	5/8-11	0.75"	0.56"	9.66"	3.50"	5.44"	2.94"	0.19"	13	**35-386-2**	320.90
1200 - 4800	13.50"	12.00"	0.75"	5/8-11	0.75"	0.56"	13.31"	3.50"	8.00"	2.94"	0.19"	26	**35-387-0**	483.60
2400 - 9600	18.50"	16.00"	1.25"	1-14	0.88"	0.81"	18.44"	3.50"	10.50"	2.94"	0.25"	57	**35-388-8**	935.75
4800 - 19200	24.00"	20.00"	2.00"	1-14	0.88"	0.81"	24.00"	3.50"	15.75"	2.94"	0.25"	100	**35-389-6**	1,019.40


35-502-4



Hex Size

Socket Type Zinc, Nickel & Stainless Steel Leveling Devices

Zinc, Nickel or Stainless Steel Socket & Steel Base

THREAD SIZE A	LOAD CAP. (LBS.)	HEX SIZE D	OAL C	BASE DIA. B	ZINC PART NUMBER	NICKEL PART NUMBER	PRICE	STAINLESS PART NUMBER	PRICE
10-32	700	3/8"	17/32"	3/4"	**35-502-4**	**35-523-0**	$4.60	**35-544-6**	$8.95
1/4-20	1000	1/8"	45/64"	1"	**35-503-2**	**35-524-8**	4.10	**35-545-3**	13.25
3/8-16	3750	5/8"	7/8"	1 1/4"	**35-504-0**	**35-525-5**	6.50	**35-546-1**	15.45
1/2-13	5000	3/4"	1 1/8"	1 7/8"	**35-505-7**	**35-526-3**	7.40	**35-547-9**	21.25
5/8-11	6000	7/8"	1 1/4"	2 1/2"	**35-506-5**	**35-527-1**	12.35	**35-548-7**	38.80
3/4-10	7400	1 1/16"	1 1/2"	3"	**35-507-3**	**35-528-9**	19.50	**35-549-5**	58.10
1-8	20000	1 3/8"	1 7/8"	4"	**35-508-1**	**35-529-7**	28.65	**35-550-3**	75.45

Zinc, Nickel or Stainless Steel Socket & Steel Base w/Elastomer Pad

THREAD SIZE A	LOAD CAP. (LBS.)	HEX SIZE D	OAL C	BASE DIA. B	ZINC PART NUMBER	NICKEL PART NUMBER	PRICE	STAINLESS PART NUMBER	PRICE
10-32	525	3/8"	1/2"	3/4"	**35-509-9**	**35-530-5**	$4.60	**35-551-1**	$11.10
1/4-20	750	1/2"	11/16"	1"	**35-510-7**	**35-531-3**	6.10	**35-552-9**	15.45
3/8-16	2800	5/8"	7/8"	1 1/4	**35-511-5**	**35-532-1**	7.80	**35-553-7**	18.25
1/2-13	3750	3/4"	1 1/8"	1 7/8"	**35-512-3**	**35-533-9**	8.95	**35-554-5**	29.50
5/8-11	4500	7/8"	1 1/4"	2 1/2"	**35-513-1**	**35-534-7**	16.50	**35-555-2**	43.80
3/4-10	5550	1 1/16"	1 1/2"	3"	**35-514-9**	**35-535-4**	21.45	**35-556-0**	61.35
1-8	15000	1 3/8"	1 7/8"	4"	**35-515-6**	**35-536-2**	24.50	**35-557-8**	82.15

Zinc or Nickel Socket & Delrin® Base

THREAD SIZE A	LOAD CAP. (LBS.)	HEX SIZE D	OAL C	BASE DIA. B	ZINC PART NUMBER	NICKEL PART NUMBER	PRICE
10-32	150	3/8"	1/2"	3/4"	**35-516-4**	**35-537-0**	$6.30
1/4-20	200	1/2"	11/16"	1"	**35-517-2**	**35-538-8** *	7.60
3/8-16	300	5/8"	7/8"	1 1/4"	**35-518-0**	**35-539-6** *	9.35
1/2-13	700	3/4"	1 1/8"	1 7/8"	**35-519-8**	**35-540-4** *	11.10
5/8-11	1200	7/8"	1 1/4"	2 1/2"	**35-520-6**	**35-541-2** *	18.85
3/4-10	1800	1 1/16"	1 1/2"	3"	**35-521-4**	**35-542-0** *	33.60
1-8	2400	1 3/8"	1 7/8"	4"	**35-522-2**	**35-543-8** *	44.90

* Has Elastomer Pad

Inch

Features:

- Used to level: machinery, electronic equipment, scales, racks, benches, etc.
- Adjusts to uneven sufaces.
- Large diameter base support.
- 10° Swivel off centerline.
- Zinc, nickel or stainless steel socket.

Steel Base

- Tough, dependable base at a lower cost than stainless steel.

Stainless Steel Base

- For maximum protection against rust and corrosion.

Delrin® Base

- Provides high resistance to repeated impacts, moisture, solvents and heat up to 190°.
- Natural (white) Delrin® plastic base.
- Protects floor or surface finish.

Elastomer Pad

- Provides non-skid support.
- Protects floor or surface finish.
- Elastomer pad bonded to bottom of base.



35-256-7

MASON INDUSTRIES, INC.

Rubber Vibration Isolation Load Bearing Pads

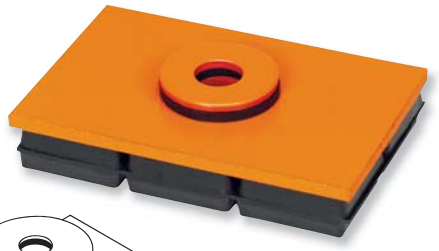
When higher loadings are required, solid pads provide the solution. These pads are designed to deflect 1/8" at the maximum load. The entire surface of the pad must be covered with a steel plate.

- Type: Bridge Bearing Natural Rubber Pad
- Quality level to bridge support standards.
- Natural rubber for maximum performance.
- High load capacity.
- Convenient 1" thickness.

SIZE	MAX. LOAD (LBS)	PART NO.	PRICE
4" x 4" x 1"	2400	**35-253-4**	$13.70
6" x 6" x 1"	7900	**35-254-2**	29.65
8" x 8" x 1"	16000	**35-255-9**	53.25
10" x 10" x 1"	25000	**35-256-7**	82.90

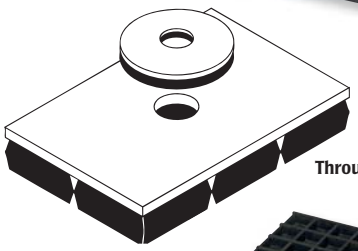
MASON INDUSTRIES, INC.

Neoprene & Steel Vibration Isolation Pads



MBSW

When there is a concentrated load because of a small leg on a heavy machine or a formed sheet metal leg without a bottom surface, you can always cut a pad to size and cement your own steel plate on top. Usually it is more convenient to buy them, so two types are offered. The WMSW has the cemented steel plate sandwiched between a super waffle pad on the bottom and a 1/4" friction pad on the top. No bolting required. The MBSW replaces the friction pad on top with a 3/4" diameter center hole for bolting through. A 3/4" neoprene isolation washer cemented to a steel washer is provided as well.

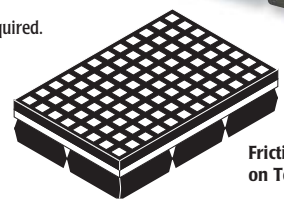


Through Hole



WMSW

- Steel plate distributes concentrated loads.
- Provided with clear hole for bolting.
- Flat pad on top where bolting is not required.



Friction Pad on Top

MASON INDUSTRIES, INC.

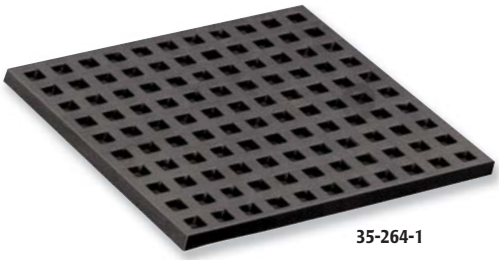
Nitrile Vibration Isolation Pads

Nitrile has the best oil resistance of all natural and synthetic rubber materials. It is superior to Neoprene and recommended for all locations where there is a constant or intermittent exposure to oil, grease or gasoline.

Mason type "Ni" Nitrile pads provide friction and avoid bolting as well as vibration isolation under drill presses, milling presses, shears, lathes, punch presses and similar machines.

May be used in multi layers separated by 16 gauge steel plates for greater efficiency.

- Highest oil resistance of all rubber materials
- Waffle design for better grip
- 5/16" & 1/2" thickness low profile and easy to cut
- May be stacked for greater efficiency
- Color coded for capacity



35-264-1

SIZE	MAX. LOAD (PSI)	THICK.	COLOR	PART NUMBER	PRICE
6" x 6"	50	5/16"	Black	**35-257-5**	$10.75
6" x 6"	100	5/16"	Brown	**35-258-3**	10.75
6" x 6"	200	5/16"	Blue	**35-259-1**	12.15
6" x 6"	280	1/2"	Green	**35-260-9**	17.45
18" x 18"	50	5/16"	Black	**35-261-7**	88.85
18" x 18"	100	5/16"	Brown	**35-262-5**	88.85
18" x 18"	200	5/16"	Blue	**35-263-3**	91.25
18" x 18"	280	1/2"	Green	**35-264-1**	146.05

MBSW

SIZE	MAX LOAD (LBS.)	PART NUMBER	PRICE
6" x 4" x 1"	1200	**35-265-8**	$45.55
6" x 6" x 1"	1800	**35-266-6**	65.80
8" x 8" x 1"	3200	**35-267-4**	83.45
10" x 10" x 1"	5000	**35-268-2**	104.20
12" x 10" x 1"	6000	**35-269-0**	209.80

WMSW

SIZE	MAX LOAD (LBS.)	PART NUMBER	PRICE
6" x 4" x 1 1/4"	1200	**35-270-8**	$45.55
6" x 6" x1 1/4"	1800	**35-271-6**	65.80
8" x 8" x 1 1/4"	3200	**35-272-4**	83.45
10" x 10" x 1 1/4"	5000	**35-273-2**	104.20
12" x 10" x 1 1/4"	6000	**35-274-0**	209.80

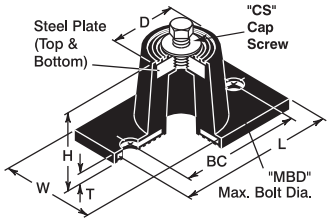
MASON INDUSTRIES, INC.

Neoprene Floor Mount Vibration Isolators

Neoprene mounts are better isolators than isolation pads because they are thicker (taller) and provide more deflection. Top bolts and washers are provided for bolting to the equipment. The neoprene friction covering on the bottom generally eliminates bolting to the structure. These excellent all-purpose oil resistant mountings are used under compressors, blowers, air conditioning equipment, pumps, machine tools, transformers, etc. Used in compression only.



ND-Series



TYPE	CAP. RGE. (LBS.)	DEFLECTION RGE. (IN.)	D	HT. H	L	T	WIDTH W	MOUNTING HOLE DIST. BC	DIA. & LENGTH CS	MBD	COLOR	PART NUMBER	PRICE
ND-A	15 - 45	0.20 - 0.40	1 1/4"	1 1/2"	3 3/16"	3/16"	1 5/8"	2 3/8"	5/16-18 x 3/4"	5/16"	Black	**35-275-7**	$16.50
ND-A	40 - 75	0.20 - 0.40	1 1/4"	1 1/2"	3 3/16"	3/16"	1 5/8"	2 3/8"	5/16-18 x 3/4"	5/16"	Green	**35-276-5**	16.50
ND-A	60 - 125	0.20 - 0.40	1 1/4"	1 1/2"	3 3/16"	3/16"	1 5/8"	2 3/8"	5/16-18 x 3/4"	5/16"	Red	**35-277-3**	16.50
ND-B	85 - 175	0.25 - 0.50	1 3/4"	1 7/8"	3 7/8"	1/4"	2 5/16"	3"	3/8-16 x 1"	5/16"	Green	**35-278-1**	18.45
ND-B	125 - 250	0.25 - 0.50	1 3/4"	1 7/8"	3 7/8"	1/4"	2 5/16"	3"	3/8-16 x 1"	5/16"	Red	**35-279-9**	18.45
ND-B	190 - 380	0.25 - 0.50	1 3/4"	1 7/8"	3 7/8"	1/4"	2 5/16"	3"	3/8-16 x 1"	5/16"	White	**35-280-7**	18.45
ND-B	300 - 600	0.25 - 0.50	1 3/4"	1 7/8"	3 7/8"	1/4"	2 5/16"	3"	3/8-16 x 1"	5/16"	Yellow	**35-281-5**	18.45
ND-C	275 - 550	0.25 - 0.50	2 9/16"	2 3/4"	5 1/2"	1/4"	3 5/16"	4 1/8"	1/2-13 x 1"	1/2"	Red	**35-282-3**	49.40
ND-C	375 - 750	0.25 - 0.50	2 9/16"	2 3/4"	5 1/2"	1/4"	3 5/16"	4 1/8"	1/2-13 x 1"	1/2"	White	**35-283-1**	49.40
ND-C	550 - 1100	0.25 - 0.50	2 9/16"	2 3/4"	5 1/2"	1/4"	3 5/16"	4 1/8"	1/2-13 x 1"	1/2"	Yellow	**35-284-9**	49.40
ND-D	1150 - 2300	0.25 - 0.50	3 3/8"	2 3/4"	6 1/4"	5/16"	4"	5"	1/2-13 x 1"	1/2"	Yellow	**35-285-6**	95.60
ND-DS	2150 - 4300	0.25 - 0.50	3 3/8"	2 3/4"	6 3/4"	5/16"	4 3/8"	5 1/2"	1/2-13 x 1"	1/2"	Yellow	**35-286-4**	95.60

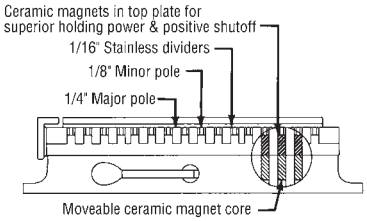
MACHINE ACCESSORIES

SUBURBAN
Permanent Magnetic Chucks
with Dual Magnets



Ground Ship ONLY

- Dual ceramic magnets nearly double the holding power and provide positive shutoff for easy workpiece removal.
- Chucks are sealed and lubricated for maintenance-free performance.
- Submersible design for use in EDM and in fluids.
- Combination fine and standard pole spacing for maximum holding power of large and small parts.
- Low height construction.
- Hold down clamps are included.
- Laminated and brazed top plate provides a rigid working surface.
- D.O.T. Regulated. Shipped via ground freight only.



WIDTH	LENGTH	HEIGHT	WEIGHT	PART NO.	PRICE
6½"	6½"	2½"	25 lbs.	**77-570-0**	$1,510.75
4"	8"	2⅜"	20 lbs.	**77-571-8**	1,357.95
5"	10"	2½"	28 lbs.	**77-572-6**	1,571.10
6"	10"	2½"	35 lbs.	**77-573-4**	1,616.70
6"	12"	2½"	44 lbs.	**77-574-2**	1,774.45
6"	18"	2½"	65 lbs.	**77-575-9***	2,336.35

*FOB Detroit.

Ground Ship ONLY



Standard Pole Spacing

SUBURBAN
Rectangular Permanent Magnetic Chucks
Surface Grinder Chucks



Fine Pole Spacing

- Ideal for use on surface grinders.
- Permanent, ceramic magnets for superior holding power never lose their strength.
- Top plate is laminated from steel and stainless steel, furnace brazed into one solid piece and precision ground.
- Lubricated and sealed against dirt and liquids, good for EDM applications.
- The smaller units can be used as Parallel Chucks on top of any regular magnetic machine chuck.
- Front mounted on-off handle is removable, eliminates interference.
- "Partial-On" for holding parts prone to distortion.
- One end rail and one backrail plus 2 universal hold down clamps included.
- Standard pole spacing for holding large and thick workpieces.
- Fine pole spacing for holding thin workpieces.
- D.O.T. Regulated. Shipped via ground freight only.

DIMENSIONS (IN.)	WEIGHT LBS. STD.	FINE	STANDARD POLE SPACING PART NO.	PRICE	FINE POLE SPACING PART NO.	PRICE
3 x 6 x 2⅝†	13	13	–	–	**77-542-9**	$681.10
4 x 7 x 2⅝	19	19	**77-523-9**	$691.30	**77-543-7**	739.35
5 x 10 x 2⅝	35	35	**77-524-7**	920.50	**77-544-5**	1,062.20
6 x 6 x 2⅝†	25	25	**77-102-2****	1,094.25	**77-116-2****	1,232.25
6 x 12 x 2⅝	47	47	**77-526-2**	1,232.25	**77-546-0**	1,409.70
6 x 14 x 2⅝	55	55	**77-527-0**	1,381.35	**77-547-8**	1,555.10
6 x 18 x 2⅝	70	70	**77-528-8**	1,636.45	**77-548-6**	1,877.95
8 x 12 x 2¾	63	63	**77-529-6***	1,545.25	**77-549-4***	1,765.80
8 x 15 x 2¾	79	79	**77-530-4***	1,866.85	**77-550-2***	2,120.70
8 x 18 x 2¾	95	95	**77-531-2***	2,258.70	**77-551-0***	2,510.10
8 x 24 x 2¾	126	126	**77-532-0*°**	3,017.75	**77-552-8*°**	3,396.05
9 x 9 x 2-5/8†	53	53	**77-533-8***	1,434.35	**77-553-6*°**	1,597.15
10 x 15 x 2¾	111	111	**77-534-6*°**	2,926.60	**77-554-4*°**	3,198.90
10 x 18 x 2¾	134	134	**77-535-3*°**	3,514.35	**77-555-1*°**	3,764.50
10 x 24 x 2¾	178	178	**77-536-1*°**	4,940.05	**77-556-9*°**	5,193.90
12 x 12 x 2¾	107	107	**77-537-9*°**	2,374.55	**77-557-7*°**	2,648.10
12 x 18 x 2¾	161	161	**77-538-7*°**	4,489.05	**77-558-5*°**	4,768.80
12 x 24 x 2¾	213	213	**77-539-5*°**	5,557.40	**77-559-3*°**	6,150.10

† Parallel Chuck only, bottom plate is not extended, hold-down clamps not included.
* F.O.B. Detroit. ° Truck collect. **Sine system #1.

SUBURBAN
Round Permanent Magnetic Chucks

- For efficient holding of magnetic workpieces on grinders, lathes, and other machines with rotating spindles.
- Permanent, ceramic magnets for superior holding power, never lose their strength.
- Top plate is laminated from steel and stainless steel, furnace brazed into one solid piece and precision ground.
- Top plate can be drilled, tapped or machined to three-fourths of its thickness (approx. ⅝"), if necessary, to allow the use of dowel pins or other mechanisms as locating devices.
- Back surface of the aluminum chuck body has tapped holes and turned counterbore for convenient mounting on machines.
- "Partial-On" for holding parts prone to distortion.
- Removable on-off handle.
- All models except 5½" dia., which uses the swing-type on-off method, are watertight.
- D.O.T. Regulated. Shipped via ground freight only.

Ground Ship ONLY

Standard Pole
Pole Spacing: ¼" Pole
⅛" Separators



Fine Pole
Pole Spacing: ⅛" Pole
⅛" Separators



Standard Pole — For Holding Large and Thick Work Pieces

DIAMETER	HEIGHT	COUNTERBORE DIA.	DEPTH	BOLT CIRCLE	TAPPED HOLES	WT. LBS.	PART NUMBER	PRICE
5¼"	3"	3"	⅛"	4"	(4) ¼-20 x ½"	15	**77-502-3**	$703.65
6¼"	3"	3"	⅛"	4"	(4) ¼-20 x ½"	17	**77-503-1**	1,084.40
9¼"	3"	4"	3/16"	5"	(4) ⅜-16 x ½"	36	**77-504-9***	1,917.40
12¼"	3"	4"	3/16"	5"	(4) ⅜-16 x ½"	60	**77-505-6***	2,773.80
16"	3"	8"	3/16"	9"	(6) ⅜-16 x ½"	90	**77-506-4***	5,551.25

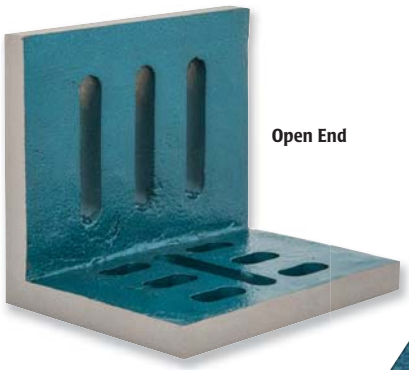
Fine Pole—For Holding Small and Thin Work Pieces

DIAMETER	HEIGHT	COUNTERBORE DIA.	DEPTH	BOLT CIRCLE	TAPPED HOLES	WT. LBS.	PART NUMBER	PRICE
6¼"	3"	3"	⅛"	4"	(4) ¼-20 x ½"	18	**77-512-2**	$1,360.40
7¾"	3"	4"	3/16"	4"	(4) ⅜-16 x ½"	26	**77-513-0**	1,765.80
10"	3"	4"	3/16"	5"	(4) ⅜-16 x ½"	43	**77-514-8**	2,374.55
12¼"	3"	4"	3/16"	5"	(4) ⅜-16 x ½"	62	**77-515-5***	3,325.85

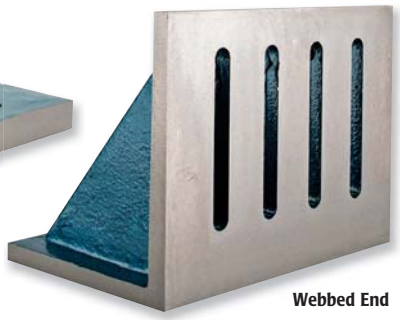
* FOB Detroit.

SHOP GRADE
Slotted Angle Plates
Machined Both Square and Parallel

- High tensile cast iron construction seasoned against distortion.
- Webbed and machined on edges and outside surfaces only.
- For setting up jigs and fixtures on milling machines, drill presses, planning machines, radial drilling machines.
- Slots are arranged for maximum clamping versatility.



Open End

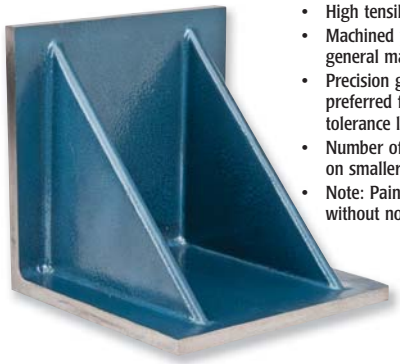


Webbed End

- Note: Paint finish subject to change without notice.

WIDTH	LENGTH 1st FACE	HEIGHT 2nd FACE	WT. (LBS.)	OPEN END PART NO.	PRICE	WT. (LBS.)	WEBBED END PART NO.	PRICE
3"	2½"	2"	–	–	–	3	**34-822-7**	$23.15
3½"	3"	2½"	–	–	–	2	**34-823-5**	27.95
4½"	3½"	3"	4	**34-815-1**	$41.40	4	**34-824-3**	33.55
6"	5"	4½"	8	**34-816-9**	66.40	9	**34-825-0**	51.00
7"	5½"	4½"	14	**34-817-7**	84.90	13	**34-826-8**	61.90
8"	6"	5"	16	**34-818-5**	103.25	17	**34-827-6**	52.55
9"	7"	6"	22	**34-819-3**	141.20	24	**34-828-4**	115.25
10"	8"	6"	26	**34-820-1**	158.45	32	**34-829-2**	145.45
12"	9"	8"	44	**34-821-9**	204.90	50	**34-830-0**	162.70

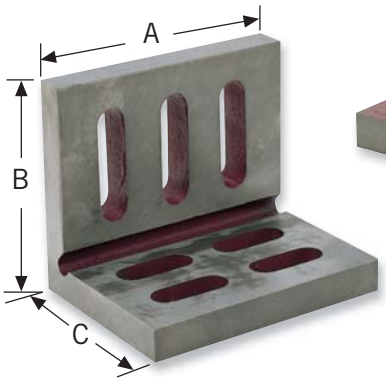
SHOP GRADE
Gray Iron Angle Plates
Machined or Precision Ground



- High tensile gray iron castings.
- Machined plates are recommended for general machine shop and set up work.
- Precision ground plates are preferred for close tolerance layout and inspection set up.
- Number of rib/webs may vary on smaller size.
- Note: Paint finish subject to change without notice.

ANGLE PLATE SIZE	RIBS/ PLATE	WT. (LBS.)	MACHINED PART NO.	PRICE	PRECISION GROUND PART NO.	PRICE
2" x 2" x 2"	1	1	**34-831-8**	$13.50	**34-839-1**	$23.70
3" x 3" x 3"	1	3	**34-832-6**	20.60	**34-840-9**	34.20
4" x 4" x 4"	1	6	**34-833-4**	29.30	**34-841-7**	51.30
5" x 5" x 5"	1	11	**34-834-2**	54.70	**34-842-5**	74.45
6" x 6" x 6"	2	17	**34-835-9**	66.00	**34-843-3**	110.15
8" x 8" x 8"	2	36	**34-836-7**	144.60	**34-844-1**	188.45
10" x 10" x 10"	2	62	**34-837-5**	184.75	**34-845-8**	333.25
12" x 12" x 12"	2	104	**34-838-3**	304.15	**34-846-6**	463.55

SUBURBAN
Slotted Angle Plates





- Made of high quality fine grained cast iron, stress relieved.
- Clamping slots for easy mounting of workpieces.
- Webbed type – 2 faces and all ends machined square and parallel within 0.002" per 6".
- Open-End type – 4 faces and all ends machined square and parallel within 0.002" per 6".

DIMENSIONS A x B x C (IN.)	APPROX. WEIGHT	WEBBED PART NO.	PRICE	OPEN TYPE PART NO.	PRICE
4½ x 3½ x 3 *	5 lbs.	**96-023-7**	$83.80	**96-031-0**	$110.95
6 x 5 x 4½ *	13 lbs.	**96-024-5**	110.95	**96-032-8**	155.30
7 x 5½ x 4½ *	14 lbs.	**96-025-2**	151.60	**96-033-6**	182.40
8 x 6 x 5	22 lbs.	**96-026-0**	186.10	**96-034-4**	214.45
9 x 7 x 6	28 lbs.	**96-027-8**	230.45	**96-035-1**	266.20
10 x 8 x 6	35 lbs.	**96-028-6**	273.60	**96-036-9**	329.00
12 x 9 x 8	60 lbs.	**96-029-4**	417.75	**96-037-7**	464.55

* Single web in center.



SUBURBAN
Angle Plates

- Made of high quality fine grained cast iron, stress relieved.
- All ends machined square and parallel within 0.002" per 6".
- Extra thick and ribbed construction.
- Machined finish – square and parallel with 0.002" per 6".
- Ground finish – square and parallel with 0.0005" per 6" on the 2 work faces only.

DIMENSIONS (IN.)	APPROX. WEIGHT	MACHINED FINISH PART NO.	PRICE	GROUND FINISH PART NO.	PRICE
2 x 2 x 2*	1 lb.	**96-001-3**	$58.75	**96-011-2**	$89.95
3 x 3 x 3*	3 lbs.	**96-002-1**	62.20	**96-012-0**	101.05
4 x 4 x 4*	7 lbs.	**96-003-9**	88.70	**96-013-8**	138.05
5 x 5 x 5*	11 lbs.	**96-004-7**	117.45	**96-014-6**	216.90
6 x 6 x 6*	17 lbs.	**96-005-4**	160.20	**96-015-3**	321.65
8 x 8 x 8	37 lbs.	**96-006-2**	280.95	**96-016-1**	484.30
10 x 10 x 10	70 lbs.	**96-007-0**	617.35	–	–
12 x 12 x 12	104 lbs.	**96-008-8** †°	655.55	**96-018-7**†°	1,357.95

* Single rib in center. † F.O.B. Detroit. ° Truck collect.

MACHINE ACCESSORIES

SHOP GRADE
Universal Right Angle Irons
Machined or Precision Ground



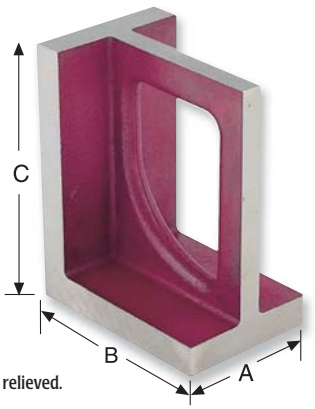
- Universal Right Angle Irons are made of close-grained cast iron, thorougly seasoned and carefully heat treated for maximum stability.
- Work can be clamped to any face and the angle iron placed in any one of a number of positions, so that measurements may be made without relocating.
- The web in the center permits the angle iron to be set on any side or end, thereby providing a useful reference block for measuring and indicating large work.
- Tolerances: Size held for ±0.08".
- Accuracy: Machine Square & Parallel 0.002" per 6". Precision Ground within 0.002" per 6" Parallel within 0.0018" per 6"
- Note: Paint finish subject to change without notice.

WIDTH	HEIGHT	LENGTH	WT. (LBS.)	MACHINED PART NO.	PRICE	PRECISION GROUND PART NO.	PRICE
3¾"	4"	5"	10	**34-795-5**	$48.65	**34-806-0**	$82.55
4"	4"	6"	13	**34-796-3**	72.90	**34-807-8**	98.65
4"	5"	6"	16	**34-797-1**	78.90	**34-808-6**	141.20
4½"	5"	8"	21	**34-798-9**	99.90	**34-809-4**	137.70
5"	8"	12"	44	**34-799-7**	186.35	**34-810-2**	261.70
5½"	7"	10"	37	**34-800-3**	148.50	**34-811-0**	224.45
5½"	8"	10"	40	**34-801-1**	165.85	**34-812-8**	242.85
6"	6"	8"	32	**34-802-9**	126.70	**34-813-6**	240.70
8"	9"	16"	94	**34-803-7**	416.45	–	–
8"	10"	12"	75	**34-804-5**	301.45	**34-814-4**	373.90
10"	12"	16"	130	**34-805-2** *	476.10	–	–

* Truck Shipment.

SUBURBAN
Universal Right Angle Irons

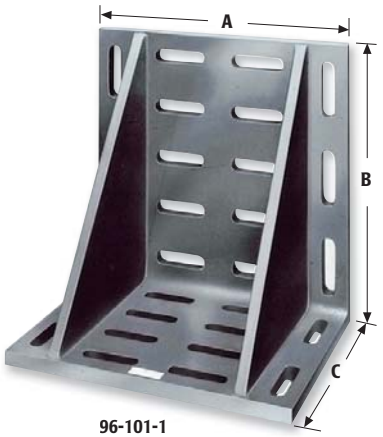




- Made of high quality fine grained cast iron, stress relieved.
- All faces and ends finished square and parallel.
- Machined finish – Square and parallel within 0.002" per 6".
- Ground finish – Square within 0.0005" per 6". Parallel within 0.00025" per 6".

DIMENSIONS A x B x C (IN.)	APPROX. WEIGHT	MACHINED PART NO.	FINISH PRICE	GROUND FINISH PART NO.	PRICE
3¾ x 4 x 5	10 lbs.	**96-041-9**	$110.95	**96-051-8**	$295.75
4 x 4 x 6	13 lbs.	**96-042-7**	138.05	**96-052-6**	330.25
4½ x 5 x 6	16 lbs.	**96-043-5**	154.05	**96-053-4**	352.45
4 x 5 x 8	22 lbs.	**96-044-3**	208.25	**96-054-2**	398.05
5½ x 8 x 10	42 lbs.	**96-047-6**	319.15	**96-057-5**	606.30
6 x 6 x 8	34 lbs.	**96-048-4**	297.00	**96-058-3**	585.35
8 x 10 x 12	82 lbs.	**96-049-2** †	513.85	**96-059-1** †	839.20

†F.O.B. Detroit.



96-101-1

SUBURBAN
Giant Slotted Angle Plate

- Made from high fine grained cast iron, stress relieved.
- Clamping slots for easy mounting of workpieces.
- Extra thickness and heavy, ribbed construction.
- Machined finish – square and parallel within 0.002" per 6".
- F.O.B. Detroit, truck collect.

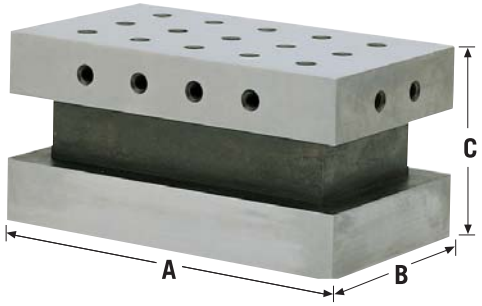
DIMENSIONS A x B x C	WEIGHT (LBS.)	PART NUMBER	PRICE
12" x 24" x 18"	300	**96-090-6**	$2,597.60
16" x 12" x 9"	112	**96-091-4**	713.50
18" x 30" x 24"	700	**96-092-2**	5,048.50
20" x 16" x 12"	200	**96-101-1**	1,026.45

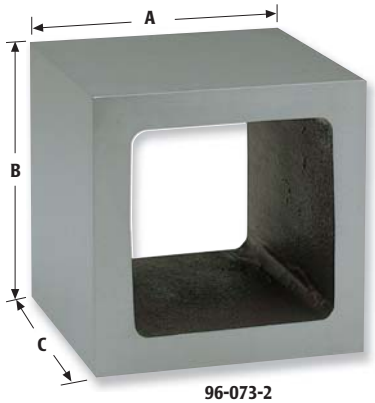
SUBURBAN
Cube

- One-piece steel construction, case hardened to 58-62 RC.
- 27 holes all tapped ¼-20.
- Top and bottom plus 4 sides ground square and parallel within 0.0002".

DIMENSIONS A x B x C	WEIGHT (LBS.)	PART NUMBER	PRICE
6" x 3½" x 3"	15	**30-086-3**	$436.25
6" x 3½" x 3"	29	**30-085-5***	1,117.85

*Matched pair





96-073-2

SUBURBAN
Box Parallels

- Made of high quality fine grained cast iron, stress relieved.
- All faces and ends finished square and parallel.
- Machine size: ±0.015", square and parallel within 0.002" per 6".
- Ground size: ±0.002", square and parallel within 0.0005" per 6".

No Web

DIMENSIONS A x B x C	WEIGHT (LBS.)	MACHINED PART NO.	PRICE	GROUND PART NO.	PRICE
4" x 4" x 4"	12	**95-008-9**	$230.45	**95-017-0**	$384.50
4" x 4" x 4"	16	**95-009-7**	262.50	**95-018-8**	432.55
4" x 6" x 6"	20	**95-010-5**	393.10	**95-019-6**	658.05
5" x 5" x 5"	17	**95-011-3**	295.75	**96-073-2**	561.90

Center Web

DIMENSIONS A x B x C	WEIGHT (LBS.)	MACHINED PART NO.	PRICE	GROUND PART NO.	PRICE
5" x 10" x 10"	73	**95-012-1**	$803.45	**95-020-4**	$1,053.60
6" x 6" x 6"	25	**95-013-9**	409.10	**95-021-2**	671.60
6" x 6" x 8"	35	**95-014-7**	483.05	**95-022-0**	707.30
6" x 12" x 12"	105	**95-015-4**	1,015.40	**95-023-8**	1,698.05
8" x 8" x 8"	71	**95-016-2**	815.75	**95-024-6**	1,364.10



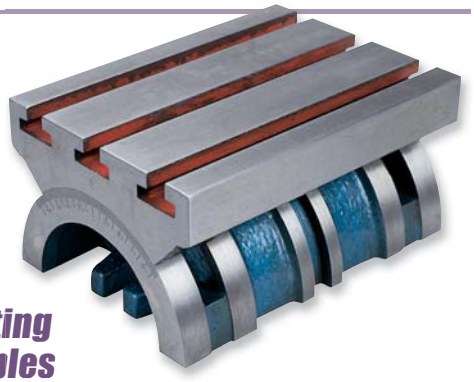
67-014-1

phase II

Compound Slide Milling and Drilling Table

- A heavy-duty rugged slide used in all kinds of positioning, milling, drilling, microscope viewing and staging.
- Adjustable gibs for heavy loads.
- .100" per dial revolution.
- T-slots 2 1/2" on center.
- "U" slots for up to 5/8" bolts.

TABLE L	TABLE W	HT.	BASE DIM.	TRAVEL	WT. (LBS.)	PART NUMBER	PRICE
12"	5 1/2"	4 1/2"	9" x 8"	8" x 5"	36	**67-014-1**	$249.00



Tilting Tables

- Perfect to hold a work piece on an angle during milling, drilling and boring.
- Heavy duty construction with machined T-slots.
- Adjusting range -45° to +45° graduated in degrees and 2 locking screws.

TABLE SIZE W	TABLE SIZE L	OVERALL HEIGHT	WEIGHT (LBS.)	T-SLOT WIDTH	PART NUMBER	PRICE
7"	5"	3 3/4"	20	7/16"	**67-021-6**	$174.55
10"	7"	5"	44	1/2"	**67-022-4**	263.65
15"	10"	6 1/2"	92	9/16"	**67-023-2** *	301.55

* Ships truck freight class 65.



Swivel Angle Tables

- Heavy casting and rugged construction with machined T-slots.
- Adjustable from 0 to 90° graduation.
- 2 locking screws.

TABLE SIZE W	TABLE SIZE L	OVERALL HEIGHT	T-SLOT	PART NUMBER	PRICE
5"	6"	4 1/2"	3/8"	**67-016-6**	$279.55
6"	8"	5"	3/8"	**67-017-4**	291.95
8"	10"	6 1/2"	7/16"	**67-018-2**	393.90
10"	12"	8"	1/2"	**67-019-0** *	541.25
12"	15"	9"	9/16"	**67-020-8** *	700.20

* Ships truck freight class 65.

SHOP GRADE

10" Precision Sine Plate

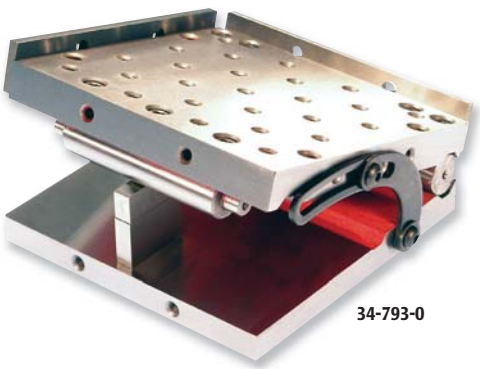
Sine plates are made of 1018 Steel, case hardened 0.040 - 0.060" deep. 58 - 60 Rockwell "C" and finish ground.

- Square and parallel within 0.0003".
- Center distance of rolls 10.000 ±0.0005".
- Overall dimensions: 6" W (±1/16") x 12" L (±1/8") x 2 1/2" H (±1/16").
- Dia. of rolls: 0.945" ±0.0002".
- Eighteen 3/8-16 tapped holes.
- Minute angle step 0.200 - 0.0001" on gage block roll.
- End rail included.
- Weight: 37 lbs.

DESCRIPTION	PART NO.	PRICE
10" Precision Sine Plate	**34-794-8**	$1,108.90



34-794-8



34-793-0

SHOP GRADE

5" Precision Sine Plate

Sine plates are made of 1018 Steel, case hardened 0.040 - 0.060" deep. 58 - 60 Rockwell "C" and finish ground.

- Square and parallel within 0.0002".
- Tolerance: ±1/16".
- Two T-slots for 1/4" tee bolts 3" on center.
- Center distance of rolls 5.000 ±0.0005".
- Working surface top 5" ±1/16" x 6" ±1/16".
- Dimensions: 6" L x 5" W x 2" H.
- Twenty 1/4-20 tapped holes.
- Minute angle step 0.200" - 0.0001" on gage block roll.
- End rail included.
- Weight: 12.75 lbs.

DESCRIPTION	PART NO.	PRICE
5" Precision Sine Plate	**34-793-0**	$665.95

SHOP GRADE

5" Precision Compound Sine Plate

- Sine plates are made of 1018 Steel, case hardened. 0.040 - 0.060 deep. 58 - 60 RC and finish ground.
- 6" x 6" work surface has twenty-five 1/4 - 20 tapped holes.
- Two offset straps for rigid locking of angle settings.
- Minute angle step 0.200" - 0.0001" in gage block roll.
- End rail included.
- Square and parallel within 0.0002".

L	W	HT.	WEIGHT (LBS.)	PART NUMBER	PRICE
6"	6"	3 1/4"	27	**63-066-5**	$741.45



63-066-5

SHOP GRADE

5" Precision Sine Plate

Sine plates are made of 1018 Steel, case hardened 0.040 - 0.060" deep. 58 - 60 Rockwell "C" and finish ground.

- Square and parallel within 0.0002".
- Center distance of rolls 5.000 ±0.0005".
- Overall dimensions (±1/16"): 3 1/4" W x 6" L x 1 5/16" H.
- Dia. of rolls: 0.708" ±0.0002".
- Thirteen 1/4-20 tapped holes.
- Minute angle step 0.200" - 0.0001".
- End rail included.
- Weight: 8.8 Lbs.

DESCRIPTION	PART NO.	PRICE
5" Precision Sine Plate	**34-792-2**	$355.00



34-792-2

MACHINE ACCESSORIES





77-116-2

Ground Ship ONLY



77-102-2 Used as parallel or squaring chuck

SUBURBAN
System Bolt-On Permanent Magnetic Chucks

- Perfect accessories for the Sine System.
- Low profile. Can be used separately as parallel chucks or with a sine plate or compound sine plate.
- The 6" x 6" standard and fine pole models can also be bolted directly to the 6" x 6" x 4" angle plate.
- Permanent, ceramic magnets for superior holding power never lose their strength.
- Top plate is laminated from steel and stainless steel. Furnace brazed into one solid piece and precision ground.
- Steel bottom plate, hardened and ground.
- Front mounted on-off handle is removable. Eliminates interference.
- "Partial On" for holding parts prone to distortion.
- One end rail and one back rail plus 4 mounting bolts included.
- D.O.T. Regulated. Shipped via ground freight only.

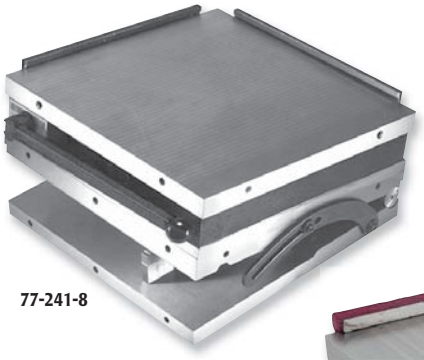
For Holding Large and Thick Work Pieces

SINE SYSTEM	W x L x H	POLE SPACING	WEIGHT	PART NO.	PRICE
1	6" x 6" x 2 5/8"*	Standard	21 lbs.	**77-102-2** *	$1,094.25
2	6" x 12" x 2 5/8"	Standard	42 lbs.	**77-103-0**	1,303.75
2	6" x 18" x 2 5/8"	Standard	65 lbs.	**77-104-8** †	1,752.25
2	8" x 12" x 2 5/8"	Standard	58 lbs.	**77-105-5** †	1,647.50
2	12" x 12" x 2 5/8"	Standard	100 lbs.	**77-106-3** †°	2,523.65
2	12" x 18" x 2 5/8"	Standard	151 lbs.	**77-107-1** †°	4,707.15

For Holding Small and Thin Work Pieces

SINE SYSTEM	W x L x H	POLE SPACING	WEIGHT	PART NO.	PRICE
0	4 x 4 x 2 5/8 *	Fine	12 lbs.	**77-115-4** *	$889.70
1	6 x 6 x 2 5/8 *	Fine	25 lbs.	**77-116-2** *	1,232.25
2	6 x 12 x 2 5/8	Fine	47 lbs.	**77-117-0**	1,488.55
2	6 x 18 x 2 5/8	Fine	70 lbs.	**77-118-8** †	1,992.55
2	8 x 12 x 2 5/8	Fine	63 lbs.	**77-119-6** †	1,866.85

*Ideal for use as parallel as well as squaring chucks. † FOB Detroit. ° Truck collect.



77-241-8

Ground Ship ONLY



77-204-6

SUBURBAN
Sine System Magnetic Sine Plates

- Permanent, ceramic magnetic chucks for superior holding power never lose their strength.
- 0 - 60° capacity.
- Minute angle step 0.200" built into the gage block roll. Eliminates steps in base plate.
- Two hardened and ground side rails and one locking strap included in all sine system models.
- Large hinge pins for extra strength.
- One back rail, one end rail plus 4 mounting bolts included.
- On all sine system models identified 0, 1 and 2, the magnetic chuck can conveniently be removed and replaced offering individual use of the sine plate as well as the magnetic parallel chuck.
- D.O.T. Regulated. Shipped via ground freight only.

Standard Pole - For Holding Large and Thick Work Pieces

SINE SYSTEM	W X L X H (IN.)	CENTER DISTANCE OF ROLLS	PARALLELISM & SQUARENESS	WT LBS.	PART NUMBER	PRICE
1	6 x 6 x 4 5/8	5" within 0.0002"	0.0002"	39	**77-204-6** †	$1,934.65
2	6 x 12 x 5 1/4	5" within 0.0002"	0.0003"	89	**77-205-3** †°	2,988.20
2	12 x 6 x 5 1/4	10" within 0.0002"	0.0003"	87	**77-206-1** †°	2,972.20
2	8 x 12 x 5 1/4	5" within 0.0002"	0.0003"	120	**77-207-9** †°	3,763.25
2	12 x 8 x 5 1/4	10" within 0.0002"	0.0003"	118	**77-208-7** †°	3,831.05
2	6 x 18 x 6	5" within 0.0002"	0.0004"	155	**77-209-5** †°	6,553.05
2	18 x 6 x 6	15" within 0.0003"	0.0004"	149	**77-210-3** †°	6,198.85
2	12 x 12 x 5 1/4	10" within 0.0002"	0.0003"	190	**77-211-1** †°	6,327.55
2	12 x 18 x 6	10" within 0.0003"	0.0004"	321	**77-212-9** †°	11,795.95
2	18 x 12 x 6	15" within 0.0003"	0.0004"	318	**77-213-7** †°	11,795.95
2	12 x 24 x 6 5/8	10" within 0.0004"	0.0005"	475	**77-214-5** †°	18,074.80
2	24 x 12 x 6 5/8	20" within 0.0004"	0.0005"	469	**77-215-2** †°	18,074.80

For Holding Small and Thin Work Pieces

SINE SYSTEM	W X L X H (IN.)	CENTER DISTANCE OF ROLLS	PARALLELISM & SQUARENESS	WT LBS.	PART NUMBER	PRICE
0	4 x 4 x 4 5/8	3" within 0.0002"	0.0002"	21	**77-231-9**	$1,461.45
1	6 x 6 x 4 5/8	5" within 0.0002"	0.0002"	43	**77-234-3** †	2,072.65
2	6 x 12 x 5 1/4	5" within 0.0002"	0.0003"	94	**77-235-0** †°	3,174.25
2	12 x 6 x 5 1/4	10" within 0.0002"	0.0003"	92	**77-236-8** †°	3,157.00
2	8 x 12 x 5 1/4	5" within 0.0002"	0.0003"	125	**77-237-6** †°	3,982.60
2	12 x 8 x 5 1/4	10" within 0.0002"	0.0003"	123	**77-238-4** †°	4,050.40
2	6 x 18 x 6	5" within 0.0002"	0.0004"	160	**77-239-2** †°	6,794.60
2	12 x 12 x 5 1/4	10" within 0.0002"	0.0003"	196	**77-241-8** †°	6,604.80
2	12 x 18 x 6	10" within 0.0003"	0.0004"	330	**77-242-6** †°	12,090.95
2	18 x 12 x 6	15" within 0.0003"	0.0004"	327	**77-243-4** †°	12,090.95
2	12 x 24 x 6 5/8	10" within 0.0004"	0.0005"	485	**77-244-2** †°	18,667.20
2	24 x 12 x 6 5/8	20" within 0.0004"	0.0005"	479	**77-245-9** †°	18,667.20

*Chuck not removable. †FOB Detroit. ° Truck collect.

SUBURBAN

Sine System Magnetic Compound Sine Plates

- Permanent, ceramic magnetic chucks for superior holding power never lose their strength.
- Same outstanding features as described under the Bolt-On Permanent Magnetic Chucks.
- 0 - 60° capacity.
- Minute angle step 0.200" built into the gage block roll — eliminates steps in base plate.
- Two hardened and ground side rails and one locking strap included in all sine system models.
- Large hinge pins for extra strength.
- One back rail, one end rail plus 4 mounting bolts included.
- On all sine system models identified 0, 1 and 2, the magnetic chuck can conveniently be removed and replaced offering individual use of the sine plate as well as the magnetic parallel chuck.
- D.O.T. Regulated. Shipped via ground freight only.



77-291-3

Ground Ship ONLY



77-273-1

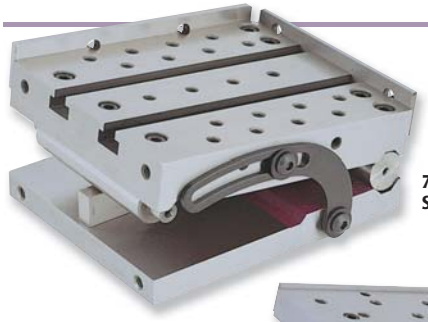
Standard Pole - For Holding Large and Thick Work Pieces

SINE SYSTEM	W X L X H (IN.)	CENTER DISTANCE OF ROLLS	PARALLELISM & SQUARENESS	WT LBS.	PART NUMBER	PRICE
1	6 x 6 x 5 3/4	5" within 0.0002"	0.0002"	48	**77-273-1** †	$3,125.00
2	6 x 12 x 6 13/16	5" & 10"/0.0002"	0.0003"	113	**77-274-9** †°	4,277.10
2	12 x 12 x 6 13/16	10" within 0.0002"	0.0003"	237	**77-277-2** †°	8,686.05

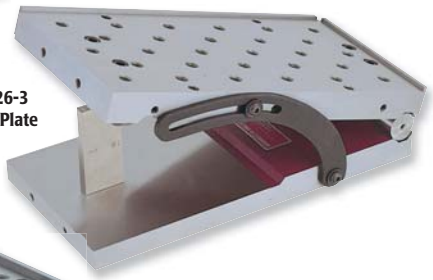
Fine Pole - For Holding Small and Thin Work Pieces

SINE SYSTEM	W X L X H (IN.)	CENTER DISTANCE OF ROLLS	PARALLELISM & SQUARENESS	WT LBS.	PART NUMBER	PRICE
0	4 x 4 x 5 3/4	3" within 0.0002"	0.0002"	25	**77-291-3** †	$1,976.55
1	6 x 6 x 5 3/4	5" within 0.0002"	0.0002"	52	**77-293-9** †	3,041.20
2	6 x 12 x 6 13/16	5" & 10"/0.0002"	0.0003"	118	**77-294-7** †°	4,463.20
2	6 x 18 x 8	5" & 15"/0.0003"	0.0004"	204	**77-295-4** †°	8,698.40
2	8 x 12 x 6 13/16	5" & 10"/0.0002"	0.0003"	156	**77-296-2** †°	6,023.20
2	12 x 12 x 6 13/16	10" within 0.0002"	0.0003"	243	**77-297-0** †°	8,963.30

*Chuck not removable. † FOB Detroit. ° Truck collect.



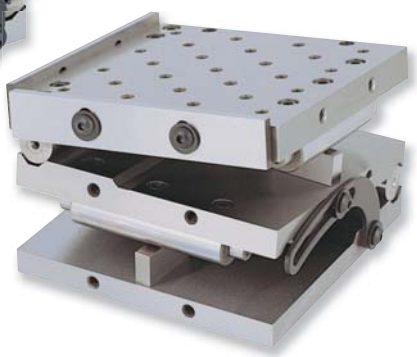
77-023-0
Sine Plate



77-026-3
Sine Plate



77-072-7
Compound
Sine Plate



77-071-9
Compound
Sine Plate

SUBURBAN

Sine System Sine Plates/Compound Sine Plates

- Made of quality steel, hardened to 58-62 RC.
- 0 - 60° capacity.
- Minute angle step 0.200" built into the gage block roll. Eliminates steps in base plate.
- Two hardened and ground side rails and one locking strap included.
- Locking strap always remains below the top surface.
- Large hinge pins for extra strength.
- Tapped holes in top plate 6" x 6" or smaller 1/4"-20. Larger models have 3/8"-16 tapped holes.

Sine Plates

SINE SYSTEM	W X L X H (IN.)	CENTER DISTANCE OF ROLLS	PARALLELISM & SQUARENESS	WT. LBS.	PART NUMBER	PRICE
0	4 x 4 x	3" within 0.0002"	0.0002"	9	**77-021-4**	$573.00
	6 x 3 x 2	5" within 0.0002"	0.0002"	9	**77-022-2**	573.00
	6 x 5 x 2 1/4*	5" within 0.0002"	0.0002"	17	**77-023-0** †	955.00
	6 x 6 x 2	5" within 0.0002"	0.0002"	18	**77-024-8** †	840.40
2	6 x 12 x 2 5/8	5" within 0.0002"	0.0003"	47	**77-025-5**	1,685.70
2	12 x 6 x 2 5/8	10" within 0.0002"	0.0003"	45	**77-026-3**	1,669.70
2	8 x 12 x 2 5/8	5" within 0.0002"	0.0003"	62	**77-027-1**	2,194.65
2	12 x 8 x 2 5/8	10" within 0.0002"	0.0003"	60	**77-028-9**	2,184.80
2	6 x 18 x 3 3/8	5" within 0.0002"	0.0004"	90	**77-029-7** *°	4,802.05
2	18 x 6 x 3 3/8	15" within 0.0003"	0.0004"	84	**77-030-5** *°	4,802.05
2	12 x 12 x 2 5/8	10" within 0.0002"	0.0003"	90	**77-031-3** *°	3,805.20
2	12 x 18 x 3 3/8	10" within 0.0003"	0.0004"	170	**77-032-1** *°	7,169.90
2	18 x 12 x 3 3/8	15" within 0.0003"	0.0004"	167	**77-033-9** *°	7,169.90
2	12 x 24 x 4	10" within 0.0004"	0.0005"	273	**77-034-7** *°	12,374.70
2	24 x 12 x 4	20" within 0.0004"	0.0005"	267	**77-035-4** *°	12,374.70

†In addition to 1/4-20 tapped holes, this model features 2 T-slots in top plate for 1/4" T-bolts.

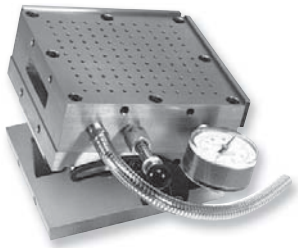
Compound Sine Plates

SINE SYSTEM	W X L X H (IN.)	CENTER DISTANCE OF ROLLS	PARALLELISM & SQUARENESS	WT. LBS.	PART NUMBER	PRICE
0	4 x 4 x 3 1/8	3" within 0.0002"	0.0002"	13	**77-071-9**	$1,088.10
1	6 x 6 x 3 1/8	5" within 0.0002"	0.0002"	27	**77-072-7**	1,808.95
2	6 x 12 x 4 3/16	5" & 10"/0.0002"	0.0003"	71	**77-073-5** *	2,974.65
2	6 x 18 x 5 3/8	5" & 15"/0.0003"	0.0004"	134	**77-074-3** *°	6,705.85
2	8 x 12 x 4 3/16	5" & 10"/0.0002"	0.0003"	93	**77-075-0** *°	4,156.35
2	12 x 12 x 4 3/16	10" within 0.0002"	0.0003"	137	**77-076-8** *°	6,163.70
2	12 x 18 x 5 3/8	10" & 15"/0.0003"	0.0004"	257	**77-077-6** *°	12,089.55

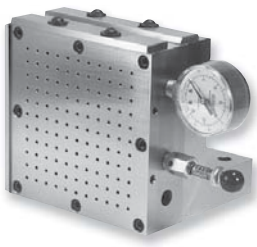
*FOB Detroit. ° Truck collect.

MACHINE ACCESSORIES





77-171-7 bolted to Sine System Sine Plate, sold separately.



77-171-7 bolted to Sine System Angle Plate, sold separately.

SUBURBAN
Sine System Bolt-On Vacuum Chucks

- Ideal accessories for the Sine System.
- Bolt-on vacuum chucks can be used separately or with angle plate, sine plate or compound sine plate.
- Excellent holding method for non-magnetic workpieces to be machined or ground.
- Small, closely spaced holes in top plate provide maximum holding power with a minimum of distortion.
- Three 1/4" NPT holes for mounting vacuum gage, relief valve and hose directly to chuck body.
- Vacuum gage and relief valve provided.
- Two side rails for positive locating of workpieces included.

SINE SYSTEM	SIZE (IN.)	RECOMMENDED PUMP SIZE	WEIGHT LBS.	PART NUMBER	PRICE
1	6 x 6 x 2 1/4	1/4 H.P. or larger	15	**77-171-7**	$745.50
2	6 x 12 x 2 1/4	1/2 H.P. or larger	28	**77-172-5**	1,019.10
Vacuum Pump, 1/4 H.P., Hose and Fittings				**77-176-6**	839.50
Vacuum Pump, 3/4 H.P., Hose and Fittings				**77-178-2**	1,261.85

SPI®
Stepped Angle Plates

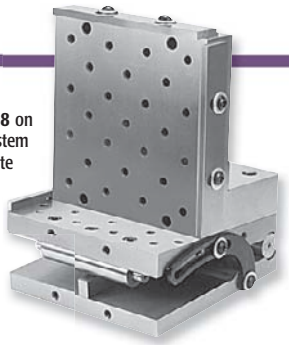


- Made from selected tool steel.
- Hardened and ground on all surfaces.
- Hardness: 55 - 60 HRC.
- Flatness and squareness within 0.0005".

L	W	H	TAPPED HOLES	PART NO.	PRICE
3"	3"	3"	(24) 1/4 - 20	**63-372-7**	$153.85
4"	4"	4"	(24) 5/16 - 18	**63-373-5**	233.45
6"	6"	6"	(24) 5/16 - 18	**63-374-3**	581.50



77-313-5



77-316-8 on Sine System Sine Plate



77-315-0

SUBURBAN
Sine System Angle Plates



- High precision, solid one piece steel construction.
- Hardened to 58-62 RC.
- Ground flat, square and parallel.
- 1/4" or 3/8" tapped holes allow the use of standard, readily available accessories.
- The multi-use Compound Angle Plate has several small ground vees for convenient holding of small round parts and includes 1 clamp.
- Sine system models bolt directly to sine system sine plates and compound sine plates of the same series.



77-318-4 Compound Angle Plate

SINE SYSTEM	DIMENSIONS (IN.)	PARALLELISM & SQUARENESS	TAPPED HOLES	WT LBS.	PART NUMBER	PRICE
	3 x 3 x 3 x 1	0.0002"	(24) 1/4-20	5	**77-313-5**	$371.20
0	4 x 3 x 3 x 1	0.0002"	(13) 1/4-20	6	**77-314-3**	252.65
1	4 x 4 x 4 x 1 1/4	0.0002"	(13) 1/4-20	10	**77-315-0**	384.50
1	6 x 6 x 4 x 1 1/4 *	0.0002"	(33) 1/4-20	20	**77-316-8** *	713.50
2	6 x 4 x 4 x 1 1/4	0.0002"	(14) 3/8-16	13	**77-317-6**	473.20
	6 x 4 x 4 x 1	0.0002"	(16) 1/4-20	11	**77-318-4**	857.65

* 90° conversion model. Its hole pattern duplicates that of the 6" x 6" Sine System Sine Plates allowing the Sine System 1 accessories to be bolted on. It can in turn be bolted directly to the 6" x 6" Sine Plate and 6" x 6" Compound Sine Plate, giving true 90 degree convertibility. 2 side rails, 4 hold down bolts and a matching T-wrench are included.

SUBURBAN
Versatility High Precision Angle Plate



30-131-7 with Offset Face Clamp, sold separately



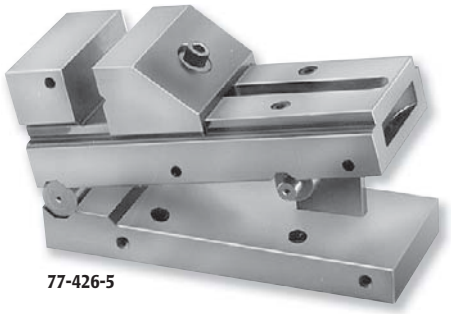
30-131-7 with Yoke Clamp for cylindrical parts and Adjustable Side Clamp, sold separately.

- Steel angle plates, hardened to 58-62 RC.
- All sides precision ground — flat, parallel and square within 0.0002".
- 1" x 1/4" deep step in 4" x 4" x 4 1/2" Angle Plate plus Vee to hold cylindrical parts with or without shoulders. — Twenty-five 5/16"-18 tapped holes.

DESCRIPTION	PART NO.	PRICE
4" x 4" x 4 1/2" Versatility Angle Plate	**30-131-7**	$833.00

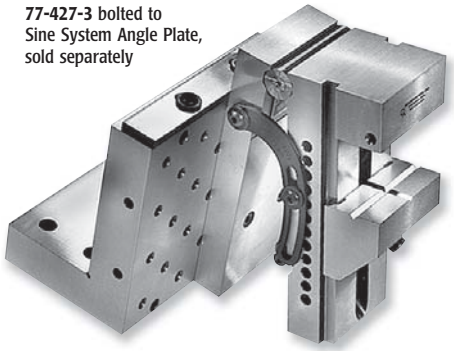
Optional:

DESCRIPTION	PART NO.	PRICE
Offset Face Clamp	**30-132-5**	$30.85
Yoke Clamp for cylindrical parts 1/4" - 7/8" cap.	**30-133-3**	62.85
Adjustable Side Clamp, 1/2" - 1 1/2" cap.	**30-134-1**	110.95



77-426-5

77-427-3 bolted to Sine System Angle Plate, sold separately





77-431-5

SUBURBAN
Sine System Precision Sine Vises

- High precision, solid one-piece steelvise mounted to precision hinged bottom plate.
- Body, jaws and bottom are hardened to 58-62 RC.
- Moveable jaw is pulled into base between 45° and 60°, insuring maximum holding power and hold-down force, eliminating tilting & lifting.
- Ratchet mechanism with notched pockets and solid drawbar in the 5" sine vises.
- Angled center channel provides extra jaw capacity.
- The 5" sine vises have ground vertical & horizontal vees in moveable jaw.
- 0 - 60° sine capacity.
- Minute angle step 0.200" built into the front gage block roll — allows very small angles to be set with ease and accuracy using standard gage blocks.
- One locking strap included.
- Center distance of rolls within 0.0002".
- Sine system vises bolt directly to the sine system sine plates of the same series — conversion to a compound sine vise in seconds.

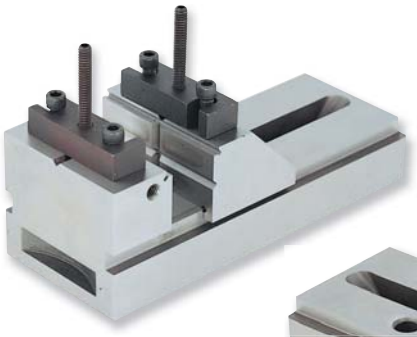
5" Sine Vises

SINE SYSTEM	W X L X H (IN.)	PARALLELISM & SQUARENESS	JAW CAP.	JAW HEIGHT	WT. LBS.	PART NUMBER	PRICE
	7 1/2 X 3 X 3 5/8	0.0002"	4 3/4"	1 5/16"	17	**77-426-5**	$976.20
1	7 1/2 X 3 X 3 5/8	0.0002"	4 3/4"	1 5/16"	17	**77-427-3**	989.50

10" Sine Vises

SINE SYSTEM	W X L X H (IN.)	PARALLELISM & SQUARENESS	JAW CAP.	JAW HEIGHT	WT. LBS.	PART NUMBER	PRICE
	11 X 4 X 4 5/8	0.0003"	7"	1 7/16"	39	**77-431-5***	$1,594.40
2	11 X 4 X 4 5/8	0.0003"	7"	1 7/16"	39	**77-432-3***	1,604.40
	12 X 6 X 5 1/8	0.0003"	8"	1 11/16"	60	**77-433-1***	2,738.20
2	12 X 6 X 5 1/8	0.0003"	8"	1 11/16"	60	**77-434-9***	2,740.50

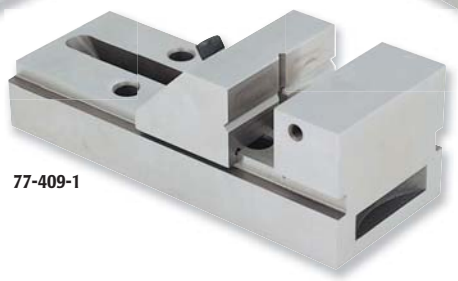
* FOB Detroit.



77-408-3



77-410-9



77-409-1



77-417-4

SUBURBAN
Sine System Precision Vises

- High precision, solid one piece steel construction.
- Body and jaws are hardened to 58 - 60 RC.
- Moveable jaw is pulled into base between 45° and 60°, insuring maximum holding power and hold down force, eliminating tilting & lifting.
- Ratchet mechanism with notched pockets and solid drawbar in all 7 1/2" x 3" x 2 5/8" vises.
- Angular center channel provides extra jaw capacity.
- Jaw can be opened and closed without unbolting from work surface.
- End pockets for convenient clamping in all models except 5 7/8" x 2" x 2" vise and smaller.
- All small precision vises have ground vertical & horizontal vees in moveable jaw.
- The large precision vises have side slots for additional clamping options.
- Sine system models bolt directly to the sine system sine plates, compound sine plates and angle plates.

Small Precision Vises

SINE SYSTEM	L x W x H (IN.)	PARALLELISM & SQUARENESS	JAW CAP.	JAW HEIGHT	WT. LBS.	PART NUMBER	PRICE
0	5 7/8 X 2 X 2	0.0002"	3 3/4"	1"	5	**77-405-9**	$522.50
	5 7/8 X 2 X 2	0.0002"	3 1/4"	1"	5	**77-406-7**	435.95
	7 1/2 X 3 X 2 5/8	0.0002"	4 3/4"	1 5/16"	11	**77-407-5**	587.40
1	7 1/2 X 3 X 2 5/8	0.0002"	4 3/4"	1 5/16"	11	**77-408-3**	648.15
	7 1/2 X 3 X 2 5/8*	0.0002"	5"	1 5/16"	12	**77-409-1** †	649.40
1	7 1/2 X 3 X 2 5/8*	0.0002"	5"	1 5/16"	12	**77-410-9** †	698.70

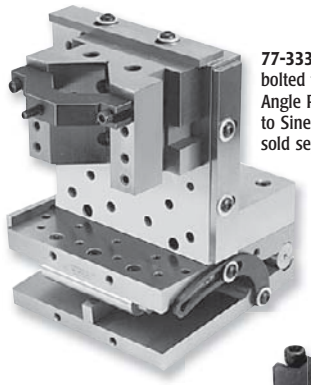
* With 1/8 x 1/8" steps in jaws, ground vees in top of jaws and 2 hold-down clamps included.

Large Precision Vises

SINE SYSTEM	L x W x H (IN.)	PARALLELISM & SQUARENESS	JAW CAP.	JAW HEIGHT	WT. LBS.	PART NUMBER	PRICE
	11 X 4 X 3	0.0003"	7"	1 7/16"	20	**77-416-6**	$1,022.25
2	11 X 4 X 3	0.0003"	7"	1 7/16"	20	**77-417-4**	1,068.35
	12 X 6 X 3 7/16	0.0003"	8"	1 11/16"	41	**77-418-2** †	1,518.40
2	12 X 6 X 3 7/16	0.0003"	8"	1 11/16"	41	**77-419-0** †	1,615.50

† FOB Detroit.

MACHINE ACCESSORIES



77-333-3
bolted to Sine System Angle Plate and bolted to Sine System Sine Plate, sold separately



SUBURBAN
Sine System V-Blocks

- Provides a quick, accurate and positive means of holding workpieces for layout, machining, grinding or inspection.
- Solid one-piece construction, hardened to 58 - 62 RC.
- One reversible, swing-away clamp is provided with each V-block.
- Side slots allow easy clamping to most any work surface.
- SineSet® models bolt directly to SineSet® sine plate or compound sine plates of the same series. S1 models bolt directly to the 6" x 6" x 4" x 1¼" 90° conversion angle plate.

90° V-Blocks

SINE SYSTEM	DIMENSIONS W x L x H	V CAPACITY	SQUARE, PARALLEL & CENTRAL	WEIGHT EACH V-BLOCK (LBS.)	SINGLE V-BLOCK PART NO.	PRICE	MATCHED PAIR PART NO.	PRICE
0	2½" x 2½" x 2"	1⅝"	0.0002"	3	**77-329-1** †	$194.65	**77-361-4** †	$482.95
	2½" x 2½" x 2"	1⅝"	0.0002"	3	**77-330-9**	233.80	**77-367-1**	590.70
1	4" x 3" x 3"	2⅞"	0.0002"	9	**77-332-5** †	281.40	**77-362-2**	656.55
	4" x 3" x 3"	2⅞"	0.0002"	9	**77-333-3**	338.80	**77-363-0**	779.70
	5" x 3" x 3"	3¾"	0.0002"	11	**77-337-4** †	520.70	–	–
2	6" x 6" x 4"	4⅜"	0.0002"	33	**77-334-1** †	743.30	**77-364-8**	1,574.75
	6" x 6" x 4"	4⅜"	0.0003"	33	**77-335-8**	809.10	**77-365-5**	1,917.65
	6" x 6" x 6"	4⅜"	0.0005"	50	**77-336-6** †	989.65	**77-366-3** *° †	2,379.55

60° V-Blocks

SINE SYSTEM	DIMENSIONS W x L x H	V CAPACITY	SQUARE, PARALLEL & CENTRAL	WEIGHT EACH V-BLOCK (LBS.)	SINGLE V-BLOCK PART NO.	PRICE	MATCHED PAIR PART NO.	PRICE
1	3" x 4" x 3"	2⅛"	0.0002"	8	**77-343-2**	$590.70	**77-373-9**	$1,394.15

* F.O.B. Detroit. ° Truck collect. † not SineSet® compatible

Single Leverage Type Arbor Presses

- Heavy-duty construction.
- Front and side gib adjustment.
- Four position anvil.
- Steel pinions and rams.
- Lever arm may be positioned comfortably for maximum force.

APPROX. TONS PRESSURE	CAP. OVER TABLE	HT.	BASE SIZE	MAX. WORK DIA.	WT. (LBS.)
½	4½"	10"	4" x 9½"	6½"	25
1	5¼"	12"	5" x 11"	8"	40
2	8½"	17"	6¾" x 17"	13"	88
3	12½"	21½	8" x 18"	15"	160
5	18"	35"	9⅞" x 26"	18"	360

DESCRIPTION	PART NO.	PRICE
½ Ton Arbor Press	**51-220-2**	$56.00
1 Ton Arbor Press	**51-221-0**	81.70
2 Ton Arbor Press	**51-298-8**	148.15
3 Ton Arbor Press	**51-299-6** *	225.75
5 Ton Arbor Press	**51-297-0** *	972.70

*Shipped via Truck collect.



51-220-2



51-298-8



51-299-6



98-687-7



51-341-6

Ratchet Type Arbor Presses

- Ratcheting presses put lever arm in most comfortable position for final application force.
- Reset handle for extra leverage.

FORCE PRESSURE (TONS)	MAXIMUM WORK HEIGHT	MAXIMUM WORK DIA.	MAXIMUM WORK ARBOR	HEIGHT	BASE W	BASE L	LEVERAGE RATIO	WEIGHT (LBS.)
2	8¼"	11⅞"	1⅞"	18½"	6¼"	15¾"	25:1	100
3	12⅝"	12"	2½"	21½"	8"	18"	20:1	140

DESCRIPTION	PART NO.	PRICE
2 Ton Arbor Press	**51-341-6**	$235.15
3 Ton Arbor Press	**51-342-4** *	276.40

* Shipped via Truck collect.



65-692-6

Go With The Pro!

ABANAKI OIL SKIMMERS

Mighty Mini Stainless Steel Oil Skimmers

- The most cost effective way to remove oil and grease from water.
- "Mighty Mini" designed for 12" to 24" tank depth.
- Belt and pulley can fit through a 2" diameter bung hole.
- Depth is measured from the bottom of the mounting base to the bottom of the tail pulley.
- Fan cooled motor.
- Both sides of belt are wiped for more efficiency.
- Spring loaded stabilizer bar.
- 3 foot clear discharge hose and clamp.
- Mounting bracket not included.

BELT SIZE	OIL REMOVAL RATE	MAX. DEPTH	PART NUMBER	PRICE
1"	1 Gal./hr.	12"	**65-692-6**	$613.15
1"	1 Gal./hr.	24"	**65-693-4**	613.15
2"	2 Gal./hr.	24"	**65-694-2**	870.80

Accessories

DESCRIPTION	PART NO.	PRICE
1/2 Gal. Cap. Decanter	**65-695-9**	$305.85
Hose kit for Decanter (ODMIDO)	**65-696-7**	54.95
Mounting Bracket	**65-698-3**	89.50
Replacement Belt for 65-692-6	**06-631-6**	109.70
Replacement Belt for 65-693-4	**06-633-2**	109.70
Replacement Belt for 65-694-2	**06-632-4**	158.15

Panapress

- Ideal for pressing bearings, sleeves or collars, forming and assembly of small parts, staking, riveting, broaching, etc.
- Weighs only 6 lbs. Stands 7" and is built to exert pressure up to 1/4 ton.
- Arbor and table-plate are die-cast of high strength Zamak III.
- Operating mechanism of hardened and ground steel.
- Four adjustable Nylon gibs for precise ram control. Gibs are self-lubricating and wear resistant.
- Throat depth 2 1/8". Vertical capacity 3 1/2".
- Base dimensions 3 5/8" x 7".
- Ram size 3/4" sq. x 6 1/4".

DESCRIPTION	PART NO.	PRICE
Panapress	**70-909-7**	$219.95



70-909-7



90-189-2

6" x 48" Belt and 9" Disc Sander

- Quick belt adjustment.
- Belt locks at any angle from horizontal to vertical.
- Table tilts 45° and has a miter gage.
- 3/4 HP, 115V, 1 Ph. 1350 SFPM.
- Approx. weight 130 lbs.
- Complete with stand.
- Truck collect.

DESCRIPTION	PART NO.	PRICE
6" x 48" Belt and 9" Disc Sander	**90-189-2**	$501.15



61-967-6





VORTEC

Cold Air Guns

Adjustable Cold Air Gun

- Safe on metals, plastics, glass and ceramic parts.

DESCRIPTION	PART NO.	PRICE
Adjustable Cold Air Gun	**61-965-0**	$436.45

Adjustable Cold Air Gun w/Magnetic Base

- Uses only filtered, factory compressed air (80-100 PSIG) to produce cold air for spot cooling.
- The internal configuration reduces air temperature by 100° F below inlet temperature. Can be used to cool various machining operations without the use of liquid coolant.
- No Freon - No Moving Parts - Virtually Maintenance Free.
- Built in muffler.
- Meets OSHA noise specification.
- Includes magnetic base.

DESCRIPTION	PART NO.	PRICE
Adj. Cold Air Gun w/Mag. Base	**61-967-6**	$570.35
Dual-Point Nozzle for Adj. Air Gun	**61-968-4**	44.75

ROCKFORD Machinery Products

Combo 6" x 48" Belt & 10" Disc Finishing Machine

Versitile, Economical Workshop Tool



90-191-8

- 1650 SFPM belt speed/1750 RPM disc speed.
- 1 HP, 115V, single-phase motor.
- Belt operates in horizontal or vertical position.
- 2 cast-iron tilt tables.
- Miter gage standards.
- Wt. 170 lbs.
- Truck collect.

10" PSA Discs

- 80 grit.

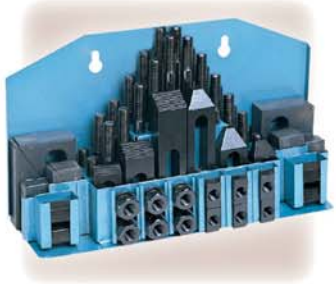
DESCRIPTION	PART NO.	PRICE PER 100
Combo Belt & Disc Finishing Machine	**90-191-8**	$903.80
10" PSA Discs	**87-835-5**	288.35

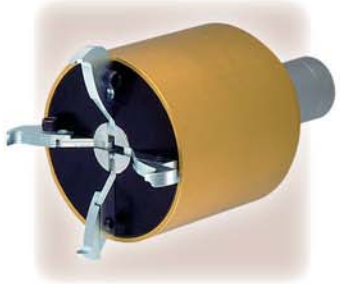
NOTES

TOOLING COMPONENTS

















TOOLING COMPONENTS



98-081-3

T-Nut & Stud Sets

38 Piece Kits, each kit includes:

- 24 Studs, 4 ea. 3", 4", 5", 6", 7" and 8" long.
  - – 4 Flange Nuts
  - – 4 T-slot Nuts
  - – 4 Coupling Nuts
  - – T-Slot Cleaner
  - – 1 Set Holder

T-SLOT SIZE	STUD SIZE	T-SLOT WIDTH	PART NUMBER	PRICE
3/8"	5/16" - 18	5/8"	**98-081-3**	$86.45
7/16"	3/8" - 16	11/16"	**98-082-1**	89.45
1/2"	3/8" - 16	7/8"	**98-083-9**	94.20
9/16"	1/2" - 13	7/8"	**98-084-7**	101.15
5/8"	1/2" - 13	1"	**98-085-4** *	103.90
11/16"	1/2" - 13	1 1/8"	**98-185-2**	112.95
11/16"	5/8" - 11	1 1/8"	**98-086-2**	134.90
3/4"	5/8" - 11	1 1/4"	**98-087-0**	136.55
13/16"	5/8" - 11	1 1/4"	**98-186-0**	157.25
13/16"	3/4" - 10	1 1/4"	**98-088-8**	197.35
7/8"	3/4" - 10	1 1/2"	**98-187-8**	201.20

* for Bridgeport



98-101-9

Steel Clamping Kits

Heat Treated Black Penetrated Finish

50 Piece Kits, each kit includes:

- 24 Studs, 4 ea. 3", 4", 5", 6", 7" and 8" long.
  - – 4 T-Slot Nuts
  - – 4 Coupling Nuts
  - – 4 Flanged Nuts
  - – 6 Step Blocks
  - – 6 Step Clamps
  - – 1 T-Slot Cleaner
  - – 1 Holder

TABLE SLOT	STUD SIZE	BLOCK WIDTH	PART NUMBER	PRICE
3/8"	5/16" - 18	1"	**98-101-9**	$289.15
7/16"	3/8" - 16	1"	**98-102-7**	277.30
1/2 "	3/8" - 16	1"	**98-103-5**	277.30
9/16"	1/2" - 13	1"	**98-104-3**	306.10
5/8"	1/2" - 13	1"	**98-105-0** *	287.35
11/16"	1/2" - 13	1"	**97-219-0**	307.15
11/16"	5/8" - 11	1"	**98-106-8**	348.65
3/4"	5/8" - 11	1"	**98-107-6**	353.75
13/16"	5/8" - 11	1"	**97-220-8**	321.75
9/16"	1/2" - 13	1 1/2"	**98-112-6**	453.75
5/8"	1/2" - 13	1 1/2"	**98-113-4** *	425.85
11/16"	1/2" - 13	1 1/2"	**97-221-6**	457.00
11/16"	5/8" - 11	1 1/2"	**98-114-2**	447.55
3/4"	5/8" - 11	1 1/2"	**98-115-9**	497.80
13/16"	5/8" - 11	1 1/2"	**97-222-4**	504.60
13/16"	3/4" - 10	1 1/2"	**98-116-7**	602.30
7/8"	3/4" - 10	1 1/2"	**97-223-2**	622.20
1"	3/4" - 10	1 1/2"	**97-224-0**	636.15

* for Bridgeport

Step Block & Clamp Sets

- All steel.
- Handy holders furnished with all sets.

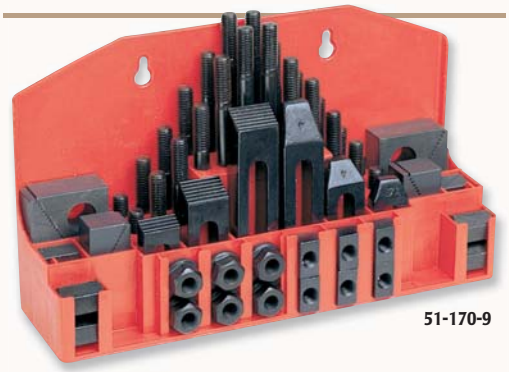
Kit Contains:

- – 6 step blocks.
- – 6 serrated end clamps.
- – 1 holder.



98-095-3

BLOCK WIDTH	SLOT SIZE	(2) EACH END CLAMPS	STEP BLOCKS IN SET	PART NUMBER	PRICE
1"	5/16" or 3/8"	2 1/2", 4", 6"	3/4 to 6"	**98-090-4**	$188.35
1"	1/2"	2 1/2", 4", 6"	3/4 to 6"	**98-091-2**	200.25
1"	5/8"	2 1/2", 4", 6"	3/4 to 6"	**98-092-0**	227.80
1 1/2"	5/8"	2 1/2", 4", 6"	1 3/4 to 9"	**98-095-3**	359.05
1 1/2"	3/4"	4", 6", 8"	1 3/4 to 9"	**98-093-8**	433.90
2"	7/8" or 1"	6", 8", 10"	1 3/4 to 9"	**98-089-6**	608.00



51-170-9

52 Piece Steel Clamping Kit

- 5/8" Table Slot for BRIDGEPORT Mills.
- Set Includes: 24 studs, 4 coupling nuts, 6 forged steel step clamps, 6 T-nuts, 6 flanged nuts, 6 steel step blocks, and fitted plastic rack, suitable for hanging or standing.
- Stud thread size: 1/2 - 13.
- T-slot nut width: 1".

DESCRIPTION	PART NO.	PRICE
5/8" Clamping Kit	**51-170-9**	$69.20

Steel Clamping Kits

Also ideal for CMM's Heat Treated, Black Finish

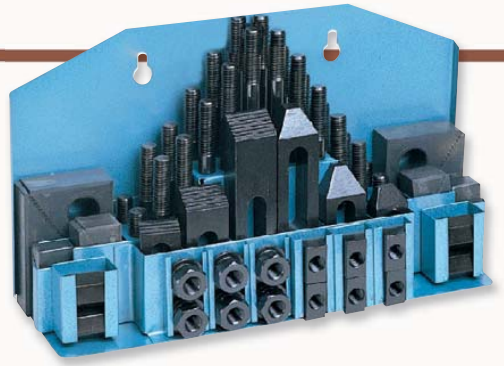
53 Piece kits, each kit includes:

- 24 Studs, 4 ea. 3", 4", 5", 6", 7" and 8" long.
  - – 8 Coupling nuts
  - – 8 Flange nuts
  - – 2 Serrated end clamps 2 1/2"
  - – 2 Serrated end clamps 4"
  - – 2 Serrated end clamps 6"
  - – 2 Steel step blocks, max. height 1 5/8"
  - – 2 Steel step blocks, max. height 2 1/2"
  - – 2 Steel step blocks, max. height 6"
  - – 1 Holder

STUD SIZE	PART NO.	PRICE
5/16" - 18	**97-915-3**	$361.15
3/8" - 16	**97-916-1**	361.15



97-915-3



TE-CO

Steel Clamping Kits
Heat Treated, Black Finish

52 Piece kits, each kit includes:

- 24 Studs, 4 ea. 3", 4", 5", 6", 7" and 8" long.
  - – 6 "T" slot nuts
  - – 4 Coupling nuts
  - – 6 Flange nuts
  - – 6 Step blocks, one step block is 2 pieces.
  - – 6 Serrated end clamps
  - – 1 "T" slot cleaner

Holder With Back For Convenient Wall Mounting

TABLE SLOT	STUD SIZE	BLOCK WIDTH	STAND	PART NUMBER	PRICE
7/16"	3/8 - 16	1"	Metal	**97-344-6**	$250.50
1/2"	3/8 - 16	1"	Metal	**97-345-3**	248.05
9/16"	3/8 - 16	1"	Metal	**97-346-1**	271.80
9/16"	1/2 - 13	1"	Plastic	**97-901-3**	256.85
5/8"	1/2 - 13	1"	Plastic	**97-902-1***	153.60
11/16"	1/2 - 13	1"	Metal	**97-903-9**	233.75
11/16"	5/8 - 11	1"	Metal	**97-347-9**	305.05
3/4"	5/8 - 11	1"	Metal	**97-348-7**	328.70
13/16"	5/8 - 11	1"	Metal	**97-349-5**	327.50

* for Bridgeport



Top Quality
Vise Mounting Kit for Kurt

- Mounts Kurt D-675 & D-688 to Bridgeport style table.
- Convenient package kit for specific application.
- One kit mounts one vise.

9 Pc. Kit Contains:

- – 2 each of 1/2 - 13 x 3" stud.
- – 2 each of 1/2 - 13 x 5/8 slot.
- – 2 each of 1/2 - 13 x Flange Nut.
- – 2 each of 1/2" Flat Washer.
- – 1 each of T-Slot Cleaner.

DESCRIPTION	PART NO.	PRICE
Vise Mounting Kit for Kurt	**32-606-6**	$19.00

Top Quality
Serrated End Step & Plain Clamps

- Medium carbon steel.
- Case hardened.
- Black oxide finish.
- Material: 1018 steel.



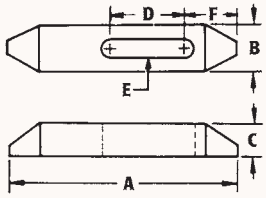


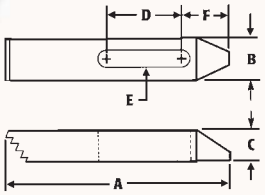
Plain Clamps

- Tapered nose provides concentrated clamping force for limited clearance applications as well as general clamping.

Serrated End Step Clamps

- Serrations match step block which provides for easy height adjustment of clamping setups.

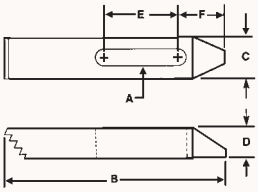




OAL A	WIDTH B	HEIGHT C	SLOT L. D	STUD SIZE E	CENTER LINE SLOT TO NOSE F	PLAIN PART NUMBER	PRICE	SERRATED PART NUMBER	PRICE
2 1/2"	1"	1/2"	13/16"	5/16" & 3/8"	27/32"	**33-145-4**	$8.55	**33-158-7**	$10.10
4"	1"	5/8"	1 7/16"	5/16" & 3/8"	1 1/32"	**33-146-2**	12.45	**33-159-5**	13.80
6"	1 1/8"	3/4"	2 3/16"	5/16" & 3/8v	1 5/32"	**33-147-0**	16.25	**33-160-3**	17.35
2 1/2"	1 1/8"	1/2"	11/16"	1/2"	29/32"	**33-148-8**	10.75	**33-161-1**	11.30
4"	1 1/4"	3/4"	1 5/16"	1/2"	1 5/32"	**33-149-6**	14.15	**33-162-9**	16.05
6"	1 1/4"	7/8"	2 1/16"	1/2"	1 9/32"	**33-150-4**	17.80	**33-163-7**	19.40
2 1/2"	1 1/4"	5/8"	9/16"	5/8"	31/32"	**33-151-2**	12.65	**33-164-5**	14.50
4"	1 1/2"	3/4"	1 3/16"	5/8"	1 9/32"	**33-152-0**	15.80	**33-165-2**	19.65
6"	1 1/2"	7/8"	1 15/16"	5/8"	1 13/32"	**33-153-8**	20.40	**33-166-0**	23.25
4"	1 1/2"	3/4"	1 1/16"	3/4"	1 11/32"	**33-154-6**	16.65	**33-167-8**	20.90
6"	1 1/2"	1"	1 15/16"	3/4"	1 15/32"	**33-155-3**	25.55	**33-168-6**	27.05
8"	1 3/4"	1 1/8"	2 3/16"	3/4"	1 29/32"	**33-156-1**	33.80	**33-169-4**	40.75
6"	2"	1 1/4"	1 11/16"	7/8" & 1"	1 27/32"	–	–	**33-170-2**	47.40
8"	2"	1 3/8"	1 15/16"	7/8" & 1"	2 1/32"	**33-157-9**	52.65	**33-171-0**	57.65
10"	2"	1 1/2"	2 15/16"	7/8" & 1"	2 1/32"	–	–	**33-172-8**	67.35

Top Quality
Metric Serrated End Clamps



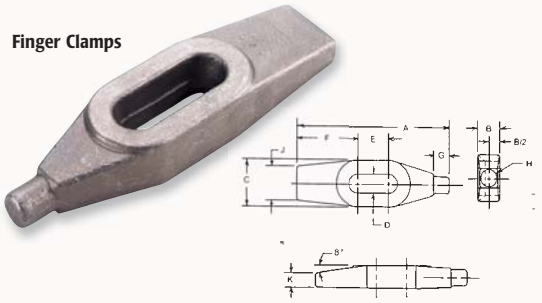


- Medium carbon steel.
- Case hardened.
- Black oxide finish.
- Serrations match metric step block.
- All dimensions in millimeters.

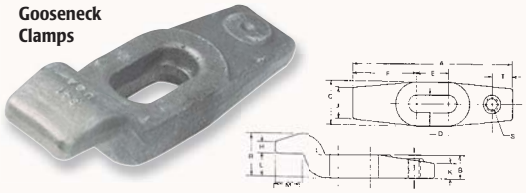
STUD SIZE A	LENGTH B (MM)	WIDTH C (MM)	HEIGHT D (MM)	TRAVEL E (MM)	CENTER OF HOLE TO END F (MM)	PART NUMBER	PRICE
M6 - 8 -10	64	25	13	21	21	**33-133-0**	$9.75
M6 - 8 -10	102	25	16	37	26	**33-134-8**	13.40
M6 - 8 -10	152	29	19	56	29	**33-135-5**	16.80
M12	64	29	13	18	23	**33-136-3**	11.55
M12	102	32	19	33	29	**33-137-1**	16.30
M12	152	32	22	52	29	**33-138-9**	19.90
M16	64	32	16	14	25	**33-139-7**	14.45
M16	102	38	19	30	31	**33-140-5**	19.95
M16	152	38	22	49	34	**33-141-3**	23.25
M20	102	38	19	27	33	**33-142-1**	21.85
M20	152	38	25	49	37	**33-143-9**	30.50
M20	203	45	29	56	48	**33-144-7**	41.30

TOOLING COMPONENTS

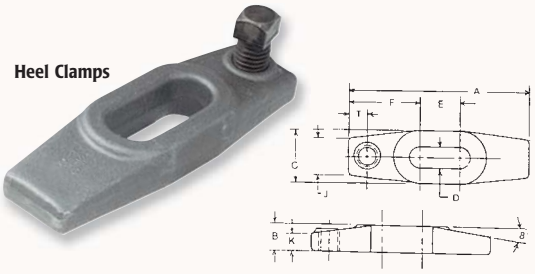
Finger Clamps



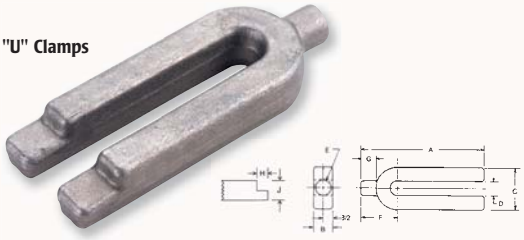
Gooseneck Clamps



Heel Clamps



"U" Clamps



TOP QUALITY
Forged Setup Clamps

Finger Clamps

LENGTH A (IN.)	HEIGHT B (IN.)	WIDTH C (IN.)	STUD SIZE D (IN.)	TRAVEL E (IN.)	F (IN.)	G (IN.)	H (IN.)	J (IN.)	K (IN.)	L (IN.)	M (IN.)	R (IN.)	THREAD SIZE S (IN.)	T (IN.)	PART NUMBER	PRICE
4	3/4	1 5/8	11/16	11/16	1 21/32	1/2	1/2	1 3/16	7/16	–	–	–	–	–	**33-195-9**	$7.95
6	7/8	1 3/4	11/16	1 1/4	2 3/8	5/8	5/8	1 1/4	1/2	–	–	–	–	–	**33-196-7**	14.00
8	1 1/8	2 1/8	13/16	1 3/4	3 1/8	3/4	3/4	1 1/2	5/8	–	–	–	–	–	**33-197-5**	21.80

Heel Clamps - Not Drilled or Tapped

LENGTH A (IN.)	HEIGHT B (IN.)	WIDTH C (IN.)	STUD SIZE D (IN.)	TRAVEL E (IN.)	F (IN.)	G (IN.)	H (IN.)	J (IN.)	K (IN.)	L (IN.)	M (IN.)	R (IN.)	THREAD SIZE S (IN.)	T (IN.)	PART NUMBER	PRICE
4	3/4	1 5/8	11/16	11/16	1 21/32	–	–	1 3/16	1/2	–	–	–	–	1/2	**33-198-3**	$7.95
6	7/8	1 3/4	11/16	1 3/8	2 5/16	–	–	1 1/4	9/16	–	–	–	–	5/8	**33-199-1**	13.60
8	1 1/8	2 1/8	13/16	2	3	–	–	1 1/2	3/4	–	–	–	–	3/4	**33-200-7**	21.10
10	1 3/8	2 1/2	15/16	2 3/4	3 5/8	–	–	1 3/4	15/16	–	–	–	–	7/8	**33-201-5**	41.50

Heel Clamps - Tapped

LENGTH A (IN.)	HEIGHT B (IN.)	WIDTH C (IN.)	STUD SIZE D (IN.)	TRAVEL E (IN.)	F (IN.)	G (IN.)	H (IN.)	J (IN.)	K (IN.)	L (IN.)	M (IN.)	R (IN.)	THREAD SIZE S (IN.)	T (IN.)	PART NUMBER	PRICE
4	3/4	1 5/8	11/16	11/16	1 21/32	–	–	1 3/16	1/2	–	–	–	1/2 - 13	1/2	**33-202-3**	$14.95
6	7/8	1 3/4	11/16	1 3/8	2 5/16	–	–	1 1/4	9/16	–	–	–	5/8 - 11	5/8	**33-203-1**	20.75
8	1 1/8	2 1/8	13/16	2	3	–	–	1 1/2	3/4	–	–	–	3/4- 10	3/4	**33-204-9**	27.75
10	1 3/8	2 1/2	15/16	2 3/4	3 5/8	–	–	1 3/4	15/16	–	–	–	7/8 - 9	7/8	**33-205-6**	48.25

Gooseneck Clamps - Not Drilled or Tapped

LENGTH A (IN.)	HEIGHT B (IN.)	WIDTH C (IN.)	STUD SIZE D (IN.)	TRAVEL E (IN.)	F (IN.)	G (IN.)	H (IN.)	J (IN.)	K (IN.)	L (IN.)	M (IN.)	R (IN.)	THREAD SIZE S (IN.)	T (IN.)	PART NUMBER	PRICE
4	3/4	1 5/8	11/16	1/4	1 7/8	–	3/8	1 3/16	1/2	13/16	3/4	1 7/16	–	1/2	**33-206-4**	$8.45
6	7/8	1 3/4	11/16	1	2 1/2	–	7/16	1 1/4	9/16	15/16	1 1/8	1 9/16	–	5/8	**33-207-2**	11.70
8	1 1/8	2 1/8	13/16	1 5/8	3 3/16	–	9/16	1 1/2	3/4	1 1/8	1 1/4	2 1/16	–	1	**33-208-0**	22.35

"U" Clamps

LENGTH A (IN.)	HEIGHT B (IN.)	WIDTH C (IN.)	STUD SIZE D (IN.)	TRAVEL E (IN.)	F (IN.)	G (IN.)	H (IN.)	J (IN.)	K (IN.)	L (IN.)	M (IN.)	R (IN.)	THREAD SIZE S (IN.)	T (IN.)	PART NUMBER	PRICE
4	3/4	1 3/4	11/16	9/16	1 7/16	9/16	1/2	1/2	–	–	–	–	–	–	**33-209-8**	$7.95
6	7/8	2	11/16	11/16	1 11/16	11/16	5/8	9/16	–	–	–	–	–	–	**33-210-6**	12.00
8	1 1/8	2 3/8	13/16	13/16	2	13/16	3/4	11/16	–	–	–	–	–	–	**33-211-4**	21.10
10	1 1/4	2 3/4	15/16	15/16	2 5/16	15/16	7/8	3/4	–	–	–	–	–	–	**33-212-2**	28.05
12	1 3/8	3 1/4	1 1/16	1 1/16	2 11/16	1 1/16	1	13/16	–	–	–	–	–	–	**33-213-0**	46.65



BESSEY

Rite Hite Hold-Down Clamps

- Cast steel, fully heat treated.
- Instant set-up, self positioning.
- Swivel rocker is attached to base to prevent movement.

Long Models

MAXIMUM STUD SIZE	NOMINAL CLAMP RANGE	DIM.	LOCAL LIMIT (LBS.)	MODEL#	PART NUMBER	PRICE
3/8"	0 to 1 1/4"	1 1/8" x 3 1/2"	10,000	375L	**96-980-8**	$41.60
1/2"	0 to 2 1/2"	1 7/16" x 5 3/4"	12,800	500L	**96-982-4**	45.30
5/8"	0 to 3 1/2"	1 7/8" x 6 3/4"	18,000	625L	**96-984-0**	54.85
3/4"	0 to 5"	2 1/8" x 9"	24,000	750L	**96-986-5**	80.35

Short Models

MAXIMUM STUD SIZE	NOMINAL CLAMP RANGE	DIM.	LOCAL LIMIT (LBS.)	MODEL#	PART NUMBER	PRICE
3/8"	0 to 1"	1 1/8" x 3"	14,000	376S	**96-979-0**	$40.50
1/2"	0 to 1 3/4"	1 3/8" x 4 1/4"	16,800	501S	**96-981-6**	44.00
5/8"	0 to 2 3/4"	1 7/8" x 5 1/2"	24,000	626S	**96-983-2**	53.55
3/4"	0 to 3 1/2"	2" x 7"	35,000	751S	**96-985-7**	79.05

TOP QUALITY
Step Blocks

- Each block consists of two symmetrical halves.
- Used with serrated and plain clamps.
- Precision machined serration for perfect fit between block halves of different sizes and between blocks and clamps.

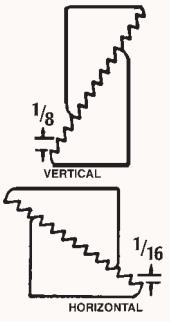


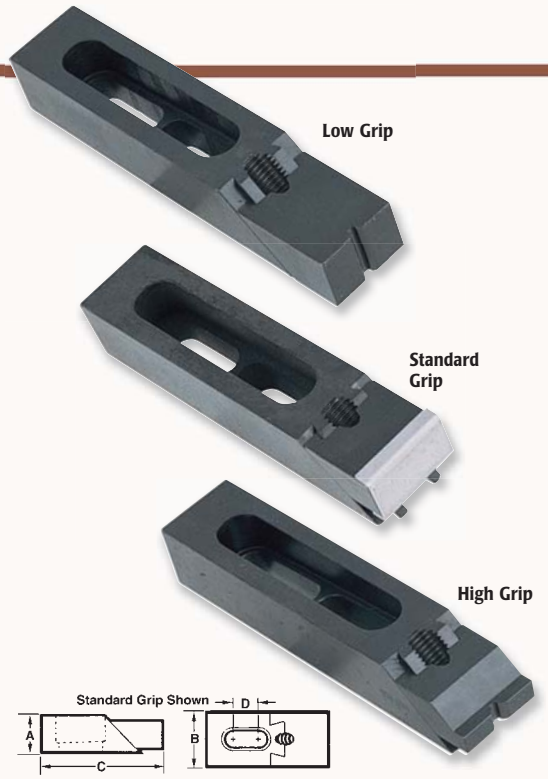
Inch

MATERIAL	SIZE RANGE	WIDTH	PART NUMBER	PRICE
Steel	3/4" - 1 5/8"	1"	**33-082-9**	$4.90
Steel	1 1/8" - 2 1/2"	1"	**33-083-7**	6.95
Steel	2 1/2" - 6"	1"	**33-084-5**	16.75
Steel Heavy Duty	1 3/4" - 4"	1 1/2"	**33-085-2**	12.00
Steel Heavy Duty	2 1/2" - 6"	1 1/2"	**33-086-0**	23.35
Steel Heavy Duty	3 1/2" - 9"	1 1/2"	**33-087-8**	42.50
Steel Double Duty	1 3/4" - 4"	2"	**33-088-6**	21.20
Steel Double Duty	2 1/2" - 6"	2"	**33-089-4**	34.20
Steel Double Duty	3 1/2" - 9"	2"	**33-090-2**	55.30

Metric

MATERIAL	SIZE RANGE (MM)	WIDTH (MM)	PART NUMBER	PRICE
Steel	19 x 41	25	**33-114-0**	$5.50
Steel	29 x 64	25	**33-115-7**	7.70
Steel	64 x 152	25	**33-116-5**	19.15
Steel Heavy Duty	45 x 102	38	**33-117-3**	13.85
Steel Heavy Duty	64 x 152	38	**33-118-1**	27.15
Steel Heavy Duty	89 x 229	38	**33-119-9**	48.70
Steel Double Duty	45 x 102	51	**33-120-7**	22.80
Steel Double Duty	64 x 152	51	**33-121-5**	34.50
Steel Double Duty	89 x 229	51	**33-122-3**	63.30





TOP QUALITY
Double Action Edge Clamps
Case Hardened, Black Oxide

- The double action adjustable jaw exerts even clamping forces both horizontally and vertically.
- Low profile maximizes clearance.
- V-groove in nosepiece (when aluminum nose cap is removed) allows a secure and positive grip on round parts and corners.
- Removable aluminum nosepiece protects the workpiece (standard grip only).
- A T-handle Hex Wrench (not included) can be used to engage set screw which exerts clamping forces.

Low Grip

HEIGHT A	WIDTH B	LENGTH C	TRAVEL D	SOCKET CAP SCREW SLOT	PART NUMBER	PRICE
5/8"	1"	1 7/8"	1/4"	5/16"	33-173-6	$46.20
5/8"	1"	2 3/8"	3/4"	5/16"	33-174-4	48.70
5/8"	1"	2 7/8"	1 1/4"	5/16"	33-175-1	53.20
5/8"	1 1/4"	2 15/16"	3/8"	3/8"	33-176-9	49.10
5/8"	1 1/4"	4 1/8"	2"	3/8"	33-179-3	52.15
3/4"	1 1/2"	3 5/16"	3/4"	1/2"	33-182-7	54.55
3/4"	1 1/2"	5 3/16"	2 3/4"	1/2"	33-184-3	57.75
7/8"	1 1/2"	3 7/8"	1 1/4"	1/2"	33-186-8	46.30
7/8"	1 1/2"	5 5/16"	2"	1/2"	33-187-6	52.60
7/8"	1 1/2"	7 1/4"	3"	1/2"	33-188-4	48.60
1 1/4"	1 1/2"	5 13/16"	2 1/4"	1/2"	33-189-2	90.25

Standard Grip

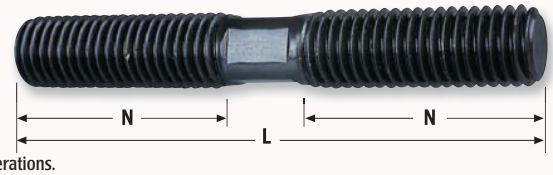
HEIGHT A	WIDTH B	LENGTH C	TRAVEL D	SOCKET CAP SCREW SLOT	PART NUMBER	PRICE
5/8"	1 1/4"	2 5/16"	3/8"	3/8"	33-177-7	$51.60
5/8"	1 1/4"	2 3/4"	13/16"	3/8"	33-178-5	51.70
5/8"	1 1/4"	4 1/8"	2"	3/8"	33-180-1	56.50
5/8"	1 1/4"	4 11/16"	2 3/16"	3/8"	33-181-9	57.85
3/4"	1 1/2"	3 5/16"	3/4"	1/2"	33-183-5	57.05
3/4"	1 1/2"	5 3/16"	2 3/4"	1/2"	33-185-0	56.70
1 1/4"	1 1/2"	7 1/8"	3 5/16"	1/2"	33-190-0	100.30

High Grip

HEIGHT A	WIDTH B	LENGTH C	TRAVEL D	SOCKET CAP SCREW SLOT	PART NUMBER	PRICE
1 1/4"	1 1/2"	6 1/8"	2 1/4"	1/2"	33-191-8	$104.00
1 1/4"	1 1/2"	7 3/8"	3 5/16"	1/2"	33-192-6	111.10
1 1/4"	2"	5 1/4"	1 3/8"	3/4"	33-193-4	130.50
1 1/2"	2 1/2"	6 7/16"	2"	7/8"	33-194-2	209.95

TOP QUALITY
Studs for T-Slots & Toolwork
Threads: Class UNC 2A/Stress-Proof Steel.

- Rolled thread.
- Tensile: 125,000 PSI Min.
- Yield: 100,000 PSI Min.
- Finish: Black Oxide.
- Studs can be joined by coupling nuts to create any desired length.
- Used in fixtures, presses and set-up operations.
- 20 RC.



1/4 - 20

L	N	PART NO.	PRICE
1 1/2"	1/2"	33-214-8	$1.90
2"	3/4"	33-215-5	1.90
2 1/2"	1"	33-216-3	1.90
3"	1"	33-217-1	1.95
3 1/2"	1"	33-218-9	2.15
4"	1"	33-219-7	2.00
4 1/2"	1"	33-220-5	2.25
5"	1"	33-221-3	2.05
5 1/2"	1"	33-222-1	2.25
6"	1"	33-223-9	2.20
6 1/2"	1"	33-224-7	2.20
7"	1"	33-225-4	2.35
7 1/2"	1"	33-226-2	2.45
8"	1"	33-227-0	2.45

5/16 - 18

L (IN.)	N (IN.)	PART NO.	PRICE
1 1/2"	1/2"	33-228-8	$2.40
2"	3/4"	33-229-6	2.45
2 1/2"	1"	33-230-4	2.45
3"	1 1/8"	33-231-2	2.25
3 1/2"	1 1/8"	33-232-0	2.35
4"	1 1/8"	33-233-8	2.45
4 1/2"	1 1/8"	33-234-6	2.45
5"	1 1/8"	33-235-3	2.45
5 1/2"	1 1/8"	33-236-1	2.60
6"	1 1/8"	33-237-9	2.60
6 1/2"	1 1/8"	33-238-7	2.95
7"	1 1/8"	33-239-5	2.90
7 1/2"	1 1/8"	33-240-3	2.90
8"	1 1/8"	33-241-1	2.80

3/8 - 16

L (IN.)	N (IN.)	PART NO.	PRICE
1 1/2"	1/2"	33-242-9	$1.90
2"	3/4"	33-243-7	1.90
2 1/2"	1"	33-244-5	1.90
3"	1 1/8"	33-245-2	1.90
3 1/2"	1 1/4"	33-246-0	1.90
4"	1 1/4"	33-247-8	1.90
4 1/2"	1 1/4"	33-248-6	1.90
5"	1 1/4"	33-249-4	2.10
5 1/2"	1 1/4"	33-250-2	2.15
6"	1 1/4"	33-251-0	2.10
6 1/2"	1 1/4"	33-252-8	2.20
7"	1 1/4"	33-253-6	2.05
7 1/2"	1 1/4"	33-254-4	2.05
8"	1 1/4"	33-255-1	2.25

7/16 - 14

L	N	PART NO.	PRICE
1 1/2"	1/2"	33-256-9	$3.25
2"	3/4"	33-257-7	3.20
2 1/2"	1"	33-258-5	3.55
3"	1 1/4"	33-259-3	3.85
3 1/2"	1 3/8"	33-260-1	3.55
4"	1 3/8"	33-261-9	3.90
4 1/2"	1 3/8"	33-262-7	3.65
5"	1 3/8"	33-263-5	3.55
5 1/2"	1 3/8"	33-264-3	3.75
6"	1 3/8"	33-265-0	3.85
6 1/2"	1 3/8"	33-266-8	3.90
7 1/2"	1 3/8"	33-267-6	4.00

1/2 - 13

L	N	PART NO.	PRICE
1 1/2"	1/2"	33-268-4	$2.00
2"	3/4"	33-269-2	2.00
2 1/2"	1"	33-270-0	1.90
3"	1 1/8"	33-271-8	1.95
3 1/2"	1 3/8"	33-272-6	2.10
4"	1 1/2"	33-273-4	2.15
4 1/2"	1 1/2"	33-274-2	2.35
5"	1 1/2"	33-275-9	2.45
5 1/2"	1 1/2"	33-276-7	2.50
6"	1 1/2"	33-277-5	2.55
6 1/2"	1 1/2"	33-278-3	2.75
7"	1 1/2"	33-279-1	2.80
7 1/2"	1 1/2"	33-280-9	3.00
8"	1 1/2"	33-281-7	3.05
9"	1 1/2"	33-282-5	5.70
10"	1 1/2"	33-283-3	6.20
12"	1 1/2"	33-284-1	6.25
14"	1 1/2"	33-285-8	8.55
16"	1 1/2"	33-286-6	11.05

5/8 - 11

L	N	PART NO.	PRICE
1 1/2"	1/2"	33-287-4	$2.85
2"	3/4"	33-288-2	2.75
2 1/2"	1"	33-289-0	2.60
3"	1 1/8"	33-290-8	2.45
3 1/2"	1 3/8"	33-291-6	2.65
4"	1 5/8"	33-292-4	2.95
4 1/2"	1 3/4"	33-293-2	3.05
5"	1 3/4"	33-294-0	3.05
5 1/2"	1 3/4"	33-295-7	3.40
6"	1 3/4"	33-296-5	3.55
6 1/2"	1 3/4"	33-297-3	3.70
7"	1 3/4"	33-298-1	3.65
9"	1 3/4"	33-299-9	8.00
10"	1 3/4"	33-300-5	8.25
12"	1 3/4"	33-301-3	9.15
14"	1 3/4"	33-302-1	11.25
16"	1 3/4"	33-303-9	11.30
18"	1 3/4"	33-304-7	13.00
20"	1 3/4"	33-305-4	14.55
22"	1 3/4"	33-306-2	16.75
24"	1 3/4"	33-307-0	18.00

3/4 - 10

L	N	PART NO.	PRICE
3"	1"	33-308-8	$3.50
3 1/2"	1 1/4"	33-309-6	3.65
4"	1 5/8"	33-310-4	3.60
4 1/2"	1 7/8"	33-311-2	4.20
5"	2"	33-312-0	4.25
5 1/2"	2"	33-313-8	4.60
6"	2"	33-314-6	4.65
6 1/2"	2"	33-315-3	5.10
7"	2"	33-316-1	5.20
7 1/2"	2"	33-318-7	5.60
8"	1 3/4"	33-317-9	4.25
8"	2"	33-319-5	5.55
9"	2"	33-320-3	11.25
10"	2"	33-321-1	11.30
12"	2"	33-322-9	11.90
14"	2"	33-323-7	15.00

3/4 - 10 cont.

L	N	PART NO.	PRICE
16"	2"	33-324-5	$16.25
18"	2"	33-325-2	17.20
20"	2"	33-326-0	19.00
22"	2"	33-327-8	19.90
24"	9"	33-328-6	20.15

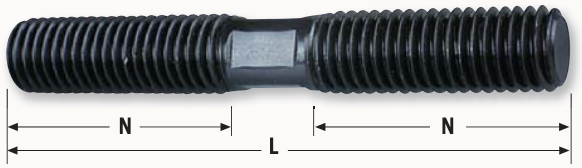
7/8 - 9

L	N	PART NO.	PRICE
3"	1"	33-329-4	$8.10
3 1/2"	1 1/4"	33-330-2	9.05
4"	1 1/2"	33-331-0	9.75
4 1/2"	1 3/4"	33-332-8	10.10
5"	2"	33-333-6	11.05
5 1/2"	2 1/4"	33-334-4	11.75
6"	2 1/4"	33-335-1	11.25
6 1/2"	2 1/4"	33-336-9	12.35
7"	2 1/4"	33-337-7	13.00
7 1/2"	2 1/4"	33-338-5	13.80
8"	2 1/4"	33-339-3	16.05
9"	2 1/4"	33-340-1	15.55
10"	2 1/4"	33-341-9	16.65
12"	2 1/4"	33-342-7	17.95
14"	2 1/4"	33-344-3	13.90
16"	2 1/4"	33-343-5	24.75
18"	2 1/4"	33-345-0	28.90
20"	2 1/4"	33-346-8	25.80
22"	2 1/4"	33-347-6	28.05
24"	2 1/4"	33-348-4	33.45

1 - 8

L	N	PART NO.	PRICE
3"	1"	33-349-2	$10.15
3 1/2"	1 1/4"	33-350-0	10.85
4"	1 1/2"	33-351-8	11.50
4 1/2"	1 3/4"	33-352-6	12.05
5"	2"	33-353-4	12.50
5 1/2"	2 1/4"	33-354-2	13.05
6"	2 1/2"	33-355-9	14.40
6 1/2"	2 1/2"	33-356-7	14.80
7 1/2"	2 1/2"	33-357-5	14.30
8"	2 1/2"	33-358-3	14.65
9"	2 1/2"	33-359-1	22.05
10"	2 1/2"	33-360-9	19.45
12"	2 1/2"	33-361-7	22.05
14"	2 1/2"	33-362-5	32.60
16"	2 1/2"	33-363-3	26.30
18"	2 1/2"	33-364-1	29.75
20"	2 1/2"	33-365-8	31.60
22"	2 1/2"	33-366-6	35.25
24"	2 1/2"	33-367-4	39.45

TOOLING COMPONENTS



Top Quality Metric Studs

- Rolled thread.
- Material: stress-proof
- Tensile: 860 MPa[1]/125,000 PSI.
- Yield: 690 MPa/100,000 PSI.
- Finish: Black Oxide.
- Used in fixtures, presses and set-up operations.

M6 - 1.0

L (MM)	N (MM)	PART NO.	PRICE
50	20	**33-368-2**	$2.50
65	20	**33-369-0**	2.70
80	27	**33-370-8**	2.75
95	27	**33-371-6**	2.75
110	31	**33-372-4**	2.85
140	35	**33-373-2**	5.25
150	35	**33-374-0**	5.45
175	35	**33-375-7**	5.85
200	35	**33-376-5**	3.25

M8 - 1.25

L (MM)	N (MM)	PART NO.	PRICE
50	20	**33-377-3**	$2.80
65	20	**33-378-1**	3.00
80	27	**33-379-9**	3.00
95	31	**33-380-7**	3.00
110	31	**33-381-5**	3.05
140	35	**33-382-3**	4.00
150	35	**33-383-1**	4.35
175	35	**33-384-9**	4.50
200	35	**33-385-6**	2.55

M10 - 1.5

L (MM)	N (MM)	PART NO.	PRICE
50	20	**33-386-4**	$2.95
65	20	**33-387-2**	2.70
80	27	**33-388-0**	3.10
95	31	**33-389-8**	2.85
110	35	**33-390-6**	2.95
125	35	**33-391-4**	3.50
140	35	**33-392-2**	3.05
150	35	**33-393-0**	3.15
175	35	**33-394-8**	3.25
200	35	**33-395-5**	2.50

M12 - 1.75

L (MM)	N (MM)	PART NO.	PRICE
50	20	**33-396-3**	$2.50
65	20	**33-397-1**	2.70
80	27	**33-398-9**	2.70
95	31	**33-399-7**	3.00
110	39	**33-400-3**	3.00
125	39	**33-401-1**	3.05
140	39	**33-402-9**	3.10
150	39	**33-403-7**	3.35
175	39	**33-404-5**	3.65
200	39	**33-405-2**	3.05

M16 - 2.0

L (MM)	N (MM)	PART NO.	PRICE
80	27	**33-406-0**	$3.05
95	31	**33-407-8**	3.65
110	47	**33-408-6**	3.70
125	47	**33-409-4**	4.25
150	47	**33-410-2**	4.60
175	47	**33-411-0**	4.90
200	47	**33-412-8**	5.15
250	47	**33-413-6**	8.80
300	47	**33-414-4**	8.65

M20 - 2.5

L (MM)	N (MM)	PART NO.	PRICE
80	27	**33-415-1**	$4.35
95	31	**33-416-9**	4.75
110	47	**33-417-7**	4.95
125	55	**33-418-5**	5.60
150	55	**33-419-3**	6.10
175	55	**33-420-1**	6.55
200	55	**33-421-9**	6.60
250	55	**33-422-7**	12.65
300	63	**33-423-5**	12.45

M24 - 3.0

L (MM)	N (MM)	PART NO.	PRICE
100	55	**33-424-3**	$9.30
150	39	**33-425-0**	12.90
125	55	**33-426-8**	12.05
175	63	**33-427-6**	13.20
200	63	**33-428-4**	13.40
250	63	**33-429-2**	19.05
300	63	**33-430-0**	18.65



Top Quality Alloy Steel Studs

- Material: stress-proof.
- Tensile: 125,000 PSI Min.
- Yield: 100,000 PSI Min.
- Finish: Black Oxide.
- Cut thread.
- Thread class: 2A.

1/4 - 20

L	N	PART NO.	PRICE
1 1/2"	7/16"	**33-431-8**	$1.95
2"	11/16"	**33-432-6***	1.90
2 1/2"	15/16"	**33-433-4***	1.75
3"	1"	**33-434-2***	1.75
3 1/2"	1"	**33-435-9***	1.95
4"	1"	**33-436-7***	1.95

5/16 - 18

L	N	PART NO.	PRICE
1 1/2"	7/16"	**33-437-5**	$2.55
2"	11/16"	**33-438-3***	2.35
2 1/2"	15/16"	**33-439-1***	2.35
3"	1 1/8"	**33-440-9***	2.35
3 1/2"	1 1/8"	**33-441-7***	2.55
4"	1 1/8"	**33-442-5***	2.55

3/8 - 16

L	N	PART NO.	PRICE
1 1/2"	3/8"	**33-443-3**	$1.95
2"	5/8"	**33-444-1***	1.75
2 1/2"	7/8"	**33-445-8***	1.75
3"	1 1/8"	**33-446-6***	1.75
3 1/2"	1 1/4"	**33-447-4***	1.95
4"	1 1/4"	**33-448-2***	1.95
4 1/2"	1 1/4"	**33-449-0***	1.95
5"	1 1/4"	**33-450-8***	2.10
5 1/2"	1 1/4"	**33-451-6***	2.20
6"	1 1/4"	**33-452-4***	2.20
7"	1 1/4"	**33-453-2**	2.35
8"	1 1/4"	**33-454-0**	2.35

1/2 - 13

L	N	PART NO.	PRICE
2"	5/8"	**33-455-7***	$1.75
2 1/2"	7/8"	**33-456-5***	1.95
3"	1 1/8"	**33-457-3***	2.40
3 1/2"	1 3/8"	**33-458-1***	2.55
4"	1 1/2"	**33-459-9***	2.55
4 1/2"	1 1/2"	**33-460-7***	2.35
5"	1 1/2"	**33-461-5***	2.45
5 1/2"	1 1/2"	**33-462-3***	2.55
6"	1 1/2"	**33-463-1***	2.55
7"	1 1/2"	**33-464-9***	2.65
8"	1 1/2"	**33-465-6***	3.15
9"	1 1/2"	**33-466-4***	4.55
10"	1 1/2"	**33-467-2***	5.30
12"	1 1/2"	**33-468-0***	6.70

5/8 - 11

L	N	PART NO.	PRICE
2 1/2"	13/16"	**33-469-8***	$2.40
3"	1 1/16"	**33-470-6***	2.85
3 1/2"	1 5/16"	**33-471-4**	2.65
4"	1 9/16"	**33-472-2***	2.80
4 1/2"	1 3/4"	**33-473-0***	2.90
5"	1 3/4"	**33-474-8***	3.10
5 1/2"	1 3/4"	**33-475-5***	3.10

5/8 - 11 cont.

L	N	PART NO.	PRICE
6"	1 3/4"	**33-476-3***	$3.50
7"	1 3/4"	**33-477-1***	3.60
8"	1 3/4"	**33-478-9***	3.80
9"	1 3/4"	**33-479-7**	4.90
10"	1 3/4"	**33-480-5**	5.75
12"	1 3/4"	**33-481-3**	6.95

3/4 - 10

L	N	PART NO.	PRICE
3"	15/16"	**33-482-1***	$4.25
3 1/2"	1 3/16"	**33-483-9***	4.55
4"	1 7/16"	**33-484-7***	4.55
4 1/2"	1 11/16"	**33-485-4***	4.70
5"	1 15/16"	**33-486-2***	5.25
5 1/2"	2"	**33-487-0***	5.35
6"	2"	**33-488-8***	6.15
7"	2"	**33-489-6***	6.75
8	2	**33-490-4***	8.25
10	2	**33-491-2**	10.25
12	2	**33-492-0**	13.25

7/8 - 9

L	N	PART NO.	PRICE
4"	1 13/32"	**33-493-8***	$9.45
5"	1 29/32"	**33-494-6**	9.95
6"	2 1/4"	**33-495-3**	11.25
8"	2 1/4"	**33-496-1**	13.25
10"	2 1/4"	**33-497-9**	19.15
12"	2 1/4"	**33-498-7**	21.15

1 - 8

L	N	PART NO.	PRICE
4"	1 3/8"	**33-499-5**	$8.25
5"	1 7/8"	**33-500-0**	9.25
6"	2 3/8"	**33-501-8**	11.25
8"	2 1/2"	**33-502-6**	12.75
10"	2 1/2"	**33-503-4**	16.25
12"	2 1/2"	**33-504-2**	19.25

* Conforms to TCMAI.

TOP QUALITY Flange Nuts



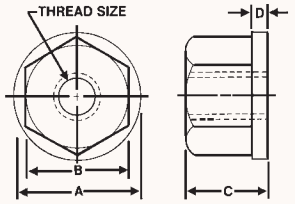
- Case Hardened, Black Oxide Finish.
- Large bearing area to ensure full surface contact with clamping component.

National Coarse

THREAD SIZE (IN.)	FLANGE DIA. A	HEX SIZE B	HEIGHT C	FLANGE THICK. D	PART NUMBER	PRICE
1/4 - 20	5/8"	1/2"	5/16"	3/32"	**33-607-3**	$1.60
5/16 - 18	3/4"	9/16"	3/8"	1/8"	**33-608-1**	1.65
3/8 - 16	7/8"	11/16"	1/2"	1/8"	**33-609-9**	1.75
7/16 - 14	1"	3/4"	9/16"	5/32"	**33-610-7**	2.30
1/2 - 13	1 1/8"	7/8"	11/16"	3/16"	**33-611-5**	1.90
5/8 - 11	1 3/8"	1 1/16"	13/16"	3/16"	**33-612-3**	2.30
3/4 - 10	1 5/8"	1 1/4"	1"	1/4"	**33-613-1**	4.00
7/8 - 9	1 3/4"	1 7/16"	1 1/8"	1/4"	**33-614-9**	5.10
1 - 8	2"	1 5/8"	1 1/4"	1/4"	**33-615-6**	6.20
1 1/4 - 7	2 1/2"	1 13/16"	1 1/4"	1/4"	**33-616-4**	12.05

National Fine

THREAD SIZE (IN.)	FLANGE DIA. A	HEX SIZE B	HEIGHT C	FLANGE THICK. D	PART NUMBER	PRICE
1/4 - 28	5/8"	1/2"	5/16"	3/32"	**33-617-2**	$1.90
5/16 - 24	3/4"	9/16"	3/8"	1/8"	**33-618-0**	2.55
3/8 - 24	7/8"	11/16"	1/2"	1/8"	**33-619-8**	2.05
7/16 - 20	1"	3/4"	9/16"	5/32"	**33-620-6**	2.25
1/2 - 20	1 1/8"	7/8"	11/16"	3/16"	**33-621-4**	2.25
5/8 - 18	1 3/8"	1 1/16"	13/16"	3/16"	**33-622-2**	2.70
3/4 - 16	1 5/8"	1 1/4"	1"	1/4"	**33-623-0**	4.20
7/8 - 14	1 3/4"	1 7/16"	1 1/8"	1/4"	**33-624-8**	7.65
1 - 14	2"	1 5/8"	1 1/4"	1/4"	**33-625-5**	8.40



TOP QUALITY Metric Flange Nuts

- Case hardened, Black oxide finish.
- Large bearing area to ensure full surface contact with clamping component.

THREAD SIZE	FLANGE DIA. A (MM)	HEX SIZE B (MM)	HEIGHT C (MM)	FLANGE HEIGHT D (MM)	PART NUMBER	PRICE
M6 x 1.00	16.0	10.0	8	2.00	**33-626-3**	$2.95
M8 x 1.25	19.0	13.0	10	2.50	**33-627-1**	3.00
M10 x 1.50	22.0	17.0	13	3.00	**33-628-9**	3.25
M12 x 1.75	27.0	19.0	17	4.00	**33-629-7**	3.35
M16 x 2.00	33.0	24.0	21	5.00	**33-630-5**	4.55
M20 x 2.50	40.0	30.0	25	6.00	**33-631-3**	6.50
M24 x 3.0	49.0	36.0	32	7.00	**33-632-1**	9.90

TOP QUALITY Coupling Nuts

- Case hardened, black oxide finish.
- Use to connect studs.

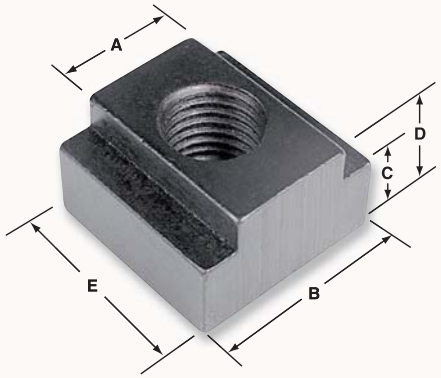
THREAD SIZE A (IN.)	HEX SIZE B	HEIGHT C	PART NUMBER	PRICE
1/4 - 20	1/2"	5/8"	**33-633-9**	$2.15
5/16 - 18	9/16"	7/8"	**33-634-7**	2.15
3/8 - 16	11/16"	1"	**33-635-4**	2.15
1/2 - 13	7/8"	1 1/4"	**33-636-2**	2.55
5/8 - 11	1 1/16"	1 5/8"	**33-637-0**	3.80
3/4 - 10	1 1/4"	1 7/8"	**33-638-8**	5.15
7/8 - 9	1 7/16"	2 1/4"	**33-639-6**	10.00
1 - 8	1 5/8"	2 1/2"	**33-640-4**	11.15



Inch

THREAD SIZE (IN.)	TABLE SLOT A	BASE WIDTH B	SLOT HEIGHT C	OVERALL HEIGHT D	LENGTH E	TAPPED PART NUMBER	TAPPED THROUGH PART NUMBER	PRICE
1/4 - 20	5/16"	9/16"	3/16"	1/4"	9/16"	**33-531-5**	**33-563-8**	$3.05
1/4 - 20	3/8"	9/16"	15/64"	3/8"	9/16"	**33-532-3**	**33-564-6**	3.90
5/16 - 18	3/8"	5/8"	1/4"	3/8"	7/8"	**33-533-1**	**33-565-3**	3.05
5/16 - 18	7/16"	11/16"	7/32"	1/2"	7/8"	**33-534-9**	**33-566-1**	3.35
5/16 - 18	1/2"	7/8"	9/32"	1/2"	7/8"	**33-535-6**	**33-567-9**	3.35
3/8 - 16	7/16"	11/16"	7/32"	1/2"	7/8"	**33-536-4**	**33-568-7**	2.95
3/8 - 16	1/2"	7/8"	9/32"	1/2"	7/8"	**33-537-2**	**33-569-5**	2.95
3/8 - 16	9/16"	7/8"	11/32"	5/8"	1 1/8"	**33-538-0**	**33-570-3**	3.45
7/16 - 14	1/2"	3/4"	7/32"	3/8"	7/8"	**33-539-8**	**33-571-1**	4.05
7/16 - 14	1/2"	7/8"	9/32"	1/2"	7/8"	**33-540-6**	**33-572-9**	4.55
1/2 - 13	9/16"	7/8"	11/32"	5/8"	1 1/8"	**33-541-4**	**33-573-7**	3.65
1/2 - 13	5/8"	1"	11/32"	5/8"	1 1/8"	**33-542-2**	**33-574-5**	3.75
1/2 - 13	5/8"	1 1/8"	3/8"	3/4"	1 1/8"	**33-543-0**	**33-575-2**	5.00
1/2 - 13	11/16"	1 1/8"	7/16"	3/4"	1 1/4"	**33-544-8**	**33-576-0**	4.25
1/2 - 13	3/4"	1 1/4"	15/32"	3/4"	1 1/4"	**33-545-5**	**33-577-8**	5.00
5/8 - 11	11/16"	1 1/8"	7/16"	3/4"	1 1/4"	**33-546-3**	**33-578-6**	4.25
5/8 - 11	3/4"	1 1/4"	15/32"	3/4"	1 1/4"	**33-547-1**	**33-579-4**	4.65
5/8 - 11	13/16"	1 1/4"	9/16"	1"	1 1/2"	**33-548-9**	**33-580-2**	6.75
3/4 - 10	13/16"	1 1/4"	9/16"	1"	1 1/2"	**33-549-7**	**33-581-0**	7.25
3/4 - 10	7/8"	1 1/2"	9/16"	1"	1 1/2"	**33-550-5**	**33-582-8**	8.05
3/4 - 10	1"	1 5/8"	5/8"	1"	1 3/4"	**33-551-3**	**33-583-6**	8.90
3/4 - 10	1 1/16"	1 5/8"	11/16"	1 1/8"	2"	**33-552-1**	**33-586-9**	10.30
3/4 - 10	1"	1 3/4"	3/4"	1 1/2"	1 3/4"	**33-553-9**	**33-585-1**	13.35
7/8 - 9	1"	1 5/8"	5/8"	1"	1 3/4"	**33-554-7**	**33-584-4**	10.30
7/8 - 9	1 1/16"	1 5/8"	11/16"	1 1/8"	2"	**33-555-4**	**33-587-7**	13.30
7/8 - 9	1 1/8"	1 3/4"	3/4"	1 1/2"	2"	**33-556-2**	**33-588-5**	12.60
7/8 - 9	1 5/16"	2"	15/16"	1 1/4"	2"	**33-557-0**	**33-589-3**	24.95
1 - 8	1 1/16"	1 5/8v	11/16"	1 1/8"	2"	**33-558-8**	**33-590-1**	10.45
1 - 8	1 1/8"	1 3/4"	3/4"	1 1/2"	2"	**33-559-6**	**33-591-9**	11.40
1 - 8	1 1/4"	2"	7/8"	1 1/4"	2"	**33-560-4**	**33-592-7**	24.70
1 - 8	1 5/16"	2"	15/16"	1 1/4"	2"	**33-561-2**	**33-593-5**	21.95
1 1/4 - 7	1 3/8"	2 1/2"	1 1/8"	1 3/4"	2 1/2"	**33-562-0**	**33-594-3**	32.75

TOP QUALITY T-Slot Nuts



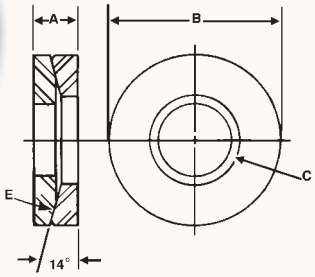
- 1018 Material.
- Case hardened, medium carbon steel.
- Black oxide finish.
- The last thread is incomplete on tapped T-Slot Nuts to prevent the stud from turning through the bottom of the nut. The last thread is complete on "tapped through" T-Slot nuts.
- Thread class: 2B-UNC.

Metric

THREAD SIZE (MM)	TABLE SLOT A (MM)	BASE WIDTH B (MM)	SLOT HEIGHT C (MM)	OVERALL HEIGHT D (MM)	LENGTH E (MM)	TAPPED PART NUMBER	TAPPED THROUGH PART NUMBER	PRICE
M6 x 1.0	8	14	6	10	19	**33-505-9**	**33-518-2**	$3.55
M6 x 1.0	10	16	6	11	22	**33-506-7**	**33-519-0**	5.00
M8 x 1.25	10	16	6	11	22	**33-507-5**	**33-520-8**	3.75
M10 x 1.5	12	19	7	13	22	**33-508-3**	**33-521-6**	4.05
M10 x 1.5	14	22	9	16	29	**33-509-1**	**33-522-4**	5.50
M12 x 1.75	14	22	9	16	29	**33-510-9**	**33-523-2**	5.50
M12 x 1.75	16	25	9	16	29	**33-511-7**	**33-524-0**	5.60
M12 x 1.75	17	29	11	19	32	**33-512-5**	**33-525-7**	6.30
M16 x 2.0	18	29	11	19	32	**33-513-3**	**33-526-5**	6.60
M16 x 2.0	20	32	14	25	38	**33-514-1**	**33-527-3**	7.45
M20 x 2.5	22	35	14	25	38	**33-515-8**	**33-528-1**	8.25
M24 x 3.0	27	41	18	29	51	**33-516-6**	**33-529-9**	12.50
M24 x 3.0	33	51	24	32	51	**33-517-4**	**33-530-7**	15.50

TOOLING COMPONENTS





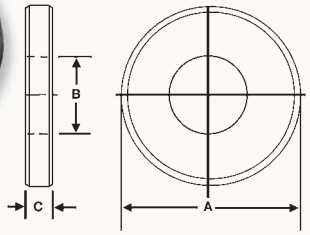
Top Quality
Self-Aligning Spherical Washers (2 Pc.)

- Top washer will compensate for minor irregularities when parts to be clamped are not perpendicular.
- Case hardened low carbon steel.
- Black oxide finish.

BOLT SIZE	THICKNESS A	OD B	ID C	PART NUMBER	PRICE
1/4"	3/16"	5/8"	9/32"	**34-158-6**	$2.90
3/8"	1/4"	7/8"	13/32"	**34-159-4**	3.35
1/2"	5/16"	1 1/8"	17/32"	**34-160-2**	4.40
5/8"	5/16"	1 3/8"	21/32"	**34-161-0**	4.90
3/4"	3/8"	1 5/8"	25/32"	**34-162-8**	5.70
7/8"	3/8"	1 3/4"	15/16"	**34-163-6**	8.85
1"	1/2"	2"	1 1/16"	**34-164-4**	9.60
1 1/8"	1/2"	2 1/4"	1 3/16"	**34-165-1**	15.40
1 1/4"	1/2"	2 1/2"	1 5/16"	**34-166-9**	16.45
1 1/2"	1/2"	2 7/8"	1 9/16"	**34-167-7**	28.55

Top Quality
Finished Flat Washers

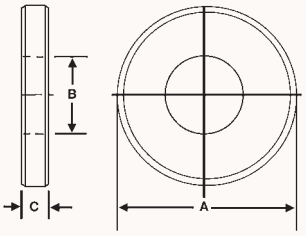




- Cold rolled 1010 with black oxide finish.
- Case hardened to RN 80.
- Parallelism within .005".

BOLT SIZE	OUTSIDE DIA. A	INSIDE DIA. B	THICK. C	PART NUMBER	PRICE
#4	5/16"	1/8"	5/64"	**33-677-6**	$0.40
#6	3/8"	5/32"	5/64"	**33-678-4**	0.60
#8	7/16"	3/16"	5/64"	**33-679-2**	0.60
3/16"	1/2"	13/64"	3/32"	**33-680-0**	0.70
1/4"	5/8"	9/32"	1/8"	**33-681-8**	0.70
5/16"	3/4"	11/32"	1/8"	**33-682-6**	0.80
3/8"	7/8"	13/32"	1/8"	**33-683-4**	0.80
7/16"	1"	15/32"	1/8"	**33-684-2**	0.90
1/2"	1 1/8"	17/32"	1/8"	**33-685-9**	0.90
5/8"	1 3/8"	21/32"	1/8"	**33-686-7**	0.95
3/4"	1 5/8"	25/32"	5/32"	**33-687-5**	1.25
7/8"	1 3/4"	29/32"	5/32"	**33-688-3**	1.55
1"	2"	1 1/32"	3/16"	**33-689-1**	2.20
1 1/8"	2 1/4"	1 5/32"	7/32"	**33-690-9**	2.80
1 1/4"	2 1/2"	1 9/32"	9/32"	**33-691-7**	2.85





Top Quality
Extra Thick Finished Flat Washers

- Extra thick for added strength.
- Cold drawn 1010.
- Case hardened to RN 60.
- Parallel within .005"

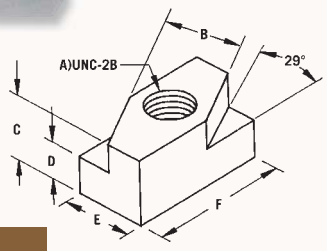
BOLT SIZE	OUTSIDE DIA. A	INSIDE DIA. B	THICK. C	PART NUMBER	PRICE
1/4"	5/8"	9/32"	3/16"	**33-692-5**	$1.05
5/16"	3/4"	11/32"	3/16"	**33-693-3**	1.05
3/8"	7/8"	13/32"	3/16"	**33-694-1**	1.45
7/16"	1"	15/32"	3/16"	**33-695-8**	1.65
1/2"	1 1/8"	17/32"	3/16"	**33-696-6**	1.65
5/8"	1 3/8"	21/32"	3/16"	**33-697-4**	1.65
3/4"	1 5/8"	25/32"	1/4"	**33-698-2**	2.00
7/8"	1 3/4"	29/32"	1/4"	**33-699-0**	2.80
1"	2"	1 1/32"	9/32"	**33-700-6**	3.65

TE-CO®

Quarter Turn T-Slot Nuts



- 1018 Material.
- Case Hardened.
- Black oxide finish.
- Provides all of the features and functions of standard T-Slot Nuts and adds the ability to quickly and easily modify an existing set-up. Just drop into the table slot at any position. When tightened, the nut rotates a quarter of a turn and locks in place.
- The last thread is incomplete on T-Slot Nuts to prevent the stud from turning through the bottom of the nut.

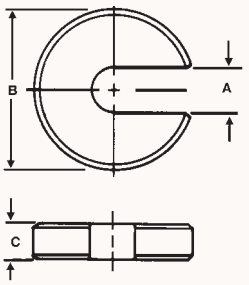


THREAD SIZE A	TABLE SLOT B	OVERALL HEIGHT C	SLOT HEIGHT D	BASE WIDTH E	LENGTH F	PART NUMBER	PRICE
1/2-13	5/8"	5/8"	21/64"	5/8"	1 1/4"	**91-095-0**	$4.85
5/8-11	11/16"	3/4"	21/64"	11/16"	1 3/8"	**91-096-8**	5.25
1/2-13	11/16"	3/4"	7/16"	11/16"	1 3/8"	**91-097-6**	5.65

Top Quality
C-Washers

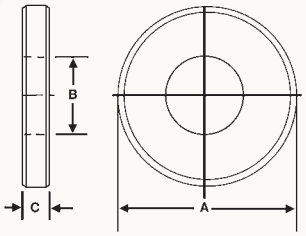


- C-washers are used in a repetitive clamping applications requiring frequent insertion and removal of part being clamped.
- Case hardened black oxide finish.



BOLT SIZE (IN.)	INSIDE DIA. A	OUTSIDE DIA. B	THICK. C	PART NUMBER	PRICE
3/16 - 1/4	9/32"	3/4"	1/4"	**34-141-2**	$5.70
3/16 - 1/4	9/32"	1"	1/4"	**34-142-0**	5.80
5/16	11/32"	1 1/4"	5/16"	**34-143-8**	7.10
5/16 - 3/8	13/32"	1 1/4"	3/8"	**34-144-6**	6.40
5/16 - 3/8	13/32"	1 3/4"	3/8"	**34-146-1**	8.50
7/16 - 1/2	17/32"	1 7/8"	3/8"	**34-147-9**	9.60
7/16 - 1/2	17/32"	2 1/4"	3/8"	**34-148-7**	10.90
5/8	21/32"	2 1/8"	3/8"	**34-149-5**	11.75
3/4	25/32"	2 1/2"	7/16"	**34-150-3**	15.40



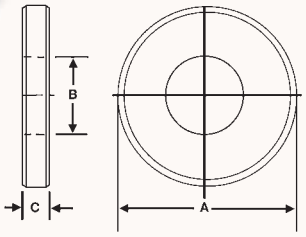


TOP QUALITY
Soft Steel Spacing Flat Washers

- Thick washers for spacing without requirements for close tolerance and looks.
- Plain, soft low carbon steel.

BOLT SIZE (WIRE/IN.)	OUTSIDE DIA. A	INSIDE DIA. B	THICK. C	PART NUMBER	PRICE
#10	1/2"	13/64"	3/32"	**34-002-6**	$0.50
1/4	5/8"	9/32"	1/8"	**34-003-4**	0.50
5/16	3/4"	11/32"	1/8"	**34-004-2**	0.60
3/8	7/8"	13/32"	1/8"	**34-005-9**	0.70
1/2	1"	17/32"	3/16"	**34-007-5**	1.45
5/8	1 1/4"	21/32"	1/4"	**34-008-3**	2.50
3/4	1 1/2"	25/32"	1/4"	**34-009-1**	2.70
7/8	1 3/4"	29/32"	1/4"	**34-010-9**	3.25
1	2"	1 1/32"	5/16"	**34-011-7**	4.70
1 1/8	2 1/4"	1 5/32"	5/16"	**34-012-5**	5.80
1 1/4	2 1/4"	1 9/32"	5/16"	**34-013-3**	6.05





TOP QUALITY
Case Hardened Steel Spacing Flat Washers

- Thick flat washer for spacing where appearance and tight tolerances are not needed.
- Low carbon steel, case hardened RN 80.
- Parallelism within .010".

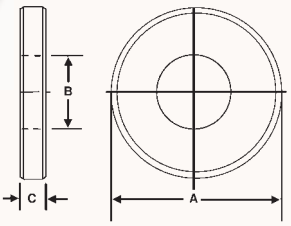
BOLT SIZE	OUTSIDE DIA. A	INSIDE DIA. B	THICK. C	PART NUMBER	PRICE
1/4"	25/32"	9/32"	3/16"	**33-982-0**	$1.25
5/16"	53/64"	11/32"	3/16"	**33-983-8**	1.35
3/8"	1 1/16"	13/32"	3/16"	**33-984-6**	1.45
1/2"	1 3/16"	17/32"	3/16"	**33-985-3**	1.65
5/8"	1 3/8"	21/32"	3/16"	**33-986-1**	2.20
3/4"	1 11/16"	25/32"	1/4"	**33-987-9**	2.80
7/8"	1 53/64"	29/32"	1/4"	**33-988-7**	3.50
1"	2 1/16"	1 1/32"	9/32"	**33-989-5**	3.95



TOP QUALITY
Unfinished Washers

- Extra thick, plain steel washer.
- 1005 low carbon steel.
- Case hardened >80 RN.

BOLT SIZE	OUTSIDE DIA. A	INSIDE DIA. B	THICK. C	PART NUMBER	PRICE
3/8"	7/8"	7/16"	3/16"	**33-646-1**	$0.95
1/2"	1"	9/16"	3/16"	**33-647-9**	1.10
5/8"	1 1/4"	23/32"	1/4"	**33-648-7**	1.50
3/4"	1 1/2"	27/32"	1/4"	**33-649-5**	1.70





TOP QUALITY
High Strength Alloy Steel Spacing Flat Washers

- Extra thick, strong, throughout hardened flat spacing washer.
- Perfect to use with Grade 8 cap or socket cap screws.
- Each washer marked with bolt sizes.
- Zinc Dichromate, medium carbon steel, heat treated to RC 43 - 49.

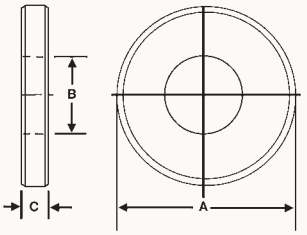
BOLT SIZE (IN.)	OUTSIDE DIA. (IN.)	INSIDE DIA. (IN.)	THICKNESS (IN.)	PART NUMBER	PRICE
1/4	0.620 - 0.640	0.276 - 0.296	.090 - .108	**33-968-9**	$0.20
5/16	0.681 - 0.703	0.339 - 0.359	.090 - .108	**33-969-7**	0.30
3/8	0.805 - 0.827	0.401 - 0.421	.110 - .126	**33-970-5**	0.30
7/16	0.915 - 0.937	0.464 - 0.484	.110 - .126	**33-971-3**	0.40
1/2	1.055 - 1.092	0.526 - 0.546	.190 - .208	**33-972-1**	0.60
9/16	1.161 - 1.181	0.589 - 0.609	.168 - .191	**33-973-9**	0.80
5/8	1.305 - 1.342	0.649 - 0.686	.206 - .229	**33-974-7**	2.05
3/4	1.454 - 1484	0.808 - 0.818	.206 - .229	**33-975-4**	1.45
7/8	1.743 - 1.780	0.931 - 0.968	.235 - .264	**33-976-2**	2.20
1	1.993 - 2.030	1.055 - 1.092	.235 - .264	**33-977-0**	1.90
1 1/8	2.218 - 2.282	1.173 - 1.203	.235 - .264	**33-978-8**	2.90
1 1/4	2.468 - 2.532	1.360 - 1.390	.235 - .264	**33-979-6**	2.95
1 3/8	2.718 - 2.782	1.423 - 1.453	.235 - .264	**33-980-4**	4.90
1 1/2	2.968 - 3.032	1.547 - 1.577	.235 - .264	**33-981-2**	5.80



TOP QUALITY
Hardened Flat Washers - Metric

- 1010 cold rolled material.
- Precision blanked - fine edge.
- Case hardened.
- Parallelism within .13mm.
- Black oxide finish.

BOLT SIZE	OUTSIDE DIA. A (MM)	INSIDE DIA. B (MM)	THICK. C (MM)	PART NUMBER	PRICE
M6	16	7	3	**34-014-1**	$0.10
M6	16	7	5	**34-015-8**	0.45
M8	19	9	3	**34-016-6**	0.25
M8	19	9	5	**34-017-4**	0.50
M10	25	11	3	**34-018-2**	0.25
M10	25	11	5	**34-019-0**	0.40
M12	28	13	3	**34-020-8**	0.40
M12	28	13	5	**34-021-6**	0.55
M16	35	17	3	**34-022-4**	0.50
M16	35	17	5	**34-023-2**	0.75
M20	44	22	6	**34-024-0**	1.00
M20	44	23	4	**34-025-7**	1.60
M24	51	26	4	**34-026-5**	1.80
M24	51	26	7	**34-027-3**	4.25



TOOLING COMPONENTS

Top Quality Steel Finished Flat Washers - Metric

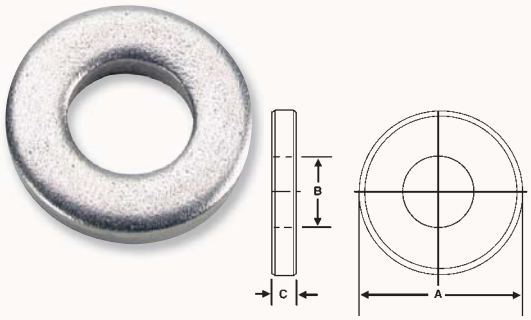


- Finished appearance for all exposed applications on your product.
- Cold rolled 1010 with black oxide finish.
- Case hardened to RN 80.
- Parallelism within .005".

BOLT SIZE	INSIDE DIA. (MM)	OUTSIDE DIA. (MM)	THICK. (MM)	PART NUMBER	PRICE
M4	4.3	10	2	**34-029-9**	$0.80
M5	5.3	11	2	**34-030-7**	0.85
M6	6.4	13	2.5	**34-031-5**	0.90
M8	8.4	16	3	**34-032-3**	0.90
M10	10.5	19	3	**34-033-1**	1.00
M12	13	22	3	**34-034-9**	1.05
M14	15	25	3	**34-035-6**	1.25
M16	17	28	3.5	**34-036-4**	1.25
M20	21	35	3.5	**34-037-2**	1.55
M24	25	40	4	**34-038-0**	2.05

Extra Thick Flat Washers

BOLT SIZE	INSIDE DIA. (MM)	OUTSIDE DIA. (MM)	THICK. (MM)	PART NUMBER	PRICE
M5	5.3	15	3.5	**34-043-0**	$2.60
M6	6.4	18	4.5	**34-044-8**	2.95
M8	8.4	22	5	**34-045-5**	2.50
M10	10.5	23	5	**34-046-3**	2.40
M12	13	26	5	**34-047-1**	2.50
M16	17	32	5	**34-049-7**	2.80
M20	21	35	5	**34-050-5**	3.05
M24	25	43	6.5	**34-051-3**	3.70

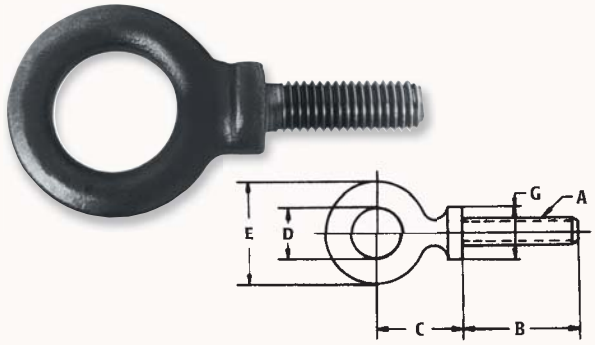


Top Quality Stainless Steel Extra Thick Finished Flat Washers

- Fully finished extra thick, flat stainless steel washers.
- Non-magnetic, corrosion resistance 300 series SST.
- Parallelism within .005".

BOLT SIZE	OUTSIDE DIA. A	INSIDE DIA. B	THICK. C	PART NUMBER	PRICE
1/4"	5/8"	9/32"	3/16"	**33-990-3**	$3.60
5/16"	3/4"	11/32"	3/16"	**33-991-1**	3.70
3/8"	1"	13/32"	3/16"	**33-992-9**	3.35
1/2"	1 1/8"	17/32"	3/16"	**33-993-7**	4.05
1/2"	1 1/16"	17/32"	3/16"	**33-994-5**	4.20
9/16"	1 3/16"	19/32"	3/16"	**33-995-2**	2.40
5/8"	1 3/8"	21/32"	3/16"	**33-996-0**	4.60
5/8"	1 5/16"	21/32"	7/32"	**33-997-8**	2.50
3/4"	1 1/2"	13/16"	7/32"	**33-998-6**	3.05
3/4"	1 5/8"	25/32"	1/4"	**33-999-4**	7.10
7/8"	1 3/4"	29/32"	1/4"	**34-000-0**	7.40
1"	2"	1 1/32"	9/32"	**34-001-8**	9.10

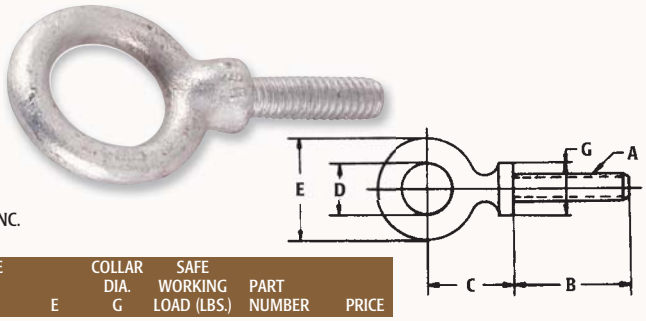
Top Quality Plain Eye Bolts



- For other than vertical loads the general practice is to use 60% of the safe working load factor for a load 30° from vertical; 33% of vertical safe load 45° from vertical; and 20% of vertical safe load for load 90° from vertical.
- Material: C-1030 forge.
- Finish: Mill.
- Thread: Class 2A UNC heat-treated.

THREAD SIZE A (IN.)	THREAD LENGTH B	CTR. OF EYE TO BOT. OF SHOULD. C	EYE ID D	EYE OD E	THICK. OF COLLAR F	BASE W. COLLAR DIA. G	BRKNG. STRENGTH MIN (LBS.)	SAFE WORKING LOAD (LBS.)	PART NUMBER	PRICE
1/4 - 20	1"	3/4"	3/4"	1 3/16"	3/16"	17/32"	2,500	500	**33-727-9**	$3.80
5/16 - 18	1 1/8"	15/16"	7/8"	1 7/16"	3/16"	19/32"	4,500	900	**33-729-5**	3.90
3/8 - 16	1 1/4"	1 1/8"	1"	1 11/16"	3/16"	21/32"	6,500	1,300	**33-730-3**	4.15
3/8 - 16	6"	1 1/16"	3/4"	1 1/2"	3/16"	1/2"	6,500	1,300	**33-731-1**	12.15
7/16 - 14	1 3/8	1 1/4"	1 3/32"	1 13/16"	1/4"	25/32"	9,000	1,800	**33-732-9**	5.40
1/2 - 13	1 1/2"	1 3/8"	1 3/16"	2 1/8"	1/4"	29/32"	12,000	2,400	**33-733-7**	5.40
1/2 - 13	6"	1 5/16"	1 3/16"	1 15/16"	1/4"	7/8"	12,000	2,400	**33-734-5**	13.55
1/2 - 13	12"	1 5/16"	1 3/16"	1 15/16"	1/4"	7/8"	12,000	2,400	**33-735-2**	37.55
9/16 - 12	1 3/4"	1 21/32"	1 3/8"	2 9/16"	9/32"	1 1/32"	16,000	3,200	**33-736-0**	10.65
5/8 - 11	1 3/4"	1 21/32"	1 3/8"	2 9/16"	5/16"	1 1/32"	20,000	4,000	**33-737-8**	8.55
5/8 - 11	6"	1 19/32"	1 3/8"	2 1/2"	1/4"	1 1/8"	20,000	4,000	**33-738-6**	18.75
5/8 - 11	12"	1 19/32"	1 3/8"	2 1/2"	1/4"	1 1/8"	20,000	4,000	**33-739-4**	43.95
3/4 - 10	2"	1 13/16"	1 1/2"	2 13/16"	5/16"	1 3/16"	25,000	5,000	**33-740-2**	11.05
3/4 - 10	6"	1 23/32"	1 1/2"	3"	5/16"	1 1/4"	25,000	5,000	**33-741-0**	21.15
3/4 - 10	12"	1 23/32"	1 1/2"	3"	5/16"	1 1/4"	25,000	5,000	**33-742-8**	52.30
7/8 - 9	2 1/4"	2 1/8"	1 11/16"	3 3/16"	3/8"	1 3/8"	35,000	7,000	**33-743-6**	15.75
1 - 8	2 1/2"	2 5/16"	1 13/16"	3 9/16"	13/32"	1 9/16"	45,000	9,000	**33-744-4**	19.20
1 - 8	12"	2 13/32"	1 13/16"	3 9/16"	13/32"	1 9/16"	45,000	9,000	**33-745-1**	38.20
1 1/8 - 7	2 3/4"	2 23/32"	2"	4"	15/32"	1 11/16"	63,750	8,500	**33-746-9**	29.85
1 1/4 - 7	3"	2 15/16"	2 3/16"	4 7/16"	1/2"	1 15/16"	75,000	15,000	**33-747-7**	40.05
1 1/2 - 6	3 1/2"	3 7/16"	2 1/2"	5 3/16"	9/16"	2 3/16"	119,000	17,850	**33-748-5**	69.20
1 3/4 - 5	3 3/4"	3 31/32"	2 7/8"	6 1/16"	5/8"	2 1/2"	127,500	23,800	**33-749-3**	97.20
2 - 4 1/2	4"	4 1/2"	3 3/8"	6 7/8"	3/4"	2 3/8"	238,000	32,300	**33-750-1**	141.05

Top Quality Galvanized Shoulder Eye Bolts



- Forged and heat treated.
- Material: C1030 thread 2A UNC.

THREAD SIZE A (IN.)	B	C	EYE ID D	E	COLLAR DIA. G	SAFE WORKING LOAD (LBS.)	PART NUMBER	PRICE
3/8 - 16	1 3/8"	1 5/32"	1 3/32"	1 27/32"	1 1/16"	1,300	**33-790-7**	$7.60
1/2 - 13	1 5/8"	1 7/16"	1 9/32"	2 9/32"	7/8"	2,400	**33-791-5**	9.90
5/8 - 11	2"	1 23/32"	1 1/2"	2 13/16"	1 1/16"	4,000	**33-792-3**	16.80
3/4 - 10	2 1/4"	1 29/32"	1 11/16"	3 1/4"	1 1/4"	5,000	**33-793-1**	22.05

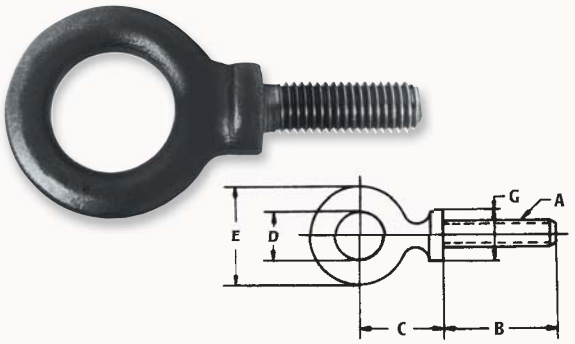
Top Quality Alloy Steel Eye Bolts



- Often referred to as machinery eye bolts.
- Threads are Unified National Coarse Thread Class 2A.

THREAD SIZE (IN.)	LENGTH	EYE ID	WT. CAP (LBS.)	PLAIN PART NO.	PRICE	SHOULDER PART NO.	PRICE
3/8 - 16	1 1/4"	1"	1,480	**33-816-0**	$17.35	**33-822-8**	$17.35
1/2 - 13	1 1/2"	1 3/16"	2,700	**33-817-8**	19.10	**33-823-6**	18.45
5/8 - 11	1 3/4"	1 3/8"	4,300	**33-818-6**	28.95	**33-824-4**	27.90
3/4 - 10	2"	1 1/2"	6,400	**33-819-4**	33.45	**33-825-1**	32.95
7/8 - 9	2 1/4"	1 11/16"	8,800	**33-820-2**	51.35	**33-826-9**	51.35
1 - 8	2 1/2"	1 13/16"	11,600	**33-821-0**	65.75	**33-827-7**	65.75

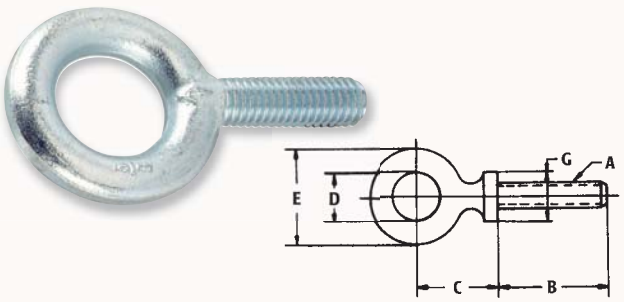
TOP QUALITY Shoulder Eye Bolts



- For other than vertical loads the general practice is to use 60% of the safe working load factor for a load 30° from vertical; 33% of vertical safe load 45° from vertical; and 20% of vertical safe load for load 90° from vertical.
- Material: C-1030 forge.
- Finish: Mill.
- Thread: Class 2A UNC heat-treated.

THREAD SIZE A (IN.)	THREAD LENGTH B (IN.)	CTR. OF EYE TO BOT. OF SHOULD. C (IN.)	EYE ID D (IN.)	EYE OD E (IN.)	THICK. OF COLLAR F (IN.)	BASE W. COLLAR DIA. G (IN.)	BRKNG. STRENGTH MIN (LBS.)	SAFE WORKING LOAD (LBS.)	PART NUMBER	PRICE
1/4 - 20	1	3/4	3/4	1 3/16	3/16	17/32	2,500	500	**33-751-9**	$3.80
1/4 - 28	1	11/16	3/4	1 3/16	3/16	17/32	2,500	500	**33-728-7**	4.75
5/16 - 18	1 1/8	15/16	7/8	1 7/16	3/16	19/32	4,500	900	**33-752-7**	3.90
5/16 - 24	1 1/8	15/16	7/8	1 7/16	3/16	19/32	4,500	900	**33-753-5**	5.00
3/8 - 16	1 1/4	1 1/8	1	1 11/16	3/16	21/32	6,500	1,300	**33-754-3**	4.15
3/8 - 16	2 1/2	1 1/16	3/4	1 1/2	3/16	1/2	6,500	1,300	**33-755-0**	13.10
3/8 - 16	6	1 1/16	3/4	1 1/2	3/16	1/2	6,500	1,300	**33-756-8**	12.15
3/8 - 24	1 1/4	1 1/8	1	1 11/16	3/16	21/32	6,500	1,300	**33-757-6**	5.20
7/16 - 14	1 3/8	1 1/4	1 3/32	1 13/16	1/4	25/32	9,000	1,800	**33-758-4**	5.40
7/16 -20	1 3/8	1 1/4	1 3/32	1 13/16	1/4	25/32	9,000	1,800	**33-759-2**	7.45
1/2 - 13	1 1/2	1 3/8	1 3/16	2 1/8	1/4	29/32	12,000	2,400	**33-760-0**	5.40
1/2 - 13	4	1 5/16	1 3/16	1 15/16	1/4	7/8	12,000	2,400	**33-761-8**	11.95
1/2 - 13	6	1 5/16	1 3/16	1 15/16	1/4	7/8	12,000	2,400	**33-762-6**	13.55
1/2 - 13	12	1 5/16	1 3/16	1 15/16	1/4	7/8	12,000	2,400	**33-763-4**	37.55
1/2 - 20	1 1/2	1 3/8	1 3/16	2 1/8	1/4	29/32	12,000	2,400	**33-764-2**	6.65
9/16 - 12	1 3/4	1 21/32	1 3/8	2 9/16	9/32	1 1/32	16,000	3,200	**33-765-9**	10.65
5/8 - 11	1 3/4	1 21/32	1 3/8	2 9/16	5/16	1 1/32	20,000	4,000	**33-766-7**	8.55
5/8 - 11	6	1 19/32	1 3/8	2 1/2	1/4	1 1/8	20,000	4,000	**33-767-5**	18.75
5/8 - 11	12	1 19/32	1 3/8	2 1/2	1/4	1 1/8	20,000	4,000	**33-768-3**	43.95
5/8 - 18	1 3/4	1 21/32	1 3/8	2 9/16	5/16	1 1/32	20,000	4,000	**33-769-1**	10.65
3/4 - 10	2	1 13/16	1 1/2	2 13/16	5/16	1 3/16	25,000	5,000	**33-770-9**	11.05
3/4 - 10	6	1 23/32	1 1/2	3	5/16	1 1/4	25,000	5,000	**33-771-7**	21.15
3/4 - 10	12	1 23/32	1 1/2	3	5/16	1 1/4	25,000	5,000	**33-772-5**	52.30
3/4 - 16	2	1 13/16	1 1/2	2 13/16	5/16	1 3/16	25,000	5,000	**33-773-3**	13.80
7/8 - 9	2 1/4	2 1/8	1 11/16	3 3/16	3/8	1 3/8	35,000	7,000	**33-774-1**	15.75
7/8 - 14	2 1/4	2 1/8	1 11/16	3 3/16	3/8	1 3/8	35,000	7,000	**33-775-8**	19.10
1 - 8	2 1/2	2 5/16	1 13/16	3 9/16	13/32	1 9/16	45,000	9,000	**33-776-6**	19.20
1 - 8	6	2 13/32	1 13/16	3 9/16	13/32	1 9/16	45,000	9,000	**33-777-4**	35.70
1 - 14	2 1/2	2 13/32	1 13/16	3 9/16	13/32	1 9/16	45,000	9,000	**33-778-2**	24.85
1 1/8 - 7	2 3/4	2 23/32	2	4	15/32	1 11/16	63,750	8,500	**33-779-0**	29.85
1 1/4 - 7	3	2 15/16	2 3/16	4 7/16	1/2	1 15/16	75,000	15,000	**33-780-8**	40.05
1 1/2 - 6	3 1/2	3 7/16	2 1/2	5 3/16	9/16	2 3/16	119,000	17,850	**33-781-6**	69.20
1 3/4 - 5	3 3/4	3 31/32	2 7/8	6 1/16	5/8	2 1/2	127,500	23,800	**33-782-4**	97.20
2 - 4 1/2	4	4 1/2	3 3/8	6 7/8	3/4	2 3/8	238,000	32,300	**33-783-2**	141.05

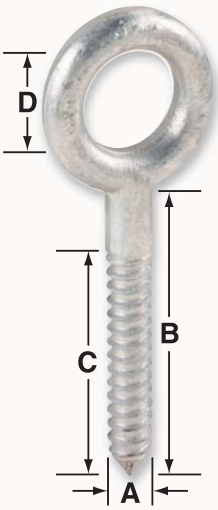
TOP QUALITY Zinc Plated Plain & Shoulder Eye Bolts



- Forged and heat treated.
- Material: C1030 Thread 2A UNC.

THREAD SIZE A	LENGTH B	CTR. OF EYE TO SHOULD. C	EYE ID D	OD E	SHOULDER WIDTH G	SAFE WORKING LOAD (LBS.)	PLAIN PART NUMBER	PRICE	COLLAR THICK. F	SHOULDER PART NUMBER	PRICE
1/4 - 20	1"	11/16"	3/4"	1 13/16"	1/2"	480	**33-905-1**	$5.50	5/32"	**33-913-5**	$5.50
5/16 - 18	1 1/8"	7/8"	7/8"	1 7/16"	5/8"	850	**33-906-9**	5.75	11/64"	**33-914-3**	5.75
3/8 - 16	1 1/4"	1 1/16"	1"	1 3/16"	1/2"	1,200	**33-907-7**	6.85	3/16"	**33-915-0**	6.65
1/2 - 13	1 1/2"	1 5/16"	1 3/16"	1 3/16"	7/8"	2,100	**33-908-5**	8.60	7/32"	**33-916-8**	8.60
5/8 - 11	1 3/4"	1 19/32"	1 3/8"	1 3/8"	1 1/8"	3,500	**33-909-3**	13.35	1/4"	**33-917-6**	13.35
3/4 - 11	2"	1 23/32"	1 23/32"	1 1/2"	5/16"	4,800	**33-910-1**	18.05	5/16"	**33-918-4**	18.05
7/8 - 9	2 1/4"	2 3/16"	1 11/16"	3 1/4"	1 7/16"	5,950	**33-911-9**	30.50	3/8"	**33-919-2**	30.50
1 - 8	2 1/2"	1 13/16"	1 13/16"	3 9/16"	1 9/16"	7,650	**33-912-7**	33.15	13/32"	**33-920-0**	33.15

TOP QUALITY Forged Screw Eye Bolts



- Forged Carbon Steel suitable for screwing into wood.
- Hot galvanized.

SHANK DIA. A	SHANK LENGTH B	THREAD LENGTH C	ID EYE D	OAL	PART NUMBER	PRICE
1/4"	2"	1 5/8"	1/2"	3"	**33-855-8**	$6.60
5/16"	2 1/4"	2"	5/8"	4"	**33-856-6**	6.60
3/8"	2 1/2"	2 1/4"	3/4"	5"	**33-857-4**	6.85
1/2"	3 1/4"	2 3/8"	1"	5 1/2"	**33-858-2**	7.45
5/8"	4"	2 1/2"	1 3/8"	6 1/2"	**33-859-0**	10.00

HARDNESS TESTING

SPI® Digital Durometers

See Pg. 169



15-137-3

SPI® Portable Hardness Tester

See Pg. 167



15-140-7

TOOLING COMPONENTS

Top Quality
304 Stainless Steel Eye Bolts



- Silver metal finish.
- Excellent resistance to rust and corrosion.

THREAD SIZE (IN.)	LENGTH	EYE ID	WEIGHT CAP. (LBS.)	PKG. QTY.	PLAIN PART NO.	PRICE	SHOULDER PART NO.	PRICE
1/4 - 20	1"	3/4"	460	4	**33-841-8**	$12.60	**33-848-3**	$13.75
5/16 - 18	1 1/8"	7/8"	780	4	**33-842-6**	19.75	**33-849-1**	19.75
3/8 - 16	1 1/4"	1"	1,160	4	**33-843-4**	20.30	**33-850-9**	20.30
1/2 - 13	1 1/2"	1 3/16"	2,150	4	**33-844-2**	28.00	**33-851-7**	27.10
5/8 - 11	1 3/4"	1 3/8"	3,440	2	**33-845-9**	50.45	**33-852-5**	50.45
3/4 - 10	2"	1 1/2"	5,140	2	**33-846-7**	54.25	**33-853-3**	54.25
1 - 8	2 1/2"	1 13/16"	9,370	2	**33-847-5**	105.85	**33-854-1**	97.85

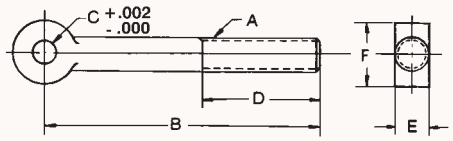
Top Quality
Metric Shoulder Style Eye Bolts
Forged Carbon Steel, Self-Colored



- Safety Note: Capacities listed are for in-line leads only. Reduce capacity by 75% for a 45° offset and never exceed a 45° offset.

THREAD SIZE	SHANK LENGTH (MM)	EYE ID (MM)	EYE OD (MM)	OAL (MM)	EYE CENTER TO SHOULDER (MM)	LOAD CAPACITY (KG.)	PART NUMBER	PRICE
M6 x 1.0	13.00	19.00	30.00	60.30	18.5	210	**33-828-5**	$5.85
M7 x 1.0	15.00	22.00	36.50	71.40	23.2	370	**33-829-3**	6.75
M8 x 1.25	15.00	25.00	43.00	82.50	27.8	500	**33-830-1**	8.35
M10 x 1.5	19.00	27.00	46.00	90.50	30.9	740	**33-831-9**	9.90
M12 x 1.75	24.00	30.00	54.00	100.80	34.0	1,030	**33-832-7**	10.45
M14 x 2.0	27.00	35.00	65.00	120.70	40.9	1,600	**33-833-5**	13.20
M16 x 2.0	31.00	35.00	65.00	120.70	40.9	1,810	**33-834-3**	13.45
M18 x 2.5	37.00	38.00	71.50	133.30	44.7	2,140	**33-835-0**	17.70
M20 x 2.5	39.00	41.00	81.00	152.40	52.5	2,860	**33-836-8**	22.35
M24 x 3.0	47.00	44.00	90.40	168.30	57.1	3,850	**33-837-6**	31.60
M27 x 3.0	48.00	51.00	103.00	191.30	66.5	5,200	**33-838-4**	48.50
M30 x 3.5	59.00	55.00	112.70	208.80	72.7	6,400	**33-839-2**	58.80
M36 x 4.0	71.00	63.00	131.80	240.50	81.8	8,970	**33-840-0**	88.85





Top Quality
Partially Threaded Eye Bolts

- Forged and finished for applications not requiring flat contact with the head.
- Reamed holes: Threads class 2A UNC.
- Use with spherical flange assemblies, flanged nuts and clamp assemblies.
- Material: 1030.

THREAD SIZE A	OAL B	EYE ID C	MIN. THREAD LENGTH D	EYE THICKNESS E	WIDTH F	PART NUMBER	PRICE
1/4 - 20	2"	3/16"	3/4"	1/4"	1/2"	**33-860-8** *	$9.30
1/4 - 20	3"	3/16"	1 1/4"	1/4"	1/2"	**33-861-6**	12.25
5/16 - 18	3"	1/4"	1 1/2"	5/16"	5/8"	**33-862-4** *	9.10
5/16 - 18	3"	5/16"	1 1/2"	5/16"	5/8"	**33-863-2** *	9.10
5/16 - 18	4"	1/4"	2"	5/16"	5/8"	**33-864-0**	11.35
5/16 - 18	4"	5/16"	2"	5/16"	5/8"	**33-865-7**	11.35
3/8 - 16	3"	5/16"	1 1/2"	3/8"	3/4"	**33-866-5** *	9.35
3/8 - 16	3"	3/8"	1 1/2"	3/8"	3/4"	**33-867-3** *	9.55
3/8 - 16	3 3/4"	3/8"	1 1/2"	3/8"	1"	**33-868-1**	8.85
3/8 - 16	5"	3/8"	2 1/2"	3/8"	3/4"	**33-869-9** *	10.10
1/2 - 13	3 3/4"	3/8"	1 1/2"	1/2"	1"	**33-870-7** *	9.40
1/2 - 13	5"	3/8"	2"	1/2"	1"	**33-871-5**	10.15
5/8 - 11	4 1/2"	5/8"	2"	5/8"	1 1/4"	**33-872-3** *	11.40
5/8 - 11	6"	5/8"	2 1/2"	5/8"	1 1/4"	**33-873-1** *	12.60
3/4 - 10	4 1/2"	3/4"	2"	3/4"	1 1/2"	**33-874-9** *	15.70
3/4 - 10	6"	3/4"	2 1/2"	3/4"	1 1/2"	**33-875-6** *	11.45

* Conforms to NIJFCM.

Top Quality
Forged Nut Eye Bolts

THREAD SIZE	SHANK LENGTH	EYE ID	EYE OD	RATED CAP.	LENGTH OF THREAD PLAIN NUT	PLAIN SCREW	SHOULDER NUT	SHOULDER SCREW	SHOULD. OD	AT SHOULD.	THICK. PLAIN PART NUMBER	PRICE	SHOULDER PART NUMBER	PRICE
1/4 - 20	2"	1/2"	15/16"	400	1 1/2"	1 1/2"	1 1/2"	1 1/2"	7/16"	5/64"	**33-876-4**	$4.90	**33-886-3**	$4.90
1/4 - 20	4"	1/2"	15/16"	400	2"	–	2	–	7/16"	5/64"	**33-877-2**	5.70	**33-887-1**	5.85
1/4 - 20	6"	1/2"	1"	500	3"	–	–	–	7/16"	5/64"	**33-878-0**	7.45	–	–
5/16 - 18	2 1/4"	5/8"	1 1/4"	800	1 1/2"	1 5/8"	1 1/2"	1 5/8"	9/16"	3/32"	**33-879-8**	8.05	**33-888-9**	8.05
3/8 - 16	2 1/2"	3/4"	1 7/16"	1,200	1 1/2"	1 3/4"	1 1/2"	1 3/4"	11/16"	1/8"	**33-880-6**	10.10	**33-889-7**	10.10
3/8 - 16	4 1/2"	3/4"	1 1/2"	1,200	2"	–	2	–	11/16"	1/8"	**33-881-4**	10.40	**33-890-5**	10.40
3/8	6"	3/4"	1 1/2"	1,200	3"	–	–	–	11/16"	1/8"	**33-882-2**	8.45	–	–
1/2	2"	1"	2"	2,100	1 7/8"	2 1/8"	1 7/8"	2 1/8"	7/8"	5/32"	**33-883-0**	10.85	–	–
1/2 - 13	2"	1"	1 15/16"	2,100	–	–	1 7/8"	2 1/8"	7/8"	1/8"	–	–	**33-891-3**	12.05
1/2 - 13	4 1/2"	1"	1 15/16"	2,100	2"	–	–	–	7/8"	5/32"	**33-884-8**	7.95	–	–
1/2 - 13	6"	1"	1 15/16"	2,100	3"	–	–	–	7/8"	5/32"	**33-885-5**	10.20	**33-892-1**	10.85

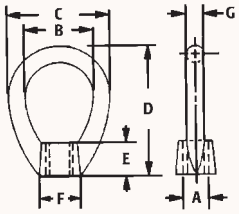
304 Stainless Steel Nut Eye Bolts

BOLT DIA. (IN.)	SHANK LENGTH	EYE ID	EYE OD	WEIGHT CAP. (LBS.)	PKG. QTY.	PLAIN PART NO.	PRICE	SHOULDER PART NO.	PRICE
1/4 - 20	4"	1/2"	1"	460	4	**33-893-9**	$14.25	–	–
5/16 - 18	4"	5/8"	1 1/4"	780	2	**33-894-7**	18.05	–	–
3/8 - 16	4 1/2"	3/4"	1 1/2"	1,160	2	**33-895-4**	23.10	**33-900-2**	$23.10
1/2 - 13	4"	1"	1 15/16"	2,150	2	**33-896-2**	29.65	**33-901-0**	29.65
1/2 - 13	6"	1"	1 15/16"	2,150	2	**33-897-0**	30.15	**33-902-8**	30.15
5/8 - 11	6"	1 3/8"	2 1/2"	3,440	2	**33-898-8**	39.80	**33-903-6**	39.80
3/4 - 10	6"	1 1/2"	2 13/16"	5,140	2	**33-899-6**	59.25	**33-904-4**	59.25



- Drop forged with hot galvanized finish.
- UNC Threaded before galvanized and assembled with oversize tapered nut.
- Supplied with cone point – lag screw thread.
- Loads are based on a safety factor of 5 to 1. Tests are done with rate of speed in a straight direction.
- Any deviations as angular lifts, shock loads, modification of the basic forging, etc., will reduce the maximum loads dramatically.
- C-1035 galvanized steel.





TOP QUALITY
Heavy-Duty Eye Nuts
Forged Carbon Steel 1030

THREAD SIZE A	ID B (IN.)	OD C	OAL D	THREAD LENGTH E	BELL WIDTH F	THICK. G	RATED CAP. (LBS.)	PKG. QTY.	CARBON STEEL PART NO.	CARBON STEEL PRICE	CARBON STEEL GALVANIZED PART NO.	CARBON STEEL GALVANIZED PRICE
3/8 - 16	1 1/4"	2"	2 1/2"	5/8"	7/8"	3/8"	2,700	4	33-794-9	$6.00	33-800-4	$7.15
1/2 - 13	1 1/4"	2"	2 1/2"	5/8"	7/8"	3/8"	2,700	4	33-795-6	6.50	33-801-2	7.45
5/8 - 11	1 1/4"	2 1/2"	3"	3/4"	1 3/8"	1/2"	5,000	4	33-796-4	8.45	33-802-0 *	9.20
3/4 - 10	1 1/4"	2 1/2"	3"	3/4"	1 3/8"	1/2"	5,000	4	33-797-2	10.30	33-803-8 *	16.30
7/8 - 9	1 3/4"	4"	5"	1"	1 9/16"	7/8"	10,000	2	33-798-0	34.30	33-804-6	35.50
1 - 8	1 3/4"	4"	5"	1"	1 9/16"	7/8"	10,000	2	33-799-8	32.65	33-805-3	41.25

* ID 1 1/2".

TOP QUALITY
Pad Eyes

- Forged from carbon steel.
- Suitable for welding.
- Not recommended for lifting.
- Material: C1045 heat treated.
- Clip: Material 1020CK.



ID X OD	PART NO.	PRICE
3/4" x 1 3/16"	33-784-0	$9.75
7/8" x 1 7/16"	33-785-7	13.65
1" x 1 21/32"	33-786-5	8.25
1 3/16" x 2 1/16"	33-787-3	10.30
1 3/8" x 2 1/2"	33-788-1	14.75
1 1/2" x 2 13/16"	33-789-9	15.30

TOP QUALITY
Stainless Steel Eye Nuts
Forged 304/316 Stainless Steel

- All stainless electropolished.

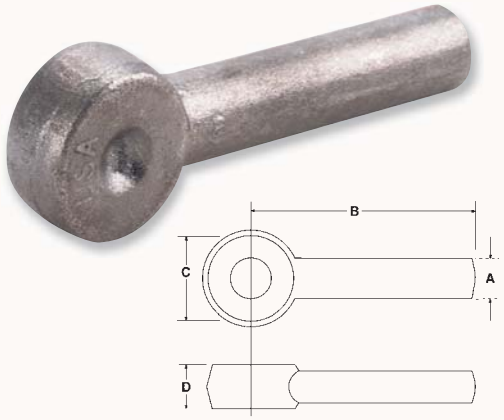


304 Stainless Steel

THREAD SIZE (T)	OD THREAD A	BASE THICKNESS B	ID WIDTH C	OAW D	OAL E	EYE THICKNESS F	RATED CAP. (LBS.)	PKG. QTY.	PART NUMBER	PRICE
3/8 - 16	7/8"	5/8"	1 1/4"	2"	2 1/2"	3/8"	2,700	4	33-806-1	$17.15
1/2 - 13	7/8"	5/8"	1 1/4"	2"	2 1/2"	3/8"	2,700	4	33-807-9	17.15
5/8 - 11	1 3/8"	3/4"	1 1/2"	2 1/2"	3"	1/2"	5,000	2	33-808-7	31.90
3/4 - 10	1 3/8"	3/4"	1 1/2"	2 1/2"	3"	1/2"	5,000	2	33-809-5	35.30
7/8 - 9	1 9/16"	1 1/16"	1 3/4"	4"	5"	7/8"	10,000	1	33-810-3	112.85
1 - 8	1 9/16"	1 1/16"	1 3/4"	4"	5"	7/8"	10,000	1	33-811-1	152.45

316 Stainless Steel

THREAD SIZE (T)	OD THREAD A	BASE THICKNESS B	ID WIDTH C	OAW D	OAL E	EYE THICKNESS F	RATED CAP. (LBS.)	PKG. QTY.	PART NUMBER	PRICE
3/8 - 16	7/8"	5/8"	1 1/4"	2"	2 1/2"	3/8"	2,700	4	33-812-9	$23.10
1/2 - 13	7/8"	5/8"	1 1/4"	2"	2 1/2"	3/8"	2,700	4	33-813-7	24.35
5/8 - 11	1 3/8"	3/4"	1 1/2"	2 1/2"	3"	1/2"	5,000	2	33-814-5	39.75
3/4 - 10	1 3/8"	3/4"	1 1/2"	2 1/2"	3"	1/2"	5,000	2	33-815-2	46.40



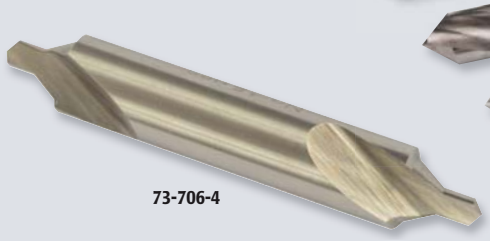
TOP QUALITY
Rod End Blanks

- Forged.
- Carbon Steel.
- Self-colored.
- C1035 steel.

DIA. A	MIN. LENGTH B	EYE OD C	EYE THICK. D	PART NUMBER	PRICE
3/8"	3 1/2"	11/16"	7/16"	33-921-8	$10.10
1/2"	3 1/2"	31/32"	9/16"	33-922-6	11.50
1/2"	6"	31/32"	9/16"	33-923-4	10.00
5/8"	3 1/2"	1 1/4"	11/16"	33-924-2	10.45
5/8"	6"	1 1/4"	11/16"	33-925-9	10.10
3/4"	3 1/2"	1 1/2"	13/16"	33-926-7	12.25
3/4"	6"	1 1/4"	13/16"	33-927-5	13.30
7/8"	6"	1 13/16"	15/16"	33-928-3	16.20
1"	6"	2 1/32"	1 3/32"	33-929-1	20.90

Center Drills
NC Spotting Drils
Countersinks

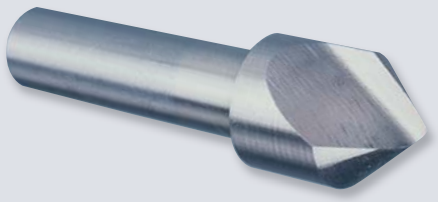
See Pgs. 520 - 525



73-706-4



82-154-6



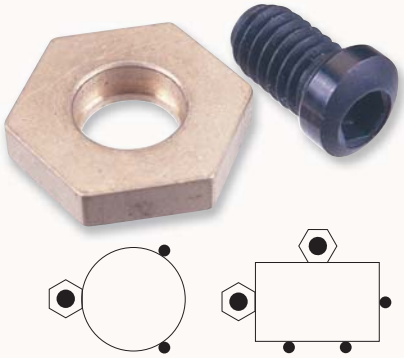
43-168-4



74-689-1

TOOLING COMPONENTS

Fixture Clamps



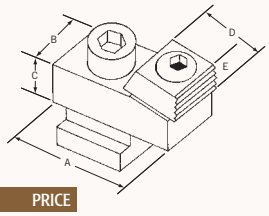
- Affordable method to create set-ups for multiple work pieces.
- Quick and easy to use, simplifies set-up. Half turn tightens or loosens workpiece.
- Superior holding power.

SCREW SIZE	THREAD LENGTH	HEX SIZE	HEX HT.	MAX. HOLDING FORCE (LBS.)	TOTAL THROW	PKG. QTY.	PART NUMBER	PRICE
8 - 32	3/8"	5/16"	.110"	205	.030"	10	**97-818-9**	$73.80
1/4 - 20	1/2"	5/8"	3/16"	800	.040"	10	**97-819-7**	77.15
5/16 - 18	1/2"	13/16"	3/16"	750	.040"	12	**97-820-5**	97.15
3/8 - 16	5/8"	13/16"	1/4"	2,000	.050"	10	**97-821-3**	88.45
1/2 - 13	1"	1"	3/8"	4,000	.100"	8	**97-822-1**	96.65
5/8 - 11	1 1/4"	1 3/16"	1/2"	6,000	.100"	4	**97-823-9**	77.15

T-Slot Toe Clamp



- A low profile cam action clamp with positive downforce.
- This clamp is mounted in the T-slots of machine tables by sliding the clamp to the workpiece and tightening the locking screw.
- Two clamping edges:
  - Smooth for machined surfaces.
  - Serrated for rough cut material.
- For 5/8" T-Slots.
- Model #24148.



A	B	C	D	E
1.94"	1.12"	.62"	1.00"	.38"

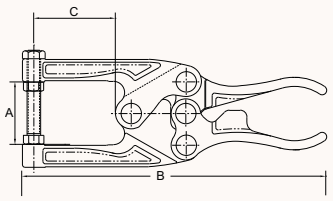
DESCRIPTION	PART NO.	PRICE
Mitee-Bite®, T-slot Toe Clamp	**97-824-7**	$60.00

Plier Clamps

Use For Fixturing, Woodworking and Assemblies



- Great workholding tools, clamps adapt to a wide variety of applications.
- Made of high-carbon steel forgings.
- Hardened rivets.
- Contoured handles with orange ergonomic cushion grips.
- Spindles included.



HOLDING CAP. (LBS.)	SPINDLE THREAD SIZE	MAX. JAW CAP. A	OAL B	THROAT DEPTH C	PART NUMBER	PRICE
400	1/4-20	0.97"	4.750"	1.187"	**60-286-2**	$18.70
400	1/4-20	1.94"	4.750"	1.187"	**60-287-0**	23.40
400	1/4-20	2.94"	4.750"	1.187"	**60-288-8**	27.30
1,200	3/8-24	1.22"	8.375"	2.250"	**60-289-6**	35.30
1,200	3/8-24	1.22"	8.375"	2.250"	**60-290-4***	40.75
1,600	3/8-24	1.22"	9.750"	2.250"	**60-291-2**	45.35
1,600	3/8-24	1.22"	9.750"	2.250"	**60-292-0***	50.90
1,800	3/8-24	1.25"	7.375"	1.250"	**60-293-8**	43.55
1,800	3/8-24	1.25"	7.375"	1.250"	**60-294-6***	47.65

*Features long contour handles

Spindle Assemblies & Cap

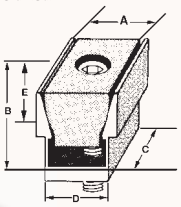
OAL	PART NO.	PRICE
1 9/16"	**60-295-3**	$0.95
1 7/8"	**60-296-1**	3.15

DESCRIPTION	PART NO.	PRICE
Spindle Cap	**60-297-9**	$0.60

Uniforce Clamps

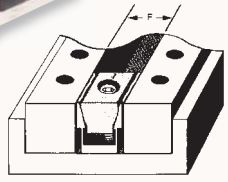


Relaxed





Ingaged



- Holds two parts with equilateral clamping action.
- Increase production. Compact design. Low cost.
- Easy to design fixtures with standard clamp sizes.
- Minimize tool changes.
- Strong clamping force.

PART NO.	97-814-8	97-815-5	97-816-3
MFG. MODEL #	60500	60750	61000
MAX. SPREAD	.540"	.830"	1.06"
HOLDING FORCE (LBS.)	500	1500	2000
A) SIZE	.485"	.735"	.980"
B) OAL. SIZE	.575"	.770"	1.02"
C) OAL. LENGTH	.625"	.940"	1.25"
D) BAG WIDTH	.410"	.635"	.820"
E) CLAMP HEIGHT	.220"	.375"	.500"
F) GAP*	.500"	.750"	1.000"
THREAD SIZE	8-32	1/4-20	5/16-18
HEX KEY	9/16"	3/16"	1/4"

*Gap= size of clamp plus minimum recommended clearance.

DESCRIPTION	PART NO.	PRICE
Mitee-bite, Model 60500 (8 per pk.)	**97-814-8**	$89.45/pk.
Mitee-bite, Model 60750 (6 per pk.)	**97-815-5**	91.75/pk.
Mitee-bite, Model 61000 (4 per pk.)	**97-816-3**	90.10/pk.

NOTE: Sold in package quantities only.



"C" Clamps

High Visibility Safety "C" Clamps

- Drop forged, Regular Duty, Extra Deep Throat.
- Bright yellow Powder coat finish resists scratching and corrosion.
- Conforms to OSHA safety color standards for physical hazards regulation #1910.144.
- V-groove in flange prevents slippage and holds round parts.
- Replaceable spindle pads.

CAPACITY	THROAT DEPTH	SCREW DIA.	MIN. PROOF TEST (LBS.)	PART NUMBER	PRICE
0 - 3"	2 1/2"	9/16"	3,500	**97-845-2**	$61.75
0 - 4 1/4"	3 1/4"	3/4"	6,200	**97-846-0**	39.95
0 - 6 1/16"	4 1/8"	3/4"	6,600	**97-847-8**	52.25
0 - 8 1/4"	5"	3/4"	6,900	**97-848-6**	69.65



TOP QUALITY Forged C-Clamps

Regular - Duty Deep Throat

- Acme roll threaded screws for maximum strength.
- Drop forged heat treated frames.
- Deep throat for maximum clearance.
- Available with copper plated screw, swivel and crosspin for welding applications.

Regular - Duty Deep Throat

OPENING CAP. MAX.	MIN.	THROAT DEPTH	LOAD LIMIT (LBS.)	SCREW DIA.	PART NUMBER	PRICE
2"	0"	2"	3,500	1/2"	**33-000-1**	$18.15
3"	0"	2 3/8"	3,500	5/8"	**33-001-9**	20.15
4"	0"	2 3/4"	6,500	3/4"	**33-002-7**	27.75
6"	0"	3 5/8"	6,900	3/4"	**33-003-5**	37.65
8"	0"	4 1/2"	6,900	3/4"	**33-004-3**	48.10
10"	2"	5 3/8"	8,000	7/8"	**33-005-0**	63.10
12"	3"	5 3/4"	9,500	7/8"	**33-006-8**	87.40

Copper Plated Screw and Handle

OPENING CAP. MAX.	MIN.	THROAT DEPTH	LOAD LIMIT (LBS.)	SCREW DIA.	PART NUMBER	PRICE
2"	0"	2"	3,500	1/2"	**33-007-6**	$18.15
3"	0"	2 3/8"	3,500	5/8"	**33-008-4**	21.10
4"	0"	2 3/4"	6,500	3/4"	**33-009-2**	30.60
6"	0"	3 5/8"	6,900	3/4"	**33-010-0**	42.10
8"	0"	4 1/2"	6,900	3/4"	**33-011-8**	54.55
10"	2"	5 3/8"	8,000	7/8"	**33-012-6**	75.55
12"	3"	5 3/4"	9,500	7/8"	**33-013-4**	94.65

KANT TWIST® Clamp with T-Handle Grip



- Makes repetitive use much easier.
- Apply maximum pressure with less effort.
- Made from high quality ABS plastic.
- Comfortable grip for ease of use.
- Very durable.
- Taps easily on and off.

CLAMP SIZE	TYPE	PART NO.	PRICE
1"	Standard	**98-117-5**	$18.20
2"	Standard	**98-118-3**	22.40
2 1/2"	Deep Throat	**98-123-3**	24.70
3"	Standard	**98-124-1**	31.75
4 1/2"	Deep Throat	**98-149-8**	33.70
6"	Standard	**98-150-6**	52.70
6"	Deep Throat	**98-151-4**	56.90

KANT TWIST® Grips for T-Handle Clamps

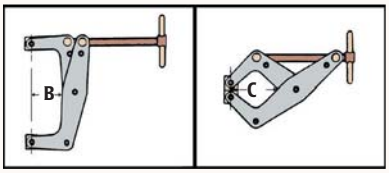
- Makes repetitive use much easier.
- Apply maximum pressure with less effort.
- Very durable.
- Taps easily on and off.
- Made from high quality ABS plastic.
- Comfortable grip for ease of use.
- Clamps sold separately.

FITS MODELS	SIZE	PART NO.	PRICE
98-030-0, 98-126-1	1"	98-145-6	$2.90
98-031-8, 98-125-8 98-127-4, 98-141-5	2" 2 1/2"	98-146-4	3.80
98-032-6, 98-033-4 98-128-2, 98-129-0 98-136-5, 98-137-3 98-142-3, 98-143-1 98-152-2, 98-154-8	3" 4 1/2" 3 3/16"	98-147-2	4.70
98-130-8, 98-131-6 98-138-1, 98-139-9 98-155-5, 98-156-3	6" 6 3/8"	98-148-0	7.10









KANT TWIST®

- Kant-Twist is the proven standard in universal clamping devices.
- Combines the best features of "C" and parallel clamps.
- Kant-Twist clamps weigh approximately half as much as comparable C-clamps, yet are much stronger by actual test.
- The only "C" clamp with built-in "V" Blocks.
- Provides new freedom of movement.
- Eliminates distorting and twisting.
- Provides three different gripping surfaces.

High Tensile Steel Clamps With Copper Plated Jaws

CLAMP SIZE	DEPTH OPEN B	DEPTH CLOSED C	PART NUMBER	PRICE
1 1/2"	1 1/8"	1"	**98-119-1**	$18.50
3/4"	3/8"	3/8"	**98-120-9**	15.00
1"	1/2"	1/2"	**98-121-7**	16.30
2"	1 1/8"	1 1/4"	**98-122-5**	21.70
2 1/2"D	1 3/4"	1 3/4"	**98-125-8**	19.95
1"	1/2"	1/2"	**98-126-6**	15.00
2"	1 1/8"	1 1/4" *	**98-127-4** *	18.15
3"	1 3/8"	1 7/8"	**98-128-2** *	25.75
4 1/2"D	2 3/8"	3"	**98-129-0** *	27.65
6"	2 1/8"	3 3/8"	**98-130-8** *	42.05
6" D	4 5/8"	5 1/2"	**98-131-6** *	45.75
6"	4 5/8"	5 1/2"	**98-132-4** +	64.40
9"	3 3/8"	5 7/16"	**98-133-2**	119.30
10"D	6 1/8"	7 3/8"	**98-134-0**	170.95
12"	4 5/8"	7"	**98-135-7**	189.75

With Polyurethane Jaws

CLAMP SIZE	DEPTH OPEN B	DEPTH CLOSED C	PART NUMBER	PRICE
3"	1 3/8"	1 7/8"	**98-136-5** *	$34.55
4 1/2" D	2 3/8"	3"	**98-137-3** *	33.70
6"	2 1/8"	3 3/8"	**98-138-1** *	49.95
6" D	4 5/8"	5 1/2"	**98-139-9** *	53.95

All Stainless Steel Clamps

CLAMP SIZE	DEPTH OPEN B	DEPTH CLOSED C	PART NUMBER	PRICE
2"	1 1/8"	1 1/4"	**98-141-5**	$44.95
3"	1 3/8"	1 7/8"	**98-142-3**	59.70
4 1/2" D	2 3/8"	3"	**98-143-1**	69.10

D = Deep throat

* With straight plus crisscross grooves in the large jaw for secure holding of long or round objects at an angle.

\+ Multi-purpose clamp, includes adjustable stop for difficult clamping situations.

TOOLING COMPONENTS

KANT TWIST

6 Pc. T-Handle Clamp Set



98-025-0

- Eliminates distortion and prevents twisting.
- High-tensile steel.
- Built-in "V" blocks.
- Floating jaws stay parallel.
- Copper-plated handle, jaws and screw. Ideal for welding use.
- Set Includes: 2 each of the 2½", 4½" & 6" deep throat sizes.

DESCRIPTION	PART NO.	PRICE
6 Pc. T-Handle Clamp Set	**98-025-0**	$189.95



KANT TWIST

NO-MAR Universal "C" Clamps

- Holds all soft materials and finished surfaces without leaving marks.
- Neoprene rubber pads for No-Mar holding of parts.
- Includes all features that have made KANT-TWIST famous. Pads come together without twisting motion, high strength to weight ratio, high strength steels.

CLAMP SIZE	MAX. OPENING	DEPTH OPEN B	DEPTH CLOSED C	PART NUMBER	PRICE
1"	7/8"	1/2"	1/2"	**98-030-0**	$25.30
2"	1 13/16"	1 1/8"	1 1/4"	**98-031-8**	28.00
3"	2 3/4"	1 3/8"	1 7/8"	**98-032-6**	35.20
4 1/2"	4 1/4"	2 3/8"	3"	**98-033-4**	38.55

Replacement Pads • Sold each

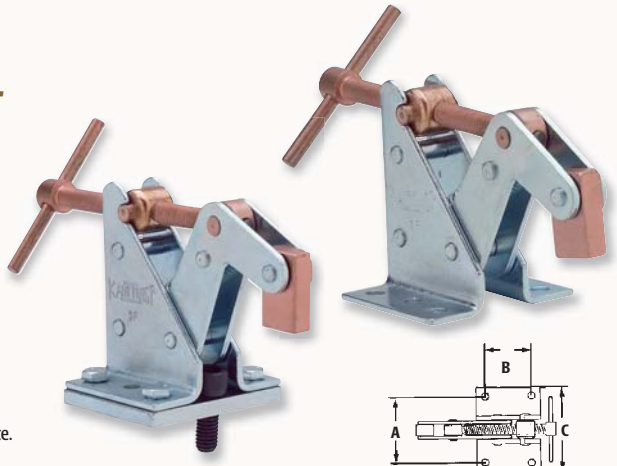
DESCRIPTION	PART NO.	PRICE
Repl. Pads for 98-031-8	**06-044-2**	$3.85
Repl. Pads for 98-032-6	**06-045-9**	3.85
Repl. Pads for 98-033-4	**06-046-7**	3.85

KANT TWIST

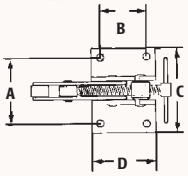
Fixture Clamps - Quick-Acting

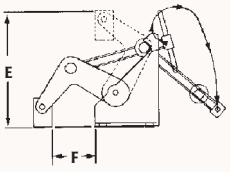
Engineered to provide an economical, versatile and convenient method of positive production hold downs.

- Positive grip – safe, non-slip.
- Copper plated jaw.
- Zinc plated and heavy duty construction.
- Stronger than conventional toggle clamps.
- Quick action arm release for complete clearance of workpiece.
- Booster return spring.
- Adjustable press while part is being held in place.



T-Slot Mounting
T-Nut not included





CLAMP SIZE	A	B	C	D	E	F	PART NUMBER	PRICE
3"	2.00"	1 1/2"	2 5/8"	2 1/4"	3 7/8"	1 5/8"	**98-152-2**	$31.55
3 3/16"	T-Slot Mounting	3/8" - 16	2 5/8"	2 1/4"	4 1/8"	1 5/8"	**98-154-8**	42.10
6"	2 7/8"	2 5/8"	3 3/4"	3 3/4"	7 1/16"	3 1/8"	**98-155-5**	60.15
6 3/8"	T-Slot Mounting	1/2" - 13	3 3/4"	3 3/4"	7 7/16"	3 1/8"	**98-156-3**	85.75

DESTACO

Vertical Handle Hold-Down Clamps



201, 202 Series



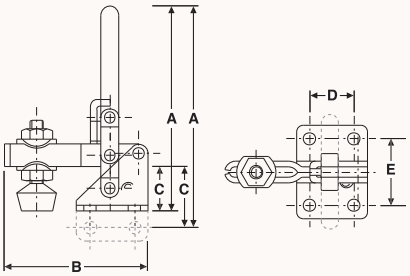
207-U, 210-UR Series



267 Series



317, 527 Series



DESTACO

Vertical Handle Hold-Down Clamps (cont.)

INDUSTRY DRAWING	ARM LENGTH	OAH A	OAL B	HEIGHT UNDER BAR C	DIST. BETWEEN MOUNTING HOLES LENGTH D	DIST. BETWEEN MOUNTING HOLES WIDTH E
201-U	1.02"	2.97"	2.020"	0.63"	0.63"	0.94"
201-UB	1.02"	3.00"	2.020"	0.88"	0.63"	0.16"
201-TU	1.02"	2.25"	2.020"	0.63"	0.63"	0.94"
202-U	1.69"	4.21"	2.690"	0.94"	0.50"	1.06"
202-UL	2.27"	4.21"	3.270"	0.94"	0.50"	1.06"
202-UB	1.69"	4.40"	2.690"	1.13"	0.50"	0.25"
202	1.31"	4.21"	2.310"	0.94"	0.50"	1.06"
202-B	1.31"	4.40"	2.310"	1.13"	0.50"	0.25"
202-T	1.31"	2.81"	2.310"	0.94"	0.50"	1.06"
202-TU	1.69"	2.81"	2.690"	0.94"	0.50"	1.06"
207-UBO	2.15"	6.06"	3.750"	1.55"	0.75"	0.25"
207-UO	2.15"	5.63"	3.750"	1.25"	0.75"	1.25"
207-ULO	3.85"	5.63"	5.410"	1.25"	0.75"	1.25"
207UR	2.22"	7.13"	4.500"	1.25"	0.75"	1.28"
317-U	2.53"	5.62"	6.070"	2.67"	0.63"	1.00"
317-S	3.19"	5.62"	6.440"	2.67"	0.63"	1.00"
207-TU	2.15"	4.36"	3.750"	1.25"	0.75"	1.25"
207-LR	2.22"	7.13"	4.500"	1.25"	0.75"	1.28"
207-SO	2.19"	5.63"	3.750"	1.25"	0.75"	1.25"
207-L0	3.45"	5.76"	5.020"	1.25"	0.75"	1.25"

INDUSTRY DRAWING	ARM LENGTH	OAH A	OAL B	HEIGHT UNDER BAR C	DIST. BETWEEN MOUNTING HOLES LENGTH D	DIST. BETWEEN MOUNTING HOLES WIDTH E
207-TS	2.19"	4.36"	3.750"	1.25"	0.75"	1.25"
210-UR	3.56"	8.00"	6.610"	1.68"	1.25"	1.75"
210-U	3.63"	8.00"	5.530"	1.67"	1.25"	1.78"
210-UB	3.63"	8.16"	5.530"	2.19"	1.25"	0.31"
210-TU	3.63"	5.38"	5.530"	1.67"	1.25"	1.78"
210-SR	3.56"	8.00"	6.680"	1.68"	1.25"	1.75"
210-S	3.56"	8.00"	5.530"	1.67"	1.25"	1.78"
210-21	3.63"	8.00"	5.530"	1.67"	1.25"	1.78"
247-U	4.87"	8.69"	6.870"	2.00"	1.25"	1.78"
247-S	4.87"	8.69"	6.870"	2.00"	1.25"	1.78"
527	3.63"	6.81"	8.380"	2.19"	–	1.25"
527-F	4.00"	6.81"	8.380"	1.89"	–	1.25"
229	5.25"	9.94"	7.130"	2.05"	0.88"	2.00"
267-U	5.92"	11.88"	8.920"	3.08"	2.00"	2.75"
267-S	5.88"	11.88"	8.880"	3.08"	2.75"	2.00"
01-USS	1.02"	3.03"	2.020"	0.63"	0.63"	0.94"
202SS	1.31"	4.21"	2.310"	0.94"	0.50"	1.06"
202USS	1.72"	3.75"	2.375"	0.93"	0.50"	1.06"
207USS	3.06"	5.63"	4.380"	1.25"	0.75"	1.25"
210USS	3.63"	8.00"	5.530"	1.67"	1.25"	1.78"

IND. DWG.	HOLDING CAP. (LBS.)	HANDLE TYPE	BAR TYPE	BASE TYPE	SPINDLE SIZE	HANDLE SUPPLIED WITH	BAR MOVES (°)	OPENS (°)	PART NUMBER	PRICE
201-U	100	Straight	U-Bar	Flanged	M5 x 0.8 x 29	Spindle; 2 Nuts & 2 Flanged Washers	60	110	**97-131-7**	$15.80
201-UB	100	Straight	U-Bar	Straight	M5 x 0.8 x 29	Spindle; 2 Nuts & 2 Flanged Washers	60	110	**89-067-3**	17.65
201-TU	100	T-Handle	U-Bar	Flanged	M5 x 0.8 x 29	Spindle; 2 Nuts & 2 Flanged Washers	60	110	**89-068-1**	19.60
202-U	200	Straight	U-Bar	Flanged	1/4 - 20 x 1 1/2	Spindle; 2 Nuts & 2 Flanged Washers	64	104	**89-069-9**	17.25
202-UL	200	Straight	U-Bar	Flanged	1/4 - 20 x 1 1/2	Spindle; 2 Nuts & 2 Flanged Washers	64	104	**89-070-7**	18.75
202-UB	200	Straight	U-Bar	Straight	1/4 - 20 x 1 1/2	Spindle; 2 Nuts & 2 Flanged Washers	64	104	**89-071-5**	19.40
202	200	Straight	Fixed Spindle	Flanged	M6 x 1 x 44	Spindle & Bolt Retainer	64	104	**97-132-5**	17.35
202-B	200	Straight	Fixed Spindle	Straight	M6 x 1 x 44	Spindle & Bolt Retainer	64	104	**89-072-3**	19.40
202-T	200	T-Handle	Fixed Spindle	Flanged	M6 x 1 x 44	Spindle & Bolt Retainer	64	104	**89-073-1**	21.15
202-TU	200	T-Handle	U-Bar	Flanged	1/4 - 20 x 1 1/2	Spindle; 2 Nuts & 2 Flanged Washers	64	104	**89-074-9**	21.15
207-UBO	375	Straight	U-Bar	Straight	5/16 - 18 x 2 1/4	Bolt Retainer	62	115	**89-075-6**	26.85
207-UO	375	Straight	U-Bar	Flanged	5/16 - 18 x 2 1/4	Spindle; 2 Nuts & 2 Flanged Washers	62	115	**97-135-8**	25.60
207-ULO	375	Straight	U-Bar	Flanged	5/16 - 18 x 2 1/4	Spindle; 2 Nuts & 2 Flanged Washers	62	115	**89-076-4**	25.70
207UR	375	Straight	U-Bar	Flanged	–	Bolt Retainer	62	100	**89-077-2**	42.75
317-U	375	Straight	U-Bar	Flanged	5/16 - 18 x 3	Spindle; 2 Nuts & 2 Flanged Washers	60	185	**89-078-0**	31.10
317-S	375	Straight	Solid	Flanged	5/16 - 18 x 2 1/4	Spindle & Bolt Retainer	60	185	**89-079-8**	32.45
207-TU	375	T-Handle	U-Bar	Flanged	5/16 - 18 x 2 1/4	Spindle; 2 Nuts & 2 Flanged Washers	62	115	**89-080-6**	29.15
207-LR	500	Straight	Solid	Flanged	----	2 Flanged Washers	62	100	**89-081-4**	45.30
207-SO	500	Straight	Solid	Flanged	5/16 - 18 x 2 1/4	Bolt Retainer	62	115	**89-082-2**	25.40
207-L0	500	Straight	Solid	Flanged	5/16 - 18 x 2 1/4	Spindle & Bolt Retainer	62	115	**89-083-0**	26.40
210-UR	600	Straight	U-Bar	Flanged	–	Bolt Retainer	58	103	**89-085-5**	62.55
210-U	600	Straight	U-Bar	Flanged	3/8 - 16 x 3 1/4	Spindle; 2 Nuts & 2 Flanged Washers	58	106	**97-136-6**	36.70
210-UB	600	Straight	U-Bar	Straight	3/8 - 16 x 3 1/4	Spindle; 2 Nuts & 2 Flanged Washers	58	106	**89-086-3**	36.85
210-TU	600	T-Handle	U-Bar	Flanged	3/8 - 16 x 3 1/4	2 Flanged Washers	58	106	**89-087-1**	40.15
210-SR	750	Straight	Solid	Flanged	–	2 Flanged Washers	58	103	**89-088-9**	64.15
210-S	750	Straight	Solid	Flanged	3/8 - 16 x 3 1/4	Bolt Retainer	58	106	**89-089-7**	34.10
210-21	750	Straight	Solid	Flanged	3/8 -16 x 3 1/4	Spindle & Bolt Retainer	58	106	**89-090-5**	37.75
247-U	1,000	Straight	U-Bar	Flanged	M12 x 1.75	Spindle; 2 Nuts & 2 Flanged Washers	75	136	**97-142-4**	48.25
247-S	1,000	Straight	Solid	Flanged	M12 x 1.75	Bolt Retainer	75	136	**89-091-3**	51.00
527	1,000	Straight	Solid	Flanged	–	----	65	195	**89-092-1**	98.15
229	1,000	Straight	Open	Flanged	1/2 - 13 x 3 5/16	Spindle; 2 Nuts & 2 Flanged Washers	180	115	**89-094-7**	94.25
267-U	1,200	Straight	U-Bar	Flanged	M16 x 2	Spindle; 2 Nuts & 2 Flanged Washers	70	140	**89-095-4**	70.70
267-S	1,200	Straight	Solid	Flanged	5/8	Bolt Retainer	70	140	**89-096-2**	94.95
Stainless Steel										
201-USS	125	Straight	U-Bar	Flanged	M5 x 0.8 x 29	Spindle; 2 Nuts & 2 Flanged Washers	60	110	**89-097-0**	$29.60
202SS	250	Straight	Fixed Spindle	Flanged	M6 x 1 x 44	Spindle & Bolt Retainer	64	104	**89-098-8**	37.25
202USS	250	Straight	U-Bar	Flanged	1/4 x 20	Spindle; 2 Nuts & 2 Flanged Washers	64	104	**89-099-6**	36.20
207USS	450	Straight	U-Bar	Flanged	5/16 - 18 x 2 1/4	Spindle; 2 Nuts & 2 Flanged Washers	62	115	**89-100-2**	53.05
210USS	750	Straight	U-Bar	Flanged	3/8 - 16 x 3 1/4	Spindle; 2 Nuts & 2 Flanged Washers	58	106	**89-101-0**	65.20

TOOLING COMPONENTS



Parallel Clamps

- Designed for maximum strength and rigidity.
- Ideal for toolmaking set-ups and for various machine set-ups.
- Made of alloy steel, black nitrite finish, hardened and tempered jaws.
- All sizes are equipped with spring clip and retaining groove. Screw heads are drilled allowing use of pin for tightening.

JAW OPENING	JAW LENGTH	PART NO.	PRICE
1 1/4"	2"	**98-006-0**	$6.20
2 1/4"	3"	**98-007-8**	10.85
2 3/4"	4"	**98-008-6**	14.60
4 1/2"	6"	**98-019-3**	33.65



BESSEY

Claw Machine Clamp

- For fast, secure clamping on machine surfaces and jigs.
- The angle screw is positioned to allow access and adjustment in tight spaces.
- 8" capacity. 5 3/4" throat. 1,760 Lbs. clamping pressure.
- Model #MCL-8.
- 360° radius.

DESCRIPTION	PART NO.	PRICE
Bessey® 8" Machine Clamp	**96-976-6**	$199.75



BESSEY

F-Style Welding Maintenance Clamps

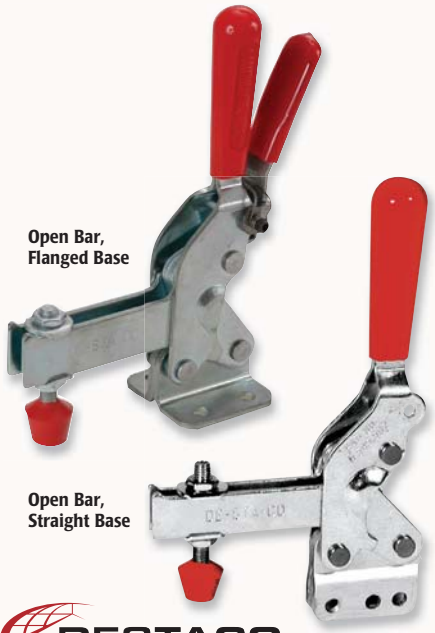
- ISO 9001 certified.

Regular Duty • 5 1/2" Throat

CLAMPING PRESSURE (LBS.)	CAP.	BESSEY® MODEL#	PART NUMBER	PRICE
2,660	0 - 8"	SQ-8	96-969-1	$84.90
2,660	0 - 12"	SQ-12	96-971-7	114.65
2,660	0 - 20"	SQ-20	96-972-5	140.10

Heavy Duty • 7" Throat

CLAMPING PRESSURE (LBS.)	CAP.	BESSEY® MODEL#	PART NUMBER	PRICE
4,880	0 - 12"	STB-12	96-973-3	$220.85

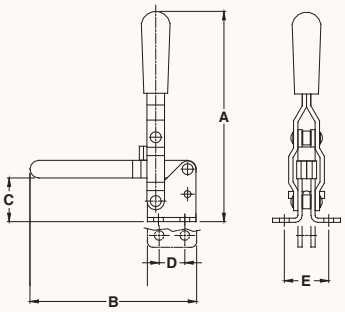


DESTACO

Vertical Handle Hold-Down Action Clamps

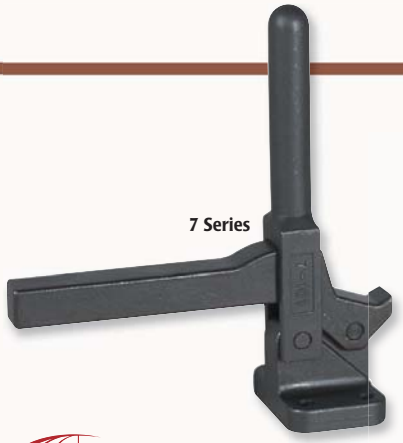
Industry Series, 2002, 2007 & 2010

- Use for a wide range of applications including fixturing, woodworking and assemblies.
- Clamps use a toggle action to hold a workpiece with a downward clamping force.
- 2 - 3 times greater capacity than traditional models.
- Greater hand clearance eliminates pinch points.
- UR models feature a release lever which locks in the clamped position only.
- Operational position of the clamp is vertical.



INDUSTRY DRAWING	ARM LENGTH	OAH A	OAL B	HEIGHT UNDER BAR C	DIST. BETWEEN MOUNTING HOLES LENGTH D	DIST. BETWEEN MOUNTING HOLES WIDTH E
2002-U	1.93"	4.73"	3.29"	0.95"	0.50"	1.06"
2002-UR	1.93"	4.73"	4.17"	0.95"	0.50"	1.06"
2002-UB	1.93"	5.07"	3.29"	1.27"	0.50"	0.25"
2002-S	1.93"	4.73"	3.29"	0.95"	0.50"	1.06"
2007-U	2.88"	7.21"	4.381"	1.25"	0.75"	1.25"
2007-UR	2.88"	7.21"	5.94"	1.25"	0.75"	1.25"
2007-UB	2.88"	7.64"	4.81"	1.68"	0.75"	0.25"
2007-S	2.88"	7.21"	4.81"	1.25"	0.75"	1.25"
2010-U	3.56"	9.00"	6.09"	1.70"	1.25"	1.78"
2010-UR	3.56"	9.00"	7.28"	1.70"	1.25"	1.78"
2010-UB	3.56"	9.61"	6.09"	2.29"	1.25"	0.32"
2010-S	3.56"	9.00"	6.09"	1.70"	1.25"	1.78"

IND. DWG.	HOLDING CAP. (LBS.)	BAR TYPE	BASE TYPE	SPINDLE SIZE	SUPPLIED WITH	HANDLE MOVES (°)	BAR OPENS (°)	PART NUMBER	PRICE
2002-U	600	Open	Flanged	M6 x 1.0 x 1.57	Spindle; 2 Nuts & 2 Flanged Washers	85	71	**89-102-8**	$20.20
2002-UR	600	Open	Flanged	M6 x 1.0 x 1.57	Spindle; 2 Nuts & 2 Flanged Washers	85	71	**89-103-6**	33.85
2002-UB	600	Open	Straight	M6 x 1.0 x 1.57	Spindle; 2 Nuts & 2 Flanged Washers	85	71	**89-104-4**	22.45
2002-S	600	Solid	Flanged	M6 x 1.0 x 1.57	Bolt Retainer	85	71	**89-105-1**	21.00
2007-U	1,000	Open	Flanged	M8 x 1.25	Spindle; 2 Nuts & 2 Flanged Washers	76	65	**89-106-9**	25.90
2007-UR	1,000	Open	Flanged	M8 x 1.25	Spindle; 2 Nuts & 2 Flanged Washers	76	65	**89-107-7**	49.55
2007-UB	1,000	Open	Straight	M8 x 1.25	Spindle; 2 Nuts & 2 Flanged Washers	76	65	**89-108-5**	28.55
2007-S	1,000	Solid	Flanged	M8 x 1.25	Bolt Retainer	76	65	**89-109-3**	26.65
2010-U	1,400	Open	Flanged	M10 x 1.5	Spindle; 2 Nuts & 2 Flanged Washers	83	69	**89-110-1**	38.40
2010-UR	1,400	Open	Flanged	M10 x 1.5	Spindle; 2 Nuts & 2 Flanged Washers	83	69	**89-111-9**	67.25
2010-UB	1,400	Open	Straight	M10 x 1.5	Spindle; 2 Nuts & 2 Flanged Washers	83	69	**89-112-7**	40.90
2010-S	1,400	Solid	Flanged	M10 x 1.5	Bolt Retainer	83	69	**89-113-5**	39.85







DESTACO
A DOVER COMPANY

Heavy-Duty Vertical Handle Hold-Down Action Clamps

- Carbon Steel.
- Red Ergonomic Grip.
- Hold down bar can be machined or welded to meet any application requirement.
- Use for a wide range of applications including fixturing, woodworking and assemblies.
- Clamps use a toggle action to hold a workpiece with a downward clamping force.
- 2-3 times greater capacity than traditional models.
- Greater hand clearance eliminates pinch points.
- UR models feature a release lever which locks in the clamped position only.
- Operational position of the clamp is vertical.

Series 7 Features:

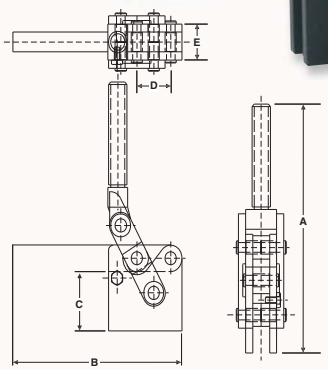
- A unique cam action design that resists part movement from vibration.
- Eliminates time consuming manual readjustments.
- Black oxide finish.

Series 516 Features:

- Black oxide finish.

Series 518 Features:

- Provides greater clearance under the bar.
- Black oxide finish.



Series 548 & 578 Features:

- "Bar-Guide" provides lateral support to the hold down bar at the front of base.

Series 91090 Features:

- Stainless Steel Rivets.
- Bar is not machinable.

INDUSTRY DRAWING	ARM LENGTH	OAH A	OAL B	HEIGHT UNDER BAR C	DIST. BETWEEN MOUNTING HOLES LENGTH D	DIST. BETWEEN MOUNTING HOLES WIDTH E
91090	3.09"	7.68"	4.72"	2.68"	0.80"	1.29"
7-101	3.13"	5.00"	4.38"	1.44"	0.75"	1.25"
518	2.63"	6.88"	4.28"	2.50"	1.00"	0.88"
516	2.38"	6.31"	4.00"	1.25"	–	–
516-B	2.19"	6.72"	4.38"	1.50"	1.00"	1.50"
7-59	3.50"	8.50"	5.66"	2.19"	1.38"	1.88"
528	3.63"	8.13"	6.88"	2.09"	–	1.25"
528-F	4.00"	7.38"	6.88"	1.84"	–	1.25"
7-60	4.38"	9.50"	6.82"	2.50"	1.63"	2.13"
548	4.25"	9.44"	7.50"	2.25"	–	–
578	4.63"	11.00"	8.63"	2.75"	–	–

IND. DWG.	HOLDING CAP. (LBS.)	HANDLE TYPE	BASE TYPE	BAR TYPE	HANDLE MOVES (°)	BAR OPENS (°)	PART NUMBER	PRICE
91090	385	Straight	Flanged Front Mount	Open	60	100	**89-114-3**	$30.30
7-101	475	Straight	Flanged	Solid	80	–	**89-115-0**	149.85
518	500	Straight	Flanged	Solid	75	90	**89-116-8**	41.45
7-59	1,000	Straight	Flanged	Solid	95	–	**89-119-2**	254.55
528	1,000	Straight	Solid	Solid	65	195	**89-120-0**	98.15
528-F	1,000	Straight	Solid Front Mount	Solid	65	195	**89-121-8**	99.55
7-60	1,600	Straight	Flanged	Solid	80	–	**89-122-6**	309.75
548	3,750	Straight	Flanged	Solid	129	199	**89-123-4**	130.80
578	4,000	Straight	Weldable	Solid	129	199	**89-124-2**	209.25

* Weldable solid base with mounting holes.



99-620-7

Socket Head Cap Screw Kit

- 20 each of the following 1960 series black alloy socket head cap screws in yellow plastic case.

4-40 x 1/4"	8-32 x 1/2"	1/4-20 x 1/2"
4-40 x 1/2"	8-32 x 3/4"	1/4-20 x 3/4"
4-40 x 3/4"	8-32 x 1"	1/4-20 x 1"
6-32 x 1/4"	10-32 x 1/2"	5/16-18 x 1/2"
6-32 x 1/2"	10-32 x 3/4"	5/16-18 x 3/4"
6-32 x 3/4"	10-32 x 1"	5/16-18 x 1"

MADE IN USA

DESCRIPTION	PART NO.	PRICE
360 Pc. Socket Head Cap Screw Kit	**99-620-7**	$77.75

SPI® Classic OPTICS

Standard Microscopes

See Pg. 187



40-196-8



40-120-8

Center Scope

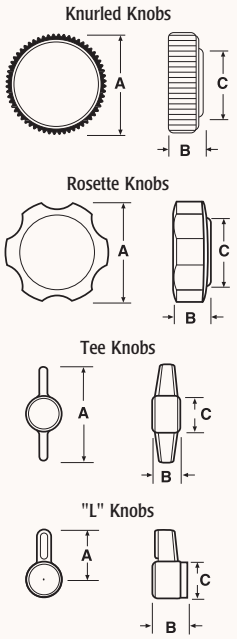
See Pg. 187

MADE IN USA

TOOLING COMPONENTS

Shear-Loc® Thumb Screw Knobs





Make your own Thumb Screws... INSTANTLY

1. Select a standard socket head cap screw



2. Select a standard Shear-Loc knob



THE ORIGINAL QUALITY Since 1969 INSTANT THUMB SCREW



3. Select a way to press and cold-form together



4. Your instant thumb screw



INCH – use with 1960 series socket head cap screws. / METRIC – use with socket head cap screw series DIN 912 – Japan J.I.S. – British Metric series.

Manufactured by Shear-Loc products under USA Patent No. 5,017,068, foreign patents issued. Shear-Loc is a registered trademark of Shear-Loc Products USA.

100 Piece Lots.

Knurled Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
#4	5/16	11/64	9/32	99-599-3	99-699-1	99-799-9	99-499-6	$17.95
#6	3/8	3/16	21/64	99-600-9	99-700-7	99-800-5	99-500-1	18.30
#8	1/2	7/32	3/8	99-601-7	99-701-5	99-801-3	99-501-9	19.30
#10	5/8	1/4	27/64	99-602-5	99-702-3	99-802-1	99-502-7	20.85
1/4	3/4	5/16	1/2	99-603-3	99-703-1	99-803-9	99-503-5	22.45
1/4	1	5/16	1/2	99-604-1	99-704-9	99-804-7	99-504-3	32.40
5/16	1	13/32	19/32	99-606-6	99-706-4	99-806-2	99-506-8	32.80
M3	9.6	4.4	8.3	99-628-0	99-728-8	99-828-6	99-528-2	19.30
M4	13	5.5	9.8	99-629-8	99-729-6	99-829-4	99-529-0	20.10
M5	16	6.5	11.5	99-630-6	99-730-4	99-830-2	99-530-8	22.45
M6	19	7.6	13	99-631-4	99-731-2	99-831-0	99-531-6	23.55
M6	26	7.8	13	99-632-2	99-732-0	99-832-8	99-532-4	33.35
M8	26	9.8	16	99-633-0	99-733-8	99-833-6	99-533-2	34.55

Rosette Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
1/4	1 1/2	3/8	1/2	99-607-4	99-707-2	99-807-0	99-507-6	$50.70
5/16	1 1/2	13/32	37/64	99-608-2	99-708-0	99-808-8	99-508-4	51.75
3/8	1 1/2	15/32	45/64	99-609-0	99-709-8	99-809-6	99-509-2	52.50
M6	38	9.7	13	99-634-8	99-734-6	99-834-4	99-534-0	53.20
M8	38	10	16	99-635-5	99-735-3	99-835-1	99-535-7	54.15
M10	38	12.5	19.5	99-636-3	99-736-1	99-836-9	99-536-5	54.90

Tee Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
#10	1	1/4	7/16	99-623-1	99-723-9	99-823-7	99-523-3	$20.85
1/4	1 1/4	5/16	33/64	99-624-9	99-724-7	99-824-5	99-524-1	23.55
5/16	1 1/2	13/32	5/8	99-625-6	99-725-4	99-825-2	99-525-8	28.35
3/8	1 3/4	15/32	23/32	99-626-4	99-726-2	99-826-0	99-526-6	30.65
M5	26	6.6	12	99-637-1	99-737-9	99-837-7	99-537-3	22.45
M6	30	7.8	13.5	99-638-9	99-738-7	99-838-5	99-538-1	24.50
M8	38	10	16.5	99-639-7	99-739-5	99-839-3	99-539-9	29.30
M10	45	12.5	20	99-640-5	99-740-3	99-840-1	99-540-7	31.70

"L" Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
#10	9/16	11/32	29/64	99-650-4	99-750-2	99-850-0	99-550-6	$20.85
1/4	11/16	7/16	33/64	99-651-2	99-751-0	99-851-8	99-551-4	23.55
5/16	27/32	17/32	41/64	99-652-0	99-752-8	99-852-6	99-552-2	28.35

1,000 Piece Lots. Larger quantities quoted on request.

Knurled Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
#4	5/16	11/64	9/32	99-047-3	99-054-9	99-061-4	99-399-8	$138.80
#6	3/8	3/16	21/64	99-048-1	99-055-6	99-062-2	99-400-4	142.75
#8	1/2	7/32	3/8	99-049-9	99-056-4	99-063-0	99-401-2	145.80
#10	5/8	1/4	27/64	99-050-7	99-057-2	99-064-8	99-402-0	164.80
1/4	3/4	5/16	1/2	99-051-5	99-058-0	99-065-5	99-403-8	175.50
1/4	1	5/16	1/2	99-052-3	99-059-8	99-066-3	99-404-6	251.15
5/16	1	13/32	19/32	99-053-1	99-060-6	99-067-1	99-406-1	255.05
M3	9.6	4.4	8.3	99-001-0	99-007-7	99-013-5	99-428-5	149.60
M4	13	5.5	9.8	99-002-8	99-008-5	99-014-3	99-429-3	153.05
M5	16	6.5	11.5	99-003-6	99-009-3	99-015-0	99-430-1	171.70
M6	19	7.6	13	99-004-4	99-010-1	99-016-8	99-431-9	184.15
M6	26	7.8	13	99-005-1	99-011-9	99-017-6	99-432-7	263.70
M8	26	9.8	16	99-006-9	99-012-7	99-018-4	99-433-5	267.20

Rosette Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
1/4	1 1/2	3/8	1/2	99-069-7	99-068-9	99-072-1	99-407-9	$400.05
5/16	1 1/2	13/32	37/64	99-070-5	99-077-0	99-073-9	99-408-7	407.05
3/8	1 1/2	15/32	45/64	99-071-3	99-078-8	99-074-7	99-409-5	415.60
M6	38	9.7	13	99-020-0	99-026-7	99-023-4	99-434-3	419.15
M8	38	10	16	99-021-8	99-027-5	99-024-2	99-435-0	427.80
M10	38	12.5	19.5	99-022-6	99-028-3	99-025-9	99-436-8	435.05

Tee Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
#10	1	1/4	7/16	99-079-6	99-083-8	99-087-9	99-423-6	$164.80
1/4	1 1/4	5/16	33/64	99-080-4	99-084-6	99-088-7	99-424-4	182.05
5/16	1 1/2	13/32	5/8	99-081-2	99-085-3	99-089-5	99-425-1	218.75
3/8	1 3/4	15/32	23/32	99-082-0	99-086-1	99-090-3	99-426-9	237.75
M5	26	6.6	12	99-030-9	99-034-1	99-038-2	99-437-6	171.70
M6	30	7.8	13.5	99-031-7	99-035-8	99-039-0	99-438-4	190.70
M8	38	10	16.5	99-032-5	99-036-6	99-040-8	99-439-2	229.15
M10	45	12.5	20	99-033-3	99-037-4	99-041-6	99-440-0	248.20

"L" Knobs — Black, Red, Gray, OSHA Yellow

FITS SCREW	SPECIFICATIONS A	B	C	BLACK PART NO.	RED PART NO.	GRAY PART NO.	OSHA YELLOW PART NO.	PRICE PER 100
#10	9/16	11/32	29/64	99-091-1	99-094-5	99-097-8	99-450-9	$164.80
1/4	11/16	7/16	33/64	99-092-9	99-095-2	99-098-6	99-451-7	182.05
5/16	27/32	17/32	41/64	99-093-7	99-096-0	99-099-4	99-452-5	218.75





SHEAR-LOC®
Assembled Thumb Screw Knobs
with Black Alloy Steel Socket Head Cap Screws

Assembled Knurled Knobs • 100 Piece Lots

SCREW SIZE	HEAD DIA.	SCREW LENGTH	BLACK PART NO.	RED PART NO.	GRAY PART NO.	PRICE PER 100
4-40	5/16	1/4	99-101-8	99-201-6	99-301-4	$37.30
4-40	5/16	1/2	99-102-6	99-202-4	99-302-2	38.00
4-40	5/16	3/4	99-103-4	99-203-2	99-303-0	38.00
6-32	3/8	1/4	99-106-7	99-206-5	99-306-3	38.00
6-32	3/8	1/2	99-107-5	99-207-3	99-307-1	38.25
6-32	3/8	3/4	99-108-3	99-208-1	99-308-9	39.30
8-32	1/2	3/8	99-111-7	99-211-5	99-311-3	39.30
8-32	1/2	1/2	99-112-5	99-212-3	99-312-1	39.65
8-32	1/2	3/4	99-113-3	99-213-1	99-313-9	41.45
8-32	1/2	1	99-114-1	99-214-9	99-314-7	42.70
10-32	5/8	3/8	99-116-6	99-216-4	99-316-2	42.50
10-32	5/8	1/2	99-117-4	99-217-2	99-317-0	42.50
10-32	5/8	3/4	99-118-2	99-218-0	99-318-8	44.35
10-32	5/8	1	99-119-0	99-219-8	99-319-6	45.95
10-32	5/8	1 1/2	99-120-8	99-220-6	99-320-4	55.30
1/4-20	3/4	1/2	99-121-6	99-221-4	99-321-2	46.90
1/4-20	3/4	3/4	99-122-4	99-222-2	99-322-0	48.30
1/4-20	3/4	1	99-123-2	99-223-0	99-323-8	50.70
1/4-20	3/4	1 1/2	99-124-0	99-224-8	99-324-6	65.70
1/4-20	1	1/2	99-126-5	99-226-3	99-326-1	56.65
1/4-20	1	3/4	99-127-3	99-227-1	99-327-9	57.70
1/4-20	1	1	99-128-1	99-228-9	99-328-7	60.45
1/4-20	1	1 1/2	99-129-9	99-229-7	99-329-5	70.75
5/16-18	1	1/2	99-131-5	99-231-3	99-331-1	65.90
5/16-18	1	3/4	99-132-3	99-232-1	99-332-9	69.10
5/16-18	1	1	99-133-1	99-233-9	99-333-7	70.90
5/16-18	1	1 1/2	99-134-9	99-234-7	99-334-5	78.85

Assembled Rosette Knobs • 100 Piece Lots

1/4-20	1 1/2	1/2	99-151-3	99-251-1	99-351-9	$75.30
1/4-20	1 1/2	3/4	99-152-1	99-252-9	99-352-7	76.35
1/4-20	1 1/2	1	99-153-9	99-253-7	99-353-5	78.85
1/4-20	1 1/2	1 1/2	99-154-7	99-254-5	99-354-3	93.60
5/16-18	1 1/2	1/2	99-156-2	99-256-0	99-356-8	84.85
5/16-18	1 1/2	3/4	99-157-0	99-257-8	99-357-6	87.60
5/16-18	1 1/2	1	99-158-8	99-258-6	99-358-4	89.85
5/16-18	1 1/2	1 1/2	99-159-6	99-259-4	99-359-2	97.90
3/8-16	1 1/2	3/4	99-161-2	99-261-0	99-361-8	100.80
3/8-16	1 1/2	1	99-162-0	99-262-8	99-362-6	105.65
3/8-16	1 1/2	1 1/2	99-163-8	99-263-6	99-363-4	117.10

Assembled Tee Knobs • 100 Piece Lots

10-32	1	3/8	99-171-1	99-271-9	99-371-7	$42.50
10-32	1	1/2	99-172-9	99-272-7	99-372-5	42.50
10-32	1	3/4	99-173-7	99-273-5	99-373-3	44.35
10-32	1	1	99-174-5	99-274-3	99-374-1	45.95
10-32	1	1 1/2	99-175-2	99-275-0	99-375-8	55.30
1/4-20	1 1/4	1/2	99-176-0	99-276-8	99-376-6	48.00
1/4-20	1 1/4	3/4	99-177-8	99-277-6	99-377-4	49.05
1/4-20	1 1/4	1	99-178-6	99-278-4	99-378-2	51.75
1/4-20	1 1/4	1 1/2	99-179-4	99-279-2	99-379-0	66.30
5/16-18	1 1/2	1/2	99-181-0	99-281-8	99-381-6	61.50
5/16-18	1 1/2	3/4	99-182-8	99-282-6	99-382-4	64.25
5/16-18	1 1/2	1	99-183-6	99-283-4	99-383-2	66.95
5/16-18	1 1/2	1 1/2	99-184-4	99-284-2	99-384-0	75.50
3/8-16	1 3/4	3/4	99-186-9	99-286-7	99-386-5	79.50
3/8-16	1 3/4	1	99-187-7	99-287-5	99-387-3	84.65
3/8-16	1 3/4	1 1/2	99-188-5	99-288-3	99-388-1	95.75

Equivalent 10, 1/4 and 5/16 Tee sizes available with new "L" knobs at same price.





99-617-3



99-622-3

SHEAR-LOC®
Kit Convenience

Inch Kits In Yellow Plastic Case

DESCRIPTION	PART NO.	PRICE
686 piece Knurled Knob kit, 48 black, 30 red and 20 gray of each size: #4, #6, #8, #10, 1/4" x 3/4", 1/4" x 1 and 5/16" x 1	99-610-8	$180.20
350 piece Knurled Knob kit, 25 black, 15 red and 10 gray as above	99-611-6	108.65
150 piece Rosette Knob kit, 25 black and gray of each size: 1/4", 5/16" and 3/8"	99-612-4	104.75
300 piece Tee Knob kit, 25 black, 25 red and 25 gray of each size: #10, 1/4", 5/16" and 3/8"	99-613-2	104.75
280 piece Black Medley Kit contains 20 each of the following: #4, #6, #8, #10, 1/4" x 3/4", 1/4" x 1", 5/16" Knurl Knobs; #10, 1/4", 5/16", 3/8" Tee Knobs; #10, 1/4", 5/16" L Knobs; 1/4", 5/16", 3/8" Rosette Knobs.	99-617-3	116.35
340 piece Designer Medley Kit with 10 black, 5 gray, 5 red each of sizes: #4, #6, #8, #10, 1/4" x 3/4", 1/4" x 1", 5/16" Knurl Knobs; #10, 1/4", 5/16", 3/8" Tee Knobs; #10, 1/4", 5/16" L Knobs; 1/4", 5/16", 3/8" Rosette Knobs.	99-622-3	147.35

Metric Kits In Yellow Plastic Case

DESCRIPTION	PART NO.	PRICE
300 piece Knurled Knob kit, 25 black, 15 red and 10 gray of each size: M3, M4, M5, M6 x 19, M6 x 26 and M8	99-614-0	$104.75
150 piece Rosette Knob kit, 25 black and 25 gray of each size: M6, M8 and M10	99-615-7	108.65
300 piece Tee Knob kit, 25 black, 25 red and 25 gray of each size: M5, M6, M8 and M10	99-616-5	108.65
260 piece metric Black Medley Kit contains 20 each of the following: M3, M4, M5, M6 x 19, M6 x 26, M8 Knurl Knobs; M5, M6, M8, M10 Tee Knobs; M6, M8, M10 Rosette Knobs.	99-618-1	116.35
450 piece metric Knurled Knob Kit with 25 black, 25 gray, 25 red each of sizes: M3, M4, M5, M6 x 19, M6 x 26, M8.	99-619-9	139.60
260 piece metric Designer Medley Kit with 10 black, 5 gray, 5 red each of sizes: M3, M4, M5, M6 x 19, M6 x 19, M6 x 26, M8 Knurl Knobs; M5, M6, M8, M10 Tee Knobs; M6, M8, M10 Rosette Knobs.	99-621-5	120.30

TOOLING COMPONENTS

HeliCoil Screw Thread Inserts

- Use for O.E.M. applications, or in repairs.
- Provides 60° internal screw threads.
- ISO 9001 Certified.
- Precision formed screw thread coils of 18-8 (Type 302/304) stainless steel wire having a diamond shaped cross-section.
- Cold rolled from round wire. Tensile strength of approx. 200,000 to 250,000 P.S.I. a hardness of 43-50 RC.
- Surface finish is 8-16 microinches. This wire is then wound into a spiral coil which, when installed into Heli-Coil tapped holes, provides permanent conventional 60° Internal Screw threads.
- The assembled insert accommodates any standard bolt or screw to MIL-S-7742 and MIL-S-8879 (UNJ controlled radius root) male threaded member.
- Inserts sold individually.



Standard, Free Running Inserts.



Each Kit Includes:
– Tap,
– Drill,
– Inserting Tool,
– 10 Inserts.

Single Size Repair Kits • Inch Sizes

THREADS	SIZE	PART NUMBER	PRICE
4 - 40	.168"	**61-764-7**	$64.55
5 - 40	.188"	**61-765-4**	102.75
6 - 32	.207"	**61-766-2**	64.55
8 - 32	.246"	**61-767-0**	64.85
10 - 24	.285"	**61-768-8**	60.65
12 - 24	.324"	**61-769-6**	61.30
1/4 - 20	.375"	**61-770-4**	62.60
5/16 - 18	.469"	**61-771-2**	$65.25
3/8 - 16	.562"	**61-772-0**	66.45
7/16 - 14	.656"	**61-773-8**	70.30
1/2 - 13	.75"	**61-774-6**	92.50
6 - 40	.207"	**61-775-3**	102.75
8 - 36	.246"	**61-776-1**	102.75
10 - 32	.285"	**61-777-9**	67.75
1/4 - 28	.375"	**61-778-7**	$69.65
5/16 - 24	.469"	**61-779-5**	72.25
3/8 - 24	.562"	**61-780-3**	76.05
7/16 - 20	.656"	**61-781-1**	79.95
1/2 - 20	.75"	**61-782-9**	109.65
–	–	–	–
–	–	–	–

Single Size Repair Kits • Metric Sizes

THREADS	SIZE	PART NUMBER	PRICE
M3x0.5	4.5	**61-783-7**	$102.75
M3.5x0.6	5.3	**61-784-5**	102.75
M4x0.7	6	**61-785-2**	64.85
M5x0.8	7.5	**61-786-0**	65.55
M6x1	9	**61-787-8**	$61.95
M7x1	10.5	**61-788-6**	62.95
M8x1.25	12	**61-789-4**	62.95
M9x1.5	13.5	**61-790-2**	67.45
M10x1.5	15	**61-791-0**	$75.75
M11x1.5	16.5	**61-792-8**	77.55
M12x1.75	18	**61-793-6**	85.30
–	–	–	–
–	–	–	–

Inch Sizes

THREADS	SIZE	PART NO.	PRICE
2 - 56	.086"	**61-794-4**	$0.80
2 - 56	.129"	**61-795-1**	0.83
2 - 56	.172"	**61-796-9**	0.88
2 - 56	.215"	**61-797-7**	0.89
2 - 56	.258"	**61-798-5**	0.97
–	–	–	–
–	–	–	–
3 - 48	.198"	**61-801-7**	0.85
–	–	–	–
–	–	–	–
4 - 40	.112"	**61-804-1**	0.80
4 - 40	.168"	**61-805-8**	0.83
4 - 40	.224"	**61-806-6**	0.88
4 - 40	.280"	**61-807-4**	0.92
4 - 40	.336"	**61-808-2**	1.01
5 - 40	.125"	**61-809-0**	0.75
5 - 40	.188"	**61-810-8**	0.80
5 - 40	.250"	**61-811-6**	0.85
–	–	–	–
–	–	–	–
6 - 32	.138"	**61-814-0**	0.80
6 - 32	.207"	**61-815-7**	0.85
6 - 32	.276"	**61-816-5**	0.90
6 - 32	.345"	**61-817-3**	0.95
6 - 32	.414"	**61-818-1**	1.05
8 - 32	.164"	**61-819-9**	$0.80
8 - 32	.246"	**61-820-7**	0.85
8 - 32	.328"	**61-821-5**	0.90
8 - 32	.410"	**61-822-3**	1.00
8 - 32	.492"	**61-823-1**	1.10
10 - 24	.190"	**61-824-9**	0.80
10 - 24	.285"	**61-825-6**	0.85
10 - 24	.380"	**61-826-4**	0.90
10 - 24	.475"	**61-827-2**	0.95
10 - 24	.570"	**61-828-0**	1.05
–	–	–	–
12 - 24	.324"	**61-830-6**	0.80
–	–	–	–
–	–	–	–
–	–	–	–
1/4 - 20	.250"	**61-834-8**	0.80
1/4 - 20	.375"	**61-835-5**	0.85
1/4 - 20	.500"	**61-836-3**	0.90
1/4 - 20	.625	**61-837-1**	0.95
1/4 - 20	.750"	**61-838-9**	1.05
5/16 - 18	.312"	**61-839-7**	0.90
5/16 - 18	.469"	**61-840-5**	1.05
5/16 - 18	.625"	**61-841-3**	1.25
5/16 - 18	.781"	**61-842-1**	1.50
5/16 - 18	.938"	**61-843-9**	1.70
3/8 - 16	.375"	**61-844-7**	$1.15
3/8 - 16	.562"	**61-845-4**	1.35
3/8 - 16	.750"	**61-846-2**	1.80
3/8 - 16	.938"	**61-847-0**	2.25
3/8 - 16	1.125"	**61-848-8**	2.60
7/16 - 14	.438"	**61-849-6**	1.25
7/16 - 14	.656"	**61-850-4**	1.60
7/16 - 14	.875"	**61-851-2**	2.05
–	–	–	–
–	–	–	–
1/2 - 13	.500"	**61-854-6**	1.40
1/2 - 13	.750"	**61-855-3**	2.15
1/2 - 13	1.000"	**61-856-1**	2.95
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–

Metric Sizes

THREADS	SIZE	PART NO.	PRICE
M3x0.5	3.0	**61-859-5**	$1.05
M3x0.5	4.5	**61-860-3**	1.15
M3x0.5	6.0	**61-861-1**	1.20
M4x0.7	4.0	**61-862-9**	0.80
M4x0.7	6.0	**61-863-7**	0.85
M4x0.7	8.0	**61-864-5**	0.90
M5x0.8	5.0	**61-865-2**	0.80
M5x0.8	7.5	**61-866-0**	0.85
M5x0.8	10.0	**61-867-8**	0.90
M6x1	6.0	**61-868-6**	$0.80
M6x1	9.0	**61-869-4**	0.85
M6x1	12.0	**61-870-2**	0.90
M8x1.25	8.0	**61-871-0**	0.90
M8x1.25	12.0	**61-872-8**	1.05
M8x1.25	16.0	**61-873-6**	1.25
M10x1.5	10.0	**61-874-4**	1.15
M10x1.5	15.0	**61-875-1**	1.35
M10x1.5	20.0	**61-876-9**	1.85
M12x1.75	12.0	**61-877-7**	$1.40
M12x1.75	18.0	**61-878-5**	2.15
M12x1.75	24.0	**61-879-3**	2.80
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–



Type I Threaded Mandrel Sizes 2-56 and 3-48

Type I Threaded Mandrel • Inch Sizes

SIZE	PART NO.	PRICE
2-56	**61-880-1**	$92.05
3-48	**61-881-9**	$92.05



Type II Prewinder #4 thru 1/2" UNC

Type II Prewinder • Inch Sizes

SIZE	PART NO.	PRICE
4 - 40	**61-882-7**	$102.90
5 - 40	**61-883-5**	102.90
6 - 32	**61-884-3**	102.90
8 - 32	**61-885-0**	102.90
10 - 32	**61-886-8**	102.90
12 - 24	**61-887-6**	102.90
1/4 - 20	**61-888-4**	$102.90
5/16 - 18	**61-889-2**	138.30
3/8 - 16	**61-890-0**	138.30
7/16 - 14	**61-891-8**	138.30
1/2 - 13	**61-892-6**	138.30
–	–	–

Type II Prewinder • Metric Sizes

SIZE	PART NO.	PRICE
M3x0.5	**61-906-4**	$102.90
M4x0.7	**61-907-2**	102.90
M5x0.8	**61-908-0**	102.90
M6x1	**61-909-8**	102.90
M8x1.25	**61-910-6**	$138.30
M10x1.5	**61-911-4**	138.30
M12x1.75	**61-912-2**	138.30
–	–	–

Tang Breakoff Tool

Inch

SIZE	PART NO.	PRICE
2-56	**61-893-4**	$67.80
4-40	**61-895-9**	67.80
6-32	**61-897-5**	67.80
8-32	**61-898-3**	67.80
10-32	**61-899-1**	67.80
1/4-20	**61-901-5**	67.80
5/16-18	**61-902-3**	116.00
3/8-16	**61-903-1**	116.00
7/16-14	**61-904-9**	116.00
1/2-13	**61-905-6**	116.00

Metric

SIZE	PART NO.	PRICE
M4	**61-914-8**	$67.80
M5	**61-915-5**	67.80
M6	**61-916-3**	67.80
M8	**61-917-1**	116.00
M10	**61-918-9**	116.00
M12	**61-919-7**	120.15
–	–	–
–	–	–
–	–	–
–	–	–

Magnetic Print Holders


91-482-0

- Will not mark or tear paper.
- Magnetic strength holds through many layers of print.
- Ideal for holding papers, prints and charts against steel partitions, machinery and metal desks.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
$1\frac{7}{16}$" Magnetic B/P Holder	**91-481-2**	$5.00
2" Magnetic B/P Holder	**91-482-0**	6.05

Ground Ship ONLY

MAG-MATE® Low Profile Cup Magnets w/Nuts


Ground Ship ONLY

- Ceramic and rare earth plated cup magnets are ideal for hanging signs, lights, retrieving steel items from tanks, vats and bins.
- D.O.T. Regulated. Shipped via ground freight only.

DIA.	HT.	WORKING PULL (LBS.)	MAX. PULL (LBS.)	TYPE	PART NUMBER	PRICE
$1\frac{13}{64}$"	$1\frac{3}{16}$	2	4	Ceramic	**91-225-3**	$8.20
$2\frac{1}{32}$"	$1\frac{13}{16}$"	19	38	Ceramic	**91-226-1**	10.65
$2\frac{1}{4}$"	$1\frac{3}{16}$"	5	10	Ceramic	**91-227-9**	10.65
$2\frac{5}{8}$"	$1\frac{15}{16}$"	41	82	Ceramic	**91-228-7**	22.70
$3\frac{13}{16}$"	$1\frac{7}{8}$"	48	95	Ceramic	**91-229-5**	26.55
2.03"	0.18"	48	95	Rare Earth	**91-230-3**	36.80
2.03"	0.18"	74	148	Rare Earth	**91-231-1**	44.70
2.62"	0.37"	100	200	Rare Earth	**91-232-9**	57.55

Mini Magic Demagnetizer


98-270-2

- Thoroughly demagnetizes tools, dies, punches, cutters, parts, etc. simply by sliding it over the surface of the item to be demagnetized.
- Pressing the single pole momentary-switch sets up a field of flux which neutralizes magnetism. Releasing the switch automatically shuts off the unit.
- Complete with 5 foot oil resistant cord.
- $3\frac{1}{2}$" L x $1\frac{3}{4}$" W x $1\frac{3}{4}$" H.
- Single phase current.
- 110 volt

DESCRIPTION	PART NO.	PRICE
Mini Magic Demagnetizer	**98-270-2**	$98.95

GENERAL® Compact Magnetizer/ Demagnetizer


98-176-1

- For use with screwdrivers, nut drivers, taps, wrenches and other steel objects.
- Magnetizer turns bladed tools into powerful retrieval tools.
- Demagnetizer makes tools safe for use with electronic equipment.
- 1" long, 1" wide, 1" high.
- Weight: .25 lbs.

DESCRIPTION	PART NO.	PRICE
Compact Magnetizer/Demagnetizer	**98-176-1**	$3.75

wiha Premium Tools Magnetizer - Demagnetizer

Cordless



98-572-1

Ground Ship ONLY

- Powerful permanent magnet for long lasting performance.
- Magnetizes and demagnetizes screwdrivers, tweezers, tool bits and other steel objects instantly.
- Cordless, handy to operate. Size 2" x 2" x 1".
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Magnetizer - Demagnetizer	**98-572-1**	$8.95

Hand Held Magnetizer/Demagnetizer


98-264-5

- Quickly magnetizes or demagnetizes drills, punches, dies and screwdrivers by simply passing them through or near the loop.
- Electronically and thermally protected.
- Operates on 100V AC with push button control.
- Ring opening: $2\frac{1}{2}$"
- 9" long, 1" high.
- Weight: 3 lbs.

DESCRIPTION	PART NO.	PRICE
Hand Held Magnetizer/Demagnetizer	**98-264-5**	$99.95



Compact
96-987-3



Enclosed
96-989-9

Ground Ship ONLY

Welders Magnets Multi-Purpose Magnetic Squares



Big Daddy
96-991-5

- Use for welding, brazing soldering and assembly.
- Holds components in position for fast simple set-ups.
- Provides instant 90° or 45° angles.
- Compact & Double magnets adjust to any angle.
- D.O.T. Regulated. Shipped via ground freight only.

TYPE	NOMINAL WIDTH	NOMINAL HEIGHT	AVERAGE PULL (LBS.)	PART NUMBER	PRICE
Compact	$3\frac{3}{8}$"	$3\frac{3}{8}$"	55	**96-987-3**	$12.25
Double	$6\frac{1}{8}$"	$3\frac{3}{8}$"	110	**96-988-1**	23.80
Enclosed	$3\frac{3}{4}$"	$4\frac{3}{8}$"	75	**96-989-9**	29.70
Open	$3\frac{3}{4}$"	$4\frac{3}{8}$"	75	**96-990-7**	24.30
Big Daddy	8"	8"	325	**96-991-5**	105.03
Chunky	$3\frac{3}{4}$"	$4\frac{3}{8}$"	150	**96-992-3**	47.73

TOOLING COMPONENTS



51-168-3

Economy Demagnetizer

- 110 Volts, On-Off switch.
- Quickly demagnetizes tools, drills, punches, dies, etc. by sliding the item across surface.
- 6.75" long, 4.5" wide, 5.0" high.
- Weight: 11 lbs.

DESCRIPTION	PART NO.	PRICE
Economy Demagnetizer	**51-168-3**	$88.15

Demagnetizer

- Effectively demagnetizes residual magnetism in tools, molds and other workpieces.
- Convenient on-off switch.
- 9" long, 4 1/2" wide, 3 1/4" high. Weight 9 1/2 lbs.
- Surface area 47 sq. in.
- 120 Volt single phase operation.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Demagnetizer	**51-171-7**	$99.95



51-171-7

Ground Ship ONLY

SHOP GRADE Balancing Stands

For Balancing Shaft and Non-Shaft Mounted Wheels

Level Balancing Stand - For Balancing Shaft Mounted Wheels

- Uses a screw adjustable spirit level.
- Upper contacts are cylindrical hardened and ground steel rods.
- Tolerance ±0.0003".



57-922-7

Adjustable Balancing Stand - For Balancing Shaft and Non-Shaft Mounted Wheels

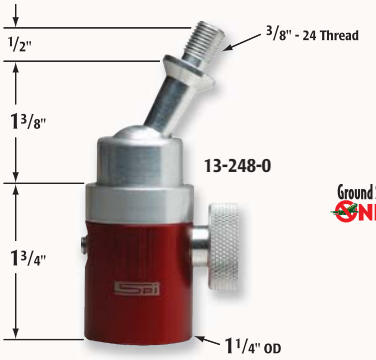
- Will effectively balance wheels up to 20".
- Uses 4 intersecting rollers to move the wheel.
- Rollers can be adjusted from 4" to 12" apart.
- Tolerance ±0.0003".

DESCRIPTION	PART NO.	PRICE
8" Level Balancing Stand	**57-922-7**	$405.95
14" Level Balancing Stand	**57-923-5**	520.15
Adjustable Balancing Stand	**57-924-3**	1,004.45

Arbors not included



57-924-3

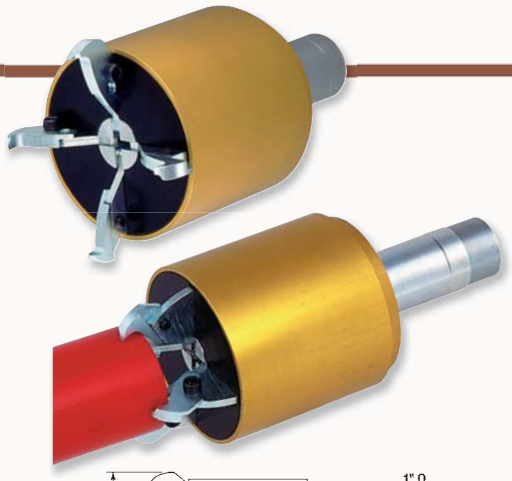


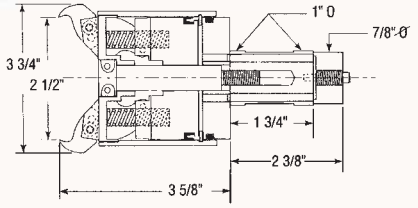
13-248-0

Ground Ship ONLY



13-249-8





Universal CNC Bar Puller

- Fits most CNC machines to fully utilize automatic machining cycles with round, hex, square and flat bare stock.
- Two models with different capacities, Mini Omni 3/16" - 1 1/8" and Omni 3/16" – 3"
- 1" dia. mounting shank.
- Activation with internal coolant system or air: minimum 15 PSI to Maximum 80 PSI.
- Replaceable hard and soft fingers available.

DESC.	CAP.	BODY DIA.	OAL	PART NO.	PRICE
Mini Omni	3/16" - 1 1/8"	2 1/4	4"	**69-994-2**	$526.20
Omni	3/16" - 3"	3 3/4	6"	**69-987-6**	690.70

Individual Fingers for Mini Omni

DESCRIPTION	PART NO.	PRICE
Hardened Steel 50 RC	**69-995-9**	$27.75
Aluminum Fingers	**69-997-5**	23.70
Brass Fingers	**69-998-3**	23.70

4 Pc. Sets Fingers for Mini Omni

DESCRIPTION	PART NO.	PRICE
Hardened Steel 50 RC	**69-999-1**	$88.20
Soft Steel Fingers	**70-000-5**	77.25
Aluminum Fingers	**70-001-3**	71.75
Brass Fingers	**70-002-1**	71.75

Individual Fingers for Omni

DESCRIPTION	PART NO.	PRICE
Aluminum Steel Fingers	**69-991-8**	$23.70
Hardened Steel Fingers	**69-992-6**	27.75
Soft Steel	**69-993-4**	23.70

4 Pc. Sets Fingers for Omni

DESCRIPTION	PART NO.	PRICE
Aluminum Steel Fingers	**69-988-4**	$71.75
Hardened Steel Fingers	**69-989-2**	88.20
Soft Steel	**69-990-0**	77.25

SPI®

Float N Lock Positioner

- It's an excellent dial indicator holder.
- All metal parts used.
- Precision angled bearings interface and lock the ball precisely with a small turn of the locking knob. Excellent rigidity factor.
- Self-compensating, no need to disassemble to re-establish tension (as with other designs).
- Right angle notch (for 90° positioning) can be swung to any point 360° and then locked.
- D.O.T. Regulated. Shipped via ground freight only.

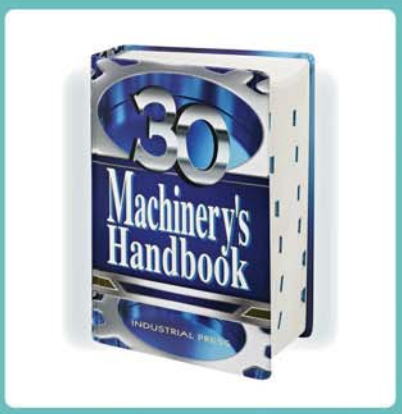
DESCRIPTION	PART NO.	PRICE
Mounting Bottom Holes 3/8"-16	**13-248-0**	$37.99
Magnetic Base (90 lb. Pull) 3 1/4" x .435" High	**13-249-8**	50.11

SHOP ACCESSORIES

















SHOP ACCESSORIES



52-175-7



52-173-2

Personal Fans

Perfect for Home or Office

- Whisper quiet operation.

DESCRIPTION	TYPE	SPEEDS	PART NO.	PRICE
Oscillating 12"	Table Fan	3	**52-173-2**	$35.45
Oscillating 16"	Table Fan	3	**52-174-0**	42.50
Grip Clip 6"	Clip Fan	2	**52-175-7**	24.00

VORNADO

Portable Air Circulator Fans

Whole Room Vortex Circulation

- Whisper quiet operation.
- 3 Speeds • Energy saver
- Removable grills for easy cleaning.
- Color: Black
- 120V



90-541-4

Mid-Size Circulator - 90-541-4

- Moves air up to 70'
- CFM: 331/222
- RPM: 1600/1025
- Dimensions: 8.6" L x 12" W x 13.6" H



90-542-2

Horizontal/Vertical Compact Circulator - 90-542-2

- Use horizontal during summer to circulate air and during winter to force warm air off the ceiling, back into the room.
- Moves air up to 60'.
- CFM: 236/147
- RPM: 2000/1200
- Dimensions: 7.2" L x 10" W x 10.3" H

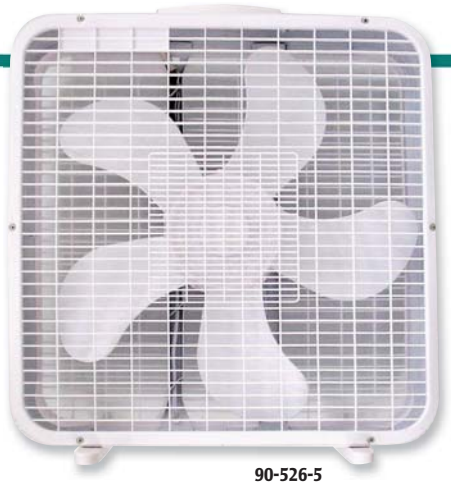


90-543-0

Compact Circulator - 90-543-0

- Moves air up to 65'
- CFM: 283/152
- RPM: 2200/1150
- Dimensions: 8.1" L x 9.8" W x 10.8" H

AMPS	MFG'S #	PART NO.	PRICE
0.48	630B	**90-541-4**	$82.15
0.77	573	**90-542-2**	46.99
1.10	530B	**90-543-0**	59.55



90-526-5

20" Box Fan

Quiet Operation - Great for Home and Office

- Lightweight and portable with carry handle.
- Tough and rugged steel body.
- Impact resistant plastic front and rear guards.
- 3 speeds with 18 gauge, 2 conductor cord.
- 110 V, 60 Hz, permanently lubricated motor.
- 5 blades.

BLADE SIZE	H.P.	CFM	PART NUMBER	PRICE
20"	1/8	5225/6108/6725	**90-526-5**	$46.80

Industrial Floor Fans

Meets OSHA Standards

- All metal construction.
- Fan rotates 360° for multi-directional use.
- Double locking chrome-plated steel guards.
- 3-speed, 120V, 1-phase.
- Motor is totally enclosed and permanently lubricated.
- 10', SJT-Type 3-conductor cord.
- 3 blades.



90-517-4

BLADE SIZE	H.P.	CFM	AMPS	PART NUMBER	PRICE
12"	1/12	1600/2200/2750	1.1	**90-517-4**	$180.40
24"	1/8	3600/5200/6350	2.4	**90-519-0**	301.55

3 Speed 20" Pedestal Fan

Great for Home, Office, Reception Area and Store

- Tubular steel stand with round base needs little floor space.
- Polypropylene blade is impact and chemical resistant.
- Front steel fan guard snaps into plastic rear grill and needs no clips.
- Height adjusts from 40" to 51" from floor to center of the fan.
- 5' grounded, 3-conductor cord.
- ETL certificate.
- Easy assembly.
- 3 blades.



90-525-7

BLADE SIZE	H.P.	CFM	PART NUMBER	PRICE
20"	1/3	2825/3530/4590	**90-525-7**	$123.76



90-523-2

Roll-About Floor Fans

Meets OSHA Standards

- Rolls easily on two 5" wheels.
- Head tilts 360° for multi-directional use.
- Double locking, chrome-plated steel guards.
- 3-speed, rotary switch, 120V, 1-phase
- Motor is totally enclosed and permanently lubricated.
- 10', SJT-Type 3-conductor cord.
- 53" stand height.
- 3 blades.

BLADE SIZE	H.P.	CFM	AMPS	PART NUMBER	PRICE
18"	1/8	3200/4700/5750	2.2	**90-523-2**	$249.55
24"	1/8	3600/5200/6350	2.4	**90-524-0**	311.95

Fan Forced Portable Heaters

Swivel Base Allows Unit to be Wall, Floor or Ceiling Mounted

- Operates on 240V or 208V single phase current.
- Finned steel tubular heating element.
- Internal manual reset thermal cutout.
- 6' long cord with molded plug.
- Temperature control thermostat with 35° F to 85° F range.
- 10' Forced air throw- 262 CFM
- 13½" W x 17½" H x 11½" D

BTU RATING MIN.	BTU RATING MAX.	WATTS	WEIGHT (LBS.)	PART NUMBER	PRICE
10,239	13,652	4,000/3,000	20	**90-538-0** *	$225.00
12,288	16,384	4,800/3,600	20	**90-539-8**	279.55
14,330	19,107	5,600/4,200	20	**90-540-6**	314.75

* - UL Listed Only



90-538-0



90-528-1

Electric Forced-Air Heater

Efficient Portable Utility Heater

- Adjustable thermostat.
- Automatic overheat shut-off.
- Maximum BTU Rating: 13,648.
- Heating area: 25 - 46 square feet.
- Voltage: 240/208 single phase.
- Wattage: 4000/3000

DESCRIPTION	PART NO.	PRICE
Electric Forced-Air Heater	**90-528-1**	$221.50



90-521-6

30" Industrial Grade Air Circulators

Factory Assembled Fan Heads with Pedestal Mounts Meets OSHA Standards

- 2-speed, 120V, 1-phase.
- Totally enclosed ball bearing motor.
- Motor is permanently lubricated.
- 12', SJT-Type 3-conductor cord.
- Chrome plated steel guards resist rust.
- Steel hub/spider and aluminum blades.
- Pull chain switch.

H.P.	CFM	AMPS	BLADES	PART NO.	PRICE
1/3	6200/8200	3.4	3	**90-521-6**	$494.55
1/2	8100/9500	4	4	**90-522-4**	553.85

STREAMLIGHT

Stylus® & Stylus® Reach LED Penlights

See Pg. 363

NEW



60-148-4



60-149-2

SHOP ACCESSORIES



98-970-7

CROWN Portable Sprā-Tool®

Provides Fast, Professional Results

- Fast Action trigger maintains constant pressure for a smooth, professional –looking finish.
- Three interchangeable spray tip inserts for light, medium or heavy bodies materials.
- Sprays most liquids, including higher-viscosity paints such as latex.
- Paint Sprayer Kit includes: Power Pack, Jar w/Cap and Snap-on head and tips.

DESCRIPTION	SIZE (OZ.)	PART NO.	PRICE
Paint Sprayer Kit	–	**98-970-7***	$13.75
Power Pack	6.5	**98-958-2***	6.15
Jar w/Cap	8	**97-928-6**	2.45
Snap-on Head	–	**97-929-4**	7.55

Ground Ship ONLY

*D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.



90-200-7



90-201-5

sure shot Sprayers

- Use instead of aerosol cans.
- Uses bulk liquids and compressed air.
- Easy to fill and pressurize with a standard tire fill gage.
- Enamel coated sprayers for all non-water soluble liquids.
- Environmentally safe, non ozone depleting.
- All have a 1 qt. capacity.



96-222-5



96-221-7

MATERIAL	COLOR	NOZZLE	USE WITH	PART NO.	PRICE
Enamel Coated Steel	Red	1 Mist #302 1 Pin #301	Non-Water Soluble	**96-221-7**	$62.05
Enamel Coated Steel	Black	Adj. Fine Mist to pin stream	Non-Water Soluble	**96-222-5**	59.60

LittleGIANT Small Submersible Pumps

- Designed for high volume service in a low pressure environment.
- Pumps can be used for evaporative coolers, water fountains, gardens and coolant applications.
- Housings contain non-toxic mineral oil providing continual lubrication and optimum cooling for maximum motor life.
- Epoxy coated aluminum housing for effective head dissipation and long life.
- Snap-off screen. 1/4" male NPT outlet, 6 foot power cord.
- Model 1-A includes 90° elbow accessory.
- Model 2E-N has hooded inlet.

Specifications:

MODEL	GAL./HR. @ 1'	SHUT OFF (FT.)	PSI	H.P.	MOTOR AMPS	WT.
1-A	170	7.0	3.0	1/200	1.1	3.4
2E-N	300	11.8	5.1	1/40	1.7	4.7

DESCRIPTION	PART NO.	PRICE
Model I-A Submersible Pump	**90-200-7**	$93.65
Model 2E-N Submersible Pump	**90-201-5**	106.95

LINCOLN Fluid Evacuator Plus

Operates Without Compressed Air or Electricity

- Convenient manual pump operation.
- At the push of a button, it changes from vacuum to pressure for evacuating or dispensing fluids
- Includes accessories for draining engine oil or transmission fluid directly through the dipstick tubes.
- Automatic overflow protection.
- Quick-drain pour spout.
- Integrated 2.3 gallon capacity reservoir.
- Large base with foot stabilizer.



89-209-1

DESCRIPTION	PART NO.	PRICE
Fluid Evacuator Plus	**89-209-1**	$182.55

LINCOLN PneumatiVac Fluid Evacuator

Provides a Clean, Fast and Simple Way to Evacute Fluids



89-208-3

- Operates on compressed air to create a powerful venture vacuum for draining fluids from tanks and reservoirs.
- Includes accessories for draining engine oil or transmission fluid directly through the dipstick tubes. Also includes brake/clutch bleeding kit for vacuum bleeding hydraulic brake and clutch systems.
- Independent air shut off valve. Automatic overflow protection.
- Quiet muffled exhaust. Quick-drain pour spout.
- Integrated 2.3 gallon capacity reservoir.
- Large base with foot stabilizer.
- 1/4" NPT compressed air inlet.

DESCRIPTION	PART NO.	PRICE
PneumatiVac Fluid Evacuator	**89-208-3**	$203.45



Ground Ship ONLY

98-109-2

master CHEMICAL

TRIM SOL®

General Purpose Emulsion

- Proven to be highly effective in controlling built-up edge (BUE).
- Has a very wide application range and is often used in such diverse operations as production surface and centerless grinding, heavy-duty broaching, gear hobbing and replacing straight oil on some types of screw machines.
- Leaves a fluid, non-gumming film to prevent sticky ways, chucks, tool holders and fixtures.
- Coolant residue is easily removed with either water, working solution or aqueous cleaners.
- Easy recycling or disposal with conventional techniques and equipment.

SIZE	TYPE	PART NO.	PRICE
1 Gal.	Bottle	**98-108-4**	$40.05
5 Gal.	Pail	**98-109-2** *	177.65

*D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.



65-697-5

Go With The Pro!
ABANAKI OIL SKIMMERS

Cool-Mints™

SDT™ - Sump Deodorizing Tablets

- Safe to handle and easy to use.
- Eliminates coolant odors immediately by neutralizing hydrogen sulfide gases.
- Contains no formaldehyde.
- 1 tablet per week maintains 25 gallons of coolant.
- 15 tablets per tube.

DESCRIPTION	PART NO.	PRICE
Cool-Mints™ Tablets	**65-697-5**	$42.80



Ground Ship ONLY

61-307-5



61-308-3

TW Rustlick™

Triadine 20 Bactericide & Fungicide

The ONLY Product That Controls Both Bacteria & Fungus Growth Simultaneously

- Protection that extends tool life.
- Microbiostat is easy and economical to use.
- Formulated as a fast acting sump side additive.
- Use 1 oz. per 5 gallon in sump.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

SIZE	TYPE	PART NO.	PRICE
16 oz.	Bottle	**61-306-7**	$26.85
1 Gal.	Bottle	**61-307-5**	155.35

TW Rustlick™

Non-Silicone Defoamer

Anti-foam Liquid Treats Foaming in Machine Sumps and Washing Systems

- Silicone and silica free.
- Fast-acting formula.
- Use with most coolants, washing compounds and cleaners.
- Controls excess foam.
- Won't interfere with painting or plating.
- 1 gallon jug.

DESCRIPTION	PART NO.	PRICE
Non-Silicone Defoamer	**61-308-3**	$89.95

Coolant Tester

- Quickly and easily test cutting fluid concentration.
- Save on coolant and tool wear by maintaining proper dilution.
- Complete easy to use instructions and case included.
- Can also be used to check the coolant of a car.
- 0.2, 0.1% min. division, calibrate with water.
- RHB-32, 0 - 32% (Brix Scale). Ideal for general purpose use.
- RHB-10ATC, 0 - 10% (Brix Scale).
- Use for low concentrations and synthetics. Includes auto temperature compensation.

DESCRIPTION	PART NO.	PRICE
RHB-32	**57-372-5**	$177.60
RHB-10ATC	**57-373-3**	192.80
Daylight Plate	**06-517-7**	22.30





98-951-7

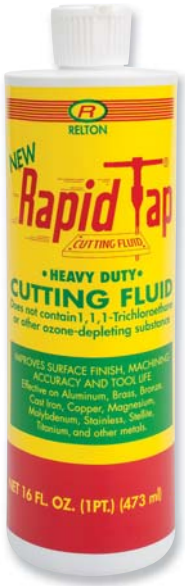
COOL TOOL II

Cutting Fluid

- Cool-Tool II is a safe, non-toxic cutting fluid for general use.
- It performs equally well on most metals, including Stainless Steels, Inconel, Aluminum, etc.
- Ideal for all types of metal cutting; turning, milling, sawing, drilling, reaming, tapping, etc.
- Preferred by leading manufacturing firms and government agencies.
- OSHA approved.

CONTAINER SIZE	PART NO.	PRICE
4 oz. Spout Top	**98-747-9**	$3.50
16 oz. Aerosol	**98-748-7**	15.95
1 Pint Can	**98-951-7**	11.20
1 Gallon Can	**98-952-5**	59.95
5 Gallon Pail	**98-953-3**	244.95

SHOP ACCESSORIES



99-193-5

RELTON CORPORATION

RapidTap® Cutting Fluid
Waterproof Grease

- Super-fine machined finish in operation after operation.
- Greatly extended tool life.
- Anti-mist protection for a healthier work environment.
- Excels in tough materials.
- Contains no 1,1,1 – trichloroethane or other ozone-depleting chemicals.

SIZE	TYPE	PART NO.	PRICE
4 oz.	Bottle	**99-192-7**	$4.55
1 Pt.	Bottle	**99-193-5**	15.60
1 Gal.	Bottle	**99-194-3**	88.80
5 Gal.	Pail	**99-195-0**	383.45



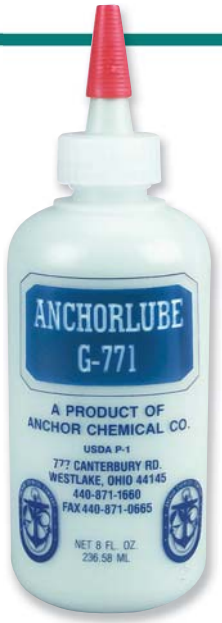
99-196-8

RELTON CORPORATION

Option1® Metal Cutting Fluid

- Water-based.
- Cleans up with clean dry cloth or water.
- Great for use in computer clean rooms, hospitals or when a weld operation follows machining operations.
- Leaves no oily residue.
- Contains no 1,1,1 – trichloroethane or other ozone-depleting chemicals.
- Not for use on metals that are water reactive, such as magnesium.

SIZE	TYPE	PART NO.	PRICE
4 oz.	Bottle	**99-196-8**	$4.65
1 Pt.	Bottle	**99-197-6**	13.85
1 Gal.	Bottle	**99-198-4**	83.45
5 Gal.	Pail	**99-199-2**	398.75



99-239-6

Anchorlube G-771 Lubricant

- The best product available for stainless, high-carbon, high-chrome, case iron monel, etc.
- Can be used for drilling, tapping, spot facing, counter-boring, milling, fly-cutting, seat forming, engraving, broaching and many others.
- Free of chlorine, fluorine, lead, sulfur, phosphorous or silicone.
- Contains no nitrates, chromates, mercury or formaldehyde base compounds.
- Acceptable for use in machine shops operating under the Federal Meat and Poultry Products Inspection Program (P-1).
- Contains no oil.

SIZE	TYPE	PART NO.	PRICE
8 oz.	Bottle	**99-239-6**	$11.15
½ Pt.	Jar	**99-240-4**	11.40
1 Gal.	Bottle	**99-241-2**	49.90
5 Gal.	Pail	**99-242-0**	178.40

LPS TAPMATIC®

Natural Cutting Fluid

- Biodegradable.
- Non-Toxic and non-hazardous.
- Natural-based oils.
- Great for cutting steel and aluminum.
- Extends tool life.
- Does not contain sulfur, chlorine, chlorinated solvents, water, mineral oil or inactive fillers.
- High performance lubricating ability eliminates galling and seizing.

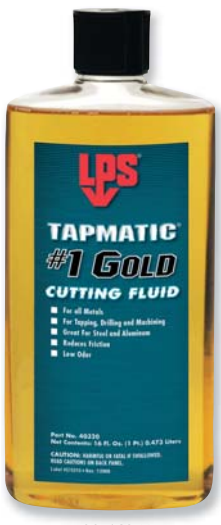


99-164-6

SIZE	TYPE	PART NO.	PRICE
16 oz.	Bottle	**99-164-6**	$18.55
1 Gal.	Container	**99-165-3**	89.80
5 Gal.	Pail	**99-166-1**	328.35

#1 Gold Cutting Fluid

- Does not contain water, solvents, inactive fillers or chlorinated solvents.
- Reduces cutting torque and improves cutting efficiency.
- Requires less product usage than traditional cutting fluids.
- Increases tool life and improves surface finish.
- Great for all metals including aluminum.



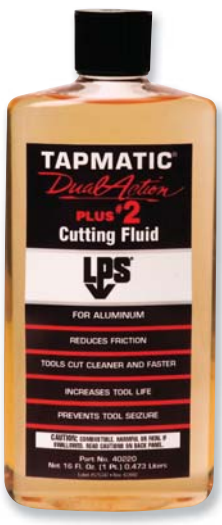
99-168-7

SIZE	TYPE	PART NO.	PRICE
11 oz.	Aerosol Can	**99-167-9**	$19.15
1 Pt.	Bottle	**99-168-7**	17.55
1 Gal.	Bottle	**99-169-5**	95.85
5 Gal.	Pail	**99-170-3**	353.40

Dual Action #2 Cutting Fluid
Designed Especially for Machining Aluminum

- Provides superior extreme pressure lubricity in machining aluminum and its alloys.
- No chlorinated solvents.
- Improves surface finish and extends tool life.
- Reduces friction and eliminates chip welding.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Ground Ship ONLY



98-638-0

SIZE	TYPE	PART NO.	PRICE
1 Pt.	Bottle	**98-638-0**	$18.20
1 Gal.	Bottle	**98-639-8**	124.35



98-412-0

LPS TAPMATIC®

Aquacut Cutting Fluid

- Corrosion inhibitors prevent flash rusting.
- Safe on all metals, except magnesium.
- Does not contain sulfur, chlorine or oils.
- Non-hazardous.
- Excellent in applications where cooling of the tool is desired.
- Water-based formula.
- Product leaves no residue after use.

SIZE	TYPE	PART NO.	PRICE
16 oz.	Bottle	**98-412-0**	$18.65
1 Gal.	Bottle	**98-413-8**	63.70
5 Gal.	Pail	**98-414-6**	261.40



99-235-4

TAPFREE 2

Cutting and Tapping Fluid

- Water-based.
- Hydro-Lube formulation delivers highly effective cutting action, reduces heat build-up and extends tool life.
- Produces a superior finish and tight tolerances on most production metals from aluminum to stainless steel.
- Cleans up light residue easily with a damp rag.
- Does not contains no 1,1,1 – trichloroethane.

SIZE	TYPE	PART NO.	PRICE
8 oz.	Bottle	**99-235-4**	$8.45
1 Pt.	Bottle	**99-236-2**	14.40
1 Gal.	Bottle	**99-237-0**	81.45
5 Gal.	Pail	**99-238-8**	365.25

Formula 1 Cutting and Tapping Fluid

Cutting & Tapping Fluid

For All Metals Including Aluminum & Stainless Steel

- Enviromentally improved formulation for tough machining jobs.
- Formulated to produce a high precision, ultra-fine finish on all hard-to-machine metals and alloys.
- Extends tool life.
- Increases production.
- Pleasant smelling.
- Use straight or as an additive to sulfur or petroleum based cutting oils.

SIZE	TYPE	PART NO.	PRICE
1 Pint	Bottle	**99-189-3**	$6.15
1 Gal.	Bottle	**99-190-1**	46.55
5 Gal.	Pail	**99-191-9**	243.90



99-189-3



98-687-7

Ground Ship ONLY

Castrol

Variocut™ C Moly Dee Tapping Fluid

- Ideal for any metal cutting operation; drilling, tapping, threading, reaming, milling, turning, boring, sawing, broaching and facing.
- Increases tool life in machining any metal, including Aluminum, Copper** and Steel.
- Especially effective on "hard to machine" and exotic materials.
- Provides excellent part finishes due to Moly-Dee's remarkable lubricity characteristics.
- Cools and lubricates at temperatures and pressures beyond the capability of conventional fluids.
- Moly-Dee may be used straight or as an additive.
- Mixes readily with any petroleum base (non-soluable) cutting oil.
- Does not contain 1,1,1-trichloroethane, percholorethane or chlorine.
- D.O.T. Regulated. Shipped via ground freight only.

CONTAINER SIZE	PART NO.	PRICE
16 oz. Spout Top	**98-687-7**	$48.45
1 Gallon Jug	**98-688-5**	195.10
5 Gallon Pail	**98-689-3**	764.25

**MOLY-DEE™ may stain copper and copper alloys if not removed following use.

TAP MAGIC

Cutting & Tapping Fluids

- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Tap Magic EP-Extra™

- Use on all metals including stainless, aluminum and titanium.
- Penetrates to the cutting edge of the tool.
- Clings to the tool—for a smoother and more even finish.
- Does not Contain 1,1,1-Trichloroethane.
- Contains NO Class 1 ozone depleting chemicals.

SIZE	TYPE	PART NO.	PRICE
4 oz.	Can	**99-336-0**	$5.20
12 oz.	Aerosol Can	**99-337-8**	17.55
16 oz.	Bottle	**99-338-6**	17.10
1 Gal.	Bottle	**99-339-4**	102.70
5 Gal.	Pail	**99-340-2**	425.45



99-336-0

Tap Magic Aluminum

- Use for tapping, drilling, milling and reaming operations.
- Not a cutting oil.
- Cutting fluid specifically designed for cutting aluminum.

SIZE	TYPE	PART NO.	PRICE
4 oz.	Can	**99-341-0**	$5.20
12 oz.	Aerosol Can	**99-342-8**	17.55
16 oz.	Bottle	**99-343-6**	17.10
1 Gal.	Bottle	**99-344-4**	102.70
5 Gal.	Pail	**99-345-1**	425.45

Tap Magic ProTap

- Use for machining operations on all metals.
- Highly effective on stainless steel and Inconel.
- Penetrates to the cutting edge of the tool for effortless cuts.
- Totally biodegradable and free of all regulated chemicals
- Will not stain or change the properties of even soft metals - like aluminum.
- High boiling point: 680° F to 1,000° F.
- Contains NO Class 1 ozone depleting chemicals.

Ground Ship ONLY

SIZE	TYPE	PART NO.	PRICE
4 oz.	Can	**99-346-9**	$5.20
12 oz.	Aerosol Can	**99-347-7**	17.55
16 oz.	Bottle	**99-348-5**	17.10
1 Gal.	Bottle	**99-349-3**	102.70
5 Gal.	Pail	**99-350-1**	425.45

SHOP ACCESSORIES

Castrol Stick Wax® Metal Cutting Lubricant



98-629-9

- Easy to apply—stick lubricant in a hand-held tube.
- Use on metal, plastic, fiberglass, wood and hardboard.
- Long-lasting film resists abrasion over a wide temperature range.
- Use on the cutting surface of tools, saw blades, grinding wheels & sanding belts to improve machining performance.
- Apply to windows, doors, fasteners, hinges, slides and tracks to reduce friction and smooth movement.
- 15 oz tube.

CONTAINER SIZE	PART NO.	PRICE
Stick Wax® Metal Cutting Lubricant	**98-629-9**	$19.35



98-029-2

Cap-Ease™ Stick and Lubricant

- A stick lubricant for cutting applications of ferrous and non-ferrous metals and plastics.
- Where a circulating lubricant is not possible, Cut-Ease applied to the cutting surface will provide a cleaner, faster, and smoother cut.
- When used consistently, Cut-Ease can prolong tool life, stop binding, and prevent burring.
- ½ lb. stick.

DESCRIPTION	PART NO.	PRICE
Cut-Ease™ Stick and Lubricant	**98-029-2**	$16.45



98-027-6

Tap-Ease™ Metal Cutting Lubricant

- Tap-Ease® is a stick lubricant for use in all types of tap and die applications.
- It's the clean, convenient way to a smoother, faster cut.
- Replaces liquid tapping fluids with chlorinated solvents and other VOC's.
- Works with aluminum, brass, magnesium, ferrous and non-ferrous materials.
- .43 oz. stick.

DESCRIPTION	PART NO.	PRICE
Tap-Ease™ Metal Cutting Lubricant	**98-027-6**	$3.95

RELTON CORPORATION

Stick-Kut™ Lubricating Stick Wax

- Safe and effective lubricant for grinding wheels, sanding belts and saw blades.
- Eliminates heat build-up and belt loading.
- Extends wheel life.
- Provides smooth, cool cutting.
- Reduces loading, stops binding and prevents burring.
- 15 oz. stick.



99-200-8

DESCRIPTION	PART NO.	PRICE
Stick-Kut™ Lubricating Stick Wax	**99-200-8**	$17.55



98-734-7

LPS TAPMATIC®

Edge Creme Cutting Fluid

- Safe on all metals.
- Ecological and economical.
- Does not contain any hazardous chemicals.
- For use when drilling, tapping blind holes, forming, bending, pre-coating fasteners and lubricating rubber seals.
- Squeeze tube allows easy application.
- Excellent for vertical application.
- 10 fl. oz. tube.

DESCRIPTION	PART NO.	PRICE
Edge Creme Cutting Fluid	**98-734-7**	$34.45

CIMCOOL® FLUID TECHNOLOGY

Center Saver®

Waterproof Grease



98-578-8

- Designed as a lubricant for centers on lathes, grinders, hobbing machines, etc.
- Also lubricates and waterproofs bearings, pumps and tools.
- Use on ferrous and nonferrous metals.
- The extreme pressure (EP) lubrication reduces the friction between the workpiece and the center.
- Prevents seizing of machine tool screws and fixtures.
- The extreme pressure (EP) lubrication reduces the friction between the workpiece and the center.
- Won't run when it gets hot or is under pressure – metalworking fluids won't wash it off.
- 2 oz. tube.

DESCRIPTION	PART NO.	PRICE
Center Saver®	**98-578-8**	$8.90



98-727-1

Ground Ship ONLY

LANO-LUBE

- Moisture free, stops rust, always clean, no odor, anti seize properties.
- Uses include: coating gages and accessories, manufactured components and heat treated parts.
- Machine uses: tapping of metals, drilling centers, machining of plastics.
- Coating of shank and spindle of dial indicators and similar instruments.
- Use as anti seize for lead screws, ball screws, slides and positioners.
- Protect lead screws on micrometers.
- 2 oz. tube.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Lano-Lube	**98-727-1**	$10.35

Sprayon Cutting Oil



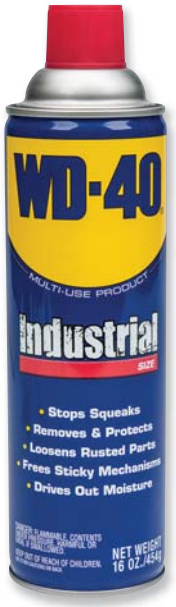
- Contains No Class 1 Ozone Depleting Chemicals.
- For all ferrous and nonferrous machining operations (even works well on difficult to machine metal such as stainless steel).
- Spray clings to work area.
- Excellent lubricant and coolant that extends tool life.
- 16 oz. container, 12 oz. net fill.
- Sprayon® model #S00208.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

62-805-7

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Sprayon® Cutting Oil	**62-805-7**	$8.50

WD-40



- Lubricates and positively locates to stop irritating squeaks.
- Prevents rust and corrosion for all metals.
- Penetrates to quickly free "frozen" or rusted metal parts and displaces moisture.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Ground Ship ONLY

99-269-3

DESCRIPTION	PART NO.	PRICE
3 oz. Aerosol Can	**99-264-4**	$4.85
8 oz. Aerosol w/Smart Straw	**99-265-1**	7.65
11 oz. Aerosol w/Smart Straw	**99-266-9**	9.55
16 oz. Aerosol Can	**99-269-3**	9.20
18 oz. Can	**99-267-7**	11.60
1 Gallon Can	**99-270-1**	32.35
5 Gallon Pail	**99-268-5**	145.50
Trigger pump sprayer (empty)	**98-883-2**	7.20

Starrett® M1 All Purpose Lubricant

1,001 Uses Indoors & Outdoors



- Deep-down penetration works quickly to free frozen nuts, bolts and metal parts.
- Protects metal against rust and corrosion.
- Free of any silicone making it an excellent lubricant.
- Removes grease and grime from metal parts.
- Stops squeaks and displaces moisture.
- Leaves a film to protect and lubricate, eliminating further rust and keeps metal parts working freely.
- 12 oz. Net Fill.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

10-614-6

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
M1 All Purpose Lubricant	**10-614-6**	$12.10

CROWN All 4



Ground Ship ONLY

98-889-9

- Penetrates, lubricates, protects, cleans and prevents rust.
- Ultra thin, high qualitypetroleum distillates blended film out performs many single purpose products.
- Forms an even film over the metal surface to protect against corrosion attack.
- Does not contain silicone. Will not harm plastic, rubber, fabrics or painted surfaces. Especially effective in high humidity. 12 oz. net fill.
- 16 oz. Aerosol.
- Crown® model #7340.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
CROWN® All 4	**98-889-9**	$8.75



10-729-2

Starrett® Tool & Instrument Oil

- Especially useful for lubricating and protecting fine instruments, micrometers, light machinery, and countless other tools and applications.
- Special high-refining makes Starrett Tool and Instrument Oil colorless.
- Ensures thorough lubrication of close-fitting parts at high temperatures and below zero.
- Provides a strong, lasting oil film over all areas requiring protection against rust.
- This oil has not been adulterated by additives for color and odor.
- 4 oz.
- Contains no Class 1 ozone depleting chemicals.

DESCRIPTION	PART NO.	PRICE
Tool & Instrument Oil	**10-729-2**	$9.95



98-880-8

Super Lube



98-881-6

Ground Ship ONLY

- Unique Teflon™ formula, works first as a penetrating spray before gelling to form a clear long lasting protective grease.
- Unlike other lubricants, Super Lube stays where you spray it and has excellent adhesion. It will not drip or run.
- Prevents rust and corrosion.
- Reduces friction.
- Repels dirt and water.
- Non-toxic, safe on rubber, plastic and other materials.
- Super Lube is an excellent di-electric material.
- Works effectively in temperatures from −65° to +650°F.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
Super Lube 3 oz. Tube	**98-880-8**	$8.15
Super Lube 6 oz. Aerosol	**98-881-6** *	6.75

*D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

SHOP ACCESSORIES

Sprayon Protector Lubricant



62-787-7

- An ultra-thin transparent blending of high quality petroleum distillates. Formulated to ensure maximum moisture displacement.
- Rust preventative film inhibits corrosion and penetrates surface irregularities to release frozen or corroded parts.
- Use for electrical wiring, ignition systems, connectors, linkages, circuitry, transformers, transmitters, operating controls and protection equipment of all kinds.
- USDA H-2 rating.
- Meets MIL-C-23411 and Naval Ordinance Systems WS-14138.
- Will not harm plastic, rubber, fabrics or painted surfaces.
- 16 oz can, net wt. 11 oz.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- Sprayon® model #S00711.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Sprayon® Protector Lube	**62-787-7**	$8.95

CRC Screwloose Super Penetrant



62-096-3

- Quickly penetrates through rust and corrosion to rapidly free corroded bolts, screws, fasteners, pins and bound mechanisms.
- Easy disassembly of mechanical components, fittings, assemblies and other fasteners.
- Clear formula contains no dyes and leaves no mess.
- NSF H2 registered for use in meat and poultry plants.
- Will not harm plastic, rubber, fabrics or painted surfaces.
- 16 oz. aerosol; 11 oz. net fill.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
CRC® Screwloose Super Penetrant	**62-096-3**	$10.75

Crown Tool and Die Saver



98-922-8

- Protection for precision measuring tools, calipers, gage blocks, chucks, setup jigs, and also for use on stored metal molds and seldom used parts.
- Formulated with solvents and lanolin for moisture absorption.
- Non-oily film.
- Protects tools and dies from moisture during shipping and storage.
- Excellent for long term storage.
- Easy to remove.
- 11 oz.
- Crown® model #3090.
- D.O.T. Regulated. Shipped via ground only. No UPS Consignee or Collect Shipments.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
CROWN® Tool and Die Saver	**98-922-8**	$9.85

Sprayon Rust Breaker® Penetrant



62-803-2

- Ideal for releasing rusted or frozen lugs and bolts, lubricating tight fitting parts, general overhaul, repair work and food plant equipment.
- Fast acting penetrant quickly loosens rust while penetrating grease and dirt.
- Transparent. Non-staining oil.
- Displaces moisture and acts as a corrosion preventative.
- Specifications:
  - USDA H-2 rated.
  - Non-flammable propellant.
  - Will not harm painted surfaces.
  - Does not contain chlorinated solvents.
  - Flash point: 205ºF.
  - Dielectric Strength: 33,000 VPM.
- 16 oz. container 10 oz. net fill.
- Sprayon® model #S00103.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Sprayon® Rust Breaker Lubricant	**62-803-2**	$10.20



62-329-8



62-332-2

COILHOSE PNEUMATICS

Air Tool Lubricant

- Contains no class 1 ozone depleting chemicals.
- A specially formulated, high grade lubricant which prolongs the service life of air tools, cylinders and accessories.
- Rust proofs and removes moisture as it lubricates. Winter Grade formulation keeps air tools working to -45ºF.

  NOTE: Air tools should be oiled each day they are used. Failure to oil tools may void warranties.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
4 oz. Air Tool Lubricant Oil	**62-329-8**	$4.40
16 oz. Air Tool Lubricant Oil	**62-330-6**	7.95
1 Gal. Air Tool Lubricant Oil	**62-331-4**	34.45
16 oz. Winter Grade	**62-332-2**	19.05

Sprayon Flash Free® Electrical Degreaser



62-798-4

- High quality electronics cleaner. Penetrates easily to remove grease and residue.
- Excellent for cleaning tools, precision parts, motors, chains, relays, locks, brakes, bearings and equipment.
- Trichlor alternative that is fast-evaporating and plastics safe.
- Dialectric - 37,000 volts/ S20848 USDA K2 Rated.
- Net Fill: 17 oz.
- Non-conductive and non-flammable.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Flash-Free® Electrical Degreaser	**62-798-4**	$17.85

Teflon® Lubricant



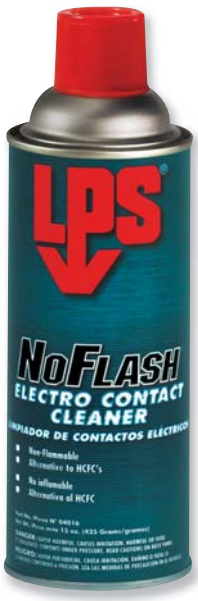
62-788-5

- Ideal for preventative and corrective maintenance in industrial applications. Unique coating will keep equipment in service longer and reduce costly breakdowns caused by worn and dirty parts.
- Use on bearings, cables, nuts, bolts, air power tools, ball and sprocket joints, control cables, conveyors, cutting tools, drive chains, electric power tools, gears, glides, hinges, rollers, taps, dies and valves.
- Fills in surface irregularities with a combination of premium petroleum oils, micronized Teflon® and extreme pressure additives.
- Contains penetrating aids, moisture displacer and corrosion inhibitors for added performance.
- Dramatic decrease in friction and wear, even under the most severe pressure and abrasive conditions.
- Effective -60°F to 475°F.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

CONTAINER SIZE	NET FILL	MODEL #	PART NO.	PRICE
8 oz.	6 oz.	20025	**62-788-5**	$14.45
16 oz.	12 oz.	20027	**62-789-3**	23.40

No Flash Electro Contact Cleaner



98-844-4

- Does not contain CFC's or 1,1,1 Trichloroethane.
- No rinsing or residue.
- Non-flammable precision cleaning.
- Quick penetration and evaporation.
- Cleans and degreases electrical and other delicate mechanisms (may be harmful to some plastics).
- Net Fill 15 oz.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
No Flash Electro Contact Cleaner	**98-844-4**	$45.15

Belt Dressing



62-793-5

- Increases gripping and pulling power up to 50%.
- Reduces squeaky noise and glazing; does not collect dirt or dust.
- Softens gummed dirt and will not shrink or stiffen belts.
- Preserves both leather and rubber belts.
- Authorized by USDA R1 Rating.
- Sprayon® model #S00607.
- 16 oz can, 11 oz net wt.
- Contains no asphalt or rosin.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Sprayon® 11 oz. Belt Dressing	**62-793-5**	$9.85

Chain/Pin Lubricant



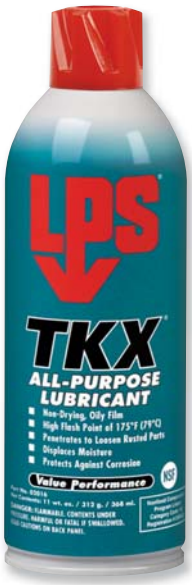
62-792-7

- Formulated for all chain drive equipment.
- Foaming action penetrates close tolerances of chain drive bushings and pins.
- Reduces wear, increases chain life up to three times when applied regularly.
- Moly additives assure lubrication under extreme pressures.
- Use for chain drives and pins, fork lift trucks, tractors, machinery, workstand rollers, conveyers, motorcycles, sprockets, dippers, chain saws, link and roller assemblies and as a protective coating for stored parts.
- USDA H-2 rated.
- Withstands extreme temperatures.
- Equipped with spray any position valve.
- 16 oz. container, 11 oz. net fill.
- Sprayon® model #S00202.
- Effective from -20° F to 300° F.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Sprayon® Moly Chain Lubricant	**62-792-7**	$10.60

TKX All Purpose Lubricant



98-979-8

- TKX uses nonflammable carbon dioxide as a propellant to provide extra safety and has a high flash point of 175°F resulting in less chance of flare-ups when a spark happens.
- By using CO2 which requires significantly less volume per can, TKX provides more usable contents of product per can.
- Protects against corrosion.
- Authorized by the USDA for use in federally inspected meat and poultry plants.
- Loosens rusted or frozen parts.
- Safe on fabric, plastic, rubber, paint and other finishes.
- Net Fill 11 oz.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
LPS® TKX All Purpose Penetrant, Lubricant & Protectant	**98-979-8**	$9.95

PreSolve Orange Degreaser



98-843-6

- Natural based solvent, all organic.
- Non-conductive.
- Does not contain CFC's or chlorinated solvents such as 1,1,1 Trichloroethane.
- No rinsing, no residue; Cleans and degreases on contact.
- Safe on all metals and most plastics.
- Flash point above 100°F.
- Net Fill: 15 oz.
- Solves the toughest cleaning problems fast - without harming the ozone.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

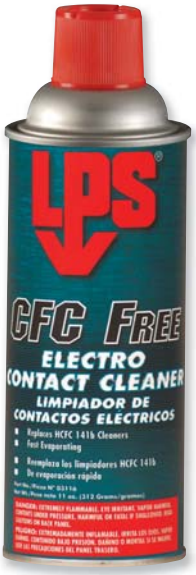
DESCRIPTION	PART NO.	PRICE
LPS PreSolve Orange Degreaser	**98-843-6**	$22.25

SHOP ACCESSORIES

CFC Free Electro Contact Cleaner

- No CFC's or HCFC's, 1,1,1 Trichloroethane.
- No Residue.
- Fast evaporation.
- Cleans and degreases electrical and other delicate mechanisms.
- Safe on most plastics.
- Flammable.
- Net Fill 11 oz.
- D.O.T regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY



98-977-2

DESCRIPTION	PART NO.	PRICE
CFC Free Electro Contact Cleaner	**98-977-2**	$27.95

Electro 140° Contact Cleaner

- The high flash point, fast penetrating, non-residue cleaner alternative to CFC's for finer parts.
- Net Fill: 11 oz.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY



98-867-5

DESCRIPTION	PART NO.	PRICE
Electro 140° Contact Cleaner	**98-867-5**	$21.20

Anti-Spatter

- Non-silicone, water based solution casts a liquid film.
- The oversized spray button is ideal when applying while wearing welding gloves.
- Does not contain CFCs, 1,1,1-trichloroethane or chlorinated solvents.
- Does not contain silicone.
- Non-flammable.
- Eliminates the need for chiseling, grinding or brushing after welding.
- Net Fill: 13 oz.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Ground Ship ONLY



98-815-4

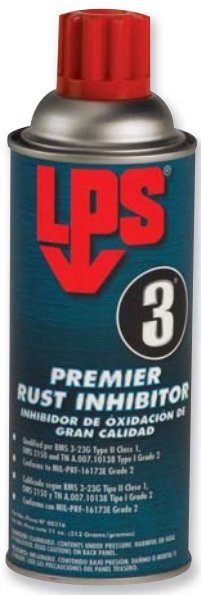
DESCRIPTION	PART NO.	PRICE
LPS® Anti-Spatter	**98-815-4**	$9.65



98-875-8



98-876-6



98-877-4

Lubricant - Rust Inhibitor

- Lubricates even the most delicate mechanism, loosens rusty and frozen parts where others fail.
- Will not oxidize at extreme temperatures.
- Penetrates to carry lubricant-rust inhibitor into hard to reach areas.
- Protects precision tools, delicate measuring instruments, electronic equipment, etc.
- Ideal for storage of dies, jigs, fixtures, tools, machinery and equipment.
- Harmless to rubber, paint and plastics.
- Certified safe to major Aircraft specifications.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
LPS #1, Clean, Greaseless Film. 11 oz. Aerosol Can	**98-875-8**	$18.90
LPS #2, Oily film, protects all metals for 1 year or more. 11 oz. Aerosol Can	**98-876-6**	18.90
LPS #3, Heavy duty coating, waxy film, protects all metals for 2 years or morel 11 oz. Aerosol Can	**98-877-4**	23.80



11-983-4

SPI® Digital Mini Protractor

See Pg. 176

Corrosion Suppressant

- Penetrates surface and forms transparent film that protects against corrosion and lasts until removed.
- Petroleum based with excellent chemical resistance.
- Simular to Cosmoline (heavy wax film).
- Excellent for long term outdoor protection.
- Tested to withstand over 1,000 hours of salt spray.
- 16 oz can, net wt. 12 oz.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.
- Sprayon® model #S00710.

Ground Ship ONLY

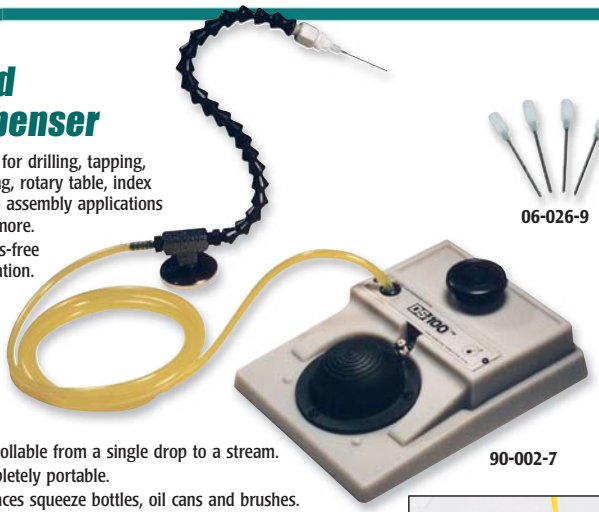
62-802-4



DESCRIPTION	PART NO.	PRICE
Sprayon® Corrosion Suppressant	**62-802-4**	$9.80

Fluid Dispenser

- Ideal for drilling, tapping, milling, rotary table, index table, assembly applications and more.
- Hands-free operation.



06-026-9

- Controllable from a single drop to a stream.
- Completely portable.
- Replaces squeeze bottles, oil cans and brushes. Magnetic nozzle base.
- Quick change nozzle tip. Holds approx. 1 pt. of fluid.

90-002-7



DESCRIPTION	PART NO.	PRICE
Fluid Dispenser	**90-002-7**	$224.85
Set of 5 Replacement Tips	**06-026-9**	12.40

Spra-Kool midget Mist Coolant Spray Unit

Economical Method of Applying a Coolant for Machining

- For turning, drilling, milling, sawing and grinding.
- Designed to be moved from machine to machine.
- Adjustable nozzle for precise aim and spray volume.
- Removable strainer prevents clogs.
- Works on 30 to 150 PSI air pressure.
- Made with solid brass fittings.
- Suitable for use with any type of soluble coolant or oil.



98-573-9

DESCRIPTION	PART NO.	PRICE
Mist Coolant Spray Unit	**98-573-9**	$60.80

Spray Paints

- The #1 brand in spray paints.
- Contains no class 1 ozone depleting chemicals.
- 16 oz. containers, 11-13 oz. net fill.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

ACYRLI-QUIK™ Acrylic Lacquer Paints

- No recoat window, recoat anytime.
- Hard, protective, durable finish.
- High-gloss finish.



62-745-5

62-729-9

62-722-4



62-736-4



62-734-9

Ground Ship ONLY



62-724-0

Interior/Exterior Acrylic Lacquers

DESCRIPTION	KRYLON® MODEL #	PART NO.	PRICE
Almond	K01506	**62-750-5**	$7.65
Black, Glossy (OSHA)	K01601	**62-720-8**	7.65
Black, Semi-Flat	K01613	**62-716-6**	7.65
Black, Ultra-Flat	K01602	**62-721-6**	7.65
Blue, Regal	K01901	**62-763-8**	7.70
Blue, True (OSHA)	K01910	**62-729-9**	7.65
Brown, Leather	K02501	**62-744-8**	7.65
Clear, Acrylic Crystal	K01301	**62-736-4**	7.65
Gray, Pewter	K01606	**62-766-1**	7.65
Gray, Smoke	K01608	**62-726-5**	7.65
Green, Hunter	K02001	**62-735-6**	7.65
Khaki	K02504	**62-745-5**	7.65
Red, Banner	K02108	**62-758-8**	7.65
Red, Cherry	K02101	**62-723-2**	7.65
White, Flat	K01502	**62-719-0**	7.65
White, Glossy (OSHA)	K01501	**62-718-2**	7.65
White, Semi Gloss	K01508	**62-738-0**	7.65

Fluorescent Paint

DESCRIPTION	KRYLON® MODEL #	PART NO.	PRICE
Red Orange, Fluorescent	K03101	**62-734-9**	$7.65

Metallic Paint

DESCRIPTION	KRYLON® MODEL #	PART NO.	PRICE
Silver, Bright Metallic	K01401	**62-717-4**	$7.65

Primers • Provides Excellent Resistance to Rusting

DESCRIPTION	KRYLON® MODEL #	PART NO.	PRICE
Black, Charcoal	K01316	**62-747-1**	$7.65
Brown, Ruddy	K01317	**62-733-1**	7.65
Gray	K01318	**62-732-3**	7.65
Platinum	K01314	**62-746-3**	7.65

OSHA Paints

- Color standards approved by the Occupational Safety and Health Act Governing Board.
- High-visibility safety colors.
- Colors mark physical hazard and designate caution for workers safety.

DESCRIPTION	KRYLON® MODEL #	PART NO.	PRICE
Orange, Safety (OSHA)	K02410	**62-724-0**	$7.65
Purple, Safety (OSHA)	K01929	**62-757-0**	8.10
Green, Safety (OSHA)	K02012	**62-765-3**	7.65
Red, Safety (OSHA)	K02116	**62-725-7**	7.65
Yellow, Safety (OSHA)	K01813	**62-722-4**	7.65

High-Heat Paints

- Withstands temperatures up to 1200° F intermittently, up to 600° F continuously.
- Provides a clean, durable finish.
- Protects againts rust.
- Dries to the touch in minutes.

DESCRIPTION	KRYLON® MODEL #	PART NO.	PRICE
Aluminum, High-Heat	K01407000	**62-731-5**	$8.95
Black, High-Heat	K01618000	**62-730-7**	8.95
White, High-Heat	K01505000	**62-748-9**	8.50



62-730-7

SHOP ACCESSORIES



62-806-5



62-809-9



62-821-4



62-816-4

LOCTITE®
Threadlockers and Retaining Compounds

- Eliminate expensive locking devices with increased reliability and quality in many applications.
- State restrictions may apply.

High Strength Adhesive/Sealant #271

- Locks and seals - bearing retainer nuts, cylinder liner studs, door closer plugs, automobile front suspension bolts, water pump studs and nuts, hydraulic press studs (large dia.).
- Prevents movement of screw threads and eliminates self loosening.
- Seals against leakage.
- Prevents rusting of threads - Cures without cracking or shrinking.

Removable Threadlocker #242

- Removable with normal hand tools.
- Locks and seals nuts, bolts, screws, and fittings.
- Prevents vibration.

High Strength Threadlocker #262

- Prevents vibration and thread corrosion.
- Heavy duty use on bolts and studs.

Penetrating Threadlocker #290

- One drop applied to preassembled fasteners will lock and seal to eliminate vibration and corrosion.
- No need to disassemble parts.

Retaining Compound #609

- Use on gears, impellers, bearings, bushings and cylindrical parts.
- Secures against spin-out.

Small Screw Threadlocker #222

- Locks and seals - set screws, adjustment screws, and calibration screws.
- Prevents movement of screw threads and eliminates self loosening.
- Cures without cracking or shrinking.

TYPE	10 ML. SIZE PART NO.	PRICE	50 ML. SIZE PART NO.	PRICE	250 ML. SIZE PART NO.	PRICE
Adhesive/sealant #271	**62-806-5**	$20.35	**62-807-3**	$56.35	**62-808-1**	$195.50
Removable #242	**62-809-9**	20.35	**62-810-7**	56.35	**62-811-5**	195.50
High Strength/Permanent #262	**62-812-3**	20.35	**62-813-1**	56.35	**62-814-9**	195.50
Penetrating #290	**62-815-6**	19.65	**62-816-4**	54.20	**62-817-2**	188.00
Retaining Compound #609	**62-818-0**	19.65	**62-819-8**	54.20	**62-820-6**	188.00
Small Screw #222	**62-821-4**	19.65	**62-822-2**	54.20	**62-823-0**	188.00

LOCTITE®
PST® Pipe Sealant 567

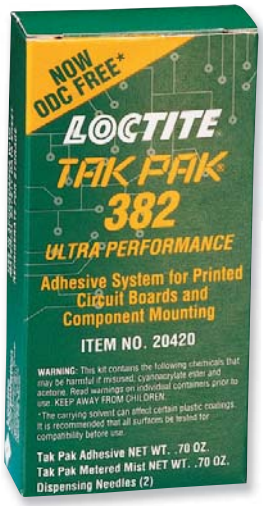
- For stainless steel and all other metal fittings.
- High performance curing sealant for tapered pipe threads.
- The high lubricating properties of this compound prevent galling on stainless steel, aluminum, Monel, and all other pipe threads and fittings.
- Provides rapidly curing low pressure sealing.
- This product has excellent solvent resistance and withstands temperatures to 400ºF (204ºC).
- This product is not recommended for use on plastic piping.
- 50 ml. tube.
- Loctite model #56747.



62-825-5

- Recommended for sealing pipe threads & fittings in the following application areas:
  - Chemical processing.
  - Petroleum refining.
  - Gas compressor stations.
  - Textile industry.
  - Waste treatment facilities.
  - Pulp-paper industry.

DESCRIPTION	PART NO.	PRICE
Loctite® PST. Pipe Sealant #567	**62-825-5**	$28.30



62-839-6

Ground Ship ONLY



62-836-2

LOCTITE®
Tak Pak® Adhesive & Accelerator

- Both adhesive and accelerator contain no ozone depleting chemicals.
- For electronic and electrical work.
- Secure insulated wires, add tamper-proof settings, attach capacitors, mount transformers, connect strain gage leads, etc., all within seconds.
- High viscosity makes the adhesive drop formation controllable, preventing surface migration and penetration of through-holes on printed circuit boards.
- Sets in seconds at room temperature - clamping is not necessary.

ODC Free Accelerators

- Tak Pak®accelerator 7452 ODC-Free is acetone based. Use for most applications.
- Tak Pak® ODC-Free accelerator 712 is isopropyl alcohol based. Use on most thermal plastic substrates.
  NOTE: Acetone may adversely affect some thermal plastic substrates. Tak Pak® 712 is recommended accelerator for these materials.

Tak Pak® — Type 444

- For temperatures up to 180ºF with a viscosity of 700 CPS.
- Kit contains a 20 gram bottle of adhesive and a 1.75 oz. bottle of 7452 ODC-Free accelerator.

Ultra Performance Tak Pak® — Type 382

- A high temperature (250ºF), high viscosity (5000 CPS) adhesive that withstands thermal cycling and "bake out" phase when boards are subjected to 225ºF for several hours.
- Kit contains a 20 gram bottle of adhesive and a .7 oz. metered mist 7452 ODC-Free accelerator.

ODC Free, Tak Pak® Adhesives

SIZE	TYPE	LOCTITE® MODEL #	PART NUMBER	PRICE
20 gram Kit	444	20419	**62-836-2**	$40.10
20 gram	444	12292	**62-840-4**	23.75
20 gram kit	382	20420	**62-839-6**	64.05
20 gram	382	38240	**62-843-8**	32.85

ODC Free Accelerator

SIZE	TYPE	LOCTITE® MODEL #	PART NUMBER	PRICE
1.75 fl.oz.	7452	18490	**62-837-0**	$11.40
1.75 fl.oz.	712	38240	**62-838-8**	14.00
.7 fl.oz.*	7452	18637	**62-841-2**	21.10
.7 fl.oz.*	712	18636	**62-842-0**	21.10

*Metered mist dispenser.
D.O.T. Regulated. Shipped via ground freight only.
No UPS Consignee or Collect shipments.

LOCTITE® Speedbonder™

Structural Adhesives

- Contains no ozone depleting chemicals.

Ground Ship ONLY

High Impact Speedbonder™ 324

- Improved Reliability:
  - Makes flexible bonds to withstand thermal cycling.
  - Resists temperatures.
  - Resists solvents and severe environments.
- Cost Savings:
  - Cures fast at room temperature eliminating expensive ovens.
  - Requires few safeguards because of low toxicity, non-flammability and low odor.
- A tough activator-cured adhesive.
- Fixes at room temperature in minutes when in contact with 7075 Activator and will form flexible bonds up to .040" thick.
- High impact strength for mild shock loading.
- Withstands shock and temperatures to 275ºF.
- Viscosity 17,000 CPS.
- Shear strength 2,800 PSI



62-831-3

High Performance Speedbonder™ 326

- Rapid curing adhesive which develops strong bonds through gaps up to .020" when cured with 7649 Primer.
- Viscosity 18,000 CPS.
- Shear strength 2,700 PSI.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.



62-833-9



62-835-4

SPEEDBONDER™ TYPE	SIZE	LOCTITE® MODEL #	PART NUMBER	PRICE
High Impact #324	50 ml.	32430	**62-831-3**	$26.95
High Performance #326	50 ml.	32629	**62-833-9**	28.30
ODC-Free Primer for #326	4½ oz.	21348	**62-835-4**	36.05



98-018-5

FLEXBAR Rocksett Engineering Adhesive

High Temperature Ceramic Cement

- Ideal for locking, sealing or bonding of nuts, screws, shafts, keys, splines, flange, pipes, etc.
- High temperature resistant, (-350° F) up to 2,015° F.
- Electrical insulation – for both A.C. and D.C. up to Radio MHz (Mega/Hertz).
- Non-toxic – odorless – non-flammable.
- Rocksett withstands oil, fuels, acids, alkalis.
- No mixing or primping required.

DESCRIPTION	PART NO.	PRICE
2 oz. Bottle	**98-017-7**	$15.90
4 oz. Bottle	**98-018-5**	23.25

LOCTITE® Superbonder Instant Adhesives

- Sets in seconds to bond strengths up to 5,000 PSI.
- Cures at room-temperature.
- Economical to use, creates exceptionally strong bond on metal, plastic, glass, wood, rubber and other materials.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

General Purpose Instant Adhesive #495

- Moderately low viscosity (40 CP) fills gaps up to .004", can be used to bond pre-assembled parts with gaps up to .006".

Plastic and Vinyl Instant Adhesive #414

- High performance.
- Bonds rubber and plastic parts with improved humidity and weather resistance.
- Fills gaps up to .006".
- Viscosity 110 CPS.



62-857-8

Metal Bonding Instant Adhesive #430

- General purpose metal bonding adhesive suitable for gaps up to .005".
- Viscosity 80 CPS.
- Sets in 15 seconds.

Gap Filling Instant Adhesive #416

- Higher viscosity (1,500 CPS) makes it suitable for gaps up to .008".
- Excellent for porous or irregular surfaces such as leather, paper and fabric.
- Alignment times up to 15 seconds are possible.
- Sets in 20 to 30 seconds.

Penetrating Instant Adhesive #420

- Water thin, penetrates by capillary action.
- Close mating parts can be aligned and then bonded by wicking in the adhesive.
- Very low 5 CPS viscosity.

TYPE	SIZE	PART NO.	PRICE
General Purpose #495	3 gm. Tube	**62-844-6**	$5.45
General Purpose #495	1 oz. Bottle	**62-857-8**	29.15
Plastic/Vinyl #414	3 gm. Tube	**62-858-6**	6.25
Plastic/Vinyl #414	1 oz. Bottle	**62-859-4**	31.80
Metal Bonding #430	3 gm. Tube	**62-860-2**	6.45
Metal Bonding #430	1 oz. Bottle	**62-861-0**	30.00
Gap Filling #416	1 oz. Bottle	**62-862-8**	29.35
Penetrating #420	1 oz. Bottle	**62-863-6**	29.15

LOCTITE® Superflex™ RTV Silicones

- Industrial Grade Silicone Adhesives/Sealants.
- Ready-to-use, one component. No costly mixing equipment, primers or catalysts.
- Cures at room temperature. No electrical, thermal or ultraviolet energy sources are needed to process or cure.
- Safe, non-toxic, non-dermatetic, flexible cured silicone rubber.
- Outstanding dielectric properties for electrical insulating applications.
- Will adhere to clean metal, glass, natural and synthetic fibers, ceramics, other silicone rubbers, painted surfaces and many plastic substrates.
- Temperature range: -65ºF to 450ºF.
- Typical tensile strength: 400 PSI.
- Available in clear, white and black.
- Fills gaps up to 0.250".
- 80 ml. tube.
- State restrictions may apply.

COLOR	LOCTITE® MODEL #	PART NO.	PRICE
Clear	59530	**62-867-7**	$8.45
White	59430	**62-868-5**	8.85
Black	59330	**62-869-3**	8.45



62-867-7



62-868-5



62-869-3

SHOP ACCESSORIES

LOCTITE® Prism® Series Instant Adhesives

- Advanced formula instant adhesives.
- Use on exotic plastics and lightweight composite surfaces.
- Wide range of applications. Use on: acidic surfaces, difficult surfaces such as soft woods, leather, ceramics, paper and foam. Bonds in seconds, even under controlled low humidity.
- Three types to choose from, with different properties and viscosities.
- Contains no ozone depleting chemicals.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.



62-847-9



62-848-7

Ground Ship ONLY



62-855-2



62-853-7



62-854-5

Toughened Instant Adhesives

- Single component cyanoacrylate instant adhesive toughened with elastomers for higher impact resistance and peel strength.
- Temperature range is -65ºF to + 225ºF.
- 20 gram bottle.

VISCOSITY	COLOR	LOCTITE® #	PART NO.	PRICE
3,500 CPS	Black	41045	**62-847-9**	$32.85
5,000 CPS	Clear	41145	**62-848-7**	32.65

Surface-Insensitive Instant Adhesives

- Fast curing, single component cyanoacrylate instant adhesives. Specifically formulated for difficult to bond substrates or where low humidity causes slow curing of standard industrial grade instant adhesives.
- Temperature range is -65ºF to +180ºF.
- 20 gram bottle.

VISCOSITY	COLOR	LOCTITE® #	PART NO.	PRICE
20 CPS	Clear	40640	**62-849-5**	$29.60
100 CPS	Clear	40140	**62-850-3**	29.60
600 CPS	Clear	44740	**62-851-1**	30.00

Low Odor, Low Bloom Instant Adhesives

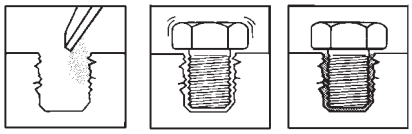
- Single component cyanoacrylate adhesive with low odor and low blooming characteristics.
- Does not "frost", dries clear.
- Ideal for applications with critical appearance quality, such as optics, jewelry, etc.
- Temperature range is -65ºF to +160ºF.
- 20 gram bottle.

VISCOSITY	COLOR	LOCTITE® #	PART NO.	PRICE
5 CPS	Clear	40840	**62-853-7**	$33.90
50 CPS	Clear	46040	**62-854-5**	33.55
1,000 CPS	Clear	40340	**62-855-2**	33.90

LOCTITE® Form-A-Thread

- Repairs stripped threads in minutes.
- Provides durable, reliable repairs for stripped threads. Restores damaged threads and eliminates future corrosion, galling, seizing and rust.
- No drilling or tapping required. Reduces downtime.
- Adheres to most metals (aluminum, iron, brass, steel, copper, and magnesium).
- For bolts up to 1", at up to 128 Ft. Lbs.of torque.
- Workable strength 30 minutes, fully cures in 2 hours.
- Temperature range: -67º F to 300º F.
- Resists most solvents and oils.
- Contains:
  - Release agent - aerosol can (1).
  - 4.8 ml syringes (2).
  - Mixing stick (1).
- Loctite # 28654.

Use for stripped threads and loose bolts.



1) Coat bolt with release agent.
2) Apply Form-A-Thread in hole.
3) New reusable threads form in 30 minutes.

- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
LOCTITE® Form-A-Thread	**62-866-9**	$26.80

Ground Ship ONLY



62-866-9

LOCTITE® Quick Set™ 404 Industrial Adhesive

- Specifically suited for bonding rubber parts such as belts, bumpers, cushings and O-rings.
- No damping, no mixing, no waiting.
- Will bond metal and plastics.
- 33 oz. bottle.
- Meets Spec AA-3097.
- Loctite # 46551.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.



Ground Ship ONLY 62-864-4

SIZE	PART NO.	PRICE
Quick Set™ #404 Adhesive	**62-864-4**	$32.80

LOCTITE® Quick Gel Non-Run Instant Adhesive #454



62-845-3



62-852-9

Ground Ship ONLY

- Bonds equally as well on porous, plated surfaces, irregular or poorly mated parts.
- Space age clear cyanoacrylate formula stays where you put it, at any angle - even upside down.
- There's no mixing, no mess.
- Bonds even porous material such as wood, leather, cork and paper.

- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

CONTAINER	LOCTITE® MODEL #	PART NUMBER	PRICE
3 Gram Tube	45404	**62-845-3**	$7.40
20 Gram Tube	45440	**62-852-9**	31.75

Devcon

5-Minute Epoxy

- Forms a clear, strong bond in just 5 minutes, reaches full strength in one hour.
- Superior tensile strength, impact strength and chemical resistance.
- Bonds to metal, ceramic, wood, concrete, and glass.
- Not recommended for long term immersion in water.
- Use for production, maintenance and prototype bonding applications requiring strength and speed.
- Consists of two equal containers, one for epoxy and one for hardener.

CONTAINER*	DEVCON® MODEL #	PART NUMBER	PRICE
2 - 1 oz. Each Tube	S-205	**62-673-9**	$6.40
1 oz. Dev-Tube	S-208	**62-675-4** †	7.90
2 - 4.5 oz. Each Bottle	S-209	**62-676-2**	31.10

*Hardener and epoxy in separate containers.

† D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.



62-675-4
Dev-Tube

Devcon

Two Ton Clear Epoxy

- Extremely high tensile strength.
- Forms a clear, water-resistant bond.
- 8 - 12 minute working time. Cures overnight.
- Bonds to metal ceramic, wood, concrete and glass.
- Non-shrinking bond with good impact strength and chemical resistance.
- Patented Dev-tube dispenses epoxy and hardener in one to one ratio.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

CONTAINER*	DEVCON® MODEL #	PART NUMBER	PRICE
25 ml. Dev-Tube	S-31	**62-669-7**	$5.75
2 - 1 oz. Each Tube	S-35	**62-670-5**	5.80
4.5 oz. Each Bottle	S-33	**62-671-3**	24.95

*Hardener and epoxy in separate containers.

Ground Ship ONLY



62-669-7

Devcon

5-Minute Epoxy Gel

- High-viscosity, thixotropic gel epoxy for all metal bonding applications requiring a fast cure and increased gap-filing capabilities.
- High adhesive tensile shear strength of 2,500 PSI.
- Excellent for vertical and rough surfaces.
- 1 oz. Dev-Tube.
- Devcon® model #S210.

DESCRIPTION	PART NO.	PRICE
Devcon® 5-minute Epoxy Gel	**62-672-1**	$6.75



62-672-1



Ground Ship ONLY

62-677-0

Devcon

Plastic Welder Adhesive

- High-strength methacrylate-reinforced structural adhesive can fill gaps in mating surfaces as large as .0125".
- Bonds plastic, metal, wood and ceramic.
- Patented Dev-tube dispenses epoxy and hardener in one to one ratio.
- 25 ml., Devcon® model #S220.
- D.O.T regulated. Shipped via ground freight only. No UPS consignee or collect shipments.

DESCRIPTION	PART NO.	PRICE
Devcon® Plastic Welder Adhesive	**62-677-0**	$8.90



62-667-1



62-668-9

Devcon

Plastic Steel Epoxy Putty

- Industrial high strength bond steel filler.
- Hardens to a durable metallic mass that can be drilled, tapped, machined or painted.
- Bonds to most metals, concrete and some plastics.
- Use to repair pipes, valves, tanks, building up equipment and tool making.
- Patented Dev-tube dispenses epoxy and hardener in one to one ratio.
- Resistant to oil, gasoline, water and many chemicals.

CONTAINER*	DEVCON® MODEL #	PART NUMBER	PRICE
2 - 1 oz. Each Tube	S-5	**62-667-1***	$6.85
1 oz. Dev-Tube	S-6	**62-668-9**	7.85

* Includes hardener and epoxy in separate containers.

NEW

VISE-GRIP®
11" Quick Adjusting Pipe Wrench
See Pg. 400



93-450-5

SHOP ACCESSORIES



62-680-4

Devcon® SuperGlue Instant Adhesive

- Super strong - 5,000 psi, Super Glue.
- For instant bonds of close-fitting parts.
- Bonds metals, rubber and most plastics.
- Ideally suited to O-ring splicing, tacking gaskets, weather stripping, fixturing parts, belts and bumpers.

DESCRIPTION	DEVCON® MODEL #	PART NUMBER	PRICE
2 Grams Tube	S-290	**62-680-4**	$2.45
4 Pack of 2 Grams Tube	S-2940	**62-679-6**	7.55



62-714-1

62-715-8

Devcon® Silite RTV Silicone

- Use Silite® to:
  - Seal.
  - Caulk.
  - Bond.
  - Electrically Insulate.
  - Form gaskets in place.
- Extremely durable and flexible silicone adhesives.
- Remains flexible from -60°F to 450°F.
- Certified to Federal specification TT-S-00230 class A (COM-NBS) for silicone building sealants and MIL-A-46106A, type 1.
- Clear color.

SIZE	DEVCON® MODEL #	PART NO.	PRICE
3 oz.	17100	**62-714-1**	$6.90
10.3 oz.	17150	**62-715-8**	12.45

Devcon® Aluminum Epoxy Putty (F) & Liquid (F-2)



62-696-0

- Cost-efficient repairs to aluminum castings, parts and equipment.
- Pourable epoxy for making molds, patterns, and holding fixtures.
- Bonds to aluminum and many other metals, as well as concrete and thermoset plastics.
- Cures overnight at room temperature.
- Makes repairs that are non-rusting.
- Cured material can be machined, drilled or tapped, using conventional metalworking tools.
- Qualified under Mil. Spec. DOD-C-24176B(SH) type II.

Putty (F)

SIZE	DEVCON® MODEL #	PART NO.	PRICE
1 Lb.	10610	**62-696-0**	$108.25
3 Lbs.	10620	**62-697-8**	261.85

Liquid (F-2)

SIZE	DEVCON® MODEL #	PART NO.	PRICE
1 Lb.	10710	**62-702-6**	$108.00
3 Lbs.	10720	**62-704-2**	259.25

Devcon® Plastic Steel Putty (A)



62-688-7

- Bonds to most metals, concrete and some plastic materials.
- Cures in 16 hours at room temperature to form a tough, durable metallic mass that can be drilled, tapped, machined or painted.
- Excellent resistance to oil, gasoline, water and many chemicals. Qualified under Mil. Spec. DOD-C-24176B(SH) type I and II.
- Applications:
  - Repairing cracks and breaks in equipment, machinery or castings.
  - Patching and rebuilding blow holes or pits in castings.
  - Rebuilding valve and pump bodies, components and flanges.
  - Restoring and rebuilding bearing journals and races.
  - Forming prototype parts.
  - Rebuilding worn equipment.
  - Filling, grouting and leveling uneven surfaces.
  - Repairing leaking pipes, elbows and damaged flanges.

SIZE	DEVCON® MODEL #	PART NO.	PRICE
16 oz.	10110	**62-688-7**	$74.00
4 Lbs.	10120	**62-689-5**	246.95
25 Lbs.	10130	**62-690-3** *	912.25

*D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

Devcon® Mark 5™ Adhesive System



Epoxy, cartridge, applicator gun and mix nozzle sold separately

- Devcon's 5-Minute® epoxy is a tough, two component epoxy material that cures by chemical reaction between the resin and the hardener in 3 to 7 minutes.
- Simply slip the 5-Minute® Epoxy Cartridge into the sturdy Mark 5™ applicator gun.
- Bonds plastics, metals, wood, and ceramic.

DESCRIPTION	DEVCON® MODEL #	PART NUMBER	PRICE
50 ml. 5 Minute® Epoxy Cartridge	14270	**62-685-3**	$20.95
Mark 5 Applicator Gun	14280	**62-686-1**	118.10
Mix Nozzle	14285	**62-687-9**	3.20

facsimile
MEASURE IMAGE

Quick Drying Plastic Compound Fills

Multitude of Machine Shop Needs

- Easy to mix and quick setting.
- Self curing within 6 to 8 minutes to metal-like hardness and texture.
- Physical properties: Compressive strength up to 9,650 PSI, Tensile strength up to 3,415 PSI.
- Can be diluted to best suit many specific applications.
- The finest plastic formula for salvaging machine parts.
- Ideal to make exact replicas of gear teeth and similar parts.
- Economical and effective to make quick jigs and fixtures, to produce instant molds & patterns or to make prototypes or emergency repair parts, etc.
- Handy to produce a master or checking gage, or replicas thereof.
- Convenient for sampling of die and mold activities.
- Serves as highly efficient thread locking adhesive.
- Can make your most difficult reproduction job easy, quick and economical.
- D.O.T. Regulated. Hazardous Material. Shipping via ground freight only. $35.00 special handling charge may apply. No UPS Consignee or Collect shipments. Hazardous material charge subject to change without notice.

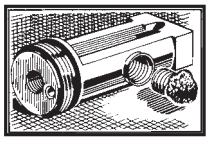
KIT INCLUDES: Facsimile powder, Facsimile liquid, release agent, powder scoop, molding clay, 10 disposable measure cups, wooden spatulas, polypropylene measuring cap and application manual.



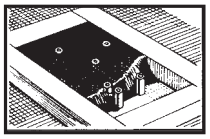
98-891-5

DESCRIPTION	PART NO.	PRICE
Facsimile 1 lb. Kit	**98-891-5**	$97.00
Facsimile 3 lb. Kit	**98-892-3**	223.45
Facsimile 25 lb. Kit	**98-893-1**	1,257.90

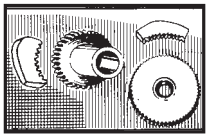
Ground Ship ONLY HAZARDOUS MATERIAL



Ideal to create a master or checking gage.



Inexpensive method of making a drill fixture.



Ideal to make exact replicas of gear teeth.

reprorubber™

Metrology Casting Material

- Exotic metrology-grade Rubber Compound.
- Available in 2 viscosities to cover a vast variety of applications in machine shops, inspection departments and laboratories.
- Easy to prepare by mixing the provided base with the catalyst.
- Self curing in just 6 minutes using the Reprorubber Quick Setting Putty and in 10 to 15 minutes with the Thin Pour Reprorubber.
- Excellent detail reproduction, Reprorubber produces virtually perfect impressions of internal and external forms.
- Works on all metals, plastics, rubber, ceramics, etc.
- Dimensional stability risk of Thin Pour less than 0.50%, with Quick Setting Putty less than 0.25%.
- Tear strength of Thin Pour 44 lbs. per square inch, 105 lbs. per square inch with Quick Setting Putty.
- Safe, non-toxic, easy to use.
- 100 times faster than RTV silicons.
- Replica is easy to remove, even if there are under-cuts or grooves.
- Eliminates the use of release agents.



DESCRIPTION	PART NO.	PRICE
Thin Pour, 450 gram kit, 1 bottle of base material, 1 bottle of catalyst, 5 measuring cups and 10 stirring sticks	**98-896-4**	$191.15
Thin Pour, 130 ml kit, 1 bottle of base material, 1 bottle of catalyst, 5 measuring cups and 10 stirring sticks	**98-736-2**	70.00
Quick Setting Putty, 1¾ lbs. kit, 1 jar of base material, 1 jar of catalyst and 5 mixing sticks	**98-897-2**	205.15
Quick Setting Putty, 220 ml kit, 1 jar of base material, 1 jar of catalyst and 5 mixing sticks	**98-737-0**	90.95
Economy Quick Setting Putty, 7 lbs. kit	**98-898-0**	720.85





11-328-2

Ground Ship ONLY

Starrett®

Kleenscribe™ Layout Dye

- A deep blue dye specially prepared for brushing onto clean dry metal surfaces.
- Dries quickly, providing an opaque blue background that makes scribed lines stand out sharp and clear.
- Will not rub off on hands or clothing or flake away, nor is it affected by cutting lubricants and heat generated during machining.
- Apply with handy brush in the cap on the plastic bottles.
- To remove, use a rag moistened with denatured alcohol.
- D.O.T. regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

DESCRIPTION	STARRETT MODEL #	PART NUMBER	PRICE
4 oz. Bottle	1610-4	**11-328-2**	$12.90
16 oz. Bottle	1610-16	**11-329-0**	31.10
32 oz. Bottle	1610-32	**11-330-8**	44.25

SHOP ACCESSORIES



Ground Ship ONLY

Ground Ship ONLY
HAZARDOUS MATERIAL



DYKEM® Layout Materials

Layout Fluids

- Deep blue or red color.
- Contains No Class 1 ozone depleting chemicals.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

CONTAINER SIZE	BLUE PART NO.	RED PART NO.	PRICE
16 oz, Aerosol	**96-681-2**	**96-687-9**	$14.60
2 oz, Felt Tip Applicator	**96-682-0**	**96-688-7**	7.20
4 oz, Can w/Cap Brush	**96-683-8**	**96-689-5**	9.15
8 oz, Can w/Cap Brush	**96-684-6**	**96-690-3**	11.25
930 ml. Can	**96-685-3**	**96-691-1**	21.65

Layout Fluid Remover

- Can be used to thin or remove layout fluid.
- Aerosol container (96-693-7) Contains no Class 1 ozone-depleting chemicals.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

CONTAINER SIZE	PART NO.	PRICE
16 oz. Aerosol Can	**96-693-7**	$12.65
930 ml.	**96-694-5**	14.55
1 Gallon	**96-695-2** *	33.85

*Hazard Material Charge $35.00 special handling charge may apply. This charge subject to change without notice.

DYKEM® Hi-Spot Blue

- Blue, soft, uniform paste spreads easily and evenly.
- The film remains pliable and transferable and in good condition for months.
- Detects high spots on bearings, gears and other close fits.
- .55 oz. tube.

DESCRIPTION	PART NO.	PRICE
Hi-Spot Blue	**96-759-6**	$9.00



96-759-6



97-187-9

Spill Master™

- Its Unique Design Prevents Spills - Even When Turned Completely Upside Down!
- Avoid messy and costly spills.
- Perfect container for cutting fluids, layout fluid and lubricants.
- Molded from durable polyethylene for years of use.
- Comes complete with an applicator brush.

DESCRIPTION	PART NO.	PRICE
Red Spill Master™	**97-187-9**	$9.75
White Spill Master™	**97-188-7**	9.75
Blue Spill Master™	**97-189-5**	9.75

Sprayon

Layout Dye Remover

- Removes layout fluid quickly.
- Removes light oils, grease and other types of paints on metal or glass.
- Do not use on plastic.
- Sprayon® model #S00606 16 oz can.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
Layout Fluid Remover	**62-783-6**	$7.05



Ground Ship ONLY

62-783-6



Ground Ship ONLY

62-782-8

Sprayon

Blue Layout Fluid

- Contains no Class 1 ozone-depleting chemicals.
- Fluid provides sharp contrast of scribed lines against clean surfaces.
- Dries instantly and will not rub off, produces a non-glaring, non-flaky coating.
- Adheres to all metals, aluminum and glass.
- Sprayon® model #S00603 16 oz can.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
Blue Layout Fluid	**62-782-8**	$7.75



Ground Ship ONLY

98-870-9



Ground Ship ONLY

98-871-7

CROWN Blue Toolmaker's Ink

- Sprays on a smooth, non-glare film that dries quickly.
- Will not flake, peel, or rub off. Resists heat.
- Scribes well, adheres to metal, steel, aluminum or glass.
- Net Fill: 12. oz.
- Non-Corrosive, contains no acid 12 oz can.
- Model #6001
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

DESCRIPTION	PART NO.	PRICE
Blue Toolmaker's Ink	**98-870-9**	$8.45

CROWN Toolmaker's Ink Remover

- Removes old inks quickly and efficiently without leaving a residue.
- Clings, does not drip. May also be used as paint stripper.
- 10.5 oz can
- Model #6095
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.
- State restrictions may apply.

DESCRIPTION	PART NO.	PRICE
Toolmaker's Ink Remover	**98-871-7**	$8.25

DYKEM Cross-Check™ Tamper Proof Torque Mark

A convenient visual method for identification of vibratory loosening or tampering in nuts, bolts, fasteners and assemblies.

- Provides warranty protection against tampering.
- Marks will be easily broken if parts are tampered with or become loose.
- Highly visible under ambient light and fluorescent under UV light.
- Excellent adhesion to metal and other substrates.
- Safe for most surfaces.
- Color: Orange
- 1 oz. tube
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.



96-810-7

Ground Ship ONLY

DESCRIPTION	PART NO.	PRICE
Cross-Check™	**96-810-7**	$7.20

Markal Dura Ink #55 Markers

- High-intensity colors.
- Long lasting.
- Smear-resistant, water-resistant, and fast-drying.
- Durable cap and plastic barrel for general and industrial use.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

COLOR	PART NO.	PRICE
Black	**96-949-3**	$3.10
Red	**96-950-1**	3.10
Blue	**96-951-9**	3.10



96-949-3

Ground Ship ONLY



96-941-0 - Marker and
96-944-4 - Holder shown

Markal Soapstone Markers & Holders

- For the temporary marking of metal surfaces during fabrication operations.
- Made of all natural white soapstone for superior marking.
- Marks will not contaminate welds and are easily removed.
- 5" Length.

Markers

TYPE	DIA.	HT.	PART NO.	PRICE
Flat	1/2"	3/16"	**96-941-0**	$0.35
Round	1/4"	–	**96-942-8**	0.35
Flat	1/4"	3/16"	**96-943-6**	0.35

Holders

TYPE	FOR SIZE DIA. (M)	HEIGHT	PART NUMBER	PRICE
Flat	1/2	3/16"	**96-944-4**	$5.20
Round	1/4	–	**96-945-1**	5.10



General Purpose



Fine Line

DYKEM Industrial Markers

- Marks on wood, glass, paper, metal and many other surfaces.
- Unique valve action prevents tip drying.
- Permanent mark, but can be removed with Dykem® remover.
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

COLOR	GENERAL PURPOSE PART NO.	PRICE	FINE LINE PART NO.	PRICE
Blue	**96-696-0**	$5.25	**96-703-4**	$5.25
Black	**96-697-8**	5.25	**96-704-2**	5.25
White	**96-698-6**	5.25	**96-705-9**	5.25
Yellow	**96-699-4**	5.25	**96-706-7**	5.25
Orange	**96-700-0**	5.25	**96-707-5**	5.25
Red	**96-701-8**	5.25	**96-708-3**	5.25
Green	**96-702-6**	5.25	**96-709-1**	5.25

Ground Ship ONLY

SHOP ACCESSORIES


96-841-2



96-843-8

96-844-6



Markal® Silver-Streak® Round Fine Line Metal Marker

Ideal for Metal Layout and Fabrication Work

- Marks on any metal surface – even oily, wet or rusty metals.
- Marks won't rub off like soapstone.
- Marks are resistant to torch flames.
- Each holder includes a handy pocket clip.
- Will not scratch or abrade metal surfaces.

DESCRIPTION	PART NO.	PRICE
Silver-Streak® Marker w/Refill	**96-841-2**	$8.65
6 Pack Refill	**96-842-0**	8.15

Markal® Red-Riter® & Silver-Streak® Welders Pencils

For Metal Layout and Fabrication

- Economical, high-strength pencil is ideal for marking all types of metal surfaces – even oily, rusty or wet surfaces.
- Marks resistant to torch flames; will not rub off or burn off like soapstone.
- Highly visible marks illuminate when cutting or welding.
- Durable marks will not scratch or abrade metal surfaces.
- Sharpens with any standard pencil sharpener.

DESCRIPTION	PART NO.	PRICE
Red-Riter® Pencil	**96-843-8**	$1.00
Silver-Streak® Pencil	**96-844-6**	1.00

Markal® China Marker

- For writing on glass, plastic, metal, wood and china.
- Moisture resistant.
- High visibility colors.
- Non-toxic.
- Smooth writing.

COLOR	PART NO.	PRICE
White	**96-911-3**	$1.55
Yellow	**96-912-1**	1.55
Red	**96-913-9**	1.55
Black	**96-914-7**	1.55
Crimson	**96-915-4**	1.55
Blue	**96-916-2**	1.55
Green	**96-917-0**	1.55

Markal® B Paintstik Markers



96-925-3

- Lead free.
- All-purpose, cold surface marker.
- Real paint in stick form, dries overnight.
- Marks on any surface or material.
- Weather and fade-resistant.
- Ideal for layout, color coding, inspection or fabrication.
- Marks on metal, wood, plastic, concrete, rubber, glass, cardboard and paper.
- Marking Range: -50°F to 150°F.

COLOR	PART NO.	PRICE
Yellow	**96-924-6**	$1.45
White	**96-925-3**	1.45
Black	**96-932-9**	1.45
Red	**96-933-7**	1.45
Green	**96-934-5**	1.45
Orange	**96-935-2**	1.45
Blue	**96-936-0**	1.45



90-999-4

Sharpie® Mean Streak® Permanent Marking Stick

Perfect for Industrial Use

- Permanent marking stick marks on wet and oily surfaces.
- Extra-bold tip marks on dark surfaces with opaque line.
- Waterproof formula resists fading and adheres to virtually any surface.
- Color: White

DESCRIPTION	PART NO.	PRICE
Mean Streak® Permanent Marking Stick	**90-999-4**	$8.30



Ground Ship ONLY
96-994-9

Markal® Ball Paint Markers®

Non-Drip Paint Formula Allows for Easy Jobsite Marking

- Durable metal-ball tip resists wear and clogging for long-marking life on rough surfaces.
- Industrial paint withstands harsh environments and weather conditions.
- Sturdy plastic bottle with 1/8" steel ball tip.
- Plastic cap keeps tip clean between jobs.
- Marking range: -50° F to 150°F
- Surface uses: steel and iron pipes and tubes, concrete, stone and asphalt
- D.O.T. Regulated. Shipped via ground freight only. No UPS Consignee or Collect shipments.

COLOR	PART NO.	PRICE
Yellow	**96-993-1**	$9.45
White	**96-994-9**	9.45
Blue	**96-871-9**	9.45


91-490-3

Laser Pointer

- Projects 500 yards.
- Lightweight, high-impact plastic construction.
- Class three standard pen size.
- Color: Black with red beam.
- Uses 2 AAA batteries (included).

DESCRIPTION	PART NO.	PRICE
Laser Pointer	**91-490-3**	$38.65

Sharpie®

Permanent Ink Markers

The Industry Standard

- Fade and water resistant.
- Quick-drying ink.
- AP-certified nontoxic formula.

Fine Point Permanent Marker

- Permanent on most surfaces.

Metallic Permanent Marker

- Perfect for marking on dark surfaces.
- Opaque metallic permanent ink.

Twin Tip Permanent Marker

- Features a fine point tip for thin, detailed lines on one end and an ultra fine point tip for even more precise writing on the other end.

Super Twin Tip Permanent Marker

- Features a fine point tip for thin, detailed lines on one end and a chisel point tip for broad and fine line widths on the other end.
- Permanent on most surfaces.

Professional Permanent Marker

- Versatile chisel tip marks both broad and fine widths.
- Oval-shaped barrel will not roll on flat surfaces.
- Permanent on most surfaces.

King Size™ Permanent Marker

- Industrial strength for the toughest marking jobs.
- Durable aluminum barrel and felt tip stands up to heavy use.
- Excellent for marking corrugate, wood, metal, foil, stone, plastic, leather and more.
- Marks on wet and oily surfaces.
- Water resistant and dries quickly.

Magnum® Permanent Marker

- Industrial strength for huge jobs.
- Oversized felt tip for extra wide lines.
- Extra-large ink supply for big projects.
- Marks on wet and oily surfaces.



90-991-1



90-992-9

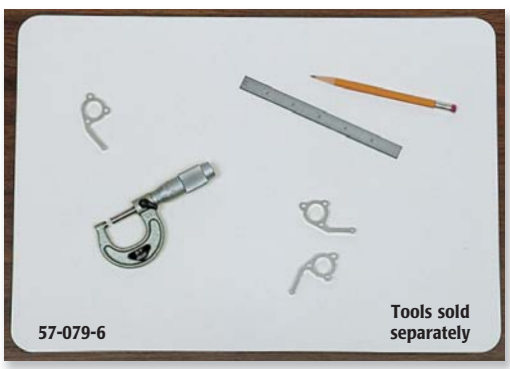


90-994-5



90-997-8

DESCRIPTION	TIP TYPE	COLOR	PART NO.	PRICE
2 Pack Fine Point	Fine	Black	**90-991-1**	$3.00
2 Pack Metallic Silver	Fine	Silver	**90-993-7**	5.40
36 Piece Canister	Fine	Black	**90-992-9**	65.05
4 Pack Twin Tip Assorted	Fine/Ultra Fine	Black, Blue, Green, Red	**90-994-5**	13.80
Super Twin Tip	Fine/Chisel	Black	**90-995-2**	4.15
2 Pack Sharpie Pro	Chisel	Black	**90-996-0**	5.85
King Size™	Felt	Black	**90-997-8**	1.90
Magnum®	Felt	Black	**90-998-6**	7.90



57-079-6

Tools sold separately

Work Mat

- Work Mat. 11¾" by 16¾", ⅛" thick white rubber work pad.
- Prevents scratching of tools, work pieces and work surfaces.
- Makes a great desk work mat.

DESCRIPTION	PART NO.	PRICE
Work Mat	**57-079-6**	$19.15



51-448-9

GENERAL®

8 ½" Wall Clock/ Thermometer & Hygrometer

- Black Face with green fluorescent markings.
- Measures relative humidity (RH) from 0 to 100% with ±6% accuracy.
- Measures temperature from -20 to 140°F. with ±4°F accuracy (Fahrenheit only).
- Operates on one AA battery (included).

DESCRIPTION	PART NO.	PRICE
Wall Clock	**51-448-9**	$39.90



61-690-4

GENERAL®

Jumbo Calendar Wall Clock

- Clear convex lens.
- Big LCD display. (6" x 3.65")
- Dimensions: 9" x 8.25" x 0.75".
- Calendar to December 31, 2030.
- Temperature range: -58 to 158°F (-50 to 70°C).
- °F/°C switch.
- 12 or 24 hour switch.
- Operates on 4 AAA batteries (included).

DESCRIPTION	PART NO.	PRICE
Jumbo Calendar Wall Clock	**61-690-4**	$69.05

SHOP ACCESSORIES

EXTECH INSTRUMENTS
Stopwatch/Clock
Elapsed Time, Split Time



51-445-5

- Accurately time a two person competition.
- Calendar displays day, month and date.
- Stopwatch counts up to 23 hours, 59 min. 59.99 sec.
- Accurate to ±3 sec/day.
- 12/24 hour clock operation with settable hour chime.
- Wake and snooze alarm.
- Dimensions: 2.3" x 2.8" x 0.5" (57 x 70 x 15 mm).
- Water-resistant housing is complete with 39" (1 mm) neckstrap and #357 battery.
- EXTECH® model #365510.

DESCRIPTION	PART NO.	PRICE
EXTECH® Stopwatch/Clock	**51-445-5**	$22.95
Repl. Battery (357/303)	**07-310-6**	2.25



61-659-9

GENERAL®
Digital Timers



61-660-7

- LCD size: 2.25" x 0.88" with .75" high digits.
- Unit size 3" x 2.5" x .075"
- 10 hour countdown in seconds.
- Magnetic back with stand.
- 12/24 hour format.
- Clock: hour, minute, second.
- Uses one AAA battery (included).

DESCRIPTION	PART NO.	PRICE
Digital Timer	**61-659-9**	$26.55

- Normal time shows: Hr., Min., Sec., AM/PM indicator, month, date and day.
- 12/24 hour selectable clock with alarm feature.
- 1/100 second precision (for first 30 minutes).
- Count up to 39:59:59
- Daily alarm and hourly chime.
- Water resistant.
- Uses #CR2016 battery (included)

DESCRIPTION	PART NO.	PRICE
Digital Stop Watch	**61-660-7**	$23.45
Repl. Battery (CR2016)	**07-303-1**	2.64



51-467-9

GENERAL®
4-Channel Timer/Clock

- Count-down/count-up: Stopwatch/timeout
- Magnet, stand and clip on back.
- Count down form or up to 99 hours/59 min/59 sec.
- Automatically counts-up after reaching zero.
- Memory recalls previous time setting.
- 12/24 hour clock display.
- Dimensions: 2.88" x 2.5" x 0.63"
- Digit height: 0.63"
- Accuracy: .01%.
- Battery included LR44.

DESCRIPTION	PART NO.	PRICE
4-Channel Timer	**51-467-9**	$43.40
Replacement Battery	**07-310-6**	2.25



61-688-8

GENERAL®
Count-Up/Down Timer

- Count-up/down, minute-second timer.
- Count-Down function from 1 sec. to 99 min./59 sec.
- Count-up function fixed on 59 min./59 sec. or 99 min./59 sec.
- Alarm sounds for 32 or 64 seconds.
- A magnet, flip-up stand and belt clip are on the back.
- Dimensions: 3.1" x 2.7" x 1"
- LCD size: 1.9" x 0.83" with 0.5" high digits.
- Uses 1 AAA battery (included).
- Color: white

DESCRIPTION	PART NO.	PRICE
Count-Up/Down Timer	**51-468-7**	$17.95



51-468-7

EXTECH INSTRUMENTS
Thermo-Hygrometer
Jumbo Display Thermo/Hygrometer

- Displays inside humidity & temperature.
- Big LCD display: 3.1" x 2.4" with 1" digit height.
- 2-key operation: Min./Max. and reset.
- Memory for High and Low Temperature and Humidity.
- Temperature range: 14°F to 140°F (-10°C to 60°C).
- Humidity range: 10 to 99% RH.
- Wall or desk mount.
- °C/°F slide switch.
- Dimensions: 4" W x 4.25" L x .75" H.
- Low battery indicator. AAA Battery included.
- EXTECH® model #445703.

DESCRIPTION	PART NO.	PRICE
EXTECH® Thermo-Hygrometer	**61-688-8**	$52.15



10-851-4

Starrett® Key Caddy

- Heavy-duty chrome plated die-cast case with extra-long stainless steel chain and large key ring.
- Returns key and other articles automatically.
- Ideal for custodians, maids, watchman, service station attendants and many others.
- Also great for welders to carry torch ignitors.
- SK series with belt clip.

DESCRIPTION	PART NO.	PRICE
STARRETT® Key Caddy	**10-851-4**	$16.40

edsal

Commercial 2 Tray Carts

See Pg. 582



91-758-3

Value Priced

Folding Platform Hand Truck

See Pg. 582



90-077-9

WAAGE ELECTRIC, INC.

Round Dip Coating Pots

150° - 450° F Range

- Use for impregnating and production melting of plastic coatings, waxes, wax-like compounds and glue.
- Operates on AC (alternating current) only and come standard with an operating temperature range of 150° - 550° F.
- Cast aluminum crucibles and have replaceable elements and thermostats.
- Supplied with 6 foot UL listed cords.
- Mounted on air cooled bases.
- Thermostatic control.

CAPACITY	I.D	DEPTH	WATTS	VOLTS AC	PART NO.	PRICE
1 Pt.	3.5"	3.0"	400	115	**51-983-5**	$328.50
1 Qt.	5.0"	3.5"	600	115	**51-985-0**	382.35
1 Qt.	5.0"	3.5"	600	230	**51-986-8**	397.40
2 Qt.	5.5"	5.0"	600	115	**51-987-6**	370.40
2 Qt.	5.5"	5.0"	600	230	**51-988-4**	464.50



51-987-6

Hot Melt Protective Strippable Coatings

Coatings are a series of thermoplastics formulated to fit a wide variety of protective coating needs. Application is easy. Immerse the part into the molten plastic for a few seconds and withdraw; solidifies within one minute. Coating protects items from rust and cushions items during handling, storage and shipping. The protective coating peels off easily and can be re-melted and reused many times.



Type I Coating

- Based on ethylcellulose.
- Also contains mineral oil.
- Leaves film on part.
- Excellent protection for long term storage.
- Numbers and information can be seen through the transparent coating.
- **Grade A:** High quality, light transparent amber coating.
- **Grade B:** The most widely used. Very low fumes with little odor.

GRADE	COLOR	OPERATING TEMP. (°F)	WEIGHT (LBS.)	PART NUMBER	PRICE
A	Clear	350	10	**51-382-0**	$99.70
A	Clear	350	25	**51-383-8**	237.20
A	Clear	350	50	**51-384-6**	474.30
B	Clear	350	10	**51-385-3**	98.40
B	Clear	350	25	**51-386-1**	241.35
B	Clear	350	50	**51-387-9**	482.75
B	Green	350	10	**51-388-7**	101.35
B	Green	350	25	**51-389-5**	241.35
B	Green	350	50	**51-390-3**	482.75
B	Blue	350	10	**51-391-1**	101.35
B	Blue	350	25	**51-392-9**	241.35
B	Blue	350	50	**51-393-7**	482.75
B	Red	350	10	**51-394-5**	101.35
B	Red	350	25	**51-395-2**	241.35
B	Red	350	50	**51-396-0**	482.75

Type II Coating

- Based on cellulose acetate butyrate.
- Excellent pot life.
- Little odor.
- Applications include tool protection, masking for electroplating and sealing the ends of electric cables.
- Fastest set up time and more durable than other types of coatings.
- **Grade C:** Low cost, little oil exudation. The most transparent of all types of coatings. Low operating temperature and very little fumes.

GRADE	COLOR	OPERATING TEMP. (°F)	WEIGHT (LBS.)	PART NUMBER	PRICE
C	Clear	310	10	**51-397-8**	$82.05
C	Clear	310	25	**51-398-6**	193.40
C	Clear	310	50	**51-399-4**	397.45
C	Green	310	10	**51-400-0**	84.30
C	Green	310	25	**51-401-8**	198.75
C	Green	310	50	**51-356-4**	397.45
C	Blue	310	10	**51-357-2**	84.30
C	Blue	310	25	**51-358-0**	198.75
C	Blue	310	50	**51-359-8**	397.45
C	Red	310	10	**51-360-6**	84.30
C	Red	310	25	**51-361-4**	198.75
C	Red	310	50	**51-402-6**	397.45

Type III Coating

- Based on thermoplastic rubber.
- Low operating temperature.
- Softest of the coatings
- Affected by high temperatures.
- **Grade D:** No odor and no oil film. Ideal for saws and small items that do not require long term rust protection.

GRADE	COLOR	OPERATING TEMP. (°F)	WEIGHT (LBS.)	PART NUMBER	PRICE
D	Clear	300	10	**51-403-4**	$61.50
D	Clear	300	25	**51-404-2**	141.70
D	Clear	300	45	**51-405-9**	255.05
D	Green	300	10	**51-406-7**	61.50
D	Green	300	25	**51-407-5**	141.70
D	Green	300	45	**51-408-3**	255.05
D	Blue	300	10	**51-409-1**	61.50
D	Blue	300	25	**51-410-9**	141.70
D	Blue	300	45	**51-411-7**	255.05
D	Red	300	10	**51-412-5**	61.50
D	Red	300	25	**51-413-3**	141.70
D	Red	300	45	**51-414-1**	255.05

SHOP ACCESSORIES

CALCULATED INDUSTRIES®

Measure Master Pro

Ideal for Faster, More Accurate Material Estimates

NEW



- Work in and convert between dimensional formats including feet-inch-fractions, decimal-feet-inch-fractions, yards, meters, centimeters and millimeters, as well as areas and volumes.
- English and Spanish Quick Reference Guides and Pocket Reference Guides.
- Display: 11 Digits (7 normal, 4 fractions) with Full Annunciators
- LCD dimensions: 0.625" x 2.5"
- Size: 5.6" x 3.0" x 0.6"
- Battery: Two 3-volt (LR-44/A76) (inlcuded)
- Protective hard slide cover.

31-130-8

DESCRIPTION	PART NO.	PRICE
Measure Master Pro	**31-130-8**	$50.10

CALCULATED INDUSTRIES®

Machinist Calc® Pro 2

Advanced Machining Math & Materials



NEW

- Includes materials and tool settings combined with depth, width and length of cut.
- Hundreds of calculations, including:
  - Speeds and Feeds
  - Built-in Drill and Thread Size reference tables
  - Drill Point Cut Depth solutions
  - Bolt Pattern hole layouts with center x, y coordinates
  - Right triangle math
  - Trigonometric solutions
  - Wire Sizes and 3-Wire Measurements
- Work in and convert between U.S. and Metric units, including:
  - Decimal Inches/Mils
  - Feet-Inch-Fractions
  - m, mm, cm
  - Area, Volume and Weight
- Quick Reference guide and East-to-Follw user's guide included.
- Display: 12 digits (8 normal, 4 fractions) with full annunciators.
- LCD dimensions: 0.813" x 2.5"
- Size: 6.25" x 3.5" x 0.9"
- Battery: CR2025 (included)
- Shock resistant Armadillo Gear case.

31-099-5

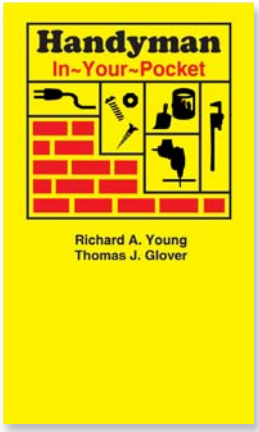
DESCRIPTION	PART NO.	PRICE
Machinist Calc® Pro2	**31-099-5**	$89.95

Handyman In Your Pocket

For Handymen, Maintenance People, Engineers, Scientists, Industrial Workers, Contractors And Builders

By Richard A. Young & Thomas J. Glover, 2002, 768 Pages, Illustrated, Dimensions: 3.2" x 5.4" x 0.9"

- Expanded from the Best Selling Pocket Ref.
- Contains information on: Anchors, Bolts and Threads, Carpentry and Construction, Drafting Symbols, Electrical, General Science, Glues, Paints and Solvents, Math, Nails, Spikes and Staples, Pipe and Fittings, Pumps and Tanks, Rope, Cable and Chain, Screws, Sheet Metal, Plate and Wire, Tools, Water and Air, Welding, Weights and Properties of Materials, . Conversion Factors.

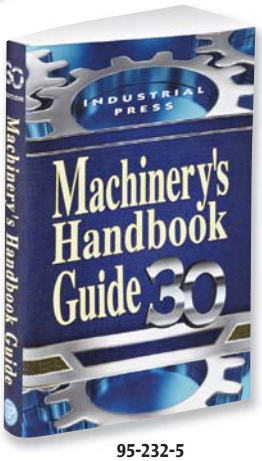


95-635-9

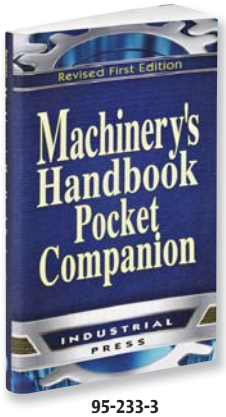
DESCRIPTION	PART NO.	PRICE
Handyman In Your Pocket	**95-635-9**	$18.45



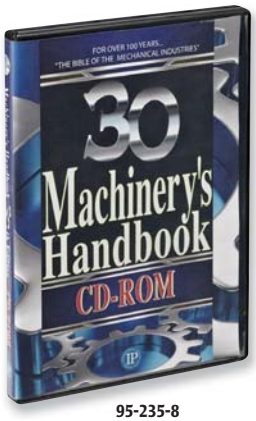
95-230-9



95-232-5



95-233-3



95-235-8

Machinery's Handbook 30th Edition

- New to this edition is an expanded metrology section, including v-blocks and micrometer, vernier and dial calipers; a new fluid power section covering pneumatic, hydraulic, and vacuum theory and applications; powder metallurgy, including additive manufacturing; tap drill sizes for Unified threads and reaming allowance for drilling; standard mesh and grit sizes; and assembly with dowel pins.
- The metric content continues to be expanded.
- The entire text of this edition, including all the tables and equations, has been reset, and thousands of figures have been refined and redrawn.

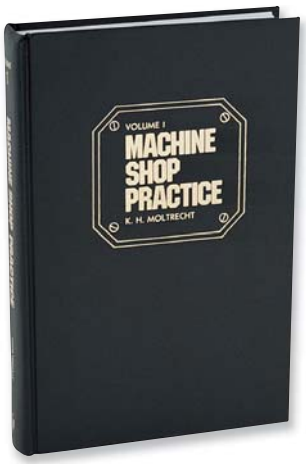
Hand Books

DESCRIPTION	NO. OF PGS.	PART NO.	PRICE
"Toolbox" Handbook 5" x 7"	2,704	**95-230-9**	$105.00
Large Print Version 7" x 10"	2,704	**95-231-7**	125.00
30th Edition Guide	280	**95-232-5**	19.95
Pocket Companion	352	**95-233-3**	24.95
30th Edition CD-ROM	–	**95-234-1**	105.00

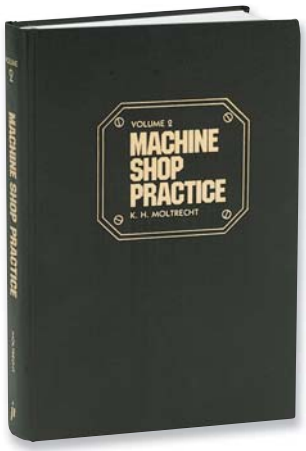
Set

DESCRIPTION	PART NO.	PRICE
30th Edition "Toolbox" CD Set	**95-235-8**	$180.00
30th Edition Large Print CD Set	**95-236-6**	199.95

Machine Shop Practice 2nd Edition



98-000-3



98-005-2

Volume 1

- Used by machinists, toolmakers, diemakers, manufacturing engineers and students.
- Expands the original descriptions of the fundamentals of machine tool operations and the more advanced technology.
- Updated information of single point cutting tools, tool wear, tables of cutting speeds, feeds and machining power.
- More precise methods of estimating drilling torque, thrust and power.
- Elaborate information to basic drilling machine set-ups, jig boring and jig grinding.
- Filled with many tables and illustrations, useful in everyday machine shop practice.

DESCRIPTION	PART NO.	PRICE
Volume 1 Machine Shop Practice	**98-000-3**	$35.30

Volume 2

- Updated and enlarged tables of cutting speeds, feeds and machining power for milling.
- Reflects the changes on numerical control.
- Accurate methods of estimating the cutting speed for milling and formulas of estimating power required.
- Expanded information on selection and application of milling cutters.
- Valuable information on set-ups of workpieces on milling machines, horizontal mills, planers and shapers.
- Elaborate chapter on grinding wheels for cylindrical grinding, surface grinders as well as on inspection methods.
- Filled with many tables, illustrations and formulas.

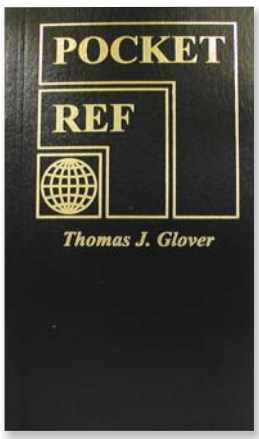
DESCRIPTION	PART NO.	PRICE
Volume 2 Machine Shop Practice	**98-005-2**	$35.30

Pocket Ref - 4th Edition

Amazing! Like Having A Set Of Encyclopedias In Your Shirt Pocket

By Thomas J. Glover, 2010, 864 Pages, Illustrated

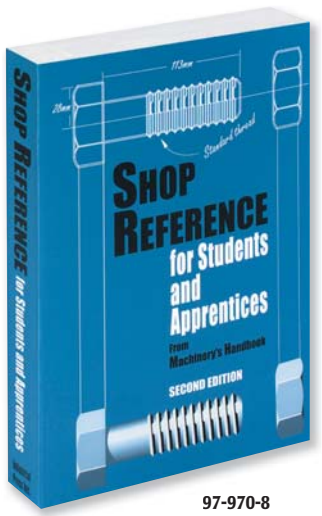
Dimensions: 3.2" x 5.4" x 0.9"



95-631-8

- Contains hundreds of tables, maps, formulas, constants, conversions and charts.
- For engineers, foremen, contractors, machinists, purchasing agents and just about everyone else.
- The 4th edition includes thousands of updates and additions to math and constants, plumbing and pipe, steel and metals, tools, welding and much much more.

DESCRIPTION	PART NO.	PRICE
Pocket Ref	**95-631-8**	$18.00

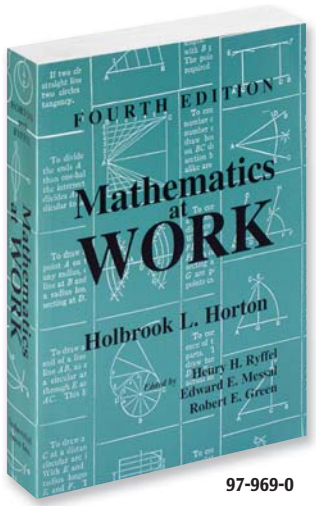


97-970-8

Student's Shop Reference Handbook

- The most authoritative reference book available. Specifically compiled for students in vocational schools, technical institutes and apprenticeship programs.
- Prepares students to use the standard reference Machinery's Handbook.

DESCRIPTION	PART NO.	PRICE
Student's Shop Reference	**97-970-8**	$30.80

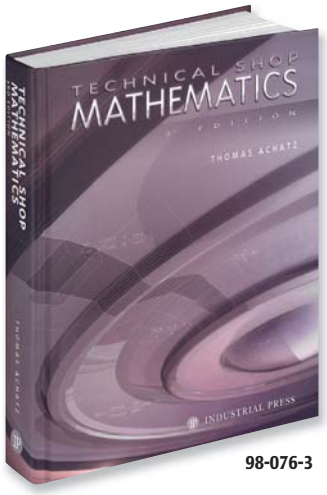


97-969-0

Mathematics at Work

- Companion volume to Machinery's Handbook will help you solve mechanical related math problems.
- Practical applications of algebra, geometry, trigonometry, and logarithms.
- Step by step solutions of mechanical problems and formulas commonly used in engineering practice.

DESCRIPTION	PART NO.	PRICE
Mathematics at Work	**97-969-0**	$34.25



98-076-3

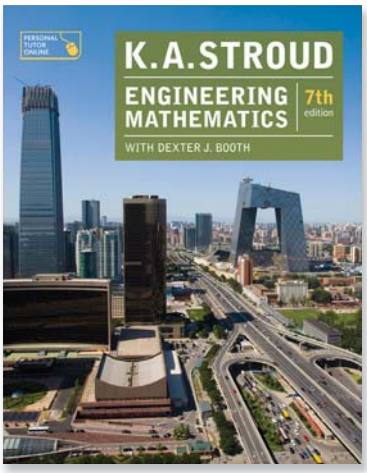
Technical Shop Mathmatics

By Thomas Achatz, John G. Anderson and Kathleen Mckenzie, 2006, 561 Pages, Illustrated

- Intended as a text for technical trades students or on the job reference.
- Beginning with arithmetic and followed by basic mathematical manipulations, geometry, elementary trigonometry and graphing and closes with fundamentals of Statistical Process Control.
- Provides practical explanations, problem solving techniques, examples and exercises.
- Emphasis is placed on applications.
- Ideal resource for standard lecture courses or guided self paced study.

DESCRIPTION	PART NO.	PRICE
Technical Shop Mathmatics	**98-076-3**	$61.30

SHOP ACCESSORIES



95-704-3

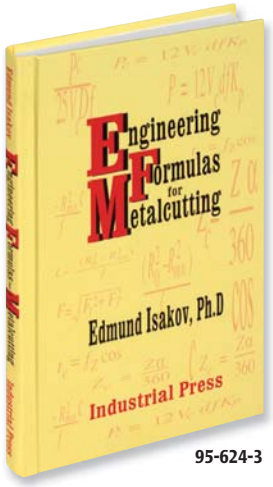
Engineering Mathematics with CD-ROM 7th Edition

A Best Seller Since 1970

By K.A. Straud & D.J. Booth, 2013, 1020 Pages, Softcover

- A groundbreaking comprehensive reference with more than 500,000 copies sold since it first debuted in 1970.
- Useful as an on the job reference, an in depth self study guide or a tool to improve mathematical skills.
- Covers a range of topics from the very basic to the advanced.
- An interactive personal tutor CD-Rom is included

DESCRIPTION	PART NO.	PRICE
Engineering Mathematics	**95-704-3**	$83.70



95-624-3

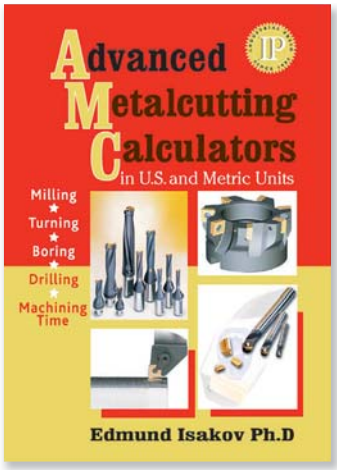
Engineering Formulas for Metalcutting

Presented In Both U.S & Metric Units

By Edmund Isakov, PhD, 2004, 208 Pages, Illustrated

- Enables users to calculate speeds, feeds and required machining power to maximize the productivity of cutting in both U.S. and metric units.
- Provides information on formulas and their applications in concise and clear form.
- Describes mechanical properties of the most popular work materials such as steels, cast iron and nonferrous alloys.

DESCRIPTION	PART NO.	PRICE
Engineering Formulas For Metalcutting	**95-624-3**	$34.25



95-632-6

Advanced Metalcutting Calculators CD-ROM

Provide Computations More Accurate Than Any Other Calculators

By Edmund Isakov, 2005

- For machinists, technicians and engineers.
- Contains 4 calculators for major metalcutting operations: Milling, Turning, Boring, Drilling and a fifth for calculating exact Machining Time when facing, cutting off and deep grooving.
- All calculators are developed in Excel and execute all parameters in both U.S. and metric units.
- Provides computations more accurate than any other calculators on the market.
- Compute RPM versus selected cutting speed, cutting time and metal removal rate.

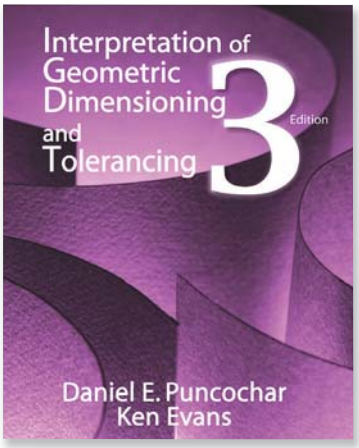
DESCRIPTION	PART NO.	PRICE
Advanced Metalcutting Calculators	**95-632-6**	$89.25

Interpretation of Geometric Dimensioning and Tolerance, 3rd Edition

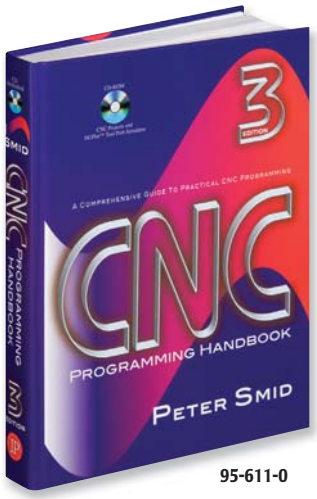
By Daniel E. Puncochar, 2010, 336 Pages, Illustrated

- A complete on-the-job reference that provides explanation of ASME Y14.5M-2009 "Dimensioning and Tolerancing" standards.
- Uses a "building-block" approach with examples (some dimensioned and tolerances in inches and some in millimeters) to illustrate each concept.
- Reinforces the explanations with end-of-chapter self evaluation exercises (the answer to all questions and problems are contained in the back of the book).
- Includes over one hundred drawings that illustrate concepts under discussion.
- Provides the information needed to become conversant in the techniques of GD&T and how to smoothly integrate this knowledge into engineering design and modern inspection systems.

DESCRIPTION	PART NO.	PRICE
Interpt. Geo. Dim. & Toler.	**95-706-8**	$40.85



95-706-8



95-611-0

3rd Edition CNC Programming Handbook with CD-ROM

CD-ROM is loaded with problem solving projects and exercises along with special programming and machining projects, solutions to problems and numerous reference files and utilities

By Peter Smid, 2008, 600 Pages, Illustrated

- Covers about every possible subject a CNC programmer may encounter in a day's work.
- Fully indexed for quickly locating topics of interest.
- Presents common programming subjects in great depth.
- Applies to both CNC milling and CNC turning operations.
- Optimized for the latest Fanuc and related control systems.
- Fully functional shareware version of CNC toolpath simulator/editor, NCPlot.

DESCRIPTION	PART NO.	PRICE
CNC Programming Handbook	**95-611-0**	$92.65

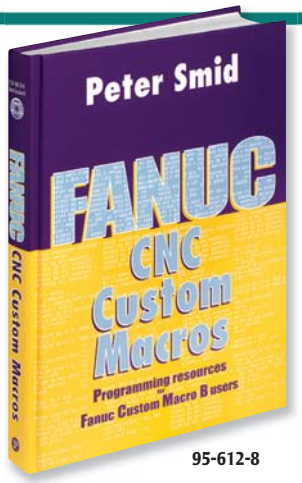
Fanuc CNC Custom Macros with CD-ROM

Programming Resources for Fanuc Custom Macro Users

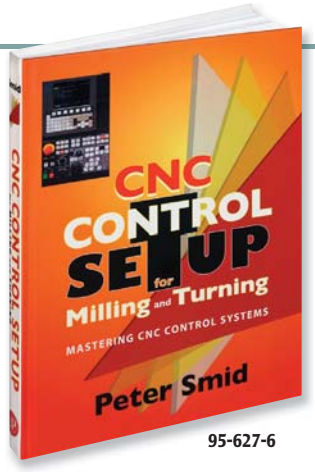
By Peter Smid, 2005, 336 Pages, Illustrated

- Companion to the author's 3rd edition CNC Programming Handbook.
- A general introduction to the subject of custom or user macros.
- Explains what macros are, how to develop them and how to use them effectively.
- Also includes several other helpful and important topics.

DESCRIPTION	PART NO.	PRICE
Fanuc CNC Custom Macros	**95-612-8**	$68.45



95-612-8



95-627-6

CNC Control Setup for Milling & Turning

Mastering CNC Control Systems

By Peter Smid, 2010, 312 Pages, Illustrated

- Covers most activities that a CNC operator does on a daily basis
- This unique reference starts with overall descriptions and in depth explanations of various features.
- Describes working with all types of offsets for milling and turning applications, interpretation of part programs, applying trial cuts, making program changes and much more.
- Emphasis is placed on troubleshooting many common problems in CNC operations, methods of correction and methods of prevention.

DESCRIPTION	PART NO.	PRICE
CNC Control Setup For Milling & Turning	**95-627-6**	$73.90

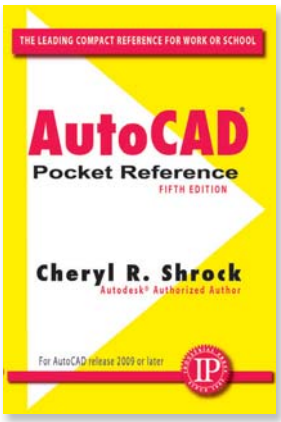
AutoCAD Pocket Reference Guide 5th Edition

For AutoCAD Release 2009 Or Later

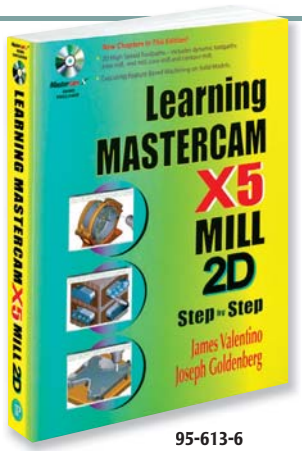
By Cheryl R. Shrock, 2009, Illustrated

- Compact reference for work or school.
- Provides easy access to all the important fundamental commands, concepts and "how to" information for the everyday use of AutoCAD.
- Convenient compact size allows you to take it with you anywhere.

DESCRIPTION	PART NO.	PRICE
AutoCAD Pocket Reference Guide	**95-630-0**	$27.70



95-630-0



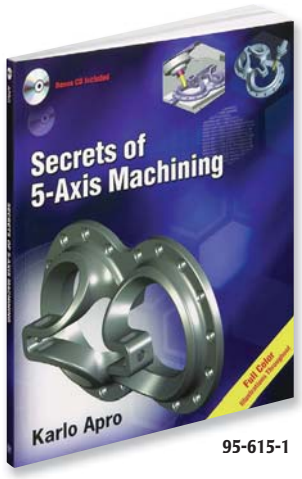
95-613-6

Learning Mastercam X5 Mill 2D Step By Step with CD-ROM

By James Valentino & Joseph Goldenberg, 2010, 900 Pages, Illustrated

- Information on the new features of X5 including creating 2D models by extrusion as well as revolving and Boolean operations.
- New material on editing solids and building a history tree for imported solids.
- Information on executing 2D milling operations on solid models.
- New information on creating a user defined tool plane and machining on the plane.
- New material in file tracking and change recognition.
- Student friendly graphical displays rather than long text and definitions.
- Contains exercises at the end of each chapter.
- Step by step instructions with graphical displays.

DESCRIPTION	PART NO.	PRICE
Learning Mastercam X5 Mill 2D Step by Step	**95-613-6**	$91.55



95-615-1

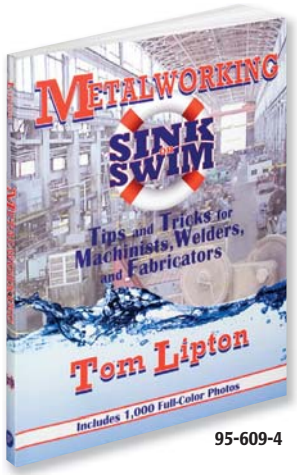
Secrets Of 5-Axis Machining with CD-ROM

The Only Book Of Its Kind

By Karlo Apro, 2008, 176 Pages, Illustrated

- Author shares his secrets of 30 years of hands on experience in the manufacturing industry and doing 5-axis machining.
- Demystifies the subject and brings it within the reach of anyone interested in using this technology to its full potential.
- Not specific to any one particular CAD/CAM system.
- CD contains AVI files with high quality illustrations and sample parts.

DESCRIPTION	PART NO.	PRICE
Secrets Of 5-Axis Machining	**95-615-1**	$68.45



95-609-4

Metalworking Sink or Swim

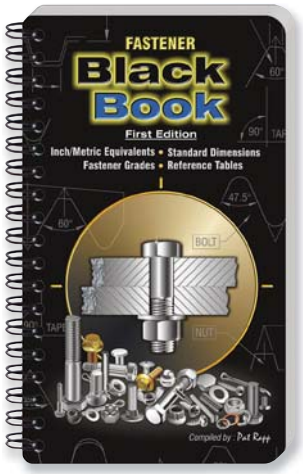
Tips and Tricks for Machinists, Welders and Fabricators

By Tom Lipton, 2009, 300 Pages, Full Color Illustrations

- A collection of priceless tips, tricks, skills and experiences.
- Offers material from several metalworking trades to start a research and development shop.
- Includes shop tested descriptions and illustrations of creative and unique skills and observations.
- Includes numerous photos and illustrative stories so users can easily understand the material and the techniques provided.
- Covers crossover skills like welding/machine, sheetmetal/welding and design/management.

DESCRIPTION	PART NO.	PRICE
Metalworking Sink or Swim	**95-609-4**	$56.30

SHOP ACCESSORIES



98-628-1

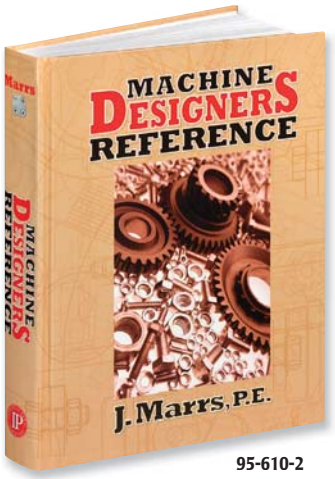
Fastener Black Book

Compiled by Pat Rapp, 248 pp., 2008.

Contains:

- Free all-metal Thread Pitch Identification Gage included
- Inch/Metric fasteners
- ISO and DIN specifications
- Pre-Load and Tightening Torques
- Tolerances and Markings
- Materials and Coatings
- Easy Fastener Identification
- All pages laminated.
- Standard Grades

DESCRIPTION	PART NO.	PRICE
Fastener Black Book	**98-628-1**	$34.60



95-610-2

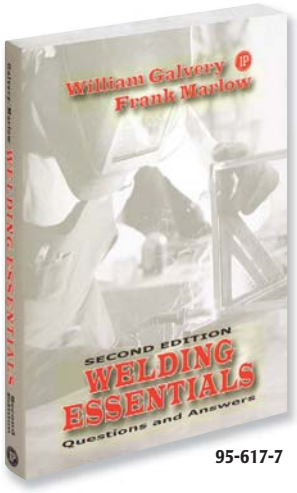
Machine Designers Reference

A One of A Kind Reference to Help You Do Your Work Faster and Better

By J. Marrs, P.E. , 2012, 8" x 10" 716 Pages, Illustrated

- Written by a working mechanical designer with almost 20 years experience.
- Presents design data in groups to minimize time spent flipping pages.
- Packed with essential charts and tables including fastener data, material selection guides and component selection charts.
- Save time in the selection, sizing and tolerancing of mechanical parts and assemblies.
- Compliments the software programs and technical websites designers rely on.
- Full size format make reading charts easy.
- Includes a sheet of page tab stickers to mark important frequently used pages.

DESCRIPTION	PART NO.	PRICE
Machine Designers Reference	**95-610-2**	$82.70



95-617-7

Welding Essentials-Questions & Answers 2nd Edition

Makes Welding Easy For Beginners And A Handy Reference For Professionals

By William Galvery & Frank Marlow, 2007, 536 Pages, Illustrated

- Unique comprehensive question and answer format.
- Discussions on carbon arc cutting with air, plasma arc cutting and laser cutting.
- Allows readers to quickly find what they are looking for and fully understand it.
- Addresses safety hazards and required precautions in detail and provides solutions.
- Explains step by step setup and shutdown procedures.
- Explains why equipment grounding and GFI's are needed and the way each work.

DESCRIPTION	PART NO.	PRICE
Welding Essentials 2nd Edition	**95-617-7**	$48.60

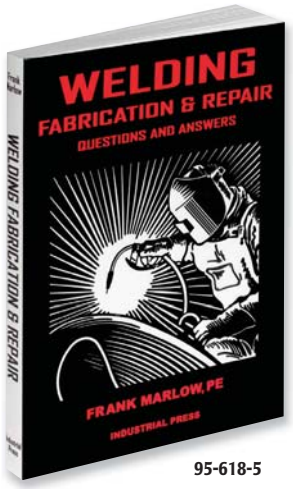
Welding Fabrication & Repair-Questions & Answers

Solves "Real World" Fabrication Problems

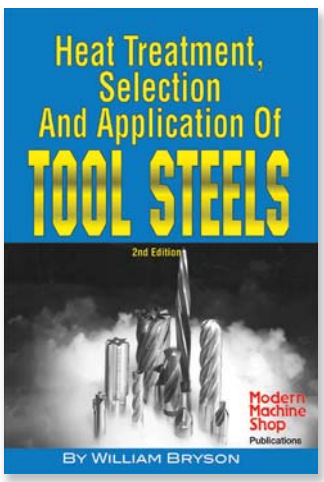
By Frank Marlow, 2002, 320 Pages, Illustrated

- A must have welding reference.
- For welders who know the basics and want to put their skills to better use.
- Provides detailed coverage of the capabilities of oxygen and exothermic lances, flame bending, flame straightening, line heating and panel shrinking as well as threaded fasteners, specialized welding clamps, fixtures, welding platens, cutting pyramids and solutions to common welding problems.
- Presents a broad range of methods from different welding specialties.
- Also presents a clear understanding of the non-welding knowledge welders must have to advance their trade.
- Shortens the time needed to develop effective problem solving skills.

DESCRIPTION	PART NO.	PRICE
Welding Fabrication & Repair	**95-618-5**	$47.45



95-618-5



95-629-2

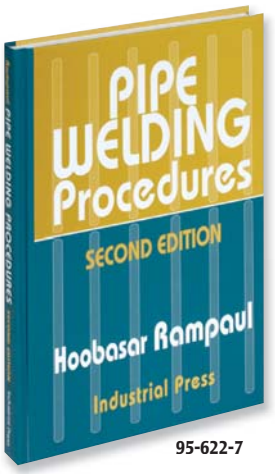
Heat Treatment, Selection & Application of Tool Steels 2nd Edition

Written In Clear Non-technical Language

By Bill Bryson, 2005, 240 Pages, Illustrated

- From the preface of the book, "This is not a book about metallurgy, but a book that describes in simple terms what happens to metal during heat treatment!"
- Offers step by step recipes for properly heating a wide range of tool steels.
- Explains how to lengthen tool life, eliminate dangerous practices, avoid metal failure and eliminate costly mistakes.
- An ideal reference for toolmakers, heat-treaters and engineers.
- Includes chapters on powdered metal tool steels and carburization.
- Contains a glossary of terms.
- Provides practical information about machinability, shock resistance, wear properties, attributes, quantities and shortcomings of popular tool steels.

DESCRIPTION	PART NO.	PRICE
Heat Treatment, Selection & Application Of Tool Steels	**95-629-2**	$65.05



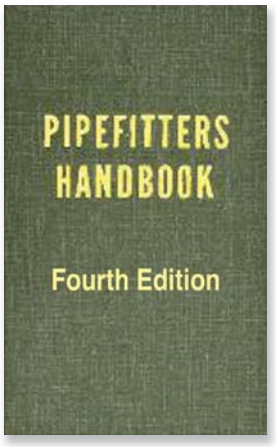
95-622-7

Pipe Welding Procedures 2nd Edition

By Hoobasar Rampaul, 2003, 256 Pages, Illustrated

- Details the manipulating procedures to weld pipe joints.
- Useful information on heat input and distribution, essentials of shielded metal-arc technology, distortion, pipe welding defects, welding safety essentials of welding metallurgy and qualification of the welding procedure and the welder.

DESCRIPTION	PART NO.	PRICE
Pipe Welding Procedures	**95-622-7**	$49.70



95-616-9

Pipefitters Handbook 4th Edition

By Forest R. Lindsey, 2004, 464 Pages, Illustrated

- Thoroughly revised and a ready reference for pipefitters, steamfitters, contractors, plumbers and anyone involved with the layout and installation of pipe.
- Provides answers to problems indigenous to power and industrial pipe bending and the fabrication of weld fittings in both shop and field.
- Logically categorizes material according to job description and supports each working table with a clear example on how to use it.
- Contains the latest standards and materials, including a completely new chapter on plastics.
- Reference section gives instant data on the 24 most useful, on the job, subjects like spark tests for metals, sheet metal weights, valve types, weights and measures and many more.

DESCRIPTION	PART NO.	PRICE
Pipefitters Handbook 4th Edition	**95-616-9**	$35.40



62-619-2

Mini Brushes

- Small specialty counter dusters.
- Great for small hard-to-get places.
- Head: 1 1/2" length x 1/2" width
- 8" overall length.
- Wood handle, 1/2" trim.

BRUSH MATERIAL	PART NO.	PRICE
Stainless Steel	**62-617-6**	$3.90
Brass	**62-619-2**	3.25

Premier®
Three Generations of Quality Craftsmanship

Flat Chip Brushes

- 100% white Chinese bristles and wood handle.
- Use for cleaning and for dusting off machinery.
- One time use.

SIZE	PART NO.	PRICE
1/2"	**59-047-1**	$1.25
1"	**59-048-9**	1.55
1 1/2"	**59-049-7**	1.85
2"	**59-050-5**	2.05
2 1/2"	**59-051-3**	3.30
3"	**59-052-1**	3.75
4"	**59-053-9**	9.30



59-047-1

Machine Shop Brushes



A – Acid brush, horsehair, tin coated tube handle, 6 1/2" long.
B – Scratch brush, 7 1/4" plastic handle.
C – Scratch brush, 7 3/4" wooden handle.
D – T-Slot Table brush, 8 1/2" hardwood handle.
E – Scratch brush, 13 3/4" wood handle.

TYPE	DESCRIPTION	PER PKG.	PART NO.	PER PKG.
A	No.1 Acid Brush 3/8" x 25/32"	144 pcs.	**96-240-7**	$20.08
A	No.2 Acid Brush 1/2" x 13/16"	144 pcs.	**96-241-5**	24.20
C	3 x 7 Rows .006" Brass	1 pc.	**96-247-2**	2.40
C	3 x 7 Rows .006" Stainless Steel	1 pc.	**96-248-0**	2.15
B	3 x 7 Rows .006" Brass	1 pc.	**96-251-4**	2.30
B	3 x 7 Rows .012" Nylon	1 pc.	**96-252-2**	2.30
E	3 x 19 Rows .013" Steel	1 pc.	**96-256-3**	4.55
D	3 x 11 rows, .020" Fiber	1 pc.	**96-273-8**	15.45



62-210-0



62-211-8

Counter Dusters

- Hardwood block. Hanging hole.
- Many uses in industry, garage, home, etc.

SIZE	BRUSH MATERIAL	BRISTLE	PART NO.	PRICE
9"	Black Poly	Med.	**62-208-4**	$7.15
8"	Tampico	Med.- Fine	**62-209-2**	6.75
8"	Grey Poly Flag	Fine	**62-210-0**	7.70
9"	Horse Hair	Very Fine	**62-211-8**	16.25

SHOP ACCESSORIES


63-253-9


63-254-7


63-260-4


63-257-0

Rubbermaid® Commercial Products

13" Counter Dusters

- Brushes are 12½" overall length with 8" Bristle coverage.
- Tampico fill counter duster is ideal for general use.
- Flagged polypropylene fill counter duster is for pick-up of fine dust.

BRUSH MATERIAL	RUBBERMAID® MODEL #	PART NUMBER	PRICE
Tampico	6341	**63-253-9**	$9.00
Flagged Poly*	6342	**63-254-7**	9.50

*Flagged Polypropylene

Rubbermaid® Commercial Products

Angled Broom Flagged Polypropylene Fill

- Durable, flagged fill for sweeping fine dust & dirt.
- Suitable for wet or dry areas.
- Wood handle.
- Rubbermaid® model #6375

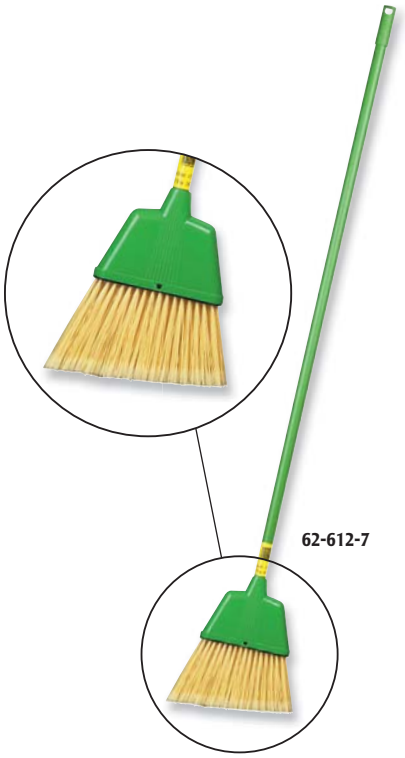
DESCRIPTION	PART NO.	PRICE
Rubbermaid® Angled Broom	**63-260-4**	$21.65

Rubbermaid® Commercial Products

Heavy Duty Corn Broom

- 100% premium corn.
- Recommended only for dry sweeping.
- Features 1⅛" dia. wood handle and is bound with 4 thread rows and 1 wire row.
- Rubbermaid® model #6384.

DESCRIPTION	PART NO.	PRICE
Rubbermaid® Heavy-Duty Corn Broom	**63-257-0**	$28.15


62-612-7

Upright Angle Brooms

- Long-lasting plastic bristles with vinyl coated metal handle.
- Split end tips.
- Suitable for wet or dry areas.

SIZE	PART NO.	PRICE
8" Flare	**62-612-7**	$9.85
12" Flare	**62-613-5**	13.45


62-610-1

Corn Brooms

- Corn and natural fiber blend bristles, wire wound onto handle.
- Extra wide flare covers large area.
- Overall length 55" – 56".
- 1⅛" diameter wood handle.

DESCRIPTION	PART NO.	PRICE
Medium Duty Broom 55"	**62-610-1**	$16.40
Heavy Duty Broom 56"	**62-611-9**	20.85


62-200-1


62-206-8


63-342-0

Shop Brooms

Synthetic Fiber Indoor Brooms

- Polypropylene fiber. Hardwood block. 3" trim.
- Ideal for medium dirt sweeping or uneven floor conditions. Long wearing.
- Resists oil and water.
- Handle sold separately.

DESCRIPTION	PART NO.	PRICE
18" Broom Head w/o Handle	**62-200-1**	$17.45
24" Broom Head w/o Handle	**62-201-9**	22.10

Heavy Duty Factory Brooms

- Sturdy, Palmyra fiber. 4" Trim.
- Ideal for sweeping wet or dry debris, including wood and metal shavings, leaves and rubbish.

DESCRIPTION	PART NO.	PRICE
30" Broom Head w/o Handle	**62-206-8**	$28.00
Hardwood Handle w/Metal Thread	**63-342-0**	9.30



Rubbermaid® Commercial Products

Wastebaskets

- Rectangular space saving shape.
- Rolled rims for durability.
- Smooth interiors clean easily.
- Will not rust, dent or chip.
- Use at desks, in restrooms and near workstations.
- Color: Black.

DIMENSIONS L	W	H	CAPACITY (QUARTS)	RUBBERMAID® MODEL #	PART NUMBER	PRICE
15 1/4"	11"	19 7/8"	41 1/4	2957	**63-307-3**	$16.20
11 3/8"	8 1/4"	12 1/8"	13 5/8	2955	**63-308-1**	8.15
14 3/8"	10 1/4"	15"	28 1/8	2956	**63-309-9**	8.50



65-023-4

Jumbo Dust Pan

- 16" wide stamped heavy gage aluminum.
- Super heavy duty.

DESCRIPTION	PART NO.	PRICE
Jumbo Dust Pan	**65-023-4**	$25.20

Natural Fiber Indoor Brooms

- Ideal for concrete, wood and tile floors.
- For fine to medium sweeping.
- Full-bodied, long wearing tampico fiber.
- Handle sold separately.



62-603-6



63-342-0

DESCRIPTION	PART NO.	PRICE
18" Broom Head	**62-603-6**	$21.10
24" Broom Head	**62-604-4**	26.00
36" Broom Head	**62-605-1**	39.65
60" Hardwood Handle w/Metal Thread	**63-342-0**	9.30

Orange Safety Push Brooms

- Bright orange styrene bristles for safety.
- Can be used in hot water and with diluted acids and petroleum distillates.
- 3" trim, hardwood block.
- Fine/medium bristles.
- Handle sold separately.



62-606-9

DESCRIPTION	PART NO.	PRICE
18" Safety Broom Head	**62-606-9**	$17.60
24" Safety Broom Head	**62-607-7**	21.85
60" Hardwood Handle w/ Metal Thread	**63-342-0**	9.30

Rough Surface Push Broom

- Heavy duty, with 4" trim.
- Sturdy natural palmyra fiber.
- Ideal for sweeping wet or dry debris including metal shavings, wood, rubbish and leaves.
- Handle sold separately.



62-602-8

DESCRIPTION	PART NO.	PRICE
24" Broom Head	**62-602-8**	$15.55
60" Hardwood Handle w/ Metal Thread	**63-342-0**	9.30



90-222-1
3.0 HP



90-019-1
Rubbermaid®
Drum and
Drum Dolly
(not included)

shop•vac®

Vacuum Heads for 55 Gallon Drum

- Powerful 2 stage motor at 3.0 H.P.
- Convert any standard 55 gallon drum (with full removable cover) to a large capacity wet/dry vacuum.
- A drum dolly is recommended. (Rubbermaid® brand drum dolly is sold separately).
- 18' power cord. 120v., 60 Hz.
- Accessories include:
  - 12' x 1 1/2" Dia crush-proof hose w/right angle connecter.
  - 6" metal gulper nozzle.
- Cartridge filter.
- Shipping wt.: 26 lbs.

AIRFLOW CFM	HP	SHOP•VAC® MODEL#	PART NUMBER	PRICE
105	3.0	970-06-10	**90-222-1**	$703.10
Rubbermaid® Drum Dolly			**90-019-1** *	167.40

SHOP ACCESSORIES



61-948-6
Industrial Mop



90-015-9



63-266-1



Rubbermaid Commercial Products

Industrial Mop

- 4-ply construction provides the absorbency and durability needed for factory floor care.
- Cotton for general purpose mopping and Rayon for finish mopping.
- Color: White
- 1" headband quickly fits on E-Z changeMop Handle, with large steel head and 60" hardwood handle.
- Handle sold separately.

DESCRIPTION	RUBBERMAID® MODEL #	PART NUMBER	PRICE
#24 Cotton Mop Head	V118	**61-948-6**	$8.15
Mop Handle	H516	**90-015-9**	18.20

Rubbermaid Commercial Products

Value Pro™ Mops

- 100% cotton, cut-end mops, suitable for occasional clean-up, high absorbency.
- 4-ply construction. 5" Headband. White color.

SIZE	RUBBERMAID® MODEL #	PART NUMBER	PRICE
#16	V156	**63-266-1**	$9.55
#24	V158	**63-267-9**	12.95
#32	V159	**63-268-7**	16.60

Rubbermaid Commercial Products

Hot Mops™

- 100% SYNTEX™ synthetic yarn. Hot Mop™ will outlast cotton mops by 3-4 times.
- Synthetic yarns are twice as absorbent as cotton for excellent pickup.
- Excellent for frequent mopping, or for use on rough floors (unfinished concrete) which tend to pull apart cotton yarn.
- Cut-end, 5" headband.
- Color: Green.
- Mop head only.
- Handle sold separately.

SIZE	RUBBERMAID® MODEL #	PART NUMBER	PRICE
16 oz.	F 136	**63-270-3**	$12.60
24 oz.	F 137	**63-271-1**	17.85



62-657-2

Floor Squeegee Petroleum Resistant

- Ideal for shop, warehouse, and concrete parking areas.
- 1/4" x 2" black imprinted "Neoprene" rubber.
- Long wearing and abrasion resistant.
- For clean up of and around petroleum oils and grease.
- Refill fits either straight or curved.
- Handle sold separately.

DESCRIPTION	PART NO.	PRICE
18" Straight Squeegee	**62-657-2**	$34.70
24" Straight Squeegee	**62-658-0**	41.55
18" Straight Squeegee Refill	**62-663-0**	18.35
24" Straight Squeegee Refill	**62-664-8**	20.85
60" Tapered Hardwood Handle	**62-666-3**	8.90

GOJO®

Natural Orange™ Petroleum Free Hand Cleaners

- Natural Orange™ is a great general-duty cleaner.
- Use in the shop, warehouse or home.
- Available with pumice for extra cleaning action.

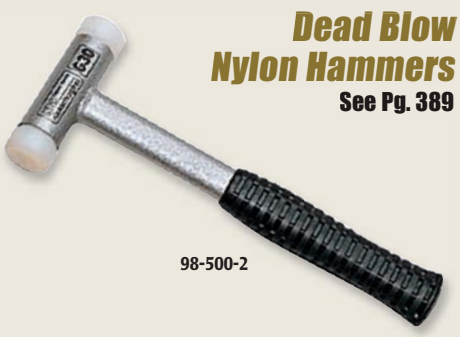


96-649-9
1/2 Gal. Low Profile W/Pump

SIZE	REGULAR PART NO.	PRICE	WITH PUMICE PART NO.	PRICE
1/2 Gal.	**96-649-9**	$19.65	**96-651-5**	$18.05
1 Gal.	**96-650-7**	33.20	**96-652-3**	32.05



96-650-7
1 Gal.
w/Nail Brush



98-500-2

Dead Blow Nylon Hammers

See Pg. 389

GOJO®

Skin & Barrier Lotions

Medicated Skin Lotion

- Formulated for those who do not regularly use lotion.
- Contains Allantoin, Aloe and Vitamin E.
- Conditions skin to protect against irritation.
- Quick rub-in and non-greasy.
- Fragrance free, Silicone free.



96-665-5

DESCRIPTION	PART NO.	PRICE
5 oz. Medicated Lotion	**96-665-5**	$6.05

deb

Hand Creams & Conditioners



62-889-1

Solopol Heavy-Duty Hand Cleanser

- Heavy-duty hand cleanser for most industrial dirts.
- Out-cleans waterless hand cleaners.
- Solvent-free for good skin compatibility.
- Contains natural, biodegradable walnut shell scrubbers.
- Contains patented skin conditioner.
- Silicone free.
- Use with dispenser 62-892-5.

CONTAINER STYLE	SIZE	PART NO.	PRICE
Bottle	2000 ml.	**62-889-1**	$33.95



62-890-9



62-891-7

Estesol Light-Duty Hand Cleanser

- Lightly fragranced.
- Gentle enough for everyday, general restroom use.
- Smooth feel, excellent lather.
- Silicone free.
- Use with dispenser 62-892-5.

CONTAINER STYLE	SIZE	PART NO.	PRICE
Bottle	2000 ml.	**62-890-9**	$20.55



62-882-6

Stokolan Conditioning Cream

- Helps replace lost oil and moisture from everyday work.
- Highly concentrated cream.
- Soothes rough, dry skin.
- Helps chapping, chafing and eczema.
- Silicone free.

CONTAINER STYLE	SIZE	PART NO.	PRICE
Bottle	1000 ml.	**62-891-7**	$56.50



62-885-9

Stokoderm Protective Cream

- Use when both oil and water-based hazards are present.
- Contains patented skin protective agent.
- Silicone free.

CONTAINER STYLE	SIZE	PART NO.	PRICE
Tube	100 ml.	**62-882-6**	$9.95

Kresto Extra-Heavy-Duty Hand Cleanser

- Cleans grease, oil, ink, carbon black and sewer sludge.
- Low solvent content to break up soils without harming skin.
- Contains natural, biodegradable walnut shell scrubbers.
- Contains patented skin conditioner.
- Silicone free.
- Use with dispenser 62-892-5.

CONTAINER STYLE	SIZE	PART NO.	PRICE
Tube	250 ml.	**62-884-2**	$8.05
Bottle	2000 ml.	**62-885-9**	38.55



62-886-7

Kresto Kwik Wipes Industrial Hand Cleaning Wipes

- Extra-heavy-duty towelette to lift grease and grime when a sink is not readily available.
- Lifts grease, oil, ink, carbon black and sewer sludge from skin.
- Low solvent content to break up soils without harming skin.
- Silicone free.

CONTAINER STYLE	SIZE	PART NO.	PRICE
Bucket	130 Wipes	**62-886-7**	$45.40



62-892-5

SVP Dispenser - Black

- Dispenser for use with any Stockhausen 2,000 ml bottle.
- High impact, heavy duty plastic.
- Large sight window provides view of product level.

CONTAINER STYLE	COLOR	PART NO.	PRICE
Dispenser	Black	**62-892-5**	$14.80

Kimberly-Clark PROFESSIONAL

WypAll® X50 Jumbo Roll Wipes & Dispenser

Great for Applying Lubricants, Vehicle and Equipment Cleaning and Low-Lint Glass Cleaning.



72-074-8

Jumbo Roll Wipers

- Nylon-reinforced for strength and tear resistance.
- Durable wet and dry.
- Sheet size: 9.8" W x 13.4" L
- 1100 Sheets per roll.
- White.

DESCRIPTION	PART NO.	PRICE
X50 Jumbo Roll Wipes	**72-074-8**	$85.65



72-075-5



72-076-3

Jumbo Roll Dispensers

- Rugged & durable.
- Floor and wall mounts.
- Compact—Use in any location.
- Black.

DESCRIPTION	HEIGHT	WIDTH	DEPTH	PART NO.	PRICE
Floor Dispenser	33"	16.75"	18.50"	**72-075-5**	$30.55
Wall Dispenser	8"	16.80"	10.80"	**72-076-3**	30.55

SHOP ACCESSORIES



98-260-3

SPI®

Automatic Center Punch

See Pg. 433



57-416-0

Cotton Mechanic's Shop Towels

Pre-Washed, Highly Absorbent 100% Virgin Cotton Towels

- Excellent for use on hands, tools and machinery.
- Works well for wiping oil, grease, water and chemicals.
- Can be washed for continuous use.
- Size: 14" x 15"
- Package Qty: 10 red towels.

DESCRIPTION	PART NO.	PRICE/PKG.
Cotton Mechanic's Shop Towels	**57-416-0**	$7.10



96-658-0

GOJO®

Fast Wipes

Heavy-Duty Hand Cleaning Towels

- Quickly removes most grease and grime from hands right at the job site.
- Increases productivity by eliminating the need to make trips to the wash-station.
- Helps improve skin care by allowing users to remove harmful soils and irritants immediately.

COUNT	CONTAINER	GOJO® MODEL #	PART NUMBER	PRICE
130	Bucket	6298-04	**96-658-0**	$35.95
225	Bucket	6299-02	**96-659-8**	57.95

SCRUBS®

Hand Cleaner Towels

- Heavy Duty, pre-moistened hand cleaner towels with pumice scrubbing power.
- Loosens, dissolves, and absorbs dirt, lubricants, tar, sealants, ink, adhesives, heavy grease, oils, wax, paint, caulk, polyurethane, epoxy and much more.
- Also cleans tools, workbenches, equipment and more.
- Mobile, one-step cleaning towels.
- Deep cleaning scrubbers remove embedded grime easily.
- Antibacterial - contains germ-fighting Triclosan.
- Conditions and softens hands.
- Quantity 72- 10" x 12" towels.

DESCRIPTION	PART NO.	PRICE
SCRUBS® Hand Cleaner Towels	**62-683-8**	$23.50



62-683-8

Kimberly-Clark PROFESSIONAL®

Kimtech® Wipes



72-036-7



72-045-8



72-047-4

Kimtech Science® Kimwipes® Wipers

- Gentile texture 100% virgin fiber for purity.
- Preferred for softness. Won't scratch delicate surfaces when used wet.

Kimtech Prep® Kimtex® Wipers

- Low–lint polypropylene construction is perfect for use with grease and oils.
- Great for cleaning and prep on surfaces and parts.
- Acid-, base- and solvent-resistant.

Kimtech Science® Precision Wipes

- Gentile texture 100% virgin fiber for purity.
- Preferred for softness. Won't scratch delicate surfaces when used wet.

Kimtech Prep® Kimtex® Wipers are blue in color. All other are white.

BRAND	DESCRIPTION	SIZE/SHEET W X L (IN.)	PLY	SHEETS/ PACKS	PACKS/ CASE	PART NUMBER	PRICE
Kimtech Science® Kimwipes®	Pop-Up Box	14.7 x 16.6	1	140	15	**72-036-7**	$280.70
Kimtech Science® Kimwipes®	Pop-Up Box	11.8 x 11.8	1	196	15	**72-037-5**	160.00
Kimtech Science® Kimwipes®	Pop-Up Box	4.4 x 8.4	1	280	60	**72-038-3**	336.10
Kimtech Science® Kimwipes®	Pop-Up Box	4.4 x 8.4	1	280	30	**72-039-1**	171.65
Kimtech Science® Kimwipes®	Pop-Up Box	11.8 x 11.8	2	119	15	**72-040-9**	254.65
Kimtech Science® Kimwipes®	Pop-Up Box	11.8 x 11.8	3	119	15	**72-041-7**	277.85
Kimtech Science® Kimwipes®	Pop-Up Box	14.7 x 16.6	2	90	15	**72-042-5**	333.75
Kimtech Prep® Kimtix®	Jumbo Roll	9.8 x 13.4	1	717	1	**72-043-3**	175.90
Kimtech Prep® Kimtix®	Brag Box	12.1 x 16.8	1	180	1	**72-044-1**	88.65
Kimtech Prep® Kimtix®	1/4 fold Box	12.5 x 12	1	66	8	**72-045-8**	175.60
Kimtech Prep® Kimtix®	Pop-Up Box	8.8 x 16.8	1	100	5	**72-046-6**	209.30
Kimtech Science® Precision Wipes	Pop-Up Box	4.4 x 8.4	1	280	60	**72-047-4**	198.65
Kimtech Science® Precision Wipes	Pop-Up Box	14.7 x 16.6	1	140	15	**72-048-2**	111.75
Kimtech Science® Precision Wipes	Pop-Up Box	14.7 x 16.6	2	90	15	**72-049-0**	96.50



62-596-2

BORAXO®
Heavy Duty Powder Hand Soap, 5 lb

- Contains no phosphate.
- Original powdered hand soap.
- Combines the scrubbing power of Borax with the cleaning power of soap.
- Easily dissolves grease and dirt when washing with water.

DESCRIPTION	PART NO.	PRICE
5 Lb. Powdered Hand Soap	**62-596-2**	$10.95

SPI®

1-2-3, 2-3-4 & 2-4-6 Block Sets

See Pg. 97



Galvanized Funnel
1-Quart Capacity

- 6½" dia. x 7½" high with ⅝" tapered spout dia.



98-341-9

DESCRIPTION	PART NO.	PRICE
1-Quart Capacity	**98-341-9**	$5.45



Lever Type Oil Cans
Premium Brass Pump Mechanism

- Seamless drawn, heavy gage steel body.
- Brass pump mechanism for smooth operation.
- Gasket on lift rod prevents leakage.
- Sure grip handle.
- Oven baked enamel finish bodies resist rust.
- Supplied with rigid and flexible spouts.
- Flexible spout bends in any direction to lubricate in contained spaces.
- Spouts are interchangeable.

CAPACITY	PART NO.	PRICE
6 oz.	**57-084-6**	$6.35
10 oz.	**57-085-3**	7.45
12 oz.	**57-086-1**	8.65
16 oz.	**57-087-9**	9.20
23 oz.	**57-088-7**	9.75

Galvanized Measures
Angled Spout for Easy Pouring



90-336-9

90-337-7

- Spill proof top.
- Easy grip handle.
- Calibrated fill line.
- Rolled edge.
- Flexible spout with ½" OD tip.

DESCRIPTION	PART NO.	PRICE
1-Quart	**90-336-9**	$19.95
4-Quarts	**90-337-7**	25.95

Duct Tape

- High strength and great adhesion.
- Sold individually.
- 2" X 50 yard roll.
- A must in every home, shop, car and office.



DESCRIPTION	PART NO.	PRICE
2" Duct Tape	**51-666-6**	$11.50

51-666-6

NOTES

SAFETY


JUSTRITE
OILY WASTE CAN
EMPTY EVERY NIGHT




FIRST AID
61
MED-FIRST
Alcohol
Alcohol
Alcohol








StealthLite® 4AA



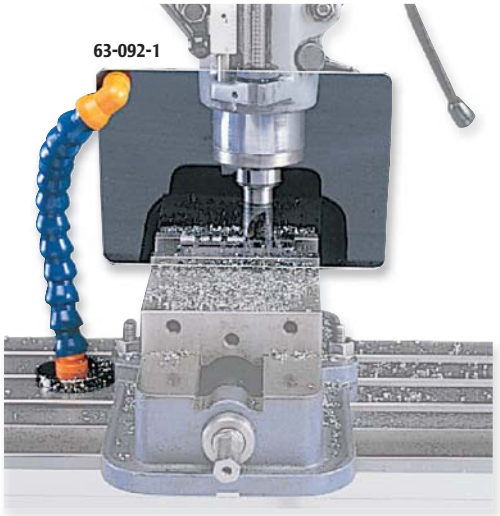
SAFETY



Coolant Hose Shield Kits

- 14" length hose, 3/4" magnetic base and fitting for fixed mounting.

DESCRIPTION	PART NO.	PRICE
Kit with 6" x 8" Shield	**93-216-0**	$43.00
Kit with 7 1/2" x 10" Shield	**93-217-8**	45.40
Kit with 8 1/2" x 12" Shield	**93-218-6**	49.40



LOC-LINE® Magnetic Quick-Set Shield Kits with Adjustable Arms

- Kits contains:
  - 14" adjustable 3/4" Loc-Line® arm
  - Magnetic base (60 lbs.)
  - Fitting for fixed mounting.
- Clear shield, 1/8" thick, high impact polycarbonate plastic sheet, may be rotated 360°.

Shield Kits

DESCRIPTION	PART NO.	PRICE
6" x 8" Shield Kit	**63-092-1**	$46.00
7.5" x 10" Shield Kit	**63-093-9**	49.55
8.5" x 12" Shield Kit	**63-094-7**	53.10

Replacement Shields

DESCRIPTION	PART NO.	PRICE
6" x 8" Repl. Shields	**63-095-4**	$11.50
7.5" x 10" Repl. Shields	**63-096-2**	14.75
8.5" x 12" Repl. Shields	**63-097-0**	18.05

Replacement Parts

DESCRIPTION	PART NO.	PRICE
3/4" Magnetic Base	**63-098-8**	$21.35
3/4" Fixed Mount Housing (2 Pk.)	**63-099-6**	9.60
3/4" Shield Elbows (2 Pk.)	**63-100-2**	12.40

FLEXIGUARD

Safety Shield for Maximum Eye Protection

- Clear view acrylic shield instantly positioned with 10 1/2" long FLEX ARM which stays put wherever you want it.
- Curved shield positively deflects chips, coolant, etc.
- Shield swivels 360°, locks firmly in place.
- Interchangeable shields in 3 sizes.
- Conveniently mounts on lathes, grinders, shapers, mills etc. with powerful, permanent magnet or with C-clamp on hard-to-affix locations.





Complete with Powerful Magnetic Base

SIZE OF SHIELD	PART NO.	PRICE
7 1/2 x 10"	**98-221-5**	$63.30
10 x 12"	**98-222-3**	68.95
12 x 16"	**98-223-1**	75.15

Complete with C-clamps, 1 3/8" Capacity, 1 1/16" Throat 120° Vee in Clamp

SIZE OF SHIELD	PART NO.	PRICE
7 1/2 x 10"	**98-224-9**	$66.15
10 x 12"	**98-225-6**	70.85
12 x 16"	**98-226-4**	81.30

Interchangeable Spare Shields

SIZE OF SHIELD	PART NUMBER	CARTON OF 3 PCS.
7 1/2 x 10"	**98-227-2**	$60.50
10 x 12"	**98-228-0**	74.65
12 x 16"	**98-229-8**	102.10



PROVISAFE™ THE PROFESSIONAL CHOICE

Polycarbonate Flexshield

- Quick cam action locking lever.
- Shield swivels 360° and locks positively where placed.
- Overall height of stand: 14".
- Super power disc mag base: 3.16" dia.
- Shields made of durable clear view polycarbonate - 1/8" thick
- Choice of concave or flat.
- D.O.T. Regulated. Shipped via ground freight only.

SHIELD SIZE	CONCAVE PART NO.	PRICE	FLAT PART NO.	PRICE
6 x 8"	**63-407-1**	$86.85	**63-410-5**	$81.45
8 x 10"	**63-408-9**	90.55	**63-411-3**	85.20
10 x 12"	**63-409-7**	96.10	**63-412-1**	90.55

PROVISAFE™ THE PROFESSIONAL CHOICE

Chip Deflectors

Magnetic Base Guards with 3/16" Polycarbonate Shield

- Swivel Base Positioner affords a variety of shield positions instantly.
- Shield swivels 360 degrees in two planes and 180 in 3rd plane. A twist on locking knob positively locks all.
- Cantilever Design - leaves room for shield to cover work area.
- Magnetic base with 80lbs. magnetic force.
- D.O.T. Regulated. Shipped via ground freight only.

SHIELD SIZE	PART NO.	PRICE
6" x 8"	**63-402-2**	$71.70
8" x 12"	**63-404-8**	84.95




63-391-7

PROSAFE™ THE PROFESSIONAL CHOICE

Vise Guard

Ability to position the guard in close proximity of cutting action, provides excellent visibility and protection.

- Sets up quickly onto vise saddle to deflect chips and coolant away from the machine operator.
- 17" W x 5" H gives wide area protection.
- Hinge folds down for instant work accessibility.
- Available for 6" and 8" vises.
- Steel base with tightening knob.
- Shields made of durable clear 1/4" thick polycarbonate.

VISE SIZE	PART NO.	PRICE
6"	**63-391-7**	$69.60
8"	**63-389-1**	86.85


74-948-1

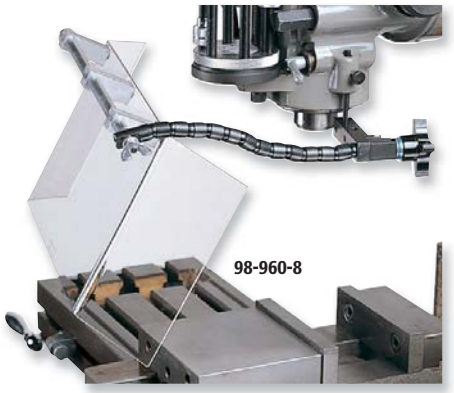
FLEXBAR

Universal Visor Guard

For Milling Machines, Unguarded CNC's, Multi-Spindles & Band Saws

- Fully adjustable long reach guard.
- Flip up to change workpiece or tool.
- Shield is 3/16" Thick x 16" Long x 8" Wide and is supported by a series of heavy-duty arms and swivel clamps allowing the operator to custom fit the guard as to length, angle and position.
- Wing shaped shield protects workers at adjacent machines.
- Long reach from headstock mounting plate/post is adjustable to 36".

DESCRIPTION	PART NO.	PRICE
Universal Visor Guard	**74-948-1**	$434.30
24" x 8" Replacement Shield	**74-949-9**	86.45


98-960-8

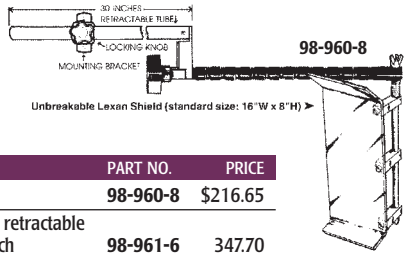

98-956-6

FLEXBAR

SafetyGuard

For Milling Machines

- Protects operator from chips and broken tools.
- 10" Flex arm permits fast positioning at proper height and angle for each set-up.
- Spring loaded friction device holds the shield in desired up or down position.
- SafetyGuard has a Shield size 16" x 8".
- Mill Guard has a wing-shaped shield.
- Made from high impact Lexan®.



98-960-8

DESCRIPTION	PART NO.	PRICE
SafetyGuard	**98-960-8**	$216.65
SafetyGuard with 30" retractable tube for extended reach	**98-961-6**	347.70
Repl. Shield For Safety Guard	**98-962-4**	45.90
Repl. Cable for Flex Arm	**98-963-2**	20.15
Mill Guard, Front & Side	**98-956-6**	214.70
Repl. Shield for Mill Guard	**98-957-4**	44.85

PROSAFE™ THE PROFESSIONAL CHOICE

Clear Shield Latheguards

- Wrap-around design.
- Accepts 3 or 4 jaw chucks.
- Heavy-duty chrome-plated extension tube and hardware.
- Lock in swing-away design.
- Made of Lexan®, transparent super high-impact plastic material, which is a registered trademark of General Electric Co..



SUGGESTED LATHE SIZE	CENTER HEIGHT	USED WITH MAX. CHUCKS	SHIELD WIDTH	SHIELD LENGTH	SHIELD HEIGHT	PART NUMBER	PRICE
Under 6"	3.9"	Up to 6" dia.	6"	8.0"	4"	**95-864-5**	$144.60
6 - 12"	6"	Up to 8" dia.	6"	12.0"	6"	**95-865-2**	151.20
12 - 16"	8"	Up to 12" dia.	8"	16.0"	8"	**95-866-0**	182.95
16 - 20"	10"	Up to 16" dia.	8"	19.7"	10 1/4"	**95-867-8**	211.60
20 - 24"	13"	Up to 20" dia.	8"	24.0"	12"	**95-868-6**	238.15


95-874-4

Replacement Shields

WIDTH	LENGTH	HEIGHT	PART NO.	PRICE
6"	8.0"	4"	**95-869-4**	$62.70
6"	12.0"	6"	**95-870-2**	89.40
8"	16.0"	8"	**95-871-0**	95.70
8"	19.7"	10 1/4"	**95-872-8**	102.45
8"	24.0"	12"	**95-873-6**	116.15

Mounting Brackets

DESCRIPTION	PART NO.	PRICE
For Mounting to Top or Back of Headstock	**95-874-4**	$22.20
Extra Mounting Bracket	**95-875-1**	19.55


95-875-1

SAFETY

Chuckguard™ Super Heavy Duty Steel Guard

Made of 14" Gauge Steel for Chucks Up To 30 1/2" Diameter



98-942-6

- Protects the operator and the "passer-by" from serious injury.
- Hinged front panel allows easy access to the chuck.
- Lexan® window for easy viewing.
- Comes complete with mounting bracket and support bar for mounting on headstock.
- Bright safety painted finish.
- Exceeds OSHA requirements.

USE FOR CHUCKS	SHIELD WIDTH	SHIELD LENGTH	RADIUS	WEIGHT (LBS.)	PART NUMBER	PRICE
20", 24", 25", 26", 28", 30", 30 1/2"	14"	35"	17 1/2"	37	**98-942-6**	$843.10

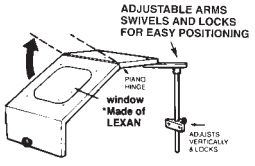


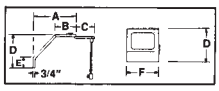
98-928-5

Travelguards

Cross Slide Mount

- For lathes, grinding machines, etc.
- Travels with cross slide operator protection wherever tool is cutting.
- Easy to mount on cross slide.
- Fully adjustable in all directions – forwards and frontwards.
- Heavy steel construction with thick Lexan® window.
- Frame is 3/4" construction made of heavy gauge steel with high quality painted finish.
- Front panel is hinged and can be lifted for quick access to machine.





CHUCK SIZE	SHIELD LENGTH A	TOP PANEL LENGTH B	ADJUSTABLE ARM LENGTH C	SIDESHIELD HEIGHT D	FRONT PANEL HEIGHT E	SHIELD WIDTH F	PART NUMBER	PRICE
20"	16"	8"	7 3/4"	13"	4"	11 7/8"	**98-928-5**	$400.35
28"	22 3/4"	10 1/2"	9 3/4"	14 1/2"	5 5/8"	14"	**98-929-3**	451.70

Drillguard™

Fits Most Drill Presses

- Complete operator vision and protection assured.
- Smooth telescopic action via patented spiral guide groove-window caged housing moves up while drill comes down; hence cutting tool is totally guarded.
- For drill changes – simply pull down on housing. Three spring loaded ball catches disengage and the housing drops out. Conversely, it quickly snaps back in place.
- Inner cage moving down protects window hence the operator from metal slivers.
- Quality made of heavy-duty material.
- The Quill Ring (which holds cage housing) is made of heavy die-cast aluminum, with smooth finish.
- Comes complete with installation and operating instructions.
- Fits Quill diameter up to 2.75" to 2.626". Interchangeable bushings available (see below) to accommodate most drill press quill sizes.

DESCRIPTION	FITS QUILL DIA. (IN.)	PART NUMBER	PRICE
Drillguard™	2.750 to 2.626	**74-959-8**	$236.45
Bushing	2.626 to 2.563	**74-960-6**	27.60
Bushing	2.562 to 2.501	**74-961-4**	28.25
Bushing	2.500 to 2.438	**74-962-2**	27.60
Bushing	2.437 to 2.376	**74-963-0**	28.25
Bushing	2.375 to 2.313	**74-964-8**	27.60
Bushing	2.312 to 2.251	**74-965-5**	27.60
Bushing	2.250 to 2.188	**74-966-3**	27.60
Bushing	2.187 to 2.126	**74-967-1**	27.60
Bushing	2.125 to 2.063	**74-968-9**	28.25
Bushing	2.062 to 2.000	**74-969-7**	26.55
Acrylic Repl. Window		**74-970-5**	42.40



98-236-3

Universal Way Cover

For Full Size Vertical Mills

- A great way to protect the appearance of your machine and maintain the good condition of the saddle cross way.
- Cover consists of two pieces of heavy duty 1/16" thick neoprene rubber that protect exposed ways from dropped tools, chips, abrasives, and cutting oil.
- The long piece covers the exposed rear portion of the ways. The short piece covers the exposed front length of the cross ways.
- Easy to install - no drilling or tapping required.
- The 2 piece guard covers the ways behind and in front of the table.

DESCRIPTION	PART NO.	PRICE
Universal Way Cover	**98-236-3**	$101.45



74-959-8

GATORADE

Instant Powder Mixes, Liquid Concentrates, Bottled & Canned Drinks



64-571-3



64-582-0



64-586-1



64-594-5



64-596-0



64-601-8

- Replaces the carbohydrates and electrolytes necessary for lasting energy.
- Quickly absorbed for rapid rehydration.
- Available in a wide variety of easy use types, flavors and sizes.
- G2 Low Calorie.

Instant Powder Mixes

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
2.12 oz.	1 Qt.	Lemon-Lime	**64-564-8**	$1.35
2.12 oz.	1 Qt.	Fruit Punch	**64-565-5**	1.35
8.5 oz.	1 Gal.	Lemon-Lime	**64-567-1**	3.55
8.5 oz.	1 Gal.	Orange	**64-568-9**	3.55
8.5 oz.	1 Gal.	Fruit Punch	**64-569-7**	3.55
8.5 oz.	1 Gal.	Riptide Rush	**64-570-5**	3.55
21 oz.	2.5 Gal.	Lemon-Lime	**64-571-3**	6.85
21 oz.	2.5 Gal.	Orange	**64-572-1**	6.85
21 oz.	2.5 Gal.	Fruit Punch	**64-573-9**	6.85
21 oz.	2.5 Gal.	Riptide Rush	**64-574-7**	6.85
21 oz.	2.5 Gal.	Glacier Freeze	**64-575-4**	6.85
51 oz.	6 Gal.	Lemon-Lime	**64-576-2**	14.60
51 oz.	6 Gal.	Orange	**64-577-0**	14.60
51 oz.	6 Gal.	Fruit Punch	**64-578-8**	14.60
51 oz.	6 Gal.	Riptide Rush	**64-579-6**	14.85
51 oz.	6 Gal.	Glacier Freeze	**64-580-4**	14.85

Liquid Concentrates - Pump sold separately

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
1 Gal.	6 Gal.	Lemon-Lime	**64-581-2**	$18.85
1 Gal.	6 Gal.	Orange	**64-582-0**	18.85
1 Gal.	6 Gal.	Fruit Punch	**64-583-8**	18.85
1 Gal.	6 Gal.	Fierce Grape	**64-584-6**	18.85
Dispenser Pump			**64-602-6**	6.40

Ready-to-Drink Cans

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
11.6 oz.	11.6 oz.	Lemon-Lime	**64-585-3**	$1.35
11.6 oz.	11.6 oz.	Orange	**64-586-1**	1.35
11.6 oz.	11.6 oz.	Fruit Punch	**64-587-9**	1.35

Wide Mouth Bottles

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
20 oz.	20 oz.	Lemon-Lime	**64-588-7**	$2.40
20 oz.	20 oz.	Orange	**64-589-5**	2.40
20 oz.	20 oz.	Fruit Punch	**64-590-3**	2.40
20 oz.	20 oz.	Fierce Grape	**64-591-1**	2.40

Powder Sticks (8 ct. per box)

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
1.34 oz.	20 oz.	Lemon-Lime	**64-592-9**	$7.70
1.34 oz.	20 oz.	Orange	**64-593-7**	7.70
1.34 oz.	20 oz.	Fruit Punch	**64-594-5**	7.70

Powder Sticks (8 ct. per box) - G2 Low Calorie

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
0.52 oz.	20 oz.	Fruit Punch	**64-595-2**	$7.70
0.52 oz.	20 oz.	Glacier Freeze	**64-596-0**	7.70
0.52 oz.	20 oz.	Grape	**64-597-8**	7.70

Large Mouth Bottles - G2 Low Calorie

PACKAGE SIZE	PACKAGE YIELDS	FLAVOR	PART NUMBER	PRICE
20 oz.	20 oz.	Fruit Punch	**64-600-0**	$2.55
20 oz.	20 oz.	Grape	**64-601-8**	2.55

GATORADE

Coolers, Ice Chest & Cups

5 & 10 Gallon Coolers

- Gatorade coolers come with tight-fitting screw-on lids, recessed "fast flow" faucets, heavy duty moveable handles, and an easy-to-clean liners.
- Orange with Gatorade logo on front and back.


64-559-8

Ice Chest

- Comes with tight-fitting, hinged seat-top lid, removable food tray and a self-draining plug.
- Orange with Gatorade logo on front and back.

Cups

- Cups are available in 6 oz. cone style, which are used with the dispenser on the 5 gallon cooler.

Coolers & Ice Chest

DESCRIPTION	INCLUDES	PART NO.	PRICE
5 Gallon Gatorade Cooler	Cup Dispenser & Flow Spout	**64-558-0**	$106.50
10 Gallon Gatorade Cooler	Cup Dispenser & Flow Spout	**64-559-8**	157.80
48 Quart Ice Chest	Drain Spigot	**64-560-6**	101.25

Accessories

DESCRIPTION	MATERIAL	PART NO.	PRICE
6 oz. Cone Cups, 1 Case (2400 Pcs.)	Paper	**64-562-2**	$106.20
Steel Dispenser Rack for Concentrate w/2 Pumps	Steel	**64-563-0**	67.55

AccuKomiX

MiraCool® Bandanas, Headbands & Tie Hats

- Soak in cold water for 10 – 20 minutes.
- Stays hydrated for several days.
- Reusable thousands of times.
- Works without freezing or ice.
- Universal size.
- Tie closure.


Bandana


Tie Hat

Bandanas

COLOR	PART NO.	PRICE
Cowboy Blue	**54-577-2**	$3.85
Desert Flag	**54-578-0**	3.85
Khaki	**54-579-8**	3.85
Wavy Flag	**54-580-6**	3.85
Navy Blue	**54-581-4**	3.85
Blue Denim	**54-582-2**	3.85
Reflex Blue	**54-583-0**	3.85
Black	**54-584-8**	3.85
Gray	**54-585-5** *	9.45

*Flame Resistant Cotton

Headbands

COLOR	PART NO.	PRICE
Navy Blue	**54-588-9**	$2.90

Tie Hats

COLOR	PART NO.	PRICE
Cowboy Red	**54-589-7**	$13.20
Navy Blue	**54-590-5**	13.20

SAFETY



MiraCool® Cooling Neck Wrap

Wear on Your Neck or Wipe Down!

- Lightweight super-absorbent PVA material holds water without weighing you down.
- Reusable and easy to recharge – Simply rewet to reactivate.
- Helps reduce the cause of heat stress.
- Color: Blue
- Machine washable.
- Packaged in a small resealable bag designed to be a convenient self-activating pouch.
- Size: 31.5" L x 4" W

DESCRIPTION	PART NO.	PRICE
MiraCool® Cooling Neck Wrap	**54-282-9**	$4.45

Zenon Z12 Safety Glasses

Workplace Favorite



These sporty glasses are a workplace favorite. The lightweight design affords superb peripheral vision safety.

- Wraparound lens resists impact damage.
- Frameless design.
- Lens is hardcoated and offers 99.9% UV protection.
- Compliance: ANSI Z87.1+.

LENS COLOR	LENS COATING	TEMPLE COLOR	PART NUMBER	PRICE
Clear	Scratch Resistant	Black	**56-135-7**	$2.60
Clear	Scratch Resistant	Clear	**56-136-5**	2.60
Clear	Anti-Fog, Scratch Resistant	Clear	**56-137-3**	2.90
Clear	Anti-Fog, Scratch Resistant	Black	**56-138-1**	2.90
Gray	Scratch Resistant	Black	**56-139-9**	2.80
Gray w/Silver Mirror	Scratch Resistant	Black	**56-140-7**	3.15
Indoor/Outdoor Silver Mirror	Scratch Resistant	Black	**56-141-5**	2.80
Indoor/Outdoor Silver Mirror	Scratch Resistant	Clear	**56-142-3**	3.15
Blue	Scratch Resistant	Blue	**56-143-1**	2.85
Brown	Scratch Resistant	Dark Brown	**56-144-9**	2.85
Amber	Scratch Resistant	Amber	**56-145-6**	2.85

Zenon Z13 Safety Glasses

Economical Style



Fashion, comfort and protection all come together to make the Z13 an industry favorite.

- Rimless design reduces weight of eyewear.
- Flared bridge provides comfortable fit.
- Matching temple and lens color for solid looking frame.
- Soft end pieces on temples provide comfort behind the ear and a secure fit.
- Lens is hardcoated and offers 99.9% UV protection.
- Compliance: ANSI Z87.1+.

LENS COLOR	LENS COATING	TEMPLE COLOR	PART NUMBER	PRICE
Clear	Scratch Resistant	Clear	**56-157-1**	$3.25
Clear	Anti-Fog, Scratch Resistant	Clear	**56-158-9**	3.85
Gray	Scratch Resistant	Gray	**56-159-7**	3.60
Amber	Scratch Resistant	Amber	**56-160-5**	3.85
Blue	Scratch Resistant	Blue	**56-161-3**	3.85
Indoor/Outdoor Mirror	Scratch Resistant	Clear	**56-163-9**	4.05



Zenon Z28 Safety Glasses

The lightweight single lens type is ideal for a variety of applications. A frameless design allows for excellent peripheral vision.

- Sleek styling.
- Adjustable temples.
- Lens is hardcoated and offers 99.9% UV protection.
- Compliance: ANSI Z87.1+.
- Scratch resistant coating.

LENS COLOR	FRAME COLOR	PART NUMBER	PRICE
Clear	Black	**56-164-7**	$3.65
Gray	Black	**56-165-4**	5.00



Hi-Voltage AC Safety Glasses

Cutting-Edge Style

The sleek design of these glasses encourages worker compliance. The soft grip temples provide added comfort.

- Wraparound lens.
- Adjustable temples.
- Soft, secure nosepiece.
- Lenses are hardcoated and offers 99.9% UV protection.
- Compliance: ANSI Z87.1+.
- Scratch resistant coating.

LENS COLOR	FRAME COLOR	PART NUMBER	PRICE
Clear	Blue	**56-146-4**	$5.90
Gray	Blue	**56-147-2**	5.90



Flashfire Safety Glasses

Multi-Use Eye Protection

Eye protection shouldn't stop when your work is done. That's why this eyewear was developed for work, play and home.

- Lenses are hardcoated and offers 99.9% UV protection.
- Compliance: ANSI Z87.1+.
- Anti-Fog, Scratch Resistant coating.

LENS COLOR	FRAME COLOR	PART NUMBER	PRICE
Clear	Black	**56-131-6**	$6.75
Blue Mirror	Silver	**56-132-4**	8.20



56-637-2

CREWS GLASSES
An MCR Safety Brand

Frostbite2™ Safety Glasses

Nylon Frame and Dual Focal Points

- Frosted black frame.
- Lenses are scratch-resistant.
- Filters out 99.9% of UV radiation.
- Compliance: ANSI Z87+.

LENS	PART NO.	PRICE
Clear	**56-637-2**	$4.85
Gray	**56-638-0**	5.90
Indoor/Outdoor Mirror	**56-639-8**	5.90



56-152-2

PRO-SAFE™
THE PROFESSIONAL CHOICE

Eva™ Safety Glasses

Feminine Style

These glasses are designed specifically to fit women in the workplace. Available in petite size for women with more slender facial profiles.

- Lightweight construction.
- Soft rubber temples.
- Pink ribbon on temple.
- Lens is hardcoated and offers 99.9% UV protection.
- Compliance: ANSI Z87.1+.

Eva

LENS COLOR	LENS COATING	FRAME COLOR	PART NUMBER	PRICE
Clear	Scratch Resistant	Pink	**56-152-2**	$7.10
Gray	Anti-Fog, Scratch Resistant	Pink	**56-153-0**	8.20
Pink	Scratch Resistant	Pink	**56-154-8**	7.10

Eva Petite

LENS COLOR	LENS COATING	FRAME COLOR	PART NUMBER	PRICE
Clear	Scratch Resistant	Pink	**56-155-5**	$7.10
Pink	Scratch Resistant	Pink	**56-156-3**	7.10

CREWS GLASSES
An MCR Safety Brand

Rattler2® Safety Glasses

Square Shaped

- Non-Slip soft temple material.
- Adjustable nose pads
- Built-on side shields.
- Metal alloy frames.
- Scratch-resistant anti-fog coating.
- Filters out 99.9% of UV radiation.
- Compliance: ANSI Z87+.



56-654-7

LENS	FRAME	PART NO.	PRICE
Clear	Gold	**56-654-7**	$8.55
Clear	Silver	**56-655-4**	8.55



56-177-9

56-179-5

PRO-SAFE™
THE PROFESSIONAL CHOICE

Mag Reader Bifocal Safety Glasses

Get a Closer Look

These glasses combine the convenience of ready-to-wear magnifiers with complete protection. These stylish glasses meet or exceed industry eye and face protection standards.

- 30 mm "curve top" bifocal lenses for a wider reading field of vision.
- Frame made of durable nylon using extra wide bridge pads and soft temple pads for more comfort.
- Compliance: ANSI Z87.1+.

LENS COLOR	FRAME COLOR	DIOPTER	PART NUMBER	PRICE
Clear	Black	1.5	**56-176-1**	$10.05
Clear	Black	2	**56-177-9**	10.05
Clear	Black	2.5	**56-178-7**	10.05
Gray	Black	1.5	**56-179-5**	10.05
Gray	Black	2	**56-180-3**	10.05
Gray	Black	2.5	**56-181-1**	10.05

CREWS GLASSES
An MCR Safety Brand

Magnifying Safety Glasses

Get a Closer Look

These glasses combine the convenience of ready-to-wear magnifiers with complete protection. These stylish glasses meet or exceed industry eye and face protection standards.



56-182-9

Crews BearKat® Readers

- Single wraparound lens design.
- Flexible temple design.
- Polycarbonate lens.
- Nonslip rubber head grips.
- Filters 99% of UV radiation.
- Compliance: ANSI Z87.1+.

LENS COLOR	FRAME COLOR	DIOPTER	PART NUMBER	PRICE
Clear	–	1	**56-182-9**	$9.35
Clear	–	1.5	**56-183-7**	9.35
Clear	–	2	**56-184-5**	9.35
Clear	–	2.5	**56-185-2**	9.35

Crews Klondike Magnifier®

- 11° Base curve.
- 5-Position ratchet spatula temples.
- Compliance: ANSI Z87.1+.

LENS COLOR	FRAME COLOR	DIOPTER	PART NUMBER	PRICE
Clear	Black	1	**56-186-0**	$16.45
Clear	Black	1.5	**56-187-8**	16.45
Clear	Black	2	**56-188-6**	16.45
Clear	Black	2.5	**56-189-4**	16.45

SAFETY



56-643-0



56-672-9



56-652-1



56-678-6

CREWS GLASSES
An MCR Safety Brand

Blackjack® Safety Glasses

Dynamic Single Lens Design

- One-piece frameless wrap-around design.
- Nonslip rubber head grips.
- Metal alloy temples.
- Duramass® scratch resistant lens coating and gives 99.9% UV protection.
- **Blackjack® Elite** features spring-hinge temple design.
- Meets or Exceeds ANSI Z87+ safety standards.

Blackjack®

LENS COLOR	FRAME COATING	TEMPLE COLOR	PART NUMBER	PRICE
Clear	Scratch-Resistant	Chrome	**56-643-0**	$7.80
Clear	Anti-Fog & Scratch Resistant	Chrome	**56-644-8**	8.65
Gray	Scratch-Resistant	Chrome	**56-645-5**	9.00
Gray	Anti-Fog & Scratch Resistant	Chrome	**56-646-3**	9.60
Indoor/Outdoor Mirror	Scratch-Resistant	Chrome	**56-647-1**	8.85
3.0 Green	Scratch-Resistant	Chrome	**56-648-9**	11.80
5.0 Green	Scratch-Resistant	Chrome	**56-649-7**	11.80

Blackjack® Elite

LENS COLOR	FRAME COATING	TEMPLE COLOR	PART NUMBER	PRICE
Clear	Scratch-Resistant	Black	**56-650-5**	$8.35
Clear	Anti-Fog & Scratch Resistant	Black	**56-651-3**	8.90
Gray	Scratch-Resistant	Chrome	**56-652-1**	9.60
Indoor/Outdoor Mirror	Scratch-Resistant	Black	**56-653-9**	9.30

CREWS GLASSES
An MCR Safety Brand

Reaper™ Safety Glasses & Safety Goggles

- Removable foam gasket forms a seal around each eye blocking out debris and small particles.
- Dual lens are made of scratch resistant polycarbonate that filters out 99.9% of harmful U.V. rays.
- Exclusive Durmass® scratch resistant coating.
- Soft secure TPR nose pad.
- Frame color: Black
- Compliance: ANSI Z87.1+
- **Safety Glasses** - Comfortable bayonet temples with TPR grip material.
- **Safety Goggles** - Hook and loop adjustable strap for a secure fit. Direct vent with dust protection.

Reaper™ Safety Glasses

LENS COLOR	LENS COATING	PART NO.	PRICE
Clear	Anti-Fog Scratch Resistant	**56-672-9**	$13.95
Gray	Anti-Fog Scratch Resistant	**56-673-7**	14.60
Blue Mirror	Scratch Resistant	**56-674-5**	16.80
Indoor/Outdoor Mirror	Anti-Fog Scratch Resistant	**56-675-2**	15.95

Reaper™ Safety Goggles

LENS COLOR	LENS COATING	PART NO.	PRICE
Clear	Anti-Fog Scratch Resistant	**56-676-0**	$19.05
Gray	Anti-Fog Scratch Resistant	**56-677-8**	19.85
Blue Mirror	Scratch Resistant	**56-678-6**	20.75
Indoor/Outdoor Mirror	Anti-Fog Scratch Resistant	**56-679-4**	20.75



56-681-0



56-685-1



56-680-2

CREWS GLASSES
An MCR Safety Brand

GX1™ Safety Goggles

Unobstructed Field of Vision

- Features one of the softest (TPR) face seals for extended wear and comfort.
- Gray thermo-plastic rubber (TPR) body.
- Indirect venting for increased air flow.
- Silicon adjustable strap.
- Excellent for peripheral vision.
- Fits over most prescription glasses.
- Lens is hardcoated and offers 99.9 U.V. protection.
- Compliance: ANSI Z87.1+

LENS COLOR	LENS COATING	PART NO.	PRICE
Clear	Anti-Fog; Scratch Resistant	**56-681-0**	$11.95
Gray	Anti-Fog; Scratch Resistant	**56-682-8**	13.15

CREWS GLASSES
An MCR Safety Brand

Stryker® Safety Goggles

- Easy adjusting rubber strap for personalized fit.
- Duramass® anti-fog and anti-scratch coatings.
- Indirect vent.
- Comfortable seal around the face.
- Compliance: ANSI Z87+

LENS COLOR	FRAME COLOR	PART NO.	PRICE
Clear	Smoke	**56-685-1**	$7.00

CREWS GLASSES
An MCR Safety Brand

Perforated Safety Goggles

General Purpose

- Can be worn with most half-mask respirators.
- Protects against impact, flying particles and debris.
- Fits comfortable over prescription eyewear.
- Clear frame with black elastic strap.
- Direct vented.
- Polycarbonate lens filters 99.9% of harmful U.V. rays.
- Compliance: ANSI Z87+

LENS COLOR	LENS COATING	PART NO.	PRICE
Clear	Scratch Resistant	**56-680-2**	$3.30



96-498-1



96-499-9

UVEX by Honeywell

Seismic™ Hybrid Safety Glasses/Goggles

Optimal Protection & Comfort

- Protection against impact, sun, wind, dust and airborne debris.
- Designed for long-term wear and all day comfort.
- Headband and cushioned-lined subframe are flame resistant.
- Soft and flexible nasal pads conform to a variety of facial profiles and minimize slippage.
- Anti-fog coating with top and bottom indirect ventilation minimizes fogging.
- Complete with removable temples, headband and cushioned subframe.
- Frame color: Black
- 99.9% U.V. Protection.
- Compliance: ANSI Z87.1+, CSA Z94.3 (ANSI certified with or without cushion lined frame).

LENS COLOR	LENS COATING	PART NUMBER	PRICE
Clear	Anti-Fog	**96-498-1**	$22.50
Amber	Anti-Fog	**96-499-9**	22.95

UVEX by Honeywell

Genesis Reading Magnifier Safety Glasses

Get a Closer Look



56-190-2

These glasses combine the convenience of ready-to-wear magnifiers with complete protection. These stylish glasses meet or exceed industry eye and face protection standards.

- Adjustable temple length and ratcheting lens inclination adjustment offer a secure, customized fit.
- Padded temples and cushioned browbar for added comfort.
- Compliance: ANSI Z87.1+, CSA Z94.3.

LENS COLOR	FRAME COLOR	DIOPTER	PART NUMBER	PRICE
Clear	Black	2	**56-190-2**	$15.30
Clear	Black	2.5	**56-191-0**	15.30
Clear	Black	3	**56-192-8**	15.30



56-683-6

CREWS GLASSES
An MCR Safety Brand

XO Skeleton® Headgear

Optimum Protection

- Headgear with integrated one piece molded polycarbonate face shield providing better optical quality.
- Face shield's curvature on sides and underneath chin provides optimum protection.
- Duramass® hardcoating to reduce scratching after repeated use.
- Ratchet action adjustment with terrycloth sweatband to provide both a precise fit and maximum comfort.
- Anti-fog/Scratch resistance lens
- Compliance: Z87.1+ AS/NZS 1337.1.

FACE SHIELD	PART NO.	PRICE
Clear	**56-683-6**	$30.45
Gray	**56-684-4**	31.95



96-106-0



96-108-6

UVEX by Honeywell

Strategy™ OTG Safety Goggles

Premium Protection & Comfort

- Provides protection against impact, chemical splash, dust, sand and debris – even in extreme environments.
- Lightweight TPE body gives exceptional comfort and a snug fit for maximum protection.
- Fits comfortably over most prescription eyewear.
- Headband available in fabric or neoprene for chemical applications.
- Uvextra™ AF anti-fog coating minimizes fogging.
- Clear lens with 99.39 U.V. protection.
- Compliance: ANSI Z87.1-2003; CSA Z94.3

VENTILATION TYPE	FRAME COLOR	HEADBAND MATERIAL	PART NUMBER	PRICE
Indirect	Gray	Neoprene	**96-105-2**	$14.10
Indirect	Orange	Neoprene	**96-106-0**	14.40
Indirect	Gray	Fabric	**96-107-8**	14.40
Direct	Gray	Fabric	**96-108-6**	12.45
Closed	Gray	Neoprene	**96-109-4**	11.90



96-524-4

UVEX by Honeywell

Visitors Safety Eyewear

- Vented side shields offer side protection against impact.
- Wrap around styling.
- Injected-molded lens and temples are 100% polycarbonate, impact resistant.
- Optically correct. Absorbs >99.9% of harmful UV light.
- Meets industry standards ANSI Z87.1-1989 and CSA Z94.3-1992. High impact protector.

DESCRIPTION	PART NO.	PRICE
UVEX® Visitors Safety Eyewear	**96-524-4**	$3.25

SAFETY



96-557-4



96-558-2

UVEX by Honeywell

BANDIT Safety Glasses

- Contemporarily styled safety eyeware with excellent close-to-the face wrap around fit for superior protection.
- Replaceable polycarbonate lenses come in a variety of tints for different work applications and lighting conditions.
- Lenses are coated with Uvextreme AF " - " and the anti-fog, anti-static, anti-scratch and anti-UV coating.
- Lightweight frames come in a variety of stylish colors.

FRAME	LENS	PART NO.	PRICE
Black	Clear	**96-557-4**	$10.20
Black	Espresso	**96-558-2**	11.75
Black	Mirror	**96-559-0**	16.10



56-168-8



56-166-2



56-172-0

PROVISAFE THE PROFESSIONAL CHOICE

Acrylic Dispensers for Safety Glasses & Goggles

Enhance compliance in one step with these handy glass and goggle dispensers. Tough clear acrylic dispensers keep glasses and/or goggles organized. Several sizes and styles are available.

Large Safety Glass • Table/Wall Mount

TYPE	CAPACITY	HT.	W	D	PART NO.	PRICE
Safety Glass Dispenser - No Lid	4-6 Pairs	3 1/4"	9"	6"	**56-166-2**	$44.70
Safety Glass Dispenser - w/Lid	4-6 Pairs	3 1/4"	9"	6"	**56-167-0**	44.90

Visitor Specs • Wall Mount

TYPE	CAPACITY	HT.	W	D	PART NO.	PRICE
Visitor Specs Dispenser	20-25 Pairs	18"	8"	4"	**56-168-8**	$74.60

Clear Arcrylic • Table/Wall Mount

TYPE	CAPACITY	HT.	W	D	PART NO.	PRICE
Safety Glass/Goggle Dispenser	35 Pairs	16"	15 3/4"	4"	**56-169-6**	$116.75
Safety Goggle Dispenser w/Door	12 Pairs	11 7/8"	17"	7 5/8"	**56-171-2**	150.60
Safety Glass Dispenser - No Door	20 Pairs	12 1/2"	15"	7"	**56-172-0**	129.10
Safety Glass Dispenser w/Door	20 Pairs	12 1/2"	15"	7 1/8"	**56-173-8**	141.05



96-508-7



96-525-1



96-526-9

UVEX by Honeywell

ASTROSPEC 3000™

- Single panoramic lens, 100% polycarbonate and impact-resistant, fully adjustable, patented lens inclination, adjustable temple length, universal nosebridge, extremely lightweight.
- Unique, easy and economical lens replacement system.
- Absorbs >99.9% of harmful UV light.
- Meets industry standards; ANSI Z87.1-1989 and CSA Z94.3-1992.

FRAME	LENS	PART NO.	PRICE
Patriot	Clear	**96-508-7**	$10.95
Black	Clear	**96-513-7**	10.50
Black	Gray	**96-514-5**	11.75

UVEX ASTROPSPEC 3000™ • Replacement Lenses

LENS	PART NO.	PRICE
Clear	**96-525-1**	$5.80
Gray	**96-526-9**	6.65



96-104-5

UVEX by Honeywell

Fog Eliminator Cloths

Formulated to effectively protect lenses from all types of fogging caused by cold, humidity or sudden temperature changes.

- Safe for all surfaces, including polycarbonate and glass.
- Each cloth provides multiple applications.
- Streak and film free, alcohol and silicone free.
- Non-flammable and non-toxic.
- 100 packs per box.

DESCRIPTION	PART NO.	PRICE
UVEX™ Fog Eliminator Cloths	**96-104-5**	$164.95

56-174-6



Ground Ship ONLY

PRO-SAFE™ THE PROFESSIONAL CHOICE

Lens Cleaning Towelettes

Non-Silicone

Premoistened towelettes with special surfactants to clean polycarbonate or plastic eyeglasses or goggles.

- Dispenser box.
- Provides anti-static and anti-fog protection.
- Pocket size.
- 100 Packs per dispenser.
- D.O.T. Regulated. Shipped via ground freight only.

DISPENSER SIZE HT. x W x DEPTH	TISSUE SIZE W x L	PART NUMBER	PRICE
9¼" x 5⅛" x 3"	5" x 8"	**56-174-6**	$11.95

VORNADO

Portable Air Circulator Fans

See Pg. 300



90-541-4



90-542-2



90-543-0

SPERIAN

Emergency Eyewash Wall Station

Highly Visible and Readily Available for Emergency Flushing and Decontamination

- Provides immediate flushing until the injured person can be helped to a primary emergency eyewash devise.
- Contains one or two 32 oz. twist off squeeze bottles of eye solution.
- Sealed, sterile, bottles contain Eyesaline® - a buffered, saline solution superior to tap water for emergency eye care.
- Single: 12¼" x 14" x 4", Double: 19" x 14" x 4".

DESCRIPTION	PART NO.	PRICE
Single Unit Wall Station	**54-509-5**	$38.05
Double Unit Wall Station	**54-510-3**	65.80



54-510-3

Medique® Products

First Aid Kits

Great for Use at Home, Work, Sports or Traveling.

Ground Ship ONLY



96-287-8

- Meets OSHA requirements.
- D.O.T. Regulated. Shipped via ground freight only.
- Supplied in a plastic case.

DESCRIPTION	PART NO.	PRICE
61 Pc. First Aid Kit	**96-287-8**	$17.65
120 Pc. Multi-Purpose Kit	**96-288-6**	31.55
136 Pc. Multi-Purpose Kit	**96-289-4**	46.20

61 Pc. Kit includes:

- 5 – Bandages, ⅜" x 1½" plastic
- 15 – Butterfly Closures, Medium
- 1 – Tape: .5" x 2.5 yd.
- 5 – Cotton Tips 3"
- 2 – Finger Splints
- 1 – First Aid Guide – Bilingual
- 2 – Gauze Pad, 2" x 2" Sterile
- 2 – Gauze Pad, 4" x 4" Sterile
- 1 – Gauze Roll, 2" x 4.1 yd.
- 2 – Gloves, Vinyl Latex-Free
- 1 – Instant Cold Pack
- 3 – Antibiotic Ointment, .9 gm.
- 5 – Burn Cream Ointment, 1 gm.
- 6 – Alcohol Prep Pads
- 3 – Sting Relief Prep Pads
- 6 – Antiseptic Prep Pads
- 1 – Scissors, 4.5" Pointed

120 Pc. Multi-Purpose Kit includes:

- 20 – Bandages, ⅜" x 1½" plastic
- 30 – Bandages, 1" x 3" plastic
- 1 – Tape: .5" x 5 yd.
- 1 – Triangular Bandage w/2 Pins
- 10 – Cotton Tips 3"
- 2 – Finger Splints
- 1 – First Aid Guide – Bilingual
- 4 – Gauze Pad, 2" x 2" Sterile
- 4 – Gauze Pad, 4" x 4" Sterile
- 1 – Trauma Pad 5" x 9", Sterile
- 1 – Gauze Roll, 2" x 4.1 yd.
- 4 – Gloves, Vinyl Latex-Free
- 1 – Instant Cold Pack
- 6 – Antibiotic Ointment, .9 gm.
- 5 – Burn Cream Ointment, 1 gm.
- 12 – Alcohol Prep Pads
- 3 – Sting Relief Prep Pads
- 12 – Antiseptic Prep Pads
- 1 – Scissors, 4.5" Pointed
- 1 – Metal Tweezers, 3" Slant Edge

136 Pc. Multi-Purpose Kit includes:

- 20 – Bandages, ⅜" x 1½" plastic
- 30 – Bandages, 1" x 3" plastic
- 1 – Tape: 1" x 5 yd.
- 1 – Triangular Bandage w/2 Pins
- 10 – Cotton Tips 3"
- 1 – Eye Wash, 1 oz. Sterile
- 2 – Finger Splints
- 1 – First Aid Guide – Bilingual
- 2 – Gauze Eye Pad, 2" Round
- 8 – Gauze Pad, 2" x 2" Sterile
- 4 – Gauze Pad, 4" x 4" Sterile
- 1 – Trauma Pad 5" x 9", Sterile
- 1 – Gauze Roll, 2" x 4.1 yd.
- 1 – Gauze Roll, 4" Non-Conforming
- 4 – Gloves, Vinyl Latex-Free
- 1 – Instant Cold Pack
- 6 – Antibiotic Ointment, .9 gm.
- 6 – Burn Cream Ointment, 1 gm.
- 15 – Alcohol Prep Pads
- 3 – Sting Relief Prep Pads
- 15 – Antiseptic Prep Pads
- 1 – CPR Faceshield
- 1 – Scissors, 4.5" Pointed
- 1 – Metal Tweezers, 3" Slant Edge

SAFETY

Emergency Blankets

Reflective Mylar Thermal Blanket

- Wind and waterproof.
- Traps and reflects up to 90% of body heat.
- Silver on both sides.
- Can be used as a signaling device as well.

Rescue Survival Blanket

- 55% Wool/45% Synthetic fibers with 1700 gram quality fabric.
- Naturally fire retardant.
- Red stitching around border provides durability.
- Color: gray.



Mylar

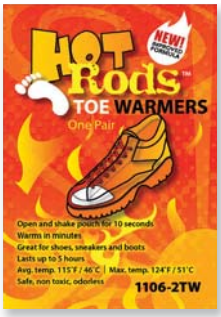


Poly/Wool

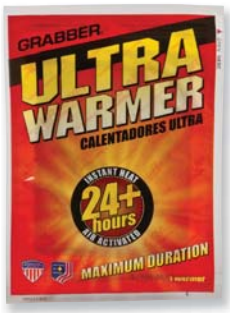
TYPE	LENGTH	WIDTH	PART NO.	PRICE
Reflective Mylar	84"	52"	**56-453-4**	$3.95
Rescue Survival Blanket	80"	60"	**56-454-2**	20.55



50-494-4



50-495-1



50-499-3



50-498-5

Warming Packs

Provides Warmth For Your Hands, Feet and Body

- Once the outer package is opened, an oxidation process takes place, which causes a safe, natural reaction to release heat.
- Provides hours of heat.
- For one time use only.
- Non-toxic, odorless.
- Disposable and biodegradable.

DESCRIPTION	DURATION (HOURS)	AVERAGE TEMP.	PKG. QTY.	PART NUMBER	PRICE
Hand Warmers	7 - 11	135°	5 Pairs	**50-494-4**	$7.45
Toe Warmers	5	100°	5 Pairs	**50-495-1**	9.10
Foot Warmers	5	100°	3	**50-496-9**	14.00
Mega Body Warmer	12	98.6°	3	**50-497-7**	7.15
Adhesive Body Warmer	12	98.6°	3	**50-498-5**	7.15
Ultra Body Warmer	24	98.6°	1	**50-499-3**	2.45



50-180-9

MCR SAFETY

Light-Duty Ponchos

- .10 mm PVC disposable poncho.
- Attached hood.
- Snap closure at sides.
- One size fits all (52" W x 80" L)
- Handy tote pouch.
- Fits easily into tool box, glove compartment or travel bag.
- Three colors to choose from: olive drab green, orange and yellow.

COLOR	PART NO.	PRICE
Olive Drab Green	**50-178-3**	$5.80
Orange	**50-179-1**	5.80
Yellow	**50-180-9**	5.80

PROVISAFE™ THE PROFESSIONAL CHOICE

Earplug Dispensers

Durable Dispensers

Increase compliance by displaying earplugs in a prominent location. These durable dispensers are up to the task.



56-197-7



56-199-3

- Clear acrylic.
- Free standing or wall mounted (hardware not included).
- Provides convenient access in work areas.

TYPE	DIMENSIONS HT.	W	D	PART NO.	PRICE
Open Box	9"	3 1/4"	6"	**56-197-7**	$46.00
Dispenser Box Tray	10 5/8"	10 5/8"	10 5/8"	**56-198-5**	92.95
Hinged Top	12"	13 1/4"	8"	**56-199-3**	107.75

MOLDEX Ideas that wear well.

Meteors® Disposable Foam Earplugs

Uncorded

- The contours follow the shape of the ear canal which means less pressure at the smallest diameter of the ear canal.
- Innovative undercut design affords a secure fit, all day long.
- 100% PVC-free.
- One size fits all.
- Color: Bright Green
- NRR Rating (dB): 33
- Compliance: ANSI S3.19-1974



72-273-6

STYLE	QTY. PER BOX	MODEL #	PART NUMBER	PRICE
Uncorded	200 Pair	6870	**72-273-6**	$50.70



72-272-8

72-271-0

MOLDEX
Ideas that wear well.

SparkPlugs® Disposable Foam Earplugs

Uncorded or Corded

- Suitable for most noisy environments.
- 100% PVC-free.
- Extra-soft, low pressure foam for comfort and fit.
- Tapered shape for easy insertion and removal.
- Non-irritating smooth surface.
- One size fits all.
- Multi-colored.
- NRR Rating (dB): 33
- Compliance: ANSI S3.19-1974

STYLE	QTY. PER BOX	MODEL #	PART NUMBER	PRICE
Uncorded	200 Pair	6604	**72-271-0**	$41.35
Corded	100 Pair	6654	**72-272-8**	40.50



31-943-4

31-944-2

HOWARD LEIGHT
by Honeywell

Laser Lite® Earplugs

Uncorded or Corded

- Vibrant colors make protection visible.
- Self-adjusting polyurethane foam expands to fit virtually every wearer.
- Contoured T-shape for easy insertion and wear.
- Smooth, soil-resistant closed cell-foam skin prevents build-up.
- Colors: magenta and yellow
- One size fits all.

STYLE	QTY. PER BOX	MODEL #	PART NUMBER	PRICE
Uncorded	200 Pair	LL-1	**31-943-4**	$35.55
Corded	100 Pair	LL-30	**31-944-2**	33.75

Protection Article

Hearing Protection

- Disposable tapered foam ear plugs.
- NRR Rating (dB): 33
- 200 individually wrapped pieces per container.

DESCRIPTION	PART NO.	PRICE
Box of 200	**96-468-4**	$52.10



96-468-4

Disposable Masks

- Mask for use against non-toxic dust. Not approved by NIOSH.

DESCRIPTION	MODEL #	PART NO.	PRICE
Box of 50	061501	**96-466-8**	$12.30



96-466-8



Masks not Included

56-196-9

PRO-SAFE™
THE PROFESSIONAL CHOICE

Dust Mask Dispenser

Keeps Masks Clean & Sanitary Until Ready to Use.

- Compact design holds 30 masks.
- Cutout allows easy access to the masks.
- Clear view acrylic.
- Wall or countertop mounted for maximum convenience.

DIMENSIONS HT.	W	D	PART NUMBER	PRICE
12½"	6"	6"	**56-196-9**	$80.52

SPI® Classic

Slot & Groove Gage

See Pg. 90





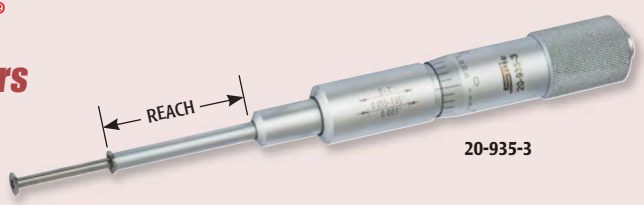
Swiss Made

SPI®

Groove Micrometers

See Pg. 90

Certified
Right Out of the Box!



20-935-3

SAFETY


56-704-0


56-705-7


56-706-5

PRO-SAFE™ THE PROFESSIONAL CHOICE

Earmuffs

Three-Position, Single Position, Folding & Cap Mounted

Three-Position

- Worn over-the-head, under-the-chin or behind-the-neck.
- These economical and colorful earmuffs feature adjustible headbands made of flexible, reinforced plastic and soft PVC ear cushions.
- Compliance: ANSI S3.19

CUP COLOR	NRR RATING (dB) OVER-THE-HEAD	UNDER-THE-CHIN	BEHIND THE-NECK	WEIGHT (OZ.)	PART NUMBER	PRICE
Red/Black	14	14	14	8	**56-702-4**	$7.80
Black/Red	15	15	15	8	**56-703-2**	9.30

Single Position Over-the-Head

- Soft Cushion – Extra large soft ear cushions; low headband force.
- Soft Headpad – Dielectric and outstanding low frequency performance. Sculpted headband has molded grips for easy cup adjustment and super-soft headpad for comfort.
- Extreme Comfort – Soft, foam-filled cushions; headband strap for secure fit.
- Compliance: ANSI S3.19-1974, Soft Headpad CSA Class A.

DESCRIPTION	CAP COLOR	NRR RATING (dB) OVER-THE-HEAD	WEIGHT (OZ.)	PART NUMBER	PRICE
Soft Cushion	Blue	24	6.2	**56-704-0**	$12.50
Soft Headpad	Black	29	9.0	**56-705-7**	26.10
Extreme Comfort	Black	26	8.0	**56-706-5**	13.50


56-707-3


56-708-1

Folding Over-the-Head

- Soft PVC ear cushions.
- Compact design and high attenuation characterize the earmuffs.
- Compliance: ANSI 3.19-1974

DESCRIPTION	CAP COLOR	NRR RATING (dB) OVER-THE-HEAD	WEIGHT (OZ.)	PART NUMBER	PRICE
Folding Earmuffs	Yellow	25	8	**56-707-3**	$17.35

Cap Mounted

- Lightweight, soft comfortable cushions.
- Compliance: ANSI 3.19-1974

DESCRIPTION	CAP COLOR	NRR RATING (dB) OVER-THE-HEAD	WEIGHT (OZ.)	PART NUMBER	PRICE
Soft Cushion	Yellow	23	9.3	56-708-1	$13.25


58-832-7


58-838-4

PRO-SAFE™ THE PROFESSIONAL CHOICE

Hi-Visibility Vests

Non-ANSI Compliant

- Vests can be used for personal use such as yard work, riding a bicycle or running.

Mesh Fabric with Glossy Tape

- 1" glossy tape.
- Silver tape on yellow vest or yellow tape on orange vest.

SIZE	CHEST SIZE	MATERIAL	YELLOW PART NO.	ORANGE PART NO.	PRICE
Large	37 - 43	Polyester Mesh	**58-817-8**	**58-832-7**	$6.10
X-Large	44 - 50	Polyester Mesh	**58-818-6**	**58-833-5**	6.10
4X-Large	55 - 63	Polyester Mesh	**58-819-4**	**58-834-3**	6.10

Mesh Fabric with No Tape

SIZE	CHEST SIZE	MATERIAL	YELLOW PART NO.	ORANGE PART NO.	PRICE
Large	37 - 43	Polyester Mesh	**58-823-6**	**58-838-4**	$4.95
X-Large	44 - 50	Polyester Mesh	**58-824-4**	**58-839-2**	4.95
4X-Large	55 - 63	Polyester Mesh	**58-825-1**	**58-840-0**	4.95

Solid Fabric Vests with No Tape

SIZE	CHEST SIZE	MATERIAL	YELLOW PART NO.	ORANGE PART NO.	PRICE
Large	37 - 43	Polyester	**58-826-9**	**58-841-8**	$4.95
X-Large	44 – 50	Polyester	**58-827-7**	**58-842-6**	4.95
4X-Large	55 - 63	Polyester	**58-828-5**	**58-843-4**	4.95


58-869-9


58-864-0


58-874-9


58-877-2


58-885-5

PRO-SAFE™ THE PROFESSIONAL CHOICE

Hi-Visibility Class 2 & 3 Safety Vests

ANSI 107-2010 Compliant

Economy Sleeveless Mesh Vests

- Single 360° horizontal stripe.
- 2 shoulder stripes.
- Hook and loop closure.
- Lightweight polyester mesh fabric.
- 1 pocket.

SIZE	CHEST SIZE	CLASS	ORANGE PART NO.	PRICE
Small/Medium	39 - 43	2	**58-873-1**	$9.75
Large/X-Large	47 - 51	2	**58-874-9**	9.75
2X-Large/3X-Large	55 - 59	2	**58-875-6**	9.75

Economy Short Sleeve Mesh Vests

- Single 360° horizontal stripe.
- 2 shoulder stripes.
- Sleeve stripes.
- Lightweight polyester mesh fabric.
- Zipper front.
- 2 large inside pockets.

SIZE	CHEST SIZE	CLASS	ORANGE PART NO.	PRICE
Small/Medium	39 - 43	3	**58-876-4**	$19.65
Large/X-Large	47 - 51	3	**58-877-2**	19.65
2X-Large/3X-Large	55 - 59	3	**58-878-0**	19.65

Solid & Mesh Vests

- Hook & loop closure.
- 2" 3M™ Scotchlite™ reflective tape – two 360° horizontal stripes plus two vertical shoulder stripes.

SIZE	CHEST SIZE	CLASS	MESH POLYESTER YELLOW PART NO.	MESH POLYESTER ORANGE PART NO.	PRICE
Medium	37 - 39	2	**58-858-2**	**58-884-8**	$23.05
Large	39 - 43	2	**58-859-0**	**58-885-5**	23.05
X-Large	43 - 46	2	**58-860-8**	**58-886-3**	23.05
2X-Large	46 - 49	2	**58-861-6**	**58-887-1**	24.20
3X-Large	49 - 52	2	**58-862-4**	**58-888-9**	25.40

Breakaway Vests

- Hook and loop fasteners at the top, sides and front.
- One inside pocket and one outside pocket with pen compartment and utility loop.
- Large hole ANSI compliant mesh fabric.
- 2" 3M™ Scotchlite™ reflective tape – two 360° horizontal stripes plus two vertical shoulder stripes.

SIZE	CHEST SIZE	CLASS	YELLOW PART NO.	ORANGE PART NO.	PRICE
Medium	37 - 39	2	**58-863-2**	**58-889-7**	$25.35
Large	39 - 43	2	**58-864-0**	**58-890-5**	25.35
X-Large	43 - 46	2	**58-865-7**	**58-891-3**	25.35
2X-Large	46 – 49	2	**58-866-5**	**58-892-1**	25.35
3X-Large	49 - 52	2	**58-867-3**	**58-893-9**	25.35

Surveyor's Vests

- Fully dielectric, nonconductive zipper.
- 9 outside pockets and 3 inside pockets.
- 2" 3M™ Scotchlite™ reflective tape – two 360° horizontal stripes plus two vertical shoulder stripes.

SIZE	CHEST SIZE	CLASS	YELLOW PART NO.	ORANGE PART NO.	PRICE
Medium	37 - 39	2	**58-868-1**	**58-894-7**	$34.55
Large	39 - 43	2	**58-869-9**	**58-895-4**	34.55
X-Large	43 - 46	2	**58-870-7**	**58-896-2**	34.55
2X-Large	46 -49	2	**58-871-5**	**58-897-0**	34.55
3X-Large	49 - 52	2	**58-872-3**	**58-898-8**	34.55

SAFETY

Cold Weather Work Gloves

With Touchscreen Compatible Finger and Thumb

- Fingers and thumbs made of conductive material for easy use with touchscreen devices.
- Insulation traps warm air to help regulate your body temperature.
- Hook and loop top closure provides a secure fit with outerwear.
- Palm and thumb reinforcement.
- Removable spring clip keeps your gloves organized for easy storage.
- Machine washable.

Wind Resistant Gloves

- Laminated wind barrier provides critical wind-resistance.
- Ripstop nylon reinforcement prevents tearing and repels water.
- Layered palm construction reduces material bunching.
- Color: Black/Gray

Weather Impact Gloves

- Accordion knuckle guard with foam padding extending to the index and middle finger.
- Water-resistant nylon back-of-hand protects against the elements.
- Overlapping palm construction reduces material bunching when operating hand tools.
- Embossed fingertip pattern improve gripping power.
- Color: Black/Gray



SIZE	WIND RESISTANT PART NO.	PRICE	WINTER IMPACT PART NO.	PRICE
Small	**55-572-2**	$38.40	**55-577-1**	$40.05
Medium	**55-573-0**	38.40	**55-578-9**	40.05
Large	**55-574-8**	38.40	–	–
X-Large	**55-575-5**	38.40	**55-580-5**	40.05
2X-Large	**55-576-3**	38.40	–	–

Work Gloves

Black Gloves with Logo

The Original® Glove

- All purpose.
- TPR (Thermal Plastic Rubber) hook and loop closure for a secure fit.
- Single layer seamless palm for improved fit and dexterity.
- Reinforced thumb panel for added durability.
- Reinforced fingertip panels in high wear areas.
- Durable synthetic leather palm.

The FastFit® Glove

- Elastic cuff offer easy on/off flexibility.
- Continuous stretch panels between fingers provide a snug fit.
- Synthetic leather wraps from the palm around to the thumb and index finger providing increased protection and better wear when handling tools.
- Hands stay cool, dry and comfortable with moisture-wicking TrekDry® material around the wrist, thumb and fingers.



SIZE	COLOR	THE ORIGINAL® PART NO.	PRICE	THE FASTFIT® PART NO.	PRICE
Small	Black	**55-561-5**	$38.15	**55-566-4**	$24.60
Medium	Black	**55-562-3**	38.15	**55-567-2**	23.90
Large	Black	**55-563-1**	38.15	**55-568-0**	23.90
X-Large	Black	**55-564-9**	38.15	**55-569-8**	23.90
2X-Large	Black	**55-565-6**	38.15	**55-570-6**	23.90



Touchscreen Gloves

Specialized Conductive Material on Thumb, Index and Middle Fingers for Easy Use with Touchscreen Devices.

- Comfortable synthetic suede base layer.
- Directional top of hand wicks away heat and moisture.
- Terry cloth thumb for wiping away sweat and debris.
- Internal knuckle padding.
- Non-slip reinforcement palm enhances durability.
- Supportive cuff with adjustable Velcro closure.

SIZE	PART NO.	PRICE
Small	**55-541-7**	$34.10
Medium	**55-542-5**	34.10
Large	**55-543-3**	34.10
X-Large	**55-544-1**	34.10
2X-Large	**55-545-8**	34.10



Machine Knit Gloves

Handy Helpers

- These cotton blend gloves stretch to fit, while allowing air to circulate and keep hands dry and comfortable.
- They are ideal for general work, parts handling and maintenance.
- Reversible construction.
- Available in fingerless for added sensitivity.

Light-Duty Gloves

GENDER	COVERAGE	COLOR	PART NO.	PRICE
Men's	Full Fingered	Natural	**56-230-6**	$0.55
Ladies'	Full Fingered	Natural	**56-231-4**	0.55

Medium-Duty Gloves

GENDER	COVERAGE	COLOR	PART NO.	PRICE
Men's	Full Fingered	Gray	**56-233-0**	$0.85
Men's	Fingerless	Natural	**56-234-8**	1.10
Ladies'	Full Fingered	Gray	**56-236-3**	0.85
Ladies'	Fingerless	Natural	**56-237-1**	1.10

Heavy-Duty Gloves

GENDER	COVERAGE	COLOR	PART NO.	PRICE
Men's	Full Fingered	Natural	**56-238-9**	$1.15
Ladies'	Full Fingered	Natural	**56-239-7**	1.15

PROSAFE™ THE PROFESSIONAL CHOICE

Leather Palm Gloves

Unlined, Lined & Hi-Vis

Traditional work gloves. Choice of leather grade and style, all of which are excellent quality to extend wear and improve employee satisfacation. Available in a variety of grades and cuff styles.



Clute Pattern



Gunn Pattern



Double Palm



Hi-Vis

Leather Grade

- **Economy:** C grade split cowhide.
- **Select:** B grade shoulder split cowhide.
- **Premium:** A grade premium shoulder top grain cowhide.
- **Platinum:** A grade heavy side split cowhide with KEVLAR® stiching.
- **Pigskin:** Will return to its original pliability even after being soaked in water.
- **Top-Grain:** The outside layer of the hide

Patterns

- **Clute:** The most economical of leather gloves. Features straight thumb, lined palm, knit wrist and cotton back allowing for better air circulation.
- **Gunn:** Best suited for tough jobs. The Gunn pattern features lined leather palm, wing thumb design, fully wrapped leather index finger and thumb, leather finger tips, leather knuckle strap, shirred elastic back and continuous pull.
- **Keystone Thumb:** Type of insert thumb on full leather glove patterns. Provides workers with greater comfort.
- **Hi-Vis:** Orange nylon back with reflective band over the knuckle provides workers with greater visibility in high-risk applications.

Cuff

- **Knit Wrist:** Designed to hold glove in place and prevent debris from entering glove.
- **Safety:** Helps protect wrist area. Slides on and off easily.
- **Gauntlet:** Increases protection to forearm.
- **Rubberized Safety Cuff:** Added protection to the wrist because the fabric on the cuff is stiffined.
- **Double Palm:** The glove is constructed with two layers of leather on the palm to provide additional protection.

Unlined Leather Palm Gloves

Economy

MATERIAL	PATTERN	CUFF	SIZE	PART NO.	PRICE
Leather	Clute	Knit Wrist	Small	**56-246-2**	$2.85
Leather	Clute	Knit Wrist	Large	**56-247-0**	3.15
Leather	Gunn	Safety	Large	**56-248-8**	3.65
Leather	Gunn	Gauntlet	Large	**56-249-6**	4.35
Leather	Gunn	Denim Safety	Large	**56-251-2**	3.75

Select

MATERIAL	PATTERN	CUFF	SIZE	PART NO.	PRICE
Leather	Clute	Knit Wrist	Large	**56-252-0**	$2.95
Leather	Gunn	Knit Wrist	Large	**56-253-8**	4.45
Leather	Gunn	Rubberized Safety	Small	**56-254-6**	4.85
Leather	Gunn	Rubberized Safety	Large	**56-255-3**	4.15
Leather	Gunn	Rubberized Safety	X-Large	**56-256-1**	4.15
Leather	Gunn	Rubberized Gauntlet	Small	**56-257-9**	5.55
Leather	Gunn	Rubberized Gauntlet	Large	**56-258-7**	5.55
Leather	Gunn	Rubberized Gauntlet	X-Large	**56-259-5**	5.55
Double Palm	Gunn	Rubberized Safety	Large	**56-260-3**	5.80

Premium

MATERIAL	PATTERN	CUFF	SIZE	PART NO.	PRICE
Leather	Gunn	Rubberized Safety	Small	**56-263-7**	$6.85
Leather	Gunn	Rubberized Safety	Medium	**56-264-5**	6.85
Leather	Gunn	Rubberized Safety	Large	**56-265-2**	6.85
Leather	Gunn	Rubberized Safety	X-Large	**56-266-0**	6.85
Leather	Gunn	Rubberized Gauntlet	Large	**56-267-8**	7.95
Double Palm	Gunn	Rubberized Safety	Small	**56-268-6**	9.55
Double Palm	Gunn	Rubberized Safety	Medium	**56-269-4**	9.55
Double Palm	Gunn	Rubberized Safety	Large	**56-270-2**	9.55
Double Palm	Gunn	Rubberized Safety	X-Large	**56-271-0**	9.55

Platinum

MATERIAL	PATTERN	CUFF	SIZE	PART NO.	PRICE
Leather	Gunn	Rubberized Safety	Small	**56-272-8**	$8.65
Leather	Gunn	Rubberized Safety	Medium	**56-273-6**	8.65
Leather	Gunn	Rubberized Safety	Large	**56-274-4**	8.65
Leather	Gunn	Rubberized Safety	X-Large	**56-275-1**	8.65

Hi-Vis Leather Palm Gloves

Unlined - Top Grain

MATERIAL	PATTERN	CUFF	SIZE	PART NO.	PRICE
Pigskin	Keystone	Slip-On	Small	**56-276-9**	$14.95
Pigskin	Keystone	Slip-On	Medium	**56-277-7**	14.95
Pigskin	Keystone	Slip-On	Large	**56-278-5**	14.95
Pigskin	Keystone	Slip-On	X-Large	**56-279-3**	14.95

SAFETY

PRO-SAFE™ THE PROFESSIONAL CHOICE

Cotton Canvas Gloves

Trade-Work Tradition

- These cotton canvas fabric, multi-purpose gloves are used for light protection.
- The gloves are natural in color.

Light-Duty Work Gloves

- Clute cut pattern.
- 8 oz.

GENDER	WRIST TYPE	PART NO.	PRICE
Men's	Knit Wrist	**56-221-5**	$2.15
Ladies'	Knit Wrist	**56-222-3**	2.15

Medium-Duty Work Gloves

- Provide enhanced protection and extended wear.
- 10 oz.

GENDER	WRIST TYPE	PART NO.	PRICE
Men's	Knit Wrist	**56-223-1**	$2.35
Ladies'	Knit Wrist	**56-224-9**	2.35

Heavy-Duty Work Gloves

- Two layers of fabric quilted together for 18 oz. weight in palm.
- Nap-out style for moderate heat protection.

GENDER	WRIST TYPE	PART NO.	PRICE
Men's	Knit Wrist	**56-225-6**	$3.55
Ladies'	Band Top	**56-226-4**	3.55



56-221-5



56-225-6



56-228-0

PRO-SAFE™ THE PROFESSIONAL CHOICE

Fleece Chore Work Gloves

Task Master

- The fleece material allows these gloves to stand up to tough jobs.
- For use in warehousing, farming and automotive applications.
- Cotton, fleece lined glove, three wrist styles.
- Moderate heat protection.

SIZE	WT.	CUFF TYPE	PART NO.	PRICE
Universal	10 oz.	Band Top	**56-227-2**	$3.40
Universal	14 oz.	Knit Wrist	**56-228-0**	3.40
Universal	14 oz.	Gauntlet	**56-229-8**	4.00

PRO-SAFE™ THE PROFESSIONAL CHOICE

Vinyl Impregnated Gloves

- These gloves can replace lightweight cotton, goatskin and lightweight leather gloves.
- Lightweight and comfortable.
- Flexible coating over cotton fabric allows for comfortable fit and provides excellent dexterity.
- Water resistant.
- Clute pattern, slip-on cuff.
- Color: Reddish brown.

GENDER	SIZE	PART NO.	PRICE
Men's	Medium	**56-240-5**	$2.10
Men's	Large	**56-241-3**	2.10
Men's	X-Large	**56-242-1**	2.10
Ladies'	Small	**56-243-9**	2.10
Ladies'	Medium	**56-244-7**	2.10
Ladies'	Large	**56-245-4**	2.10



56-240-5

PRO-SAFE™ THE PROFESSIONAL CHOICE

Driver's Gloves Unlined Style



96-460-1



96-494-0

Grain Leather

- Slip-on style for comfortable protection.
- Offers dependable slip resistance for a wide variety of jobs.
- Gunn pattern with shirred elastic back for good fit.
- Available in top grain cowhide leather with straight thumb or grain pigskin leather with comfortable long wear keystone thumb.
- Both glove styles are soft and supple.

Top Grain Cowhide Leather

SIZE	PART NO.	PRICE
Medium	**96-460-1**	$13.05
Large	**96-461-9**	13.05
X-Large	**96-462-7**	13.05

Grain Pigskin Leather

SIZE	PART NO.	PRICE
Medium	**96-494-0**	$9.85
Large	**96-495-7**	9.85
X-Large	**96-496-5**	9.95



96-463-5

Split Leather

- Offers abrasion resistance at an economical price.
- Slip-on style with elastic back for good fit.
- Great general purpose glove, straight thumb design.

SIZE	PART NO.	PRICE
Medium	**96-463-5**	$7.65
Large	**96-464-3**	7.65
X-Large	**96-465-0**	7.65

PRO-SAFE™ THE PROFESSIONAL CHOICE

Welders Gloves



57-368-3

- All leather.
- 14" long, fully lined.
- No seams on back to catch sparks.

DESCRIPTION	PART NO.	PRICE
Welders Leather Glove	**57-368-3**	$7.45

PRO-SAFE™ THE PROFESSIONAL CHOICE

Anti-Fatigue Kneeling Matting

For Wet or Dry Use

- Designed for technicians, mechanics, engineers and anyone who moves from place to place to work; these are dual-purpose, portable anti-fatigue mats.
- Nonconductive.
- Closed-cell nitrile blend, resilient foam.
- Hangs up easy for storage.
- Thickness: 1"
- Color: Black.

SIZE W x L	PART NUMBER	PRICE
12" x 22"	**51-795-3**	$21.95
14" x 21"	**51-796-1**	22.40
16" x 28"	**51-797-9**	32.95
18" x 36"	**51-798-7**	42.45



51-795-3



PRO-SAFE™ THE PROFESSIONAL CHOICE

Lite Nitrile Dip Gloves

- ActiFresh Coating minimizes germs and odors.
- Armor Lite with ActiFresh/dipped supporting nitrile.
- Strong interlock liner with thin coating of blue nitrile provides user with maximum dexterity without sacrificing chemical or cut resistance.
- Good abrasion resistant glove.
- Knit wrist.

SIZE	PART NO.
Small	**96-440-3**
Medium	**96-441-1**
Large	**96-442-9**
X-Large	**96-443-7**
All sizes	$5.25 pair



NOTRAX® FLOOR MATTING

Knee Rx™ Kneeling Mats

For Wet or Dry Use

- Designed for extreme kneeling applications such as gravel, asphalt, concrete, tile, and wood flooring.
- Provides ergonomic support by reducing trauma, stress and strain on the knees and lower back.
- Made from a Nitrile/PVC foam blend offering resistance to oils and greases.
- 1" thick for the ultimate comfort.
- Heavy-duty version offers a durable rubber bottom surface for long-lasting wear in the roughest environments.
- Size: 12" x 22"

DESCRIPTION	PKG. QTY.	PART NUMBER	PRICE
Knee Rx™	1	**52-298-7**	$25.35
Knee Rx™ Heavy-Duty	1	**52-299-5**	33.60
Knee Rx™ Heavy-Duty	4	**52-300-1**	135.75

PRO-SAFE™ THE PROFESSIONAL CHOICE

Knee Pads – Hard Cap

For Jobs That Require Kneeling on Hard, Slippery or Abrasive Surfaces.

Plastic Cap – 56-709-9

- Perfect for kneeling on rough abrasive surfaces.
- Extra long pad for optimum comfort.
- Features two full adjustable elastic straps.

Polyester Cap – 56-710-7

- Quick release buckle that eliminates the need for readjusting the straps.
- Elastic straps offer comfort and flexibility while maintaining stability.

Rubber Cap – 56-711-5

- Protects delicate flooring with non-marking rubber.
- Extra long ribbed cap provides workers with additional working surface and prevents slipping and sliding.

CAP MATERIAL	STRAP TYPE	PAD MATERIAL	PART NUMBER	PRICE
Plastic	Hook & Loop	Foam	**56-709-9**	$15.75
Polyester	Buckle	Foam	**56-710-7**	26.15
Rubber	Hook & Loop	Foam	**56-711-5**	29.50



56-709-9



56-711-5



56-710-7

SAFETY

Proflex® Knee Pads

Wide Soft Cap

- Economical light duty knee protection for a range of applications.
- Slightly wider and longer for wraparound comfort.
- Anti-odor treatment.

Rounded Cap

- Abrasion-resistant rounded short hard cap.
- Best for swiveling and pivoting.
- Foam padding cut to hug the knee.
- Nickle-plated grommets.

Slip Resistant Rubber Cap

- Long rubber cap grips wet or dry work surfaces.
- Foam padding cut to hug the knee.
- Nickle-plated grommets.



50-228-6



50-229-4



50-230-2

DESCRIPTION	CAP MATERIAL	STRAP TYPE	PAD MATERIAL	PART NUMBER	PRICE
Wide Soft Cap	Polyester	Buckle	Foam	**50-228-6**	$26.60
White Rounded Cap	Hard Plastic	Buckle	Foam	**50-229-4**	32.40
Slip Resistant	Rubber	Buckle	Foam	**50-230-2**	36.95

Knee Pads

For All Applications with Caps Designed for Stability, Mobility or Polished Surfaces.

Ultraflex® Non-Skid Knee Pads

- Upper cap designed for comfort and protection.
- Soft, flexible outer shell protects and grips most surfaces without scratching or scuffing.
- High density, closed-cell foam for all-day comfort.
- Slot and Dot strap connections.
- Memory-Flex® synthetic rubber straps.

Stitched Plastic Cap Knee Pads

- Exclusive grooved cap design prevents thread abrasion.
- Super tough, lightweight fabric covering.
- Comfortable foam padding for extra knee protection.
- Double straps with hook and loop fasteners.

Airflow® Gel Knee Pads

- Airflow side panel design helps ventilate knee pad and reduce heat build-up.
- Stabili-cap® design provides a solid kneeling base and also allows for easier forward movement, effectively increasing your range of motion.
- Layered Gel, high density closed cell foam and neoprene padding for superior all day comfort.
- Elastic straps with hook and loop closures provide the right fit.



50-130-4



50-131-2



50-132-0

DESCRIPTION	CAP MATERIAL	STRAP TYPE	PAD MATERIAL	PART NUMBER	PRICE
Ultraflex® Non-Skid	Rubber; Plastic	Buttons	Foam	**50-130-4**	$31.90
Stitched Plastic Cap	Hard Plastic	Hook & Loop	Foam	**50-131-2**	18.95
Airflow® Gel	Plastic	Hook & Loop	Layered Gel	**50-132-0**	29.45



56-988-9

Touch N Tuff® Nitrile Disposable Gloves

3X the Puncture Resistance of Standard Latex and Vinyl Gloves

- Lightweight and comfortable to wear.
- Combines excellent fingertip sensitivity with exceptional durability.
- Provides a high level of protection against grease and oil.
- Silicon free.
- Thickness: 5 mm.
- Color: Teal.
- Complies with FDA food handling requirements (21 CFR 177.2600).

Powered • 100 per Box

SIZE	PART NO.	PRICE
Small	**56-988-9**	$23.60
Medium	**56-989-7**	23.60
Large	**56-990-5**	23.60
X-Large	**56-991-3**	23.60

Power-Free • 100 per Box

SIZE	PART NO.	PRICE
Small	**56-992-1**	$23.70
Medium	**56-993-9**	23.70
Large	**56-994-7**	23.70
X-Large	**56-995-4**	23.70

PRO-SAFE™ THE PROFESSIONAL CHOICE

Dispensers for Disposable Gloves



56-200-9 56-201-7 56-202-5

Clear acrylic dispensers designed to hold standard size boxes of latex gloves. Convenient compact unit. Pre-drilled holes for wall mount or table top.

DESCRIPTION	PART NO.	PRICE
Single Glove Dispenser	**56-200-9**	$29.50
Double Glove Dispenser	**56-201-7**	49.65
Triple Glove Dispenser	**56-202-5**	61.90

PRO-SAFE™ THE PROFESSIONAL CHOICE

Inspection Gloves

When Cleanliness Counts

- These gloves minimize hand contamination while providing longer wear and comfort.
- They are ambidextrous and are fully launderable.



56-203-3

Cotton Lisle

- Constructed in a two-piece, reversible pattern using 100% cotton fabric.
- Unhemmed.

GENDER	STYLE	LENGTH	PART NO.	PRICE
Men's	Lightweight	9"	**56-203-3**	$6.70
Men's	Lightweight	14"	**56-204-1**	7.90
Men's	Mediumweight	9"	**56-205-8**	9.05
Men's	Heavyweight	9"	**56-206-6**	12.25
Ladies'	Lightweight	9"	**56-207-4**	6.70
Ladies'	Mediumweight	9"	**56-208-2**	9.05
Ladies'	Heavyweight	9"	**56-209-0**	12.25

Seamless Knit Nylon

- Lint-free knit from nylon filament yarns.
- Seamless construction provides comfort and reduces hand fatigue.
- Rolled hem.



56-210-8

SIZE	CUT	PART NO.	PRICE
Small	13-Gauge	**56-210-8**	$21.35
Medium	13-Gauge	**56-211-6**	21.35
Large	13-Gauge	**56-212-4**	21.35
X-Large	13-Gauge	**56-213-2**	21.35

Woven Tricot Nylon

- Lint-Free 40 denier nylon.
- Two-piece pattern without set-in thumb.
- Rolled hem.



56-215-7

GENDER	SIZE	LENGTH	PART NO.	PRICE
Men's	Small	9"	**56-214-0**	$12.55
Men's	Medium	9"	**56-215-7**	12.55
Men's	Large	9"	**56-216-5**	12.55
Men's	X-Large	9"	**56-217-3**	12.55
Ladies'	Small	9"	**56-218-1**	12.55
Ladies'	Medium	9"	**56-219-9**	12.55
Ladies'	Large	9"	**56-220-7**	12.55

PRO-SAFE™ THE PROFESSIONAL CHOICE

Wrist Supports

- Stretchable elastic fabric.
- Reduces stress, strain and swelling.
- Hook and loop closure.
- Universal fit - left or right.
- Provides stability.
- Machine washable.

COLOR	PART NO.	PRICE
Black	**56-428-6**	$3.45
Beige	**56-429-4**	3.45



56-429-4

PRO-SAFE™ THE PROFESSIONAL CHOICE

Elastic Wrist Wrap w/Thumb Loop

- Lightweight elastic.
- Single wrap thumb loop holds support in place.
- Machine washable.
- Ambidextrous.
- Hook and loop closure.



56-403-9

DESCRIPTION	PART NO.	PRICE
Elastic Wrist Wrap w/Thumb Loop	**56-403-9**	$6.65

PRO-SAFE™ THE PROFESSIONAL CHOICE

Ambidextrous Wrist Supports

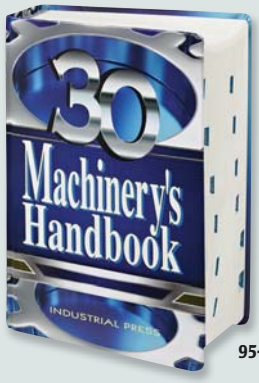
Single Wrap

- Constructed of vented neoprene with terry lining for long-wearing comfort.
- Premium ribbed, non-metallic support stays on the top and bottom of the wrist.
- 2" wide elastic wrap supports stabilize the wrist in an ergonomically neutral position.
- Ambidextrous.
- Machine washable.
- Color: black.



Single Wrap

SIZE	PART NO.	PRICE
Small	**56-420-3**	$18.75
Medium	**56-421-1**	18.75
Large	**56-422-9**	18.75
X-Large	**56-423-7**	18.75



95-230-9

Machinery's Handbook 30th Edition

See Pg. 324

SAFETY

PRO-SAFE™ THE PROFESSIONAL CHOICE

Elbow Supports

Clear Choices

Provide relief from muscle stress and pressure caused by repetitive motion in the elbow area.

- Terry-lined vented neoprene with nylon outer shell.
- 2" wide hook and loop closure.
- Latex-free.
- Color: black.
- Machine washable.
- In a relaxed position, measure around the widest area of the forearm just below the elbow. An elbow support should sit approximately two-to-three finger widths below the elbow crease for a comfortable fit.



56-410-4

SIZE	FITS	PART NO.	PRICE
Small	8½ - 10" (22 - 25 cm)	**56-408-8**	$14.85
Medium	10 - 11" (25 - 28 cm)	**56-409-6**	14.85
Large	11 - 12" (28 - 30 cm)	**56-410-4**	14.85
X-Large	12 - 13½" (30 - 34 cm)	**56-411-2**	14.85

PRO-SAFE™ THE PROFESSIONAL CHOICE

Elbow Sleeves

Constructed of terry lined vented neoprene for long wearing comfort.

- Nylon outer shell.
- Contour fit.
- Ambidextrous.
- Machine wash, cold: line dry.
- Color: black.
- Latex-free.
- Sold singly.
- Measure largest circumference of the forearm.



56-418-7

SIZE	FITS	PART NO.	PRICE
Small	8½ - 10" (22 - 25 cm)	**56-416-1**	$8.50
Medium	10 - 11" (25 - 28 cm)	**56-417-9**	8.50
Large	11 - 12" (28 - 30 cm)	**56-418-7**	8.50
X-Large	12 - 13½" (30 - 34 cm)	**56-419-5**	8.50

PRO-SAFE™ THE PROFESSIONAL CHOICE

Knee Sleeves

Helps support muscles and tissues after suffering minor strains, sprains, injuries and some arthritis.

- Ambidextrous.
- Color: black.
- Terry-lined vented neoprene with nylon outer shell.
- Machine wash, cold: line dry.
- Contour design conforms to body's natural shape.
- Additional neoprene panel surrounds patella.
- Latex-free.
- Measure around the center of the knee with the knee extended.



56-414-6

SIZE	FITS	PART NO.	PRICE
Small	13 - 14" (31 - 33 cm)	**56-412-0**	$15.85
Medium	14 - 15" (33 - 35 cm)	**56-413-8**	15.85
Large	15 - 17" (35 - 39 cm)	**56-414-6**	15.85
X-Large	17 - 18" (39 - 41 cm)	**56-415-3**	15.85

PRO-SAFE™ THE PROFESSIONAL CHOICE

Back Supports

5" Nylon

- Made with rigid foam that forms to the body for maximum support.
- Buckle and locking closure holds securely yet allows easy adjustment.
- Brushed lining and soft edges add to comfort.
- Wide 2" nylon strap provides additional support to the waterproof foam core.
- Belt width: 5"
- Material: Nylon Mesh/Foam.
- Color: black.



5" Nylon

SIZE	WAIST SIZE	PART NO.	PRICE
Small	27 - 43½"	**56-430-2**	$29.35
Medium	34 - 47"	**56-431-0**	29.35
Large	36 - 53"	**56-432-8**	29.35
X-Large	39 - 63½"	**56-433-6**	29.35

8" Nylon/Elastic

- Designed with positive hook and loop closure material front panels and 3" wide elastic v-shaped side pulls.
- Includes wide detachable elastic suspenders.
- Belt width: 8"
- Material: Nylon/Elastic.
- Color: black.



9" Elastic

SIZE	WAIST SIZE	PART NO.	PRICE
Small	26 - 32"	**56-434-4**	$14.85
Medium	32 - 38"	**56-435-1**	14.85
Large	38 - 47"	**56-436-9**	14.85
X-Large	47 - 56"	**56-437-7**	14.85

9" Elastic

- Medical style elastic back and non-elastic side panels.
- Two-part closure.
- Includes polyethylene plastic stays with gripping material to eliminate ride-up.
- Removeable, fully adjustable suspenders.
- Belt width: 9"
- Material: Elastic.
- Color: black.



8" Spandex

SIZE	WAIST SIZE	PART NO.	PRICE
Small	26 - 36"	**56-438-5**	$33.95
Medium	36 - 48"	**56-439-3**	33.95
Large	48 - 58"	**56-440-1**	33.95
X-Large	58 - 68"	**56-441-9**	33.95

8" Spandex

- Breatheable spandex backed with rubber grip webbing to prevent ride-up.
- Two-part closure.
- Polyethylene plastic stays provide support and strength.
- Includes detachable suspenders.
- Belt width: 8"
- Material: Spandex.
- Color: black.

SIZE	WAIST SIZE	PART NO.	PRICE
Small	32 - 36"	**56-442-7**	$25.25
Medium	36 - 40"	**56-443-5**	25.25
Large	40 - 44"	**56-444-3**	25.25
X-Large	44 - 48"	**56-445-0**	25.25
XX-Large	48 - 54"	**56-446-8**	25.25

9" Spandex

- Breatheable heavy-duty spandex style material.
- Two-part closure.
- 4 polyethylene plastic stays lined with anti-ride-up grippers.
- Removeable, fully adjustable suspenders.
- Belt width: 9"
- Material: Spandex.
- Color: black.

SIZE	WAIST SIZE	PART NO.	PRICE
X-Small	28 - 32"	**56-447-6**	$38.10
Small	32 - 36"	**56-448-4**	38.10
Medium	36 - 40"	**56-449-2**	38.10
Large	40 - 44"	**56-450-0**	38.10
X-Large	44 - 48"	**56-451-8**	38.10
XX-Large	48 - 54"	**56-452-6**	38.10

Tools Not Included



57-502-7

PRO-SAFE™ THE PROFESSIONAL CHOICE

Denim Shop Aprons

Made from High Quality Heavy Duty 100% Cotton Denim

- **Economy Grade** - Waste pocket, wide chest protection, sewn on denim ties and sewn edges that will not unravel.
- **Premium Grade** - Includes chest pocket with penholder, fully hemmed on all sides with white tape ties.
- **Crisscross Back** - Features 2 cotton tape ties (5' long) for crisscrossing in back, grommets.

DESCRIPTION	PART NO.	PRICE
Economy Grade	**54-519-4**	$7.95
Premium Grade	**57-502-7**	9.75
Crisscross Back	**54-520-2**	17.95

PRO-SAFE™ THE PROFESSIONAL CHOICE

SMS Protective Clothing

Heavyweight Protection

- Has three layers of polypropylene with two layers of spunbond filaments and inner layer of polypropylene.
- Resists tearing and provides protection from liquid splash and particulates.
- Allows air and water vapor to pass through for suitable, all day wear.
- Polypropylene coveralls weigh 45 grams.
- Case quantity: 25.



Coverall w/Hood

w/Elastic Wrists & Ankles

SIZE	WHITE PART NO.	BLUE PART NO.	PRICE
Medium	**56-284-3**	**56-302-3**	$94.10
Large	**56-285-0**	**56-303-1**	94.10
X-Large	**56-286-8**	**56-304-9**	94.10
XX-Large	**56-287-6**	**56-305-6**	103.55
XXX-Large	**56-288-4**	**56-306-4**	108.25
XXXX-Large	**56-289-2**	**56-307-2**	111.40

w/Elastic Wrists, Ankles & Hood

SIZE	WHITE PART NO.	BLUE PART NO.	PRICE
Medium	**56-290-0**	**56-308-0**	$109.80
Large	**56-291-8**	**56-309-8**	109.80
X-Large	**56-292-6**	**56-310-6**	109.80
XX-Large	**56-293-4**	**56-311-4**	117.70
XXX-Large	**56-294-2**	**56-312-2**	122.35
XXXX-Large	**56-295-9**	**56-313-0**	125.55

w/Elastic Wrists, Ankles, Hood & Boots

SIZE	WHITE PART NO.	BLUE PART NO.	PRICE
Medium	**56-296-7**	**56-314-8**	$120.80
Large	**56-297-5**	**56-315-5**	120.80
X-Large	**56-298-3**	**56-316-3**	120.80
XX-Large	**56-299-1**	**56-317-1**	130.20
XXX-Large	**56-300-7**	**56-318-9**	134.85
XXXX-Large	**56-301-5**	**56-319-7**	138.05



Coverall w/Hood & Boots



PRO-SAFE™ THE PROFESSIONAL CHOICE

Polypropylene Protective Clothing

Light & Medium Weight Protection

- Coveralls come with full zipper, cover flap and sewn seams.
- Standard coveralls have an elastic waist, but are open at the wrist and ankle.
- Coveralls with hood, and hood and boots have elastic wrist and waist, but are open at the ankle.
- Case quantity: 25.

Lightweight

- 28 grams.
- Resilient to the elements, polypropylene provides a dependable barrier against dust and splash.

Medium Weight

- 43 grams.
- Provides solid protection against nonhazardous, grimy conditions.

Polypropylene Coveralls - Standard

SIZE	LIGHTWEIGHT WHITE PART NO.	LIGHTWEIGHT BLUE PART NO.	LIGHTWEIGHT PRICE	MEDIUM WEIGHT WHITE PART NO.	MEDIUM WEIGHT BLUE PART NO.	MEDIUM WEIGHT PRICE
Medium	**56-320-5**	**56-338-7**	$50.40	**56-350-2**	**56-368-4**	$63.75
Large	**56-321-3**	**56-339-5**	50.40	**56-351-0**	**56-369-2**	63.75
X-Large	**56-322-1**	**56-340-3**	50.40	**56-352-8**	**56-370-0**	63.75
XX-Large	**56-323-9**	**56-341-1**	53.30	**56-353-6**	**56-371-8**	67.00
XXX-Large	**56-324-7**	**56-342-9**	56.30	**56-354-4**	**56-372-6**	68.20
XXXX-Large	**56-325-4**	**56-343-7**	58.15	**56-355-1**	**56-373-4**	71.10

Polypropylene Coveralls - w/Hood

SIZE	LIGHTWEIGHT WHITE PART NO.	LIGHTWEIGHT BLUE PART NO.	LIGHTWEIGHT PRICE	MEDIUM WEIGHT WHITE PART NO.	MEDIUM WEIGHT BLUE PART NO.	MEDIUM WEIGHT PRICE
Medium	**56-326-2**	**56-344-5**	$54.85	**56-356-9**	**56-374-2**	$68.20
Large	**56-327-0**	**56-345-2**	54.85	**56-357-7**	**56-375-9**	68.20
X-Large	**56-328-8**	**56-346-0**	54.85	**56-358-5**	**56-376-7**	68.20
XX-Large	**56-329-6**	**56-347-8**	57.85	**56-359-3**	**56-377-5**	71.10
XXX-Large	**56-330-4**	**56-348-6**	60.70	**56-360-1**	**56-378-3**	72.60
XXXX-Large	**56-331-2**	**56-349-4**	62.95	**56-361-9**	**56-379-1**	74.15

Polypropylene Coveralls - w/Hood & Boots

SIZE	LIGHTWEIGHT WHITE PART NO.	LIGHTWEIGHT BLUE PART NO.	LIGHTWEIGHT PRICE	MEDIUM WEIGHT WHITE PART NO.	MEDIUM WEIGHT BLUE PART NO.	MEDIUM WEIGHT PRICE
Medium	**56-332-0**	—	$59.30	**56-362-7**	**56-380-9**	$72.60
Large	**56-333-8**	—	59.30	**56-363-5**	**56-381-7**	72.60
X-Large	**56-334-6**	—	59.30	**56-364-3**	**56-382-5**	72.60
XX-Large	**56-335-3**	—	62.25	**56-365-0**	**56-383-3**	75.75
XXX-Large	**56-336-1**	—	65.20	**56-366-8**	**56-384-1**	77.05
XXXX-Large	**56-337-9**	—	66.90	**56-367-6**	**56-385-8**	78.50

Shoe Covers

- Lightweight protection available with non-skid treads or sticky bottom.
- Non-skid shoe cover protects againts dry particles. dirt and grime.
- Sticky shoe covers are water-resistant.
- Case quantity: 150 pairs.

TYPE	SIZE	COLOR	PART NO.	PRICE
Non-Skid, Thread Sole	Large	Blue	**56-386-6**	$43.20
Non-Skid, Thread Sole	X-Large	Blue	**56-387-4**	43.20
Sticky Sole	Medium	Green	**56-388-2**	66.65
Sticky Sole	Large	White	**56-389-0**	73.65
Sticky Sole	X-Large	Blue	**56-390-8**	93.30

SAFETY



56-404-7



56-405-4



56-406-2

PRO-SAFE™ THE PROFESSIONAL CHOICE

Personal Protective Equipment Dispensers

Clear Choices

Organize items in a central location with these clear acrylic dispensers that make it easy to see when it's refill time.

- Hinged lids for trouble-free refillingwith more than 50 items.
- Front dispensing portals for quick access by workers.
- Mount on table or wall.



56-407-0

DESCRIPTION	HT.	W	VD	PART NO.	PRICE
Bouffant Cap Dispenser	13"	12"	6"	**56-404-7**	$115.35
Beard Cover Dispenser	13"	12"	6"	**56-405-4**	115.35
Shoe Cover Dispenser	13"	12"	6"	**56-406-2**	115.35
Misc. PPE Dispenser	10"	10"	10"	**56-407-0**	115.95

PRO-SAFE™ THE PROFESSIONAL CHOICE

Disposable Head & Face Coverings

White Bouffant Caps

- Perfect for containment of hair in the food preparation and clean room applications.

SIZE	PKG. QTY.	PART NO.	PRICE
19"	100	**56-391-6**	$9.40
21"	100	**56-392-4**	11.05
24"	100	**56-393-2**	11.95

Polypropylene Bouffant Cap



White Beard Covers

- Perfect for containment of facial hair in the food preparation and clean room applications.
- Meets FFDCA requirements for food contact.
- Package quantity: 100.

DESCRIPTION	PART NO.	PRICE
White Beard Covers	**56-396-5**	$9.60



White Polypropylene Beard Cover

Nylon Hairnets

- Protect food and other products from the wearer's hair.
- Meets FFDCA requirements for food contact.
- 100% latex free.
- Package quantity: 100.

SIZE	COLOR	PART NO.	PRICE
18"	White	**56-397-3**	$27.15
21"	White	**56-398-1**	28.15
24"	White	**56-399-9**	29.15
18"	Brown	**56-400-5**	25.45
21"	Brown	**56-401-3**	28.15
24"	Brown	**56-402-1**	29.15



Nylon Hairnet



Master Lock

Xenoy® Safety Lockout Padlocks

Designed Exclusively for Lockout/Tagout

- These durable, lightweight padlocks feature a non-conductive dielectric Xenoy® body with long steel shackle for added locking.
- Key retaining feature ensures that padlocks are not left unlocked.
- Brightly colored and engraveable for easy identification.
- OSHA Lockout compliance.
- 6-pin tumbler cylinder offers over 100,000 available key codes for greater security.
- Special trilingual safety lockout markings and customizable write-on labels.
- Body height: 1 3/4".
- Body width: 1 1/2".
- Shackle dimensions: 1 1/2" ht. clearance, 1/4" dia.

SIZE	KEYED DIFFERENTLY PART NO.	KEYED DIFFERENTLY PRICE	KEYED ALIKE PART NO.	KEYED ALIKE PRICE
Red	**50-154-4**	$20.25	**50-162-7**	$21.45
Green	**50-155-1**	20.25	**50-163-4**	21.45
Blue	**50-156-9**	20.25	**50-164-3**	21.45
Orange	**50-157-7**	20.25	**50-165-0**	21.45
Yellow	**50-158-5**	20.25	**50-166-8**	21.45
Black	**50-159-3**	20.25	**50-167-6**	21.45
Purple	**50-160-1**	20.25	**50-168-7**	21.45
Teal	**50-161-9**	20.25	**50-169-2**	21.45

PRO-SAFE™ THE PROFESSIONAL CHOICE

Vehicle & General Utility Mirrors

Forklift & General Prupose Mirrors

- With adjustable bracket for forklift backup, elevators and small, confined areas.
- Glass convex lens.
- Black metal black.
- Indoor/Outdoor use.
- Steel swivel bracket for mounting hardware.

Convex Mirrors w/Steel Telescoping Mounting Bracket

- For use on vans and small delivery trucks.
- Shatter-resistant acrylic or glass mirror.
- Mount on rear or front.
- Round.

Convex Mirrors w/Telescope Mounting Bracket

DIAMETER	MATERIAL	PART NO.	PRICE
8"	Glass	**56-474-0**	$44.80
8"	Acrylic	**56-475-7**	74.35

Convex Steel Back Utility Mirrors

DIAMETER	MATERIAL	PART NO.	PRICE
8"	Glass	**56-477-3**	$40.85

Convex Stainless Steel Utility Mirrors

- Vandal resistant.
- Great for elevators.
- Rectangular and triangular.



56-474-0

Forklift/General Purpose Mirror - Rectangular

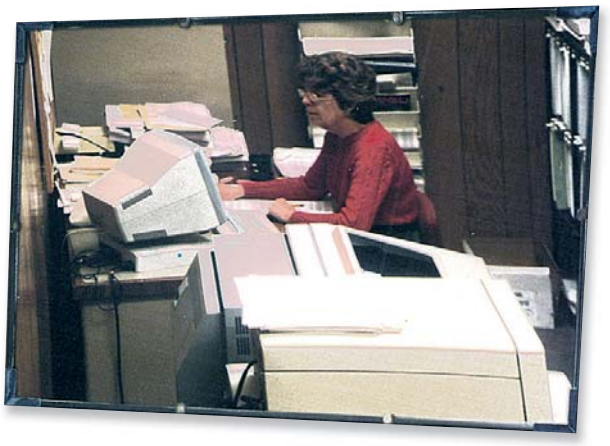
WIDTH	LENGTH	MATERIAL	PART NO.	PRICE
4"	8"	Glass	**56-478-1**	$56.15

Convex Stainless Steel Utility Mirror - Triangular

WIDTH	LENGTH	MATERIAL	PART NO.	PRICE
4"	8"	Stainless Steel	**56-480-7**	$94.30

PRO-SAFE™ THE PROFESSIONAL CHOICE

Flat Mirrors



Rectangular

- Flat mirrors provide a true image reflection.
- Ideal for viewing fixed objects.

Glass Industrial

- Comes with adjustable swivel bracket, backing board and steel mounting hardware.

TYPE	LENGTH	WIDTH	PART NO.	PRICE
Indoor	9"	18"	**56-455-9**	$44.02
Indoor	16"	24"	**56-456-7**	59.49
Indoor	24"	36"	**56-457-5**	122.05

Shatter-Resistant Glass

- Comes with adjustable swivel, backing board and mounting hardware.
- Safety lamination keeps glass in frame if broken.

TYPE	LENGTH	WIDTH	PART NO.	PRICE
Indoor	12"	12"	**56-458-3**	$55.95
Indoor	12"	16"	**56-459-1**	63.66
Indoor	16"	24"	**56-460-9**	90.70
Indoor	24"	36"	**56-461-7**	198.45
Indoor, Outdoor	12"	12"	**56-462-5**	64.85
Indoor, Outdoor	12"	16"	**56-463-3**	74.45
Indoor, Outdoor	16"	24"	**56-464-1**	100.55
Indoor, Outdoor	24"	36"	**56-465-8**	143.22

Acrylic

- Comes with adjustable swivel, backing board and mounting hardware.
- Shatter-resistant acrylic mirror.

TYPE	LENGTH	WIDTH	PART NO.	PRICE
Indoor	12"	12"	**56-466-6**	$50.55
Indoor	12"	16"	**56-467-4**	57.60
Indoor	16"	24"	**56-468-2**	81.45
Indoor	24"	36"	**56-469-0**	169.95
Indoor, Outdoor	12"	12"	**56-470-8**	66.35
Indoor, Outdoor	12"	16"	**56-471-6**	77.95
Indoor, Outdoor	16"	24"	**56-472-4**	121.70
Indoor, Outdoor	24"	36"	**56-473-2**	210.80



90° Quarter Dome



90° Quarter Dome for 2-Way "L" intersections



180° Half Dome



180° Half Dome for 3-Way "T" intersections



360° Full Dome



360° Full Dome for 4-Way intersections

PRO-SAFE™ THE PROFESSIONAL CHOICE

Dome Mirrors

Acrylic Dome Mirrors

- Use for a wide variety of industrial, institutional and commercial applications.
- Mirrors with steel back are for improved weather and chemical resistance.
- Mirrors with no steel back are hollow.
- 90° Quarter domes come drilled with 2 holes in flange - hardware not included.
- Nonsteel-backed 180° half domes come drilled with 3 holes in flange - hardware not included.
- Steel-backed 180° half domes include metal top - hardware not included.
- Nonsteel-backed 360° full domes include chains and S-hooks.
- Steel-backed 360° full domes include metal top, chains and S-hooks.
- 360° Full dome-in grid replaces a ceiling panel - hardware not included.

Polycarbonate Dome Mirrors

- Virtually unbreakable.
- Will not dent like stainless steel.
- 180° Half domes come with 3 holes in flange - hardware not included.
- 360° Full domes come with chains and S-hooks.

90° Quarter Domes

DIA.	LENS MATERIAL	DISTANCE COVERED	PART NUMBER	PRICE
18"	Acrylic	Up to 14'	**56-481-5**	$29.40
26"	Acrylic	Up to 22'	**56-482-3**	31.35
32"	Acrylic	Up to 28'	**56-483-1**	40.20
36"	Acrylic	Up to 31'	**56-484-9**	45.40

180° Half Domes

DIA.	LENS MATERIAL	DISTANCE COVERED	PART NUMBER	PRICE
18"	Acrylic	Up to 20'	**56-485-6**	$48.25
18"	Polycarbonate	Up to 20'	**56-486-4**	85.95
26"	Acrylic	Up to 28'	**56-487-2**	72.70
26"	Polycarbonate	Up to 28'	**56-488-0**	113.50
32"	Acrylic	Up to 34'	**56-489-8**	84.95
32"	Polycarbonate	Up to 34	**56-490-6**	149.20
36"	Acrylic	Up to 38'	**56-491-4**	111.90
36"	Polycarbonate	Up to 38'	**56-492-2**	209.75
48"	Acrylic	Up to 50'	**56-493-0**	210.30

180° Half Domes W/Steel Back

DIA.	LENS MATERIAL	DISTANCE COVERED	PART NUMBER	PRICE
18"	Acrylic	Up to 20'	**56-494-8**	$74.20
26"	Acrylic	Up to 28'	**56-495-5**	105.40
32"	Acrylic	Up to 34'	**56-496-3**	139.10
36"	Acrylic	Up to 38'	**56-497-1**	180.45
48"	Acrylic	Up to 50'	**56-498-9**	214.55

360° Full Domes

DIA.	LENS MATERIAL	DISTANCE COVERED	PART NUMBER	PRICE
18"	Acrylic	Up to 20'	**56-499-7**	$66.35
18"	Polycarbonate	Up to 20'	**56-500-2**	140.50
26"	Acrylic	Up to 28'	**56-501-0**	131.15
26"	Polycarbonate	Up to 28'	**56-502-8**	198.20
32"	Acrylic	Up to 34'	**56-503-6**	167.65
32"	Polycarbonate	Up to 34'	**56-504-4**	247.60
36"	Acrylic	Up to 38'	**56-505-1**	198.40
36"	Polycarbonate	Up to 38'	**56-506-9**	344.95
48"	Acrylic	Up to 50'	**56-507-7**	292.30

360° Full Domes w/Steel Back

DIA.	LENS MATERIAL	DISTANCE COVERED	PART NUMBER	PRICE
18"	Acrylic	Up to 20'	**56-508-5**	$112.40
26"	Acrylic	Up to 28'	**56-509-3**	210.05
32"	Acrylic	Up to 34'	**56-510-1**	254.95
36"	Acrylic	Up to 38'	**56-511-9**	297.25
48"	Acrylic	Up to 50'	**56-512-7**	550.20

360° Full Dome-In Grid Ceiling

DIA.	PANEL	LENS MATERIAL	DISTANCE COVERED	PART NUMBER	PRICE
24"	24" x 24"	Acrylic	Up to 28'	**56-513-5**	$81.00
24"	24" x 48"	Acrylic	Up to 28'	**56-514-3**	119.65

SAFETY



60-104-7



60-106-2



60-108-8

STREAMLIGHT

Headlamps

Hands Free Lighting

These Headlamps are designed for comfort and durability. The adjustable, flexible and lightweight straps can be worn on the head or around a hard hat. These are high powered professional grade lights that offer power, versatility and longevity.

Streamlight Argo® - 60-104-7

- Long Range Illumination-Beam Distance Up To 625 feet (190 Meters) 150 lumens, 9,250 candela peak beam intensity and 3 hour run time.
- Features one white C4® LED with three output modes:
  - High for maximum output with a long-range beam distance: 150 lumens, 9,250 candela peak beam intensity, 3 hour run time, 625' (190m) beam distance
  - Medium for intense brightness and longer run time: 100 lumens, 6,375 candela peak beam intensity, 4.5 hour run time, 525' (160m) beam distance.
  - Low for extended run times and when less intense light is needed: 45 lumens, 2,750 peak beam intensity, 30 hour run time, 335' (103m) beam distance.
- Push-button switch is easy to use even when wearing gloves.
- 3 AAA alkaline batteries (included). Also accepts 3 AAA lithium batteries.
- Low-level battery indicator visible in the facecap of each light.
- 90° tilting head prevents neck fatigue.
- Includes elastic head strap and rubber hard hat strap.
- 5.4 oz. (153g).

Streamlight Septor® LED - 60-106-2

- Designed for arms length, detail, "Close-Up" work
- 7 white 5 mm LEDs with 3 lighting modes:
  - Mode 1: 7 LEDs for a soft flood light for Close-Up work : 120 lumens, 900 candela peak beam intensity, 3.5 hour run time.
  - Mode 2: 3 LEDs for light without the glare and longer run times: 45 lumens, 375 candela peak beam intensity, 10 hour run time.
  - Mode 3: 1 LED for extended run times and when a less intense beam is ideal: 13 lumens, 100 candela peak beam intensity, 55 hour run time.
- Push-button switch is easy to use when wearing gloves.
- Powered by 3 "AAA" alkaline batteries (included); also accepts 3 "AAA" lithium batteries.
- Low-level battery indicator visible in the facecap of each light.
- 90° tilting head prevents neck fatigue.
- Durable, co-molded rubber body.
- Water resistant.
- Includes elastic head strap and rubber hard hat strap.
- 5.5 oz. (156 g).

Streamlight Enduro® LED - 60-107-0

- One of the lightest, brightest, most comfortable head-lamps available today. Features high and low lighting modes and a runtime up to 12 hours.
- 0.5 watt high-flux, 100,000 hour life LED
- 2 Lighting Modes: Light output 0.5W High-flux LED (White)
  - 850 Candela Peak Beam Intensity
    - High Mode: 14.5 Lumens
    - Low Mode: 6 Lumens
- Run Time: High beam 6 hours and low beam 24 hours.
- Waterproof to 1 meter for 1 hr.
- Impact-resistant.
- 2.75 oz with batteries (2 AA) and head strap.

3AA Haz-Lo C4 LED Headlight - 60-108-8

- Meets Requirements of Division 1 hazardous locations.
- Compact, long-running with high performance.
- Run Time: 11 Hours to the 10% output level.
- Rubber dome actuator for use with heavy gloves.
- Impact-resistant.
- 7.1 oz with batteries (3 AA), head strap and hard hat strap.

DESCRIPTION	PART NO.	PRICE
Argo®	**60-104-7**	$66.50
Septor® LED	**60-106-2**	69.00
Enduro® LED	**60-107-0**	29.15
3AA Haz-Lo®	**60-108-8**	94.00



Quad® Industrial

Fuel®

Princeton Tec®

Ultrabright LED Headlamps

Quad® Industrial

- 78 lumens of brightness.
- 4 Ultrabright LEDs (regulated) with 4 lighting modes: high, medium, low and flash.
- Up to 110 hours of burn time using 3 AAA Alkaline (included) or Lithium batteries.
- Waterproof up to 1 meter for 30 minutes.
- Compliance: UL (Class I and II, Div. 1)
- Weight: 3.40 oz. (96 g)

Fuel®

- All purpose headlamp.
- Asymmetrical single arm bracket that makes directing light effortless and reliable.
- Large, easy to find push button switch.
- 70 lumens of brightness.
- 4 Ultrabright LEDs with 4 lighting modes: high, medium, low and flash.
- Up to 146 hours of burn time using 3 AAA Alkaline batteries (included).
- Waterproof to splash and quick dunkings.
- Weight: 2.75 oz. (78 g)

DESCRIPTION	PART NO.	PRICE
Quad Industrial	**61-309-1**	$59.95
Fuel	**61-310-9**	37.30

PELICAN™
You break it, we replace it... forever.

VB3 LED Flashlights with Built-In Clip

- Dual super bright white LED's provide over 30 hours of run time.
- Light turns on when the head is flipped up.
- Pivots to a full 180°.
- Built-in clip attaches to surfaces up to ½" thick.
- Length: 3½"
- 2 CR2032 3V Lithium coin batteries included.
- Color: Yellow
- D.O.T. Regulated. Shipped via ground freight only.

Ground Ship ONLY



60-153-4

DESCRIPTION	MODEL #	PART NO.	PRICE
VB3 LED Flashlight	2220	**60-153-4**	$31.95

STREAMLIGHT

Stylus® & Stylus® Reach LED Penlights

- High-intensity 100,000 hour white LED.
- 11 lumens; 140 candela peak beam intensity.
- Runs up to 24 continuous hours.
- Features a momentary blink switch and constant on.
- Removable pocket clip.
- Individually serialized.
- IPX4 water resistant.
- Machined aluminum case with non-slip grip.
- Uses three AAAA alkaline batteries, included.



60-148-4

Stylus® 60-148-4

NEW

- Push-button switch is easy to use when wearing gloves.
- Beam Distance: 24 meters
- Includes Glare Guard protector.
- Size: 6.21" L x .375" dia.
- Weight: 1.1 oz. with batteries
- Model #65018

Stylus® Reach - 60-149-2



60-149-2

- Beam Distance: 23 meters
- Size: 7" L (folded), 14" (extended) x .375" dia.
- 7" flexible cable with PVC allows for an extended 14" reach.
- Weight: 1.7 oz. with batteries.
- Model #65618

DESCRIPTION	PART NO.	PRICE
Stylus®	**60-148-4**	$33.28
Stylus® Reach	**60-149-2**	45.56
Repl. Batteries AAAA (2 pk.)	**69-680-7**	4.39

STREAMLIGHT

Streamlight Jr.® LED Flashlight

Lightweight, Compact and Shining Brighter

NEW



60-957-8

- C4® LED delivers 140 lumens; 2,300 candela; 96m beam distance; runs 5 hours (alkaline); runs 10 hours (lithium)
- Textured parabolic reflector produces an even, wide beam hotspot.
- Powered by two "AA" alkaline batteries (included) or two "AA" lithium batteries.
- Push button tail switch - momentary or constant on operation.
- Durable, anodized aluminum construction with non-slip knurled grip; unbreakable polycarbonate lens.
- Durable, non-conductive, corrosion-proof polymer resin.
- IPX4 water resistant; 1 meter impact resistance tested.
- Includes black nylon flapless holster and removable pocket clip.
- Length: 6.5"
- Model #71500



DESCRIPTION	PART NO.	PRICE
Streamlight Jr® LED Flashlight	**60-957-8**	$79.00
Repl. Batteries AA (4 pk.)	**60-188-0**	3.80



60-198-9

STREAMLIGHT

Scorpion® Flashlight

The Only Tactical Light with a Rubberized Grip and Tailswitch

- Machined aluminum covered by a rubber-armored sleeve for sure grip.
- Unbreakable polycarbonate lens with scratch-resistant coating.
- 6-volt Xenon gas bulb with 30 hour life, spare bulb included.
- Up to 7,900 candela peak beam intensity; 78 lumens measured system output.
- Adjustable head allows for variable spot-to-flood focus.
- Tail cap push button provides one handed momentary or constant "on".
- O-ring sealing protects against moisture.
- Uses two (2) 3-Volt Lithium batteries, included.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Scorpion® Flashlight	**60-198-9**	$81.55
Black Nylon Holster	**60-199-7**	19.35
Xenon Bulb	**60-200-3**	13.45



60-202-9

NEW

STREAMLIGHT

Dualie® 2AA LED Flashlight

Intrinsically Safe, Compact Multi-Function Flashlight

- Two white LEDs with three output modes: Spot, flood, both (spot and flood simultaneously):
  - **Spot-** 115 lumens; 3,100 candela; 111m beam distance; runs 24 hours. Utilizes smooth parabolic reflector for tight beam with optimum peripheral illumination
  - **Flood-** 115 lumens; 75 candela; 17m beam distance; runs 24 hours
  - **Simultaneous-** spot beam and flood beam: 175 lumens; runs 15 hours Intersects for an uninterrupted light pattern to eliminate blind spots.
- One-handed operation of all lighting modes.
- Rocky stipple texture for a sure grip.
- Integrated magnetic grabs onto steel surfaces for hands free use.
- IPX4 water resistant.
- 2 meter impact resistance tested.
- Durable, non-conductive, corrosion-proof polymer resin.
- Removable/reversible belt /pocket clip.
- Length: 6.10"
- Uses two AA alkaline batteries, included.
- Model #67750

DESCRIPTION	PART NO.	PRICE
Dualie® 2AA Flashlight	**60-202-9**	$59.72
Repl. Batteries AA (4 pk.)	**60-188-0**	3.80

SAFETY

MAG-LITE®

Mini MagLite® Flashlights

AAA-Cell and AA-Cell

- High-intensity light beam.
- ½ turn, twist focus, spot-to-flood.
- Candle mode.
- Spare lamp safety secured in the tailcap.
- High-strength aluminum alloy case.
- O-ring sealed for water resistance.
- Vented tailcap reduces chance of gas buildup.
- Two AAA alkaline batteries, included.



50-056-1



50-057-9



50-061-1

AAA-Cell

- Peak candle power: 488
- OAL: 5".
- Barrel Dia.: ½"
- Head Dia.: ¾"

AA-Cell

- Peak candle power: 2952
- OAL: 5¾"
- Barrel Dia.: 23/32"
- Head Dia.: 1"

DESCRIPTION	COLOR	BATTERY TYPE	NO. OF BATTERIES	BULB NO.	MFR'S MODEL #	PART NUMBER	PRICE
Mini Mag-Lite® w/Batteries & Pocket Clip	Black	AAA	2	LM3A001	M3A016	**50-052-0**	$15.50
Mini Mag-Lite® w/Batteries & Pocket Clip	Red	AAA	2	LM3A001	M3A036	**50-053-8**	15.50
Mini Mag-Lite® w/Batteries & Pocket Clip	Blue	AAA	2	LM3A001	M3A116	**50-054-6**	15.50
Mini Mag-Lite®	Black	AA	2	LM2A001	M2A0016	**50-055-3**	16.55

Sets

DESCRIPTION	COLOR	BATTERY TYPE	NO. OF BATTERIES	MFR'S MODEL #	PART NUMBER	PRICE
Mini Mag-Lite® w/Batteries in Gift Box	Black	AAA	2	M3A012	**50-056-1**	$17.95
Mini Mag-Lite® w/Batteries in Gift Box	Black	AA	2	M2A01L	**50-057-9**	18.55
Mini Mag-Lite® w/Holster & Batteries	Black	AA	2	M2A01H	**50-058-7**	19.10
Mini Mag-Lite® w/Holster & Batteries	Red	AA	2	M2A03H	**50-059-5**	19.10
Mini Mag-Lite® w/Holster & Batteries	Blue	AA	2	M2A11H	**50-060-3**	19.10
Mini Mag-Lite® w/Holster & Batteries	Gray	AA	2	M2A09H	**50-061-1**	18.95



50-063-7



50-067-8

Accessories

DESCRIPTION	MFR'S MODEL #	PART NUMBER	PRICE
Leather Belt Holster for AA Cell Mini Mag-Lite®	AM2A026	**50-062-9**	$10.55
Leather Belt Holster for AA Cell Mini Mag & Folding Pocket Knife	AM2A346	**50-063-7**	35.05
Nylon w/Hook and Loop Belt Holster for AA Cell Mini Mag-Lite®	AM2A056	**50-064-5**	5.90
Illuminating 4X Magnifier for Mini Mag-Lite®		**50-065-2** *	13.35
2 Pk. Mini Mag-Lite® Repl. Xenon Lamps	LM2A001	**50-067-8**	3.80

*Made to be used with, but not manufactured by Mag-Lite®.



50-065-2

STREAMLIGHT

Knucklehead® Flashlight

Full 360° Head Rotation with 210° Articulation



60-133-6

Ground Ship ONLY



- Pocket, visor and belt clip for hands free use.
- Hands-Free Workstation with removable magnet and stowaway hook.
- O-Ring sealed for weather resistance.
- Unbreakable polycarbonate lens with anti-scratch coating.
- Rechargeable Ni-Cad Battery.
- LEDs are impervious to shock with 50,000 hour lifetime.
- Includes 2 chargers, AC and DC with "Full Charge" indicators.
- Candlepower: 1500
- Length: 9 13/64"
- Color: yellow
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Knucklehead® Flashlight	60-133-6	$295.75

Energizer

Weatherready® LED Folding Lantern

Lights an Entire Room



60-449-6

- Bright white LED's deliver 96 lumens and 135 hours of run time.
- Long run time gives users security for extended power outages.
- Folds out for 360° area light and folds in for compact storage.
- 3 mode slide switch – High, Low and Nightlight.
- Carrying handle.
- Runs on 4 D batteries (not included).
- Model #FL452WRBP

DESCRIPTION	PART NO.	PRICE
LED Folding Lantern	**60-449-6**	$38.90

MAG-LITE®

Anodized Aircraft Aluminum Flashlights

Cam Action Focus, Spot-to-Flood with 1/2 turn of the Head Assembly

- High-intensity light beam.
- O-ring sealed for water and shock resistance.
- EZ to hold knurled grip.
- Spare bulb in the tail cap.
- Your choice of colors.



50-071-0

"C" Cell Mag-Lite®

BATTERY QUANTITY	PEAK CANDLEPOWER	LENGTH	BULB PART NO.	BLACK PART NO.	RED PART NO.	BLUE PART NO.	GRAY PART NO.	PRICE
2	14400	9 15/16"	50-083-5	**50-068-6**	–	–	–	$31.05
3	20000	10 7/8"	50-084-3	**50-069-4**	–	–	–	32.15
4	24800	12 13/16"	50-085-0	**50-070-2**	–	–	–	32.90

"D" Cell Mag-Lite®

BATTERY QUANTITY	PEAK CANDLEPOWER	LENGTH	BULB PART NO.	BLACK PART NO.	RED PART NO.	BLUE PART NO.	GRAY PART NO.	PRICE
2	16200	10"	50-083-5	**50-071-0**	**50-075-1**	**50-078-5**	**50-080-1**	$32.90
3	22000	12 5/16"	50-084-3	**50-072-8**	**50-076-9**	**50-079-3**	–	33.20
4	23000	14 3/4"	50-085-0	**50-073-6**	**50-077-7**	–	–	32.85
6	30000	19 1/2"	50-086-8	**50-074-4**	–	–	–	45.55

Replacement Bulbs

- Sold in convenient 2 packs.

FITS MAG-LITE® NO.	PART NO.	PRICE
50-068-6, 50-071-0, 50-075-1, 50-078-5, 50-080-1	**50-083-5**	$6.50
50-069-4, 50-072-8, 50-076-9, 50-079-3	**50-084-3**	6.50
50-070-2, 50-073-6, 50-077-7	**50-085-0**	6.50
50-074-4	**50-086-8**	6.50

Accessories

Mounting Brackets for the Storage of "D" Cell Mag-Lites®

- Made of ABS plastic.
- Includes 2 brackets and screws.
- Mounts to almost any surface.

Belt Holder for "D" Cell Mag-Lites®

- Keeps Mag-Lite® handy and accessible.
- Black leather.

DESCRIPTIONS	PART NO.	PRICE
Mounting Brackets	**50-081-9**	$7.70
Belt Holder	**50-082-7**	9.15



50-081-9



Energizer® INDUSTRIAL®

Industrial Alkaline Batteries

- Long lasting batteries for industrial enviroments.
- Shelf life: 5 - 7 years.
- No mercury added.
- Operate well in temperature extremes (-30° to 55° C).

TYPE	VOLTS	PKG .QTY	PART NO.	PRICE
AAA	1.5	4	**60-187-2**	$3.95
AA	1.5	4	**60-188-0**	3.80
C	1.5	12	**60-189-8**	24.60
D	1.5	12	**60-190-6**	26.95
9V	9.0	12	**60-191-4**	35.60



93-483-6

NEW

BONDHUS® Timesaving GorillaProof Tools.™

Ball End, Hex & Torx® Multi Packs

Inch & Metric

See Pg. 417

MADE IN USA



93-484-4

SAFETY



61-130-1 61-129-3 61-128-5

EAGLE

Oily Waste Cans

Indoor or Outdoor Use

- Fire safe temporary storage of solvent, waste rags, shavings and other materials subject to spontaneous combustion.
- Won't rust or dent and are resistant to most chemical compounds.
- Features self closing lid with hands free foot lever.
- Can be used with or without a liner.
- Material: Polyethylene.
- Exceeds performance standards at temperatures between -40° F to 130° F.
- FM approved.
- Meet OSHA safety requirements.

CAPACITY (GAL.)	COLOR	DIMENSIONS W x L x HT.	WT. (LBS.)	MFG'S MODEL #	PART NUMBER	PRICE
6	Red	16 1/2" x 13 1/2" x 16"	9	933-FL	**61-125-1**	$66.30
10	Red	22" x 18" x 18"	14	935-FL	**61-126-9**	83.25
14	Red	22" x 18" x 21"	16	937-FL	**61-127-7**	85.40
6	Yellow	16 1/2" x 13 1/2" x 16"	9	933-FLY	**61-128-5**	71.00
10	Yellow	22" x 18" x 18"	14	935-FLY	**61-129-3**	83.40
14	Yellow	22" x 18" x 21"	16	937-FLY	**61-130-1**	91.80



60-745-7 60-746-5 60-747-3

EAGLE

Safety Plunger Cans

Polyethylene or Galvanized Steel



61-761-3

- Ideal for cleaning with flammable or volatile fluids.
- Brass flame arrestor dasher (5 1/4 dia.) screens and pump assemblies.
- When the dasher plate is pushed down, the safety can dispenses a small amount of liquid to easily moisten sponges or rags without messy or dangerous spills.
- FM approved.
- Meet OSHA safety requirements.

CAPACITY (QT.)	MATERIAL	COLOR	WIDTH	DIA.	WT. (LBS.)	MFR'S MODEL #	PART NUMBER	PRICE
1	Galvanized Steel	Red	6 1/4"	8"	2.5	P-701	**61-761-3**	$89.25
2	Galvanized Steel	Red	8"	8 1/2"	3	P-702	**61-762-1**	90.45
4	Galvanized Steel	Red	8"	10 3/4"	3.75	P-704	**61-763-9**	105.50
1	Polyethylene	Red	5 1/4"	9 3/4"	2	P711	**60-745-7**	76.70
2	Polyethylene	Red	6 1/2"	11"	3	P-712	**60-746-5**	81.60
4	Polyethylene	Red	7 3/4"	13"	4	P-714	**60-747-3**	86.35



SPI®

Hardness Testers

See Pg. 168

15-818-8

JUSTRITE®

Oily Waste Cans

For General Use

Countertop Oily Waste Can



66-085-2

- For use on top of workbenches or counters.
- Ideal for collecting wipes, cotton swabs, or small brushes soaked with solvents, adhesives or thinners.
- Rugged, lead-free galvanized steel body.
- FM approved for safety.
- Model #08200

CAPACITY (GAL.)	COLOR	OUTER DIA.	HEIGHT	WT. (LBS.)	PART NUMBER	PRICE
2	Red	9 5/8"	9 1/8"	6	**66-085-2**	$68.20

Oily Waste Can with Foot Operated Cover



66-086-0

- Reduces the risk of fire caused by spontaneous combustion.
- Reinforced ribs protect sides from dents and abuse.
- Rugged, lead-free galvanized steel body.
- Pictorial safety label reduces miscommunication.
- Round construction and raised, flow-through base dissipates heat.
- Foot-operated leave hands free. Cover drops shut when pedal is released.
- One-piece cover facilitates use of disposal collection bags.
- As required by UL, the self-closing lid opens no more than 60°
- FM approved.
- Meet OSHA safety requirements.

CAPACITY (GAL.)	COLOR	OUTER DIA.	HEIGHT	WT. (LBS.)	MFR'S MODEL #	PART NUMBER	PRICE
6	Red	11 7/8"	15 7/8"	9.5	09100	**66-086-0**	$80.50
10	Red	13 15/16"	18 1/4"	12.5	09300	**66-087-8**	91.75
14	Red	16 1/16"	20 1/4"	15.5	09500	**66-088-6**	104.65
21	Yellow	18 3/8"	23 7/16"	22	09700	**66-089-4**	160.10

PRO-SAFE™ THE PROFESSIONAL CHOICE

Spill Kits & Stations

Keep Cleanup Kits Handy

- Universal, HazMat or oil, many of these cleanup kits have more than one use.

KIT CONTENTS	FIRST RESPONDER	VEHICLE	TRUCK
95 Gallon Drum			
Absorbent (1 lb. bag)			
Bag, Nylon		1	
Bag, Vinyl			1
Booms			
Carry Case, Plastic	1		
Disposal Bags	1	1	1
Epoxy Stick/Repair Putty	1		
Gloves	1	1	1
Goggles	1	1	1
Incident Report/Instructions			1
Neoprene Drain Cover		1	
Pads	4	10	20
Socks	1	4	2
Storage Bin			
Suit, Disposable			
Spill Type	Universal		
Part No.			56-628-1*
Price Ea.			$89.15
Spill Type	Universal/HazMat		
Part No.	56-624-0*	56-626-5*	
Price Ea.	$164.85	$1,115.90	
Spill Type	Oil Only		
Part No.	56-625-7	56-627-3	56-629-9
Price Ea.	$146.90	$1,134.75	$98.05

* Eco Friendly Item



First Responders Kit



Vehicle Spill Kit



Truck Spill Kit

PRO-SAFE™ THE PROFESSIONAL CHOICE

Quali-Sorb Industrial Sorbents

Universal & Oil-Only Pads & Rolls



These HIGHLY Absorbent Industrial Pads and Rolls provide strength while maintaining absorbency. Created with a unique SMS technology these products are 100% lint free and will absorb 25x their own weight in liquid. Designed for those applications where your absorbent needs to last longer without falling apart.

- SMS technology.
- No linting or shedding.
- Absorbs 25x its own weight.
- Incinerable with .02% Ash.
- High BTU value of 12,000.
- Wringable for reuse.
- Thickness: 3/8".
- Heavyweight.

Oil-Only

TYPE	WIDTH	LENGTH	CAP. (GAL.)	PKG. QTY.	PART NUMBER	PRICE
Pad	17"	19"	32	100	56-632-3	$87.65
Roll	30"	150'	61	1	56-633-1	159.50

Universal

TYPE	WIDTH	LENGTH	CAP. (GAL.)	PKG. QTY.	PART NUMBER	PRICE
Pad	15"	18"	32	100	56-634-9*	$112.90
Roll	30"	150'	61	1	56-635-6*	191.35

* Eco Friendly Item

PRO-SAFE™ THE PROFESSIONAL CHOICE

Battery Acid Spill Kits

- Be prepared for spills and repairs.
- Specifically designed for battery acid.
- All contents are in a 30 gallon poly drum.



56-636-4

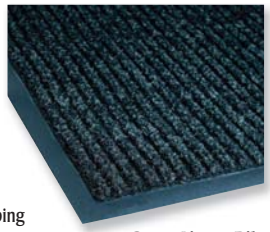
KIT CONTENTS	BATTERY ACID KIT
Disposable Bags	2
Disposable Suit	1
Epoxy Stick/Repair Putty	1
Goggles	1
Neoprene Drain Cover	1
Nitrile Gloves	1
Pads	25
Respirator	1
Roll 15" x 73"	1
Socks, 3" x 4"	3
30 Gallon Drum	1
Weight	80 lbs.
Spill Type	Universal
Part No.	56-636-4
Price Ea.	$1,546.55

SAFETY

PRO-SAFE™ THE PROFESSIONAL CHOICE

Entrance Matting for Medium Traffic Areas

For Indoor Use



Green Linear Rib



Brown Linear Rib



Gray Linear Rib



Pepper Linear Rib

This attractive entrance matting has excellent scraping and dirt removal abilities. The vinyl backing reduces movement. Easy to clean; use in entrances, vestibules or lobbies.

- Material: 100% tightly woven poly-blended carpet bonded to a vinyl backing.
- Thickness: 5/16".
- Linear Rib Color: Green, Brown, Gray and Pepper.
- Chevron Rib Color: Brown, Charcoal and Blue.
- Edges: Straight cut edges, four black borders around perimeter of mat.
- Water Retention: Better.
- Soil Resistance: Better.



Blue Chevron



Charcoal Chevron

SIZE W x L (FT.)	LINEAR RIB GREEN. PART NO.	BROWN PART NO.	GRAY PART NO.	PEPPER PART NO.	PRICE EACH	CHEVRON RIB BROWN PART NO.	BLUE PART NO.	CHARCOAL PART NO.	PRICE EACH
3 x 5	**56-575-4**	**56-582-0**	**56-589-5**	**56-596-0**	$38.65	**56-603-4**	**56-610-9**	**56-617-4**	$46.40
3 x 10	**56-576-2**	**56-583-8**	**56-590-3**	**56-597-8**	79.75	**56-604-2**	**56-611-7**	**56-618-2**	98.10
4 x 6	**56-577-0**	**56-584-6**	**56-591-1**	**56-598-6**	71.55	**56-605-9**	**56-612-5**	**56-619-0**	78.00
4 x 8	**56-578-8**	**56-585-3**	**56-592-9**	**56-599-4**	95.45	**56-606-7**	**56-613-3**	**56-620-8**	104.00





PRO-SAFE™ THE PROFESSIONAL CHOICE

Rubber Finger Entrance Matting

For Outdoor or Indoor Use

These mats are constructed of tough SBR rubber to remain flexible, while withstanding extreme cold and wet conditions. Thousands of tough rubber fingers help sweep shoes clean, while suction cups on underside help minimize shifting.

- Material: SBR rubber.
- Thickness: 5/8".
- Color: Black.
- Edges: Safety beveled on four sides.

SIZE W x L	5/8" FINGERTIP PART NO.	PRICE
24" x 32"	**56-553-1**	$24.10
32" x 39"	**56-554-9**	36.90
36" x 60"	**56-555-6**	76.60
36" x 72"	**56-556-4**	81.20

PRO-SAFE™ THE PROFESSIONAL CHOICE

Rubber Bubble Anti-Fatigue Matting

For Use in Dry Areas



Ergonomically designed to enhance worker comfort, this 100% rubber matting has multiple hollows that encourage frequent but subtle posture changes for increased circulation.

- Material: 100% natural rubber, 1/2" thick.
- Color: Black.
- Edges: Safety beveled.
- Anti-Fatigue: Better.
- Slip Resistance: Best.

SIZE W X L	PART NUMBER	PRICE
2' x 3'	**56-527-5**	$37.70
3' x 4'	**56-528-3**	52.25

PRO-SAFE™ THE PROFESSIONAL CHOICE

Entrance Matting for Light-to-Moderate Traffic Areas

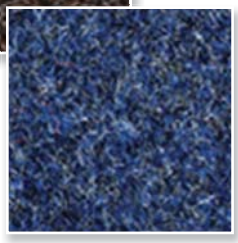
For Indoor Use



Charcoal



Beige



Blue

Shipping Guidelines:
Matting less than 15' ships UPS.
Over 15' ships via truck.

Protect your floors with these attractive mats. These mats are easy to clean and maintain. Solid vinyl backing protects floors from moisture. Use on light-to-moderately traveled hallways, doorways or entrances.

- Material: Cut-pile Olefin bonded to a vinyl backing.
- Thickness: 3/8".
- Color: Charcoal, Beige, Blue.
- Edges: Straight cut edges, four black borders around perimeter of mat.
- Water retention: Good.
- Soil resistance: Good.

SIZE W X L	CHARCOAL PART NO.	BEIGE PART NO.	BLUE PART NO.	PRICE
3' x 5'	**56-557-2**	**56-563-0**	**56-569-7**	$41.30
3' x 10'	**56-558-0**	**56-564-8**	**56-570-5**	96.20
4' x 6'	**56-559-8**	**56-565-5**	**56-571-3**	73.35

PRO-SAFE™ THE PROFESSIONAL CHOICE

Dual-Density Vinyl Sponge Anti-Fatigue Matting

For Use in Dry Areas



This matting is remarkably durable and has an abrasion-resistant surface. Long lasting, easy maintenance and extremely comfortable.

- Material: Dual-density fusion-bonded vinyl sponge demonstrates unparalleled wear-resistance compared to homogenous vinyl sponge mats.
- Surface texture: Diamond deckplate pattern.
- Color: Black.
- Thickness: 1/2".
- Edges: Safety bevels on all four sides help prevent tripping.
- Anti-Fatigue: Good.
- Slip Resistance: Best.

SIZE W x L	PART NUMBER	PRICE
2' x 3'	**56-529-1**	$31.35
3' x 5'	**56-530-9**	78.40
3' x 12'	**56-531-7**	188.10

PRO-SAFE™ THE PROFESSIONAL CHOICE

Large Drainage Hole Anti-Fatigue Matting

For Use in Wet or Dry Areas

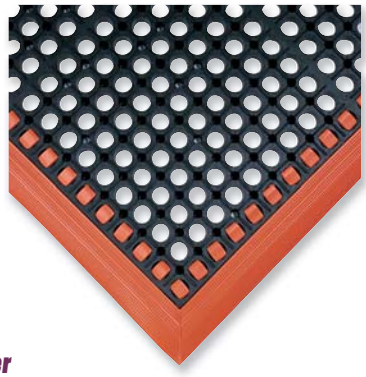
These mats are ideal for wet environments, or when heavy debris is a concern. The large drainage holes facilitate drainage, resist clogging and keep you comfortable. These mats are durable and stand up to high traffic. The option of a carbide mineral grit coating will significantly enhance traction and help reduce potential slips due to residual fluid on top surface.





Black w/o Borders

Shipping Guidelines: Matting less than 15' ships UPS. Over 15' ships via truck.



Black w/Orange Border

Pro-Safe™ 1/2"

- Material: Natural/SBR rubber, 1/2" thick
- Color: Black.
- Edges: Manufactured molded safety beveled four sides helps prevent tripping.
- Anti-Fatigue: Good
- Slip Resistance: Best.

SIZE W X L	PART NUMBER	PRICE
3' x 5'	**56-534-1**	$70.20
3' x 10'	**56-535-8**	121.60

Pro-Safe™ 1/2" with Grit-Coating

- Material: Natural/SBR rubber, 1/2" thick.
- Color: Black.
- Surface: Grit coating helps prevent slips and falls due to residual fluids on surface. Enhances traction tremendously.
- Edges: Manufactured molded safety beveled four sides helps prevent tripping.
- Anti-Fatigue: Good.
- Slip Resistance: Ultimate.

SIZE W X L	PART NUMBER	PRICE
3' x 5'	**56-537-4**	$138.85
3' x 10'	**56-538-2**	289.20

Pro-Safe™ 7/8"

- Material: Natural/SBR rubber, 7/8" thick.
- Color: Black.
- Edges: Straight edges. Can be abutted together.
- Anti-Fatigue: Better.
- Slip Resistance: Best.

SIZE W X L	PART NUMBER	PRICE
1 1/2' x 2'	**56-540-8**	$27.25
2' x 3'	**56-541-6**	49.25
2 1/2' x 3'	**56-542-4**	55.45
3' x 4'	**56-543-2**	80.85
3' x 5'	**56-544-0**	86.65

Pro-Safe™ 7/8" with Orange Safety Border

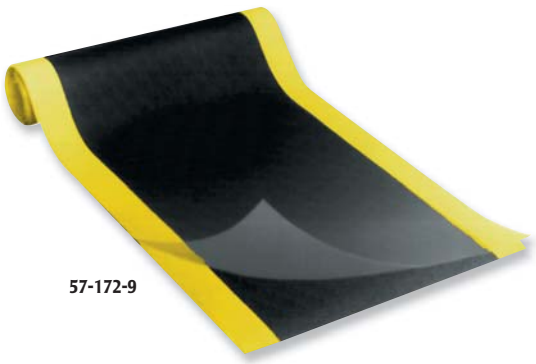
- Material: Natural/SBR rubber, 7/8" thick.
- Color: Black with OSHA orange safety borders four sides.
- Available with and without grit coating.
- Edges: Safety beveled four sides.
- Anti-Fatigue: Better.
- Slip Resistance: Best.

7/8" Black w/Orange Borders

SIZE W X L	PART NUMBER	PRICE
28" x 40"	**56-545-7**	$83.40
40" x 52"	**56-546-5**	155.95
40" x 64"	**56-547-3**	161.50
40" x 124"	**56-548-1**	292.50

7/8" w/Grit Black w/Orange Borders

SIZE W X L	PART NUMBER	PRICE
28" x 40"	**56-549-9**	$147.80
40" x 52"	**56-550-7**	231.35
40" x 64"	**56-551-5**	265.95



57-172-9

WEARWELL®

Anti-Fatigue Mats

- An economical 100% sponge anti-fatigue mat with urethane polymer coating.
- Urethane coating protects against chemicals, abrasion, and moisture; wears twice as long as sponge mats without coating.
- Slip-resistant textured surface for safety and comfort.
- Color: Black with 4" wide yellow borders.
- 3/8" thick urethane coated.
- For use in dry work areas.

DESCRIPTION	PART NO.	PRICE
2' x 3' Anti-Fatigue Mat	**57-119-0**	$36.10
2' x 6' Anti-Fatigue Mat	**57-175-2**	69.90
3' x 5' Anti-Fatigue Mat	**57-172-9**	86.55



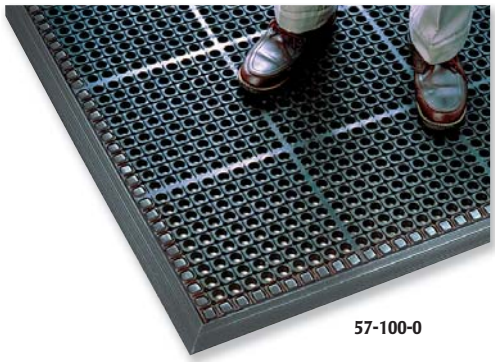
57-108-3

WEARWELL®

Drainage Mat

- Spills drain through holes keeping feet dry.
- Resilient rubber compound provides cushioned support.
- Grease resistant.
- Beveled edging molded in on all sides.
- Lightweight; easy to move for cleaning.
- Color: black.
- 3' x 5'.
- 1/2" thick anti-fatigue.
- For use in wet, dry or moderately greasy work areas.

DESCRIPTION	PART NO.	PRICE
3' x 5' Drainage Mat	**57-100-0**	$73.80



57-100-0

WEARWELL®

Anti-Fatigue Drainage Mats

- High-grade, grease-resistant rubber compound provides cushioned underfooting for workers and helps prevent breakage.
- Has large holes for drainage and raised surface ribs for traction.
- Underside knobs hold mat securely in place and prevent bacteria from growing.
- Color: black.
- 7/8" thick.
- For use in wet, dry or moderately greasy work areas.

DESCRIPTION	PART NO.	PRICE
36" x 60" Drainage Mat	**57-108-3**	$105.20

SAFETY



WEARWELL

Bubble "Ortho Stand®" Mats

- Economical.
- Excellent anti-fatigue qualities.
- Bubble design allows liquids to settle between domes for safe, dry footing.
- SBR rubber formulation so it feels springy underfoot.
- Safety beveled edges.
- 1/2" thick.
- For use in wet or dry work areas.

Black

DESCRIPTION	PART NO.	PRICE
2' x 3' Bubble "Ortho Stand" Mat	**57-111-7**	$50.70
3' x 4' Bubble "Ortho Stand" Mat	**57-112-5**	69.50

Black with Yellow Border

DESCRIPTION	PART NO.	PRICE
2' x 3' Bubble "Ortho Stand" Mat	**57-123-2**	$60.20
3' x 4' Bubble "Ortho Stand" Mat	**57-115-8**	80.30



57-107-5



Black Mat
57-391-5

WEARWELL

Diamond Plate Mats

- Diamond plate safety surface guards against slippage.
- Beveled edges for safety.
- Super compression sponge base enhances productivity and relieves fatigue.
- Self-extinguishing, non-flammable composition that is also resistant to many chemicals and solvents.
- 9/16" thick anti-fatigue.
- For use in dry work areas.

Black

DESCRIPTION	PART NO.	PRICE
2' x 3' Diamond Plate Mat	**57-391-5**	$53.50
3' x 5' Diamond Plate Mat	**57-392-3**	131.15

Black and Yellow

DESCRIPTION	PART NO.	PRICE
2' x 3' Diamond Plate Mat	**57-107-5**	$59.45
3' x 5' Diamond Plate Mat	**57-109-1**	136.05

PRO-SAFE™ THE PROFESSIONAL CHOICE

Economical Shop Mats

For Use in Dry Work Areas



These mats have a diamond embossed surface, which is easily cleaned and adds additional slip resistance vs. ordinary mats. They withstand heavy use, while their specially formulated blown-vinyl sponge base reduces standing worker fatigue.

- Material: Vinyl on sponge base 9/16" or 15/16" thick.
- Color: Black and Black with Yellow borders.
- Anti-Fatigue: 9/16" Better; 15/16" Best.
- Edges: Safety beveled.
- Slip Resistance: Better.

SIZE W x L	9/16" ECONOMY DIAMOND PLATE ALL BLACK PART NO.	PRICE	9/16" ECONOMY DIAMOND PLATE BLACK W/YELLOW BORDERS PART NO.	PRICE	15/16" ECONOMY DIAMOND PLATE ALL BLACK PART NO.	PRICE	15/16" ECONOMY DIAMOND PLATE BLACK W/YELLOW BORDERS PART NO.	PRICE
3' x 12'	**56-517-6**	$299.25	**56-520-0**	$328.75	**56-523-4**	$365.65	**56-526-7**	$393.15

NMC

Barricade Warning Tapes



52-349-8



52-351-4

The Colors of Caution

OSHA and ANSI recommend the use of colors to help send the right messages.

- Red: DANGER/DANGER DO NOT ENTER
- Yellow: CAUTION



52-352-2

Barricade Tapes

- Quick and effective way to create a visual fortress around temporary hazards.
- Lightweight tape can be tied, stapled or nailed to posts, fences or metal barricades.
- Ideal for outdoor or indoor application.
- Material: Polyethylene.



52-353-0



52-354-8

ROLL SIZE (IN. x FT.)	TAPE COLOR	PRINT COLOR	LEGEND	PART NUMBER	PRICE
3 x 200	Black/Yellow	-	Striped Pattern	**52-349-8**	$7.30
3 x 1,000	Red	Black	DANGER	**52-350-6**	18.95
3 x 1,000	Red	Black	DANGER DO NOT ENTER	**52-351-4**	18.95
3 x 1,000	Black/Yellow	-	Striped Pattern	**52-352-2**	18.95
3 x 1,000	Yellow	Black	CAUTION	**52-353-0**	18.95
3 x 200	Yellow	Black	CAUTION	**52-354-8**	7.30



57-386-5

Triangle Reflector Warning Kit

- Constructed of molded polypropylene plastic with red acrylic plastic reflectors.
- Airflow design helps reduce wind resistance.
- Kit includes three triangles in a red hard plastic case.
- Meets Federal Motor Vehicle Standard No. 125.

DESCRIPTION	PART NO.	PRICE
Triangle Reflective Warning Kit	**57-386-5**	$38.40

HAND TOOLS

















HAND TOOLS



Chemical Etching Pen

- Indispensable any place where metals, hardened as well as thin walled, have to be marked or identified.
- Strong effect on heavy metals, stainless steel, iron, copper, brass, nickel, tin and lead.
- No electrical flux is necessary. A special acid solution flows like ink in a felt-tip pen and a permanent etch is produced on the metal.
- Leaves distinctive, smudge-proof, black markings.
- Ideal for toolroom and machine shop use.
- Apply on clean surface. After application, wipe dry with oily cloth.
- Store at room temperature not exceeding 104°F/40°C.


97-470-9

DESCRIPTION	PART NO.	PRICE
Chemical Etching Pen	**97-470-9**	$20.70

Actograph Electric Arc Engraver

- Has a specially designed transformer with a control for selecting voltage for any degree of etching desired.
- Battery power may be used as well as normal AC line current.


51-811-8

- Comes with Arc Engraver and 6 spare writing points.
- The Actograph Pin will arc etch all hard and soft ferrous and nonferrous metals quickly and permanently. Unit does not etch through vibration.

DESCRIPTION	PART NO.	PRICE
Arc Engraver, Transformer & 6 Spare Writing Points	**51-811-8**	$468.85

Accessories

DESCRIPTION	PART NO.	PRICE
Repl. Points for Arc Engraver	**51-812-6**	$4.10
Repl. Pen Assembly	**51-813-4**	235.00
Actograph Ground Cable	**51-814-2**	59.45



77-160-0

Etch-O-Matic Marking Kits

Starter and Super Kits

- Using an Electro-Chemical principle, the Etch-O-Matic can etch as deep as .003" of an inch in less than 30 seconds or mark the hardest tool steel and carbides almost instantly.
- Marks flat or round metal surface down to 1/16" diameter and any metal thickness from thin foil up to largest castings easily.
- Each kit will make approximately 1,000 marks before refill supplies are needed.

10 Volt, 2 Amp Starter Kit includes:

- Etch-O-Matic marker with standard head marking size 7/8" x 1 3/4"
- Electrical cord
- Ground plate
- 2 oz. electrolyte solution in plastic bottle
- 10 special stencils
- Neutralizer
- Deep etching adapter clip
- Complete instructions

15 Volt, 10 Amp Super Kit includes:

- Etch-O-Matic marker unit with external transformer
- Adapter clip for deep etch marking
- Ground plate
- 8 oz. general purpose electrolyte
- 8 oz. neutralizer
- Extra pads
- 100 pack special stencils
- Complete instructions
- Packed in sturdy plastic carrying case

DESCRIPTION	PART NO.	PRICE
2 Amp Starter Kit	**77-160-0**	$102.00
10 Amp Super Kit	**77-161-8**	300.30
50 Stencil Pack	**77-162-6**	15.80
100 Stencil Pack	**77-163-4**	17.55

Accessories

ELECTROLYTE	SIZE (OZ.)	PART NUMBER	PRICE
Neutralizer	16	**77-164-2**	$14.40
General Purpose	4	**77-165-9**	9.40
General Purpose	16	**77-166-7**	15.20
Aluminum	4	**77-167-5**	14.10
Stainless Steel	4	**77-168-3**	9.40
Black Oxide	4	**77-169-1**	9.40
19 Pad Refill Kit	-	**77-170-9**	13.45

ELECTRO-SPARK Metal Engraving Pen

- Writes with ease on all metals, aluminum, brass, steel, hardened steel, carbide, etc.
- The spark produced between the electrode engraving point and the workpiece leaves a clean oxide marking in the engraved areas.
- Permanent marking – can be removed by grinding only.
- Safe continuous use, no danger of shock.
- The electric pen is connected to a single-phase transformer, specifically constructed for the purpose.
- Optional settings provide smooth writing from fine to very heavy.
- Ideal for clean marking on metal parts, dies, cutting tools, measuring tools, etc.
- Furnished complete with 3 ea. 3/64" x 1" electrodes.



97-475-8

POWER RATING	NUMBER OF SETTINGS	INCLUDED PEN HANDLE	HOUSING	PART NUMBER	PRICE
50 W	6	Deluxe	Metal	97-475-8	$565.10



Accessories

DESCRIPTION	PART NO.	PRICE
Electrode, 3/64 x 1"	**97-476-6**	$9.90
Electrode, 1/32 x 1"	**97-477-4**	10.15
Electrode, 1/16 x 1"	**97-478-2**	11.45
Deluxe Pen Handle	**97-481-6**	177.60



95-915-5

DREMEL®
Electric Engraver

- Works on all types of materials from hardened steel to glass.
- The calibrated stroke adjustment regulates the engraving depth from delicate fine lines to deep marks.
- The high speed reciprocating motor delivers 7,200 strokes per minute.
- The high impact nylon housing and powerful motor are designed for years of trouble free use.
- Engraver comes with one carbide point.
- Optional diamond and replacement carbide points available.
- Dremel® model #290-01.

DESCRIPTION	PART NO.	PRICE
Dremel® Electric Engraver	**95-915-5**	$35.30

Replacement Points

DESCRIPTION	PART NO.	PRICE
Dremel® Carbide Point	**95-916-3**	$9.50
Dremel® Diamond Point	**95-917-1**	28.50

DREMEL®
Saw-Max™ Tool Kit
Make Quick Cuts in a Wide Variety of Materials



95-125-1

Multipurpose tool for wood burning, soldering, hot knife cutting of Styrofoam and plastics, cutting and fusing rope.

- Cuts wood, plastic, metal, tile, masonry and more.
- Two cutting wheel positions for straight, plunge and flush cuts.
- Powerful 6 Amp motor for tough applications.
- Worm Drive™ gearing for durability and power.
- Excellent line of sight for confident precise cuts.
- User friendly one handed operation.
- Adjustable depth guide and plunge action for precision and control.
- Dust extraction port for a clean work environment.
- Includes:
  - Saw-Max™ Tool
  - 2 x 4 Cutting Guide
  - Dust Port Adapter
  - Multi-Purpose Carbide Wheel
  - Metal Cut-Off Wheel
  - Tile Diamond Wheel
  - Multi-Purpose Flush Cut Carbide Wheel
  - Storage Case
  - Owner's Manual
- Dremel® model #SM20-02

DESCRIPTION	PART NO.	PRICE
Saw-Max™ Tool Kit	**95-125-1**	$173.20

DREMEL®
Flex Shaft Attachment
Ideal for Hard to Reach Places and Fine Detail Work

- Quick connect attach system.
- 36" long cable with new 5" bend radius provides more flexibility.
- Comfort grip hand piece – allows comfort and fingertip control.
- Integrated shaft lock button.
- Holds up to 1/8" shank.
- Works with collet system and Dremel® chuck.
- Includes:
  - Flex shaft attachment
  - Square drive nut
  - Instruction
- Dremel® model #225-01



95-143-4

DESCRIPTION	PART NO.	PRICE
Flex Shaft Attachment	**95-143-4**	$46.05



95-149-1

DREMEL®
Rotary Tool Kits

100 Series

- Includes: Single Speed Rotary Tool plus 15 Accessories.
- Use For routing, cutting, drilling, sanding, slotting, inlaying and making tapered holes in soft metals, plastics and woods especially on curved surfaces.
- Single speed control-full time 35,000 RPM operation
- Cool-running ball bearing construction for smooth and quiet operation.
- Lightweight design for comfort during prolonged use.
- 120 V with 6' cord.
- 1/8" Collet
- Dremel® model #100-N/7

200 Series

- Includes: 2-Speed Rotary Tool, 15 Accessories, plus Lawn Mower & Garden Tool Sharpener.
- Use for carving, engraving, cutting grinding, cleaning & sanding.
- 2-speeds - 15,000 and 35,000 RPM for control and accuracy.
- Set speed with the flip of a switch.
- Cool-running ball bearing construction for smooth and quiet operation.
- 120 V with 6' cord.
- 1/8" Collet.
- Dremel® model #200-1/15

DESCRIPTION	PART NO.	PRICE
100 Series	**95-148-3**	$57.20
200 Series	**95-149-1**	94.75



95-145-9

DREMEL®
7.2V MultiPro™ Cordless Kit
For Carving, Engraving, Cutting, Grinding, Cleaning & Sanding

- Includes: 2-Speed Cordless Rotary Tool, 15 Accessories, plus Lawn Mower & Garden Tool Sharpener.
- Light & compact, easy to handle and fun to use anywhere.
- Nickel-cadmium (NiCd) battery.
- Removable battery pack.
- 2 Speeds-10,000 and 20,000 RPM for control and accuracy
- Includes 3-hour charger with LED light to indicate battery is correctly placed into charger for proper charging.
- 1/8" Collet.
- Dremel® model #7700-1/15
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
7.2V MultiPro™ Cordless Kit	**95-145-9**	$89.00

HAND TOOLS



70-994-9

Portable Air Powered Vacuum Cleaner

- Vacuums chips, dirt, powders, liquids, etc.
- Lightweight one piece construction.
- No moving parts to burn out.
- 2 fine kits – air vac and air vac kit with hose.
- For industrial applications, electronics, and mechanical assembly clean-up.
- Spark resistant.
- Used in marine, aviation, and automotive industries.
- Die cast aluminum unit with cloth bag.
- 9 1/4" W x 17 1/4" L (2 Pcs.)

DESCRIPTION	PART NO.	PRICE
Air Vac with 18" Hose	**70-993-1**	$157.05
Air Vac w/round brush; crevice tool & 5" wide nozzle	**70-994-9**	188.00



52-401-7

Jupiter Pneumatics universal air solutions

1/4" Mini-Die Grinder

- Compact and lightweight.
- Small design allows for ease of maneuverability.
- Average air consumption: 4 CFM @ 90 P.S.I
- Collet size: 1/4"
- RPM: 25,000
- Horsepower: 0.3
- Front exhaust
- Decibel rating: 92 dB(A)
- Length: 4 3/4"
- 3/8" hose.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/4" Mini-Die Grinder	**52-401-7**	$90.20
Rebuild Kit	**52-402-5**	16.70
Repair Kit	**52-403-3**	10.70

FLORIDA PNEUMATIC

Die Grinders

1/4" Mini Die Grinder



65-098-6

- Ideal for home shop, light production and g eneral maintenance use.
- Powerful 1/3 HP motor.
- Ball bearing construction.
- Variable speed throttle with safety lockout feature.
- 4 CFM @ 90 PSI
- Air Inlet 1/4" 25,000 RPM rear exhaust.

PSI	LENGTH	SPINDLE SIZE	PART NO.	PRICE
90	6"	3/8" - 24	**65-098-6**	$122.00

1/4" Heavy-Duty Die Grinder



65-099-4

- Air Inlet 1/4" 25,000 RPM.
- Used for general production and maintenance applications.
- 4 CFM @ 90 PSI
- Powerful 1/3 HP motor.
- Rear exhaust.
- Safety lockout feature prevents accidental start-ups.

PSI	LENGTH	SPINDLE SIZE	PART NO.	PRICE
90	6 3/4"	3/8" - 24	**65-099-4**	$115.90

Jupiter Pneumatics universal air solutions

1/4" Straight Die Grinder & Kit



52-457-9

- Mini design for better handling and control.
- Compact and lightweight design allows easy access to tighter areas.
- Rear exhaust.
- Decibel rating: 77dB(A)
- Rotating air inlet for easy maneuverability.
- Ergomomic comfort grip.
- RPM: 25,000
- HP: 0.3
- 1/4" NPT air inlet.
- Length: 6 1/8"
- 3/8" hose.
- 4 CFM @ 90 PSI
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**



52-458-7

Kit Includes:

- Straight die grinder
- 2 Collets: 1/8" and 1/4"
- 10 Mounted wheels
- Blow molded case

DESCRIPTION	PART NO.	PRICE
1/4" Straight Die Grinder	**52-457-9**	$97.65
14 Pc. Kit	**52-458-7**	114.30

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-459-5**	$11.90
Rebuild Kit	**52-460-3**	23.90

FLORIDA PNEUMATIC

1/4" Die Grinder

- 1/4" Straight high speed die grinder with collet insert.
- Free speed 20,000 RPM.
- Air inlet size: 1/4" NPT,
- 4 CFM @ 90 PSI.
- Hose size: 3/8" I.D.
- 5 1/2" long. 1 1/2 lbs.
- 1/2 HP motor.
- Rear exhaust.
- For cylinder work, light duty die grinding and deburring.
- Not for use with cast wheels or attachments that are not rated for 20,000 RPM.



65-053-1

DESCRIPTION	PART NO.	PRICE
Heavy Duty Die Grinder	**65-053-1**	$120.70

Industrial Quality AIR TOOLS

Air Die Grinder & Kit

Ideal for cylinder work and high speed grinding

- 22,000 RPM.
- 1/4" collet.
- 1/4" air inlet.
- Length: 6 3/4".
- 0.45 HP.
- Rear exhaust.
- 4 CFM @90 PSI.
- Ball bearing construction assures long life.



51-036-2

Kit Includes:

- Die grinder
- 5 ea. 1/8" and 1/4" arbor stones
- 1/8" collet insert
- Hose adapter
- 2 collet changing wrenches
- Furnished in fitted carrying case

DESCRIPTION	PART NO.	PRICE
Air Die Grinder	**51-035-4**	$49.10
Air Die Grinder Kit	**51-036-2**	65.40

Accessory

DESCRIPTION	PART NO.	PRICE
1/4" Collet	**51-037-0**	$15.15

Industrial Quality AIR TOOLS

1/4" 90° Angle Air Die Grinder & Kit

- 22,000 RPM.
- 1/4" collet.
- 1/4" air inlet.
- Length: 6 1/8".
- 0.30 HP.
- Rear exhaust.
- 4 CFM @ 90 PSI.

Kit Includes:

- Die grinder
- 5 ea. 1/8" and 1/4" arbor stones
- 1/8" collet insert
- Hose Adapter
- Collet changing wrenches
- Furnished in fitted carrying case



51-038-8

DESCRIPTION	PART NO.	PRICE
Angle Air Die Grinder	**51-038-8**	$61.35
Angle Air Die Grinder Kit	**51-039-6**	65.40



52-453-8



52-454-6

Jupiter Pneumatics universal air solutions

1/4" 90° Angle Die Grinder & Kit

- Compact and lightweight for ease of maneuverability.
- Ideal for most industrial applications.
- Rear exhaust.
- Rotating air inlet for ease of movement.
- Decibel rating: 77dB(A)
- Regulator allows for easy setting of RPM.
- Ergonomic comfort cushion grip.
- Collet: 1/4"
- RPM: 20,000
- Horsepower: 0.3
- 4 CFM @ 90 PSI
- NPT air inlet: 1/4"
- Hose: 3/8"
- Length: 6 5/8"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

Kit Includes:

- Die grinder
- 2 Collets: 1/8" and 1/4"
- 10 Mounted wheels
- Blow molded case

DESCRIPTION	PART NO.	PRICE
90° Angle Die Grinder	**52-453-8**	$110.35
14 Pc. Kit	**52-454-6**	138.35

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-455-3**	$12.50
Rebuild Kit	**52-456-1**	19.70

HAND TOOLS



97-485-7

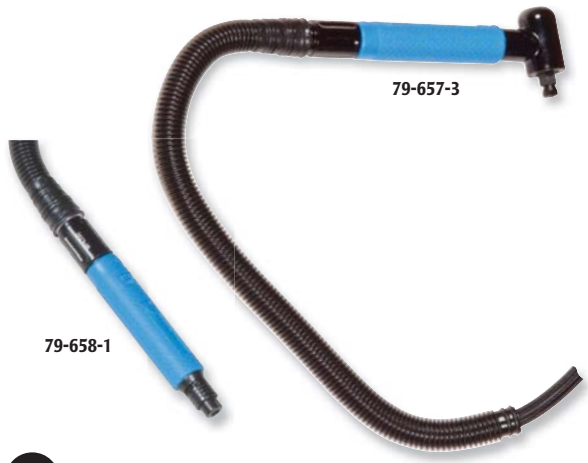
Air Marking Pen Kit

- Handles a wide variety of engraving jobs, marking tools and instruments etc., serializing parts or products, economical to operate.
- Compact design with contoured nose-piece for better tool maneuverability and easier handling.
- Simplified in-line drive system featuring only two moving parts, for longer trouble-free operation.
- Sliding sleeve throttle for positive power control and accurate speed selection.
- 20,000 blow per minute variable speed; suitable for marking a variety of material from aluminum to titanium.
- Recommended air pressure 90 - 100 PSI.
- Handy size; 9/16" dia. x 5 1/2" long. - Weight 4 oz.
- Long lasting carbide tipped stylus included.

DESCRIPTION	PART NO.	PRICE
Air Marking Pen Kit, Including 5 Ft. 3/16" I.D. Hose Assembly with 1/8"and 1/4" NPT Fittings Plus Two Wrenches in Carrying Case	**97-485-7**	$503.05

Replacement Point

DESCRIPTION	PART NO.	PRICE
Carbide-Tipped Stylus	**97-488-1**	$84.90



79-657-3

79-658-1

Master Power®

High Speed Pencil Grinders

Ideal for Precision Deburring, Blending and Smoothing Applications

- Rear exhaust directs air away from work.
- Standard with 5' air hose and 1' overhose.
- 1/8" and 3 mm collets included.
- 70,000 RPM free speed.
- Air inlet: 1/4"
- Horsepower: 0.1

DESCRIPTION	LENGTH	PART NO.	PRICE
Right Angle	5.90"	**79-657-3**	$359.70
Straight	5.35"	**79-658-1**	323.75

DYNABRADE®

Pencil Grinders with Silver Tool Cap

Turbine-Driven Air Motors

- No lubrication required!
- Precision deburring and finishing on a variety of surfaces.
- Housing has "non-slip" rubber grip.
- Tactile safety feature on shaft end alert operator to rotating collet area.
- Includes high-quality flexible air hose.
- Ceramic bearings.
- Rear exhaust.
- 100,000 RPM
- Decibel rating: 70dB(A)
- 0.1 HP
- Air inlet: 1/4"
- 6 CMF @ 90 PSI
- Length: 5 5/16"
- Hose: 68"



89-219-0

COLLET SIZE	PART NUMBER	PRICE
1/16"	**89-217-4**	$544.75
3/32"	**89-218-2**	544.75
1/8"	**89-219-0**	544.75





59-413-5

SIOUX

1/8" Pencil Air Die Grinders

Small in Size, Big in Versatility

- Built-in variable speed twist throttle.
- Slim comfortable design for greater accessibility.
- 60" hose with protector.
- Length: 5.3"
- Collet size: 1/8"
- 90 psi

RPM	PART NO.	PRICE
54,000	**59-413-5**	$170.25
70,000	**59-414-3**	218.50

Chicago Pneumatic

Pneumatic Pencil Grinder & Kit

Ideal for Limited Space Applications

- Extremely easy to handle.
- Quiet and lightweight.
- Collet size: 1/8"
- Decibel rating: 70 db(A)
- 60,000 rpm
- Length: 5.20"
- 7 CFM @ 90 PSI.
- Hose size: 3/8"
- Silencer hose included.
- Kit Includes:
  - Pencil Grinder
  - Spanner
  - 1/8" & 3 mm Collets
  - 5 Mounted Points
  - 5 Carbide Burrs
  - Carrying Case



58-813-7

DESCRIPTION	PART NO.	PRICE
Pencil Grinder	**58-812-9**	$172.70
Pencil Grinder Kit	**58-813-7**	208.25

Jupiter Pneumatics universal air solutions

1/8" Pencil Die Grinder & Kit



52-404-1

- Easy maneuverability, ideal for intricate work.
- Compact and comfortable design allows for accessibility in tight areas.
- Ideal for precision deburring and metal removal.
- Average air consumption: 4 CFM @ 90 PSI
- RPM: 54,000
- Air inlet size: 1/4" NPT
- Collet size: 1/8"
- 13/64" hose.
- Rear exhaust.
- Decibel rating: 78dB(A)
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

Kit Includes:

- 1 Pencil die grinder
- 10 Mounted wheels
- 1 mini oiler
- 1 adapter
- 1 wrench
- 1 oil reservoir

DESCRIPTION	PART NO.	PRICE
1/8" Pencil Die Grinder	**52-404-1**	$122.75
Pencil Die Grinder Kit	**52-405-8**	141.10

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-406-6**	$39.55
Rebuild Kit	**52-407-4**	9.35



52-405-8



52-508-9



52-430-6



52-427-2

Jupiter Pneumatics universal air solutions

1/4" Stubby Ratchet Wrench

- Minimum head height for close-quarter applications.
- Rear exhaust.
- Delivers the power needed coupled with the speed to get the job done.
- Composite housing, needle-bearing front head and full-cage gear design.
- Decibel rating: 85 dB(A).
- 4 CFM @ 90 PSI.
- 350 max. RPM
- 1/4" air inlet.
- 30 ft./lbs. max. torque.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/4" Stubby Ratchet Wrench	**52-508-9**	$115.30

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-509-7**	$14.85
Rebuild Kit	**52-510-5**	40.90

Jupiter Pneumatics universal air solutions

1/4" Mini Ratchet Wrench

- Minimum head height for use in close quarter applications.
- Compact and lightweight, yet powerful and fast.
- Rotating air inlet for ease of movement.
- Rotating adjustable rear exhaust.
- Decibel rating: 79 dB(A)
- Regulator allows for easy setting of RPM.
- Full gear cage.
- Front head needle bearing.
- IPM: 200
- Maximum RPM: 200
- Maximum torque: 30 Ft./Lbs.
- Working torque range: 5 – 30 ft./lbs.
- 1/4" air inlet.
- Minimum hose size: 3/8"
- 4.4 CFM @ 90 PSI
- Length: 7.7"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/4" Mini Ratchet Wrench	**52-430-6**	$105.25
Repair Kit	**52-431-4**	12.35
Rebuild Kit	**52-432-2**	14.80

Jupiter Pneumatics universal air solutions

1/2" Ratchet Wrench

- Hardened ratchet housing and thick walls provide durability and long life in industrial settings.
- Rotating air inlet allows ease of movement.
- Soft, comfort grip.
- Minimum hose size: 3/8"
- Regulator design allows for quick setting of RPM.
- Decibel rating: 79 dB(A)
- Rear exhaust.
- Maximum RPM: 150
- Maximum torque: 50 Ft./Lbs.
- IPM: 150
- 4 CFM @ 90 PSI
- 1/2" bolt capacity.
- Inlet size: 1/4"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/2" Ratchet Wrench	**52-427-2**	$187.60
Repair Kit	**52-428-0**	12.35
Rebuild Kit	**52-429-8**	16.00

HAND TOOLS

Jupiter Pneumatics
universal air solutions

3/8" Ratchet Wrench & Kit

- Compact and lightweight, while powerful and fast.
- Thick housing wall for tool durability and long life.
- Hardened ratchet housing withstands wear and tear.
- Front head needle bearing.
- 1/4" rotating air inlet.
- Easy-to-set speed regulator.
- Soft, comfort grip.
- 4 CFM @ 90 PSI
- Maximum RPM: 150
- Maximum Torque: 50 Ft./Lbs.
- IPM: 150
- 3/8" bolt capacity.
- Decibel rating: 79 dB(A)
- Rear exhaust.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**



52-408-2



52-409-0

DESCRIPTION	PART NO.	PRICE
3/8" Ratchet Wrench	**52-408-2**	$157.25
Ratchet Wrench Kit	**52-409-0**	169.35

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-410-8**	$14.80
Rebuild Kit	**52-411-6**	17.25



52-511-3

Jupiter Pneumatics
universal air solutions

1/2" Pneumatic Reactionless Ratchet Wrench

- Fast and powerful pin clutch impact mechanism absorbs kickback.
- 3X faster than a standard ratchet.
- Hardened housing and thick walls provide durability and long life in industrial settings.
- Soft grip comfort.
- Rear exhaust.
- Decibel rating: 90 dB(A)
- 4 CFM @ 90 PSI
- 400 max. RPM
- 1/4" NPT air inlet.
- 75 ft./lbs. max. torque.
- Working torque range: 20 – 70 ft./lbs.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/2" Reactionless Ratchet Wrench	**52-511-3**	$185.30

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-512-1**	$9.70
Rebuild Kit	**52-513-9**	30.60

Industrial Quality
AIR TOOLS

1/4" & 3/8" Drive Air Ratchet Wrenches

Ball Bearing for Strength & Durability

- Reversible.
- 1/4" inlet.
- 90 psi.
- Front exhaust.
- Supported ring socket retainer for quick socket changes.
- Lever throttle for convenient throttle access.
- Ball bearings for durability.



51-045-6



51-046-1

DRIVE SIZE	CFM	OAL	RPM	MAX. TORQUE FT./LBS.	PART NUMBER	PRICE
1/4"	3	6 1/16"	240	18	**51-045-6**	$68.05
3/8"	4	10	150	50	**51-046-1**	85.50



51-242-6

3/8" Drive Air Impact Wrench

- Ring retainer allows quick socket changes.
- Air requirements: 90-120 PSI. 3/8" I.D. hose.
- Air consumption: 3 CFM
- 8500 RPM
- 75 ft./lbs. max. torque.
- 1/4" NPT air inlet.
- The ideal tool for effortless tightening and loosening of bolts and nuts.
- Reversible.
- Built-in air regulator controls speed and torque.
- Weight: 3 lbs.

DESCRIPTION	PART NO.	PRICE
3/8" Drive Air Impact Wrench	**51-242-6**	$66.65



52-463-7

Jupiter Pneumatics universal air solutions

3/8" Impact Wrenches

- Lightweight and durable design for industrial applications.
- **52-463-7:** jumbo hammer mechanism.
- **52-464-5:** composite housing and twin hammer mechanism.
- Rear exhaust.
- One hand operation forward/reverse switch.
- Maximum RPM: 10,000
- IPM: 1,200
- Inlet size: 1/4"
- Bolt capacity: 3/8"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

MAX. TORQUE (FT./LBS.)	CFM	DECIBEL RATING	PART NUMBER	PRICE
180	2.8	95	**52-463-7**	$190.30
250	4.0	83	**52-464-5** *	196.95

* Composite housing.

Accessories

DESCRIPTION	PART NO.	PRICE
Impact Repair Kit	**52-465-2**	$28.35
Composite Repair Kit	**52-466-0**	14.80
Composite Rebuild Kit	**52-467-8**	61.60



52-442-1

Jupiter Pneumatics universal air solutions

1/2" Impact Wrenches

- Durable ergonomic construction stands up to most industrial applications.
- Delivers maximum torque for the most demanding job situations.
- Lightweight aluminum housing; 52-440-5 features composite housing.
- Twin hammer mechanism for reduced vibrations and comfort.
- Comfortable, contoured pistol grip handle.
- One handed forward/reverse switch.
- IPM: 1200
- Bolt capacity: 1/2"
- Inlet size: 1/4"
- Minimum hose size: 3/8"
- Decibel rating: 83 dB(A)
- Max. torque: 600 Ft./Lbs.
- Working torque range: 50 – 400 ft./lbs.
- 90 PSI
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

MAX. RPM	CFM	EXHAUST LOCATION	PART NUMBER	PRICE
7,000	4.00	Rear	**52-440-5** *	$185.45
8,000	3.50	Front	**52-441-3**	150.85
8,000	3.50	Handle	**52-442-1**	151.75

* Composite housing.

Accessories

DESCRIPTION	PART NO.	PRICE
Impact Repair Kit	**52-443-9**	$23.40
Impact Rebuild Kit	**52-445-4**	48.05
Composite Repair Kit	**52-444-7**	14.80
Composite Rebuild Kit	**52-446-2**	60.35



52-461-1

Jupiter Pneumatics universal air solutions

3/4" Impact Wrench

- Hard hitting twin hammer mechanism for highest torque.
- 3-Position torque lever.
- Ergonomic pistol grip handle with comfort grip and handle exhaust.
- Reliable and durable for industrial applications.
- Maximum torque: 1,300 Ft./Lbs.
- IPM: 5,000
- Maximum RPM: 5,000
- CFM: 8.5 @ 90 PSI
- Bolt capacity: 1 1/2"
- Minimum hose size: 1/2"
- Decibel range: 100 dB(A)
- Working torque range: 200 – 1,200 ft./lbs.
- NPT air inlet: 3/8"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.

DESCRIPTION	PART NO.	PRICE
3/4" Impact Wrench	**52-461-1**	$424.23
Repair Kit	**52-462-9**	83.95

Jupiter Pneumatics universal air solutions

1/2" Heavy-Duty Impact Wrench

With Extended 2" Anvil

- Delivers maximum torque for the most demanding job situations.
- Twin hammer mechanism for reduced vibrations and user comfort.
- One-handed forward/reverse switch.
- Ergonomic pistol grip handle.
- Rear exhaust.
- 6 CFM @ 90 PSI
- 8,000 max. RPM
- 1/4" NPT air inlet.
- 900 ft./lbs. max. torque.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/2" Heavy-Duty Impact Wrench	**52-514-7**	$237.95



52-514-7

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-515-4**	$18.40
Rebuild Kit	**52-516-2**	65.15

WD-40

See Pg. 307

Ground Ship ONLY



99-269-3

HAND TOOLS

Jupiter Pneumatics universal air solutions

3/8" Butterfly Impact Wrench

- 360° Swivel brass inlet provides free movement.
- Single hammer clutch.
- Built-in multi-position regulator for power output adjustment.
- Brass O-ring.
- Durable housing and design for industrial applications.
- Minimum hose diameter: 3/8"
- Inlet Size: 1/4"
- Maximum torque: 5 - 90 Ft./Lbs.
- IPM: 1,000
- Maximum RPM: 10,000
- Decibel rating: 100 dB(A)
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**



52-424-9

DESCRIPTION	PART NO.	PRICE
3/8" Butterfly Impact Wrench	**52-424-9**	$169.15
Repair Kit	**52-425-6**	19.75
Rebuild Kit	**52-426-4**	19.75

Industrial Quality AIR TOOLS

3/8" & 1/2" Air Impact Wrenches

Plenty of Torque to Handle the Most Demanding Applications



51-048-7

- Ball bearings for toughness.
- Supported ring socket retainer for quick socket changes.
- Reversible. • Adjustable torque regulator. • Inlet Size: 1/4" • 90 PSI

DESCRIPTION	SIZE	BOLT CAP.	CFM	OAL	RPM	IPM	MAX. TORQUE FT./LBS.	PART NUMBER	PRICE
Butterfly Impact	3/8"	3/8"	3	5 1/2"	10,000	1000	5 - 50	**51-048-7**	$83.10
Impact Wrench	1/2"	1/2"	4.0	6 1/4"	7,000	600	25 - 200	**51-049-5**	92.40



51-240-0

Air Sander

Orbital Jitterbug Type

- Ideal for refinishing metal, wood or plastic.
- Automatic throttle release lever with positive stop action.
- 90-120 PSI, 4 CFM, 3/8" I.D. hose, 1/4" NPT. connector.
- 3 1/2" x 6 3/4" pad size, 8,000 RPM.
- Constant orbital stroke with dynamic counter weight balance.

DESCRIPTION	PART NO.	PRICE
Orbital Sander	**51-240-0**	$87.25

Air Angle Sander

- Heavy duty ball bearing construction.
- Lightweight for easy handling.
- Regulator for speed control and automatic throttle release.
- 4,500 RPM, 12 CFM, with 5/8" - 11 spindle.
- Weight: 6 1/2 lbs.
- Air requirements: 90 PSI.
- 3/8" I.D. hose, 1/4" NPT.
- Supplied with 2 wrenches, pad, and side handle.



51-241-8

DESCRIPTION	PART NO.	PRICE
7" Dia. Angle Sander	**51-241-8**	$123.90



52-496-7



52-497-5

Jupiter Pneumatics universal air solutions

3" Mini Orbital Sander & Kit

- Sand metals, fiberglass, composites and carbon fibers.
- Sand and debur metal parts.
- Get into tight work areas that may not be accessible to other sanders.
- Built-in ergonomic comfort grip.
- Rear handle exhaust.
- Decibel rating: 84 dB(A)
- 3 CFM @ 90 PSI
- 12,000 RPM
- 1/4" – 20 spindle
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

Kit Includes:

- Mini orbital sander with rubber grip
- (30) 2" sanding paper with 10 each of 320, 400 & 600 grit
- (30) 3" sanding paper with 10 each of 320, 400 & 600 grit
- Key wrench
- 2" & 3" hook-and-loop sanding pads
- Blow-molded case

DESCRIPTION	PART NO.	PRICE
Mini Orbital Sander	**52-496-7**	$108.65
Mini Orbital Sander Kit	**52-497-5**	134.35

Repair Kits

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-498-3**	$11.15
Rebuild Kit	**52-499-1**	21.55

Accessories

HOOK & LOOP	GRIT	PKG. QTY.	PART NUMBER	PRICE
2" Sanding Pad	-	1	**52-500-6**	$14.95
3" Sanding Pad	-	1	**52-501-4**	14.95
2" Disc	320	10	**52-502-2**	9.95
2" Disc	400	10	**52-503-0**	9.95
2" Disc	600	10	**52-504-8**	9.95
3" Disc	320	10	**52-505-5**	13.55
3" Disc	400	10	**52-506-3**	13.55
3" Disc	600	10	**52-507-1**	13.55


52-418-1


52-421-5


52-447-0

Jupiter Pneumatics universal air solutions

6" Dual Action Sander

- Heavy-duty with a lightweight and rugged design.
- Perfect for use in all types of industrial sanding and finishing applications.
- Ergonomic design provides more sanding control and greater comfort.
- Decibel rating: 92 dB(A)
- Front exhaust.
- Max. OPM: 10,000
- HP: 0.5
- Inlet size: 1/4"
- Pad diameter: 6"
- Spindle size: 5/16" - 24
- 4 CFM @ 90 PSI
- Length: 8 1/4"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
6" Dual Action Sander	**52-418-1**	$84.45
Repair Kit	**52-419-9**	14.55
Rebuild Kit	**52-420-7**	27.70

Jupiter Pneumatics universal air solutions

High Speed Sander w/Regulator

- Heavy-duty, yet lightweight, rugged design for use in most industrial sanding and finishing applications.
- Ergonomic design provides more sanding control and increased comfort.
- Rugged composite motor housing.
- Decibel rating: 76 dB(A)
- Rear exhaust.
- Spindle size: 7/16 - 20
- Max. OPM: 14,000
- HP: 0.2
- Inlet size: 1/4"
- Includes 3", 4" and 5" dia. pads.
- 4 CFM @ 90 PSI
- 8" Overall length.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
Sander w/Regulator	**52-421-5**	$101.75
Repair Kit	**52-422-3**	9.65
Rebuild Kit	**52-423-1**	40.65

Jupiter Pneumatics universal air solutions

5" Palm Orbital Non-Vacuum Sander

- Heavy-duty, yet lightweight, rugged design for use in all industrial sanding and finishing applications.
- Well-balanced ergonomic design for low vibrations, more sanding control and greater comfort.
- Rear exhaust.
- Decibel rating: 76 dB(A)
- Composite motor housing.
- Spindle size: 5/16 - 24
- Max. OPM: 12,000
- HP: 0.20
- CFM: 4 @ 90 PSI
- Inlet size: 1/4"
- Pad width: 5"
- OAL: 6 7/16"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
5" Palm Orbital Sander	**52-447-0**	$154.69
Repair Kit	**52-448-8**	15.70
Rebuild Kit	**52-449-6**	50.45

Jupiter Pneumatics universal air solutions

Belt Sanders

- Ideal for deburring and polishing in industrial settings.
- Rotates 360° for efficient use.
- Muffled rear exhaust.
- Works well on all materials including metals, plywood, plastics and stone.
- Decibel rating: 84 dB(A)
- Comfort grip, safety lever and silencer.
- Belts: 120 grit
- 1/4" NPT air inlet
- 4.2 CFM @ 90 PSI
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

BELT LENGTH	BELT SIZE	MAX. RPM	PART NUMBER	PRICE
1/4"	13"	18,000	**52-476-9**	$197.75
3/8"	13"	18,000	**52-477-7**	208.85
3/4"	20 1/2"	16,000	**52-478-5**	449.50
1 5/32"	21 1/4"	12,000	**52-479-3**	486.15

Accessories

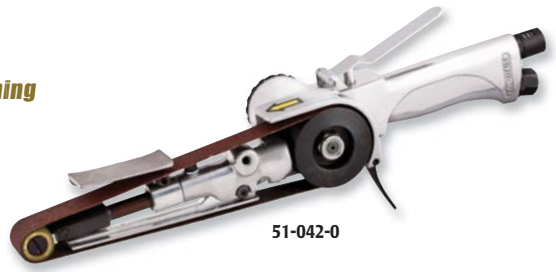
DESCRIPTION	PART NO.	PRICE
For use with 52-476-9		
Repair Kit	**52-480-1**	$9.80
Rebuild Kit	**52-481-9**	66.95
Rep. Belts (10 pk.)	**52-482-7**	42.20
For use with 52-477-7		
Repair Kit	**52-483-5**	$9.80
Rebuild Kit	**52-484-3**	92.05
Rep. Belts (10 pk.)	**52-485-0**	48.55
For use with 52-478-5		
Repair Kit	**52-486-8**	$19.55
Rebuild Kit	**52-487-6**	62.55
Rep. Belts (10 pk.)	**52-488-4**	52.90
For use with 52-479-3		
Repair Kit	**52-489-2**	$20.15
Rebuild Kit	**52-490-0**	111.25
Rep. Belts (10 pk.)	**52-491-8**	48.50


52-476-9

HAND TOOLS

Industrial Quality AIR TOOLS
Air Belt Sander
Ideal for deburring and polishing

- Lightweight.
- Rotates 360° for more efficient use.
- Muffled rear exhaust directs air away from work surface.
- Maximum RPM: 16,000.
- 1/4" inlet
- 90 psi.



51-042-0

BELT WIDTH	BELT LENGTH	HP	CFM	PART NUMBER	PRICE
3/4"	20 1/2"	0.45	4.0	**51-042-0**	$266.40

Jupiter Pneumatics universal air solutions
Versatility Belt Sander

- Features 2 interchangeable (1/4" & 1/2" wide x 24" long) contact arms, a normal abrasive belt and a surface prep belt.
- Ideal for deburring and polishing.
- Rotates 360°
- Front exhaust.
- Sanding track adjustable.
- Decibel rating: 84 dB(A)
- 4.2 CFM @ 90 PSI
- 20,000 max. RPM
- 1/4" air inlet.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**



52-492-6

DESCRIPTION	PART NO.	PRICE
Versatility Belt Sander	**52-492-6**	$440.20

Accessories

DESCRIPTION	PART NO.	PRICE
Rebuild Kit	**52-493-4**	$135.90
Repair Kit	**52-494-2**	30.20
1/4" x 24" Repl. Belt (120 Grit)	**63-664-7**	1.25
1/2" x 24" Repl. Belt (120 Grit)	**63-688-6**	1.35

Straight Air Screwdriver

- Length 7", weight 1.6 lbs.
- Heavy duty construction.
- Free speed 8,000 RPM, 90 PSI.
- 7 CFM average air cons.
- Reversible.
- Air inlet: 1/4" NPT.
- 1/4" Drive.



51-303-6

DESCRIPTION	PART NO.	PRICE
Straight Air Screwdriver	**51-303-6**	$57.65

Industrial Quality AIR TOOLS
Pistol Grip Screwdriver
Accepts all 1/4" hex screwdriver bits

- Reversible.
- Adjustable clutch heat treated for durability.
- Accepts up to 3/16" machine screws.
- 90 PSI



51-044-6

AIR INLET	RPM	CFM	MAX. TORQUE FT./LBS.	PART NUMBER	PRICE
1/4"	1800	4	30 - 70	**51-044-6**	$102.25



79-639-1

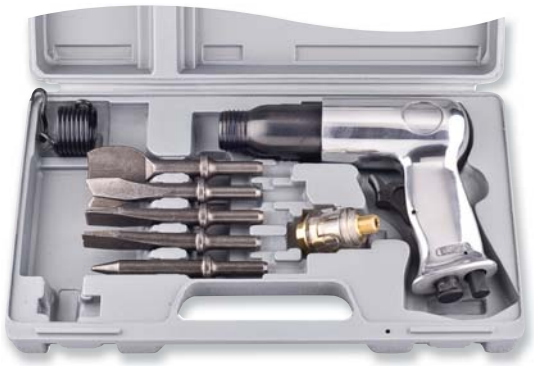
79-640-9

79-641-7

SIOUX
Pneumatic Hammers

- Spring retainer.
- Accepts 0.401" Parker Taper shanks.
- Hardened steel barrel and piston.
- Built-in air regulator.
- Aluminum housing.
- Bore dia.: 0.80"
- 1/4" NPT air inlet
- CFM: 4 @ 90 PSI

STROKE	LENGTH	BLOWS PER MIN.	PART NUMBER	PRICE
1.6"	5.8"	4,800	**79-639-1**	$104.40
2.6"	7.6"	3,200	**79-640-9**	123.50
3.8"	9.3"	2,200	**79-641-7**	144.10



51-821-7

Industrial Quality AIR TOOLS
Pneumatic Hammer Kit

- Shank Size: 0.401"
- BPM: 3,200
- CFM: 4 @ 90 PSI
- Length 6 3/4"
- Stroke Length 5 5/8"
- Weight: 3 1/2 Lbs.

Kit Includes:

- Pneumatic hammer
- Tapered punch
- Panel cutter
- Flat chisel
- Spot welder splitter
- Molded storage case

DESCRIPTION	PART NO.	PRICE
Pneumatic Hammer Kit	**51-821-7**	$76.55

Jupiter Pneumatics universal air solutions

Pneumatic Hammer & Accessories

Powerful and Precise Control for the Toughest Industrial Jobs

- Precise speed control maintained with positive action trigger.
- Extremely durable and designed for the most demanding MRO and manufacturing applications.
- Front exhaust.
- Bore size: 3/4"
- Stroke length: 2 5/8"
- BPM: 3,200
- 4 CFM @ 90 PSI
- **Repair Kits:** generally consist of wear parts such as o-rings, springs & spindles.



52-468-6

DESCRIPTION	PART NO.	PRICE
Pneumatic Hammer	**52-468-6**	$77.40

Accessories

DESCRIPTION	PART NO.	PRICE
4 Pc. Chisel Set	**52-469-4**	$19.05
Repair Kit	**52-470-2**	9.95
Zip Type Spring	**52-471-0**	12.00



51-232-7

Air Drill

- Ball bearing construction and lever actuated throttle for positive speed control.
- Variable Speed.
- Planetary gear reduction for smoother, quieter, vibration-free performance.
- Muffled rear exhaust reduces noise level.
- Air inlet 1/4" N.P.T.
- 0.50 horsepower
- Air pressure requirements: 90-120 PSI - 3/8" I.D. hose.
- Supplied with Jacobs type chuck and key.
- Not reversible.

GRIP	CHUCK SIZE	RPM	CFM	WT. LBS.	PART NUMBER	PRICE
Straight	3/8"	2600	14	2.2	**51-232-7**	$86.45



52-520-4

Jupiter Pneumatics universal air solutions

3/8" Reversible Angle Drill

- 90° angle head with an industrial keyed chuck.
- Built-in ergonomic comfort grip.
- Heavy-duty composite housing.
- Rear exhaust.
- Decibel rating: 85 dB(A)
- 3/8" – 24 spindle
- 0.35 horsepower
- 4 CFM @ 90 PSI
- 1,400 RPM
- 1/4" NPT air inlet.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
3/8" Reversible Angle Drill	**52-520-4**	$143.45

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-521-2**	$13.20
Rebuild Kit	**52-522-0**	48.75



52-517-0

Jupiter Pneumatics universal air solutions

1/4" Reversible Mini Drill

- Reversible with key chuck.
- Composite motor housing.
- Easily accessible forward and reverse switch for one-handed operation.
- Two-speed trigger with slower speed when pulled halfway.
- Compact size for ease of operator use.
- Planetary gear system with needle bearings.
- Patented silencer.
- Rear exhaust.
- Decibel rating: 84 dB(A)
- 0.3 horsepower
- 4 CFM @ 90 PSI
- 2,600 RPM
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
1/4" Reversible Mini Drill	**52-517-0**	$113.15

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-518-8**	$14.25
Rebuild Kit	**52-519-6**	42.50



52-415-7

Jupiter Pneumatics universal air solutions

1/2" Heavy-Duty Reversible Pistol Grip Air Drill

- Powerful and tough for precision drilling.
- Ergonomic design provides maximum comfort and easy operation.
- Comfort grip reduces vibrations.
- Great for production and maintenance applications.
- Decibel rating: 88 dB(A)
- 350 RPM
- Rear exhaust.
- 1/4" air inlet.
- 3/8" ID hose.
- 3/8" - 24 spindle thread.
- 0.50 horsepower
- 4 CFM @ 90 PSI
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
Pistol Grip Air Drill	**52-415-7**	$240.00
Repair Kit	**52-416-5**	9.90
Rebuild Kit	**52-417-3**	29.60

HAND TOOLS



52-450-4

Jupiter Pneumatics universal air solutions

3/8" Reversible Drill

- Ergonomic handle design with built-in comfort grip.
- Powerful and tough for most industrial drilling applications.
- Power and speed with an excellent power-to-weight ratio.
- Decibel rating: 88 dB(A)
- Rear exhaust.
- 3/8" keyed chuck.
- 1,800 RPM
- 1/4" air inlet.
- 90 PSI
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
3/8" Reversible Drill	**52-450-4**	$177.85
Repair Kit	**52-451-2**	9.90
Rebuild Kit	**52-452-0**	29.60



51-052-9

Industrial Quality AIR TOOLS

Pistol Grip Air Sheet Metal Shear

Head rotates for versitility

- Cuts up to 18 gage steel.
- OAL: 8 1/4".
- 1/4" air inlet.
- Hose ID: 3/8"
- Strokes per minute: 2,600.
- 4 CFM @ 90 PSI.

DESCRIPTION	PART NO.	PRICE
Pistol Grip Air Sheet Metal Shear	**51-052-9**	$139.55

Jupiter Pneumatics universal air solutions

Needle Scalers



52-433-0



52-434-8

- High performance scalers for various industrial applications.
- Consistent power in a balanced, ergonomic design.
- Ideal for surface prep and for removing paint, rust, dirt or weld slag.
- 19 needles per tool.
- Stroke length: 1 1/8"
- 1/4" shank.
- 1/4" NPT air inlet.
- 4 CFM @ 90PSI.
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	OAL	BPM	PART NO.	PRICE
Pistol Grip	12.4"	3000	**52-433-0**	$238.70
Straight Handle	15"	4600	**52-434-8**	201.85

Accessories

DESCRIPTION	PART NO.	PRICE
Pistol Grip Repair Kit	**52-435-5**	$13.00
Straight Handle Repair Kit	**52-436-3**	11.85
Pistol Grip Rebuild Kit	**52-437-1**	49.70
Straight Handle Rebuild Kit	**52-438-9**	35.50
Repl. Needles (19 pcs.)	**52-439-7**	22.95

Jupiter Pneumatics universal air solutions

Pull Type Nibbler



52-527-9

- Nibbles cold rolled steel, plastic, tin, aluminum and other metals up to 16 gauge.
- Front exhaust.
- Soft comfort grip.
- 4 CFM ™ 90 PSI
- 2600 RPM
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
Pull Type Nibber	**52-527-9**	$217.65

Accessories

DESCRIPTION	PART NO.	PRICE
Die	**52-528-7**	$37.30
Repl. Punch	**52-529-5**	21.40
Repair Kit	**52-530-3**	7.85
Rebuild Kit	**52-531-1**	12.25

Jupiter Pneumatics universal air solutions

Reciprocating Saw



52-532-9

- Ergonomic handle.
- Designed for heavy-duty use.
- Patented silencer.
- Decibel rating: 85 dB(A)
- Rear exhaust.
- Reduced vibration.
- 9,000 max. SPM
- 3/8" max. stroke length.
- 1/4" NPT air inlet.
- Air Hose ID: 3/8"
- 4 CFM @ 90 PSI
- 10,000 max. RPM
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
Reciprocating Saw	**52-532-9**	$178.50

Accessories

DESCRIPTION	PART NO.	PRICE
32 & 24 TPI Blades	**52-533-7**	$12.10
Repair Kit	**52-534-5**	8.60
Rebuild Kit	**52-535-2**	23.50

FLORIDA PNEUMATIC

Air File


65-838-5

- 1/4" stroke.
- Includes Flat, Round, Triangular and Bastard cut files.
- Great for tight access work and getting into corners.
- Length: 6 1/2"
- 1/4" air inlet
- Hose I.D.: 3/8"
- 4 CFM @ 90 psi

DESCRIPTION	PART NO.	PRICE
Air File	**65-838-5**	$254.15
Set of 4 Repl. Files	**65-839-3**	65.00


52-523-8


52-412-4

Jupiter Pneumatics universal air solutions

3" Cut-Off Tool

- High-speed tool cuts through steel panels and bolts.
- Safety lock-off lever prevents accidental start-ups
- Rear exhaust.
- Heavy-duty motor provides enough power for most industrial applications.
- Decibel rating: 80 dB(A)
- 7/16" – 20 spindle
- 4 CFM @ 90 PSI
- Air inlet: 1/4" NPT
- 22,000 RPM
- 3/8" collet
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
3" Cut-Off Tool	**52-523-8**	$84.40

Accessories

DESCRIPTION	PART NO.	PRICE
Guard	**52-524-6**	$14.85
Repair Kit	**52-525-3**	10.30
Rebuild Kit	**52-526-1**	22.60

Jupiter Pneumatics universal air solutions

3" Cut-Off Tool

- High speed tool cuts through steel panels, bolts and clamps.
- Lightweight for easy control and maximum comfort.
- Soft comfort grip.
- Regulator allows for quick RPM setting.
- Decibel rating: 79 dB(A)
- Rotating air inlet: 1/4"
- Rear exhaust.
- RPM: 20,000
- Horsepower: 0.5
- Wheel diameter: 3"
- Length: 8"
- 4 CFM @ 90 PSI
- Hose ID: 3/8"
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
3" Cut-Off Tool	**52-412-4**	$90.63
Repair Kit	**52-413-2**	13.10
Rebuild Kit	**52-414-0**	34.70


51-043-8

Industrial Quality AIR TOOLS

Air Cut-Off Tool

- Wheel Dia.: 3".
- Level throttle.
- Fixed spark guard made of steel.
- Rear exhaust.
- Ball bearing construction.
- Length: 8".
- 3/8" Arbor
- 3/8" NPT hose size

RPM	CFM	HP	PSI	PART NO.	PRICE
20,000	4	0.45	90	**51-043-8**	$51.35


52-392-8

Jupiter Pneumatics universal air solutions

2" Mini Angle Grinder

- Comfort grip.
- Side exhaust.
- Self-locking safety throttle lever.
- 4 CFM @ 90 PSI
- Air inlet: 1/4" NPT
- Hose ID: 3/8"
- RPM: 20,000
- Spindle size: 3/8" - 24
- Decibel rating: 81 dB(A)
- Length: 5 1/4"
- Wheel type: 27
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
2" Mini Angle Grinder	**52-392-8**	$157.00

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-410-8**	$14.80
Rebuild Kit	**52-411-6**	17.25

Wheels (3 per pkg.) 3/8" Holes

GRIT	PART NO.	PRICE
60	**52-395-1**	$17.80
80	**52-396-9**	17.80
120	**52-397-7**	17.80


51-296-2

4" Angle Grinder

- 4" disc
- 12,000 RPM
- Air inlet: 1/4"
- Hose ID: 3/8"
- 6 CMF @ 90 PSI
- Length: 9"
- Spindle size: 3/8 - 24
- Trigger lock.
- Front exhaust.

DESCRIPTION	PART NO.	PRICE
4" Angle Grinder	**51-296-2**	$152.85

HAND TOOLS

Jupiter Pneumatics universal air solutions

4½" Angle Grinder



52-398-5

- Standard aluminum handle with built-in comfort grip.
- Swivel guard adjustable to 9 positions.
- Decibel rating: 83 dB(A)
- 4 CFM @ 90 PSI
- Governor controlled to maintain grinding speed.
- Excellent for continuous heavy-duty grinding.
- 10,000 RPM
- Wheel type: 27
- Switch type: self-locking.
- Rear exhaust.
- Spindle size: 5/8" - 11
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
4½" Angle Grinder	**52-398-5**	$250.80
Repair Kit	**52-399-3**	29.00
Rebuild Kit	**52-400-9**	91.00



52-472-8

Jupiter Pneumatics universal air solutions

7" Right Angle Grinder

- Safety throttle lever lock-out prevents accidental start-up.
- Built-in governor maintains optimum operating speed.
- Heavy-duty construction.
- Front exhaust.
- Side handle.
- Ideal for grinding, cleaning or smoothing in addition to material removal.
- 5/8"-11 spindle.
- 4 CFM @ 90 PSI
- 8,400 RPM
- **Repair Kits** generally consist of wear parts such as o-rings, springs & veins.
- **Rebuild Kits** generally consist of major parts such as bearings, gears & spindles.
- When **rebuilding** air tools, it is good practice to use all of the new parts from **both** the **Rebuild Kit** and the **Repair Kit.**

DESCRIPTION	PART NO.	PRICE
7" Right Angle Grinder	**52-472-8**	$560.80

Accessories

DESCRIPTION	PART NO.	PRICE
Repair Kit	**52-473-6**	$28.50
Rebuild Kit	**52-474-4**	78.80
7" Guard	**52-475-1**	31.50

Jupiter Pneumatics universal air solutions

Zero Gravity Tool Balancers

Heavy-Duty

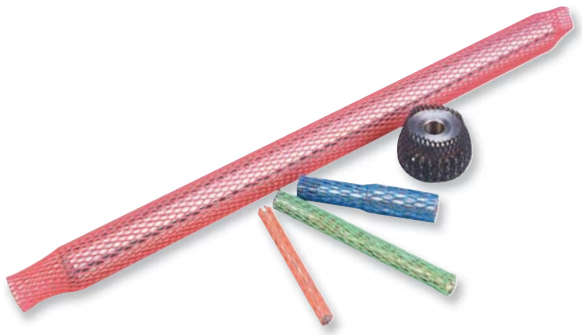


67-434-1



- Load remains wherever positioned.
- Rugged metal housing.
- Hardened worm gear assembly for exact balance adjustment eliminating instant spring release.
- External drum lock allowing suspended loads to be changed safely.
- Tapered cable drum makes the load virtually weightless throughout the entire cable travel.
- No special tools required.

LOAD CAPACITY (LBS.) MIN.	MAX.	WORKING TRAVEL (FT.)	WEIGHT (LBS.)	PART NUMBER	PRICE
48.4	66.0	5.0'	17.0	**67-434-1**	$666.95
66.0	88.0	5.0'	22.0	**67-435-8**	821.55
88.0	110.0	5.0'	23.0	**67-436-6**	848.10
110.0	132.0	5.0'	26.0	**67-437-4**	907.55
132.0	154.0	5.0'	26.0	**67-438-2**	950.55



Flexible Polyethylene Mesh Protective Non-Elastic Sleeving

Furnished in 36" Lengths

- Flexible diamond pattern mesh sleeving shields shafts and machined parts.
- Polyethylene material resists abrasion and withstands most chemicals and solvents.
- Mesh is easily cut with scissors.

TO FIT DIA. MIN.	MAX.	COLOR	PART NUMBER	PRICE
1/4"	3/8"	Orange	**55-548-2**	$1.20
3/8"	3/4"	Green	**55-549-0**	1.15
1/2"	1"	Blue	**55-550-8**	1.15
1"	1½"	Red	**55-551-6**	1.95
1½"	2"	Black	**55-552-4**	3.30
2"	2½"	White	**55-553-2**	4.25
2½"	3"	Yellow	**55-554-0**	4.85
3"	4"	Green	**55-555-7**	6.05
4"	5"	Orange	**55-556-5**	7.50
5"	6"	Natural	**55-557-3**	7.40
6¼"	7½"	Blue	**55-558-1**	9.60
7½"	9"	Red	**55-559-9**	13.30
9"	10"	Yellow	**55-560-7**	13.95



62-000-5

Ground Ship ONLY

CEDARBERG

Opti-Arm with Magnetic Base

An Extra Arm When and Where You Need It

- Great organizer for machinists.
- Blueprint holder at machine.
- Convenient for plans and memos
- Ideal for manufacturing instructions on assembly line.
- Magnetic base holds firmly in position.
- Easy adjustable 12" arm made of 1/2" Snap-Loc® systems.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Opti-Arm with Magnetic Base	**62-000-5**	$42.90

FLEXBAR

Universal Spring Winder

Make Your Own Perfect Springs

- Make tension or compression springs, electrical coils of any length or inside diameter quickly and simply without the expense of setting up expensive machinery.
- Applicable on wire up to 3/16" thick.
- Distances between the separate turns of the spring can be reliably pre-selected and fixed.



98-733-9

DESCRIPTION	PART NO.	PRICE
Universal Spring Winder	**98-733-9**	$113.85



96-249-8

GENERAL®

Cotter Pin Puller

Ideal for Use in Confined Work Areas

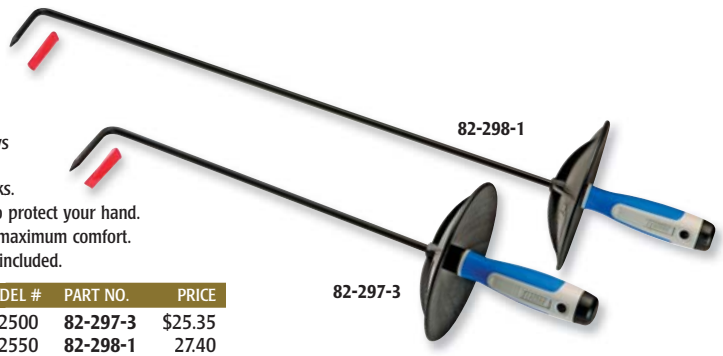
- Compound bend design allows user to extract cotter pins with either a pull or twist motion.
- Made of heat treated high carbon steel.
- Heavy-duty plastic handle with a comfortable grip.
- Overall length: 7 1/2"

DESCRIPTION	PART NO.	PRICE
Cotter Pin Puller	**96-249-8**	$9.05

NOGA
SIMPLY SOPHISTICATED

Chip Hooks

- For removing chips and cleaning chip trays on your machines.
- Black finish steel hooks.
- Includes 5.1" guard to protect your hand.
- NogaGrip handle for maximum comfort.
- Plastic protective cap included.



82-298-1

82-297-3

DESCRIPTION	MODEL #	PART NO.	PRICE
16.9" Chip Hook	SP2500	**82-297-3**	$25.35
23.6" Chip Hook	SP2550	**82-298-1**	27.40



77-020-6

SHOP GRADE

Chipmaster

The Quick Safe Way to Remove Chips

- Safely removes dangerous sharp, stringy chips and cuttings from lathes, mills and drill presses without injury to hands and fingers.
- Made with a tough, hardened spring steel blade and durable plastic handle.
- Overall length: 12"

DESCRIPTION	PART NO.	PRICE
Chipmaster	**77-020-6**	$9.10

Industrial Quality Tack Claw

- Hardened steel blade has tempered steel claw.
- Tough handle has full size grip with deep flutes.
- Overall length: 7 3/8"



51-450-5

DESCRIPTION	PART NO.	PRICE
Tack Claw	**51-450-5**	$6.15



57-075-4



57-076-2

Ratch-Cut Ratcheting Tube Cutters

- Cuts copper, brass, aluminum, stainless steel, plastic and PVC.
- Designed for work in tight spaces.

DESCRIPTION	CAPACITY	PART NO.	PRICE
4" Tube Cutter	1/8 – 3/8"	**57-075-4**	$59.75
7" Tube Cutter	5/16 –1 1/8"	**57-076-2**	65.65
2 Pc. Spare Cutting Wheel for 4" Cutter		**57-077-0**	22.35
2 Pc. Spare Cutting Wheel for 7" Cutter		**57-078-8**	22.35



95-106-1

GENERAL®

Precision Oiler

For Technicians, Contractors, Hobbyists and DIY'ers

- For the exact placement of oil or any other lubricant.
- Smooth actuator allows for greater control and placement of lubricant.
- Generous reservoir.
- Protective screw-on cover prevents leakage.
- All aluminum construction.
- Convenient pocket clip.
- For use with lubricants only.
- Overall length: 5 5/8"

DESCRIPTION	PART NO.	PRICE
Precision Oiler	**95-106-1**	$13.15

HAND TOOLS

VAUGHAN® Steel Eagle® Hammers
Straight Claw


96-829-7

- Polished head with octagon neck and round face.
- Forged steel from head to heel.
- Shock-Blok™ plug in head absorbs shock.
- Air-cushioned, slip-resistant grip.
- Extra large striking face for surer strikes.

HEAD WT./OZ.	LENGTH	PART NUMBER	PRICE
16	12 3/4"	**96-828-9**	$35.40
22	14"	**96-829-7**	42.60
22	16"	**96-830-5**	49.30

VAUGHAN® Fiberglass Hammers


96-827-1

- Polished striking head, sides and claw.
- Steel wedged, epoxy sealed assembly.
- Slip-resistant grip, contoured comfort.
- Hollow core fiberglass handle provides balance and strength, absorbs shock.
- **"999" Straight Claw** hammer has a high impact overstrike guard.
- **Electrician's Straight Claw** hammer has an extra long pole for striking inside electrical junction boxes.

DESCRIPTION	HEAD WT./OZ	LENGTH	PART NUMBER	PRICE
"999" Straight Claw Hammer	16	13"	**96-119-3**	$31.50
Electrician's Straight Claw® Hammer	18	14"	**96-827-1**	31.95

VAUGHAN® Fiberglass Handle Ball Pein Hammers


96-125-0

- Highly polished striking head, cheeks and pein.
- Vaughan's exclusive, hollow-core fiberglass provides better balance and more effective shock absorption than solid fiberglass handles.
- Steel wedged and epoxy sealed adze eye assembly.
- Slip resistant grip.

LENGTH	WEIGHT	PART NO.	PRICE
12"	8 oz.	**96-123-5**	$27.65
13"	12 oz.	**96-124-3**	30.75
13"	16 oz.	**96-125-0**	32.30
15"	24 oz.	**96-126-8**	34.60
15"	32 oz.	**96-127-6**	37.35

PROTO® AntiVibe® Ball Pein Hammers


98-652-1

- Patented AntiVibe® technology delivers greater vibration dampering effect than traditional one-piece steel hammer.
- Molded textured rubber grip provides a slip resistant grip and increase control.
- Rim tempered striking surface adds extra durability and safety.

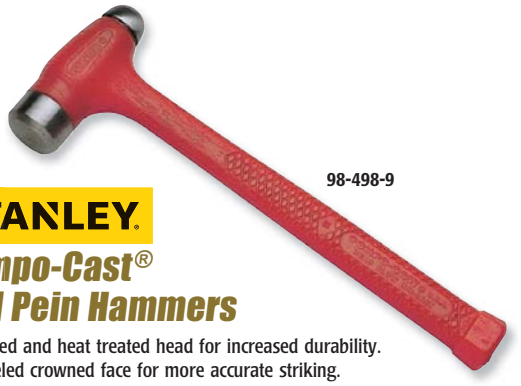
HEAD WT./OZ.	OVERALL LENGTH	PROTO® MODEL #	PART NUMBER	PRICE
4	10"	J1304AVP	**98-642-2**	$26.10
8	11"	J1308AVP	**98-643-0**	28.35
12	12 1/8"	J1312AVP	**98-644-8**	30.85
16	12 7/8"	J1316AVP	**98-548-1**	32.65
24	13 25/32"	J1324AVP	**98-652-1**	35.55
32	14 3/4"	J1332AVP	**98-549-9**	38.70
40	15 15/64"	J1340AVP	**98-653-9**	41.80
48	15 3/4"	J1348AVP	**98-654-7**	45.10


57-274-3

Ball Pein Set

- Drop forged head, fiberglass handle and rubber grip.
- Sizes: 8 oz., 12oz., 16 oz., 24 oz. and 32 oz.

DESCRIPTION	PART NO.	PRICE
5 Pc. Ball Pein Hammer Set	**57-274-3**	$45.90


98-498-9

STANLEY® Compo-Cast® Ball Pein Hammers

- Forged and heat treated head for increased durability.
- Beveled crowned face for more accurate striking.
- Handle is steel reinforced and covered with urethane.
- Dead blow function uses steel shot to eliminate bounce back.

OVERALL LENGTH	HEAD WT./OZ.	STANLEY® MODEL #	PART NUMBER	PRICE
12 7/8"	24	54-524	**98-498-9**	$59.60
13 5/8"	32	54-532	**98-464-1**	68.75

NUPLA® Handi-Hammer® Power Drive® Handless Dead Blow Hammer
Fits in Your Pocket or Tool Box



70-617-6

- The power of a dead blow for tight spaces or small jobs.
- One steel face and non-marring plastic face.
- Weight: 14 oz.

DESCRIPTION	PART NO.	PRICE
Handi-Hammer® Handless Dead Blow Hammer	**70-617-6**	$21.55

Dead Blow Nylon Hammers

- These Dead Blow Nylon Hammers feature a hollow hammer head filled with thousands of tiny steel balls.
- The inertia of the individual pieces provides a bounce-free, 100% impact.
- Mar-resistant, comfortable to use.
- Easily replaceable nylon head inserts.



Heavy Duty Rubber Grip Models

FACE DIA.	LENGTH	WEIGHT	PART NO.	PRICE
1 3/16"	11 3/8"	21 oz.	**98-500-2**	$50.55
1 3/8"	11 9/16"	24 oz.	**98-501-0**	52.75
1 3/4"	12"	33 oz.	**98-502-8**	69.65
2"	12 3/16"	41 oz.	**98-503-6**	77.10

Hickory Handled Models

FACE DIA.	LENGTH	WEIGHT	PART NO.	PRICE
3/4"	11 3/4"	9 oz.	**98-510-1**	$40.50
1"	12"	11 oz.	**98-511-9**	42.00
1 3/16"	12 15/16"	16 oz.	**98-512-7**	42.85
1 3/8"	13 3/16"	20 oz.	**98-513-5**	47.25
1 9/16"	14 1/8"	25 oz.	**98-514-3**	54.15
2"	14 1/2"	35 oz.	**98-515-0**	68.30
Repl. Hickory Handle F/98-510/511			**98-507-7**	$6.95
Repl. Hickory Handle F/98-512/513			**98-508-5**	8.00
Repl. Hickory Handle F/98-514/515			**98-509-3**	9.80

Replacement Nylon Inserts (Press-Fit) - Price Each

FACE DIA.	PART NO.	PRICE
3/4"	**98-540-8**	$4.15
1"	**98-541-6**	5.10
1 3/16"	**98-542-4**	6.20
1 3/8"	**98-544-0**	7.95
1 9/16"	**98-545-7**	8.65
1 3/4"	**98-546-5**	9.35
2"	**98-547-3**	11.85



No-Mar True Safety Hammers

- Polyurethane heads are virtually indestructible and have only minimal bounce without steel counter weights.
- No sparking bright orange head, molded on fiberglass handle with comfortable rubber grip.

FACE DIA.	LENGTH	WEIGHT	PART NO.	PRICE
1 5/8"	11 1/2"	10 oz.	**97-340-4**	$32.90
2 5/16"	15 1/4"	22 oz.	**97-342-0**	55.45
2 3/4"	15 1/4"	30 oz.	**97-343-8**	68.30



STANLEY

Dead Blow Soft Face Hammers

- **Eliminates Sparking-** hammers are made with non-ferrous materials.
- **Eliminates bounce back-** when striking hardened surfaces.
- **Bright Orange Urethane Composition-** provides shape retaining memory even after repeated striking on hard surfaces and sharp edges.
- **Soft Face-** yields which helps prevent marring and does not absorb liquids.
- **Handle-** made of reinforced steel rod for extra strength and safety.
- **Hammer-** head contains hundreds of metal shot.
- Secure and comfortable grip.

Standard Models

FACE DIA.	OVERALL LENGTH	HEAD WT./OZ.	STANLEY® MODEL #	PART NUMBER	PRICE
1 13/64"	10 1/8"	10	57-530	**98-522-6**	$24.25
1 39/64"	11 1/4"	18	57-531	**98-493-0**	30.50
1 51/64"	12 7/8"	21	57-532	**98-494-8**	35.50
2 7/64"	14 1/4"	42	57-533	**98-495-5**	50.05
2 33/64"	15 1/4"	52	57-534	**98-523-4**	69.05

Slimline Models

- Unique profile for assembly and repair applications in confined areas.

FACE DIA.	OVERALL LENGTH	HEAD WT./OZ.	STANLEY® MODEL #	PART NUMBER	PRICE
57/64"	9 3/8"	5	57-540	**98-490-6**	$22.60
1 19/64"	10 9/16"	14	57-541	**98-499-7**	28.50
1 33/64"	12 1/8"	18	57-542	**98-491-4**	30.75
1 17/32"	12 7/8"	21	57-543	**98-492-2**	37.95



No-Mar Hammers with Replaceable Plastic Screw-In Tips

- Machined Aluminum or Zinc head, precision balanced.
- Select hardwood handle.

PART NO.	ALU HEAD 98-640-6	ZINC HEAD 98-641-4	ALU HEAD 98-650-5	ZINC HEAD 98-651-3	ALU HEAD 98-660-4	ZINC HEAD 98-661-2
Head diameter	1"	1"	1 1/2"	1 1/2"	2"	2"
Head length w/tips	3 1/2"	3 1/2"	4 1/2"	4 1/2"	5"	5"
Handle length	11"	11"	11"	11"	14"	14"
Approx. wt. w/tips	5 oz.	8 oz.	1 lb.	1 1/4 lb.	1 1/2 lb.	2 lb.
WITH GREEN AND RED TIPS	$25.00	$28.00	$30.45	$32.00	$42.10	$47.60

Interchangeable Tips • For Both Hammer Styles Above

	PART NO.	PER TIP	PART NO.	PER TIP	PART NO.	PER TIP
Green (Tough)	**98-645-5**	$5.00	**98-655-4**	$6.15	**98-665-3**	$8.90
Red (Medium)	**98-646-3**	5.00	**98-656-2**	6.15	**98-666-1**	8.90
Brown (Soft)	**98-647-1**	5.00	**98-657-0**	6.15	**98-667-9**	8.90
Cream (Med. Hard)*	**98-648-9**	5.75	**98-658-8**	8.60	**98-668-7**	13.10
Black (Hard)*	–	–	**98-659-6**	8.60	**98-669-5**	12.85

*Nylon



No-Mar Hammers with Replaceable Polyurethane Press-On Tips

- Machined steel head, precision balanced.
- Select hardwood handle.
- Deep wedge design.

HEAD DIA.	HEAD LENGTH	HANDLE LENGTH	APPROX. WEIGHT	PART NUMBER	PRICE	TIPS ONLY PART NO.	PRICE PER TIP
5/8"	2 1/4"	8"	3 3/4 oz.	**98-620-8**	$21.35	**98-630-7**	$5.85
3/4"	2 1/2"	10"	4 1/2 oz.	**98-621-6**	23.40	**98-631-5**	6.45
7/8"	3"	11"	5 1/2 oz.	**98-622-4**	24.20	**98-632-3**	6.80
1"	3 1/4"	11"	1/2 lb.	**98-623-2**	26.30	**98-633-1**	8.35
1 1/4"	3 3/4"	13"	3/4 lb.	**98-624-0**	31.50	**98-634-9**	9.85
1 3/8"	4 1/8"	13"	1 lb.	**98-625-7**	36.75	**98-635-6**	12.65
1 1/2"	4"	13"	1 1/4 lb.	**98-626-5**	48.30	**98-636-4**	14.30
2"	4"	13"	2 lb.	**98-627-3**	56.65	**98-637-2**	18.90

HAND TOOLS



No-Mar Brass Hammers

- Head will not chip or crack.
- Perfect balance.
- Select hardwood handle.

FACE DIAMETER	APPROX. WEIGHT	HANDLE LENGTH	BRASS PART NO.	PRICE
7/8"	8 oz.	11"	**98-680-2**	$20.60
1"	1 lb.	12"	**98-681-0**	24.35
1 1/4"	1 1/2 lb.	12"	**98-682-8**	38.70
1 1/4"	2 lb.	13"	**98-683-6**	32.75
1 1/2"	3 lb.	14"	**98-684-4**	57.35
1 3/4"	4 lb.	15"	**98-685-1**	53.80
1 7/8"	5 lb.	15"	**98-686-9**	92.00

No-Mar Brass Hammers

- Head will not chip or crack.
- Fiberglass handle with rubber grip.
- Perfect balance.

FACE DIAMETER	APPROX. WEIGHT	HANDLE LENGTH	BRASS PART NO.	PRICE
7/8"	8 oz.	11"	**97-360-2**	$27.20
1"	1 lb.	12"	**97-361-0**	38.70
1 1/4"	1 1/2 lb.	12"	**97-362-8**	48.40
1 1/4"	2 lb.	13"	**97-363-6**	44.90
1 1/2"	3 lb.	14"	**97-364-4**	72.95

No-Mar Lead Hammers

- Genuine 4% Antimonium lead head.
- Steel handle with locking pin.
- Vinyl grip.

FACE DIAMETER	HEAD LENGTH	APPROX. WEIGHT	HANDLE LENGTH	PART NUMBER	PRICE
3/4"	2 5/8"	1 lb.	9"	**98-690-1**	$18.55
1 1/8"	2 5/8"	2 lb.	10"	**98-691-9**	20.10
1 9/16"	3 1/8"	3 lb.	10"	**98-692-7**	21.20
1 5/8"	3 3/4"	5 lb.	10"	**98-693-5**	28.00



No-Mar Hammers

with Replaceable Polyurethane Press-On Tips

- Machined steel head, precision balanced.
- Deep wedge design.
- Fiberglass handle with rubber grip.

HEAD DIA.	HEAD LENGTH	HANDLE LENGTH	APPROX. WEIGHT	PART NUMBER	PRICE	TIPS ONLY PART NO.	PRICE PER TIP
5/8"	2 1/4"	8"	3 3/4 oz.	**97-370-1**	$23.10	**98-630-7**	$5.85
3/4"	2 1/2"	10"	4 1/2 oz.	**97-371-9**	24.95	**98-631-5**	6.45
1"	3 1/4"	11"	1/2 lb.	**97-372-7**	30.25	**98-633-1**	8.35
1 1/4"	3 3/4"	13"	3/4 lb.	**97-373-5**	35.50	**98-634-9**	9.85
1 1/2"	4"	13"	1 1/4 lb.	**97-374-3**	51.90	**98-636-4**	14.30



Plastic Tipped Hammers

- Complete with 2 Pyralin tips.
- Will not mar metal or plated finish.
- Solid plastic & long wearing tips.
- Zinc alloy head threaded for easy tip replacement.
- Second growth hickory handle.
- Safe non-sparking, non-magnetic, shock proof.

Hammer with 2 Tips

FACE DIA.	LENGTH	WEIGHT	PART NUMBER	PRICE	TIPS ONLY PART NO.	PRICE PER TIP
3/4"	10 1/2"	4 oz.	**61-247-3**	$14.95	**61-253-1**	$3.40
7/8"	11 1/2"	5 oz.	**61-248-1**	15.90	**61-254-9**	4.15
1"	11 1/2"	6 oz.	**61-249-9**	17.60	**61-255-6**	4.15
1 1/4"	11 1/2"	12 oz.	**61-250-7**	23.40	**61-256-4**	5.95
1"	11 1/2"	16 oz.	**61-251-5**	28.30	**61-257-2**	7.95
2"	13"	32 oz.	**61-252-3**	56.95	**61-258-0**	17.60

LIXIE®

Dead Blow Mallets

With Hickory Safety Handle



66-481-3

- Hollow head partially filled with iron shot that moves forward toward struck surface on impact, dampening rebound and insuring optimal blow transfer.
- Unique grooved hickory handles provide comfort and safe grip regardless of oil or perspiring hands.
- Mallets are constructed from malleable iron or spark-resistant high-tensile aluminum.
- Furnished with one each medium and hard face.

Malleable Iron - Standard

FACE DIA.	OVERALL LENGTH	HEAD WT./OZ.	PART NUMBER	PRICE
1"	11"	14	**66-475-5**	$47.70
1 1/4"	12"	22	**66-476-3**	53.85
1 1/2"	13"	30	**66-477-1**	63.80
2"	15"	56	**66-478-9**	87.05
2 1/2"	17"	100	**66-479-7**	142.90
3"	19"	168	**66-480-5**	209.20

High Tensile Aluminum - Shock Proof

FACE DIA.	OVERALL LENGTH	HEAD WT./OZ.	PART NUMBER	PRICE
1"	11"	10	**66-481-3**	$49.20
1 1/4"	12"	14	**66-482-1**	54.50
1 1/2"	13"	22	**66-483-9**	64.20
2"	15"	38	**66-484-7**	90.45
2 1/2"	17"	66	**66-485-4**	154.75
3"	19"	116	**66-486-2**	214.25



66-487-0

Replacement Faces - Standard

- Face screws are molded and held in the urethane by a special vane-type head.
- Conforms to Federal Spec. GGG-H-33A.

FACE DIA.	SOFT (ORANGE/BROWN) PART NO.	PRICE PER TIP	MEDIUM (GREEN) PART NO.	PRICE PER TIP	TOUGH (RED) PART NO.	PRICE PER TIP	HARD (BLACK) PART NO.	PRICE PER TIP
1"	**66-487-0**	$10.25	**66-493-8**	$10.25	**66-499-5**	$10.25	**66-505-9**	$14.10
1 1/4"	**66-488-8**	11.70	**66-494-6**	11.70	**66-500-0**	11.70	**66-506-7**	15.65
1 1/2"	**66-489-6**	14.80	**66-495-3**	14.80	**66-501-8**	14.80	**66-507-5**	20.00
2"	**66-490-4**	20.65	**66-496-1**	20.65	**66-502-6**	20.65	**66-508-3**	29.00
2 1/2"	**66-491-2**	36.05	**66-497-9**	36.05	**66-503-4**	36.05	**66-509-1**	50.60
3"	**66-492-0**	50.60	**66-498-7**	50.60	**66-504-2**	50.60	**66-510-9**	72.45

No-Mar Hammers
with Replaceable Plastic Screw-In Tips



- Machined Aluminum or Zinc head, precision balanced.
- Fiberglass handle with rubber grip.

PART NO.	ALU HEAD 97-380-0	ALU HEAD 97-384-2	ZINC HEAD 97-385-9	ALU HEAD 97-388-3	ZINC HEAD 97-389-1
Head diameter	1"	1 1/2"	1 1/2"	2"	2"
Head length w/tip	3 1/2"	4 1/2"	4 1/2"	5"	5"
Handle length	11"	11"	11"	14"	14"
Approx. wt. w/tips	5 oz.	1 lb.	1 1/4 lb.	1 1/2"	2 lb.
WITH GREEN AND RED TIPS	$28.30	$35.70	$39.60	$46.95	$51.55

INTERCHANGEABLE TIPS – SEE PAGE 389

Hammers Non-Spark, Non-Rebound



- Non-sparking, soft face encased in urethane.
- Will not mark surfaces.
- Controlled striking force without rebound.

FACE DIA.	HEAD LENGTH	OVERALL LENGTH	WEIGHT (LBS.)	PART NUMBER	PRICE
1 1/4"	3 3/8"	10 5/8"	0.6	**57-061-4**	$17.15
1 7/16"	3 1/2"	11"	1.0	**57-041-6**	20.60
1 3/4"	4"	12"	1.6	**57-042-4**	27.40
2 3/16"	4 1/2"	13 9/16"	2.2	**57-043-2**	31.70
2 3/8"	4 3/4"	14 3/4"	3.0	**57-045-7**	40.25
2 9/16"	5 7/16"	15 1/8"	3.6	**57-044-0**	49.70

ABBOTT
WORKHOLDING PRODUCTS

Aluminum Hammers
Perfect Alternative to Lead, Brass and Plastic Tipped Hammers

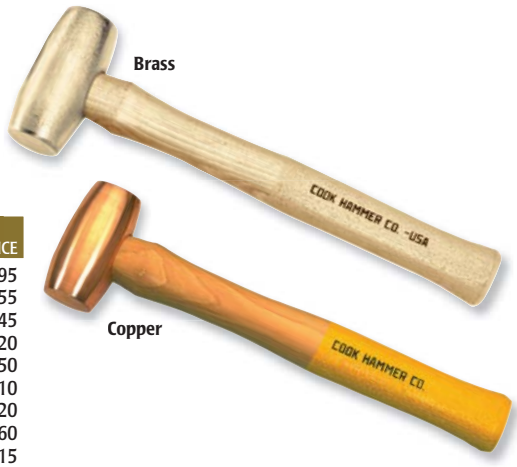


- Single piece cast construction gives maximum solidity and safety because head can't separate from handle.
- Non-sparking, non-marring and have excellent vibration dampening characteristics.
- #0 - #2 hammers are made from certified pure A100 aluminum. #5 is made from A713 Tenzaloy aluminum alloy, the perfect choice for heavy work where a more durable and forceful hammer is preferred.

FACE SIZE	LENGTH	WEIGHT (LBS.)	PART NUMBER	PRICE
1" x 1 5/8"	12"	1.4	**70-707-5**	$27.25
1 5/8" dia.	12"	1.8	**70-708-3**	31.70
2" dia.	13"	3.3	**70-709-1**	55.45
4" dia.	22"	9.1	**70-710-9**	129.60

COOK
HAMMER COMPANY INC.

Non-Sparking Hammers



- Non-marring.
- Premium hickory handle.
- Non-slip safety grip with lock pin head.
- Available in brass or copper.

WEIGHT (LBS.)	BRASS PART NO.	PRICE	COPPER PART NO.	PRICE
1/2	**96-732-3**	$49.15	**96-741-4**	$41.95
1	**96-733-1**	51.50	**96-742-2**	52.55
1 1/2	**96-734-9**	59.55	**96-743-0**	57.45
2	**96-735-6**	64.40	**96-744-8**	66.20
3	**96-736-4**	77.75	**96-745-5**	89.50
4	**96-737-2**	99.75	**96-746-3**	102.10
5	**96-738-0**	120.85	**96-747-1**	118.20
6	**96-739-8**	145.90	**96-730-7**	118.60
10	**96-740-6**	253.75	**96-731-5**	248.15



VAUGHAN®

Super-Plastic Mallets

- High density polyethylene heads.
- High impact and abrasion resistance.
- Will not fracture or delaminate.
- Handles are top quality hardwood.

FACE DIA.	WEIGHT (OZ.)	OAL	PART NUMBER	PRICE
1 3/4"	7 3/4"	12"	**96-243-1**	$27.87
2"	10 3/4"	12"	**96-244-9**	31.37



Garland

Wooden Mallets

- Wooden mallets feature precision-turned, hardwood heads, and are perfect for both craftsman and production woodworkers.
- Hickory head and handle.

FACE DIA.	WEIGHT (OZ.)	PART NUMBER	PRICE
2 1/4"	14	**60-089-0**	$44.05
2 1/2"	19	**60-090-8**	53.35
2 3/4"	22	**60-091-6**	62.00
3"	27	**60-092-4**	64.70



Garland

Gar-Dur™ Plastic Mallets

- Heads are made from ultra-high-molecular-weight plastic.
- The nonporous material is tough and easy to clean.
- Hickory handle.

FACE DIA.	WEIGHT (OZ.)	PART NUMBER	PRICE
1 1/4"	4	**60-093-2**	$21.65
1 1/2"	6	**60-094-0**	24.40
1 3/4"	9	**60-095-7**	31.95
2 1/8"	14	**60-096-5**	32.10
2 1/2"	19	**60-097-3**	41.10
2 3/4"	24	**60-098-1**	46.10
3"	30	**60-099-9**	53.20

HAND TOOLS





Garland

Rawhide & Weighted Rawhide Mallets

- Made of tough, long-wearing, water buffalo rawhide.
- Ideal for use on broad-faced striking surfaces in a broad range of applications.

Weighted Rawhide Mallets

- Lead loaded core for maximum impact.
- Quality hickory handle.

FACE DIA.	WEIGHT (OZ.)	STANDARD HEAD PART NO.	PRICE	WEIGHT (OZ.)	WEIGHTED HEAD PART NO.	PRICE
1"	2	**60-077-5**	$29.95	–	–	–
1 1/4"	4	**60-078-3**	31.95	8	**60-084-1**	$54.90
1 1/2"	6	**60-079-1**	37.70	12	**60-085-8**	60.25
1 3/4"	9	**60-080-9**	47.20	16	**60-086-6**	66.95
2"	11	**60-081-7**	55.40	20	**60-087-4**	87.80
2 3/4"	22	**60-082-5**	99.25	40	**60-088-2**	142.40
2 3/4"	24	**60-083-3**	107.85	–	–	–

CHANNELLOCK

Wiring Tool

- Multi-purpose wiring tool:
  - Long nose plier
  - Wire stripper
  - Wire cutter
  - Screw cutter
  - Crimper
- Precision made wire stripper removes insulation without damaging conductor.
- Wire sizes:
  - AWG: 10, 12, 14, 16, 18, 20 & 22.
  - MM: .80, 1.0, 1.3, 1.6, 2.0 & 2.6.
- Cuts machine bolts without damaging threads.
- Bolt sizes: 4-40, 5-40, 6-32, 8-32, 10-32 & 10-24.
- Crimps both insulated and non-insulated connections.
- Scissor type blades are precision ground and heat treated to hold their edge. 8 1/4" overall length.
- Low profile plier-nose pulls wire, loops wire ends, loosens and tightens small nuts.
- Channellock® model #908.

DESCRIPTION	PART NO.	PRICE
Channellock® Wiring Tool	**62-321-5**	$28.25



Letter/Number Stamp Sets

- 36 pc. set includes: A-Z, 0-9.

DESCRIPTION	PART NO.	PRICE
1/8" Letter/Number Set	**51-835-7**	$27.20
1/4" Letter/Number Set	**51-836-5**	39.95



VAUGHAN®

Machinist's Hammers







Solid Rubber Mallets

- Specially compounded, quality rubber for high impact strength and long life.
- Head securely mounted on hardwood handle.

HEAD	DIA. FACE	WEIGHT	LENGTH	PART NO.	PRICE
Black	2 1/4"	1 1/4 lbs.	10 5/8"	**96-793-5**	$19.70
White	2 1/4"	1 1/4 lbs.	10 5/8"	**96-794-3**	23.50

Soft-Face Hammer

- Forged steel head lends force to blows.
- Supplied with two faces - soft (red) and hard (yellow).
- Flame treated hickory handle.

DIA. FACE	WEIGHT	LENGTH	PART NO.	PRICE
1 3/8"	12 oz.	12 1/2"	**96-796-8**	$24.70

Replacement Tips

FOR HAMMER	PART NO.	PRICE
Yellow, Hard (96-796-8)	**96-799-2**	$3.50
Red, Soft (96-796-8)	**96-800-8**	3.35

Copper/Rawhide Hammers

- Dual purpose hammers will provide either the high impact of copper or the resilience of compressed rawhide.
- Malleable iron heads have tapered socket walls to help ensure a secure press fit for the replaceable faces.
- Handles are top quality hardwood.

DIA. FACE	WEIGHT	LENGTH	PART NO.	PRICE
1 1/4"	1 1/2 lbs.	10 3/4"	**96-789-3**	$40.70
1 1/2"	2 1/2 lbs.	12"	**96-790-1**	53.70
1 3/4"	3 1/2 lbs.	12"	**96-791-9**	64.75

Replacement Tips

FOR HAMMER	PART NO.	PRICE
Rawhide (96-789-3)	**96-801-6**	$9.20
Rawhide (96-790-1)	**96-803-2**	11.70
Rawhide (96-791-9)	**96-817-2**	13.90



Machinists Hammer

- Polished round head with flat striking face and rounded cross peen.
- Selected flame treated hickory handle is "Sure-Lock" wedged to head.

DIA. FACE	WEIGHT	LENGTH	PART NO.	PRICE
3/4"	12 oz.	13"	**96-792-7**	$28.20


55-864-3

KLEIN TOOLS

Adjustable Wire Stripper/Cutter

Solid and Stranded Wire

- Convenient hole for looping and bending wire.
- Cuts, strips and loops 12 – 26 AWG.
- Spring-loaded action for self-opening.
- Adjustable slide stop with set screw for repeat stripping work.
- Black-oxide finish.
- Yellow plastic dipped handles.
- OAL: 5"

DESCRIPTION	PART NO.	PRICE
Adjustable Wire Stripper/Cutter	**55-864-3**	$14.25

KLEIN TOOLS

Klein-Kurve® Wire Strippers

Klein-Kurve® can cut, strip, loop and gauge both stranded and solid wire.

- Precision ground stripping holes.
- Strong-gripping serrated nose for easy bending, shaping and pulling of wire.
- Holes for looping and bending wire.
- Cleanly shears 6 – 32 and 8 – 32 screws.
- Easy-to-read markings.
- Handy closure lock for convenient storage.
- Double dipped Klein-Kurve® comfort grips.



55-858-5

TYPE	STRIPS & CUTS	OAL	HANDLE COLOR	PART NO.	PRICE
Wire Stripper/Cutter Stranded Wire	6 – 12 AWG Stranded	7 1/8"	Blue/Red	**55-857-7**	$32.45
Wire Stripper/Cutter Solid & Stranded Wire	10 – 18 AWG Solid 12 – 20 AWG Stranded	7 1/8"	Blue/Yellow	**55-858-5**	29.65
Wire Stripper/Cutter Solid & Stranded Wire	20 – 30 AWG Solid 22 – 32 AWG Stranded	7 1/8"	Blue/Red	**55-859-3**	31.20


55-509-4

Xcelite®

Spring Loaded Wire Stripper & Cutter

With Cushion Gripped Handles

- Cuts and strips both solid and stranded wire cleanly, neatly.
- Adjustable screw stop for different wire sizes.
- Hardened with ground blades.
- Red plastic-coated cushion grip provides maximum leverage.
- Capacity: 22 - 10 AWG
- OAL: 5"

DESCRIPTION	PART NO.	PRICE
Wire Stripper/Cutter Spring Loaded	**55-509-4**	$13.60

VISE-GRIP

4-in-1 Electrician's Pliers

Grip, Strip, Cut & Crimp in 1 Tool

- Induction hardened cutting edge stays sharp.
- Machined jaws for maximum gripping strength.



61-057-6

WIRE STRIPPING CAP. (AWG)	OAL	PART NUMBER	PRICE
10, 12, 14	6"	**61-057-6**	$39.30


97-113-5

KNIPEX

4-in-1 Electrician's Pliers

Grip, Strip, Cut & Crimp in 1 Tool

WIRE STRIPPING CAP. (AWG)	OAL	PART NUMBER	PRICE
10, 12, 14	6 1/4"	**97-113-5**	$56.90


62-318-1

CHANNEL LOCK

The Crimper™

Heavy-Duty Crimping Tool

- Precision made for crimping both insulated and non-insulated solderless connectors and terminals on 10 to 22 AWG wire.
- Specially designed for electronics and electrical work.
- Low-profile design allows use in limited space.
- Polished, high carbon, drop-forged steel.
- Precisely matched jaws are heat treated.
- Channellock® model #909.
- 9 3/4" length.

DESCRIPTION	PART NO.	PRICE
Channellock® Crimping Tool	**62-318-1**	$31.30


97-629-0

KNIPEX

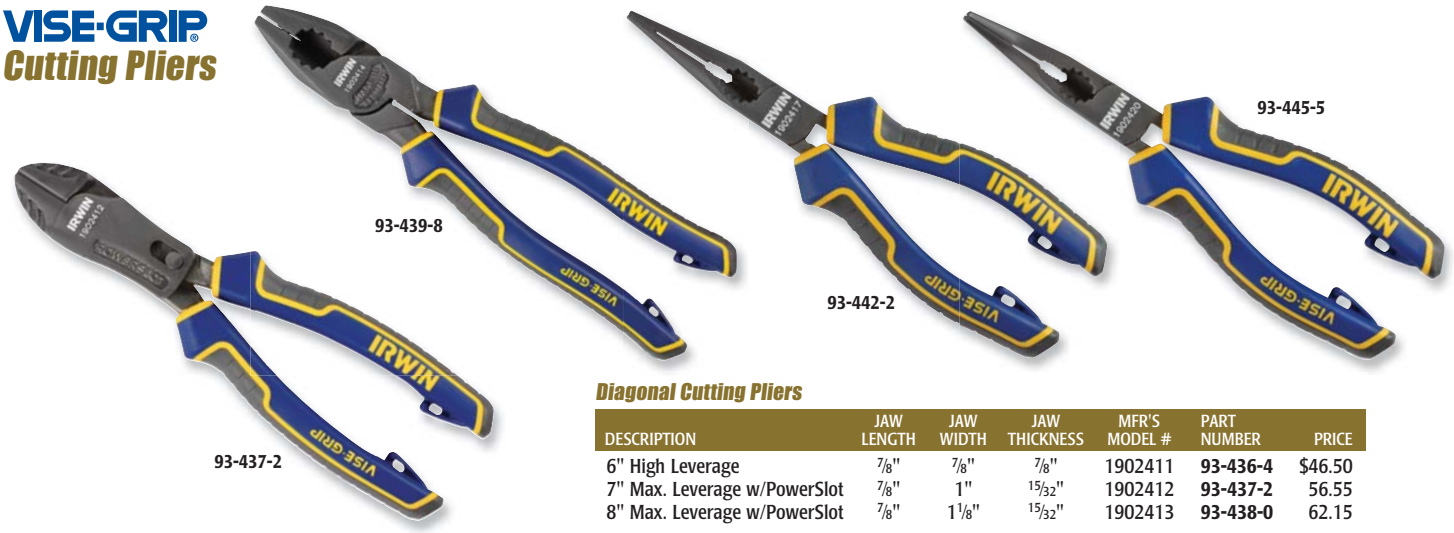
Wire Rope Cutter

- Precision blades hardened to 60 RC.
- Angular blades for clean cutting wire ropes, steel cables.
- Oil hardened tool steel.

DESCRIPTION	PART NO.	PRICE
KNIPEX® Wire Rope Cutter	**97-629-0**	$79.45

HAND TOOLS

VISE-GRIP® Cutting Pliers



- Induction-hardened cutting edges cut ACSR, nails, screws and even piano wire.
- Three-zone comfort grips are contoured for optimal cushion and control.
- Specially coated for superior rust-resistance and longer tool life.
- Integrated handle hooks equipped for Performance Lanyard system for safer elevated working conditions and easier retrieval when stored.

Diagonal Cutting Pliers – 93-437-2 & 93-438-0

- PowerSlot Technology provides 2X more power and half the cutting effort.

Lineman's Pliers/Long Nose Pliers/Bent Nose Pliers

- Built-in spanner for turning screws, nuts and grounding rods.
- Ergomulti long nose pliers (93-444-8) feature a 62° angle head for reduced wrist strain.

Diagonal Cutting Pliers

DESCRIPTION	JAW LENGTH	JAW WIDTH	JAW THICKNESS	MFR'S MODEL #	PART NUMBER	PRICE
6" High Leverage	7/8"	7/8"	7/8"	1902411	**93-436-4**	$46.50
7" Max. Leverage w/PowerSlot	7/8"	1"	15/32"	1902412	**93-437-2**	56.55
8" Max. Leverage w/PowerSlot	7/8"	1 1/8"	15/32"	1902413	**93-438-0**	62.15

High-Leverage Lineman's Pliers

DESCRIPTION	JAW LENGTH	JAW WIDTH	JAW THICKNESS	MFR'S MODEL #	PART NUMBER	PRICE
8.5" w/Fish Tape Puller	1 7/16"	1 3/16"	5/8"	1902414	**93-439-8**	$59.10
9.25" w/Fish Tape Puller	1 1/2"	1 5/16"	5/8"	1902415	**93-440-6**	69.60
9.25" w/Fish Tape Puller & Wire Crimper	1 1/2"	1 5/16"	5/8"	1902416	**93-441-4**	81.75

Long Nose Pliers

DESCRIPTION	JAW LENGTH	JAW WIDTH	JAW THICKNESS	MFR'S MODEL #	PART NUMBER	PRICE
6" Standard	2"	19/32"	11/32"	1902417	**93-442-2**	$40.25
8" Standard	2 3/4"	11/16"	13/32"	1902418	**93-443-0**	55.20
8" Ergomulti w/Wire Stripper & Wire Crimper	2"	1 1/8"	7/16"	1902419	**93-444-8**	69.25
6.75" Bent Nose Pliers	1 7/8"	19/32"	11/32"	1902420	**93-445-5**	48.55

KNIPEX® 8" Mini Bolt Cutter



- Lever action with cutting edges hardened to 64 RC for cutting solid wire with minimum effort.
- Pliers have ergonomically styled handles and are made from Chrome Vanadium steel.
- Meets ASTM F-1505-94 and IEC Standards.
- Cutting Capacity: Cable 1/4"
  Med-Hard 7/32"
  Hard 3/16"

DESCRIPTION	PART NO.	PRICE
8" Mini Bolt Cutter	**97-582-1**	$75.60



Bolt Cutters

- High carbon alloy.
- Tubular steel handles.
- Jaws cut thru rods, bolts, rivets, bars, chains.

OAL	CUT CAP.	PART NUMBER	PRICE
8"	1/8"	**56-657-0**	$13.25
14"	1/4"	**56-658-8**	24.45
18"	5/16"	**56-659-6**	29.55
24"	3/8"	**56-660-4**	35.70
30"	3/8"	**56-661-2**	61.20

Industrial Quality Snap Ring Pliers & Set



Easy-Shift Internal-External Pliers

- Internal limits: 1/2 - 2"
- External limits: 1/2 - 2"
- OAL: 6"

SHAFT DIA.	BORE DIA.	PART NUMBER	PRICE
1/2 - 2"	1/2 - 2"	**51-568-4**	$24.65

Combination Internal-External Plier Set



- Cuts and strips both solid and stranded wire cleanly, neatly.
- Adjustable screw stop for different wire sizes.
- Hardened with ground blades.
- Use with either internal or external retaining rings.
- Internal limits: 3/8 – 2"
- External limits: 1/4 - 2"
- 5 Pc. Set consists of:
  1 - 90° Angle Tip
  1 - 45° Angle Tip
  2 – Straight Tips: 1.2, 1.5 mm
  1 – 5" OAL pliers

DESCRIPTION	PART NO.	PRICE
5 Pc. Internal-External Pliers Set	**51-569-2**	$17.60

KNIPEX

Retaining Ring Pliers

- Solid forged in one piece from Chrome Vanadium steel with precision non-slip tips.
- Internal & external snap rings.

97-619-1 thru 97-623-3





97-624-1

Internal Straight Style

TIP DIA.	SHAFT DIA.	OAL	PART NUMBER	PRICE
0.035"	5/16 - 9/16	5 1/2"	**97-619-1**	$30.65
0.053"	1/2 - 1	5 1/2"	**97-614-2**	31.00
0.070"	3/4 - 2 3/8	7"	**97-584-7**	32.25
0.090"	1 9/16 - 4	8 3/4"	**97-596-1**	35.95
0.126"	3 3/8 - 5 1/2	12 1/2"	**97-623-3**	60.20

External Straight Style

TIP DIA.	BORE DIA.	OAL	PART NUMBER	PRICE
0.035"	1/8 - 3/8	5 1/2"	**97-581-3**	$27.25
0.051"	3/8 - 1	5 1/2"	**97-599-5**	34.05
0.070"	3/4 - 2 3/8	7"	**97-595-3**	35.50
0.090"	1 9/16 - 4	8 3/4"	**97-608-4**	39.70
0.126"	3 3/8 - 5 1/2	12 1/2"	**92-485-2**	71.50

Internal Bent Style (90° Angled)

TIP DIA.	SHAFT DIA.	OAL	PART NUMBER	PRICE
0.035"	5/16 - 9/16	5"	**92-488-6**	$33.75
0.053"	1/2 - 1	5"	**92-489-4**	34.05
0.070"	3/4 - 2 3/8	6 3/4"	**97-611-8**	35.50
0.090"	1 9/16 - 4	8 1/2"	**92-490-2**	38.35
0.126"	3 3/8 - 5 1/2	12 1/2"	**92-491-0**	65.40

External Bent Style (90° Angled)

TIP DIA.	BORE DIA.	OAL	PART NUMBER	PRICE
0.035"	1/8 - 3/8	5"	**97-616-7**	$40.10
0.051"	3/8 - 1	5"	**97-609-2**	37.30
0.070"	3/4 - 2 3/8	6 3/4"	**97-622-5**	38.95
0.090"	1 9/16 - 4	8 1/2"	**92-486-0**	44.25
0.126"	3 3/8 - 5 1/2	12 1/2"	**92-487-8**	75.10

Sets

NO. OF PCS.	SHAFT DIA. RANGE	BORE DIA. RANGE	PART NUMBER	PRICE
4	1/2 - 2 1/2"	3/8 - 2 1/2"	**97-624-1**	$106.70
4	1/2 - 1"	3/8 - 1"	**92-492-8**	109.80
4	5/16 - 5/8 to 3/4 - 2 1/2"	1/8 - 3/8 to 3/4 - 2 1/2"	**92-493-6**	134.30
4	5/16 - 5/8 to 3/4 - 2 1/2"	1/8 - 3/8 to 3/4 - 2 1/2"	**92-494-4**	147.80

CHANNELLOCK

Retaining Ring Plier Sets

- Change from internal to external with a simple switch of the tab.
- Includes 5 pairs of color coded interchangeable tips.
- Heavy-duty return spring
- Channellock Blue® grips for comfort.

5 Pc. Set (63-126-7)

- Capacity 1/8 – 1" external, 1/4 - 1" internal.
- 3 – Straight Tips: 0.023, 0.036, 0.047"
- 2 – 90° Tips: 0.036, 0.047"

5 Pc. Set (63-127-5)

- Capacity 1/4 – 2" external, 3/8 - 2" internal.
- 3 – Straight Tips: 0.036, 0.047, 0.070"
- 2 – 90° Tips: 0.036, 0.047"

6 Pc. Set (63-128-3)

- Capacity 1 1/2 – 4" external, 1 13/16 - 4" internal.
- 3 – Straight Tips: 0.090, 0.108, 0.120"
- 2 – 90° Tips: 0.090, 0.108, 0.120"

Replacement Tip Kit for 63-127-5

- 3 – Straight Tips: 0.036, 0.047, 0.070"
- 2 – 90° Tips: 0.036, 0.047"

NO. OF PCS.	OAL	CHANNELLOCK® MODEL #	PART NUMBER	PRICE
5	6 1/4"	926	**63-126-7**	$32.45
5	8"	927	**63-127-5**	37.60
6	10"	929	**63-128-3**	69.20
Repl. Tip Kit		927T	**63-129-1**	9.90



63-126-7

63-128-3

KNIPEX

4 Pc. Retaining Ring Pliers Set

Combination Internal & External

- Spring Steel Tips gives up to 10 times greater tool life than any other snap ring pliers on the market.
- Flat Head Tip Design holds rings more securely andminimizes ring distortion.
- Textured Handles give a secure and non-slip grip.
- Complete in Vinyl Pouch.
- Set consists of:
  - 2 - Internal Snap Ring Pliers (for Rings 1/2" – 3/4" & 3/4" - 2 3/8")
  - 2 - External Snap Ring Pliers (for Rings 1/2" – 3/4" & 3/4" - 2 3/8")



63-130-9

DESCRIPTION	PART NO.	PRICE
4 Pc. Retaining Ring Pliers Set	**63-130-9**	$119.65



62-298-5

CHANNELLOCK

Diagonal Pliers

- Cutters are accurately mated and heat treated.
- Polished high carbon drop forged steel.
- Box joint (except 62-300-9*)

SIZE	CHANNELLOCK® MODEL #	PART NO.	PRICE
6"	436	**62-297-7**	$24.55
7"	437	**62-298-5**	25.85
7 3/4"	447	**62-299-3**	31.00
7"	337	**62-300-9** *	25.25

*Lap Joint

HAND TOOLS


97-604-3


97-603-5


97-594-6


97-606-8

KNIPEX

Snipe Nose Side Cutting Pliers

- High quality, Chrome-Vanadium electric steel, oil-hardened. Polished head.
- Cutting edges high-frequency hardened.
- Ideal for cutting hard and soft wire.
- Length of flat-round jaws 3".
- Comfortable red cushion-grip handles.

DESCRIPTION	PART NO.	PRICE
Straight	**97-603-5**	$51.25
w/45° Curved Nose	**97-604-3**	57.05

KNIPEX

Diagonal Side Cutting Pliers

- Fixed forged-on axle rivet and cutting edges hardened to 64 RC combine to deliver effortless cutting performance of piano, hard and soft wire.
- Length: 8".
- Wire Cutting Capacity: Med-Hard: $^{11}/_{64}$", Hard: $^{1}/_{8}$", Piano: $^{3}/_{32}$".
- Ultra high leverage.

DESCRIPTION	PART NO.	PRICE
Diagonal Side Cutting Pliers	**97-594-6**	$55.45

KNIPEX

Diagonal Cutting Pliers

- High quality, Chrome-Vanadium electric steel, oil-hardened.
- High leverage. Polished head.
- Ideal for cutting Piano Wire up to $^{5}/_{64}$" dia. and soft wire up to $^{1}/_{8}$" dia.
- Cutters are separately high frequency hardened.
- Comfortable, red-cushion-grip handles.

DESCRIPTION	PART NO.	PRICE
7" Diagonal Cutting Pliers	**97-606-8**	$47.95
10" Diagonal Cutting Pliers	**97-607-6**	55.20

Plier Sets

- Top quality alloy steel with plastic grips for comfort.
- Supplied in plastic pouch.


55-155-6


57-538-1


57-540-7


57-543-1


55-159-8

NO. OF PCS.	DESCRIPTION	PART NUMBER	PRICE
2	6" Long Nose/ 8" Ext. Reach Long Nose	**55-155-6**	$15.35
3	6" Long Nose/ 6" Diagonal Cutter/ 6" Slip Joint	**55-159-8**	23.00
3	6", 8", 10" Slip Joint	**55-160-6**	30.65
3	7" Lineman's/ $6^{1}/_{2}$" Diagonal Cutter/ $6^{1}/_{2}$" Long Nose	**57-540-7**	23.55
5	5" Long Nose/ $4^{1}/_{2}$" Diagonal Cutter/ 5" Needle Nose/ 4" End Cutter	**57-538-1**	33.85
5	8" Long Nose/ $7^{1}/_{2}$" Diagonal Cutter/ 8" Slip Joint/ 10" Locking Pliers/ 12" Tongue & Groove	**57-543-1**	49.90
5	11" Long Reach, Long Nose/Flat Nose/Straight Nose/ 20° Angled/ 45° Angled/ 90° Angled	**55-166-3**	68.10
7	8" Lineman's/ 8" Long Nose/ $4^{1}/_{2}$" & $7^{1}/_{2}$" Diagonal Cutters/ 5" Needle Nose/ 5" Bent Nose/ 10" Slip Joint	**11-062-7**	55.65


11-062-7


58-914-3

End Cutting Pliers -Electronics

- Top quality alloy steel.
- Plastic coated grips for comfort.

OVERALL LENGTH	JAW LENGTH	JAW WIDTH	PART NUMBER	PRICE
4"	7/8"	7/16"	**58-914-3**	$8.40
5 1/2"	1/2"	9/16"	**58-915-0**	9.40


62-305-8

CHANNELLOCK

Long Nose Pliers

- Precision made of fine polished high carbon, drop forged steel.
- Precision mated cutters, heat treated to hold edge.

SIZE	CHANNELLOCK® MODEL #	PART NO.	PRICE
6"	326	**62-305-8**	$25.30
7 1/2"	317	**62-306-6**	27.70


62-304-1

CHANNELLOCK

Long Reach Needle Nose Plier

- Specially designed for electronics and electrical work.
- Polished drop-forged steel.
- Precision matched jaws.
- 8" overall length.
- Channellock® model #738.

DESCRIPTION	PART NO.	PRICE
Channellock® Needle Nose Pliers	**62-304-1**	$24.90

KNIPEX

Alligator Jaw Water Pump Plier

- High quality, Chrome-Vanadium electric steel, oil-hardened. Polished head.
- Optimum lever action, hardened teeth.
- Unsurpassed non-slip gripping power with novel force-transmission principle. – No need to force the handles together, frees the working hand.
- Capacity 1/8" - 1 1/4" dia.
- Comfortable, red cushion-grip handles.


97-621-7

DESCRIPTION	PART NO.	PRICE
12" Alligator Jaw Water Pump Plier	**97-621-7**	$56.85

CHANNELLOCK

Tongue & Groove Pliers

- Right angle teeth grip in all directions for maximum bite and minimum wear.
- Patented undercut tongue and groove design assures no stop jaw action.
- Patented reinforcing edge minimizes stress breakage.
- Patented PermaLock® fastener eliminates nut and bolt failures.
- Polished, drop-forged steel.


62-314-0

ADJUSTMENT SETTINGS	OVERALL LENGTH	CAP.	CHANNELLOCK® MODEL #	PART NUMBER	PRICE
5	6 1/2"	7/8"	426	**62-313-2**	$16.05
5	9 1/2"	1 1/4"	420	**62-314-0** *	19.40
7	10"	2"	430	**62-315-7**	20.30
7	12"	2 1/4"	440	**62-316-5**	21.70
8	16"	4 1/4"	460	**62-317-3**	37.95

*Most popular model.

CHANNELLOCK

Curved Jaw Tongue & Groove Pliers

- Curved jaw for use on round stock and tubing.
- Right angle teeth grip in all directions for maximum bite and minimum wear.
- Patented undercut tongue and groove design assures no slip jaw action.
- Patented reinforcing edge minimized stress breakage.
- Patented PermaLock® fastener eliminates nut and bolt failures.
- Polished, drop-forged steel.


62-311-6

SIZE	CHANNELLOCK® MODEL #	PART NO.	PRICE
9 1/2"	422	**62-311-6**	$19.65
12"	442	**62-312-4**	22.45

CHANNELLOCK

Tongue & Groove Set

- Includes both 6 1/2" and 9 1/2" sizes.
- Right angle teeth grip in all directions for maximum bite and minimum wear.
- Patented undercut tongue and groove design assures no slip jaw action.
- Patented reinforcing edge minimizes stress breakage.
- Patented PermaLock® fastener eliminates nut and bolt failures.
- Polished, drop-forged steel.
- Channellock® model #GS-1.



62-320-7

DESCRIPTION	PART NO.	PRICE
Channellock® 2 Pc. Set	**62-320-7**	$33.25

HAND TOOLS



KNIPEX

Cobra Water Pump Pliers

- Push button release permits one-handed adjustments.
- Box joint construction allows variable jaw opening adjustments.
- Special hardened jaw teeth (approx. 56 RC).

SIZE	CAP.	POSITIONS	PART NO.	PRICE
7"	1"	11	**97-600-1**	$46.05
10"	1 1/4"	11	**97-598-7**	48.95
12"	1 1/2"	14	**97-618-3**	67.75



KNIPEX

Ratcheting Jaw Pliers

Pliers and Wrench in a Single Tool

- Smooth jaws for cautious installation of plated fittings.
- Adjustment at the touch of a button directly on the workpiece.
- Parallel jaws allow infinitely variable gripping of all widths to the specified maximum size.
- Chrome vanadium, nickel plated pliers with plastic coated handles.
- 92-525-5 - Ideal multi-purpose wrench in pocket size; indispensable companion in the emergency tool kit.
- 92-526-3 - with narrow gripping jaws - for tightening situation that requires a slim tool.

OAL	ADJ. POSITIONS	MFR'S MODEL #	PART NUMBER	PRICE
6"	14	86 03 150	**92-525-5**	$68.35
7"	13	86 03 180	**92-526-3**	84.75
10"	17	86 03 250	**92-527-1**	92.15
12"	22	86 03 300	**92-528-9**	110.50



VISE-GRIP

Slip-Joint & Hose Clamp Pliers



- ProTouch® grips provide extra comfort and reduce hand fatigue.
- Durable nickel chromium steel construction.
- Machined jaws for maximum gripping strength.
- Induction hardened cutting edge stays sharper longer.
- Hose clamp pliers are for the installation and removal of wire spring tension clamps.

OAL	NOSE TYPE	FEATURES	JAW L	JAW W	GRIPS	MFR'S MODEL #	PART NUMBER	PRICE
6"	Regular	Wire Cutting Shear	1 1/8"	15/32"	ProTouch	2078406	**92-501-6**	$7.60
6"	Thin	Standard	1 1/4"	3/16"	Dipped Vinyl	1773623	**93-399-4**	10.00
6"	Curved Jaw	Standard	1 1/8"	7/16"	Steel	1773616	**93-400-0**	9.40
8"	Curved Jaw	Standard	1 5/16"	7/16"	Steel	1773617	**93-401-8**	9.25
8"	Regular	Wire Cutting Shear	1 5/16"	1 11/32"	ProTouch	2078408	**92-502-4**	11.40
10"	Standard	Standard	1 3/4"	7/16"	ProTouch	1773637	**93-402-6**	12.40
8"	Standard	Hose Clamp Pliers	1 11/32"	7/16"	Dipped Vinyl	1773627	**93-403-4**	24.70



STANLEY PROTO

Slip-Joint & Hose Clamp Pliers

- Manufactured from high alloy steel and heat treated for maximum strength and durability.
- Plastisol grips are not intended for protection against electrical shock.
- Hose clamp pliers are for the installation and removal of wire spring tension clamps.

OAL	NOSE TYPE	FEATURES	JAW L	JAW W	GRIPS	MFR'S MODEL #	PART NUMBER	PRICE
5 3/4"	Standard	Wire Cutting Shear	1 5/16"	7/8"	None	J275	**92-503-2**	$14.95
5 13/16"	Regular	Wire Cutting Shear	1 5/16"	7/8"	Plastisol	J275G	**92-504-0**	15.05
6 1/2"	Standard	Wire Cutting Shear	1 3/4"	1 3/16"	None	J276	**92-505-7**	15.45
6 9/16"	Regular	Wire Cutting Shear	1 3/4"	1 3/16"	Plastisol	J276G	**92-506-5**	15.85
6 11/16"	Thin	Wire Cutting Shear	1 15/16"	1 1/16"	Plastisol	J202G	**92-507-3**	15.65
8"	Standard	Wire Cutting Shear	1 3/4"	1 13/64"	None	J278	**92-508-1**	16.95
8 1/16"	Regular	Wire Cutting Shear	1 3/4"	1 13/64"	Plastisol	J278G	**92-509-9**	18.75
9 1/2"	Standard	Wire Cutting Shear	2 3/8"	1 7/64"	None	J280	**92-510-7**	20.70
9 9/16"	Regular	Wire Cutting Shear	2 3/8"	1 7/16"	Plastisol	J280G	**92-511-5**	22.45
7 3/4"	Regular	HD Hose Clamp Pliers	1 15/16"	1 11/64"	Plastisol	J252G	**92-512-3**	32.55

Blackhawk by PROTO

Slip-Joint & Hose Clamp Pliers

- Forged alloy steel construction
- Plastic cushion grips.

OAL	TYPE	FEATURES	JAW L	JAW W	MFR'S	PART NUMBER	PRICE
6"	Pliers	Wire Cutting Shear	1 11/64"	25/64"	PT-1002-1	**92-495-1**	$16.40
10"	Pliers	Wire Cutting Shear	1 13/32"	31/64"	PT-1004-1	**92-497-7**	22.65
8"	Curved	Hose Clamp Pliers	1 13/32"	25/64"	PT-1280-1	**92-498-5**	22.85



Utility Set
61-315-8



61-035-2



61-036-0

VISE-GRIP® Locking Pliers

- Original locking pliers with a ton of holding power.
- Utility set contains one each: 6" long nose plier and 7" curved jaw plier with wire cutter.

CAP.	LENGTH	MODEL #	PART NO.	PRICE
15/16"	4"	4WR	**61-311-7**	$16.15
1"	5"	5WR	**61-312-5**	17.35
1 1/4"	7"	7WR	**61-313-3**	19.25
1 1/2"	10"	10WR	**61-314-1**	20.35
Utility Set		615-3	**61-315-8**	37.45

VISE-GRIP® 3 Pc. Locking Plier Set

- Contains 1 each:
  - 10WR - 10" Curved jaw.
  - 6LN - 6" Long nose w/wire cutter.
  - 5WR - 5" Curved jaw.
- Kit bag included.
- VISE-GRIP® model #73.

DESCRIPTION	PART NO.	PRICE
3 Pc. Locking Plier Set	**61-035-2**	$43.10

VISE-GRIP® 5 Pc. Locking Plier Set

- Contains - 10R (10"), 10CR (10"), 7WR (7"), 6LN (6"), 5WR (5").
- Includes rolled up kit bag.
- Jaw Configurations:
  - R = Straight Jaw
  - CR = Curved Jaw
  - WR = Curved Jaw w/wire cutter
  - LN = Long Nose
- VISE-GRIP® model #68.

DESCRIPTION	PART NO.	PRICE
5 Pc. Locking Plier Set	**61-036-0**	$70.00



61-029-5



61-030-3



61-032-9

VISE-GRIP® Locking C-Clamps

- Wide opening jaw provides greater versatility in clamping a variety of shapes.
- Fast Release is 2X easier to open, has no-pinch release and offers more finger room.

OAL	CAP.	THROAT	MFR'S MODEL #	PART NUMBER	PRICE
6"	2 1/8"	1 1/2"	6R	**61-028-7**	$16.55
9"	4 1/2"	4 3/4"	9DR	**92-514-9**	23.40
11"	3 3/8"	2 5/8"	11R	**61-029-5**	26.30
18"	8"	10"	18R	**61-030-3**	33.30
18"	7 1/2"	9 1/2"	18DR	**92-515-6**	38.00
24"	12 1/2"	15 1/2"	24R	**92-516-4**	41.65

Fast Release

OAL	CAP.	THROAT	MFR'S MODEL #	PART NUMBER	PRICE
6"	2 1/8"	1 1/2"	17T	**92-520-6**	$16.05
11"	3 3/8"	2 5/8"	19T	**92-521-4**	26.50



92-520-6



92-521-4

VISE-GRIP® Locking C-Clamp w/Swivel Pads

- Wide opening jaw provides greater versatility in clamping a variety of shapes.
- Swivel pads hold tapered work, awkward fabricating jobs and delicate projects without damaging the work surface.
- One hand operation to lock and unlock.

OAL	CAP.	THROAT	MFR'S MODEL #	PART NUMBER	PRICE
4"	1 5/8"	1 1/4"	4SP	**92-517-2**	$15.15
6"	2 1/8"	1 1/2"	6SP	**61-032-9**	16.20
9"	4 1/2"	4 3/4"	9SP	**92-518-0**	23.75
11"	3 3/8"	2 5/8"	11SP	**61-033-7**	28.05
18"	8"	10"	18SP	**61-034-5**	41.25
24"	10"	15 1/2"	24SP	**92-519-8**	51.50

HAND TOOLS



NEW

VISE-GRIP® Locking Multi-Pliers

- Fold-out knife features a stainless steel serrated blade.
- Fold-out screwdriver includes a 1/4" bit holder with 6 - 8 slotted and #2 Phillips® bits.
- Constructed of high-grade, heat treated alloy steel for maximum toughness and durability.
- Hex key adjusting screw offers controlled release and draws materials together.
- Pouch included.

DESCRIPTION	JAW CAP.	IRWIN MODEL #	PART NUMBER	PRICE
6' Long Nose	2"	6LN	**60-898-4**	$43.45
5" Curved Jaw	1 1/8"	5CR	**60-899-2**	43.45
5" Curved Jaw w/Wire Cutter	1 1/8"	5WR	**60-900-8**	43.45



VISE-GRIP® Locking Chain Clamp

- Chain locks and holds around any shape or size.
- Ideal for awkwardly shaped pieces.

DESCRIPTION	OAL	JAW CAP.	MFR'S MODEL #	PART NUMBER	PRICE
Locking Chain Clamp	9"	18"	20R	**92-522-2**	$37.85
18" Extension Chain			40EXT	**92-523-0**	20.90
18" Repl. Chain			40REP	**92-524-8**	18.60



VISE-GRIP® 8" Sheet Metal Clamp

- For bending, forming, crimping and straightening.
- Also holding work for soldering and riveting.
- Jaw width 3 1/8", throat 1 3/4", 8" long.
- Vise-Grip® model # 8R.

DESCRIPTION	PART NO.	PRICE
8" Sheet Metal Clamp	**61-031-1**	$24.60

VISE-GRIP® 9" Welding Clamp

- For small welding jobs.
- Jaw width 2 3/4", 9" long.
- Maximum jaw capacity: 1 5/8".
- Vise-Grip® model #25.

DESCRIPTION	PART NO.	PRICE
9" Welding Metal Clamp	**61-027-9**	$28.95





VISE-GRIP® 9" Panel Clamp

- Provides quick clamping and alignment of auto body parts.
- Bottom jaw slides in straight line motion.
- Jaw width 3/8", 9" long.
- Vise-Grip® model #9AC.

DESCRIPTION	PART NO.	PRICE
9" Panel Clamp	**92-513-1**	$32.65

VISE-GRIP® 11" Quick Adjusting Pipe Wrench

NEW

- One-handed operation enhances user's speed and convenience.
- Ratchets quickly to work surface.
- Smooth release upon job completion.
- Broached teeth are ideal for most surfaces including black, galvanized, PVC and copper pipe, as well as nuts, bolts and couplings.
- 43% less weight than standard 14" cast iron pipe wrenches.
- Ergonomic handle ideal for heavy torque and maximum comfort.
- Riveted to heat treated steel body.
- Jaw capacity: 2 1/4"
- Vise-Grip model # 274001



DESCRIPTION	PART NO.	PRICE
11" Quick Adjusting Pipe Wrench	**93-450-5**	$71.65



92-932-3

Blackhawk by PROTO
Adjustable Wrenches

- Forged alloy steel, chrome finish.
- Wide jaw capacity.
- Meets ASME B107.8M

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-930-7**	$13.80
6"	15/16"	**92-931-5**	17.65
8"	1 1/8"	**92-932-3**	18.95
10"	1 5/16"	**92-933-1**	21.90
12"	1 1/2"	**92-934-9**	34.85
15"	1 11/16"	**92-935-6**	59.70



93-398-6

VISE-GRIP
4 Pc. Adjustable Wrench Tray Set

- Professional-grade tools.
- ProTouch™ grips provide extra comfort and reduce hand fatigue.
- Machined jaws for maximum gripping strength.
- Induction hardened cutting edge stays sharper, longer.
- Storage tray included.

SET CONSISTS OF:	PART NO.	PRICE
6, 8, 10, 12"	**93-398-6**	$82.20



62-173-0

CHANNELLOCK
Xtra Slim Jaw Wideazz® Adjustable Wrenches
40% Thinner Than A Regular Wrench of the Same Size

- Xtra slim 3/16" jaws.
- Super wide opening lets you tackle big jobs with a compact wrench.
- Measurement scales (IN. on front / MM on reverse) are handy for sizing nuts, pipe and tube diameters.
- 4 thread knurl & non-protruding jaws provide greater capacity; minimal head width improved performance in confined spaces
- Made with chrome vanadium steel.
- Code Blue® grips are designed for durability and comfort.

OAL	CAPACITY	CHANNELLOCK® MODEL #	PART NUMBER	PRICE
6"	1.31"	6SWCB	**62-173-0**	$36.05
8"	1.5"	8SWCB	**62-174-8**	38.75



92-995-0

STANLEY
Adjustable Wrenches & Sets

- Forged alloy steel body for strength and durability.
- Laser etched SAE and Metric scale jaw.
- Knurl turns smoothly for easy operation.
- Hang hole in handle.

Black Oxide

SIZE	CAPACITY	PART NO.	PRICE
6"	3/4"	**92-991-9**	$7.25
8"	1"	**92-992-7**	9.25
10"	1 1/4"	**92-993-5**	11.20
12"	1 1/2"	**92-994-3**	16.20

Black Oxide - Cushion Grip

SIZE	CAPACITY	PART NO.	PRICE
6"	3/4"	**92-995-0**	$12.65
8"	1"	**92-996-8**	15.10
10"	1 1/4"	**92-997-6**	19.35
13"	1 3/8"	**92-998-4**	25.60

Cushion Grip

SIZE	CAPACITY	PART NO.	PRICE
8"	1"	**93-396-0**	$16.20
10"	1 1/4"	**93-397-8**	20.35



93-447-1

CRESCENT
8" Adjustable Ratcheting Wrench

- Turns nuts and bolts without removing wrench from fastener.
- Movable jaw works on any 4 or 6 point fasteners up to 1 1/4".
- Ratcheting on/off switch allows for use as a standard wrench.
- Ergonomic handle for comfort and promotes proper use.

DESCRIPTION	PART NO.	PRICE
8" Adjustable Ratcheting Wrench	**93-447-1**	$24.55



93-446-3

CRESCENT
8" R2 RapidRench Adjustable Ratcheting Socket Wrench
7/8" Adjustable Jaw Opening

- Accommodates 38 different bolts and nut sizes.
- Works on various fasteners and sizes.
- Jaw design extends into deep areas.
- Exceeds ANSI specs.
- Comfort grip for reduced stress on hands.
- Chrome finish for durability and corrosion resistance.

DESCRIPTION	PART NO.	PRICE
R2 RapidRench Adjustable Ratcheting Socket Wrench	**93-446-3**	$40.25

HAND TOOLS



61-236-6

CRESCENT®

Adjustable Wrenches & Sets

- Ergonomic handle design - up to 71% wider for increased comfort and reduced pressure on the hand.
- Crescent "Hex" jaw design makes for a tighter fit on fastener.
- Extra wide capacity jaw opens up to 25% wider than other wrenchs.



92-950-5

Black Oxide

SIZE	CAPACITY	PART NO.	PRICE
4"	3/4"	**92-936-4**	$16.40
6"	15/16"	**92-937-2**	17.65
8"	1 1/8"	**92-938-0**	19.35
10"	1 5/16"	**92-939-8**	22.95
12"	1 1/2"	**92-940-6**	36.95
15"	1 11/16"	**92-941-4**	62.65
18"	2 1/16"	**92-942-2**	111.80

Black Oxide - Cushion Grip

SIZE	CAPACITY	PART NO.	PRICE
6"	15/16"	**92-943-0**	$21.30
8"	1 1/8"	**92-944-8**	23.05
10"	1 5/16"	**92-945-5**	28.90
12"	1 1/2"	**92-946-3**	39.15

Chrome

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**61-234-1**	$18.70
6"	15/16"	**61-235-8**	19.65
8"	1 1/8"	**61-236-6**	21.15
10"	1 5/16"	**61-237-4**	25.95
12"	1 1/2"	**61-238-2**	40.75
15"	1 11/16"	**61-239-0**	67.85
18"	2 1/16"	**61-240-8**	117.60
24"	2 7/16"	**61-241-6**	206.55

Chrome - Cushion Grip

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-947-1**	$22.95
6"	15/16"	**92-948-9**	23.70
8"	1 1/8"	**92-949-7**	29.05
10"	1 5/16"	**92-950-5**	30.75
12"	1 1/2"	**92-951-3**	44.10
15"	1 11/16"	**92-952-1**	68.60

Wrench Sets

NO. OF. PCS.	SET CONSISTS OF:	FINISH	SUPPLIED WITH:	PART NUMBER	PRICE
3	6, 8, 10"	Black Oxide	Pouch	**92-953-9**	$61.70
3	6, 8, 10"	Chrome	Pouch	**92-954-7**	69.55



93-451-3

NEW

STANLEY

11 Pc. Combination Wrench Sets

- Max-Drive™ system helps reduce fastener rounding.
- 15° box end offset for additional knuckle clearance.
- Full polished plating for anti-corrosion protection and easy cleaning.
- Meets or exceeds ANSI specifications.
- 93-451-3 SAE sizes: 1/4", 5/16", 11/32", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16"
- 93-452-1 metric sizes: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 mm

DESCRIPTION	PART NO.	PRICE
SAE 11 Pc. Combo Wrench Set	**93-451-3**	$30.05
Metric 11 Pc. Combo Wrench Set	**93-452-1**	30.05

STANLEY PROTO®

Adjustable Wrenches & Sets



92-970-3

- Hot forged from special alloy steel.
- Available in nonreflective ProtoBlack™ or satin finish.
- Jaw design provides strength and strong fit on both square and hex nuts.
- Thinner head gets into tighter places.

Black Oxide

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-955-4**	$17.00
6"	15/16"	**92-956-2**	17.70
8"	1 1/8"	**92-957-0**	18.60
10"	1 5/16"	**92-958-8**	24.90
12"	1 1/2"	**92-959-6**	35.90
15"	1 11/16"	**92-960-4**	57.90
18"	2 1/16"	**92-961-2**	99.10
24"	2 7/16"	**92-962-0**	168.95

Chrome

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-970-3**	$18.90
6"	15/16"	**92-971-1**	19.65
8"	1 1/8"	**92-972-9**	20.65
10"	1 5/16"	**92-973-7**	26.20
12"	1 1/2"	**92-974-5**	37.80
15"	1 11/16"	**92-975-2**	64.30
18"	2 1/16"	**92-976-0**	107.35
24"	2 7/16"	**92-977-8**	177.90

Cushion Grip

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-984-4**	$20.80
6"	15/16"	**92-985-1**	21.65
8"	1 1/8"	**92-986-9**	22.70
10"	1 5/16"	**92-987-7**	28.80
12"	1 1/2"	**92-988-5**	41.60

Clik-Stop® Features:

- Locking design holds the moving jaw of an adjustable wrench in place when the wrench is in use.
- Nonreflective ProtoBlack™ or satin finish.
- Extra wide jaw capacity.
- Square jaw opening provides greater strength and better fit.
- 92-963-8 - 92-969-5: Nonreflective ProtoBlack™ finish for use where nonplated products are required.
- 92-978-6 - 92-983-6: Satin finish provides corrosion resistant and a slip-resistant grip.

Black Oxide - Clik Stop®

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-963-8**	$20.35
6"	15/16"	**92-964-6**	21.20
8"	1 1/8"	**92-965-3**	22.15
10"	1 5/16"	**92-966-1**	28.20
12"	1 1/2"	**92-967-9**	40.65
15"	1 11/16"	**92-968-7**	63.00
18"	2 1/16"	**92-969-5**	110.00

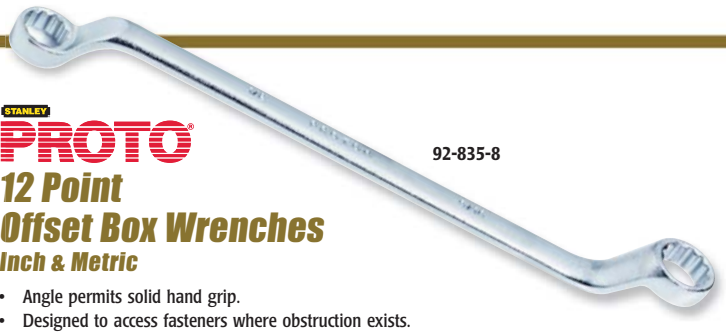
Satin - Clik Stop®

SIZE	CAPACITY	PART NO.	PRICE
4"	1/2"	**92-978-6**	$21.40
6"	15/16"	**92-979-4**	22.30
8"	1 1/8"	**92-980-2**	23.30
10"	1 5/16"	**92-981-0**	29.70
12"	1 1/2"	**92-982-8**	42.80
15"	1 11/16"	**92-983-6**	66.30

Wrench Sets

NO. OF. PCS.	SET CONSISTS OF:	FINISH	SUPPLIED WITH:	PART NUMBER	PRICE
3	8, 10, 12"	Satin Chrome	Tool Roll	**92-989-3**	$81.65
3	8, 10, 12"	Satin Chrome	Tool Roll	**92-990-1***	92.40

*Clik-Stop



STANLEY PROTO

12 Point Offset Box Wrenches

Inch & Metric

- Angle permits solid hand grip.
- Designed to access fasteners where obstruction exists.

7½° Offset - Full Polish - Inch

SIZE	OAL	PART NO.	PRICE
3/8 x 7/16"	7 3/4"	**92-804-4**	$15.20
1/2 x 9/16"	8 7/8"	**92-805-1**	17.45
9/16 x 5/8"	9 1/2"	**92-806-9**	18.70
11/16 x 3/4"	11 3/16"	**92-807-7**	23.50
11/16 x 1 1/8"	16 3/4"	**92-808-5**	38.55
13/16 x 7/8"	12 11/16"	**92-809-3**	24.15
15/16 x 1"	14 3/8"	**92-810-1**	31.70

15° Offset - Black Oxide - Inch

SIZE	OAL	PART NO.	PRICE
5/16 x 3/8"	6 15/16"	**92-811-9**	$11.90
7/16 x 1/2"	8 1/16"	**92-812-7**	13.55
1/2 x 9/16"	8 7/16"	**92-813-5**	14.50
9/16 x 5/8"	9 7/16"	**92-814-3**	15.25
11/16 x 3/4"	11 1/4"	**92-815-0**	19.35
3/4 x 7/8"	13 1/8"	**92-816-8**	19.35
13/16 x 7/8"	13 7/8"	**92-817-6**	19.35
15/16 x 1"	15 1/2"	**92-818-4**	37.50
1 1/16 x 1 1/8"	17 1/4"	**92-819-2**	41.55
1 1/16 x 1 1/4"	18 1/4"	**92-820-0**	39.35

15° Offset - Full Polish - Inch

SIZE	OAL	PART NO.	PRICE
5/16 x 3/8"	6 15/16"	**92-821-8**	$15.15
7/16 x 1/2"	8 1/6"	**92-822-6**	16.75
1/2 x 9/16"	8 3/8"	**92-823-4**	17.65
9/16 x 5/8"	9 7/16"	**92-824-2**	17.55
11/16 x 3/4"	11 1/8"	**92-825-9**	22.95
3/4 x 7/8"	13 1/8"	**92-826-7**	22.95
13/16 x 7/8"	13 1/8"	**92-827-5**	23.70
15/16 x 1"	15 1/8"	**92-828-3**	41.00
1 1/16 x 1 1/8"	17 1/2"	**92-829-1**	45.40
1 1/16 x 1 1/4"	18 1/4"	**92-830-9**	44.20
1 1/4 x 1 5/16"	19 1/4"	**92-831-7**	56.50
1 1/4 x 1 3/8"	20 1/4"	**92-832-5**	60.85
1 7/16 x 1 1/2"	22 1/4"	**92-833-3**	70.80
1 5/8 x 1 11/16"	24 1/2"	**92-834-1**	93.25

60° Offset - Satin Finish - Inch

SIZE	OAL	PART NO.	PRICE
3/8 x 7/16"	7 3/4"	**92-835-8**	$17.55
1/2 x 9/16"	9"	**92-836-6**	19.65
5/8 x 11/16"	10 1/4"	**92-837-4**	22.15
11/16 x 13/16"	11 1/2"	**92-838-2**	26.10
3/4 x 7/8"	12 3/4"	**92-839-0**	27.50
15/16 x 1"	14"	**92-840-8**	38.95

7½° Offset - Full Polish - Metric

SIZE (MM)	OAL	PART NO.	PRICE
6 x 7	5 3/4"	**92-841-6**	$14.60
8 x 9	6 3/4"	**92-842-4**	14.75
10 x 11	8"	**92-843-2**	14.75
12 x 13	8 7/8"	**92-844-0**	15.15
12 x 14	9 1/16"	**92-845-7**	16.40
14 x 15	9 11/16"	**92-846-5**	16.45
16 x 18	10 11/16"	**92-847-3**	19.65
17 x 19	11 23/64"	**92-848-1**	21.15
19 x 21	11 17/64"	**92-849-9**	21.55
19 x 22	12 15/32"	**92-850-7**	21.75
21 x 24	13 13/32"	**92-851-5**	24.80
22 x 24	13 23/32"	**92-852-3**	28.60
27 x 30	15 15/16"	**92-853-1**	42.70
30x 32	17 7/32"	**92-854-9**	51.10

15° Short Offset - Satin Finish- Inch

SIZE	OAL	PART NO.	PRICE
1/2 x 9/16"	5 3/8"	**92-855-6**	$14.35
5/16 x 3/8"	4 1/4"	**92-856-4**	13.25
3/8 x 7/16"	4 5/8"	**92-857-2**	13.85
5/8 x 3/4"	6 1/8"	**92-858-0**	19.20



STANLEY PROTO

6 & 12 Point Ratcheting Box Wrenches

Inch & Metric

- Ratchet action provides quick and easy use.
- Flip wrench over to easily reverse direction.
- Heat-treated and nickel chrome plated for durability, appearance and long life.

6 Point Straight Wrenches - Inch

SIZE	OAL	STRAIGHT PART NO.	PRICE
1/4 x 5/16"	4 9/32"	**92-868-9**	$12.15
3/8 x 7/16"	5 1/2"	**92-869-7**	13.75
1/2 x 9/16"	6 3/4"	**92-870-5**	17.50

12 Point Straight & 25° Offset Wrenches - Inch

SIZE	STRAIGHT OAL	STRAIGHT PART NO.	STRAIGHT PRICE	25° OFFSET OAL	25° OFFSET PART NO.	25° OFFSET PRICE
7/32 x 9/32"	–	–	–	4 1/8"	**92-862-2**	$15.85
1/4 x 5/16"	–	–	–	4 1/8"	**92-863-0**	15.90
3/8 x 7/16"	–	–	–	5 1/4"	**92-864-8**	17.25
1/2 x 9/16"	–	–	–	6 1/2"	**92-865-5**	21.10
5/8 x 11/16"	8 7/64"	**92-859-8**	$20.85	–	–	–
5/8 x 3/4"	–	–	–	7 3/4"	**92-866-3**	24.45
3/4 x 7/8"	9 1/4"	**92-860-6**	23.60	9 1/2"	**92-867-1**	27.60
13/16 x 15/16"	9 1/4"	**92-861-4**	26.80	–	–	–

12 Point 25° Offset Wrenches - Metric

SIZE (MM)	OAL	OFFSET PART NO.	PRICE
11 x 13	6 1/2"	**92-871-3**	$20.05
12 x 14	6 1/2"	**92-872-1**	21.70

12 Point Reversible Straight Wrenches - Inch

SIZE	OAL	STRAIGHT PART NO.	PRICE
1/4 x 5/16"	4 3/8"	**92-873-9**	$19.10
3/8 x 7/16"	5 1/2"	**92-874-7**	19.65
1/2 x 9/16"	6 7/8"	**92-875-4**	25.75
5/8 x 11/16"	8 1/8"	**92-876-2**	27.55
3/4 x 7/8"	9 1/4"	**92-877-0**	30.50
3/8 x 7/16"	5 1/2"	**92-922-4**	15.40
1/2 x 9/16"	6 3/4"	**92-923-2**	18.90
5/8 x 3/4"	8 1/8"	**92-924-0**	20.85

12 Point Reversible Straight Wrenches - Metric

SIZE (MM)	OAL	STRAIGHT PART NO.	PRICE
7 x 8	4"	**92-925-7**	$20.20
9 x 10	5 1/2"	**92-926-5**	20.70
11 x 12	6"	**92-927-3**	24.35
13 x 14	6"	**92-928-1**	26.35
15 x 17	8"	**92-929-9**	26.00





LANG TOOLS
Professional Tools For 4 Generations

6 & 12 Point Ratcheting Box Wrenches

Inch & Metric

- Ratchet action provides quick and easy use.
- Flip wrench over to easily reverse direction.
- Heat-treated and nickel chrome plated for durability, appearance and long life.

6 Point Straight & 25° Offset Wrenches - Inch

SIZE	STRAIGHT OAL	STRAIGHT PART NO.	STRAIGHT PRICE	25° OFFSET OAL	25° OFFSET PART NO.	25° OFFSET PRICE
1/4 x 5/16"	4 1/2"	**92-901-8**	$10.05	4 1/4"	**92-905-9**	$11.15
3/8 x 7/16"	5 1/2"	**92-902-6**	11.85	5 7/16"	**92-906-7**	12.95
7/16 x 1/2"	6 7/8"	**92-903-4**	15.10	–	–	–
1/2 x 9/16"	6 7/8"	**92-904-2**	15.70	6 3/4"	**92-907-5**	16.60

6 Point Straight & 25° Offset Wrenches - Metric

SIZE (MM)	STRAIGHT OAL	STRAIGHT PART NO.	STRAIGHT PRICE	25° OFFSET OAL	25° OFFSET PART NO.	25° OFFSET PRICE
7 x 8	4 1/4	**92-908-3**	$10.70	4 1/4	**92-912-5**	$11.95
9 x 10	5 1/2	**92-909-1**	12.50	5 7/16	**92-913-3**	13.80
11 x 13	6 7/8	**92-910-9**	15.80	6 3/4	**92-914-1**	17.60
12 x 14	6 7/8	**92-911-7**	15.80	6 3/4	**92-915-8**	17.60

12 Point Straight & 25° Offset Wrenches - Inch

SIZE	STRAIGHT OAL	STRAIGHT PART NO.	STRAIGHT PRICE	25° OFFSET OAL	25° OFFSET PART NO.	25° OFFSET PRICE
1/4 x 5/16"	4 1/2"	**92-878-8**	$10.70	4 1/4"	**92-893-7**	$11.95
5/16 x 11/32"	–	–	–	4 1/4"	**92-894-5**	13.25
3/8 x 7/16"	5 1/2"	**92-879-6**	12.50	5 7/16"	**92-895-2**	13.60
7/16 x 1/2"	6 7/8"	**92-880-4**	15.80	–	–	–
1/2 x 9/16"	6 7/8"	**92-881-2**	15.80	6 3/4"	**92-896-0**	17.40
9/16 x 5/8"	8 1/8"	**92-882-0**	18.95	–	–	–
5/8 x 11/16"	8 1/8"	**92-883-8**	18.95	8"	**92-897-8**	21.05
5/8 x 3/4"	8 1/8"	**92-884-6**	19.75	8"	**92-898-6**	20.90
11/16 x 7/8"	9 1/4"	**92-885-3**	21.40	–	–	–
3/4 x 7/8"	9 1/4"	**92-886-1**	21.40	9 1/8"	**92-899-4**	24.20
13/16 x 7/8"	9 1/4"	**92-887-9**	21.55	–	–	–
13/16 x 15/16"	9 1/4"	**92-888-7**	21.40	9 1/8"	**92-900-0**	24.20
1 x 1 1/16"	15"	**92-889-5**	51.90	–	–	–
1 1/16 x 1 1/8"	15"	**92-890-3**	51.90	–	–	–
1 1/16 x 1 1/4"	15"	**92-891-1**	53.00	–	–	–
1 1/8 x 1 3/16"	15"	**92-892-9**	55.65	–	–	–

12 Point Straight & 25° Offset Wrenches - Metric

SIZE (MM)	STRAIGHT OAL	STRAIGHT PART NO.	STRAIGHT PRICE	25° OFFSET OAL	25° OFFSET PART NO.	25° OFFSET PRICE
15 x 17	8 1/8	**92-916-6**	$18.95	8	**92-919-0**	$21.05
16 x 18	8 1/8	**92-917-4**	20.10	8	**92-920-8**	22.40
19 x 21	9 1/4	**92-918-2**	21.55	9 1/8	**92-921-6**	25.75

HAND TOOLS



93-435-6

CRESCENT®

148 Pc. Professional Tool Set

1/4", 3/8" & 1/2" Drives, 6 & 12 Point SAE/Metric

1/4" Drive

- 1 - 72-tooth quick release ratchet
- 1 - 3" extension
- 20 - 6 pt. sockets: 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2", 9/16", 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 mm

3/8" Drive

- 1 - 72-tooth quick release ratchet
- 1 - 3" extension
- 1 - 6" extension
- 1 - 3/8" (female) to 1/4" (male) adapter
- 2 - Spark plug sockets: 5/8", 13/16"
- 16 - 12 pt. sockets: 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 9, 10, 12, 13, 14, 15, 17, 19 mm
- 10 - 6 pt. deep sockets: 7/16", 1/2", 9/16", 11/16", 3/4", 12, 13, 14, 15, 17 mm

1/2" Drive

- 1 - 72-tooth quick release ratchet
- 1 - 5" extension
- 10 - 12 pt. sockets: 1/2", 9/16", 5/8", 3/4", 7/8", 15, 17, 18, 19, 21 mm

Also Included:

- 12 - Combination wrenches: 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 8, 10, 12, 13, 14, 15 mm
- 2 - Cutting pliers: 8" long nose & 6" diagonal
- 4 - Magnetic screwdrivers: Slotted: 14" x 4", 3/16" x 3", Phillips: #2 x 4", #1 x 3"
- 1 - Dura-Driver™ Magnetic bit driver
- 44 - 1" Driver bits with holders: Phillips® Slotted, Torx® & Hex
- 18 - SAE/Metric hex keys with holders
- 1 - Storage case.

DESCRIPTION	PART NO.	PRICE
148 Pc. Professional Tool Set	**93-435-6**	$173.10

Blackhawk BY PROTO

11 Pc. 3/8" Drive 6 Point Standard Socket Set



92-659-2

- 9 - 6 Pt. Std.: 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8"
- 1 - Extension: 3"
- 1 - Round head knurled reversible ratchet
- Supplied in fitted plastic case.

DESCRIPTION	PART NO.	PRICE
11 Pc. Standard Socket Set	**92-659-2**	$62.35

CRESCENT®

30 Pc. Standard & Deep Mechanics Tool Set

3/8" Drive 12 Point SAE /Metric

NEW



93-448-9

Set includes:

- 1 - 72-tooth quick-release ratchet drive
- 1 - 3" extension
- 1 - 6" extension
- 1 - 13/16" spark plug socket
- 16 - 12 pt. sockets: 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 9, 10, 12, 13, 14, 15, 17 & 19mm
- 10 - 12 pt. deep sockets: 7/16", 1/2", 9/16", 5/8", 11/16", 12, 13, 14, 16 & 17mm
- Supplied in fitted plastic case.

DESCRIPTION	PART NO.	PRICE
30 Pc. Standard & Deep Mechanics Tool Set	**93-448-9**	$56.40

NEW



93-449-7

CRESCENT®

7 Pc. Universal Quick Convert T-Handle Dual Material Nutdriver Set

Quickly Converts from Straight to T-Handle. Simply Pull Shaft, Rotate Handle, and Push Shaft Back in to Lock

- Hollow shaft works over long threaded rod where normal nut drivers will not fit
- Universal design fits 6 fastener types: Hex, Square, 12pt, E-Torx, Partially Rounded Hex and Spline
- Color coded for easy identification.
- Corrosion resistant, polished chrome shafts.
- Dual material cushion grip, holds up well against oil and grease, for comfortable non-slip grip.
- Includes seven combo nut drivers (fits SAE & MM): 3/16" (4.5mm), 1/4" (6mm), 5/16" (8mm), 11/32" (9mm), 3/8" (10mm), 7/16" (11mm), 1/2" (13mm)

DESCRIPTION	PART NO.	PRICE
7 Pc. Universal Quick Convert T-Handle Dual Material Nutdriver Set	**93-449-7**	$35.80

Blackhawk BY PROTO

16 Pc. 3/8" Drive 6 Point Standard Socket Set

Inch/Metric



92-660-0

- 7 - Std.: 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4,"
- 7 - Std: 10, 11, 12, 12, 14, 15, 17 mm
- 1 - Extension: 3"
- 1 - Round head knurled reversible ratchet
- Supplied in fitted plastic case.

DESCRIPTION	PART NO.	PRICE
16 Pc. Standard Socket Set	**92-660-0**	$73.25

Blackhawk BY PROTO

Insert Bit Sets

For Use with Cordless & Electric Drills



96-039-3

31 Pc. Insert Bit Set includes:

3 – Pozidriv®: #1, #2, #3
3 - Phillips®: #1, #2, #3
9 - Torx®: T6, T8, T10, T15, T20, T25, T27, T30, T40
6 – Slotted: 3.5, 4.5, 5, 5.5, 6.5, 8 mm
6 – Hex: 2, 3, 4, 5, 6, 8 mm
3 – Square: #1, #2, #3
1 - 1/4" quick-release bit holder
Supplied in plastic case and belt clip

101 Pc. Insert Bit Set includes:

5 - Phillips®: #0, #1, #2, #3, #4
6 – Slotted: 1/8, 5/32, 3/16, 7/32, 1/4, 9/32"
3 – Clutch: 5/32, 3/16, 1/4"
5 – Pozidriv®: #0, #1, #2, #3, #4
6 – Std. Internal Torx®: T10, T15, T20, T25, T30, T40
3 – Spline: 5, 6, 8
10 - Torx®: T6, T8, T10, T15, T20, T25, T27, T30, T40, T45
10 – Torx® Tamperproof: TT6, TT8, TT10, TT15, TT20, TT25, TT27, TT30, TT40, TT45
4 – Square: #0, #1, #2, #3
4 – Spanner: 4, 6, 8, 10
7 – Hex: 1.5, 2, 2.5, 3, 4, 5, 6 mm
7 – Hex Tamperproof: 1.5, 2, 2.5, 3, 4, 5, 6 mm
7 – Torx® Plus: T10, T15, T20, T25, T27, T30, T40
7 – Torx® Plus Tamper: TT10, TT15, TT20, TT25, TT27, TT30, TT40
5 – T-Tap: 10, 15, 20, 25, 30
5 – T-Wing: 1, 2, 3, 4, 5
4 – Torq-Set: 4, 6, 8, 10
1 –Quick-release socket 1/4" x 30 mm
1 –Quick-release bit holder 1/4" x 51 mm
1 –Magnetic bit holder 1/4" x 75 mm
Supplied in plastic case.

- D.O.T Regulated. Shipped via ground freight only.



96-040-1

DESCRIPTION	PART NO.	PRICE
31 Pc. Insert Bit Set	**96-039-3**	$26.55
101 Pc. Insert Bit Set	**96-040-1**	84.30



96-038-5

Blackhawk BY PROTO

6 Pc. Magnetic Nutsetter Set - SAE

For Use with Cordless & Electric Drills

- Sizes: 5/16, 1/2, 1/4, 7/16, 7/32, 3/8"
- Model # BI-NS6

DESCRIPTION	PART NO.	PRICE
6 Pc. Magnetic Nutsetter Set	96-038-5	$30.45



93-455-4

APEX ASSEMBLY & FABRICATION TOOLS

45 Pc. Screwdriver Bit Set

- Impact rated.
- Bits have laser etched markings for quick and easy identification.
- Ergonomic handle for comfort.

Set includes:

- 1 - 1/4" Quick release driver handle
- 1 - 1/4" Ratcheting & Socket head attachment
- 1 – 1/4" Quick release bit holder
- 6 - Slotted Screw Bits: 1 - 2, 2 - 3, 3 - 4, 4 - 5, 6 - 8, 8 - 10
- 6 - Phillips®: 1, 1, 2, 2, 3, 4
- 7 - Hex: 3/32", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4"
- 6 - Metric Hex: 2, 2.5, 3, 4, 5, 6
- 7 - Torx®: T15, T20, T25, T25, T27, T30, T40
- 4 - Torx® security: TR10, TR15, TR20, TR25
- 4 – Square: 1, 2, 2, 3
- 2 – PoziDrive®: 1, 2
- Supplied in a plastic case.

DESCRIPTION	PART NO.	PRICE
45 Pc. Screwdriver Bit Set	**93-455-4**	$73.85

HAND TOOLS



Spanner Adjustable Hook Wrench
97-410-5



Adjustable Face Spanner Wrench
97-495-6



Spanner Adjustable Pin Wrench
97-462-6



Spanner Pin Wrenches
97-557-3

Martin Tools Spanner Adjustable Wrenches

Spanner Adjustable Hook Wrenches

CAP. RANGE FOR DIA.	HOOK SPEC. HOOK THICK.	HT.	OAL	PART NUMBER	PRICE EACH
3/4 - 2"	11/32"	1/8"	6 3/8"	**97-410-5**	$45.45
1 1/4 - 3"	13/32"	5/32"	8 1/8"	**97-419-6**	55.45
2 - 4 3/4"	15/32"	3/16"	11 3/8"	**97-423-8**	70.65
4 1/2 - 6 1/4"	15/32"	1/4"	12 1/8"	**97-427-9**	72.85
6 1/8 - 8 3/4"	15/32"	5/16"	13 3/4"	**97-428-7**	97.65
3/4 - 8 3/4"	5 Pc. Set			**97-429-5**	407.90

Spanner Adjustable Pin Wrenches

CAPACITY RANGE FOR DIA.	PIN SPEC. HOOK . THICK.	DIA.	HT.	OAL	PART NUMBER	PRICE EACH
3/4 -2"	11/32"	1/8"	1/8"	6 3/8"	**97-462-6**	$49.40
3/4 - 2"	11/32"	3/16"	5/32"	6 3/8"	**97-463-4**	53.10
1 1/4 - 3"	13/32"	3/16"	3/16"	8 1/8"	**97-466-7**	56.70
1 1/4 - 3"	13/32"	1/4"	7/32"	8 1/8"	**97-467-5**	61.45
2 - 4 3/4"	15/32"	1/4"	1/4"	11 3/8"	**97-468-3**	77.95
4 1/2 - 6 1/4"	15/32"	3/8"	1/4"	12 1/8"	**97-469-1**	83.35
3/4 - 6 1/4"	6 Pc. Set (In Pouch)				**97-471-7**	390.80

Adjustable Face Spanner Wrenches

SPIN EXTREME DIA.	PIN SPECIFICATIONS DIA.	HT.	OAL	PART NUMBER	PRICE EACH
2"	3/16"	1/8"	6 3/8"	**97-495-6**	$39.80
3"	1/4"	3/16"	8 1/4"	**97-496-4**	57.75
4"	5/16"	1/4"	10 3/8"	**97-497-2**	84.40

Spanner Pin Wrenches

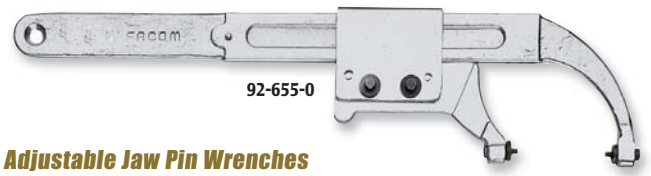
PIN SPEC. FOR CIRCLE DIA.	DIA.	HT.	OAL	PART NUMBER	PRICE EACH
3/16"	1"	5/32"	4"	**97-557-3**	$15.30
13/64"	1 1/4"	5/32"	4 1/2"	**97-558-1**	16.10
7/32"	1 1/2"	3/16"	5"	**97-559-9**	16.15
15/64"	1 3/4"	3/16"	5 1/2"	**97-561-5**	17.35
1/4"	2"	7/32"	6"	**97-562-3**	18.55
17/64"	2 1/4"	1/4"	6 1/2"	**97-563-1**	18.85
9/32"	2 1/2"	9/32"	7"	**97-564-9**	19.90
19/64"	2 3/4"	9/32"	7 1/2"	**97-566-4**	21.30
5/16"	3"	9/32"	8"	**97-567-2**	24.30
21/64"	3 1/4"	9/32"	8 1/2"	**97-568-0**	24.55
11/32"	3 1/2"	5/16"	9"	**97-569-8**	26.85
23/64"	3 3/4"	11/32"	9 1/2"	**97-570-6**	27.70
3/8"	4"	11/32"	10"	**97-574-8**	30.35
7/16"	5"	13/32"	12"	**97-641-5**	40.45
1/2"	6"	9/16"	14"	**97-642-3**	54.55



92-650-1



92-653-5



92-655-0

FACOM® Adjustable Spanner Wrenches

Inch

- Spanner wrenches have either a hook or pin at the end for adjusting collars, locknuts, rings, material handling and specific machinery.

Adjustable Spanner Hook Wrenches

CAP RANGE FOR DIA.	HOOK THICK.	HOOK HT.	OAL	PART NUMBER	PRICE
3/8 - 1 31/32"	19/64"	5/32"	20 7/8"	**92-649-3**	$141.80
19/32 - 1 3/8"	13/64"	1/8"	6 39/64"	**92-639-4**	33.75
25/32 - 3 15/16"	5/16"	13/64"	8 15/32"	**92-650-1**	195.60
1 3/16 - 7 7/8"	25/64"	9/32"	14 3/8"	**92-651-9**	378.30
1 3/8 - 1 31/32"	15/64"	5/32"	7 61/64"	**92-640-2**	37.45
1 31/32 - 3 5/32"	5/16"	13/64"	11 1/32"	**92-641-0**	45.95
3 5/32 - 4 23/32"	23/64"	7/32"	13 37/64"	**92-642-8**	62.90
4 23/32 - 7 3/32"	7/16"	19/64"	19 3/8"	**92-643-6**	69.55

Adjustable Spanner Pin Wrenches

CAP RANGE FOR DIA.	HOOK THICK.	PIN DIA.	OAL	PART NUMBER	PRICE
19/32 - 1 3/8"	1/8"	1/8"	6 39/64"	**92-644-4**	$34.60
1 3/8 - 1 31/32"	5/32"	5/32"	7 61/64"	**92-645-1**	39.95
1 31/32 - 3 5/32"	13/64"	3/64"	11 1/32"	**92-646-9**	45.95
5 5/32 - 4 23/32"	15/64"	15/64"	13 37/64"	**92-647-7**	62.90
4 23/32 - 7 3/32"	25/32"	5/16"	19 3/8"	**92-648-5**	76.60

Adjustable Jaw Pin Wrenches

- For collars and nuts with side holes.
- Interchangeable pins.
- Moving jaw simply slides along the shank and is self-locking onto the nut.
- Supplied with two sets of easily changed pins.
- Satin finish body, phosphated pins.

CAP RANGE FOR DIA.	PIN DIA.	OAL	PART NUMBER	PRICE
0 - 1 31/32"	3/32 - 15/64"	8 15/32"	**92-654-3**	$141.80
0 - 3 15/16"	5/32 - 15/64"	14 1/4"	**92-655-0**	195.60
0 - 7 7/8"	15/364 - 5/16"	20 3/4"	**92-656-8**	378.30

Adjustable Heavy-Duty Spanner Hook Wrenches

- With 11 hole adjustment, this wrench alone replaces a variety of conventional tools in heavy-duty applications.
- Forged hook, hardened to 44 HRC.

CAP RANGE FOR DIA.	HOOK DIA.	OAL	PART NUMBER	PRICE
4 23/32 - 8 13/16"	3/8"	24 1/64"	**92-652-7**	$428.45
8 21/32 - 12 3/4"	3/4"	25 19/32"	**92-653-5**	609.20



92-625-3



92-636-0

STANLEY PROTO®

Adjustable Spanner Wrenches

Inch

- Spanner wrenches have either a hook or pin at the end for adjusting collars, locknuts, rings, material handling and specific machinery.

Adjustable Spanner Hook Wrenches

CAP RANGE FOR DIA.	HOOK THICK.	HOOK HT.	OAL	PART NUMBER	PRICE
3/4 - 2"	11/32"	1/8"	6 3/8"	**92-625-3**	$33.15
1 1/4 - 3"	13/32"	5/32"	8 1/8"	**92-626-1**	37.70
2 - 4 3/4"	15/32"	3/16"	11 3/8"	**92-627-9**	52.10
4 1/2 - 6 1/4"	15/32"	1/4"	12 1/8"	**92-628-7**	55.60
6 1/8 - 8 3/4"	15/32"	5/16"	13 3/4"	**92-629-5**	67.85

Adjustable Spanner Pin Wrenches

CAP RANGE FOR DIA.	HOOK THICK.	PIN DIA.	PIN HT.	OAL	PART NUMBER	PRICE
3/4 - 2"	11/32"	1/8"	1/8"	6 3/8"	**92-630-3**	$35.40
3/4 - 2"	11/32"	3/16"	5/32"	6 3/8"	**92-631-1**	38.35
1 1/4 - 3"	13/32"	3/16"	3/16"	8 1/8"	**92-632-9**	40.60
1 1/4 - 3"	13/32"	1/4"	7/32"	8 1/8"	**92-633-7**	40.60
2 - 4 3/4"	15/32"	1/4"	1/4"	11 3/8"	**92-634-5**	55.70
4 1/2 - 6 1/4"	15/32"	3/8"	1/4"	12 1/8"	**92-635-2**	59.60

Adjustable Face Spanner Wrenches

SPAN EXTREME DIA.	PIN DIA.	PIN HT.	OAL	PART NUMBER	PRICE
2"	3/16"	1/4"	6 3/8"	**92-636-0**	$30.80
3"	1/4"	1/4"	8 1/4"	**92-637-8**	41.95
4"	5/16"	1/2"	10 3/8"	**92-638-6**	60.60



Use upside down.
Sockets will not fall out.
Sockets not included.



Magnetic Socket Holders

- Durable non stick plastic. Fuel and oil resistant magnetic base made of nitrite rubber.
- Fits both standard and metric sockets.
- Strong magnet.
- Easily cleaned.
- Valuable time saver, great to stick upside down on the underside of your car with magnetic bottom of holder.

DRIVE SIZE	TYPE*	COLOR	NO. OF HOLES	PART NUMBER	PRICE
1/4"	Hex	Red	37	**61-921-3**	$27.35
1/4"	D/S	Red	26	**61-922-1**	27.35
1/4"	D/S	Blue	26	**61-923-9**	27.35
3/8"	S	Red	13	**61-924-7**	27.35
3/8"	S	Blue	13	**61-925-4**	27.35
3/8"	D	Red	13	**61-926-2**	27.35
3/8"	D	Blue	13	**61-927-0**	27.35
1/2"	S	Red	9	**61-928-8**	27.35
1/2"	S	Blue	9	**61-929-6**	27.35

*Hex=use with 1/4" Hex Bits, D=Deep Well Sockets, S= Shallow Sockets

Sturtevant Richmont®
Torque Measurement Systems

Adjustable Torque Screwdriver

Incredibly Durable and High Repeatability

- Used in high precision operations such as electronics and electro-mechanical repair.
- Operator cannot over torque. Clutch releases automatically when desired torque has been achieved.
- Scale on shaft is marked in dual incrementation (in., lbs., and NM) or Cal 36/4, kgf cm or CAL 40.
- Magnifying lens improves view of clearly engraved scale.
- Anti-backlash design enhances repeatability.
- Includes certificate of calibration.
- Uses standard bits, adapters and sockets.
- Overall Length: 7.8"
- Torque Range: 2 - 36 in. lbs./0.2 - 4 Nm
- Graduation: 2 in. lbs./0.2 Nm



95-279-6

DESCRIPTION	PART NO.	PRICE
Adjustable Torque Screwdriver	**95-279-6**	$286.85

Sturtevant Richmont®
Torque Measurement Systems

Adjustable Torque Screwdriver Kits

Incredibly Durable and High Repeatability

- Used in high precision operations such as electronics and electro-mechanical repair.
- Operator cannot over torque. Clutch releases automatically when desired torque has been achieved.
- Scale on shaft is marked in dual incrementation (in., lbs., and NM) or Cal 36/4, kgf cm or CAL 40.
- Magnifying lens improves view of clearly engraved scale.
- Anti-backlash design enhances repeatability.
- Includes certificate of calibration.
- Includes a custom case and one each of the any bits and/or adapters listed.

Set 95-277-0 includes:

- 1 - Cal 36/4 Torque Screwdriver
- 4 - Phillips: #1, #2, #3, #4
- 1 - 1/4" Socket Adapter

Set 95-278-8 includes:

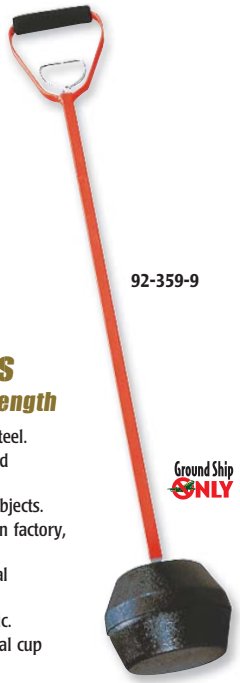
- 1 - Cal 36/4 Torque Screwdriver
- 5 - Hex: 5/64, 3/32, 7/64, 1/8, 9/64"
- 6 - Torx: T10, T15, T20, T25, T30, T40
- 4 - Phillips: #0, #1, #2, #3
- 4 - Square Recess: 0, 1, 2, 3
- 5 - Slotted: 0 - 1, 3 - 4, 5 - 6, 8 - 10, 12 - 14
- 2 - #1, #2
- 1 - 1/4" Bit Holder
- 1 - 1/4" Socket Adapter



95-278-8

NO. OF PCS.	TORQUE RANGE	GRADUATION	PART NUMBER	PRICE
6	2 - 36 in. lbs./0.2 - 4 Nm	2 in. lbs./0.2Nm	**95-277-0**	$305.45
29	2 - 36 in. lbs./0.2 - 4 Nm	2 in. lbs./0.2Nm	**95-278-8**	311.45

HAND TOOLS



EZ Grip Magnets

Standard & Extended Length

- Lifting power based on 1/2" steel.
- Trigger release hand-operated 1 1/2" stroke plunger.
- Handles hard to grip metal objects.
- Easy clean up of work zone in factory, house or shop.
- Easy to use, safe and practical time saving device.
- Body: High impact ABS plastic.
- Magnet: Ceramic type in metal cup housing (permanent power).
- D.O.T. Regulated. Shipped via ground freight only.

OAL	AVG. PULL (LBS.)	PART NUMBER	PRICE
8"	14	**92-358-1**	$39.95
24"	14	**92-359-9**	44.95
8"	28	**92-360-7**	66.95
24"	28	**92-361-5**	74.95



Clean-Up Magnets

Quickly and Safely Clean up Iron, Steel Chips and Waste

- Use for safe handling of sharp cut offs, separating small parts after tumbling and removing unwanted iron and steel scrap for nonferrous surfaces.
- Recover iron and steel items from difficult access areas.
- Adjustable dump guard maximizes pick-up for a clean dump.
- Powerful and permanent rare earth magnets - never needs to be re-magnetized.
- Lightweight, non-rusting shaft and magnet housing.
- D.O.T. Regulated. Shipped via ground freight only.

OAL	DIA.	PART NO.	PRICE
15"	1"	**50-310-2**	$89.95
36"	1"	**50-311-0**	129.95





Magnetic Trays & Collectors

Keeps All of Your Small Hardware in One Place

- Magnetic trays hold both heavy tools and small iron/steel parts.
- Makes repairing jobs in high or dark places easier.
- Ideal for retaining nuts, bolts, washers, sockets and small tools.
- May be used in any position, even upside down.
- Magnetic base with non-marking coating.
- D.O.T. Regulated. Shipped via ground freight only.

SHAPE	LENGTH	WIDTH	DIA.	PART NO.	PRICE
Round	–	–	5.91"	**51-511-4**	$12.55
Round	–	–	4.33"	**51-512-2**	11.55
Rectangular	9.53"	5.59"	–	**51-513-0**	20.95
Rectangular	14.73"	6.30"	–	**51-514-8**	26.15
Square	11.54"	10.71"	–	**51-515-5**	29.25



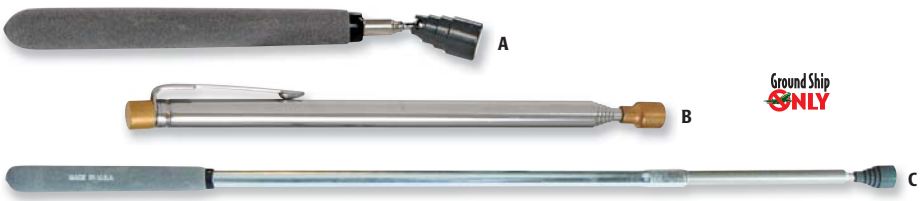


Mirror & Magnet Set

- 6 1/2" - 25" telescoping handle.
- Swivel heads allow access to tight areas.
- Magnets can lift up to 8 lbs.
- Set includes:
  - Large rectangular swivel mirror (2 x 3 1/2") attached to one telescoping handle
  - Small mirror (1 1/4" dia.), interchangeable with 4 magnets on the other handle
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
Mirror & Magnet Set	**51-300-2**	$39.95





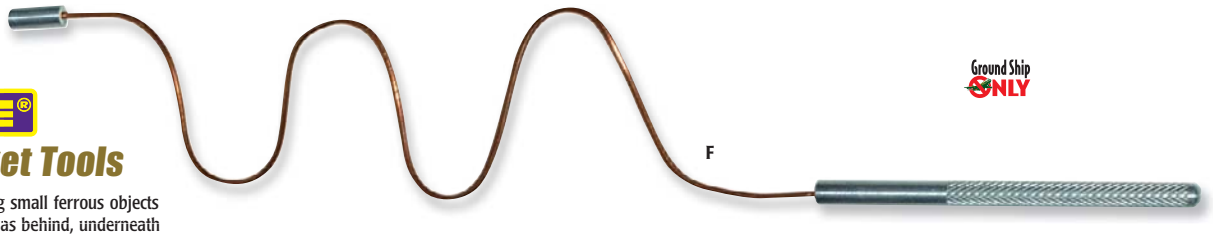
Magnetic Retrievers & Pocket Tools

- Ideal for placing or retrieving small ferrous objects in hard to reach places such as behind, underneath or around machinery.
- Magnets are made of Rare Earth material.
- Rare Earth magnets can be exposed to a maximum temperature of 180° (82°C).
- D.O.T. Regulated. Shipped via ground freight only.

TYPE	DESCRIPTION	LENGTH	EXT. LENGTH	DIA.	AVG. PULL (LBS.)	PART NUMBER	PRICE
A	Magnetic retriever with single ball swivel head and nonslip solvent-resistant comfort grip	8"	35"	5/8"	7	**54-358-7**	$34.90
B	Stainless steel pen sized tool for tiny lobs. Comes with pocket clip	5 1/2"	25 1/2"	5/16"	2	**54-359-5**	7.45
C	Ex-long, heavy duty, magnetic retriever with fixed head & nonslip solvent-resistant comfort grip.	23 1/2"	50"	5/8"	14	**54-360-3**	49.15

MAG-MATE®

Magnetic Pocket Tools



- Ideal for placing or retrieving small ferrous objects in hard to reach places such as behind, underneath or around machinery.
- Magnets are made of Rare Earth material.
- Rare Earth magnets can be exposed to a maximum temperature of 180° (82°C).
- D.O.T. Regulated. Shipped via ground freight only.

TYPE	DESCRIPTION	LENGTH	EXT. LENGTH	DIA.	AVG. PULL (LBS.)	PART NUMBER	PRICE
A	Key Chain Retriever	2"	-	3/8"	4	**95-154-1**	$19.05
B	Pen Sized Magnetic Tool. Sturdy clip holds magnet firmly in pocket	6"	-	5/16"	2.5	**95-155-8**	15.80
C	Double ball hinged head. Hex rod prevents magnet from swinging while in use	17"	26 1/2"	1/2"	7.5	**95-156-6**	26.95
D	Magnetic retriever w/fixed head and nonslip solvent-resistant comfort grip.	16 1/2"	29"	1 1/8"	20	**95-157-4**	70.10
E	Flexible retriever has a spring shaft that allows it to snake through tight areas.	24"	-	3/8"	2	**95-158-2**	35.25
F	Bendable copper shaft magnetic retriever Fits into tight spots. Knurled aluminum handle	25"	-	5/16"	5	**95-159-0**	17.85
F	Bendable copper shaft magnetic retriever Fits into tight spots. Knurled aluminum handle	20"	-	.175"	0.5	**95-160-8**	15.85







14 lb. Magnetic Pick-up tool



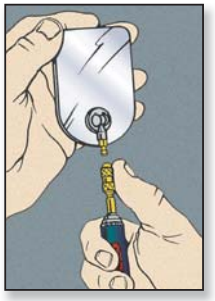
3 lb. Magnetic Pick-up tool



Mirror







Sets Feature Patented Quick Change Coupler.



Teluminator™ with mirror attached.

Deluxe Pick-Up Tools

- Exceptionally strong rare earth magnet. Energy collar increases magnetic strength 35% and reduces side pull 99.9%.
- Durable, Patented Stainless Steel Telescoping Shaft. Retracted to: 7" Fully Extended: 34". Graduated Bevel Edge.
- Mirror and Magnifier are made from shatter resistant acrylic and are replaceable. Patented swivel ball provides ultra quick mirror positioning, swivels 180°, rotates 360°.
- Protective cover included for mirror.
- Solvent Resistant PVC Cushion Grip.
- D.O.T. Regulated. Shipped via ground freight only.

DESCRIPTION	PART NO.	PRICE
7 lb. Magnetic Pick-up Tool	**97-780-1**	$26.50
3 lb. Magnetic Pick-up Tool	**97-782-7**	20.95

Teluminator Kit

- High intensity focusing krypton inspection light encased in a durable housing.
- One-hand operation.
- Includes: Two AA batteries. Stainless steel telescoping shaft with brass quick-change coupler. Three shatter-resistant acrylic inspection mirrors & one magnifier. Two magnets (3 & 14 lbs.) with energy collar. Aluminum case.
- Telescopes from 7" to 32".

DESCRIPTION	PART NO.	PRICE
Teluminator™ Pick-up Kit	**97-787-6**	$176.20

Accessories for Kits

DESCRIPTION	PART NO.	PRICE
1 3/4" Replacement Mirror	**97-789-2**	$13.80
3/4" Replacement Mirror	**97-790-0**	12.20
Replacement Magnifier	**97-791-8**	12.30
14 lb. Replacement Magnet	**97-792-6**	13.80
3 lb. Replacement Magnet	**97-793-4**	12.20

HAND TOOLS

GENERAL®

Magnetic Pick-Up Tools



- Ideal for retrieving steel parts in hard to reach work areas.
- Neodymium magnet.
- D.O.T regulated. Shipped via ground freight only.

Ground Ship ONLY



TYPE	DESCRIPTION	LENGTH	EXT. LENGTH	DIA.	AVG. PULL (LBS.)	PART NUMBER	PRICE
A	Telescoping Magnetic Tool with Pocket Clip	5 1/2"	23 1/2"	21/64"	2	**96-055-9**	$11.75
B	Bendable magnetic pickup with a 15" aluminum shaft that can be bent, twisted and contorted	20"	-	1/4"	2	**96-056-7**	9.15

PROTO®

Flexible Magnetic Retrieving Tools



Ground Ship ONLY

- Retrieves small objects from hard to reach places.
- Push button allows for reaching an object before energizing the magnetic.
- D.O.T regulated. Shipped via ground freight only.

LENGTH	DIA.	AVG. PULL	PART NUMBER	PRICE
19 1/2"	1/4"	1.5	**96-045-0**	$35.85
24 1/2"	7/16"	2	**96-046-8**	45.65

MAYHEW™

Lighted Flex Claw Tool



- Reach and retrieve in confined, dark areas.
- LED light illuminates dark areas.
- 4 strong claws for positive grabbing.
- Flexible shaft to maneuver in difficult spaces.
- Material: Metal.
- Length: 22 1/2"
- Max pull: 7.5 lbs.

DESCRIPTION	PART NO.	PRICE
Lighted Flex Claw Tool	**95-109-5**	$23.80

STEELMAN®

Lighted Inspection Tools



Bend-A-Light®



- High Intensity flexible light bends and holds position.
- Provides bright light in tight spaces.
- Durable handle with brass shaft.
- Protective cover and batteries are included.

DESCRIPTION	FLEX SHAFT LENGTH	PART NUMBER	PRICE
11" Mini Pro Bend-A-Light®	6"	**77-494-3**	$25.75
16" Pro Bend-A-Light®	9 1/2"	**77-495-0**	38.35
24" Pro Bend-A-Light®	15 3/4"	**77-496-8**	79.70
Repl. Bulb for 77-496-8		**77-497-6**	28.05
Repl. Bulb for 77-494-3 & 77-495-0		**77-498-4**	12.00

Lighted Inspection Tool

- Use to see difficult-to-reach areas.
- 90° adjustable 4 power mirror.
- Thumbwheel controls mirror angle.
- 2 AA batteries included.

DESCRIPTION	PART NO.	PRICE
18" Lighted Inspection Tool	**77-499-2**	$43.05
24" Lighted Inspection Tool	**77-500-7**	45.55
42" Lighted Inspection Tool	**77-501-5**	54.40

Industrial Quality

Lighted Inspection Mirror



- Mirror for looking at blind corners.
- 24" copper flex rod.
- Magnetic tip for picking up dropped items.

DESCRIPTION	PART NO.	PRICE
Lighted Inspection Mirror	**54-310-8**	$29.95



GENERAL®

Illuminated Tweezers

The Powerful LED Light Allows You To Put The Light Exactly Where You Need It.

- Retrieve items from dark, hard-to-reach places.
- Push ON/Push OFF powerful LED light.
- Non-slip comfort grip.
- 2 tips: Smooth Point or Serrated Blunt.
- Made from heat treated steel.
- Corrosion resistant non-glare black finish.
- OAL: 6 1/4"
- Uses (3) LR41 batteries per tweezer, included.

DESCRIPTION	PART NO.	PRICE
Smooth Pointed Tip	**97-005-3**	$13.10
Serrated Blunt Tip	**97-006-1**	13.35



Erem® Precision Tweezers

Straight, Curved Pointed and Flat Round Tips

NEW

Swiss Made



- Special stainless steel, non-magnetic, non-rusting, acid-proof and heat resistant up to 512° F
- Manufactured high-precision tools of the highest quality.

Straight Pointed Tips

PATTERN	OAL	DESCRIPTION	PART NO.	PRICE
ACSA	4 1/4"	Serrated finger grips for secure handling. Used for precise bending and holding of components or wires.	**50-114-8**	$19.95
3CSA	4 5/16"	Standard model for delicate work	**50-115-5**	32.55
OOSA	4 3/4"	Very robust. Suitable for standard applications	**50-116-3**	30.20
OODSA	4 3/4"	Very robust. Serrated finger grips and inside serrated tip for secure handling. Suitable for standard applications	**50-117-1**	36.80
1SA	4 3/4"	For standard applications	**50-118-9**	32.00

Straight Pointed Tips Relieved

PATTERN	OAL	DESCRIPTION	PART NO.	PRICE
5SA	4 1/2	Very pointed tips. Suitable for very fine wires.	**50-119-7**	$46.00
2SA	4 1/2	Medium point tips	**50-120-5**	35.55

Pointed Tips Bent

PATTERN	OAL	DESCRIPTION	PART NO.	PRICE
7SA	4 3/4"	Excellent handling in confined spaces.	**50-121-3**	$56.90

Flat Round Straight Tips

PATTERN	OAL	DESCRIPTION	PART NO.	PRICE
2ASA	4 3/4"	Flat rounded tips for gripping components. 5/64" tip width	**50-122-1**	$40.50



81-133-1



Case for both 81-133-1 and 81-134-9

Stainless Steel Tweezer Sets

- General purpose stainless steel tweezer sets with polished finish.
- Each set contains a variety of popular shapes and styles of tweezers.



81-134-9

6 Piece Set

LENGTH	PURPOSE & FEATURES	PART NO.	PRICE
5"	Popular tweezer styles for use in micro electronics. Complete in Leatherette case.	**81-133-1**	$32.20

7 Piece Set

LENGTH	PURPOSE & FEATURES	PART NO.	PRICE
6"	Handy tweezer lengths for general use in sorting, assembly, etc. Complete in Leatherette case.	**81-134-9**	$48.15

4 Piece Set

LENGTH	PURPOSE & FEATURES	PART NO.	PRICE
1 each 6", 8" 10" & 12"	Basic tweezer tip style for long and exceptional reach. Supplied in fitted plastic case.	**81-135-6**	$20.90



90-990-3

AVEN

E-Z Pik Precision Tweezers & Set

Color Coded

- Features a highly durable special coating for high visibility and easy identification.
- Manufactured from Anti-Acid, Anti-Magnetic Stainless Steel.

Individual Tweezers

PATTERN	COLOR	DESCRIPTION	OAL	PART NO.	PRICE
AA-SA	Yellow	Straight, Strong, Precise Tips	5"	**90-984-6**	$7.40
OO-SA	Red	Straight, Thick, Strong Tips	4 3/4"	**90-985-3**	7.40
2A-SA	Black	Tapered, Flat Tips	4 3/4"	**90-986-1**	7.40
3C-SA	Light Blue	Straight, Fine Tips	4 1/2"	**90-987-9**	7.40
5-SA	Green	Tapered, Ultra Fine Tips	4 1/2"	**90-988-7**	7.40
7-SA	Orange	Curved, Fine Tips	4 1/2"	**90-989-5**	7.40

6 Pc. Set includes

- Patterns: AA (Yellow), OO (Red), 2A (Black), 3C (Light Blue), 5 (Green), 7 (Orange)
- Supplied in handy pouch.

DESCRIPTION	PART NO.	PRICE
6 Pc. Set	**90-990-3**	$43.30

HAND TOOLS

GENERAL®

4-in-1 Pin Vise

An Exceptional Pin Vise for Multiple Projects



96-254-8

- Versa-Grip™ handle for maximum performance.
- Internal storage under cap for spare collet.
- 2 double end collets: 0 – 0.031" and 0.093" – 0.125", 0.031 – 0.062" and 0.062 – 0.093"

DESCRIPTION	PART NO.	PRICE
4-in-1 Pin Vise	**96-254-8**	$18.45

Excel USA Our Edge Makes The Difference

Pin Vise Sets

Deluxe & Mini



65-652-0



65-653-8

Deluxe Pin Vise w/6 Assorted Drills

- 1/4" anodized aluminum handle has a permanently mounted self-centering steel chuck.
- Accommodates drill sizes 0.0635" - .0135"
- Non-slip knurled surface for positive grip.
- Includes 6 assorted drills in a clear plastic tube that slides inside handle for storage.

Mini Pin Vise w/12 Assorted Drills

- For lightweight work on plastic, wood and metal.
- Features include an integrated brass chuck
- Accommodates drill sizes 0.070" – 0.0135"
- Knurled chuck sleeve, barrel and storage cap.
- Room in handle for storing up to 12 drills.

DESCRIPTION	PART NO.	PRICE
Deluxe Pin Vise	**65-652-0**	$16.05
Mini Pin Vise	**65-653-8**	21.70

SHOP GRADE

Micro Chuck

- For use with #60 to #80 Wire Gage Drills in a drill press or hand-held tool.
- Grips drills firmly and accurately in various sizes as small as a human hair.
- Micro Chuck can be held in any 1/8" or 3/16" collet or larger adjustable drill chuck.



67-149-5

DESCRIPTION	PART NO.	PRICE
Micro Chuck	**67-149-5**	$12.95



98-600-0

Pin and Hand Vise Set

- Set of 4 Pin Vises in attractive plastic pouch.
- Ideal for holding small tools, rods, wires, taps, etc.
- Made of alloy steel, black nitrite finish.
- Collets grip firmly when chuck is tightened.
- Knurled finger grip.
- Range of set 0 - 3/16".

Individual Pin Vise

RANGE	PART NO.	PRICE
.040 - 0.250"	**92-362-3**	$8.05

4 Pc. Set

RANGE OF PIN VISES	PART NO.	PRICE
0 - .040", .032 - .059" .052 - .122", .118 - .188"	**98-600-0**	$19.95



97-129-1

Pin Chuck Set

- Designed to hold small drills or pins, 3 interchangeable collets provide a range 0.010 to 0.100" overall length 2 1/2".
- Shank diameter: 1/4"

DESCRIPTION	PART NO.	PRICE
Pin Chuck Set	**97-129-1**	$20.15



97-193-7

Pin Vises & Set

- For holding small rods, wire, drills,taps and other small tools.
- Tool steel collets are hardened and grip firmly when screw chuck is tightened.
- Nickel plated handle is hollow to permit holding long rods or wire.
- Meets Government Specs.

Individual Pin Vises

RANGE	PART NO.	PRICE
0 to 0.055"	**97-177-0**	$9.45
0.025 to 0.075"	**97-194-5**	9.50
0.045 to 0.125"	**97-191-1**	11.25
0.110 to 0.150"	**97-195-2**	11.80

4 Pc. Set

RANGE	PART NO.	PRICE
0 to 0.150"	**97-193-7**	$41.80



97-170-5

Reversible Collet Pin Vise

- One double-end reversible collet on each end of body.
- Nickel plated body is made of tubing to permit the use of long wire or rods.
- Body diameter: 5/16".
- Length: 3 3/4".
- Capacity: 0 - .125".

DESCRIPTION	PART NO.	PRICE
Reversible Collet Pin Vise	**97-170-5**	$9.95



GENERAL®

Pin Vises & Set

- For holding small rods, wire, drills, taps and other small tools.
- Tool steel collets are hardened and grip firmly when screw chuck is tightened.
- Nickel plated handle is hollow to permit holding long rods or wire.
- 4 pc. set supplied in vinyl pouch.

Individual Pin Vises

RANGE	PART NO.	PRICE
0 – 0.055"	**92-365-6**	$16.20
0.025 – 0.075"	**92-366-4**	18.50
0.045 – 0.125"	**92-367-2**	20.80
0.110 – 0.150"	**92-368-0**	22.20

4 Pc. Set

RANGE	PART NO.	PRICE
0 – 0.187"	**92-369-8**	$80.80



Starrett®

Pin Vise Set

- Special collet design with tapers at both ends for maximum clamping surface.
- 4 sizes of pin vises in protective case range: .010 - .055", .025 - .075", .045 - .135", .110 - .200".
- Use in machine chucks or collets.
- Stock through hole for long stock.
- Rapid rotation between fingers and thumb.
- Heavy nickel plated finish.
- Starrett® model # S240Z.
- Protective vinyl case included.

DESCRIPTION	PART NO.	PRICE
Starrett® Pin Vise Set	**10-343-2**	$144.00

Hand Drill & Pin Vise with Swivel Head



- For holding small drills, taps, wire, etc., from 0 - .125".
- Body diameter 5/16".
- Length 4".
- Collets are made of hardened tool steel.
- Has 2 double-end reversible collets and a large free-wheeling swivel head.

DESCRIPTION	PART NO.	PRICE
Hand Drill & Pin Vise w/Swivel Head	**97-190-3**	$7.95



vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Handy Chuck

- Unique holding device for numerous hand-held applications.
- 3-jaw steel chuck grips small tools firmly in wide range, from .010" to .312" dia.
- Hand grip portion, 1" dia. x 4 1/2" length, is made from tough Du Pont Delrin.
- Handy Chuck is a must for the toolbox of every machinist, toolmaker, mold and die maker and inspector.
- Weight: 3 oz.

DESCRIPTION	PART NO.	PRICE
Handy Chuck	**98-590-3**	$29.98

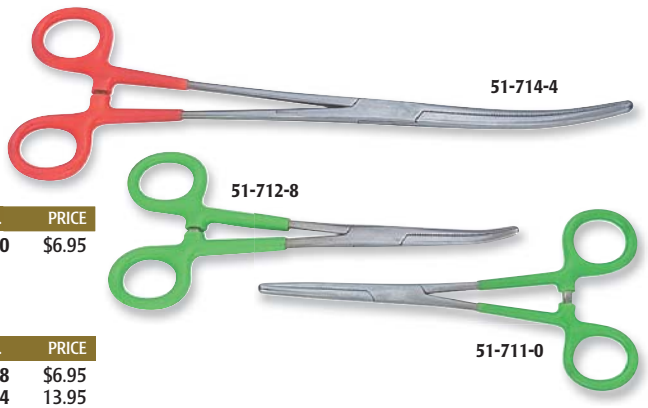
Long Neck Serrated Tip Tongs



- All purpose laboratory and industrial tongs for holding, manipulating and pouring as well as picking up hot objects.
- Overall length: 9"
- Stainless steel.

DESCRIPTION	PART NO.	PRICE
Long Nose Serrated Tip Tongs	**56-671-1**	$10.35

Stainless Steel Holders



Straight Grippers

- Straight, dipped handle.

DESCRIPTION	PART NO.	PRICE
6 1/4" Straight Gripper	**51-711-0**	$6.95

Curved Grippers

- Curved, dipped handle.

DESCRIPTION	PART NO.	PRICE
6 1/4" Curved Gripper	**51-712-8**	$6.95
10 1/2" Curved Gripper	**51-714-4**	13.95



Excel USA
Our Edge Makes The Difference

Hemostats

- Hemostats can be used like ultra needle nose pliers on fuel line clamps, small vises or heat sinks.
- Three locking positions allow various degrees of clamping pressure.
- Soft grip handles.
- Made of stainless steel.
- OAL: 5"

DESCRIPTION	PART NO.	PRICE
Curved Nose	**65-840-1**	$7.80
Straight Nose	**65-841-9**	8.20

HAND TOOLS



96-880-0

Moody®
5 Pc. Scriber/Pick Set

Ground Ship ONLY

- Set contains one hex shaped aluminum handle and four threaded alloy steel tips.
- Four threaded tips included are 90° bent, hook, straight, and angled.
- Vinyl pouch.
- Overall length: 7½".

DESCRIPTION	PART NO.	PRICE
5 Pc. Scriber Set	**96-879-2**	$9.15
5 Pc. Scriber Set w/Magnet Handle	**96-880-0** *	10.75

*D.O.T regulated. Shipped via ground freight only.



52-270-6

Economy Scribes

- Scribe in steel, aluminum, plastic, ceramic, etc.

DESCRIPTION	PART NO.	PRICE
Tungsten Steel Point	**52-270-6**	$9.70

Moody®
Scribers

Adjustable Hand Scribers

- Alloy steel straight and 90° bent points.
- 5/64" diameter adjustable knurled handle may be locked at any position between the two tips.
- Overall length: 8⅝".
- Body Dia: 5/16".

DESCRIPTION	PART NO.	PRICE
Adjustable Hand Scriber	**96-717-4**	$7.65



96-717-4

"Shirt Pocket" Scribers

- ¼" diameter, solid locking chuck-type handle with a handy pocket clip.
- Overall length: 5½".
- Available with or without magnet.
- Point reverses for storage.

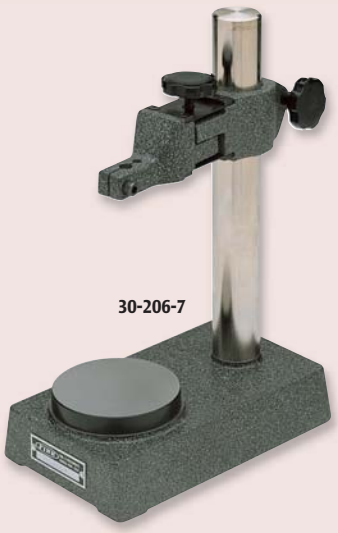
DESCRIPTION	PART NO.	PRICE
Steel Tip Scriber	**96-721-6**	$5.05
Steel Tip w/Magnet	**96-722-4** *	10.20
Repl. Tip Only (Steel)	**96-710-9**	0.75
Carbide Tip Scriber	**96-723-2**	8.10
Carbide Tip w/Magnet	**96-724-0** *	10.50
Repl. Tip Only (Carbide)	**96-711-7**	4.36
Diamond Tip Scriber	**96-726-5**	36.20
Diamond Tip w/Magnet	**96-727-3** *	40.60
Repl. Tip Only (Diamond)	**96-712-5**	26.65

*D.O.T regulated. Shipped via ground freight only.

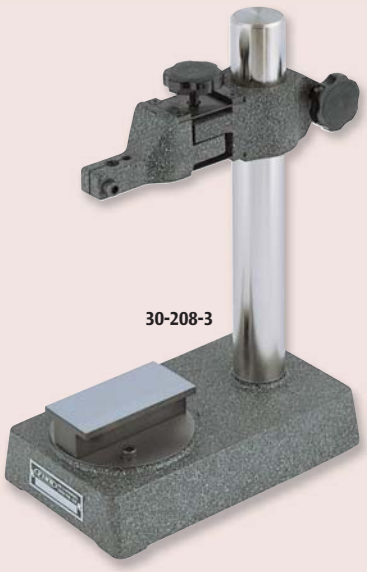


96-721-6

Ground Ship ONLY



30-206-7



30-208-3

MADE IN USA

Indicators sold separately



30-212-5



30-213-3

SPI® Classic
Comparator Stands
See Pg. 45

BONDHUS
Timesaving GorillaProof Tools.™

Ball End L-Wrenches & Sets

Inch & Metric

NEW

MADE IN USA

- Ball End inserts into screw at a 25° angle.
- 25° angle allows natural hand and wrist movement.
- Superior ball end strength and working angle.
- Ball End saves time by quickly funneling tool into screw.
- ProGuard™ finish delivers superior corrosion protection.
- BrightGuard™ chrome finish with superior protection and durability.
- GoldGuard™ real 14 karat gold finish.



97-677-9



93-535-3

ProGuard™ Individual Ball End L-Wrenches - Inch

HEX SIZE	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE	SIZE	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE
0.050"	2.8"	0.53"	**93-503-1**	$1.15	7/32"	4.9"	0.94"	**93-512-2**	$1.80
1/16"	3.0"	0.56"	**93-504-9**	1.15	1/4"	5.6"	1.03"	**07-560-6**	2.75
5/64"	3.2"	0.61"	**93-505-6**	1.20	5/16"	6.0"	1.13"	**93-513-0**	4.10
3/32"	3.4"	0.65"	**93-506-4**	1.20	3/8"	6.8"	1.25"	**93-514-8**	5.65
7/64"	3.6"	0.70"	**93-507-2**	1.40	7/16"	7.5"	1.38"	**93-515-5**	13.95
1/8"	3.8"	0.75"	**93-508-0**	1.40	1/2"	8.3"	1.50"	**93-516-3**	16.45
9/64"	4.0"	0.80"	**93-509-8**	1.40	9/16"	9.0"	1.75"	**93-517-1**	20.15
5/32"	4.2"	0.84"	**93-510-6**	1.60	5/8"	9.8"	1.88"	**93-518-9**	26.30
3/16"	4.5"	0.94"	**93-511-4**	1.85	3/4"	11.3"	2.13"	**93-519-7**	40.35

ProGuard™ Individual Ball End L-Wrenches - Metric

SIZE (MM)	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE	SIZE	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE
1.27	2.8"	0.53"	**93-520-5**	$1.20	7.0	5.5"	1.30"	**93-528-8**	$4.35
1.5	3"	0.53"	**93-521-3**	1.20	8.0	6"	1.38"	**93-529-6**	4.75
2.0	3.2"	0.61"	**93-522-1**	1.20	9.0	6.2"	1.46"	**93-530-4**	6.45
2.5	3.5"	0.69"	**93-523-9**	1.15	10.0	6.7"	1.54"	**07-581-2**	4.25
3.0	3.9"	0.75"	**93-524-7**	1.30	12.0	8.7"	1.73"	**93-531-2**	13.20
4.0	4.3"	0.87"	**93-525-4**	1.60	14.0	10.2"	2.15"	**93-532-0**	19.60
5.0	4.7"	1.06"	**93-526-2**	1.85	17.0	11"	2.42"	**93-533-8**	29.35
6.0	5.5"	1.22"	**93-527-0**	2.45	19.0	11.6"	2.70"	**93-534-6**	35.20



97-688-6



93-538-7

Ball End Sets - Inch

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
ProGuard™ Finish				
7	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	Plastic Holder	**97-686-0**	$12.30
8	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32"	Plastic Holder	**97-676-1**	9.55
12	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16"	Plastic Holder	**97-687-8**	16.65
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Plastic Holder	**97-677-9**	23.10
BrightGuard™ Finish				
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Plastic Holder	**93-535-3**	$22.40
GoldGuard™ Finish				
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Plastic Holder	**93-536-1**	$30.05

Ball End Sets - Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
ProGuard™ Finish				
6	1.5, 2, 2.5, 3, 4, 5 mm	Plastic Holder	**97-677-9**	$23.10
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**97-688-6**	20.00
15	1.27, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10 mm	Plastic Holder	**93-537-9**	26.80
BrightGuard™ Finish				
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-538-7**	$24.80
GoldGuard™ Finish				
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-539-5**	$25.50

Combination Set - Inch/Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
ProGuard™ Finish				
22	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**97-679-5**	$42.25
BrightGuard™ Finish				
22	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-540-3**	$51.95
GoldGuard™ Finish				
22	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-541-1**	$54.30



93-541-1

NEW

MADE IN USA



93-469-5



93-470-3



93-475-2



93-481-0

BONDHUS
Timesaving GorillaProof Tools.™

Short & Long Arm Hex End L-Wrench Sets

Inch, Metric & Torx®

- ProGuard™ finish delivers superior corrosion protection.
- Chamfered tool tips eliminate burrs and help tools seat in screw.
- Sharp corners transfer more torque to the screw and reduce stripping.
- Precision machined for ease to use and superior fit.

Short Arm - Inch

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
7	5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4"	Vinyl Pouch	**93-463-8**	$5.30
10	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	Plastic Holder	**93-464-6**	5.55
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Plastic Holder	**93-465-3**	8.90
15	0.028, 0.035, 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Plastic Holder	**93-466-1**	22.15

Short Arm - Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
7	1.5, 2, 2.5, 3, 4, 5, 6 mm	Plastic Holder	**93-467-9**	$6.40
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-468-7**	9.85
12	0.71, 0.89, 1.27, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Metal Box	**93-469-5**	22.95

Combination Short Arm - Inch/Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
17	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4" 1.5, 2, 2.5, 3, 4, 5, 6 mm	Plastic Holder	**93-470-3**	$13.20
22	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-471-1**	17.30

Long Arm - Inch

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
10	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	Plastic Holder	**93-472-9**	$8.45
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Plastic Holder	**93-473-7**	13.05
13	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 1/2"	Metal Box	**93-474-5**	22.20
15	0.028, 0.035, 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Metal Box	**93-475-2**	55.10

Long Arm - Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
7	1.5, 2, 2.5, 3, 4, 5, 6 mm	Plastic Holder	**93-476-0**	$8.25
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	Plastic Holder	**93-477-8**	12.85
10	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12 mm	Metal Box	**93-478-6**	39.10
15	0.89, 1.27, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12, 14, 17, 19 mm	Metal Box	**93-479-4**	64.30

Combination Long Arm - Inch/Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
22	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, mm	Plastic Holder	**93-480-2**	$24.25
30	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8" 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, mm T9, T10, T15, T20, T25, T27, T30, T40	Plastic Holder	**93-481-0**	37.70

BONDHUS® Timesaving GorillaProof Tools.™

Ball End, Hex & Torx® Multi Packs

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Assembled from Bondhus's most popular sets.



Ball End L-Wrenches and Torx® Tip GorillaGrip® Fold Ups

SET CONSISTS OF:	PART NO.	PRICE
30 Pc. Multi Pack		
13 Pc. Ball End – 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"		
9 Pc. Ball End – 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm		
8 Pc. Torx® Fold Up – T6, T7, T8, T9, T10, T15, T20, T25	**93-482-8**	$43.40
30 Pc. Multi Pack		
13 Pc. Ball End – 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"		
9 Pc. Ball End – 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm		
8 Pc. Torx® Fold Up – T9, T10, T15, T20, T25, T27, T30, T40	**93-483-6**	44.80

Ball End L-Wrenches and Hex End GorillaGrip® Fold Ups

SET CONSISTS OF:	PART NO.	PRICE
22 Pc. Multi Pack		
13 Pc. Ball End – 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"		
9 Pc. Hex Fold Up – 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	**97-682-9**	$34.55
31 Pc. Multi Pack		
13 Pc. Ball End – 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"		
9 Pc. Ball End – 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm		
9 Pc. Hex Fold Up – 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	**93-484-4**	44.00
16 Pc. Multi Pack		
9 Pc. Ball End – 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm		
7 Pc. Hex Fold Up – 2, 2.5, 3, 4, 5, 6, 8 mm	**97-681-1**	30.90

BONDHUS® Timesaving GorillaProof Tools.™

Ball End L-Wrenches with Color Guard™ Finish

Extra Long





- Color-coded tools can be distinguished at a glance.
- Superior rust protection finish.
- Sizes are stamped on the tool.
- Ball End inserts into a screw at a 25° angle.
- Precision shaped ball, smooth surface and sharp, clean corners.
- Made of ProTanium high torque steel.

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
13	0.50, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	**77-796-1**	$36.80
9	1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm	**77-797-9**	29.55
22	Multi Set of Above items	**77-798-7**	62.50

QUICK

Diamond, Cross and Straight Knurling

Clean Cutting Action for Fast, High Quality Knurls — Every Time!

See Pgs. 250 - 252











HAND TOOLS


97-215-8


97-216-6

BONDHUS® Timesaving GorillaProof Tools.™

NEW

Hex End Cushion Gripped T-Handle Sets - Graduated Length

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Welded handle/blade connection.
- Solid steel ergonomic handles with smooth, non-porous coating.
- Molded T-handle stand can be used free standing or wall mounted.
- Sizes are clearly marked on stand.

MADE IN USA

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Molded Stand	**97-215-8**	$54.75
8	2, 2.5, 3, 4, 5, 6, 8, 10 mm	Molded Stand	**97-216-6**	50.20

BONDHUS® Timesaving GorillaProof Tools.™

NEW

Ball End T-Handles Sets

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Ball End inserts into screw at a 25° angle.
- 25° angle allows natural hand and wrist movement.
- Superior ball end strength and working angle.
- Ball End saves time by quickly funneling tool into screw.
- Solid steel ergonomic handles with smooth, non-porous coating.
- Welded handle/blade connection.
- Molded T-handle stand can be used free standing or wall mounted.
- Sizes are clearly marked on stand.


97-673-8

MADE IN USA


97-675-3

Inch

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Vinyl Pouch	**97-673-8**	$50.45
10	3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Molded Stand	**97-217-4**	54.90

Metric

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
8	2, 2.5, 3, 4, 5, 6, 8, 10 mm	Vinyl Pouch	**97-675-3**	$41.15
8	2, 2.5, 3, 4, 5, 6, 8, 10 mm	Molded Stand	**97-218-2**	45.25

BONDHUS® Timesaving GorillaProof Tools.™

NEW

Ball End Screwdriver Sets

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Ball End inserts into screw at a 25° angle.
- 25° angle allows natural hand and wrist movement.
- Superior ball end strength and working angle.
- Ergonomic, non-slip grip handle.
- Anti-roll design.
- Two component handle with tough inner core and cushioned rubber exterior.
- Furnished in vinyl pouch.


92-798-8

MADE IN USA


92-797-0

Inch

NO. OF PCS.	SET CONSISTS OF:	SERIES	PART NUMBER	PRICE
7	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	Standard	**92-798-8**	$5.30
8	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32"	Standard	**92-799-6**	5.55
8 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16"		Standard	**97-680-3**	5.55
13	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Standard	**97-683-7**	8.90
11	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	Long	**97-685-2**	22.15

Metric

NO. OF PCS.	SET CONSISTS OF:	SERIES	PART NUMBER	PRICE
6	1.5, 2, 2.5, 3, 4, 5 mm	Standard	**92-797-0**	$5.30
7	1.27, 1.5, 2, 2.5, 3, 4, 5 mm	Standard	**92-796-2**	5.55
9 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 mm		Standard	**97-684-5**	5.55
8	2, 2.5, 3, 4, 5, 6, 8, 10 mm	Long	**97-795-4**	5.55

NEW



97-728-0

97-733-0

BONDHUS Timesaving GorillaProof Tools.™

GorillaGrip® Fold Ups & Multi Pack

Inch, Metric & Torx®

- Precision cut and chamfered tip insures full tool engagement in the screw.
- Durable GorillaGrip® handle is stronger than steel handles.
- Blades are accessed from both the top and bottom, eliminating the constant"unstacking" of blades.
- Molded-in 90° stop.
- Patented spacers between tools.

Inch

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
9	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 5/32, 3/16"	97-728-0	$8.25
9	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	97-729-8	9.60
5	3/16, 7/32, 1/4, 5/16, 3/8"	97-730-6	13.45

Metric

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
7	1.5, 2, 2.5, 3, 4, 5, 6 mm	97-733-0	$8.25
7	2, 2.5, 3, 4, 5, 6, 8 mm	97-734-8	10.55
6	3, 4, 5, 6, 8, 10 mm	97-735-5	13.90

MADE IN USA

Multi Pack - Inch/Metric/Torx®

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
24	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4" 2, 2.5, 3, 4, 5, 6, 8 mm T9, T10, T15, T20, T25, T27, T30, T40	93-485-1	33.30

BONDHUS Timesaving GorillaProof Tools.™

GorillaGrip® Fold Up Ball End Key Sets

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Ball End inserts into a screw at a 25° angle.
- Durable GorillaGrip® handle is stronger than steel handles.
- Blades are accessed from both the top and bottom, eliminating the constant "unstacking" of blades.
- Molded-in 90° stop.
- Patented spacers between tools.

NEW



93-493-5

97-736-3

MADE IN USA

Inch

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	3/16, 7/32, 1/4, 5/16, 3/8"	97-731-4	$17.85
9	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	93-493-5	13.00

Metric

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	5, 6, 7, 8, 10 mm	97-736-3	$17.85
6	2, 2.5, 3, 4, 5, 6 mm	93-494-3	10.25

NEW



MADE IN USA

93-488-5

BONDHUS Timesaving GorillaProof Tools.™

Metal Fold Up Hex Key Sets

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Chamfered tool tips eliminate burrs and help tools seat in screw.
- Sharp corners transfer more torque to the screw and reduce stripping.
- Precision machined for ease to use and superior fit.

Inch

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
8	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32"	93-486-9	$5.85
9	0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16"	93-487-7	6.85
9	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	93-488-5	8.90
5	3/16, 7/32, 1/4, 5/16, 3/8"	93-489-3	11.00

Metric

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
7	1.5, 2, 2.5, 3, 4, 5, 6 mm	93-490-1	$6.40
7	2, 2.5, 3, 4, 5, 6, 8 mm	93-491-9	8.45
6	3, 4, 5, 6, 8, 10 mm	93-492-7	12.10

NEW



MADE IN USA

93-495-0

BONDHUS Timesaving GorillaProof Tools.™

Metal Fold Up Ball End Key Sets

Inch & Metric

- ProGuard™ finish delivers superior corrosion protection.
- Ball End inserts into a screw at a 25° angle.
- Chamfered tool tips eliminate burrs and help tools seat in screw head.

Inch

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	3/16, 7/32, 1/4, 5/16, 3/8"	93-495-0	$12.55
7	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32"	93-496-8	10.30
9	5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4"	93-497-6	11.25

Metric

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	1.5, 2, 2.5, 3, 4 mm	93-498-4	$7.95
5	4, 5, 6, 8, 10 mm	93-499-2	12.10

HAND TOOLS



93-573-4



93-574-2

BONDHUS Timesaving GorillaProof Tools.™

NEW

Torx® L-Wrenches & Sets

- Fits all Star and TORX® brand screws.
- Chamfered tool tips eliminate burrs and help tools seat in screw head.
- Sharp corners transfer more torque to the screw and reduce stripping.
- Precision machined for ease of use and superior fit.

MADE IN USA

Individual Torx® L-Wrenches - Short Series

HEX SIZE	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE	SIZE	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE
T5	0.9"	0.65"	**93-542-9**	$3.40	T25	2.8"	0.88"	**93-550-2**	$1.75
T6	1.1"	0.65"	**93-543-7**	3.05	T27	3.2"	0.95"	**93-551-0**	1.85
T7	1.4"	0.65"	**93-544-5**	2.70	T30	3.6"	1.03"	**93-552-8**	1.90
T8	1.6"	0.65"	**93-545-2**	2.70	T40	3.9"	1.11"	**93-553-6**	2.15
T9	1.9"	0.65"	**93-546-0**	2.70	T45	3.9"	1.20"	**93-554-4**	2.70
T10	2.2"	0.73"	**93-547-8**	1.60	T50	3.8"	1.25"	**93-555-1**	3.05
T15	2.3"	0.78"	**93-548-6**	1.60	T55	3.8"	1.36"	**93-556-9**	5.20
T20	2.6"	0.78"	**93-549-4**	1.70	T60	3.7"	1.75"	**93-557-7**	7.25

Individual Torx® L-Wrenches - Long Series

SIZE (MM)	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE	SIZE	LONG ARM LENGTH	SHORT ARM LENGTH	PART NUMBER	PRICE
T5	2.1"	0.65"	**93-558-5**	$3.50	T27	4.2"	0.95"	**93-566-8**	$2.05
T7	2.4"	0.65"	**93-559-3**	3.10	T30	4.6"	1.03"	**93-567-6**	2.30
T8	2.6"	0.65"	**93-560-1**	3.10	T40	4.9"	1.11"	**93-568-4**	2.45
T9	2.9"	0.65"	**93-561-9**	3.10	T45	5.4"	1.20"	**93-569-2**	3.10
T10	3.2"	0.73"	**93-562-7**	1.60	T50	6.2"	1.25"	**93-570-0**	3.85
T15	3.3"	0.78"	**93-563-5**	1.60	T55	6.7"	1.36"	**93-571-8**	6.15
T20	3.6"	0.78"	**93-564-3**	1.70	T60	7.2"	1.75"	**93-572-6**	8.20
T25	3.8"	0.88"	**93-565-0**	2.05	–	–	–	–	–

Torx® L-Wrench Sets

NO. OF PCS.	SET CONSISTS OF:	SERIES	SUPPLIED IN	PART NUMBER	PRICE
8	T9, T10, T15, T20, T25, T27, T30, T40	Short	Plastic Holder	**93-573-4**	$14.90
14	T6, T7, T8, T9, T10, T15, T20, T25, T27, T30, T40, T45, T50, T55	Long	Metal Box	**93-574-2**	59.50

BONDHUS Timesaving GorillaProof Tools.™

GorillaGrip® Fold Up Torx® & Tamper-Resistant Key Sets

- ProGuard™ finish delivers superior corrosion protection.
- Precision cut and chamfered tip insures full tool engagement in the screw.
- Blades are accessed from both the top and bottom, eliminating the constant "unstacking" of blades.
- Molded-in 90° stop.
- Patented spacers between tools.
- Durable GorillaGrip® handle is stronger than steel handles.

NEW



97-738-9

93-502-3

MADE IN USA

Torx®

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
8	T6, T7, T8, T9, T10, T15, T20, T25	**97-737-1**	$19.40
8	T9, T10, T15, T20, T25, T27, T30, T40	**97-738-9**	20.95

Torx® - Tamper Resistant

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
8	TR9, TR10, TR15, TR20, TR25, TR27, TR30, TR40	**93-502-3**	$21.75

NEW



93-501-5

MADE IN USA

BONDHUS Timesaving GorillaProof Tools.™

Metal Fold Up Torx® Key Sets

- ProGuard™ finish delivers superior corrosion protection.
- Chamfered tool tips eliminate burrs and help tools seat in screw head.
- Sharp corners transfer torque to screw more efficiently and reduce stripping.
- Precision machined for ease of use and superior fit.

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
8	T6, T7, T8, T9, T10, T15, T20, T25	**93-500-7**	$15.50
8	T9, T10, T15, T20, T25, T27, T30, T40	**93-501-5**	17.40



BONDHUS® Timesaving GorillaProof Tools.™

Torx® T-Handles & Sets

- Fits all Star and TORX® brand screws.
- Chamfered tool tips eliminate burrs and help tools seat in screw head.
- Sharp corners transfer more torque to the screw and reduce stripping.
- Precision machined for ease of use and superior fit.
- Solid steel ergonomic handles with smooth, non-porous coating.
- Welded handle/blade connection.

Individuals

SIZE	OAL	HANDLE WIDTH	PART NUMBER	PRICE
T6	6.1"	3.0"	**93-594-0**	$5.85
T7	6.1"	3.0"	**93-595-7**	5.85
T8	6.1"	3.0"	**93-596-5**	6.35
T9	6.1"	3.0"	**93-597-3**	6.15
T10	6.4"	3.0"	**93-598-1**	6.40
T15	6.6"	3.0"	**93-599-9**	6.65
T20	6.9"	3.0"	**93-600-5**	6.90
T25	7.1"	3.0"	**93-601-3**	7.15
T27	7.4"	4.0"	**93-602-1**	7.55
T30	7.6"	4.0"	**93-603-9**	7.85
T40	7.9"	4.0"	**93-604-7**	8.70
T45	8.1"	5.0"	**93-605-4**	9.70

Set

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN	PART NUMBER	PRICE
11	T6, T8, T10, T15, T20, T25, T27, T30, T40, T45, T50	Vinyl Pouch	**93-606-2**	$89.65

wiha Premium Tools

T-Handle Sets
For Torx® Screws



- Top quality T-Handle screwdriver sets.
- High Alloy Chrome-Vanadium-Molybdenum steel, hardened & tempered and nickel plated.
- Impact resistant plastic handle.

DESCRIPTION	PART NO.	PRICE
7 Piece Set T10, T15, T20, T25, T30, T40 & T50 with metal stand	**97-666-2**	$90.45
7 Piece Set T9, T10, T15, T20, T25, T27 & T30	**97-667-0**	64.40



wiha Premium Tools

L-Key Short Arm Sets
For Torx® Screws

- High quality Torx® L-Key screwdriver sets.
- High alloy Chrome-Vanadium-Molybdenum steel, hardened & tempered, with black finish.

DESCRIPTION	PART NO.	PRICE
7 Piece Set T6, T7, T8, T9, T10, T15 & T20	**97-658-9**	$21.65
9 Piece Set T8, T9, T10, T15, T20, T25, T27, T30 & T40	**97-659-7**	30.65



wiha Premium Tools

8 Pc. Powerhandle Torx® Set

- Screwdriver blade high alloy chrome-vanadium-molybdenum-steel.
- Hardened and chrome plated.
- WIHA power handle celluose-acetate, impact resistant, red, cadmium free.
- Torx® sizes: T6, T8, T10, T15, T20, T25, T27, T30.

DESCRIPTION	PART NO.	PRICE
8 Pc. Powerhandle Torx® Set	**97-748-8**	$65.85

Wera Tools. From Ideas.

Individual Wing Style Torx® & Torx Plus® Keys
Designed For Indexable Carbide Tooling



- Black Laser Design with Multi-Component Handle.
- Torx Plus® configurations virtually eliminate tool "Camout" and slippage and offers improvement in drive bit fatigue and torsional strength.

Torx®

TORX SIZE	OAL	PART NUMBER	PRICE
T6	2 1/2"	**93-407-5**	$3.75
T7	2 1/2"	**93-408-3**	3.75
T8	2 3/4"	**93-409-1**	3.80
T9	2 3/4"	**93-410-9**	3.90
T10	2 3/4"	**93-411-7**	3.90

Torx Plus®

TORX SIZE	OAL	PART NUMBER	PRICE
IP6	2 1/2"	**93-412-5**	$4.70
IP7	2 3/4"	**93-413-3**	4.70
IP9	2 3/4"	**93-415-8**	5.00
IP15	3 1/2"	**93-417-4**	5.45

HAND TOOLS

NEW



93-608-8



93-610-4



93-612-0

BONDHUS® Timesaving GorillaProof Tools.™

Hex End & Torx® Socket Bit Sets

- ProGuard™ finish delivers superior corrosion protection.
- Bits fit any six-point socket.
- Precision machined for ease of use and superior fit.
- Bits are suitable for use with impact sockets.
- Supplied in transparent clamshell case.

MADE IN USA

Hex End Bit Sets

Inch

NO. OF PCS.	BIT LENGTH	SET CONSISTS OF:	PART NUMBER	PRICE
5	6"/150 mm	5/16, 3/8, 1/2, 9/16, 5/8"	**93-607-0**	$54.45
9	2"/50 mm	5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 1/2, 9/16, 5/8"	**93-608-8**	57.10

Metric

NO. OF PCS.	BIT LENGTH	SET CONSISTS OF:	PART NUMBER	PRICE
6	6"/150 mm	4, 5, 6, 7, 8, 10 mm	**93-609-6**	$44.85
9	2"/50 mm	4, 5, 6, 7, 8, 10, 12, 14, 17 mm	**93-610-4**	58.45

Torx® Bit Sets

NO. OF PCS.	BIT LENGTH	SET CONSISTS OF:	PART NUMBER	PRICE
8	6"/150 mm	T8, T10, T15, T20, T25, T27, T30, T40	**93-611-2**	$48.85
9	6"/150 mm	T8, T9, T10, T15, T20, T25, T27, T30, T40	**93-612-0**	55.15
10	2"/50 mm	T10, T15, T20, T25, T27, T30, T40, T45, T50, T55	**93-613-8**	58.70
13	2"/50 mm	T8, T10, T15, T20, T25, T27, T30, T40, T45, T47, T50, T55, T60	**93-614-6**	80.80

BONDHUS® Timesaving GorillaProof Tools.™

Hex Pro™ Pivot Head Hex and Torx® Wrenches

NEW

- Allows users to insert wrench into socket head screw one time only, pivoting around obstacles.
- Pivot joints are small but strong with forged hinges.
- Long handles for extra reach.
- Matte chrome finish.
- Heavy duty folding canvas pouch included.



77-792-0

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	3/16, 7/32, 1/4, 5/16, 3/8"	**77-792-0**	$59.90
8	1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8"	**77-793-8**	76.15
6	3, 4, 5, 6, 8, 10 mm	**77-794-6**	63.90
6	T25, T27, T30, T40, T45, T50	**77-795-3**	69.85

Starrett®

Jeweler's Screwdrivers & Sets

Slotted & Phillips®

For Small Scale & Fine Detail Work

- The bodies are made from steel, nicely knurled, and either nickel or chrome plated.
- The blades are made from the best quality steel, properly tempered and nickel-plated.
- All blades are replaceable.
- A slight turn of the knurled chuck securely locks the blade so it will not turn or come out.
- When not in use, the blades can be retracted into the screwdriver body and safety carried in a pocket.



93-406-7

Individual Screwdrivers

BLADE SIZE	TYPE	SCREWDRIVERS PART NO.	SCREWDRIVERS PRICE	REPL. BLADES PART NO.	REPL. BLADES PRICE
0.025"	Slotted	**92-547-9**	$13.45	**92-554-5**	$5.70
0.040"	Slotted	**92-548-7**	13.45	**92-555-2**	5.70
0.055"	Slotted	**92-549-5**	13.45	**92-556-0**	5.70
0.070"	Slotted	**92-550-3**	13.45	**92-557-8**	5.70
0.080"	Slotted	**92-551-1**	13.45	—	—
0.100"	Slotted	**92-552-9**	14.30	**92-558-6**	5.70
#0	Phillips®	**92-553-7**	15.25	**92-559-4**	8.20

6 Pc. Set

- 6 - Slotted: .025, .040, .055, .070, .080, .100"
- Supplied in vinyl case.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**93-405-9**	$84.30

7 Pc. Set

- 6 - Slotted: .025, .040, .055, .070, .080, .100"
- 1 - Phillips®: #0
- Supplied in vinyl case.

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**93-406-7**	$99.95

GENERAL®

Jeweler's Screwdriver Sets

Slotted & Phillips®
For Small Scale & Fine Detail Work

- For use in a variety of applications such as mold making and jewelry repair.
- Knurled handle features a rolling head for fingertip precision when removing and installing delicate screws.
- Blades are black oxide and body is plated to prevent rust.
- Tempered steel blades and one No. 0 crosspoint blade.



92-544-6

5 Pc. Set

- 4 - Slotted: .040, .055, .070, .100"
- 1 - Phillips®: #0
- Supplied in plastic holder.

DESCRIPTION	PART NO.	PRICE
5 Pc. Screwdriver Set	**92-544-6**	$10.15

6 Pc. Set

- 6 - Slotted: .025, .040, .055, .070, .080, .100"
- Supplied in vinyl case.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-545-3**	$25.85

Moody®

Jeweler's Screwdriver Sets

Slotted, Phillips®, JIS, Hex & Torx®
For Small Scale & Fine Detail Work

- For use in a variety of applications such as mold making and jewelry repair.
- Knurled handle features a rolling head for fingertip precision when removing and installing delicate screws.
- All blades are replaceable.



92-542-0



92-543-8

4 Pc. Set

- 4 - Phillips®: #0000, #00, #0, #1
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
4 Pc. Screwdriver Set	**92-541-2**	$26.45

6 Pc. Set

- 3 - Slotted: .040, .070, .100"
- 2 - Phillips® : #0, #1
- 1 - JIS: #00
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-542-0**	$33.05

32 Pc. Set

- 17 complete screwdriver handles with 15 additional interchangable blades.
- 7 - Slotted: .025, .040, .055, .070, .080, .100, .125"
- 4 - JIS cross point : #000, #00, #0, #1
- 6 - Hex : .028, .035, .050(#4), .062(#6), .078(#8), .093"
- 5 - Nut drivers: 5/64, 3/32, 7/64, 1/8, 5/32"
- 10 - Torx : T1, T2, T3, T4, T5, T6, T7, TR8, T9, TR10
- Supplied in wooden case.

DESCRIPTION	PART NO.	PRICE
32 Pc. Screwdriver Set	**92-543-8**	$185.95



Flat Blade



Phillips



Torx



97-650-6

wiha
Premium Tools

Screwdriver Sets

Slotted & Phillips®

- Wiha exclusive CRM-72 special tool steel.
- Satin micron vapor chromed finish.
- Super through hardened blades.

6 Pc. Precision Set

- 6 - Slotted: 1.5, 2, 2.5, 3, 3.5, 4 mm

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**97-651-4**	$30.40

7 Pc. Electro-Static Set

- 4 - Slotted: 1.5, 2, 2.5, 3.5 mm
- 3 - Phillips®: #00, #0, #1

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**92-567-7**	$45.25

7 Pc. Precision Set

- 4 - Slotted: 1.5, 2, 2.5, 3 mm
- 3 - Phillips®: #00, #0, #1

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**97-650-6**	$35.10

7 Pc. Precision Set

- 6 - Slotted: 2.5 x 50, 2.5 x 100, 3 x 100, 3 x 150, 4 x 100, 4 x 150 mm
- 1 - Phillips®: #0 x 75 mm
- Supplied in plastic pouch.

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**92-578-4**	$36.70

HAND TOOLS



92-568-5

STANLEY

6 Pc. Precision Screwdriver Set

Slotted & Phillips®

- 4 - Slotted: 1.4, 2, 2.4, 3 mm
- 2 - Phillips®: #00, #1
- Tough plastic shaft and textured rubber grip allow for comfort and slip resistant grip.
- Plastic storage case to index tools.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-568-5**	$5.70



97-017-8

Moody®

Precision Screwdriver Sets

Slotted, Phillips® & JIS

- Anti-static/ergonomic multi-handle sets with the tips securely molded into the handle.
- Topped off with a hex shaped swivel top.

4 Pc. Set

- 2 - Phillips®: #0, #1
- 2 - JIS: #000, #00
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
4 Pc. Screwdriver Set	**97-013-7**	$24.95

6 Pc. Set

- 6 - Slotted: .025, .040, .055, .070, .080, .100 mm
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**97-017-8**	$32.55



92-576-8

AVEN

Precision Screwdriver Sets

Slotted & Phillips®

- Fast turning swivel caps for optimum control.
- Chrome vanadium steel blades for superior strength.
- Storage case for safe keeping of drivers.
- Portable and easy to use.

7 Pc. Set

- 4 - Slotted Round: 1.6, 2, 2.4, 3 mm
- 3 - Phillips® Round: #00, #0, #1
- Carrying case.

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**92-576-8**	$35.30

8 Pc. Set

- 5 - Slotted: 2, 2.5, 3, 3.5, 4 mm
- 3 - Phillips® Round: #00, #0, #1
- Supplied in plastic case.

DESCRIPTION	PART NO.	PRICE
8 Pc. Screwdriver Set	**92-577-6**	$45.65



92-566-9

GENERAL

Precision Screwdriver Sets

Slotted, Phillips® & Torx®

- Chrome plated vanadium steel blade ensures long life and the swivel head offers greater control.
- A hardened tip and shaft perform maximum workloads.
- Erogonomic handles.

5 Pc. Set

- 2 - Slotted: 3/32, 1/8"
- 3 - Phillips®: #00, #00, #1
- Plastic handle.

DESCRIPTION	PART NO.	PRICE
5 Pc. Screwdriver Set	**92-564-4**	$26.55

7 Pc. Set

- 3 - Slotted: 1/16, 3/32, 1/8"
- 3 - Phillips®: #00, #00, #1
- 1 - Torx®: T6

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**92-565-1**	$28.50

10 Pc. Set

- 4 - Slotted: 3/64, 1/16, 5/64, 3/32"
- 3 - Phillips®: #00, #00, #0
- 3 - Torx®: T6, T7, T8
- PLastic handle.

DESCRIPTION	PART NO.	PRICE
10 Pc. Screwdriver Set	**92-566-9**	$28.50



92-574-3

Xcelite®

6 Pc. Precision Screwdriver Set

Slotted & Phillips®

- Electrostatic discharge safe.
- Chrome-molybdenum vanadium steel blades.
- Smooth turning concave swivel caps.
- Black oxide tips for longer wear life.
- Soft texured comfort grip on handles.
- No-roll handle design.
- 4 - Slotted: 1.5, 2, 2.5, 3 mm
- 2 - Phillips®: #00, #0
- Supplied in storage case.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-574-3**	$47.20



92-570-1

Precision Screwdriver Sets

Slotted & Phillips®

- Erogomically designed handle reduces operator fatigue and gives improved torque transfer.
- Round shank.
- Precision hardened blades.

6 Pc. Set

- 6 - Slotted: 1.5, 2, 2.5, 3, 3.5 4 mm

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-569-3**	$26.50

6 Pc. Set

- 4 - Slotted: 0.3, 0.4, 0.4, 0.5 mm
- 2 - Phillips®: #00, #1
- Rack.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-570-1**	$42.40

6 Pc. Set

- 4 - Slotted: 0.4, 0.5, 0.6, 0.8 mm
- 2 - Phillips®: #0, #1
- Rack.

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-571-9**	$42.40

7 Pc. Set

- 4 - Slotted: 1.5, 2, 2.5, 3 mm
- 3 - Phillips®: #00, #0, #1

DESCRIPTION	PART NO.	PRICE
7 Pc. Screwdriver Set	**92-572-7**	$30.65

6 Pc. Insulated Screwdriver Set

- Meets ASTM F1505-94 and IEC 900 standards.
- Guaranteed safe to 1,000V.
- Non-slip triangular grip maximizes power transmission.
- Handle has hard and soft areas to ensure gripping comfort.
- Set contains 3", 4", 5", 6" slotted plus #1 & 2 Phillips.



97-597-9

DESCRIPTION	PART NO.	PRICE
6 Pc. Insulated Screwdriver Set	**97-597-9**	$71.80

Regular Handle Screwdriver Sets

Slotted, Phillips® & Torx®



92-607-1

2 Pc. Standard Fluted Set

- 1 - Slotted round: 1/4 x 4"
- 1 - Phillips®: #2 x 4"
- Storage rack included.

DESCRIPTION	PART NO.	PRICE
2 Pc. Standard Fluted Set	**92-605-5**	$4.55

5 Pc. Slotted Set

- 1 - Slotted round stubby: 1/4 x 4 1/2"
- 4 - Slotted square: 1/4 x 4", 5/16 x 6", 3/8 x 8", 3/8 x 12"
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
5 Pc. Slotted Set	**92-606-3**	$43.40

6 Pc. Standard Fluted Set

- 2 - Slotted round: 1/4 x 4", 1/4 x 6"
- 2 - Cabinet: 3/16 x 3", 3/16 x 6"
- 2 - Phillips®: #1 x 4", #2 x 4"
- Storage rack included.

DESCRIPTION	PART NO.	PRICE
6 Pc. Slotted Set	**92-607-1**	$10.70

8 Pc. 100 Plus® Slotted & Phillips® Set

- 3 - Slotted round: 1/4 x 4", 5/16 x 6", 3/8 x 8"
- 3 - Phillips® round: #1 x 3", #2 x 4", #3 x 6"
- 1 - Slotted round stubby: 1/4 x 1 1/2"
- 1 - Phillips® round stubby: #2 x 1 1/2"
- Acetate handles.
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
8 Pc. Slotted & Phillips® Set	**92-609-7**	$43.35

10 Pc. Standard Fluted Set

- 2 - Slotted round: 1/4 x 4", 1/4 x 6"
- 2 - Cabinet: 3/16 x 3", 3/16 x 6"
- 2 - Phillips®: #1 x 4", #2 x 4"
- 1 - Slotted stubby: 1/4 x 1 1/2"
- 1 - Slotted pocket: 1/8 x 2"
- 1 - Phillips® stubby: #2 x 1 1/2"
- 1 - Phillips® pocket: #0 x 2"
- Storage rack included.

DESCRIPTION	PART NO.	PRICE
10 Pc. Standard Fluted Set	**92-610-5**	$15.85

20 Pc. Set

- 4 - Precision Slotted: 1.4, 2.0, 2.4, 3.0 mm
- 7 - Slotted: (2 Pcs.) 3/16 x 3", (2 Pcs.) 1/4 x 4", (1) 3/16 x 6", (1) 5/16 x 6", (1) Stubby
- 2 - Precision Phillips®: #0, #1
- 4 - Phillips®: (2 Pcs.) #1 x 3", (2 Pcs.) #2 x 4"
- 1 - Phillips® stubby
- 1 - Offset Slotted: 3/16"
- 1 - Offset Phillips®: #2
- Display card included.

DESCRIPTION	PART NO.	PRICE
20 Pc. Slotted Phillips® & Torx® Set	**92-612-1**	$28.35



92-609-7

HAND TOOLS

Wera Tools. From Ideas.

6 Pc. Ergonomic Screwdriver Set

Slotted & Phillips®



- SlipStop® blades have a micro-rough surface which bites firmly in the recess of the screw.
- Precision hardened blades.
- 4 - Slotted Round: 1/8 x 3", 5/32 x 4", 7/32 x 5", 1/4 x 6"
- 2 - Phillips®: #1 x 3", #2 x 4"

DESCRIPTION	PART NO.	PRICE
6 Pc. Screwdriver Set	**92-592-5**	$49.85



92-529-7

Screwdriver Bit Sets

Slotted, Phillips® & Torx®

Shock resistant tool steel bits. Standard 1/4" hex with ball retension in ratchet. Supplied with high impact plastic storage case.

27 Pc. Set Consists of:

- 12 - Hex: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16"
- 3 - Slotted: 3/16, 1/4, 9/32"
- 2 - Phillips®: #1, #2
- 6 - Metric Hex: 1.5, 2, 2.5, 3, 4, 5 mm
- 1 - Socket adapter: 1/4" Square to 1/4" Hex
- 1 - Offset ratchet
- 1 - Extension
- 1 - Handle

29 Pc. Set Consists of:

- 1 - Magnetic storage handle: 8"
- 1 - 1/4" Drive bit holder: 1 7/8"
- 1 - Adapter: 1/4" Square to 1/4" Hex
- 5 - Slotted: 4-5, 6-8, 8-10, 10-12, 12-14
- 4 - Phillips®: #0, #1, #2, #3
- 6 - Torx : T10, T15, T20, T25, T30, T40
- 4 - Square recess: #0, #1, #2, #3"
- 2 - Clutch: 5/32, 3/16"
- 5 - Hex: 5/64, 3/32, 7/64 1/8", 9/64"

DESCRIPTION	NO. OF PCS.	PART NO.	PRICE
Ratchet Bit Set	27	**92-529-7**	$56.50
Bit Set	29	**92-530-5**	59.45



97-656-3

wiha Premium Tools

Insulated Screwdriver Sets

1,000 Volt Protection Certified, 10,000 Volt Tested

- Ergo molded insulated cushioned grips—1,000 volt tested.
- Each tool Individually tested for insulation integrity.
- Handle and insulation molded on for maximum durability.
- Exact fit precision machined tips.
- Wiha special CRM-72 tool steel blades.
- Super hardened and tempered for long life performance.

DESCRIPTION	PART NO.	PRICE
4-Piece Set 2-Slotted Round: 9/64" & 3/16" 2-Phillips® Round: #1 & #2, Packed in Vinyl Pouch	**97-656-3**	$33.10
6-Piece Set 3-Slotted Round: 9/64", 3/16" & 1/4" 3-Phillips® Round: #1, #2, & #3 Boxed	**97-657-1**	57.00
7-Piece Magnetic Tip Set Bit Storage In Handle w/Snap Off Rotating Spin Cap 1-Insulated Magnetic Bit Holder With 1/4" Drive 3-Slotted Round: 7/32" (5.5 mm), 1/4" (6.5 mm) & 5/16" (8.0 mm) 3-Phillips® Round: #1, #2, & #3 Bit Length: 1"	**97-702-5**	24.45



92-539-6

92-535-4

Wera Tools. From Ideas.

1/4" Drive Adjustable Torque Screwdrivers

Series 7400 Kraftform®

- Contains Rapidaptor® quick-release chuck.
- Straight handle or pistol grip.

HANDLE TYPE	TORQUE MIN.	TORQUE MAX	GRAD.	OAL	MFR'S	PART NUMBER	PRICE
Straight	0.3 Nm	1.2 Nm	0.05 Nm	6"	074700	**92-535-4**	$115.25
Straight	1.2 Nm	3.0 Nm	0.10 Nm	6"	074701	**92-536-2**	115.25
Straight	2.5 In./Lbs.	11.5 In./Lbs.	0.5 In./Lbs.	6"	074710	**92-537-0**	115.25
Straight	11.0 In./Lbs.	29.0 In./Lbs.	1.0 In./Lbs.	6"	074711	**92-538-8**	115.25
Pistol	3.0 Nm	6 Nm	0.25 Nm	6"	074702	**92-539-6**	172.90
Pistol	25.0 In./Lbs.	55.0 In./Lbs.	2.5 In./Lbs.	6"	074712	**92-540-4**	172.90

GENERAL®

Cordless Precision Screwdriver

Great For Ultra-Delicate Applications

Use For Computer and Electronics Repair, Model Building and Watch and Jewelry Repair.



96-246-4

- Super-torque drive.
- Quick-change chuck.
- Ergonomic handle.
- 10+ hours of power.
- 100+ rpm motor with forward and reverse controls.
- Includes six precision bits:
  - Slotted: 1/16", 1/8"
  - Phillips®: #00, #0
  - Star: T5, T6
- Uses 2 AAA batteries, included.

DESCRIPTION	PART NO.	PRICE
Cordless Precision Screwdriver	**96-246-4**	$38.50

5 Pc. Multi-Purpose Tool Set

Industrial Quality

- Set includes:
  - 8" Adjustable Wrench
  - 8" Slip Joint Pliers
  - 6" Long Nose Pliers
  - 1/4" x 4" Screwdriver
  - Cross Point #2 x 4" Driver
- Plastic pouch included.



57-003-6

DESCRIPTION	PART NO.	PRICE
5 Pc. Multi-Purpose Tool Set	**57-003-6**	$29.95

7 Pc. Multi-Purpose Tool Set

Industrial Quality

- 1 - Adjustable Wrench: 10"
- 1 - Diagonal Pliers: 6 1/2"
- 1 - Locking Pliers: 10"
- 1 - Slip Joint Pliers: 6"
- 1 - Long Nose Pliers: 6 1/2"
- 1 - Screwdriver: 1/4" x 4"
- 1 - Cross Pt. Stubby Driver: #2
- Supplied in plastic pouch.



92-657-6

DESCRIPTION	PART NO.	PRICE
7 Pc. Multi-Purpose Tool Set	**92-657-6**	$39.95



95-210-1



95-211-9



95-212-7

MAYHEW

4 Pc. The Dominator® Carbon Scraper Sets

Straight & Angled

- Used for a multitude of applications, such as removing gaskets, rust, paint, carbon build-up and floor tile.
- Blades are ground for a sharp edge and can be reshaped after heavy use to return the cutting edge to its original sharpness.
- Capped end in direct contact with the tempered steel shaft.
- Patented, two-composite ergonomically designed handle provides a comfortable and secure grip.
- Black oxide finish for additional rust protection.
- Overall length: 12"
- Includes clamshell packaging.
- **Angled Set -** Blade is offset for hand clearance and better scraping force in hard-to-reach places.

SET	SET CONSISTS OF:	PART NO.	PRICE
Straight	1/2, 3/4, 1, 1 1/2"	**95-210-1**	$68.80
Angled	1/2, 3/4, 1, 1 1/2"	**95-211-9**	86.30

MAYHEW

4 Pc. The Dominator® Utility Set

With Dominator® Ergonomic Comfort Grip Handles and Strikable End Caps

- Set Includes:
  - 1/2" carbon scraper
  - 1 1/2" carbon scraper
  - Curved hook tool
  - Scratch awl

DESCRIPTION	PART NO.	PRICE
4 Pc. Dominator® Utility Set	**95-212-7**	$61.00

Wedges

Stock, Banana & Flange

- Stock wedges are used to lift and align steel plates.
- Banana and flange wedges are used for separating flanges on pipe when replacing gaskets.
- Manufactured from carbon steel.



58-921-8

Stock Wedges

HEIGHT	WIDTH	OAL	PART NO.	PRICE
1/4"	3/4"	3"	**58-916-8**	$9.80
1/2"	1"	6"	**58-917-6**	11.15
3/4"	1 1/2"	8"	**58-918-4**	17.60
1"	1 1/2"	8"	**58-919-2**	19.45
1 1/4"	1 1/4"	8"	**58-920-0**	23.60
1 1/2"	1 1/2"	10"	**58-921-8**	30.85
1 3/4"	1 3/4"	12"	**58-922-6**	39.80
2"	2"	12"	**58-923-4**	56.25



58-924-2

Banana Wedge

BLADE HEIGHT	BLADE WIDTH	OAL	PART NUMBER	PRICE
13/16"	13/16"	12"	**58-924-2**	$17.35



58-925-9

Flange Wedge

BLADE HEIGHT	BLADE WIDTH	OAL	PART NUMBER	PRICE
7/8"	7/8"	11"	**58-925-9**	$15.70

HAND TOOLS



96-128-4

VAUGHAN®

15" Superbar

- Its "sheppard's crook" rocker head is designed for maximum prying power; 15" length provides excellent leverage.
- Useful for prying, scraping and pulling nails.
- Length – 15", Weight – 1 lb.
- Forged, spring tempered steel for heavy duty use.
- Three beveled nail slots; polished, sharp blades for easy insertion.

DESCRIPTION	PART NO.	PRICE
Vaughan® 15" Super Bar	**96-128-4**	$19.90



97-092-1

PROTO®

Pry Bars

- Impact resistant, extruded Acetate handles are four-sided with broad but shallow flutes.
- Resistant to most harsh chemicals.
- Four-sided handle design helps prevent "roll away" from the work surface and are comfortable and easy to hold.
- High alloy steel shanks are heat treated their entire length and black oxide treated for added strength and durability.

TIP WIDTH	OAL	PART NUMBER	PRICE
5/8"	14 1/2"	**97-092-1**	$22.90
5/8"	17 1/2"	**97-093-9**	28.85
3/4"	28"	**97-094-7**	38.45
3/4"	31 7/8"	**97-095-4**	49.15



52-774-7

Die Set Pry Bars

Separate Dies and Die Sets without Marring Surfaces

- Soft tempered brass shoe and bronze alloy tip allow the pry bar to easily separate the die without harming surfaces.
- Made of forged steel with a black oxide finish.
- Both shoe and tip are easily removable and replaceable.
- Overall length: 18 1/4".
- **Tip & Shoe Package includes:** 2 tips, 2 shoes, screws and nuts.
- **Tip Package includes:** 6 tips, screws and nuts.

DESCRIPTION	PART NO.	PRICE
Forged Steel Pry Bar	**52-773-9**	$41.30
Pry Bar with Tip and Shoe	**52-774-7**	53.70
Tip and Shoe Package	**52-775-4***	27.90
Tip Package	**52-776-2***	13.40

*Pry bar not included



95-126-9



95-127-7

MAYHEW™

Curved Screwdriver Pry Bar Sets

Used for Prying and Lifting

- Variable lengths for work in hard-to-reach locations.
- Durable acetate handle provides a more comfortable and secure grip.
- Black oxide finish for additional rust protection.
- Supplied in a tray.

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
2	25", 31" Pry Bar	**95-126-9**	$77.10
3	12", 17", 25" Pry Bar	**95-127-7**	76.65

PROTO®

Aligning & Rolling Head Pry Bars & Set

Aligning Pry Bars

- For prying, positioning and aligning applications.



97-057-4

TIP WIDTH	OAL	PART NUMBER	PRICE
1/2"	16"	**97-056-6**	$19.40
5/8"	18"	**97-057-4**	27.05
3/4"	24"	**97-058-2**	36.00
7/8"	30"	**97-059-0**	61.05

Rolling Head Bars

- Prying and aligning bar with a long pointed taper and 90° rolling head for leverage.



97-060-8

TIP WIDTH	OAL	PART NUMBER	PRICE
1/2"	12"	**97-060-8**	$30.70
5/8"	16"	**97-061-6**	36.05



97-062-4

Set

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
4	18" & 24" Aligning Pry Bars 12" & 16" Rolling Pry Bars	**97-062-4**	$129.75



Pry Bars with Handles & Sets

- Large handle for better grip and added comfort.
- Made of high carbon steel.

Individual Pry Bars

TIP WIDTH	OAL	PART NUMBER	PRICE
3/4"	12"	**51-343-2**	$11.45
3/4"	17"	**51-344-0**	15.10
3/4"	25"	**51-345-7**	21.15
3/4"	31"	**51-346-5**	25.00
3/4"	36"	**51-347-3**	35.05

Sets

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
4	12" & 17" Straight Bars, 24" Gooseneck Bar, 15" Flat Bar	**51-348-1**	$45.40
4	12", 17", 25", 31" Straight Bar	**51-349-9**	55.45



Industrial Quality

Pry Bars with Handles & Sets

- Manufactured according to strict forging, machining and heat treated standards.

Individual Pry Bars

TIP WIDTH	OAL	PART NUMBER	PRICE
5/8"	12"	**90-599-2**	$29.70
5/8"	17"	**90-600-8**	40.35
11/16"	25"	**90-601-6**	51.40
11/16"	31"	**90-602-4**	62.15
7/8"	36"	**90-603-2**	120.60

Sets

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
3	12", 17", 25" Straight Bar	**90-604-0**	$116.20

Aligning & Rolling Head Pry Bars & Set



Aligning Pry Bars

- Used for prying, positioning and aligning applications.

TIP WIDTH	OAL	PART NUMBER	PRICE
5/8"	15"	**56-663-8**	$19.75
7/8"	30"	**56-665-3**	31.25
1"	36"	**56-666-1**	44.00



Rolling Head Bars

- Long tapered pry bar and align bar on one end and a rolling head for leverage on the other.

TIP WIDTH	OAL	PART NUMBER	PRICE
7/16"	12"	**56-667-9**	$20.90
1/2"	16"	**56-668-7**	23.65
5/8"	20"	**56-669-5**	27.85

Set

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
3	12", 16" & 20" Rolling Head Bars	**56-670-3**	$58.90

PROTO

Super-Duty Chisels & Set



20% Larger Striking Surface than Standard Chisels

- Made from S2 steel and specially heat-treated for greater strength and durability.
- Longer shank features a knurl for better grip and easy positioning.
- Modified parabolic striking end to help reduce mushrooming and chipping.
- Hand ground cutting edge to the exact angle for cutting through tough metals.
- Black oxide finish to help prevent rust corrosion; extending tool and life performance.
- A polished identification panel on one of the flats is marked with the tool number and size in a black inlay.

TIP WIDTH	OAL	PART NUMBER	PRICE
3/8"	6"	**97-038-4**	$13.80
1/2"	6 13/16"	**97-039-2**	16.85
5/8"	7 5/8"	**97-040-0**	18.50
3/4"	8 7/16"	**97-041-8**	23.80
7/8"	9 1/4"	**97-042-6**	32.15
1"	10 1/16"	**97-043-4**	30.25



97-044-2

5 Piece Set

- Sizes: 3/8, 1/2, 5/8, 3/4, 7/8"
- Includes a pouch for convenient storage solutions.

DESCRIPTION	PART NO.	PRICE
5 Pc. Super-Duty Cold Chisel Set	**97-044-2**	$104.90

HAND TOOLS



97-202-6

STANLEY

3 Pc. Cold Chisel Kit

- One-piece construction forged for strength.
- Hardened quenched and tempered for long life and durability.
- Powder-coated finish for easy visibility.
- Sizes: 3/8, 1/2, 5/8"
- Stanley model #16-298.

DESCRIPTION	PART NO.	PRICE
3 Pc. Cold Chisel Kit	**97-202-6**	$11.30



94-005-6

Blackhawk by PROTO

5 Pc. Cold Chisel Kit

- Sizes: 3/8, 7/16, 5/8, 3/4, 7/8"
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
5 Pc. Cold Chisel Set	**94-005-6**	$47.80

PROTO

Cold Chisel Sets

A Wide Range of Sizes to Handle Variety of Jobs

- Made from S2 steel and specially heat-treated for greater strength and durability.
- Modified parabolic striking end to help reduce mushrooming and chipping.
- Hand ground cutting edge to the exact angle for cutting through tough metals.
- Black oxide finish to help prevent rust corrosion; extending tool and life performance.
- A polished identification panel on one of the flats is marked with the tool number and size in a black inlay.
- Includes a pouch for convenient storage solutions.



96-219-1

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	5/8, 5/16, 7/16, 3/8, 1/2"	**96-219-1**	$39.70
7	5/8, 5/16, 7/8, 7/16, 3/8, 3/4, 1/2"	**96-220-9**	70.80



84-107-2

MAYHEW

Handguarded Cold Chisels

Cutting Edge Angle Designed to Provide Greater Strength

- Used to cut and shape metals softer than the cutting edge of a chisel.
- Cold chisel is not intended to be used on masonry materials.

TIP WIDTH	OAL	PART NUMBER	PRICE
3/4"	12"	**84-106-4**	$22.15
1"	8"	**84-107-2**	26.60



95-131-9 95-134-3

MAYHEW

Cape & Half Round Nose Chisels

- Black oxide finish for additional rust prevention.

Cape Chisels

- Also known as a slot chisel.
- Used to cut flat grooves for keyways or slots.
- Narrows to a flat cutting end for precision.

TIP WIDTH	OAL	PART NUMBER	PRICE
1/8"	5 1/2"	**95-129-3**	$10.95
3/16"	5 5/8"	**95-130-1**	12.10
1/4"	5 5/8"	**95-131-9**	12.65

Half Round Nose Chisels

- Also known as gouge chisels.
- Used to cutting round grooves in metal.
- Many specialized uses such as cutting semicircular grooves for oilways in bearings.

TIP WIDTH	OAL	PART NUMBER	PRICE
1/8"	5 1/2"	**95-132-7**	$11.20
3/16"	5 1/2"	**95-133-5**	12.50
1/4"	5 3/4"	**95-134-3**	9.25

MAYHEW

Combination Punch & Chisel Sets

6 Pc. Set

1 – Center Punch: 3/8"
1 – Solid Punch: 3/16"
2 – Pin Punches: 1/8, 3/16"
2 – Cold Chisels: 1/2, 5/8"

- Supplied in vinyl pouch.

11 Pc. Set

1 – Center Punch: 5/16"
1 – Prick Punch: 1/4"
3 – Solid Punches: 3/32, 1/8, 5/32"
3 – Pin Punches: 1/16, 3/32, 1/8"
3 – Cold Chisels: 1/4, 5/16, 3/8"

- Supplied in vinyl pouch.

14 Pc. Set

1 – Center Punch: 3/8"
1 – Drift Punch: 1/8"
2 – Solid Punches: 1/8, 3/16"
5 – Pin Punches: 3/32, 1/8, 5/32, 3/16, 1/4"
5 – Cold Chisels: 1/4, 3/8, 1/2, 5/8, 3/4"

- Supplied in vinyl pouch.



95-206-9

DESCRIPTION	PART NO.	PRICE
6 Pc. Set	**95-204-4**	$48.95
11 Pc. Set	**95-206-9**	63.25
14 Pc. Set	**95-207-7**	109.55



95-702-7

MAYHEW

Combination Punch & Chisel Sets

- Black oxide.
- Sizes: 1/4, 5/16, 3/8, 1/2, 5/8, 3/4"
- Supplied in vinyl pouch.

DESCRIPTION	PART NO.	PRICE
6 Pc. Cold Chisel Set	**95-702-7**	$56.70



97-115-0

STANLEY

12 Pc. Punch & Chisel Set

- One-piece construction forged for strength.
- Hardened, quenched and tempered for long life and durability.
- Powder-coated finish for easy visibility.
- Injection molded hanger.

Set Includes:

2 – Center Punch: 1/4, 5/16"
6 – Pin Punches: 1/16, 1/8, 5/32, 3/16, 1/4, 5/16"
3 – Cold Chisels: 3/8, 1/2, 5/8"
1 – Starter Punch: 3/32"

DESCRIPTION	PART NO.	PRICE
12 Pc. Set	**97-115-0**	$27.60

Blackhawk by PROTO

14 Pc. Chisel & Punch Set

Set Includes:

1 – Center Punch: 3/16"
5 – Pin Punches: 1/8, 5/32, 3/16, 1/4, 5/16"
1 – Prick Punch: 3/8"
5 – Cold Chisels: 3/8, 7/16, 5/8, 3/4, 7/8"
1 – Flat Cape Chisel: 1/2"
1 – Diamond Point Chisel: 3/16"

- Pouch included.

DESCRIPTION	PART NO.	PRICE
14 Pc. Set	**94-026-2**	$112.95



94-026-2

PROTO

Punch & Chisel Sets

- Made from S2 steel and specially heat-treated for greater strength and durability.
- Modified parabolic striking end to help reduce mushrooming and chipping.
- Black oxide finish to help prevent rust corrosion; extending tool and life performance.
- A polished identification panel on one of the flats is marked with the tool number and size in a black inlay.
- Includes a pouch for convenient storage solutions.

5 Pc. Set

1 – Center Punch: 3/8"
1 – Starting Punch: 1/8"
2 – Pin Punches: 1/8, 3/16"
1 – Cold Chisel: 5/8"

- Vinyl pouch

12 Pc. Set

1 – Center Punch: 3/8"
3 – Starting Punches: 1/16, 3/16, 1/8"
3 – Pin Punches: 3/32, 3/16, 1/8"
1 – Cape Chisel: 7/32"
1 – Diamond Point Chisel: 3/16"
3 – Cold Chisels: 5/16, 7/16, 1/2"

- Vinyl pouch

26 Pc. Set

2 – Center Punches: 3/8, 1/2"
5 – Starting Punches: 3/32, 1/8, 3/16, 7/32, 1/4"
1 – Prick Punch: 5/16"
6 – Pin Punches: 3/32, 1/8, 5/32, 3/16, 7/32, 1/4"
3 – Drift Punches: 1/8, 3/16, 1/4"
9 – Cold Chisels: 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 3/16"

- Vinyl pouch

DESCRIPTION	PART NO.	PRICE
5 Pc. Set	**97-247-1**	$36.70
12 Pc. Set	**97-248-9**	92.10
26 Pc. Set	**97-249-7**	259.35



97-247-1



97-248-9



97-249-7

HAND TOOLS

PROTO

Punch & Chisel Holder

- Holds punches and chisels up to 1" in diameter reducing the risk of injury.
- Nylon insert absorbs shock.
- Large four-sided handle.
- Overall length: 8"



97-034-3

DESCRIPTION	PART NO.	PRICE
Punch & Chisel Holder	**97-034-3**	$21.55

NEW



93-456-2

Blackhawk by PROTO

7 Pc. Screw Extractor Set

- Hand forged to ensure correct angle and grip.
- Used to remove broken studs, set screws, pipe and alemite fittings.

EXTRACTOR	BOLT DIA.	DRILL SIZE	LENGTH
No. 1	1/4" to 5/16"	1/8"	2 3/8"
No. 2	3/8"	3/16"	2 11/16"
No. 3	7/16"	15/64"	2 15/16"
No. 4	1/2" to 9/16"	5/16"	3 1/8"
No. 5	5/8"	3/8"	3 3/8"

DESCRIPTION	PART NO.	PRICE
7 Pc. Screw Extractor Set	**93-456-2**	$22.70

Transfer Punch Set

- 28 Piece Set. 3/32" – 1/2" x 64ths, plus 17/32".
- Each punch 4 7/8" long.
- .0025" Undersized for easy use.
- Made of heat treated tempered tool steel for long life.
- Black oxide finish.
- A matched set of transfer punches for tool makers, machinists and tool cribs.
- Used for transferring of threaded, drilled and reamed holes.
- Furnished in stand.

DESCRIPTION	PART NO.	PRICE
Transfer Punch Set	**61-025-3**	$27.00



61-025-3



Transfer Punch Sets

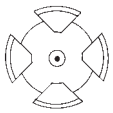
Precision/Matched

- For toolmakers, machinists and tool cribs.
- Made of the finest tool steel.
- Black oxide finish.
- Carefully heat treated – tempered.
- Diameter .0025" undersize to facilitate use.

DESCRIPTION	PART NO.	PRICE
28 punches – 4 7/8" long with indexed stand. 3/32" to 1/2" by 1/64", plus handy 17/32" size	**98-751-1**	$80.80
26 punches – 4 7/8" long with indexed stand. Letter sizes A thru Z.	**98-752-9**	108.40
60 punches – 4 7/8" long with indexed stand. WIRE GAGE sizes 1 thru 60.	**98-753-7**	138.05
33 punches – 4 7/8" long with indexed stand. 1/2" to 1" by 1/64".	**98-754-5**	314.75

Individual Punches

SIZE	PART NO.	PRICE	SIZE	PART NO.	PRICE
1/8"	**07-604-2**	$3.95	5/8"	**07-636-4**	$9.55
3/16"	**07-608-3**	4.05	11/16"	**07-640-6**	10.00
1/4"	**07-612-5**	4.85	3/4"	**07-644-8**	10.90
5/16"	**07-616-6**	4.70	13/16"	**07-648-9**	11.45
3/8"	**07-620-8**	5.40	7/8"	**07-652-1**	11.85
7/16"	**07-624-0**	6.20	15/16"	**07-656-2**	12.45
1/2"	**07-628-1**	7.25	1"	**07-660-4**	12.90
9/16"	**07-632-3**	9.15	1 1/8"	**07-664-6**	23.70





57-054-9

Expanding Transfer Punch Set

- Compact set of 3 takes the place of numerous individual solid punches.
- Each punch expands within its range to pick up the true center of holes from 1/4" to 11/16" diameter.
- By turning the knurled head, the punch body expands to the perfect fit in the bottom of the hole.
- A light hammer stroke on the top of the center pin provides the desired center mark.

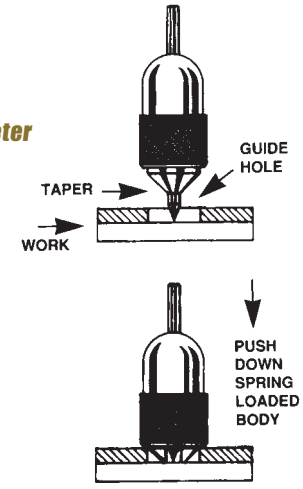
DESCRIPTION	PART NO.	PRICE
Expanding Transfer Punch Set	**57-054-9**	$127.30

Universal Transfer Center Punch & Aligner

Inch

Transfer Holes from 3/16" to 5/8" Diameter

- True diameter of the holes is picked up on the taper and the center will be punched in the true position.
- Hardened guide cone is placed into the clean edge of the hole to be transferred. Spring loaded knurled body is pushed against the face of the work piece, perpendicular to the center of the hole.
- Works on chamfered, unchamfered or countersunk holes.
- Punch made of hardened-chrome vanadium steel.
- Point punch is precision ground.
- No measuring, layout fluid or scribing necessary.



DESCRIPTION	PART NO.	PRICE
Shop Grade	**55-867-6**	$15.45

SPI® Fine Optical Center Punch

- High accuracy center punching made simple.
- 9X magnification spotting lens with center dot and circle for easy punch positioning to 0.002" accuracy.
- Precision guide base with scratch protection.
- Ground center punch made of hardened tool steel.
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
Fine Optical Center Punch	**91-285-7**	$74.85
Repl. Punch	**91-286-5**	12.10
Repl. Lens	**91-287-3**	35.05





Blind Hole Spotters & Sets

- A fast easy way to locate opposite centers.
- When holes do not extend through material (such as holes for dowel pins, perforating punches, etc.)
- Correct size "spotter" can be used in threaded, drilled or reamed holes.

Individual Blind Hole Spotters

SIZE	PART NO.	PRICE	SIZE	PART NO.	PRICE
1/8"	**90-568-7**	$1.60	29/64"	**90-584-4**	$1.70
9/64"	**90-569-5**	1.60	1/2"	**90-585-1**	1.70
5/32"	**90-570-3**	1.60	33/64"	**90-586-9**	1.80
3/16"	**90-571-1**	1.60	17/32"	**90-587-7**	1.90
13/64"	**90-572-9**	1.60	9/16"	**90-588-5**	1.90
7/32"	**90-573-7**	1.60	19/32"	**90-589-3**	2.00
15/64"	**90-574-5**	1.60	5/8"	**90-590-1**	2.00
1/4"	**90-575-2**	1.60	41/64"	**90-591-9**	2.00
17/64"	**90-576-0**	1.60	21/32"	**90-592-7**	2.40
9/32"	**90-577-8**	1.60	11/16"	**90-593-5**	2.40
5/16"	**90-578-6**	1.60	3/4"	**90-594-3**	2.35
11/32"	**90-579-4**	1.60	13/16"	**90-595-0**	2.85
3/8"	**90-580-2**	1.65	7/8"	**90-596-8**	3.05
13/32"	**90-581-0**	1.55	15/16"	**90-597-6**	3.15
27/64"	**90-582-8**	1.65	1"	**90-598-4**	3.15
7/16"	**90-583-6**	1.70	–	–	–



Sets

- 6 of each size.
- Supplied in a carrying case.

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
66	11/16" – 1" x 32nds	**98-755-2**	$150.15
108	1/8" – 21/32" x 32nds	**98-756-0**	157.70

Automatic Center Punch

- Instant marking, no hammer needed.
- Steel body.
- 5/8" dia. x 5" long.

DESCRIPTION	PART NO.	PRICE
Automatic Center Punch	**57-407-9**	$11.11





SPI® Automatic Center Punch

- No hammer required. Simply hold punch in upright position and press handle down for a perfect center mark every time.
- Depth of impression is conveniently controlled by adjusting cap screw.
- All moveable parts are tool steel, properly hardened. 5" length x 5/8" dia.
- Point is easily removed for resharpening or replacement.

DESCRIPTION	PART NO.	PRICE
Automatic Center Punch	**98-260-3**	$23.65
Replacement Point	**98-261-1**	3.95



Starrett® Automatic Steel Body Center Punches

- Adjustable, automatic center punch with hardened removable point for easy sharpening or replacing.
- No hammer is required.

DESCRIPTION	PART NO.	PRICE
9/16" Punch Dia., 4 13/16" L	**10-735-9**	$48.65
Extra Points for 9/16" Punch	**10-824-1**	16.30



Starrett® Square Shank Center Punch Set

- Punches are made from fully hardened and tempered tool steel with square shank.
- Set includes 7 punches: 1/16", 5/64", 3/32", 1/8", 5/32", 3/16", & 1/4" and a round plastic container.
- Starrett® Model # S264WB.

DESCRIPTION	PART NO.	PRICE
Square Shank Center Punch Set	**10-829-0**	$90.60

Starrett® 4" Drive Pin Punches

- Hardened steel and knurled finger grip with punch size stamped on head.



DIA.	MFG. NO.	PART NO.	PRICE
1/16"	52578	**10-844-9**	$7.25
3/32"	52579	**10-845-6**	7.25
1/8"	52580	**10-846-4**	7.25
5/32"	52581	**10-847-2**	7.25
3/16"	52582	**10-848-0**	7.25

HAND TOOLS



95-102-0

95-104-6

MAYHEW

10 Pc. Pin Punch Set

- Used to drive out and remove already loosened pins and keys after initial movement by a solid punch.
- Not for use on seized pins and keys; loosen with a solid punch first.
- Black oxide finish for additional rust protection.

Set Includes

$\frac{1}{8}$ x $4\frac{3}{4}$" $\frac{1}{4}$ x $5\frac{3}{4}$" $\frac{3}{8}$ x 6" $\frac{3}{16}$ x $7\frac{7}{8}$" $\frac{5}{16}$ x $7\frac{7}{8}$"
$\frac{3}{16}$ x $5\frac{1}{4}$" $\frac{5}{16}$ x 6" $\frac{1}{8}$ x $7\frac{7}{8}$" $\frac{1}{4}$ x $7\frac{7}{8}$" $\frac{3}{8}$ x $7\frac{7}{8}$"

- Pouch included.

DESCRIPTION	PART NO.	PRICE
10 Pc. Pin Punch Set	**95-102-0**	$73.85

MAYHEW

Alignment Punch Set

- Used to align holes through which rivets, pins, or bolts will be inserted.
- Not for use when driving pins, rivets or bolts.
- Black oxide finish for additional rust protection.

Set Includes

$\frac{1}{4}$ x 12" $\frac{5}{32}$ x 9" $\frac{5}{16}$ x 12"
$\frac{1}{8}$ x $7\frac{7}{8}$" $\frac{3}{16}$ x 10" $\frac{7}{32}$ x 10"

- Pouch included.

DESCRIPTION	PART NO.	PRICE
Alignment Punch Set	**95-104-6**	$77.85

Starrett®

5 Pc. Extra Long Pin Punch Sets



- For driving out loosened pins.
- $4\frac{1}{2}$" knurled, round body.
- Drive pin $3\frac{1}{2}$" Long, approx. - 0.005" on nominal dia.
$\frac{1}{8}$", $\frac{3}{16}$", $\frac{1}{4}$", $\frac{5}{16}$", $\frac{3}{8}$".

10-828-2

DESCRIPTION	MFG. NO.	PART NO.	PRICE
5 Pc. Set in Plain Box	51187	**10-827-4**	$48.15
5 Pc. Set in Vinyl. Pouch	51186	**10-828-2**	58.85

SPI®

Brass Pin Punches & Sets

Useful for Automotive and Machine Shop Applications

- Ideal for delicate work, brass punches are used on soft materials.
- Non-marring, brass does not cause damage to the work piece.
- Also used to produce a gentle initial movement with a steel punch being used later to complete the job.



95-715-9

Individual Punches

4" Solid One Piece Brass Construction

PUNCH DIA.	BODY DIA.	PART NUMBER	PRICE
$\frac{1}{16}$"	$\frac{9}{32}$"	**95-720-9**	$7.00
$\frac{3}{32}$"	$\frac{9}{32}$"	**95-721-7**	7.00
$\frac{1}{8}$"	$\frac{9}{32}$"	**95-722-5**	7.00
$\frac{5}{32}$"	$\frac{9}{32}$"	**95-723-3**	7.00
$\frac{3}{16}$"	$\frac{5}{16}$"	**95-724-1**	7.00
$\frac{7}{32}$"	$\frac{5}{16}$"	**95-725-8**	7.00
$\frac{1}{4}$"	$\frac{3}{8}$"	**95-726-6**	7.00
$\frac{5}{16}$"	$\frac{7}{16}$"	**95-727-4**	7.00

8" Two Piece Construction with Body in Steel and Punch in Brass

PUNCH DIA.	BODY DIA.	PART NUMBER	PRICE
$\frac{1}{8}$"	$\frac{3}{8}$"	**95-710-0**	$6.75
$\frac{3}{16}$"	$\frac{1}{2}$"	**95-711-8**	7.00
$\frac{1}{4}$"	$\frac{1}{2}$"	**95-712-6**	7.15
$\frac{5}{16}$"	$\frac{1}{2}$"	**95-713-4**	7.30
$\frac{3}{8}$"	$\frac{1}{2}$"	**95-714-2**	7.55

Punch Sets

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED IN:	PART NUMBER	PRICE
5	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$"	Vinyl Pouch	**95-715-9**	$32.55
8	$\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$, $\frac{5}{16}$"	Wooden Box	**95-728-2**	44.15

Starrett®

8 Pc. Pin Punch Sets



- Well proportioned, hardened, highly polished, with a knurled finger grip.
- Each punch has the size stamped on the head.
- Length: 4"
- Diameters: $\frac{1}{16}$", $\frac{3}{32}$", $\frac{1}{8}$", $\frac{5}{32}$", $\frac{3}{16}$", $\frac{7}{32}$", $\frac{1}{4}$", $\frac{5}{16}$".

10-331-7

DESCRIPTION	MFG. NO.	PART NO.	PRICE
8 Pc. Set in Plastic Container	S565WB	**10-331-7**	$69.15
8 Pc. Set in Vinyl Pouch	S565PC	**10-830-8**	60.00

STANLEY PROTO®

Roll Pin Punches & Sets

92-477-9



Inch

- Made from shock resistant tool steel and specially heat treated for strength and durability.
- Modified parabolic striking end to help reduce mushrooming and chipping.

Individual Punches

PUNCH DIA.	STOCK SIZE	OAL	PART NUMBER	PRICE
$\frac{1}{16}$"	$\frac{1}{4}$"	$3\frac{3}{4}$"	**92-477-9**	$5.35
$\frac{3}{32}$"	$\frac{3}{16}$"	$4\frac{1}{4}$"	**92-478-7**	5.80
$\frac{1}{8}$"	$\frac{5}{16}$"	$4\frac{3}{4}$"	**92-479-5**	6.35
$\frac{5}{32}$"	$\frac{1}{4}$"	$5\frac{1}{4}$"	**92-480-3**	6.90
$\frac{3}{16}$"	$\frac{3}{8}$"	$5\frac{7}{16}$"	**92-481-1**	7.45
$\frac{7}{32}$"	$\frac{3}{8}$"	$5\frac{7}{8}$"	**92-482-9**	7.90
$\frac{1}{4}$"	$\frac{7}{16}$"	$6\frac{7}{16}$"	**92-483-7**	8.85

Punch Sets

NO. OF PCS.	SET CONSISTS OF:	SUPPLIED WITH:	PART NUMBER	PRICE
7	$\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$"	Pouch	**92-484-5**	$50.55

MAYHEW

Roll Pin Punches & Sets

Inch

- Shock resistant tool steel.



92-464-7

Individual Punches

PUNCH DIA.	STOCK SIZE	OAL	PART NUMBER	PRICE
1/16"	3/16"	2 3/4"	**92-452-2**	$6.25
5/64"	3/16"	3 1/4"	**92-453-0**	6.60
3/32"	3/16"	3 1/2"	**92-454-8**	7.20
1/8"	1/4"	4	**92-455-5**	7.35
5/32"	1/4"	4 1/2"	**92-456-3**	8.25
3/16"	3/8"	4 1/2"	**92-457-1**	8.60
7/32"	3/8"	5	**92-458-9**	9.70
1/4"	7/16"	5 1/2"	**92-459-7**	10.95
5/16"	7/16"	6	**92-460-5**	12.10
3/8"	1/2"	6	**92-461-3**	13.10
7/16"	9/16"	6	**92-462-1**	14.60
1/2"	5/8"	6	**92-463-9**	16.45

Punch Sets

NO. OF. PCS.	SET CONSISTS OF:	SUPPLIED WITH:	PART NUMBER	PRICE
6	1/8, 5/32, 3/16, 7/32, 1/4, 5/16"	Vinyl Roll	**92-464-7**	$63.25
12	1/16, 5/64, 3/32, 1/8, 5/32, 3/16 7/32, 1/4, 5/16, 3/8, 7/16, 1/2"	Vinyl Roll	**92-465-4**	130.70

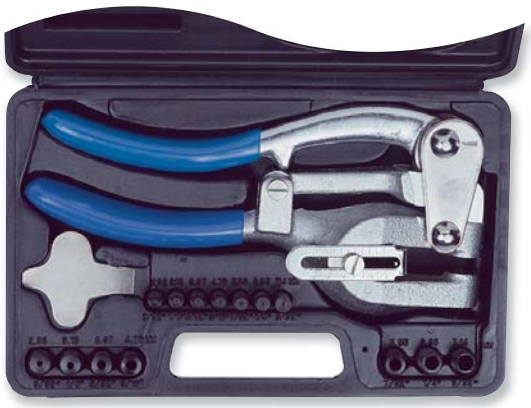


61-675-5

Precision Brand TRU PUNCH™ Punch & Die Set

- Makes perfect, custom washers, shims and gaskets in seconds.
- Cut steel, brass, copper, aluminum, rubber and plastic effortlessly up to 0.025" thick.
- Cut stainless and blue tempered shim up to .010" thick.
- Sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4".

DESCRIPTION	PART NO.	PRICE
Shim Punch & Die Set	**61-675-5**	$346.50



57-268-5



Industrial Quality Portable Hand Punch & Die Set

1 Ton Punching Power -Has Adjustable Stop Gauge

- Capacity: 1/4" hole.
- Through 16-gauge metal.
- Throat: 1 3/4"
- Length: 8 1/4"
- Height gap: 1/4"
- Weight of punch: 4 1/4 Lbs.
- Machined bearing surfaces are hardened.
- Hand punch only 2 3/4 Lbs.
- 8 pc. set supplied in fitted case.

DESCRIPTION	PART NO.	PRICE
3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 9/32" & Hand Punch	**57-268-5**	$85.55

ROPER WHITNEY Portable Hand Punch & Die Sets

1 Ton Punching Power - Has Adjustable Stop Gauge



92-377-1

- Capacity: 1/4" hole.
- Through 16-gauge metal.
- Throat: 1 3/4"
- Length: 8 1/4"
- Height gap: 1/4"
- Weight of punch: 4 1/4 Lbs.
- Hand punch only 2 3/4 Lbs.
- Machined bearing surfaces are hardened.
- 8 pc. set is supplied in fitted case.

Punch & Die Sets

SIZE	PART NO.	PRICE	SIZE	PART NO.	PRICE
1/16"	**92-378-9**	$29.85	3/16"	**92-386-2**	$29.85
5/64"	**92-379-7**	29.85	13/64"	**92-387-0**	29.85
3/32"	**92-380-5**	29.85	7/32"	**92-388-8**	29.85
7/64"	**92-381-3**	29.85	15/64"	**92-389-6**	29.85
1/8"	**92-382-1**	29.85	1/4"	**92-390-4**	29.85
9/64"	**92-383-9**	29.85	17/64"	**92-391-2**	29.85
5/32"	**92-384-7**	29.85	9/32"	**92-392-0**	29.85
11/64"	**92-385-4**	29.85	–	–	–

8 Pc. Set

DESCRIPTION	PART NO.	PRICE
3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 9/32" & Hand Punch	**92-377-1**	$169.90



21-070-8

Certified
Right Out of the Box!

SPI®
Indicating Micrometers
See Pg. 68

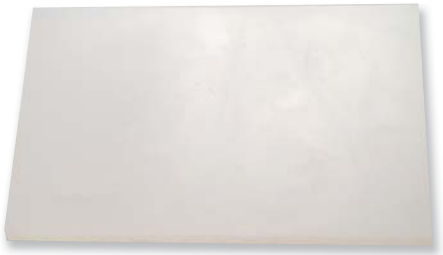
HAND TOOLS



92-432-4



92-446-4



92-447-2

GENERAL®

Arch Punches & Sets

Used to punch holes in materials such as leather, rubber, cork, plastic, balsa wood and thin soft metals such as brass and lead. Widely used for punching holes as well as cutting gaskets and washers, production work, and other close tolerance applications.

- High carbon steel cutting edge.
- Use rawhide or wooden mallet, never with steel hammer.

Individual Arch Punches

SIZE	PART NO.	PRICE	SIZE	PART NO.	PRICE
1/4"	**92-432-4**	$14.10	1"	**92-441-5**	$29.20
3/8"	**92-433-2**	15.00	1 1/8"	**92-442-3**	33.70
1/2"	**92-434-0**	17.05	1 1/4"	**92-443-1**	41.95
5/8"	**92-435-7**	20.80	1 3/8"	**92-444-9**	52.05
3/4"	**92-437-3**	23.40	1 1/2"	**92-445-6**	56.30
7/8	**92-439-9**	26.40	–	–	–

Arch Punch Sets

NO. OF PCS.	SET CONSISTS	PART NUMBER	PRICE
7	1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1"	**92-446-4**	$125.10

Cutting Pad

- Made of resilient plastic.
- May be used on both sides.
- Protects punches and enhances cutting results.

SIZE	PART NO.	PRICE
8" W x 12" L x 1/2" Thick	**92-447-2**	$32.00

Arch Punches & Sets

Used to punch holes in materials such as leather, rubber, cork, plastic, balsa wood and thin soft metals such as brass and lead. Widely used for punching holes as well as cutting gaskets and washers, production work, and other close tolerance applications.

- High carbon steel cutting edge.
- Use rawhide or wooden mallet, never with steel hammer.

Individual Arch Punches

SIZE	PART NO.	PRICE	SIZE	PART NO.	PRICE
3/16"	**92-393-8**	$12.85	1 5/16"	**92-411-8**	$37.30
1/4"	**92-394-6**	12.85	1 3/8"	**92-412-6**	38.60
5/16"	**92-395-3**	12.85	1 1/2"	**92-414-2**	51.15
3/8"	**92-396-1**	13.75	1 9/16"	**92-415-9**	64.75
7/16"	**92-397-9**	13.75	1 5/8"	**92-416-7**	60.20
1/2"	**92-398-7**	15.55	1 11/16"	**92-417-5**	72.95
9/16"	**92-399-5**	17.15	1 3/4"	**92-418-3**	71.30
5/8"	**92-400-1**	17.15	1 13/16"	**92-419-1**	85.60
11/16"	**92-401-9**	17.95	1 7/8"	**92-420-9**	79.50
3/4"	**92-402-7**	18.60	1 15/16"	**92-421-7**	92.65
13/16"	**92-403-5**	21.45	2"	**92-422-5**	87.30
7/8	**92-404-3**	21.45	2 1/8"	**92-423-3**	101.35
15/16"	**92-405-0**	23.30	2 1/4"	**92-424-1**	114.80
1"	**92-406-8**	23.30	2 3/8"	**92-425-8**	127.05
1 1/16"	**92-407-6**	30.25	2 1/2"	**92-426-6**	124.80
1 1/8"	**92-408-4**	30.25	2 5/8"	**92-427-4**	132.75
1 3/16"	**92-409-2**	33.65	2 3/4"	**92-428-2**	133.05
1 1/4"	**92-410-0**	33.30	–	–	–

Arch Punch Sets

NO. OF PCS.	SET CONSISTS OF:	PART NUMBER	PRICE
5	1/4, 3/8, 1/2, 5/8, 3/4"	**92-429-0**	$130.50
7	3/16, 5/16, 7/16, 9/16, 11/16, 13/16, 15/16"	**92-430-8**	133.65
7	1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1"	**92-431-6**	137.15

Cutting Pad

- Made of resilient plastic.
- May be used on both sides.
- Protects punches and enhances cutting results.

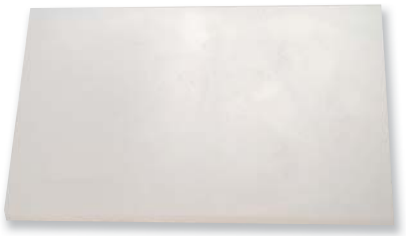
SIZE	PART NO.	PRICE
8" W x 12" L x 1/2" Thick	**92-447-2**	$32.00



92-393-8



92-431-6



92-447-2

MAYHEW
Since 1894 The Pros Know

Hollow Punch Sets

Inch

- Dual cutting head punch - inside and outside diameter can be punched at the same time.
- Separate mandrel and locking cutter system allows for many cutting combinations.
- Will cut foam, cardboard, leather, rubber, fiber, plastic, lead, gasket material and many others.
- Supplied in fitted plastic case.



92-450-6

16 Pc. Set consists of:

- 15 - Punches: 1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1, 1 1/16, 1 1/8, 1 3/16"
- 1 - Handle

27 Pc. Set consists of:

- 25 - Punches: 1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1, 1 1/16, 1 1/8, 1 3/16, 1 1/4, 1 5/16, 1 3/8, 1 7/16, 1 1/2, 1 5/8, 1 11/16, 1 3/4, 1 7/8, 2"
- 1 - Mandrel
- 1 - Handle

DESCRIPTION	PART NO.	PRICE
16 Pc. Hollow Punch Set	**92-450-6**	$265.10
27 Pc. Hollow Punch Set	**92-451-4**	462.05

CLEVELAND EZY-OUT (The Original Screw Extractor)

The Original Screw Extractors



- Made of heat treated fine grade alloy tool steel.
- Each size is marked with the correct drill size to use with each extractor.

EXTRACTOR SIZE	DIAMETER SM. END	LG. END	OAL	FOR SCREW & BOLT SIZES	FOR PIPE SIZES	DRILL SIZE TO USE	PART NUMBER	PRICE
#1	0.054"	5/32"	2"	3/16 - 1/4"	–	5/64"	**77-344-0**	$3.40
#2	0.080"	3/16"	2 3/8"	1/4 - 5/16"	–	7/64"	**77-345-7**	3.60
#3	1/8"	1/4"	2 11/16"	5/16 - 7/16"	–	5/32"	**77-346-5**	4.25
#4	3/16"	21/64"	2 7/8"	7/16 - 9/16"	–	1/4"	**77-347-3**	4.65
#5	1/4"	7/16"	3 3/8"	9/16 - 3/4"	1/8", 1/4"	9/32"	**77-348-1**	6.30
#6	3/8"	19/32"	3 3/4"	3/4 - 1"	3/4"	13/32"	**77-349-9**	11.50
#7	1/2"	3/4"	4 1/8"	1 - 1 3/8"	1/2"	17/32"	**77-350-7**	21.90
#8	3/4"	1"	4 3/8"	1 3/8 - 1 3/4"	3/4"	13/16"	**77-351-5**	30.40
#9	1"	1 9/32"	4 5/8"	1 3/4 – 2 1/8"	1"	1 1/16"	**77-352-3**	51.45
#10	1 1/4"	1 9/16"	5"	2 1/8 – 2 1/2"	1 1/4"	1 5/16"	**77-353-1**	79.85
#11	1 1/2"	1 7/8"	5 5/8"	2 1/2 – 3"	1 1/2"	1 9/16"	**77-354-9**	116.10
#12	1 7/8"	2 5/16"	6 1/4"	3 – 3 1/2"	2"	1 15/16"	**77-355-6**	175.65



77-357-2



77-358-0

PROTO

Screw Extractors & Sets

- Drive into end of broken pipe or fitting.
- Use tap holder or wrench on extractor to turn out broken part.
- Size stamped on extractor refers to drill bit size to be used with that extractor.



95-862-9



95-851-2



95-861-1

Extractors

PIPE SIZE OD	DRILL SIZE TO USE	DIAMETER SM. END	DIAMETER LG. END	OAL	PART NUMBER	PRICE
1/4", 5/16"	1/8"	1/8"	3/16"	2 5/16"	**95-851-2**	$5.60
3/8"	3/16"	11/64"	3/16"	2 5/8"	**95-852-0**	6.75
7/16"	7/32"	13/64"	1/4"	2 7/8"	**95-853-8**	7.50
1/2", 9/16"	5/16"	19/64"	5/16"	3"	**95-854-6**	8.05
5/8"	3/8"	11/32"	3/8"	3 1/4"	**95-855-3**	8.95
3/4"	15/32"	27/64"	7/16"	3 7/8"	**95-856-1**	18.50
7/8"	9/16"	1/2"	1/2"	4 1/4"	**95-857-9**	16.45
1", 1 1/8"	21/32"	19/32"	5/8"	4 7/8"	**95-858-7**	17.60
1 1/4", 1 3/8"	13/16"	23/32"	3/4"	5 3/8"	**95-859-5**	20.45
1 1/2"	1 1/16"	31/32"	1"	5 1/2"	**95-860-3**	27.45

5 Piece Extractor Set

- Contains 5 Screw Extractors with small end diameters: 1/8", 3/16", 7/32", 5/16" and 3/8" in a plastic case.

DESCRIPTION	PART NO.	PRICE
5 Pc. Set	**95-861-1**	$38.05

10 Piece Extractor Set

- Contains 10 Screw Extractors with small end diameters: 1/8", 3/16", 7/32", 5/16", 3/8", 15/32", 9/16", 21/32", 13/16" and 1 1/16" In a blow mold box

DESCRIPTION	PART NO.	PRICE
10 Pc. Set	**95-862-9**	$139.15

CLEVELAND EZY-OUT (The Original Screw Extractor)

The Screw Extractors Sets

12 Pc. Combination Drill & Screw Extractor Set

- Set Includes: 6 screw extractors #1, #2, #3, #4, #5 & #6
  6 drill sizes 5/64", 7/64", 5/32", 1/4", 9/32", & 13/32"

DESCRIPTION	PART NO.	PRICE
12 Pc. Combo Set	**77-356-4**	$70.35

6 Pc. Garage Work Set

- Set Includes: 6 screw extractors #1, #2, #3, #4, #5 & #6

DESCRIPTION	PART NO.	PRICE
6 Pc. Garage Work Set	**77-357-2**	$39.55

5 Pc. Toolroom & Light Repair Work Set

- Set Includes: 5 screw extractors #1, #2, #3, #4 & #5

DESCRIPTION	PART NO.	PRICE
5 Pc. Toolroom Work Set	**77-358-0**	$29.50

4 Pc. Heavy-Duty Set For Broken Bolts From 9/16" to 2 1/8"

- Set Includes: 4 screw extractors #6, #7, #8 & #9

DESCRIPTION	PART NO.	PRICE
4 Pc. Heavy-Duty Set	**77-359-8**	$135.60

3 Pc. General Shop Set For Broken Bolts From 3/8" to 1"

- Set Includes: 3 screw extractors #4, #5 & #6

DESCRIPTION	PART NO.	PRICE
3 Pc. General Shop Set	**77-360-6**	$40.45

HAND TOOLS

Alden Drill-Out Broken-Bolt Extractors



- Broken bolts and studs quickly and easily removed without damaging threads.
- High quality H.S.S., heat treated and precision ground.
- Suitable for removal of broken inch as well as metric bolts and studs.

TO REMOVE BOLT OR STUD SIZE	PART NO.	PRICE
1/4" and 6 mm	**97-526-8**	$22.80
5/16" and 8 mm	**97-527-6**	25.45
3/8" and 10 mm	**97-528-4**	26.90
1/2" and 12 mm	**97-529-2**	26.90
Set of 4 Drill-Outs as above	**97-525-0**	82.65

The above Drill-Outs are special left handed drill bits with unique extractor collet, conveniently used with any reversible power drill.

TO REMOVE BOLT OR STUD SIZE	PART NO.	PRICE
#5, #6 and 3 mm	**97-576-3**	$19.55
#8 and 4 mm	**97-577-1**	20.50
#10 and 5 mm	**97-578-9**	20.50
1/4" and 6 mm	**97-579-7**	20.50
Set of 4 Drill-Outs as above	**97-575-5**	69.20

Reversible combination with drill bit on one end and extractor on opposite end.



97-580-5

7 Piece Set

DESCRIPTION	PART NO.	PRICE
Set of 7 – #5 to 1/2" Range	**97-580-5**	$117.30

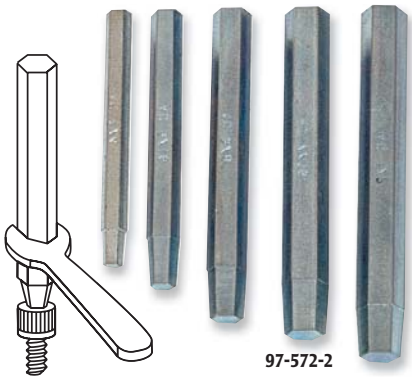
omegadrill Carbide Broken Tap Remover



97-320-6

- Tough sub-micron carbide easily cuts through hardened HSS taps of any style, straight flute, spiral flute even thread forming roll taps.
- Unique point geometry gives strength necessary to drill through taps.
- Quickly removes broken taps with simple four step process.
- Set includes all tools to remove broken tap.
- Drills through broken bolts, drills and hardened dowel pins.
- For use on Conventional or CNC milling machines.

DESCRIPTION	PART NO.	PRICE
Carbide Broken Tap Remover	**97-320-6**	$162.55



97-572-2

SOCK IT OUT

- Saves time-no more drilling out stripped Head Cap Screws removed in seconds.
- Simply drive Sock-It-Out into Head Cap Screw with hammer until firmly wedged-grab it at bottom with wrench and turn Head Cap Screw out.
- Furnished in vinyl case.

REMOVES HEAD CAP SCREWS	PART NO.	PRICE
#6, #8, #10, 1/4"	**97-571-4**	$39.15
1/4", 5/16", 3/8", 7/16", 1/2"	**97-572-2**	51.20
5/8" and 3/4"	**97-573-0**	37.70

GENERAL Nut Splitter



96-074-0

- Removes frozen and hard to remove rusted nuts up to 1/2" width (3/4" across flats).
- Compact 4 3/4" long.
- 3/4" drive hex head for use with wrenches or sockets.
- Pivoting chisel point and unique body angle can reach areas that other splitters cannot reach.
- Made of high grade heat treated forged body with plated finish to prevent rust.

DESCRIPTION	PART NO.	PRICE
Nut Splitter	**96-074-0**	$33.25



62-684-6

FISKARS Shopboss™ Hardware Snips

Ideal for Cutting Aluminum Siding, Roof Flashing, Screen, Binding Straps, Light Sheet Metal, 18-Gauge Wire and more.

- Serrated blade edge grips while you cut for improved control.
- Titanium blade coating resists wear, scratches, chemicals and corrosion.
- Contoured, asymmetrical handles are designed for use with work gloves and accommodate right and left handed users.
- Spring-action design reduces hand fatigue and provides cutting leverage.
- Wire cutter and stripper slices through wire without adding wear to blades.
- Twine cutter cuts twine clearly and quickly.
- Pry-off bottle opener makes it easy to open bottles with work gloves.
- Easy-action lock keeps blades closed when not in use.
- Handle includes hanging loop for easy storage.
- Sheath includes a belt clip, deburring file, tape cutter and pencil holder.
- Length: 9"

DESCRIPTION	PART NO.	PRICE
Shopboss™ Hardware Snips	**62-684-6**	$30.40



92-274-0

STANLEY FatMax® Aviation Snips

- Drop forged chrome molybdenum steel with serrated jaw blades gives a stable bite and helps reduce slippage.
- Auto-release latch opens with one squeeze.
- Identification plate shows the direction of the cut and mfr's #.
- Meets/exceeds ANSI specifications.
- Cuts 18 gauge cold rolled steel to 22 gauge stainless steel.
- Bi-material grip for comfort.

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
10"	1 3/4"	Straight	Yellow	**92-274-0**	$12.70



92-262-5

Aviation Snips

- Drop forged chrome molybdenum steel.
- Blades have serrated edges.
- Cuts up to .050" cold rolled steel .028" stainless steel.

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
10"	1 3/8"	Left	Red	**92-262-5**	$17.40
10"	1 3/8"	Right	Green	**92-263-3**	17.40
10"	1 3/8"	Straight	Yellow	**92-264-1**	17.40

Set

NO. OF PCS.	OAL	LOC	CUTS	GRIP COLOR	PART NUMBER	PRICE
3	10"	1 3/8"	Left, Right and Straight	Red, Green and Yellow	**92-265-8**	$41.65



92-266-6

Offset

- Offset blades for safety.

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9 3/4"	1 1/4"	Left	Red	**92-266-6**	$17.75
9 3/4"	1 1/4"	Right	Green	**92-267-4**	17.75



92-268-2

Long-Cut

- Cuts up to .0376" cold rolled steel or .0212" stainless steel.

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
10"	3"	Straight	Yellow	**92-268-2**	$20.90



92-271-6

Heavy-Duty

- Cuts up to .024" stainless steel.

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
10"	1 1/2"	Straight	Black	**92-271-6**	$20.15

CRESCENT Wiss

Aviation Snips

- Metalmaster® Compound Action Snips have nonslip serrated jaws made of extra tough wear resistant molybdenum steel.
- Withstands severe strain of cutting heavy stock and tight curves.
- Self-opening action for fast, effortless feed.
- Handle of high tensile strength alloy steel exceeds hand power limit.
- Nonslip textured grips for superior control, safety and comfort.



61-243-2



61-244-0



61-242-4

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9 3/4"	1 3/8"	Left	Red	**61-243-2**	$24.90
9 3/4"	1 3/8"	Right	Green	**61-244-0**	24.90
9 3/4"	1 3/8"	Straight	Yellow	**61-242-4**	24.40

General Purpose

- Spring-loaded blades for reduced fatigue on repeated cuts.
- Soft-touch co-molded handles for maximum comfort.
- 420 Stainless blades provide maximum corrosion resistance.
- Gauge Capacity (Steel): 0.0376".
- Wire cutter notch for easy cutting of light-gauge wire.
- Heavy-duty design is perfect for shop, garden and craft cutting jobs.



92-277-3

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9"	1 1/2"	Straight	Red & Black	**92-277-3**	$14.35

Offset

- Offset design keeps hands clear of metal.



92-278-1

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9 1/4"	1 1/4"	Left	Red	**92-278-1**	$33.40
9 1/4"	1 1/4"	Right	Green	**92-279-9**	33.40

Heavy-Duty

- Specially hardened to cut exotic metals.
- Cuts up to 18 gauge stainless steel.



92-283-1

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9 3/4"	1 3/8"	Left	Blue	**92-283-1**	$45.75
9 3/4"	1 3/8"	Right	Blue	**92-284-9**	45.75

Bulldog Snips

- For notching or trimming extra heavy stock.
- Cuts up to 16 gauge low carbon cold rolled steel.



92-285-6

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9 1/4"	7/8"	Straight	Red	**92-285-6**	$39.50

Metal-Wiz® Snips

- For cutting screen, hardware cloth, synthetic shingles, tile, gutters, downspouts and carpeting.
- Cuts up to 20 gauge low carbon cold rolled steel.



92-287-2

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9"	1 3/8"	Straight	Yellow	**92-287-2**	$24.45

HAND TOOLS

IRWIN TOOLS

Aviation Snips

- Cold formed blades are 44% stronger and require 25% less cutting force.
- Easy push up release allows one-handed operation.
- Lower serrated blade grips material for a smoother cut with no double marked edges.
- Cuts up to 18 gauge cold rolled steel or 22 gauge stainless steel.
- Pro-Touch grips provide superior comfort, resist twisting and will not slip off.



92-288-0



92-289-8



92-290-6

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
10"	1 5/16"	Left	Red	**92-288-0**	$18.10
10"	1 5/16"	Right	Green	**92-289-8**	18.10
10"	1 5/16"	Straight	Yellow	**92-290-6**	18.10

Offset

- Cold formed blades are 10% stronger and require 25% less cutting force.
- Offset design keeps hands safely above work.



92-291-4

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9 1/2"	1 3/16"	Left	Red	**92-291-4**	$19.40
9 1/2"	1 3/16"	Right	Green	**92-292-2**	19.40

Bulldog

- Cold formed blades are 44% stronger and require 25% less cutting force.
- Compound leverage for notching and trimming.
- Cuts up to 16 gauge cold rolled steel or 18 gauge stainless steel.



92-293-0

OAL	LOC	CUTS	GRIP COLOR	PART NO.	PRICE
9"	3/4"	Straight	Yellow	**92-293-0**	$17.35



92-246-8

IRWIN TOOLS

Tinner's Snips

Straight Pattern

- Precision ground edges on the blades ensure a tight grip on each cut for superior cutting quality.
- Hot drop forged steel blades provide maximum strength and long life.
- Durable spring washer holds blades tightly against each other when cutting.
- Pro-Touch™ grips provide superior comfort, resists twisting.
- Handle color: Blue.

OAL	LOC	STEEL GAUGE CAP.	PART NUMBER	PRICE
7"	1 1/2"	24	**92-244-3**	$15.85
10"	2"	22	**92-245-0**	20.10
12 3/4"	2 3/4"	20	**92-246-8**	25.25



92-247-6

Duckbill Pattern

- Cuts straight and tight curves.
- Handle color: Blue.

OAL	LOC	STEEL GAUGE CAP.	PART NUMBER	PRICE
7"	1 1/2"	26	**92-247-6**	$16.95
10"	2"	24	**92-248-4**	20.70
12 3/4"	2 3/4"	22	**92-249-2**	25.80

CRESCENT Wiss

Tinner's Snips

- Widely used industrially and for years have set the professional standard for incomparable ruggedness, durability and efficiency.
- Special Inlaid® process offers extraordinary edge properties for high performance.
- Hot drop forged of the finest tool steel for sharp edge and long life.
- Rust resistant blades.
- Handle color: Red.



92-258-3



92-253-4



92-259-1



92-260-9

Straight Pattern

- Cuts straight and wide curves (when trimming light gauge stock).
- For plumbing, heating, air conditioning and roofing trades.
- Maximum capacity refers to low carbon cold rolled steel.
- Cushion grip handle for comfort and better grip.

OAL	LOC	STEEL GAUGE CAP.	PART NUMBER	PRICE
7"	1 3/4"	23	**92-253-4**	$19.90
8 1/4"	2"	23	**92-254-2**	21.85
9 3/4"	2 1/4"	23	**92-255-9**	27.30
11"	2 1/2"	21	**92-256-7**	27.40
12 1/2"	3"	20	**92-257-5**	30.30

Straight Pattern Heavy-Duty

OAL	LOC	STEEL GAUGE CAP.	PART NUMBER	PRICE
14 1/2"	4"	18	**92-258-3**	$62.55

Bulldog Pattern

- Provides greater cutting power for notching, nibbling and chopping heavy stock.

OAL	LOC	STEEL GAUGE CAP.	PART NUMBER	PRICE
16 1/2"	2 1/2"	16	**92-259-1**	$65.35

Duckbill Pattern

- Cuts moderately tight curves left or right in light stock as well as straight.

OAL	LOC	STEEL GAUGE CAP.	PART NUMBER	PRICE
10 1/4"	2 1/4"	23	**92-260-9**	$22.80
13"	3"	21	**92-261-7**	29.20


92-229-4

HERITAGE®
HANDCRAFTED CUTLERY

Lightweight Scissors

- Stainless steel blades precision ground and heat treated.
- Ambidextrous handles.
- Soft to the touch blue handles.
- Heavy-Duty.

OAL	LOC	HANDLE TYPE	HANDLE MATERIAL	PART NUMBER	PRICE
10"	4 3/4"	Bent Large Loop	Plastic	**92-229-4**	$21.45
12"	5 1/2"	Big Loop	Plastic	**92-230-2**	23.60


92-231-0

HERITAGE®
HANDCRAFTED CUTLERY

High Leverage Scissors

- High carbon chrome over nickel plating.
- Excellent for cutting a wide variety of material, including fabric, rubber, poultry, light metal, and light wire.
- 92-231-0 & 92-232-8 have an extended bottom ring, allowing the operator to use all four fingers.

Straight

OAL	LOC	TIP	MATERIAL	PART NO.	PRICE
9"	3"	Regular	Chrome/Nickel	**92-231-0**	$29.70
9"	3"	Blunt	Chrome/Nickel	**92-232-8**	28.75
9"	3"	Regular	Stainless	**92-233-6**	34.40


92-235-1

Broad Blade

- Broad, short jaws and serrated blade make this a power cutter.
- Chrome over nickel plating.
- Excellent for cutting light wire, fabric, cable, cordage and other heavy cutting.

Straight

OAL	LOC	TIP	MATERIAL	PART NO.	PRICE
7"	1 3/4"	Regular	Chrome/Nickel	**92-234-4**	$26.90
8"	2"	Regular	Chrome/Nickel	**92-235-1**	28.80


62-245-6
92-207-0
92-209-6
92-214-6
92-222-9
92-227-8
62-243-1

FISKARS®

Lightweight Scissors

- Ergonomic and lightweight.
- Stainless steel blades.
- Used for a wide variety of applications.
- Ambidextrous handles.
- TiN coating helps resist scratches, wear and corrosion.

OAL	LOC	DESCRIPTION	HANDLE TYPE	HANDLE MATERIAL	PART NO.	PRICE
4"	1"	Mini Craft	Straight	Plastic	**62-245-6**	$14.50
5 1/2"	1 1/2"	Detail Cutting	Straight	Contoured Plastic	**92-207-0**	5.65
5"	1 3/4"	Micro-Tip®	Straight	Plastic	**62-250-6**	14.15
5"	1 3/4"	Nonstick	Straight	Plastic	**92-208-8**	14.80
8"	1 3/4"	Micro-Tip Scissor	Straight	Plastic/Softgrip	**92-209-6**	17.25
7"	2 1/2"	All Purpose	Straight	Contoured Plastic	**92-214-6**	6.10
8 1/2"	3"	Softgrip Scissors	Straight	Contoured Plastic	**92-216-1**	7.70
10"	3 1/8"	Multi-Purpose Shear	Straight	Softtouch™	**62-244-9**	22.70
8 1/4"	3 1/2"	All Purpose	Bent	Plastic	**92-217-9**	6.65
8 1/4"	3 1/2"	All Purpose	Bent	Ergonomic Plastic	**92-221-1**	16.20
8"	3 1/2"	Multi-Purpose	Straight	Contoured Plastic	**92-222-9**	13.50
8 1/2"	3 5/8"	Nonstick General Purpose	Bent	Plastic	**92-224-5**	19.35
9 3/4"	4 1/2"	All Purpose	Bent	Ergonomic Reinforced Plastic	**92-227-8**	24.40
—	—	All Purpose Snips	Bent	Contoured	**62-243-1**	21.65

Clauss® SINCE 1877

High Leverage Scissors


92-236-9

- Extra leverage for cutting thick tough materials.
- Extended ride for extra cutting action.
- Wide range of applications for automotive, electrical, construction, shipping rooms and much more.
- Fully double plated with chrome over nickel.
- One blade is serrated.

Straight - Regular Tip

OAL	LOC	PART NO.	PRICE
7 3/4"	2"	**92-236-9**	$27.55
8 1/4"	2 3/4"	**92-237-7**	31.95


92-237-7

Offset - Safety Tip

- Built-in high leverage for extra cutting power.
- Safety tip to protect material during cutting.
- Used to cut wire, rubber strapping, aluminum, canvas, carpet, linoleum and many other materials.

OAL	LOC	PART NO.	PRICE
7 1/4"	1 1/2"	**92-238-5**	$9.20


92-238-5

HAND TOOLS



54-170-6

Combination Sharpening Stones

Restores the Cutting Edge of Straight edge Tools

- Coarse and fine grit vitrified into one stone.
- Oil filled at factory.

LENGTH	SIZE WIDTH	THICK-NESS	ALUMINUM OXIDE 120/240 GRIT PART NO.	PRICE	SILICON CARBIDE 100/180 GRIT PART NO.	PRICE
6"	2"	1"	**54-169-8**	$11.10	**54-171-4**	$11.10
8"	2"	1"	**54-170-6**	13.40	**54-172-2**	13.40

WORK SHARP

NEW

Original Knife & Tool Sharpener

Designed to Sharpen Every Knife You Own



40-104-2

- The flexible abrasive belts are able to sharpen straight bladed knives, curved knives, tanto blades, filet knives, serrated knives, gut hooks and virtually any other shape of knife blade.
- Uses precision angle sharpening guides to ensure that you get the proper angle every time.
- Includes:
  - Original Knife & Tool Sharpener
  - Knife Guides: 40° Kitchen & 50° Outdoor
  - Abrasive Belts (2 ea.): P80 Coarse, Medium & Extra-Fine



DESCRIPTION	PART NO.	PRICE
Original Knife & Tool Sharpener	**40-104-2**	$103.00

LEATHERMAN
Now you're ready.

Micra™



97-122-6

- Unlike any pocket knife or multipurpose tool ever made.
- Made from 100% high-grade Stainless Steel.
- This handy multipurpose tool is great for home, shop or outdoors.
- Weight 2.5oz.
- Features:
  - -Scissors
  - -Clip-Point Knife
  - -Med. Screwdriver
  - -Extra Sm. Screwdriver
  - -Nail Cleaner
  - -Nail File
  - -Ruler
  - -Bottle Opener
  - -Tweezers
  - -Flat/Phillips Screwdriver
  - -Removable Lanyard Attachment

DESCRIPTION	PART NO.	PRICE
Leatherman Micra™	**97-122-6**	$32.35

GERBER

Multi Plier

400 Series Compact Sport



62-237-3

- Lighter and compact.
- Features 3/4 size handles and plier jaws, yet packs full size tool components.
- Genuine Fiskars® scissors which are highly durable and can cut a wide variety of materials.
- One handed opening with a flick of the wrist.
- Unique spacer rings allow each component to rotate easily and independently of each other and lock in place.
- Comes with a ballistic nylon sheath.
- Features:
  - – Needle nose pliers
  - – Flathead screwdriver
  - – Crosshead screwdriver
  - – Serrated drop point blade
  - – Standard/Metric scale
  - – Large, Medium & Small flathead screwdriver
  - – Crimper
  - – Wire cutter
  - – Bottle/can opener
  - – Fiskars® scissors
- Stainless steel construction.
- Overall length: 5 3/4", closed 3 7/8", weight 6 oz.

DESCRIPTION	PART NO.	PRICE
Gerber® Compact Sport Multi-Plier	**62-237-3**	$61.60



GERBER

62-214-2

Bear Grylls Knives

Includes Bear's Priorities of Survival Pocket Guide

- 1/2 Serrated high carbon stainless steel drop point blade.
- Dual-sided thumb stud for easy single-hand opening.
- Lock back – locks blade securely in place.
- Ergonomic Textured Rubber Grip - Maximizes comfort and reduces slippage.
- Priorities of survival pocket guide.

Scout™

- Clip for convenient pocket carry.
- Blade length: 3.24", Closed Length: 4.0", OAL: 7.3"

Folding Sheath Knife™

- Nylon sheath - Lightweight, military-grade, mildew resistant sheath allows for horizontal or vertical carry.
- Blade length: 3.6", Closed Length: 4.9", OAL: 8.5"

DESCRIPTION	PART NO.	PRICE
Scout™	**62-213-4**	$36.40
Folding Sheath Knife™	**62-214-2**	41.45

Single Edge Razor Blades

- Blade thickness: 0.009".



92-202-1

DESCRIPTION	PKG. QTY.	BRAND	PART NO.	PRICE
Carbon Steel	100	Generic	**92-201-3**	$11.45
Carbon Steel	100	Stanley	**92-202-1**	7.25
Carbon Steel	100	Spectrum	**92-203-9**	11.85
Blue Carbon Steel	100	Generic	**92-204-7**	11.45
Coated Stainless Steel	100	Generic	**92-205-4**	24.85
Carbon Scientific	10	Generic	**92-206-2**	3.55



92-199-9

Cutter Knife

- Uses standard single edge blades.
- Blade thickness: 0.009".

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
Carton Cutter	2	**92-199-9**	$2.50



92-198-1

Cutter Knives

- Uses standard single edge blades.

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
Cutter Knife	1	**62-985-7**	$1.80
Painted Handy Cutter	12	**92-198-1**	9.45



65-033-3



65-034-1

6" Retractable Blade Utility Knife

- Standard safety blade holder — works with standard blades.
- Holds an extra blade in handle.

DESCRIPTION	PART NO.	PRICE
Retractable Blade Knife	**65-033-3**	$5.05
5 Pk. Blades	**65-034-1**	1.40
100 Pk. Blades	**65-035-8**	21.00



82-368-2



82-369-0

STANLEY Interlock™ Self-Retracting Utility Knife

- Spring-loaded blade retracts into knife automatically when pressure on slide button is released.
- Round point blade can be set to 2 different cutting depths.
- Safety-orange color for high visibility.

DESCRIPTION	PART NO.	PRICE
STANLEY® Interlock™ Uility Knife	**82-368-2**	$7.90

Replacement Blades

- Heavy duty .25" thickness.
- Rounded edge offers safety and content protection.
- Designed to fit both retractable and non-retractable utility knives.
- STANLEY® #11-987.

DESCRIPTION	PART NO.	PRICE
5 Pk. Replacement Blades	**82-369-0**	$1.95

STANLEY Knives

Retractable Blade Utility Knife

- Gray enamel finish. 6" handle length.
- Button projects and retracts blade to 3 positions, full, half and one quarter.
- Lightweight aluminum handle is in two sections, provides blade storage.
- Furnished with 2 heavy duty blades.

DESCRIPTION	PART NO.	PRICE
Retractable Stanley Knife	**82-370-8**	$5.90



82-370-8

Dynagrip Retractable Utility Knife

- Interlock nose secures blade.
- Molded rubber side panels.
- Non-Slip grip side panels provide comfort.

DESCRIPTION	PART NO.	PRICE
Dynagrip Retractable Utility Knife	**82-366-6**	$9.30



82-366-6

Quick Change Utility Knife

- 4 Blade positions with string cutting feature.
- Change blades without opening the knife.
- 3 heavy-duty blades included (Stanley #11-921).
- Swing-out storage magazine.
- Thumb rest for greater control.
- Preferred for cutting and scoring fiberboard, linoleum, wallboard, roofing and many other materials.

DESCRIPTION	PART NO.	PRICE
Quick Change Utility Knife	**82-372-4**	$7.95



82-372-4

Replacement Blades

- Card of 5 Blades, heavy duty, $2^{7}/_{16}$ x .025".
- Wall display dispenses blades one at a time for safety and convenience. Complete with 100 pcs. of heavy duty blades $2^{7}/_{16}$ x .025".

DESCRIPTION	PART NO.	PRICE
5 Pk. of Heavy Duty Blades (Not Shown)	**82-375-7**	$1.90
100 Pc. Blade Dispenser	**82-376-5**	19.10



82-376-5

HAND TOOLS

STANLEY

Blade Disposal Container & Kit

- High impact, puncture resistant container.
- Snap-on lid locks tight for safety and is tethered to the container.
- Container can be placed on a flat surface or fixed to a wall with a metal rack.

DESCRIPTION	PART NO.	PRICE
Disposal Container w/Rack	**82-168-6**	$29.10
Disposal Container Only	**82-169-4**	15.90



82-168-6


62-128-4

OLO™

Carton Opener

Easy-To-Use, Self-Guiding Opener

- Prevents Injuries: A revolutionary double protection system that keeps the blade shielded even during use.

Features:

- Ergonomic design.
- Strap attachment.
- High-impact ABS plastic.
- Blade storage compartment.
- Button release of blade shield.
- Automatic blade shielding when not in use.
- The unique and adjustable positioning of blade assures the carton is cut, not the merchandise.

DESCRIPTION	PART NO.	PRICE
Carton Opener	**62-128-4**	$29.15

PHC PACIFIC HANDY CUTTER®

Disposable Film Cutter/Tape Splitter

High Visibility Yellow Ergonomic Handle

Film Cutter

- Effortlessly cuts stretch wrap.
- Film piercing tip.
- Tape notch for bladeless box tape splitting.
- Economical.
- Form fitting handle.
- Permanent durable stainless steel bladeprevents loose blade.

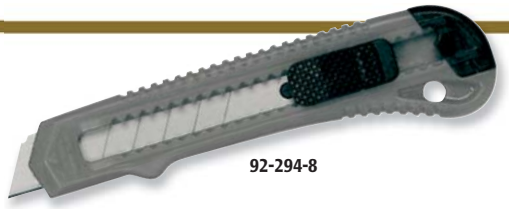

92-223-7

Tape Splitter

- Bladeless packing tape splitter easily opens masking, packaging and clear tape on cartons without using a sharp blade.
- Blunt safety tip blade prevents puncture wounds/damaged merchandise.
- Economical.


92-197-3

DESCRIPTION	PART NO.	PRICE
Film Cutter	**92-223-7**	$4.25
Tape Splitter	**92-197-3**	2.00


92-294-8

Snap Blade Knives & Replacement Blades

DESCRIPTION	PART NO.	PRICE
8 Point Snap Blade Knife (8 Edges)	**92-294-8**	$1.75
Positive Locking Snap Blade Knife (8 Edges)	**92-295-5**	3.10
Replacement Blades - 10 Pk. (8 Edges)	**92-296-3**	6.35
13 Point Snap Blade Knife (13 Edges)	**92-297-1**	1.80
Positive Locking Snap Blade Knife (13 Edges)	**62-984-0**	1.80


92-304-5

PHC PACIFIC HANDY CUTTER®

13 Point Snap Blade Knife

DESCRIPTION	PART NO.	PRICE
13 Point Snap Blade Knife	**92-304-5**	$2.70


62-984-0

PHC PACIFIC HANDY CUTTER®

Heavy Duty Snap Blade Knife

- These positive locking snap blade knives feature top quality blades with multiple break away points for long lasting blade life.

DESCRIPTION	PART NO.	PRICE
Heavy Duty Snap Blade Knife	**62-984-0**	$1.80


92-307-8

SPECTRUM® RAZOR TOOLS

Snap Blade Knives & Replacement Blades

DESCRIPTION	PART NO.	PRICE
8 Point Snap Blade Knife	**92-305-2**	$6.25
13 Point Snap Blade Knife	**92-306-0**	3.95
8 Point Auto Reload Snap Blade Knife	**92-307-8**	14.50
Snap Blade Cartridge Refill (8 Edges)	**92-308-6**	4.75



92-314-4

92-315-1

92-316-9

92-317-7

STANLEY

Snap Blade Knives & Replacement Blades

Snap Blade Knives

DESCRIPTION	PART NO.	PRICE
Quick-Point™ Knife (8 Edges)	**92-309-4**	$4.85
Quick-Point™ Knife (13 Edges)	**92-310-2**	2.95
Quick-Point™ Knife (16 Edges)	**92-311-0**	5.95
Fat-Max® 18 mm Snap-Off Knife (6 Edges)	**92-313-6**	11.75
Fat-Max® 18 mm Snap-Off Knife (13 Edges)	**92-314-4**	10.35
Fat-Max® 25 mm Snap-Off Knife (4 Edges)	**92-315-1**	14.00
Fat-Max® Xtreme™ 25 mm Snap Blade Knife (7 Edges)	**92-316-9**	17.85
DynaGrip® 25 mm Snap-Off Knife (8 Edges)	**92-317-7**	13.30

Replacement Blades

DESCRIPTION	PART NO.	PRICE
Repl. Blades - 3 Pk. (8 Edges)	**92-318-5**	$2.35
Super HD Quick-Point™ Blades 25 mm - 10 Pk. (7 Edges)	**92-319-3**	7.95
Fat-Max® Snap-Off Blades 18 mm - 5 Pk. (8 Edges)	**92-324-3**	2.45
Fat-Max® Snap-Off Blades 18 mm - 50 Pk. (8 Edges)	**92-325-0**	13.60
Fat-Max® Snap-Off Blades 18 mm - 10 Pk. (8 Edges)	**92-326-8**	4.25
Fat-Max® Snap-Off Blades 25 mm - 5 Pk. (7 Edges)	**92-327-6**	4.35
Fat-Max® Snap-Off Blades 25 mm - 50 Pk. (7 Edges)	**92-328-4**	15.65



92-337-5



92-352-4



92-344-1



92-343-3



92-353-2



92-355-7



82-369-0

STANLEY

Utility Knife Blades

- Options for general purpose cutting or specific application.
- Precision - honed edge.

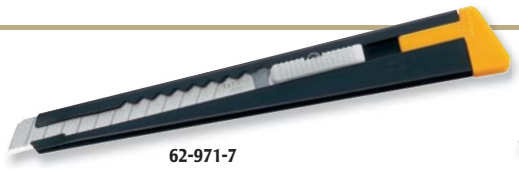
BLADE DESCRIPTION	MATERIAL	THICKNESS	PKG. QTY.	PART NO.	PRICE
Standard Duty	Carbon Steel	0.017"	5	**92-337-5**	$1.55
Standard Duty	Carbon Steel	0.017"	100	**92-338-3**	18.30
Heavy-Duty	High Carbon Steel	0.024"	5	**92-339-1**	1.70
Heavy-Duty	High Carbon Steel	0.024"	10	**92-340-9**	4.10
Heavy-Duty	High Carbon Steel	0.024"	100	**92-342-5**	20.15
Heavy-Duty	Carbon Steel	0.024"	5	**82-375-7**	1.90
Heavy-Duty	Carbon Steel	0.024"	10	**92-343-3**	4.35
Heavy-Duty	Carbon Steel	0.024"	50	**92-344-1**	12.75
Heavy-Duty	Carbon Steel	0.024"	100	**82-376-5**	19.10
Heavy-Duty	Carbon Steel	0.024"	400	**92-345-8**	70.40
Super Heavy-Duty	Carbon Steel	0.035"	5	**92-346-6**	1.95
Super Heavy-Duty	Carbon Steel	0.035"	100	**92-347-4**	31.70
Large Hook Blade	Carbon Steel	0.024"	5	**92-348-2**	6.10
Double Hook	Carbon Steel	0.024"	5	**92-349-0**	5.95
Double Hook	Carbon Steel	0.024"	100	**92-350-8**	71.15
Large Double Hook	Carbon Steel	0.025"	100	**92-351-6**	68.95
Heavy-Duty Carpet	Carbon Steel	0.017"	100	**92-352-4**	24.75
Rounded Edge	Carbon Steel	0.024"	5	**82-369-0**	1.95
Drywall	Carbon Steel	0.024"	3	**92-353-2**	1.90
Drywall	Carbon Steel	0.024"	50	**92-354-0**	19.25
Roofing	Carbon Steel	0.031"	3	**92-355-7**	5.75
Roofing	Carbon Steel	0.031"	70	**92-356-5**	68.60

*Dispenser included.

OLFA

Best made cutting tools in the world.®

Snap Blade Knives & Replacement Blades



62-971-7



92-298-9

DESCRIPTION	PART NO.	PRICE
Heavy-Duty Standard Cutter	**62-971-7**	$3.80
SVR-2 w/Auto Lock Stainless Steel Snap Blade Knife	**92-298-9**	10.35
Deluxe Stainless Steel Cutter	**62-972-5**	9.50
Repl. Blades - 10 pk. (13 edges)	**62-977-4**	5.75
Repl. Blades - 50 pk. (13 edges)	**62-976-6**	21.50
Snap-Off Knife	**62-974-1**	10.60
Snap-Off Knife w/Rubber Grip	**62-979-0**	11.05
Repl. Blades - 50 pk. (8 edges)	**62-980-8** *	35.75
Repl. Blades - 50 pk. (8 edges)	**62-978-2**	37.25
Extra Heavy-Duty Cutter	**62-981-6**	20.75
Repl. Blades Heavy-Duty - 5 pk. (7 edges)	**62-975-8**	8.80
PA-2 PRO-LOAD Multi Blade Cutter	**92-300-3**	13.75
Carton Cutter	**92-301-1**	3.55
Repl. Blades - 5 pk. (6 edges)	**92-302-9**	4.70
Safety Cutter Repl. Blades - 10 pk.	**92-303-7**	7.65
Safety Cutter Repl. Blades - 50 pk.	**62-983-2**	30.85

*Ultra Max® blade is 25% sharper then LB-50 blade.



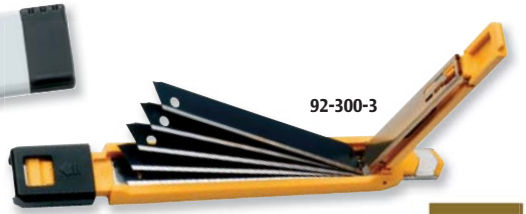
62-974-1



62-981-6



92-301-1



92-300-3

HAND TOOLS

Hobby Knives & Blades



65-741-1

13 Pc. Set

- 1 each of No. 1, 2 and 5 precision, medium-and heavy-duty knives with 10 assorted blades in wooden box (1 - #10, 2 - #11, 1 - #16, 1 - #17, 1 - #18, 1 - #19, 1 -# 22 and 2 - #24).

DESCRIPTION	PART NO.	PRICE
13 Pc. Set	**65-741-1**	$24.20

No. 1 Precision Knife w/Safety Cap



65-730-4

- Aluminum handle 4 7/8" long with No. 11 blade and safety cap.

DESCRIPTION	PART NO.	PRICE
No. 1 Precision Knife w/Safety Cap	**65-730-4**	$3.15

No. 2 Medium-Duty Knife w/Safety Cap



65-731-2

- Aluminum handle 5" long withNo. 24 blade and safety cap.

DESCRIPTION	PART NO.	PRICE
#2 Med.-Duty Knife w/Safety Cap	**65-731-2**	$5.05

No. 3 Pen Knife



65-732-0

- Gold-tone metal barrel. Clear plastic cap clips to pocket. Length closed 5 1/4" with No. 10 blade.

DESCRIPTION	PART NO.	PRICE
No. 3 Pen Knife	**65-732-0**	$6.75

No. 5 Heavy-Duty Knife w/Safety Cap

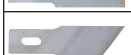


65-733-8

- Plastic handle with metal blade lock, 4 1/4" long with No. 19 blade and safety cap.

DESCRIPTION	PART NO.	PRICE
No. 5 Heavy Duty Knife	**65-733-8**	$6.45

100 Pack Blades

	No. 11 - Extremely sharp point for fine angle cutting and stripping
	No. 16 - Ideal for stenciling, scoring and etching
	No. 18 - 1/2" Chisel blade for deep cross cuts and paint scraping
	No. 19 - Ideal for deburring, chiseling and rough shaping - extra long cutting edge
	No. 22 - Ideal for general shaping, whittling, trimming and removing excess flashing
	No. 24 - Close corner cuts for templates, mats, deburring, trimming, stripping and gasket cutting - extra long blade

BLADE	PART NO.	PRICE	BLADE	PART NO.	PRICE
No. 11	**65-734-6**	$23.95	No. 19	**65-737-9**	$35.15
No. 16	**65-735-3**	26.55	No. 22	**65-738-7**	57.40
No. 18	**65-736-1**	38.40	No. 24	**65-739-5**	35.80



92-335-9

Utility Knife Blades

- Long lasting.
- Fits most standard utility knives.
- .25 thickness for all purpose cutting.
- Made of carbon steel.

PKG. QTY.	PART NO.	PRICE
5	**92-335-9**	$1.75
100	**92-336-7**	23.40

Knife Blade Sets



65-742-9

Craftsman - 13 Pc. Set

- For medium weight cutting of wood, paper, cardboard, plastic, foam and mat board.
- Set contains: 1 each of K1 (light-duty), K2 (medium-duty), K6 (heavy-duty) with 10 assorted blades in wooden box (#2, #10, #11, #13, #16, #17, #18, #19, #22, #24).

DESCRIPTION	PART NO.	PRICE
Craftsman - 13 Pc. Set	**65-742-9**	$32.40



65-743-7

Professional - 13 Pc. Set

- For intricate carving, deep relief carving and whittling.
- Set contains: 1 each of K1 (light-duty), K2 (medium-duty), K7 (wood carving) with 9 assorted blades in wooden box (#2, #16, #17, #18, #19, #24, #104, #310, #350).

DESCRIPTION	PART NO.	PRICE
Professional - 13 Pc. Set	**65-743-7**	$35.00

Z-Rex® Glass Breaker & Strap Cutter

4 Tools In 1



97-290-1

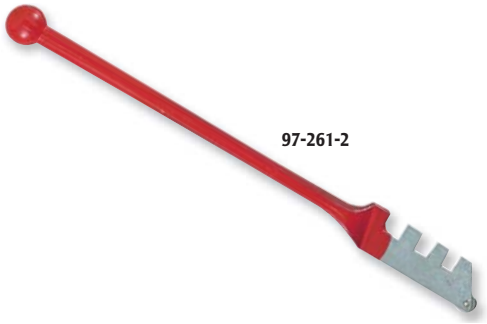
- Tools:
  - 440C replacement cutters.
  - Tungsten carbide glass breaker.
  - Oxygen tank wrench.
  - 1/4" Hex wrench.
- Features:
  - Finger hole and ergo grip.
  - Power-coated aluminum body.
  - MOLLE sheath.
  - Handle length: 6 3/4"
  - Color: Black
  - Blade material: Stainless steel.

DESCRIPTION	PART NO.	PRICE
Z-Rex® Glass Breaker & Strap Cutter	**97-290-1**	$27.70

GENERAL®

Glass Cutter

- Cuts plate glass from 1/8" to 1/4" thick.
- Steel wheel with honed angle of 120° for cutting single and double strength glass.
- Ball end handle for snapping of scored glass.
- Tooth design to remove rough edges.



97-261-2

DESCRIPTION	PART NO.	PRICE
Glass Cutter	**97-261-2**	$3.70



51-558-5

Industrial Quality

Plier Stapler

- Holds material while you staple.
- Uses 1/4 or 3/8" standard staples.
- Great for shipping bags and cartons.

DESCRIPTION	PART NO.	PRICE
Plier Stapler	**51-558-5**	$24.35

ARROW™
HOW IT ALL COMES TOGETHER

Heavy-Duty Tacker Gun

The Choice of Home Owners and Pros Alike

- All steel construction.
- Easy squeeze double leverage operation.
- Visual staple refill window.
- Jam resistant mechanism.
- Accepts a full range of T50 staples, 1/4" - 9/16"



70-604-4

DESCRIPTION	PART NO.	PRICE
Heavy-Duty Tacker Gun	**70-604-4**	$42.50

ARROW™
HOW IT ALL COMES TOGETHER

T50 Heavy-Duty Staples

- For use with many types of Arrow staplers and tackers.
- Sold in box quantity of 5,000.

SIZE	PART NO.	PRICE
1/4"	**70-605-1**	$12.85
5/16"	**70-606-9**	13.25
3/8"	**70-607-7**	15.15
1/2"	**70-608-5**	16.70
9/16"	**70-609-3**	19.25



70-605-1

Probes, Spatulas, & Carvers



57-103-4

4 Piece Probe Set

- Points ground down to .003", very sharp.
- 4 double end probes with different offsets and angles.
- Made from surgical stainless steel.
- Knurled handle prevents slipping.

DESCRIPTION	PART NO.	PRICE
4 Piece Probe Set	**57-103-4**	$14.45



57-104-2

4 Piece Spatula Set

- 4 tools with double end, different angles and knife shapes.
- Great for shaping and spreading of soft materials such as wax, clay, etc.
- Made from surgical stainless steel.

DESCRIPTION	PART NO.	PRICE
4 Piece Spatula Set	**57-104-2**	$16.00



57-105-9

4 Piece Carver Set

- 4 double end knives and shapes.
- Designed for carving and cutting of soft materials such as wax, clay, wood, etc.
- Made from surgical stainless steel.

DESCRIPTION	PART NO.	PRICE
4 Piece Carver Set	**57-105-9**	$15.25



57-106-7

5 Piece Probe Set

- Points ground down to .003", very sharp.
- 5 single end probes with different offsets and angles.
- Knurled handle prevents slipping.
- Made from surgical stainless steel.

DESCRIPTION	PART NO.	PRICE
5 Piece Probe Set	**57-106-7**	$14.75

SPI® Classic

IPD Gage + Software

A Complete Internal Pitch Diameter Measuring System

See Pg. 114

MADE IN USA



30-640-7

HAND TOOLS



95-908-0

DREMEL® VersaTip® Kit

Multipurpose tool for wood burning, soldering, hot knife cutting of Styrofoam and plastics, cutting and fusing rope.

- Maximum tip temp: 1,050° F.
- Short shaft length provides excellent control of tip.
- Ergonomic, stay-cool design for control and comfort.
- Features a high-efficiency bronze core heating element that heats quickly, storage tube and tool stand.
- 5 replaceable, interchangeable design tips include:
  - General Purpose
  - Script
  - Cutting
  - Hot Knife
  - Soldering
- Dremel® model #1550

DESCRIPTION	PART NO.	PRICE
VersaTip® Kit	**95-908-0**	$40.35



32-172-9

Weller® Magna-Lite Butane Micro Torch

For heat shrinking tubing, fusing rope ends, melting frozen locks, camping and more.

- Piezo electronic ignition system for reliable ignition.
- Nozzle cover prevents accidental ignition.
- Adjustable flame height.
- LED work light.
- Complete with worklight and key chain.
- Maximum temperature 2400° F.
- Fuel capacity 0.5 oz.
- Operating time 25 minutes.

DESCRIPTION	PART NO.	PRICE
Magna-Lite Butane Micro Torch	**32-172-9**	$17.40

Creative 5-in-1 Soldering Tool Kit

Use for Soldering, Woodburning, Leather Crafts, Stencil Cutting, Styrofoam Sculpting and More.

- Kit Includes:
  - 30 watt iron
  - 3 Soldering tips
  - 4 Woodburning tips
  - 1 Stencil cutting tip
  - 1 Sculpting knife
  - Sturdy storage case

MADE IN USA



32-171-1

DESCRIPTION	PART NO.	PRICE
Creative 5-in-1 Soldering Tool Kit	**32-171-1**	$49.75



32-173-7

SOLDER-IT™ Butane Soldering Kit

For electrical and electronic circuit repairs, circuit board connections wire harness repairs, general soldering, jewelry, eyeglass frame repair, model building and more.

- Soldering tip temperature range: 400° to 500° F.
- Operating time: 30 minutes on one fill.
- Kit Includes:
  - Soldering iron
  - 1.6 mm chisel
  - 2.4 mm chisel
  - Hot knife
  - 60/40 Rosin core solder
  - Cap
  - Sponge
  - Wrench
  - Instructions

DESCRIPTION	PART NO.	PRICE
Butane Soldering Kit	**32-173-7**	$42.95

SOLDER-IT™ Multi-Function 4-in-1 Butane Soldering Kit

Use For Repairs Anywhere; Cordless and Portable

- Soldering tip temperature range: 400° to 850° F.
- Operating time: 30 minutes on one fill.
- Kit Includes:
  - Soldering iron
  - 1.0 mm conical tip
  - 2.4 mm conical tip
  - 2.4 mm chisel tip
  - Hot knife
  - 60/40 Rosin core solder
  - Deflector tip
  - Cap
  - Sponge
  - Wrench
  - Instructions

DESCRIPTION	PART NO.	PRICE
Multi-Function 4-in-1 Butane Soldering Kit	**32-174-5**	$79.95



32-174-5



NEW

ACCUPRO® High Performance Milling

Retaining Ring Grooving Tools

Submicron Carbide

See Pg. 536

CUTTING TOOLS













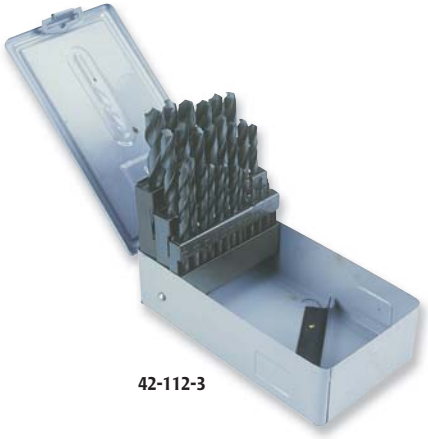




CUTTING TOOLS



42-105-7



42-112-3



49-147-2



42-118-0

SHOP GRADE

Jobber Length Drill Sets

- 118° point for quick penetration.
- 135° self centering split point prevents "walking"
- Sets are furnished in metal or plastic case.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

TiN

- Increases lubricity and heat resistance. Allows increase in machining speeds of 25 - 35%.

NO. OF PCS.	DESCRIPTION	DRILL POINT	DRILL TYPE	FINISH	GRADE	PART NUMBER	PRICE
13	1/16" - 1/4" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**42-103-2**	$15.46
13	1/16" - 1/4" x 64ths	135°	Split	Cobalt	General Purpose	**42-105-7**	39.25
15	1/16" - 1/2" x 32nds	118°	Standard	HSS Black Oxide	General Purpose	**42-109-9**	49.55
15	1/16" - 1/2" x 32nds	135°	Standard	Cobalt	Heavy-Duty	**42-111-5**	90.05
21	1/16" - 3/8" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**42-106-5**	42.50
21	1/16" - 3/8" x 64ths	135°	Split	Cobalt	Heavy-Duty	**42-107-3**	87.85
29	1/16" - 1/2" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**42-112-3**	79.25
29	1/16" - 1/2" x 64ths	118°	Standard	HSS TiN Coated	General Purpose	**65-028-3**	194.15
29	1/16" - 1/2" x 64ths	135°	Split	Cobalt	Heavy-Duty	**49-143-1**	149.55
20	#61 - 80 Wire Gage	118°	Standard	HSS Black Oxide	General Purpose	**65-025-9**	29.05
20	#61 - 80 Wire Gage	118°	Standard	HSS TiN Coated	General Purpose	**65-026-7**	28.20
60	#1 - 60 Wire Gage	118°	Standard	HSS Black Oxide	General Purpose	**42-115-6**	62.75
60	#1 - 60 Wire Gage	135°	Split	Cobalt	Heavy-Duty	**49-145-6**	112.20
26	A - Z	118°	Standard	HSS Black Oxide	General Purpose	**49-146-4**	70.80
26	A - Z	118°	Standard	Cobalt	Heavy-Duty	**49-147-2**	152.50
19	1 - 10 mm x 0.5 mm	118°	Standard	HSS Black Oxide	General Purpose	**65-030-9**	50.35
25	1 - 13 mm x 0.5 mm	118°	Standard	HSS Black Oxide	General Purpose	**65-031-7**	87.55
41	6 - 10 mm x 0.1 mm	118°	Standard	HSS Black Oxide	General Purpose	**49-144-9**	185.45
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	HSS Black Oxide	General Purpose	**42-118-0**	96.45
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	Fast Spiral	General Purpose	**49-132-4**	454.20

HERTEL
Production Grade Tooling Since 1947

Jobber Length Drill Sets

- 118° point for quick penetration.
- 135° self centering split point prevents "walking"
- Sets are furnished in metal or plastic case.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

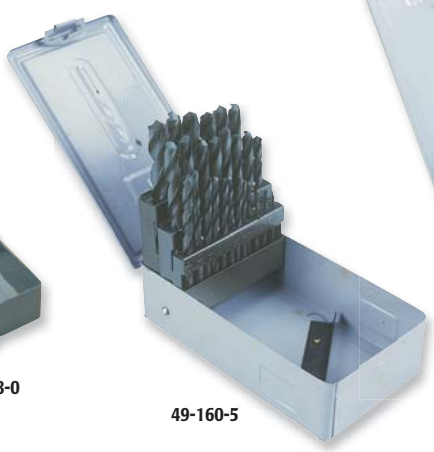
Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.

TiN

- Increases lubricity and heat resistance. Allows increase in machining speeds of 25 - 35%.


49-148-0


49-160-5


49-173-8


49-135-7

NO. OF PCS.	DESCRIPTION	DRILL POINT	DRILL TYPE	FINISH	GRADE	PART NUMBER	PRICE
13	1/16" - 1/4" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**49-148-0**	$20.35
13	1/16" - 1/4" x 64ths	135°	Standard	HSS Black Oxide	Heavy-Duty	**49-149-8**	27.55
13	1/16" - 1/4" x 64ths	118°	Standard	HSS Bright	General Purpose	**49-150-6**	20.35
13	1/16" - 1/4" x 64ths	135°	Split	Cobalt	General Purpose	**49-151-4**	51.15
15	1/16" - 1/2" x 32nds	118°	Standard	HSS Black Oxide	General Purpose	**49-152-2**	64.40
15	1/16" - 1/2" x 32nds	135°	Standard	HSS Black Oxide	Heavy-Duty	**49-153-0**	77.30
15	1/16" - 1/2" x 32nds	118°	Standard	HSS Bright	General Purpose	**49-154-8**	64.40
15	1/16" - 1/2" x 32nds	135°	Split	Cobalt	Heavy-Duty	**49-155-5**	116.80
21	1/16" - 3/8" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**49-156-3**	55.80
21	1/16" - 3/8" x 64ths	135°	Standard	HSS Black Oxide	Heavy-Duty	**49-157-1**	61.90
21	1/16" - 3/8" x 64ths	118°	Standard	HSS Bright	General Purpose	**49-158-9**	55.80
21	1/16" - 3/8" x 64ths	135°	Standard	Cobalt	Heavy-Duty	**49-159-7**	116.65
29	1/16" - 1/2" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**49-160-5**	103.10
29	1/16" - 1/2" x 64ths	135°	Standard	HSS Black Oxide	Heavy-Duty	**49-161-3**	128.00
29	1/16" - 1/2" x 64ths	118°	Standard	HSS Bright	General Purpose	**49-162-1**	103.10
29	1/16" - 1/2" x 64ths	135°	Standard	Cobalt	Heavy-Duty	**49-163-9**	194.20
29	1/16" - 1/2" x 64ths	118°	Standard	HSS TiN Coated	General Purpose	**49-164-7**	252.65
29	1/16" - 1/2" x 64ths	135°	Split	HSS TiN Coated	Heavy-Duty	**49-165-4**	312.75
20	#61 - 80 Wire Gage	118°	Standard	HSS Black Oxide	General Purpose	**49-166-2**	35.75
20	#61 - 80 Wire Gage	118°	Standard	HSS Bright	General Purpose	**49-167-0**	30.60
60	#1 - 60 Wire Gage	118°	Standard	HSS Black Oxide	General Purpose	**49-168-8**	80.65
60	#1 - 60 Wire Gage	135°	Standard	HSS Black Oxide	Heavy-Duty	**49-169-6**	103.20
60	#1 - 60 Wire Gage	118°	Standard	HSS Bright	General Purpose	**49-170-4**	80.65
60	#1 - 60 Wire Gage	135°	Standard	Cobalt	Heavy-Duty	**49-171-2**	132.30
60	#1 - 60 Wire Gage	118°	Standard	HSS TiN Coated	Heavy-Duty	**49-172-0**	263.30
26	A - Z	118°	Standard	HSS Black Oxide	General Purpose	**49-173-8**	106.05
26	A - Z	135°	Standard	HSS Black Oxide	Heavy-Duty	**49-174-6**	159.25
26	A - Z	118°	Standard	HSS Bright	General Purpose	**49-175-3**	106.05
26	A - Z	135°	Standard	Cobalt	Heavy-Duty	**49-176-1**	231.95
19	1 - 10 mm x 0.5 mm	118°	Standard	HSS Black Oxide	General Purpose	**49-177-9**	64.55
25	1 - 13 mm x 0.5 mm	118°	Standard	HSS Black Oxide	General Purpose	**49-178-7**	113.40
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	HSS Black Oxide	General Purpose	**49-135-7**	268.20
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	135°	Split	HSS Black Oxide	Heavy-Duty	**49-136-5**	401.85
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	HSS Bright	General Purpose	**49-134-0**	268.20
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	135°	Split	Cobalt	Heavy-Duty	**49-138-1**	644.55
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	HSS TiN Coated	General Purpose	**49-137-3**	536.50
114	3-IN-1 (1/16"- 1/2" x 64ths, #1-60, 1-13 mm)	118°	Standard	HSS Bright	General Purpose	**49-142-3**	319.55

CUTTING TOOLS

SHOP GRADE
Screw Machine Length Drill Sets

- 118° point for quick penetration.
- Case included.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.



49-179-5

NO. OF PCS.	DESCRIPTION	DRILL POINT	DRILL TYPE	FINISH	GRADE	PART NUMBER	PRICE
29	1/16" - 1/2" x 64ths	118°	Standard	HSS Black Oxide	General Purpose	**49-179-5**	$79.25
29	1/16" - 1/2" x 64ths	118°	Standard	HSS Bright	Screw Machine	**49-180-3**	79.25
60	#1 - 60 Wire Gage	118°	Standard	HSS Black Oxide	General Purpose	**49-181-1**	62.75
60	#1 - 60 Wire Gage	118°	Standard	HSS Bright	Screw Machine	**49-182-9**	62.75
26	A - Z	118°	Standard	HSS Black Oxide	General Purpose	**49-183-7**	93.30
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	HSS Black Oxide	General Purpose	**49-133-2**	285.90

HERTEL
Production Grade Tooling Since 1947

Screw Machine Length Drill Sets

- 118° point for quick penetration.
- 135° self centering split point prevents "walking"
- Case included.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.

TiN

- Increases lubricity and heat resistance. Allows increase in machining speeds of 25 - 35%.



49-185-2

NO. OF PCS.	DESCRIPTION	DRILL POINT	DRILL TYPE	FINISH	GRADE	PART NUMBER	PRICE
29	1/16" - 1/2" x 64ths	135°	Split	HSS Black Oxide	Heavy-Duty	**49-185-2**	$108.25
29	1/16" - 1/2" x 64ths	118°	Standard	HSS Bright	General Purpose	**49-184-5**	103.05
29	1/16" - 1/2" x 64ths	135°	Split	Cobalt	Heavy-Duty	**49-186-0**	177.85
29	1/16" - 1/2" x 64ths	135°	Split	HSS TiN Coated	Heavy-Duty	**49-187-8**	299.80
60	#1 - 60 Wire Gage	135°	Split	HSS Black Oxide	General Purpose	**49-189-4**	88.90
60	#1 - 60 Wire Gage	118°	Standard	HSS Bright	General Purpose	**49-188-6**	82.45
60	#1 - 60 Wire Gage	135°	Split	Cobalt	Heavy-Duty	**49-190-2**	128.00
60	#1 - 60 Wire Gage	135°	Split	HSS TiN Coated	Heavy-Duty	**49-191-0**	232.20
26	A - Z	135°	Split	HSS Black Oxide	Heavy-Duty	**49-193-6**	122.00
26	A - Z	118°	Standard	HSS Bright	General Purpose	**49-192-8**	122.00
26	A - Z	135°	Split	Cobalt	Heavy-Duty	**49-194-4**	178.70
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	135°	Split	HSS Black Oxide	Heavy-Duty	**49-140-7**	329.45
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	118°	Standard	HSS Bright	General Purpose	**49-139-9**	316.45
115	3-IN-1 (1/16" - 1/2" x 64ths, #1 - 60, A - Z)	135°	Split	Cobalt	Heavy-Duty	**49-141-5**	609.05

SHOP GRADE

HSS 135° Taper Length Parabolic Drill Set

- Grade: Heavy-Duty.
- Parabolic design for drilling holes deeper than 7 x D while eliminating the need to "Peck".
- Supplied in a metal index case.

Tool Material:

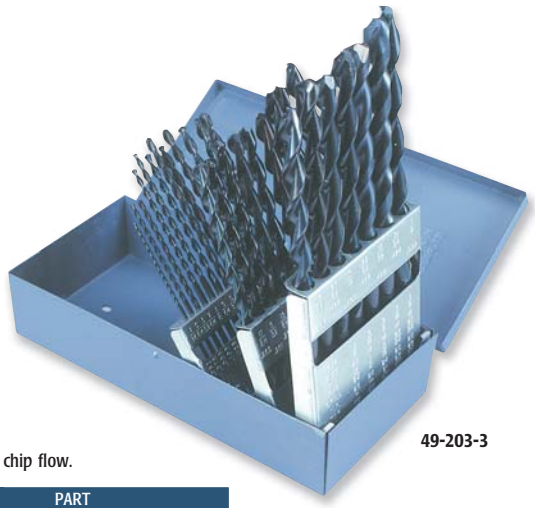
HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



49-203-3

NO. OF PCS.	DESCRIPTION	FINISH	PART NUMBER	PRICE
28	5/64" - 1/2" x 64ths	HSS Black Oxide	**49-203-3**	$404.55

SHOP GRADE

18 Pc. HSS Tap & Drill Sets

Sets In Metal Index Case with Tap & Drill Chart

- Bright drill coating.
- Drills with 118° point.



70-097-1

TAP SIZE	TAP TYPE	DRILL SIZES	PART NO.	PRICE
#6-32, #8-32, #10-24, #10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	Hand Plug	#36, #29, #25, #21, #7, F, 5/16, U, 27/34	**70-096-3**	$62.75
#6-40, #8-36, #10-24, #10-32, 1/4-28, 5/16-24, 3/8-24, 7/16-20, 1/2-20	Hand Plug	#33, #29, #25, #21, #3, I, Q, 25/64, 29/64	**70-097-1**	61.25
#6-32, #8-32, #10-24, #10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	Spiral Point	#36, #29, #25, #21, #7, F, 5/16, U, 27/34	**70-098-9**	62.75
M2.5X0.45, M3X0.50, M3.5X0.60, M4X0.70, M5X0.80, M6X1.00, M8X1.25, M10X1.50, M12X1.75	Hand Plug	M2.05, M2.50, M2.90, M3.30, M4.20, M5.00 M6.70, M8.50, M10.20	**70-099-7**	102.55

Steel Hand Trucks

See Pg. 585





49-195-1

SHOP GRADE

HSS 118° Taper Length Drill Sets

- Grade: general purpose.
- Drill type: standard.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.
- Taper length is a longer straight shank general purpose drill used where a deeper hole is required. Shank size is the same as the diameter of the drill.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

NO. OF PCS.	DESCRIPTION	PART NUMBER	PRICE
29	1/16" - 1/2" x 64ths	**49-195-1**	$260.30
26	A - Z	**49-196-9**	341.15



49-214-0

Case not Included

SHOP GRADE

HSS 118° 1/4" Reduced Straight Shank Drill Set

- Designed for use in portable drills with 1/4" chuck capacity.
- These short all purpose drills can be used for wood, sheet metal, aluminum and mild steel.

NO. OF PCS.	DESCRIPTION	PART NUMBER	PRICE
4	5/16" - 1/2" x 16ths	**49-214-0**	$31.50

CUTTING TOOLS

HERTEL
Production Grade Tooling Since 1947

HSS & Cobalt 135° 6" & 12" Aircraft Extension Drill Sets

- Grade: Heavy-Duty.
- Drill type: split.
- Used to drill normal depth holes in hard to reach places.
- Supplied in open stand.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



49-197-7

NO. OF PCS.	DESCRIPTION	OAL	FINISH	PART NUMBER	PRICE
13	1/16" - 1/4" x 64ths	6"	HSS Black Oxide	**49-197-7**	$44.10
13	1/16" - 1/4" x 64ths	12"	HSS Black Oxide	**49-198-5**	115.10
13	1/16" - 1/4" x 64ths	6"	Cobalt	**49-199-3**	60.00
29	1/16" - 1/2" x 64ths	6"	HSS Black Oxide	**49-200-9**	241.30
29	1/16" - 1/2" x 64ths	12"	HSS Black Oxide	**49-201-7**	356.10
60	#1 - 60 Wire Gage	6"	HSS Black Oxide	**49-202-5**	248.30

SHOP GRADE

HSS 118° Point Long Boy Drills Sets

- For general purpose drilling in a wide variety of materials where extra length is needed.
- Supplied in metal stand.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



49-207-4

NO. OF PCS.	DESCRIPTION	OAL	FLUTE LENGTH	PART NUMBER	PRICE
13	1/8" - 1/2" x 32nds	8"	5 1/2"	**49-204-1**	$171.40
13	1/8" - 1/2" x 32nds	10"	7 1/2"	**49-205-8**	189.65
13	1/8" - 1/2" x 32nds	12"	9"	**49-206-6**	218.75
25	1/16" - 1/2" x 64ths	8"	5 1/2"	**49-207-4**	367.55
25	1/16" - 1/2" x 64ths	10"	7 1/2"	**49-208-2**	428.10
25	1/16" - 1/2" x 64ths	12"	9"	**49-209-0**	510.20
10	3/16" - 3/4" x 16ths	12"	9"	**49-210-8**	457.80
11	3/16" - 1/2" x 32nds	18"	12"	**49-211-6**	369.45

SHOP GRADE

HSS 118° 3/4" Reduced Shank Drill Set

- Black oxide.
- Flute: 3".
- OAL: 6"
- Shank size varies from 0.735 - 0.753" which may make them unsuitable for uses in collets.
- Supplied in a wooden case.



49-217-3

NO. OF PCS.	SIZES	PART NUMBER	PRICE
6	7/8, 1, 1 1/8, 1 1/4, 1 3/8, 1 1/2	**49-217-3**	$404.25

HERTEL
Production Grade Tooling Since 1947

HSS & Cobalt 118° 3/4" Reduced Shank Drill Sets

- Black oxide.
- Flute: 3".
- OAL: 6"
- Supplied in a wooden case.



49-218-1

NO. OF PCS.	SIZES	FINISH	PART NUMBER	PRICE
6	7/8, 1, 1 1/8, 1 1/4, 1 3/8, 1 1/2	HSS	**49-218-1**	$448.00
5	1, 1 1/8, 1 1/4, 1 3/8, 1 1/2	Cobalt	**49-219-9**	881.85
5	1, 1 1/4, 1 1/2, 1 3/4, 2	Cobalt	**49-220-7**	1,356.90

HERTEL
Production Grade Tooling Since 1947

HSS 118° Point Long Boy Drills Sets

- For general purpose drilling in a wide variety of materials where extra length is needed.
- Supplied in metal stand.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



49-212-4

NO. OF PCS.	DESCRIPTION	OAL	FLUTE LENGTH	PART NUMBER	PRICE
25	1/16" - 1/2" x 64ths	12"	9"	**49-212-4**	$636.65

SHOP GRADE

HSS 118° 1/2" Shank Silver & Deming Drill Sets

- OAL: 6"
- Designed for materials 63 to 65 HRC.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



8 Pc. Set in Wooden Stand

NO. OF PCS.	DESCRIPTION	FINISH	CASE TYPE	PART NUMBER	PRICE
5	17/32 - 1	HSS	None	**48-310-7**	$69.55
8	9/16 - 1 x 16ths	HSS	None	**48-311-5**	97.05
8	9/16 - 1 x 16ths	HSS	Wood Stand	**48-312-3**	121.05
8	9/16 - 1 x 16ths	Cobalt	None	**48-313-1**	341.30
8	1 1/16 - 1 1/2 x 16ths	HSS	None	**48-314-9**	290.30
8	1 1/16 - 1 1/2 x 16ths	HSS	Wood Stand	**48-315-6**	371.95
10	9/16 - 1 1/4 x 16ths	HSS	Wood Stand	**48-316-4**	195.25
10	17/32 - 1 1/4 x 16ths	HSS	Wood Stand	**48-317-2**	220.30
13	17/32 - 1 x 32nds	HSS	Wood Stand	**48-318-0**	211.20
17	17/32 - 1 1/32 x 32nds	HSS	None	**48-319-8**	218.00
17	17/32 - 1 1/32 x 32nds	HSS	Wood Stand	**48-320-6**	300.60
32	33/64 - 1 x 64ths	HSS	None	**48-321-4**	398.45
40	33/64 - 1 1/2 x 64ths	HSS	None	**48-322-2**	436.10

HERTEL
Production Grade Tooling Since 1947

HSS 118° 1/2" Shank Silver & Deming Drill Sets

- OAL: 6"
- Designed for materials 63 to 65 HRC.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



8 Pc. Set in Wooden Stand

NO. OF PCS.	DESCRIPTION	FINISH	CASE TYPE	PART NUMBER	PRICE
8	9/16 - 1 x 16ths	HSS	Plastic Case	**48-323-0**	$268.60
8	9/16 - 1 x 16ths	Cobalt	Plastic Case	**48-324-8**	371.95
8	1 1/16 - 1 1/2 x 16ths	HSS	Wood Stand	**48-325-5**	573.95
10	9/16 - 1 1/4 x 16ths	HSS	Wood Stand	**48-326-3**	284.85
13	17/32 - 1 x 32nds	HSS	Wood Stand	**48-327-1**	304.30
32	33/64 - 1 x 64ths	HSS	Metal Stand	**48-328-9**	712.25
33	1/2 - 1 x 64ths	HSS	Metal Stand	**48-329-7**	765.90

SHOP GRADE

Silver & Deming Drill Fractional Sizes

118° Split Point

- HSS & Cobalt. • 1/2" shank. • 6" overall length.
- Designed for material 63 to 65 HRC.

SIZE (IN.)	FLUTE L (IN.)	HSS PART NO.	PRICE EACH	COBALT PART NO.	PRICE EACH
1/2	3 1/8	**41-447-4**	$13.80	–	–
33/64	3 1/8	**41-448-2**	14.15	**41-512-5**	$35.10
17/32	3 1/8	**41-449-0**	14.15	**41-513-3**	33.70
35/64	3 1/8	**41-450-8**	14.65	**41-514-1**	35.10
9/16	3 1/8	**41-451-6**	14.68	**41-515-8**	32.10
37/64	3 1/8	**41-452-4**	15.75	**41-516-6**	39.30
19/32	3 1/8	**41-453-2**	15.60	**41-517-4**	41.60
39/64	3	**41-454-0**	16.35	**41-518-2**	39.95
5/8	3 1/8	**41-455-7**	16.45	**41-519-0**	37.40
41/64	3 1/8	**41-456-5**	17.65	**41-520-8**	43.85
21/32	3 1/8	**41-457-3**	17.65	**41-521-6**	43.85
43/64	3 1/8	**41-458-1**	18.30	**41-522-4**	42.80
11/16	3 1/8	**41-459-9**	18.25	**41-523-2**	42.05
45/64	3 1/8	**41-460-7**	18.70	**41-524-0**	46.95
23/32	3 1/8	**41-461-5**	18.70	**41-525-7**	47.00
47/64	3 1/8	**41-462-3**	19.75	**41-526-5**	46.95
3/4	3 1/8	**41-463-1**	19.50	**41-527-3**	45.30
49/64	3 1/8	**41-464-9**	21.50	**41-528-1**	52.65
25/32	3	**41-465-6**	21.50	**41-529-9**	51.75
51/64	3	**41-466-4**	22.65	**41-530-7**	53.65
13/16	3	**41-467-2**	22.65	**41-531-5**	52.30
53/64	3	**41-468-0**	23.75	**41-532-3**	54.30
27/32	3	**41-469-8**	23.90	**41-533-1**	57.65
55/64	3	**41-470-6**	24.35	**41-534-9**	57.65
7/8	3	**41-471-4**	24.15	**41-535-6**	57.45
57/64	3	**41-472-2**	27.75	**41-536-4**	64.45
29/32	3	**41-473-0**	26.40	**41-537-2**	64.45
59/64	3	**41-474-8**	30.00	**41-538-0**	65.90
15/16	3	**41-475-5**	28.80	**41-539-8**	65.90
61/64	3	**41-476-3**	31.75	**41-540-6**	73.70
31/32	3	**41-477-1**	29.70	**41-541-4**	73.70
63/64	3	**41-478-9**	36.90	**41-542-2**	75.80
1	3	**41-479-7**	27.45	**41-543-0**	73.70
1 1/64	3	**41-480-5**	39.45	**41-544-8**	88.40
1 1/32	3	**41-481-3**	39.15	**41-545-5**	88.40
1 3/64	3	**41-482-1**	40.95	–	–
1 1/16	3	**41-483-9**	41.40	**41-546-3**	93.80
1 5/64	3	**41-484-7**	42.90	–	–
1 3/32	3	**41-485-4**	43.65	**41-547-1**	109.25
1 7/64	3	**41-486-2**	45.85	–	–
1 1/8	3	**41-487-0**	45.80	**41-548-9**	106.70
1 9/64	3	**41-488-8**	47.20	–	–
1 5/32	3	**41-489-6**	47.25	**41-549-7**	112.60
1 11/64	3	**41-490-4**	50.20	–	–
1 3/16	3	**41-491-2**	50.20	**41-550-5**	116.65
1 13/64	3	**41-492-0**	53.85	–	–
1 7/32	3	**41-493-8**	55.05	**41-551-3**	121.00
1 15/64	3	**41-494-6**	55.65	–	–
1 1/4	3	**41-495-3**	55.70	**41-552-1**	124.70
1 17/64	3	**41-496-1**	55.70	–	–
1 9/32	3	**41-497-9**	61.75	–	–
1 19/64	3	**41-498-7**	61.75	–	–
1 5/16	3	**41-499-5**	62.95	**41-553-9**	139.60
1 21/64	3	**41-500-0**	68.05	–	–
1 11/32	3	**41-501-8**	68.05	–	–
1 23/64	3	**41-502-6**	68.05	–	–
1 3/8	3	**41-503-4**	72.15	**41-554-7**	140.35
1 25/64	3	**41-504-2**	79.05	–	–
1 13/32	3	**41-505-9**	79.05	–	–
1 27/64	3	**41-506-7**	79.05	–	–
1 7/16	3	**41-507-5**	79.45	**41-555-4**	153.00
1 29/64	3	**41-508-3**	90.30	–	–
1 15/32	3	**41-509-1**	83.85	–	–
1 31/64	3	**41-510-9**	84.95	–	–
1 1/2	3	**41-511-7**	84.95	**41-556-2**	154.55



41-475-5



41-495-3

CUTTING TOOLS

SHOP GRADE

HSS Silver & Deming Metric Drills

118° Point

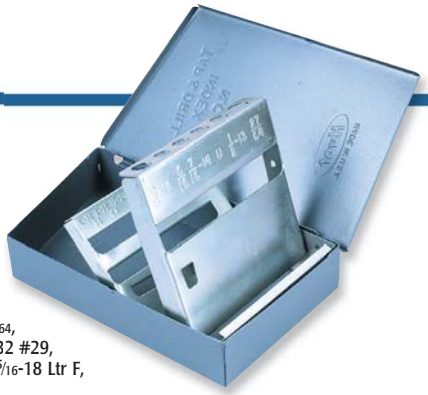


- High Speed Steel (HSS) provides good wear resistance in mild steel and nonferrous materials.
- 118° point for quick penetration.
- 1/2" straight shank.
- 6" overall length with 3" flute length.

SIZE (MM)	DEC. EQUIV.	PART NUMBER	PRICE EACH
13.00	0.5118"	**79-906-4**	$14.00
13.50	0.5315"	**79-907-2**	15.40
13.80	0.5433"	**79-908-0**	14.80
14.00	0.5512"	**79-909-8**	15.90
14.25	0.5610"	**79-910-6**	14.80
14.50	0.5709"	**79-911-4**	15.75
15.00	0.5906"	**79-912-2**	17.20
15.50	0.6102"	**79-913-0**	17.50
16.00	0.6299"	**79-914-8**	17.60
16.50	0.6496"	**79-915-5**	18.50
16.75	0.6594"	**79-916-3**	18.50
17.00	0.6693"	**79-917-1**	18.20
17.50	0.6890"	**79-918-9**	19.55
17.75	0.6988"	**79-919-7**	19.55
18.00	0.7087"	**79-920-5**	20.85
18.50	0.7283"	**79-921-3**	22.35
19.00	0.7480"	**79-922-1**	22.35
19.50	0.7677"	**79-923-9**	23.25
19.75	0.7776"	**79-924-7**	23.15
20.00	0.7874"	**79-925-4**	23.25
20.50	0.8071"	**79-926-2**	26.35
21.00	0.8268"	**79-927-0**	28.10
21.50	0.8465"	**79-928-8**	26.80
22.00	0.8661"	**79-929-6**	28.75
22.50	0.8858"	**79-930-4**	29.85
23.00	0.9055"	**79-931-2**	32.35
23.50	0.9252"	**79-932-0**	39.60
23.75	0.9350"	**79-933-8**	36.65

SIZE (MM)	DEC. EQUIV.	PART NUMBER	PRICE EACH
24.00	0.9449"	**79-934-6**	$37.00
24.50	0.9646"	**79-935-3**	39.15
25.00	0.9843"	**79-936-1**	40.55
25.50	1.0039"	**79-937-9**	38.55
26.00	1.0236"	**79-938-7**	46.95
26.50	1.0434"	**79-939-5**	50.55
26.75	1.0531"	**79-940-3**	47.80
27.00	1.0630"	**79-941-1**	47.80
27.52	1.0835"	**79-942-9**	48.90
28.00	1.1024"	**79-943-7**	52.65
28.52	1.1229"	**79-944-5**	54.10
29.00	1.1417"	**79-945-2**	58.55
29.50	1.1614"	**79-946-0**	59.90
30.00	1.1811"	**79-947-8**	55.65
30.50	1.2007"	**79-948-6**	68.75
31.00	1.2205"	**79-949-4**	82.25
31.25	1.2303"	**79-950-2**	74.70
32.00	1.2598"	**79-951-0**	74.70
32.50	1.2795"	**79-952-8**	82.80
33.00	1.2992"	**79-953-6**	83.10
34.00	1.3386"	**79-954-4**	96.10
35.00	1.3779"	**79-955-1**	117.00
36.00	1.4173"	**79-956-9**	116.90
37.00	1.4567"	**79-957-7**	131.50
37.50	1.4764"	**79-958-5**	149.20
38.00	1.4961"	**79-959-3**	131.50
41.00	1.6142"	**79-960-1**	162.70
–	–	–	–

Huot Tap/Drill Indexes



- 12700 NF/NC Combinations: (NF) 6-40 tap #33 drill, 8-36 #29, 10-32 #21, 12-28 #15, 1/4-28 #3, 5/16-24 Ltr I, 3/8-24 Ltr Q, 7/16-20, 25/64, 1/2-20, 29/64. (NC) 6-32 #36 drill, 8-32 #29, 10-24 #25, 12-24 #16, 1/4-20 #7, 5/16-18 Ltr F, 3/8-16 5/16, 7/16-14 Ltr U, 1/2-13, 27/64.
- 12650 NF combinations: 6-40 tap #33 drill, 8-36 #29 10-32 #21 1/4-28 #3, 5/16-24 #I, 3/8-24 #Q, 7/16-20 #25/64, 1/2-20 #29/64.
- 12675 Metric combinations: M2.5 x 0.45 tap 2.05 mm drill, 3.0 x 0.50 2.50 mm, 3.5 x 0.60, 2.90 mm, M4.0 x 0.7 3.30 mm, M5.0 x 0.8 4.20 mm, M6.0 x 1.0 5.0 mm, M8.0 x 1.25 6.70 mm, M10.0 x 1.5 8.50 mm, M12 x 1.75, 10.2 mm.
- Conveniently combines taps with the corresponding tap drill.
- Note: Taps and drills sold separately.

DESCRIPTION	MODEL NO.	PART NO.	PRICE
NF/NC Combination	12700	**82-669-3**	$72.06
NF Combination	12650	**82-673-5**	17.88
Metric Combination	12675	**82-574-5**	17.90

Huot Metal Drill Dispensers



- For drills or drill blanks.
- An easy way to find drills.
- Ideal for tool cribs, stock rooms, plants and shops.
- Cabinets may be stacked one above the other.
- Fractional and Letter Sizes hold 12 in each compartment, except smaller sizes such as 1/16" which accepts up to 36 pieces.
- Wire Gage holds 12 each of sizes 1 to 12, and 24 or more each of sizes 13 to 60.
- Metric holds full packages of each size - 12 pc. minimum.
- Dimensions: 7 3/4" H x 7 3/8" D x 14 5/8" W.

SIZE RANGE	WT. (LBS.)	PART NO.	PRICE
1/16" to 1/2" x 64ths	10	**82-570-3**	$102.45
#1-60	13	**82-572-9**	127.10
A-Z	11	**82-573-7**	105.45
1 to 13 mm x .5 mm	11	**82-698-2**	134.90



82-589-3

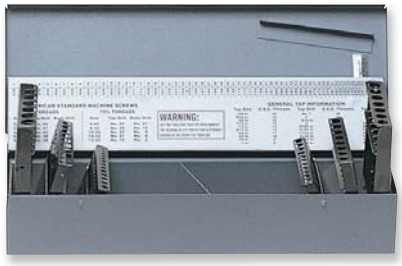
82-596-8



82-598-4



82-597-6



82-599-2

Huot Drill Index Cases

- High quality steel index cases provide quick and easy access to drills.
- Every storage hole is clearly marked for size with permanent raised lettering.
- Dimensions.

Tap & Drill index

HOLES	THREADS	PART NO.	PRICE
6	6 - 32 #36, 8 - 32 #29, 10 - 24 #25, 1/4 - 20 #7, 5/16 -18 F, 16 - 5/16, 7/16 - 14U, 3/8 - 1/2 - 13 - 27/64	**82-589-3**	$14.40

For Jobber Size Fractional Drills

HOLES	THREADS	PART NO.	PRICE
29	1/16" to 1/2" by 64th	**82-596-8**	$10.75

For Wire Gage Drills

HOLES	THREADS	PART NO.	PRICE
60	No. 1 thru 60	**82-597-6**	$11.40

For Letter Size Drills

HOLES	THREADS	PART NO.	PRICE
26	A thru Z	**82-598-4**	$10.75

For Combination of Drills

HOLES	THREADS	PART NO.	PRICE
115	1/16" to 1/2" by 64th No. 1 to 60, A to Z	**82-599-2**	$55.10

SHOP GRADE
Fractional HSS Bright Finish Jobber Drills



- HSS General Purpose – provides good wear resistance in mild steel and nonferrous materials.
- Bright Finish – improves chip flow of soft and low carbon materials.
- 118° Point for quick penetration.
- 1/64" to 25/64" sold in packs of 12
  13/32" to 1/2" sold in packs of 6

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/16"	3/4"	**72-283-5**	$1.80
1/32"	0.0312"	1/2"	1 3/8"	**72-284-3**	1.10
3/64"	0.0469"	3/4"	1 3/4"	**72-285-0**	1.10
1/16"	0.0625"	7/8"	1 7/8"	**72-286-8**	1.00
5/64"	0.0781"	1"	2"	**72-287-6**	1.00
3/32"	0.0938"	1 1/4"	2 1/4"	**72-288-4**	1.00
7/64"	0.1094"	1 1/2"	2 5/8"	**72-289-2**	1.05
1/8"	0.1250"	1 5/8"	2 3/4"	**72-290-0**	1.05
9/64"	0.1406"	1 3/4"	2 7/8"	**72-291-8**	1.15
5/32"	0.1562"	2	3 1/8"	**72-292-6**	1.15
11/64"	0.1719"	2 1/8"	3 1/4"	**72-293-4**	1.30
3/16"	0.1875"	2 5/16"	3 1/2"	**72-294-2**	1.40
13/64"	0.2031"	2 7/16"	3 5/8"	**72-295-9**	1.55
7/32"	0.2188"	2 1/2"	3 3/4"	**72-296-7**	1.70
15/64"	0.2344"	2 5/8"	3 7/8"	**72-297-5**	1.85
1/4"	0.2500"	2 3/4"	4"	**72-298-3**	1.95
17/64"	0.2656"	2 7/8"	4 1/8"	**72-299-1**	$2.35
9/32"	0.2812	2 15/16"	4 1/4"	**72-300-7**	2.45
19/64"	0.2969	3 1/8"	4 3/8"	**72-301-5**	2.85
5/16"	0.3125	3 3/16"	4 1/2"	**72-302-3**	3.10
21/64"	0.3281	3 5/16"	4 5/8"	**72-303-1**	3.45
11/32"	0.3438	3 7/8"	4 3/4"	**72-304-9**	3.80
23/64"	0.3594	3 1/2"	4 7/8"	**72-305-6**	4.30
3/8"	0.3750	3 5/8"	5	**72-306-4**	4.45
25/64"	0.3906	3 3/4"	5 1/8"	**72-307-2**	5.05
13/32"	0.4062	3 7/8"	5 1/4"	**72-308-0**	5.20
27/64"	0.4219	3 15/16"	5 3/8"	**72-309-8**	5.75
7/16"	0.4375	4 1/16"	5 1/2"	**72-310-6**	6.05
29/64"	0.4531	4 3/16"	5 5/8"	**72-311-4**	6.80
15/32"	0.4688	4 5/16"	5 3/4"	**72-312-2**	7.15
31/64"	0.4844	4 3/8"	5 7/8"	**72-313-0**	7.55
1/2"	0.5000	4 1/2"	6"	**72-314-8**	7.50



SHOP GRADE
Numbers HSS Bright Finish Jobber Drills
118° Point

- HSS General Purpose –provides good wear resistance in mild steel and nonferrous materials.
- Bright Finish–Improves chip flow of soft and low carbon materials.
- 118° point for quick penetration.
- #1 to #80 sold in packs of 12

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**72-548-1**	$2.10
#2	0.2210"	2 5/8"	3 7/8"	**72-549-9**	2.10
#3	0.2130"	2 1/2"	3 3/4"	**72-550-7**	1.90
#4	0.2090"	2 1/2"	3 3/4"	**72-551-5**	1.90
#5	0.2055"	2 1/2"	3 3/4"	**72-552-3**	1.90
#6	0.2040"	2 1/2"	3 3/4"	**72-553-1**	1.90
#7	0.2010"	2 7/16"	3 5/8"	**72-554-9**	1.65
#8	0.1990"	2 7/16"	3 5/8"	**72-555-6**	1.70
#9	0.1960"	2 7/16"	3 5/8"	**72-556-4**	1.65
#10	0.1935"	2 7/16"	3 5/8"	**72-557-2**	1.65
#11	0.1910"	2 5/16"	3 1/2"	**72-558-0**	1.55
#12	0.1890"	2 5/16"	3 1/2"	**72-559-8**	1.55
#13	0.1850"	2 5/16"	3 1/2"	**72-560-6**	1.50
#14	0.1820"	2 3/16"	3 3/8"	**72-561-4**	1.50
#15	0.1800"	2 3/16"	3 3/8"	**72-562-2**	1.50
#16	0.1770"	2 3/16"	3 3/8"	**72-563-0**	1.50
#17	0.1730"	2 3/16"	3 3/8"	**72-564-8**	1.50
#18	0.1695"	2 1/8"	3 1/4"	**72-565-5**	1.30
#19	0.1660"	2 1/8"	3 1/4"	**72-566-3**	1.30
#20	0.1610"	2 1/8"	3 1/4"	**72-567-1**	1.30
#21	0.1590"	2 1/8"	3 1/4"	**72-568-9**	$1.15
#22	0.1570"	2"	3 1/8"	**72-569-7**	1.20
#23	0.1540"	2"	3 1/8"	**72-570-5**	1.20
#24	0.1520"	2"	3 1/8"	**72-571-3**	1.20
#25	0.1495"	1 7/8"	3	**72-572-1**	1.10
#26	0.1470"	1 7/8"	3	**72-573-9**	1.15
#27	0.1440"	1 7/8"	3	**72-574-7**	1.10
#28	0.1405"	1 3/4"	2 7/8"	**72-575-4**	1.05
#29	0.1360"	1 3/4"	2 7/8"	**72-576-2**	1.00
#30	0.1285"	1 5/8"	2 3/4"	**72-577-0**	1.00
#31	0.1200"	1 5/8"	2 3/4"	**72-578-8**	1.00
#32	0.1160"	1 5/8"	2 3/4"	**72-579-6**	1.00
#33	0.1130"	1 1/2"	2 5/8"	**72-580-4**	1.00
#34	0.1110"	1 1/2"	2 5/8"	**72-581-2**	1.00
#35	0.1100"	1 1/2"	2 5/8"	**72-582-0**	1.00
#36	0.1065"	1 7/16"	2 1/2"	**72-583-8**	1.00
#37	0.1040"	1 7/16"	2 1/2"	**72-584-6**	1.00
#38	0.1015"	1 7/16"	2 1/2"	**72-585-3**	1.00
#39	0.0995"	1 3/8"	2 3/8"	**72-586-1**	1.00
#40	0.0980"	1 3/8"	2 3/8"	**72-587-9**	1.00
#41	0.0960"	1 3/8"	2 3/8"	**72-588-7**	1.00
#42	0.0935"	1 1/4"	2 1/4"	**72-589-5**	1.00
#43	0.0890"	1 1/4"	2 1/4"	**72-590-3**	1.00
#44	0.0860"	1 1/8"	2 1/8"	**72-591-1**	1.00
#45	0.0820"	1 1/8"	2 1/8"	**72-592-9**	1.00
#46	0.0810"	1 1/8"	2 1/8"	**72-593-7**	1.00
#47	0.0785"	1"	2"	**72-594-5**	1.00
#48	0.0760"	1"	2"	**72-595-2**	1.00
#49	0.0730"	1"	2"	**72-596-0**	1.00
#50	0.0700"	1"	2"	**72-597-8**	1.00
#51	0.0670"	1"	2"	**72-598-6**	$1.00
#52	0.0635"	7/8"	1 7/8"	**72-599-4**	1.00
#53	0.0595"	7/8"	1 7/8"	**72-600-0**	1.00
#54	0.0550"	7/8"	1 7/8"	**72-601-8**	1.00
#55	0.0520"	7/8"	1 7/8"	**72-602-6**	1.00
#56	0.0465"	3/4"	1 3/4"	**72-603-4**	1.00
#57	0.0430"	3/4"	1 3/4"	**72-604-2**	1.00
#58	0.0420"	11/16"	1 5/8"	**72-605-9**	1.05
#59	0.0410"	11/16"	1 5/8"	**72-606-7**	1.05
#60	0.0400"	11/16"	1 5/8"	**72-607-5**	1.05
#61	0.0390"	11/16"	1 5/8"	**72-608-3**	1.00
#62	0.0380"	5/8"	1 1/2"	**72-609-1**	1.00
#63	0.0370"	5/8"	1 1/2"	**72-610-9**	1.00
#64	0.0360"	5/8"	1 1/2"	**72-611-7**	1.00
#65	0.0350"	5/8"	1 1/2"	**72-612-5**	1.00
#66	0.0330"	1/2"	1 3/8"	**72-613-3**	1.00
#67	0.0320"	1/2"	1 3/8"	**72-614-1**	1.00
#68	0.0310"	1/2"	1 3/8"	**72-615-8**	1.00
#69	0.0292"	1/2"	1 3/8"	**72-616-6**	1.10
#70	0.0280"	3/8"	1 1/4"	**72-617-4**	1.10
#71	0.0260"	3/8"	1 1/4"	**72-618-2**	1.35
#72	0.0250"	5/16"	1 1/8"	**72-619-0**	1.35
#73	0.0240"	5/16"	1 1/8"	**72-620-8**	1.35
#74	0.0225"	1/4"	1"	**72-621-6**	1.35
#75	0.0210"	1/4"	1"	**72-622-4**	1.35
#76	0.0200"	3/16"	7/8"	**72-623-2**	1.35
#77	0.0180"	3/16"	7/8"	**72-624-0**	1.35
#78	0.0160"	3/16"	7/8"	**72-625-7**	1.35
#79	0.0145"	1/8"	3/4"	**72-626-5**	1.65
#80	0.0135"	1/8"	3/4"	**72-627-3**	1.65



SHOP GRADE
Letter HSS Bright Finish Jobber Drills

- General Purpose – provides good wear resistance in mild steel and nonferrous materials.
- Bright Finish – improves chip flow of soft and low carbon materials.
- 118° Point for quick penetration.
- Letters A to E sold in packs of 12
  Letters F to Z sold in packs of 6

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**70-071-6**	$2.35
B	0.2380"	2 3/4"	4"	**70-072-4**	2.35
C	0.2420"	2 3/4"	4"	**70-073-2**	2.35
D	0.2460"	2 3/4"	4"	**70-074-0**	2.35
E	0.2500"	2 3/4"	4"	**72-298-3**	1.95
F	0.2570"	2 7/8"	4 1/8"	**70-075-7**	2.50
G	0.2610"	2 7/8"	4 1/8"	**70-076-5**	2.85
H	0.2660"	2 7/8"	4 1/8"	**70-077-3**	2.85
I	0.2720"	2 7/8"	4 1/8"	**70-078-1**	2.85
J	0.2770"	2 7/8"	4 1/8"	**70-079-9**	3.05
K	0.2810"	2 15/16"	4 1/4"	**70-080-7**	3.35
L	0.2900"	2 15/16"	4 1/4"	**70-081-5**	3.35
M	0.2950"	3 1/16"	4 3/8"	**70-082-3**	3.55
N	0.3020"	3 1/16"	4 3/8"	**70-083-1**	3.55
O	0.3160"	3 3/16"	4 1/2"	**70-084-9**	3.60
P	0.3230"	3 5/16"	4 5/8"	**70-085-6**	4.00
Q	0.3320"	3 7/16"	4 3/4"	**70-086-4**	4.00
R	0.3390"	3 7/16"	4 3/4"	**70-087-2**	4.35
S	0.3480"	3 1/2"	4 7/8"	**70-088-0**	4.50
T	0.3580"	3 1/2"	4 7/8"	**70-089-8**	5.20
U	0.3680"	3 5/8"	5"	**70-090-6**	5.20
V	0.3770"	3 5/8"	5"	**70-091-4**	5.35
W	0.3860"	3 3/4"	5 1/8"	**70-092-2**	5.50
X	0.3970"	3 3/4"	5 1/8"	**70-093-0**	6.65
Y	0.4040"	3 7/8"	5 1/4"	**70-094-8**	7.55
Z	0.4130"	3 7/8"	5 1/4"	**70-095-5**	7.95

CUTTING TOOLS



SHOP GRADE

Fractional HSS Black Oxide 118° Jobber Drills

- Grade: general purpose.
- 1/64" to 25/64" sold in packs of 12
  13/32" to 1/2" sold in packs of 6
  33/64" to 11/16" sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/16"	3/4"	**41-075-3**	$1.65
1/32"	0.0312"	1/2"	1 3/8"	**41-076-1**	1.00
3/64"	0.0469"	3/4"	1 3/4"	**41-077-9**	1.00
1/16"	0.0625"	7/8"	1 7/8"	**41-078-7**	0.95
5/64"	0.0781"	1"	2"	**41-079-5**	0.95
3/32"	0.0938"	1 1/4"	2 1/4"	**41-080-3**	0.95
7/64"	0.1094"	1 1/2"	2 5/8"	**41-081-1**	1.00
1/8"	0.1250"	1 5/8"	2 3/4"	**41-082-9**	1.00
9/64"	0.1406"	1 3/4"	2 7/8"	**41-083-7**	1.10
5/32"	0.1562"	2"	3 1/8"	**41-084-5**	1.10
11/64"	0.1719"	2 1/8"	3 1/4"	**41-085-2**	1.20
3/16"	0.1875"	2 5/16"	3 1/2"	**41-086-0**	1.35
13/64"	0.2031"	2 7/16"	3 5/8"	**41-087-8**	1.45
7/32"	0.2188"	2 1/2"	3 3/4"	**41-088-6**	1.60
15/64"	0.2344"	2 5/8"	3 7/8"	**41-089-4**	1.75
1/4"	0.2500"	2 3/4"	4"	**41-090-2**	1.85
17/64"	0.2656"	2 7/8"	4 1/8"	**41-091-0**	2.20
9/32"	0.2812"	2 15/16"	4 1/4"	**41-092-8**	2.30
19/64"	0.2969"	3 1/16"	4 3/8"	**41-093-6**	2.70
5/16"	0.3125"	3 3/16"	4 1/2"	**41-094-4**	2.90
21/64"	0.3281"	3 5/16"	4 5/8"	**41-095-1**	3.25
11/32"	0.3438"	3 7/16"	4 3/4"	**41-096-9**	3.60
23/64"	0.3594"	3 1/2"	4 7/8"	**41-097-7**	$4.05
3/8"	0.3750"	3 5/8"	5"	**41-098-5**	4.15
25/64"	0.3906"	3 3/4"	5 1/8"	**41-099-3**	4.80
13/32"	0.4062"	3 7/8"	5 1/4"	**41-100-9**	4.90
27/64"	0.4219"	3 15/16"	5 3/8"	**41-101-7**	5.50
7/16"	0.4375"	4 1/16"	5 1/2"	**41-102-5**	5.70
29/64"	0.4531"	4 3/16"	5 5/8"	**41-103-3**	6.30
15/32"	0.4688"	4 5/16"	5 3/4"	**41-104-1**	6.65
31/64"	0.4844"	4 3/8"	5 7/8"	**41-105-8**	7.05
1/2"	0.5000"	4 1/2"	6"	**41-106-6**	7.10
33/64"	0.5156"	4 13/16"	6 5/8"	**48-033-5**	12.85
17/32"	0.5313"	4 13/16"	6 5/8"	**48-034-3**	13.25
35/64"	0.5469"	4 13/16"	6 5/8"	**48-035-0**	14.45
9/16"	0.5625"	4 13/16"	6 5/8"	**48-036-8**	14.85
37/64"	0.5781"	4 13/16"	6 5/8"	**48-037-6**	15.75
19/32"	0.5938"	5 3/16"	7 1/8"	**48-038-4**	15.75
39/64"	0.6094"	5 3/16"	7 1/8"	**48-039-2**	16.85
5/8"	0.6250"	5 3/16"	7 1/8"	**48-040-0**	16.55
41/64"	0.6406"	5 3/16"	7 1/8"	**48-041-8**	18.65
21/32"	0.6562"	5 3/16"	7 1/8"	**48-042-6**	19.55
43/64"	0.6719"	5 5/8"	7 5/8"	**48-043-4**	20.85
11/16"	0.6875"	5 5/8"	7 5/8"	**48-044-2**	20.85



HERTEL
Production Grade Tooling Since 1947

Fractional HSS Black Oxide 118° Jobber Drills

- Grade: general purpose.
- 1/64" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6
  33/64" to 11/16" sold in packs of 1

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/16"	3/4"	**48-045-9**	$2.00
1/32"	0.0312"	1/2"	1 3/8"	**48-046-7**	1.20
3/64"	0.0469"	3/4"	1 3/4"	**48-047-5**	1.20
1/16"	0.0625"	7/8"	1 7/8"	**48-048-3**	1.10
5/64"	0.0781"	1"	2"	**48-049-1**	1.15
3/32"	0.0938"	1 1/4"	2 1/4"	**48-050-9**	1.15
7/64"	0.1094"	1 1/2"	2 5/8"	**48-051-7**	1.20
1/8"	0.1250"	1 5/8"	2 3/4"	**48-052-5**	1.15
9/64"	0.1406"	1 3/4"	2 7/8"	**48-053-3**	1.25
5/32"	0.1562"	2"	3 1/8"	**48-054-1**	1.30
11/64"	0.1719"	2 1/8"	3 1/4"	**48-055-8**	1.40
3/16"	0.1875"	2 5/16"	3 1/2"	**48-056-6**	1.55
13/64"	0.2031"	2 7/16"	3 5/8"	**48-057-4**	1.70
7/32"	0.2188"	2 1/2"	3 3/4"	**48-058-2**	1.90
15/64"	0.2344"	2 5/8"	3 7/8"	**48-059-0**	2.05
1/4"	0.2500"	2 3/4"	4"	**48-060-8**	2.20
17/64"	0.2656"	2 7/8"	4 1/8"	**48-061-6**	2.65
9/32"	0.2812"	2 15/16"	4 1/4"	**48-062-4**	2.70
19/64"	0.2969"	3 1/16"	4 3/8"	**48-063-2**	3.15
5/16"	0.3125"	3 3/16"	4 1/2"	**48-064-0**	3.45
21/64"	0.3281"	3 5/16"	4 5/8"	**48-065-7**	3.90
11/32"	0.3438"	3 7/16"	4 3/4"	**48-066-5**	4.25
23/64"	0.3594"	3 1/2"	4 7/8"	**48-067-3**	$4.75
3/8"	0.3750"	3 5/8"	5"	**48-068-1**	4.95
25/64"	0.3906"	3 3/4"	5 1/8"	**48-069-9**	5.60
13/32"	0.4062"	3 7/8"	5 1/4"	**48-070-7**	5.80
27/64"	0.4219"	3 15/16"	5 3/8"	**48-071-5**	6.45
7/16"	0.4375"	4 1/16"	5 1/2"	**48-072-3**	6.75
29/64"	0.4531"	4 3/16"	5 5/8"	**48-073-1**	7.45
15/32"	0.4688"	4 5/16"	5 3/4"	**48-074-9**	7.95
31/64"	0.4844"	4 3/8"	5 7/8"	**48-075-6**	8.30
1/2"	0.5000"	4 1/2"	6"	**48-076-4**	8.30
33/64"	0.5156"	4 13/16"	6 5/8"	**48-077-2**	15.05
17/32"	0.5313"	4 13/16"	6 5/8"	**48-078-0**	15.50
35/64"	0.5469"	4 13/16"	6 5/8"	**48-079-8**	17.25
9/16"	0.5625"	4 13/16"	6 5/8"	**48-080-6**	17.55
37/64"	0.5781"	4 13/16"	6 5/8"	**48-081-4**	18.45
19/32"	0.5938"	5 3/16"	7 1/8"	**48-082-2**	18.45
39/64"	0.6094"	5 3/16"	7 1/8"	**48-083-0**	19.90
5/8"	0.6250"	5 3/16"	7 1/8"	**48-084-8**	19.55
41/64"	0.6406"	5 3/16"	7 1/8"	**48-085-5**	22.05
21/32"	0.6562"	5 3/16"	7 1/8"	**48-086-3**	23.10
43/64"	0.6719"	5 5/8"	7 5/8"	**48-087-1**	24.90
11/16"	0.6875"	5 5/8"	7 5/8"	**48-088-9**	24.90

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**41-169-4**	$1.95
#2	0.2210"	2 5/8"	3 7/8 "	**41-170-2**	1.95
#3	0.2130"	2 1/2"	3 3/4"	**41-171-0**	1.80
#4	0.2090"	2 1/2"	3 3/4"	**41-172-8**	1.80
#5	0.2055"	2 1/2"	3 3/4"	**41-173-6**	1.80
#6	0.2040"	2 1/2"	3 3/4"	**41-174-4**	1.80
#7	0.2010"	2 7/16"	3 5/8"	**41-175-1**	1.55
#8	0.1990"	2 7/16"	3 5/8"	**41-176-9**	1.60
#9	0.1960"	2 7/16"	3 5/8"	**41-177-7**	1.60
#10	0.1935"	2 7/16"	3 5/8"	**41-178-5**	1.55
#11	0.1910"	2 5/16"	3 1/2"	**41-179-3**	1.45
#12	0.1890"	2 5/16"	3 1/2"	**41-180-1**	1.45
#13	0.1850"	2 5/16"	3 1/2"	**41-181-9**	1.45
#14	0.1820"	2 3/16"	3 3/8"	**41-182-7**	1.45
#15	0.1800"	2 3/16"	3 3/8"	**41-183-5**	1.45
#16	0.1770"	2 3/16"	3 3/8"	**41-184-3**	1.45
#17	0.1730"	2 3/16"	3 3/8"	**41-185-0**	1.45
#18	0.1695"	2 1/8"	3 1/4"	**41-186-8**	1.20
#19	0.1660"	2 1/8"	3 1/4"	**41-187-6**	1.20
#20	0.1610"	2 1/8"	3 1/4"	**41-188-4**	1.20
#21	0.1590"	2 1/8"	3 1/4"	**41-189-2**	1.10
#22	0.1570"	2"	3 1/8"	**41-190-0**	1.10
#23	0.1540"	2"	3 1/8"	**41-191-8**	1.10
#24	0.1520"	2"	3 1/8"	**41-192-6**	1.10
#25	0.1495"	1 7/8"	3"	**41-193-4**	1.05
#26	0.1470"	1 7/8"	3"	**41-194-2**	1.05
#27	0.1440"	1 7/8"	3"	**41-195-9**	1.05
#28	0.1405"	1 3/4"	2 7/8"	**41-196-7**	1.00
#29	0.1360"	1 3/4"	2 7/8"	**41-197-5**	0.95
#30	0.1285"	1 5/8"	2 3/4"	**41-198-3**	0.95
#31	0.1200"	1 5/8"	2 3/4"	**41-199-1**	0.95
#32	0.1160"	1 5/8"	2 3/4"	**41-200-7**	0.95
#33	0.1130"	1 1/2"	2 5/8"	**41-201-5**	0.95
#34	0.1110"	1 1/2"	2 5/8"	**41-202-3**	0.95
#35	0.1100"	1 1/2"	2 5/8"	**41-203-1**	0.95
#36	0.1065"	1 7/16"	2 1/2"	**41-204-9**	0.95
#37	0.1040"	1 7/16"	2 1/2"	**41-205-6**	0.95
#38	0.1015"	1 7/16"	2 1/2"	**41-206-4**	0.95
#39	0.0995"	1 3/8"	2 3/8"	**41-207-2**	0.95
#40	0.0980"	1 3/8"	2 3/8"	**41-208-0**	0.95

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#41	0.0960"	1 3/8"	2 3/8"	**41-209-8**	$0.95
#42	0.0935"	1 1/4"	2 1/4"	**41-210-6**	0.95
#43	0.0890"	1 1/4"	2 1/4"	**41-211-4**	0.95
#44	0.0860"	1 1/8"	2 1/8"	**41-212-2**	0.95
#45	0.0820"	1 1/8"	2 1/8"	**41-213-0**	0.95
#46	0.0810"	1 1/8"	2 1/8"	**41-214-8**	0.95
#47	0.0785"	1"	2"	**41-215-5**	0.95
#48	0.0760"	1"	2"	**41-216-3**	0.95
#49	0.0730"	1"	2"	**41-217-1**	0.95
#50	0.0700"	1"	2"	**41-218-9**	0.95
#51	0.0670"	1"	2"	**41-219-7**	0.95
#52	0.0635"	7/8"	1 7/8"	**41-220-5**	0.95
#53	0.0595"	7/8"	1 7/8"	**41-221-3**	1.00
#54	0.0550"	7/8"	1 7/8"	**41-222-1**	1.00
#55	0.0520"	7/8"	1 7/8"	**41-223-9**	1.00
#56	0.0465"	3/4"	1 3/4"	**41-224-7**	1.00
#57	0.0430"	3/4"	1 3/4"	**41-225-4**	1.00
#58	0.0420"	11/16"	1 5/8"	**41-226-2**	1.00
#59	0.0410"	11/16"	1 5/8"	**41-227-0**	1.00
#60	0.0400"	11/16"	1 5/8"	**41-228-8**	1.00
#61	0.0390"	11/16"	1 5/8"	**41-229-6**	0.95
#62	0.0380"	5/8"	1 1/2"	**41-230-4**	0.95
#63	0.0370"	5/8"	1 1/2"	**41-231-2**	0.95
#64	0.0360"	5/8"	1 1/2"	**41-232-0**	0.95
#65	0.0350"	5/8"	1 1/2"	**41-233-8**	0.95
#66	0.0330"	1/2"	1 3/8"	**41-234-6**	0.95
#67	0.0320"	1/2"	1 3/8"	**41-235-3**	0.95
#68	0.0310"	1/2"	1 3/8"	**41-236-1**	0.95
#69	0.0292"	1/2"	1 3/8"	**41-237-9**	1.05
#70	0.0280"	3/8"	1 1/4"	**41-238-7**	1.05
#71	0.0260"	3/8"	1 1/4"	**41-239-5**	1.30
#72	0.0250"	5/16"	1 1/8"	**41-240-3**	1.30
#73	0.0240"	5/16"	1 1/8"	**41-241-1**	1.30
#74	0.0225"	1/4"	1"	**41-242-9**	1.30
#75	0.0210"	1/4"	1"	**41-243-7**	1.30
#76	0.0200"	3/16"	7/8"	**41-244-5**	1.30
#77	0.0180"	3/16"	7/8"	**41-245-2**	1.30
#78	0.0160"	3/16"	7/8"	**41-246-0**	1.30
#79	0.0145"	1/8"	3/4"	**41-247-8**	1.55
#80	0.0135"	1/8"	3/4"	**41-248-6**	1.55



SHOP GRADE

Number HSS Black Oxide 118° Jobber Drills

- Grade: general purpose.
- #1 to 80 sold in packs of 12.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SHOP GRADE

Carbide Tipped 118° Jobber Drill Sets

- Grade: Heavy-Duty.
- Recommended for production drilling on cast iron, bronze, hard copper, nonmetals and other hard abrasive nonferrous materials.
- Supplied in a metal index case.

Tool Material:

Carbide Tipped

- Provides superior wear resistance.



48-330-5

NO. OF PCS.	DESCRIPTION	PART NUMBER	PRICE
13	1/8" - 1/2" x 32nds	**48-330-5**	$361.05

HERTEL
Production Grade Tooling Since 1947

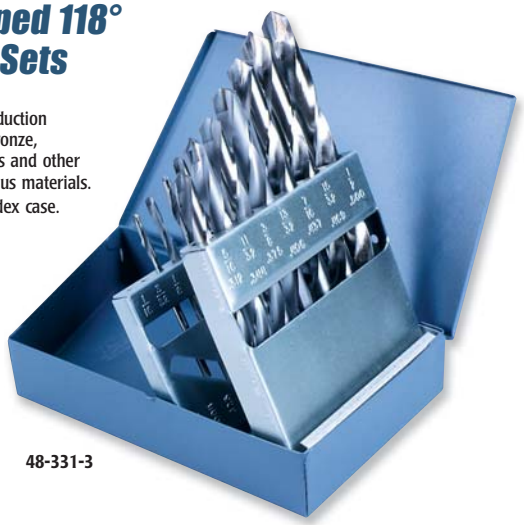
Carbide Tipped 118° Jobber Drill Sets

- Grade: Heavy-Duty.
- Recommended for production drilling on cast iron, bronze, hard copper, nonmetals and other hard abrasive nonferrous materials.
- Supplied in a metal index case.

Tool Material:

Carbide Tipped

- Provides superior wear resistance.



48-331-3

NO. OF PCS.	DESCRIPTION	PART NUMBER	PRICE
13	1/8" - 1/2" x 32nds	**48-331-3**	$389.65
25	1/8" - 1/2" x 64ths	**48-332-1**	531.00

CUTTING TOOLS



HERTEL
Production Grade Tooling Since 1947

Number HSS Black Oxide 118° Jobber Drills

- Grade: general purpose.
- #1 to 80 sold in packs of 12.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**48-089-7**	$2.30
#2	0.2210"	2 5/8"	3 7/8"	**48-090-5**	2.35
#3	0.2130"	2 1/2"	3 3/4"	**48-091-3**	2.10
#4	0.2090"	2 1/2"	3 3/4"	**48-092-1**	2.10
#5	0.2055"	2 1/2"	3 3/4"	**48-093-9**	2.10
#6	0.2040"	2 1/2"	3 3/4"	**48-094-7**	2.10
#7	0.2010"	2 7/16"	3 5/8"	**48-095-4**	1.85
#8	0.1990"	2 7/16"	3 5/8"	**48-096-2**	1.90
#9	0.1960"	2 7/16"	3 5/8"	**48-097-0**	1.90
#10	0.1935"	2 7/16"	3 5/8"	**48-098-8**	1.85
#11	0.1910"	2 5/16"	3 1/2"	**48-099-6**	1.70
#12	0.1890"	2 5/16"	3 1/2"	**48-100-2**	1.75
#13	0.1850"	2 5/16"	3 1/2"	**48-101-0**	1.70
#14	0.1820"	2 3/16"	3 3/8"	**48-102-8**	1.75
#15	0.1800"	2 3/16"	3 3/8"	**48-103-6**	1.75
#16	0.1770"	2 3/16"	3 3/8"	**48-104-4**	1.70
#17	0.1730"	2 3/16"	3 3/8"	**48-105-1**	1.70
#18	0.1695"	2 1/8"	3 1/4"	**48-106-9**	1.40
#19	0.1660"	2 1/8"	3 1/4"	**48-107-7**	1.40
#20	0.1610"	2 1/8"	3 1/4"	**48-108-5**	1.40
#21	0.1590"	2 1/8"	3 1/4"	**48-109-3**	1.30
#22	0.1570"	2"	3 1/8"	**48-110-1**	1.30
#23	0.1540"	2"	3 1/8"	**48-111-9**	1.30
#24	0.1520"	2"	3 1/8"	**48-112-7**	1.30
#25	0.1495"	1 7/8"	3"	**48-113-5**	1.25
#26	0.1470"	1 7/8"	3"	**48-114-3**	1.25
#27	0.1440"	1 7/8"	3"	**48-115-0**	1.25
#28	0.1405"	1 3/4"	2 7/8"	**48-116-8**	1.15
#29	0.1360"	1 3/4"	2 7/8"	**48-117-6**	1.15
#30	0.1285"	1 5/8"	2 3/4"	**48-118-4**	1.15
#31	0.1200"	1 5/8"	2 3/4"	**48-119-2**	1.15
#32	0.1160"	1 5/8"	2 3/4"	**48-120-0**	1.15
#33	0.1130"	1 1/2"	2 5/8"	**48-121-8**	1.15
#34	0.1110"	1 1/2"	2 5/8"	**48-122-6**	1.15
#35	0.1100"	1 1/2"	2 5/8"	**48-123-4**	1.15
#36	0.1065"	1 7/16"	2 1/2"	**48-124-2**	1.10
#37	0.1040"	1 7/16"	2 1/2"	**48-125-9**	1.15
#38	0.1015"	1 7/16"	2 1/2"	**48-126-7**	1.15
#39	0.0995"	1 3/8"	2 3/8"	**48-127-5**	1.15
#40	0.0980"	1 3/8"	2 3/8"	**48-128-3**	1.10

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#41	0.0960"	1 3/8"	2 3/8"	**48-129-1**	$1.15
#42	0.0935"	1 1/4"	2 1/4"	**48-130-9**	1.15
#43	0.0890"	1 1/4"	2 1/4"	**48-131-7**	1.15
#44	0.0860"	1 1/8"	2 1/8"	**48-132-5**	1.15
#45	0.0820"	1 1/8"	2 1/8"	**48-133-3**	1.15
#46	0.0810"	1 1/8"	2 1/8"	**48-134-1**	1.15
#47	0.0785"	1"	2"	**48-135-8**	1.15
#48	0.0760"	1"	2"	**48-136-6**	1.15
#49	0.0730"	1"	2"	**48-137-4**	1.15
#50	0.0700"	1"	2"	**48-138-2**	1.15
#51	0.0670"	1"	2"	**48-139-0**	1.15
#52	0.0635"	7/8"	1 7/8"	**48-140-8**	1.15
#53	0.0595"	7/8"	1 7/8"	**48-141-6**	1.20
#54	0.0550"	7/8"	1 7/8"	**48-142-4**	1.20
#55	0.0520"	7/8"	1 7/8"	**48-143-2**	1.20
#56	0.0465"	3/4"	1 3/4"	**48-144-0**	1.20
#57	0.0430"	3/4"	1 3/4"	**48-145-7**	1.20
#58	0.0420"	11/1"	1 5/8"	**48-146-5**	1.20
#59	0.0410"	11/16"	1 5/8"	**48-147-3**	1.20
#60	0.0400"	11/16"	1 5/8"	**48-148-1**	1.20
#61	0.0390"	11/16"	1 5/8"	**48-149-9**	1.20
#62	0.0380"	5/8"	1 1/2"	**48-150-7**	1.20
#63	0.0370"	5/8"	1 1/2"	**48-151-5**	1.20
#64	0.0360"	5/8"	1 1/2"	**48-152-3**	1.20
#65	0.0350"	5/8"	1 1/2"	**48-153-1**	1.20
#66	0.0330"	1/2"	1 3/8"	**48-154-9**	1.20
#67	0.0320"	1/2"	1 3/8"	**48-155-6**	1.20
#68	0.0310"	1/2"	1 3/8"	**48-156-4**	1.20
#69	0.0292"	1/2"	1 3/8"	**48-157-2**	1.35
#70	0.0280"	3/8"	1 1/4"	**48-158-0**	1.35
#71	0.0260"	3/8"	1 1/4"	**48-159-8**	1.70
#72	0.0250"	5/16"	1 1/8"	**48-160-6**	1.70
#73	0.0240"	5/16"	1 1/8"	**48-161-4**	1.70
#74	0.0225"	1/4"	1"	**48-162-2**	1.70
#75	0.0210"	1/4"	1"	**48-163-0**	1.70
#76	0.0200"	3/16"	7/8"	**48-164-8**	1.70
#77	0.0180"	3/16"	7/8"	**48-165-5**	1.70
#78	0.0160"	3/16"	7/8"	**48-166-3**	1.70
#79	0.0145"	1/8"	3/4"	**48-167-1**	2.00
#80	0.0135"	1/8"	3/4"	**48-168-9**	2.00

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**48-169-7**	$2.60
B	0.2380"	2 3/4"	4"	**48-170-5**	2.60
C	0.2420"	2 3/4"	4"	**48-171-3**	2.60
D	0.2460"	2 3/4"	4"	**48-172-1**	2.60
E	0.2500"	2 3/4"	4"	**41-090-2**	1.85
F	0.2570"	2 7/8"	4 1/8"	**48-173-9**	2.80
G	0.2610"	2 7/8"	4 1/8"	**48-174-7**	3.10
H	0.2660"	2 7/8"	4 1/8"	**48-175-4**	3.15
I	0.2720"	2 7/8"	4 1/8"	**48-176-2**	3.10
J	0.2770"	2 7/8"	4 1/8"	**48-177-0**	3.35
K	0.2810"	2 15/16"	4 1/4"	**48-178-8**	3.75
L	0.2900"	2 15/16"	4 1/4"	**48-179-6**	3.75
M	0.2950"	3 1/16"	4 3/8"	**48-180-4**	3.90
N	0.3020"	3 1/16"	4 3/8"	**48-181-2**	3.90
O	0.3160"	3 3/16"	4 1/2"	**48-182-0**	3.95
P	0.3230"	3 5/16"	4 5/8"	**48-183-8**	4.45
Q	0.3320"	3 7/16"	4 3/4"	**48-184-6**	4.45
R	0.3390"	3 7/16	4 3/4"	**48-185-3**	4.75
S	0.3480"	3 1/2"	4 7/8"	**48-186-1**	5.10
T	0.3580"	3 1/2"	4 7/8"	**48-187-9**	5.75
U	0.3680"	3 5/8"	5"	**48-188-7**	5.75
V	0.3770"	3 5/8"	5"	**48-189-5**	5.95
W	0.3860"	3 3/4"	5 1/8"	**48-190-3**	6.10
X	0.3970"	3 3/4"	5 1/8"	**48-191-1**	7.50
Y	0.4040"	3 7/8"	5 1/4"	**48-192-9**	8.30
Z	0.4130"	3 7/8"	5 1/4"	**48-193-7**	9.55

HERTEL
Production Grade Tooling Since 1947

Letter HSS Black Oxide 118° Jobber Drills

- Grade: general purpose.
- A to L sold in packs of 12
  M to Z sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

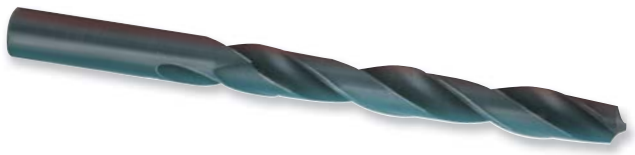
Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.



SHOP GRADE

Metric HSS Black Oxide Coated 118° Jobber Drills



- Grade: General purpose.
- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.
- Retains lubricants to aid in wear resistance and chip flow.
- 118° point for quick penetration.
- 1.00 to 9.00 sold in packs of 10
  9.10 to 13.60 sold in packs of 5
  14.00 to 20.00 sold in packs of 1

SIZE (MM)	DEC. EQUIV.	FLUTE LENGTH (MM)	OAL (MM)	PART NUMBER	PRICE
1.00	0.0394"	17	41	**48-816-3**	$1.40
1.05	0.0413"	17	41	**48-817-1**	1.60
1.10	0.0433"	19	44	**48-818-9**	1.50
1.15	0.0453"	19	44	**48-819-7**	1.50
1.20	0.0472"	22	48	**48-820-5**	1.50
1.25	0.0492"	22	48	**48-821-3**	1.50
1.30	0.0512"	22	48	**48-822-1**	1.50
1.35	0.0531"	22	48	**48-823-9**	1.60
1.40	0.0551"	22	48	**48-824-7**	1.50
1.45	0.0571"	22	48	**48-825-4**	1.60
1.50	0.0591"	22	48	**48-826-2**	1.65
1.55	0.0610"	22	48	**48-827-0**	1.50
1.60	0.0630"	22	48	**48-828-8**	1.45
1.65	0.0650"	25	51	**48-829-6**	1.65
1.70	0.0669"	25	51	**48-830-4**	1.45
1.75	0.0689"	25	51	**48-831-2**	1.50
1.80	0.0709"	25	51	**48-832-0**	1.45
1.85	0.0728"	25	51	**48-833-8**	1.65
1.90	0.0748"	25	51	**48-834-6**	1.45
1.95	0.0768"	25	51	**48-835-3**	1.50
2.00	0.0787"	25	51	**48-836-1**	1.35
2.05	0.0807"	29	54	**48-837-9**	1.75
2.10	0.0827"	29	54	**48-838-7**	1.40
2.15	0.0846"	29	54	**48-839-5**	1.60
2.20	0.0866"	32	57	**48-840-3**	1.40
2.25	0.0886"	32	57	**48-841-1**	1.60
2.30	0.0906"	32	57	**48-842-9**	1.40
2.35	0.0925"	32	57	**48-843-7**	1.60
2.40	0.0945"	35	60	**48-844-5**	1.40
2.45	0.0965"	35	60	**48-845-2**	1.75
2.50	0.0984"	35	60	**48-846-0**	1.40
2.55	0.1004"	30	57	**48-847-8**	1.40
2.60	0.1024"	37	64	**48-848-6**	1.55
2.70	0.1063"	37	64	**48-849-4**	1.55
2.75	0.1083"	37	64	**48-850-2**	1.85
2.80	0.1102"	38	67	**48-851-0**	1.85
2.85	0.1122"	33	61	**48-852-8**	1.60
2.90	0.1142"	41	70	**48-853-6**	1.60
3.00	0.1181"	41	70	**48-854-4**	1.45
3.10	0.1220"	41	70	**48-855-1**	1.55
3.15	0.1240"	36	70	**48-856-9**	1.45
3.20	0.1260"	41	70	**48-857-7**	1.55
3.30	0.1299"	44	73	**48-858-5**	1.55
3.40	0.1339"	44	73	**48-859-3**	1.55
3.45	0.1358"	39	70	**48-860-1**	1.45
3.50	0.1378"	44	73	**48-861-9**	1.45
3.60	0.1417"	48	76	**48-862-7**	1.80
3.70	0.1457"	48	76	**48-863-5**	1.80
3.75	0.1476"	48	76	**48-864-3**	2.00
3.80	0.1496"	48	76	**48-865-0**	1.85
3.85	0.1516"	43	75	**48-866-8**	1.65
3.90	0.1535"	51	79	**48-867-6**	1.90
4.00	0.1575"	54	83	**48-868-4**	1.65
4.10	0.1614"	54	83	**48-869-2**	1.85
4.20	0.1654"	54	83	**48-870-0**	1.90
4.30	0.1693"	54	83	**48-871-8**	2.10
4.40	0.1732"	56	86	**48-872-6**	2.20
4.50	0.1772"	56	86	**48-873-4**	$1.90
4.60	0.1811"	56	86	**48-874-2**	2.30
4.70	0.1850"	59	89	**48-875-9**	2.55
4.80	0.1890"	59	89	**48-876-7**	2.30
4.90	0.1929"	62	92	**48-877-5**	2.60
5.00	0.1969"	62	92	**48-878-3**	2.10
5.10	0.2008"	62	92	**48-879-1**	2.40
5.20	0.2047"	64	95	**48-880-9**	2.50
5.25	0.2067"	64	95	**48-881-7**	2.75
5.30	0.2087"	64	95	**48-882-5**	2.70
5.40	0.2126"	64	95	**48-883-3**	2.55
5.50	0.2165"	64	95	**48-884-1**	2.35
5.60	0.2205"	67	98	**48-885-8**	2.65
5.70	0.2244"	67	98	**48-886-6**	2.65
5.75	0.2264"	67	98	**48-887-4**	2.70
5.80	0.2283"	67	98	**48-888-2**	2.75
5.90	0.2323"	67	98	**48-889-0**	2.90
6.00	0.2362"	70	102	**48-890-8**	2.45
6.10	0.2402"	70	102	**48-891-6**	2.90
6.20	0.2441"	70	102	**48-892-4**	2.95
6.25	0.2461"	70	102	**48-893-2**	3.25
6.30	0.2480"	70	102	**48-894-0**	2.95
6.40	0.2520"	73	105	**48-895-7**	3.05
6.50	0.2559"	73	105	**48-896-5**	2.90
6.60	0.2598"	73	105	**48-897-3**	3.30
6.70	0.2638"	73	105	**48-898-1**	3.10
6.80	0.2677"	73	105	**48-899-9**	3.45
6.90	0.2717"	73	105	**48-900-5**	4.00
7.00	0.2756"	73	105	**48-901-3**	3.35
7.10	0.2795"	75	108	**48-902-1**	4.45
7.20	0.2835"	75	108	**48-903-9**	3.95
7.25	0.2854"	75	108	**48-904-7**	4.45
7.30	0.2874"	75	108	**48-905-4**	4.05
7.40	0.2913"	78	111	**48-906-2**	4.10
7.50	0.2953"	78	111	**48-907-0**	4.00
7.60	0.2992"	78	111	**48-908-8**	4.45
7.70	0.3031"	81	114	**48-909-6**	4.70
7.80	0.3071"	81	114	**48-910-4**	4.25
7.90	0.3110"	81	114	**48-911-2**	4.25
8.00	0.3150"	81	114	**48-912-0**	4.15
8.10	0.3189"	84	117	**48-913-8**	4.45
8.20	0.3228"	84	117	**48-914-6**	4.50
8.25	0.3248"	84	117	**48-915-3**	5.15
8.30	0.3268"	84	117	**48-916-1**	5.25
8.40	0.3307"	87	121	**48-917-9**	4.70
8.50	0.3346"	87	121	**48-918-7**	4.60
8.60	0.3386"	87	121	**48-919-5**	5.55
8.70	0.3425"	87	121	**48-920-3**	5.05
8.80	0.3465"	89	124	**48-921-1**	5.05
8.90	0.3504"	89	124	**48-922-9**	6.05
9.00	0.3543"	89	124	**48-923-7**	6.10
9.10	0.3583"	89	124	**48-924-5**	6.45
9.20	0.3622"	92	127	**48-925-2**	6.50
9.25	0.3642"	92	127	**48-926-0**	6.25
9.30	0.3661"	92	127	**48-927-8**	6.10
9.40	0.3701"	92	127	**48-928-6**	6.10
9.50	0.3740"	92	127	**48-929-4**	5.85
9.60	0.3780"	95	130	**48-930-2**	$6.60
9.70	0.3819"	95	130	**48-931-0**	6.65
9.80	0.3858"	95	130	**48-932-8**	6.65
9.90	0.3898"	95	130	**48-933-6**	7.30
10.00	0.3937"	95	130	**48-934-4**	6.80
10.10	0.3976"	98	133	**48-935-1**	7.65
10.20	0.4016"	98	133	**48-936-9**	7.30
10.25	0.4035"	87	133	**48-937-7**	6.60
10.30	0.4055"	87	133	**48-938-5**	7.40
10.40	0.4094"	98	133	**48-939-3**	7.85
10.50	0.4134"	98	133	**48-940-1**	7.40
10.60	0.4173"	100	137	**48-941-9**	8.25
10.70	0.4213"	100	137	**48-942-7**	8.35
10.80	0.4252"	103	140	**48-943-5**	7.90
10.90	0.4291"	103	140	**48-944-3**	8.40
11.00	0.4331"	103	140	**48-945-0**	7.90
11.10	0.4370"	103	140	**48-946-8**	8.55
11.20	0.4409"	106	143	**48-947-6**	8.30
11.30	0.4449"	106	143	**48-948-4**	9.30
11.40	0.4488"	106	143	**48-949-2**	9.30
11.50	0.4528"	106	143	**48-950-0**	8.45
11.60	0.4567"	110	146	**48-951-8**	9.00
11.70	0.4606"	110	146	**48-952-6**	9.55
11.80	0.4646"	110	146	**48-953-4**	9.50
11.90	0.4685"	110	146	**48-954-2**	9.30
12.00	0.4724"	111	149	**48-955-9**	9.00
12.10	0.4764"	111	149	**48-956-7**	10.10
12.20	0.4803"	111	149	**48-957-5**	9.50
12.25	0.4823"	87	133	**48-958-3**	8.60
12.30	0.4843"	111	149	**48-959-1**	9.65
12.40	0.4882"	114	152	**48-960-9**	9.65
12.50	0.4921"	114	152	**48-961-7**	9.50
12.60	0.4961"	114	152	**48-962-5**	15.05
12.80	0.5039"	114	152	**48-963-3**	14.65
12.90	0.5079"	114	152	**48-964-1**	15.30
13.00	0.5118"	114	152	**48-965-8**	15.75
13.10	0.5157"	101	151	**48-966-6**	15.95
13.20	0.5197"	101	151	**48-967-4**	16.10
13.30	0.5236"	108	160	**48-968-2**	16.60
13.40	0.5276"	108	160	**48-969-0**	17.15
13.50	0.5313"	122	168	**48-970-8**	20.90
13.60	0.5354"	108	160	**48-971-6**	19.35
14.00	0.5512"	122	168	**48-972-4**	20.75
14.50	0.5709"	122	168	**48-973-2**	23.00
14.75	0.5807"	122	168	**48-974-0**	18.75
15.00	0.5906"	132	181	**48-975-7**	22.40
15.25	0.6004"	132	181	**48-976-5**	21.55
15.50	0.6102"	132	181	**48-977-3**	24.65
15.75	0.6201"	120	181	**48-978-1**	26.60
16.00	0.6299"	132	181	**48-979-9**	29.10
16.50	0.6496"	132	181	**49-238-9**	33.15
17.00	0.6693"	143	194	**48-980-7**	33.50
18.00	0.7087"	110	190	**48-981-5**	35.70
18.50	0.7283"	115	205	**48-982-3**	35.70
19.00	0.7480"	115	205	**48-983-1**	38.80
19.50	0.7677"	120	215	**48-984-9**	38.80
20.00	0.7874"	120	215	**48-985-6**	38.80

CUTTING TOOLS



SHOP GRADE

Fractional HSS Bright Finish Screw Machine Drills

118° Point, Oxide Coated

- High Speed Steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Oxide prevents chip building, galling and welding on the workpiece. It is commonly used on low carbons, stainless steel and iron based ferrous metals.
- Spiral flutes are constructed of a higher flute angle to remove chips easier.
- 118° point for quick penetration.

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
3/64"	0.0469"	1/2"	1 3/8"	**72-628-1**	$0.95
1/16"	0.0625"	5/8"	1 5/8"	**72-629-9**	0.85
5/64"	0.0781"	11/16"	1 11/16"	**72-630-7**	0.85
3/32"	0.0938"	3/4"	1 3/4"	**72-631-5**	0.85
7/64"	0.1094"	13/16"	1 13/16"	**72-632-3**	0.85
1/8"	0.1250"	7/8"	1 7/8"	**72-633-1**	0.85
9/64"	0.1406"	15/16"	1 15/16"	**72-634-9**	0.85
5/32"	0.1562"	1"	2 1/16"	**72-635-6**	1.00
11/64"	0.1719"	1 1/16"	2 1/8"	**72-636-4**	1.05
3/16"	0.1875"	1 1/8"	2 3/16"	**72-637-2**	1.10
13/64"	0.2031"	1 3/16"	2 1/4"	**72-638-0**	1.20
7/32"	0.2188"	1 1/4"	2 3/8"	**72-639-8**	1.40
15/64"	0.2344"	1 5/16"	2 7/16"	**72-640-6**	1.45
1/4"	0.2500"	1 3/8"	2 1/2"	**72-641-4**	1.80
17/64"	0.2656"	1 7/16"	2 5/8"	**72-642-2**	1.75
9/32"	0.2812"	1 1/2"	2 11/16"	**72-643-0**	1.85
19/64"	0.2969"	1 9/16"	2 3/4"	**72-644-8**	2.05
5/16"	0.3125"	1 5/8"	2 13/16"	**72-645-5**	2.20
21/64"	0.3281"	1 11/16"	2 15/16"	**72-646-3**	2.40
11/32"	0.3438"	1 11/16"	3	**72-647-1**	2.70
23/64"	0.3594"	1 3/4"	3 1/16"	**72-648-9**	3.10
3/8"	0.3750"	1 13/16"	3 1/8"	**72-649-7**	3.25
25/64"	0.3906"	1 7/8"	3 1/4"	**72-650-5**	3.65
13/32"	0.4062"	1 15/16"	3 5/16"	**72-651-3**	3.80
27/64"	0.4219"	2"	3 3/8"	**72-652-1**	4.15
7/16"	0.4375"	2 1/16"	3 7/16"	**72-653-9**	4.25
29/64"	0.4531"	2 1/8"	3 9/16"	**72-654-7**	5.05
15/32"	0.4688"	2 1/8"	3 5/8"	**72-655-4**	5.35
31/64"	0.4844"	2 3/16"	3 11/16"	**72-656-2**	5.55
1/2"	0.5000"	2 1/4"	3 3/4"	**72-657-0**	5.50
33/64"	0.5156"	2 3/8"	3 7/8"	**72-658-8**	12.25
17/32"	0.5312"	2 3/8"	3 7/8"	**72-659-6**	12.50
35/64"	0.5469"	2 1/2"	4"	**72-660-4**	13.20
9/16"	0.5625"	2 1/2"	4"	**72-661-2**	13.10
37/64"	0.5781"	2 5/8"	4 1/8"	**72-662-0**	15.15
19/32"	0.5938"	2 5/8"	4 1/8"	**72-663-8**	15.00
39/64"	0.6094"	2 3/4"	4 1/4"	**72-664-6**	15.40
5/8"	0.6250"	2 3/4"	4 1/4"	**72-665-3**	15.00
41/64"	0.6406"	2 7/8"	4 1/2"	**72-666-1**	17.55
21/32"	0.6562	2 7/8"	4 1/2"	**72-667-9**	$17.40
43/64"	0.6719	2 7/8"	4 5/8"	**72-668-7**	19.45
11/16"	0.6875	2 7/8"	4 5/8"	**72-669-5**	19.10
45/64"	0.7031	3"	4 3/4"	**72-670-3**	21.90
23/32"	0.7188	3"	4 3/4"	**72-671-1**	20.90
47/64"	0.7344	3 1/8"	5"	**72-672-9**	23.15
3/4"	0.7500	3 1/8"	5"	**72-673-7**	22.10
49/64"	0.73656	3 1/4"	5 1/8"	**72-674-5**	25.45
25/32"	0.7812	3 1/4"	5 1/8"	**72-675-2**	24.25
51/64"	0.7969	3 3/8"	5 1/4"	**72-676-0**	26.75
13/16"	0.8125	3 3/8"	5 1/4"	**72-677-8**	25.85
53/64"	0.8281	3 1/2"	5 3/8"	**72-678-6**	28.40
27/32"	0.8438	3 1/2"	5 3/8"	**72-679-4**	27.10
55/64"	0.8594	3 1/2"	5 1/2"	**72-680-2**	29.35
7/8"	0.8750	3 1/2"	5 1/2"	**72-681-0**	28.35
57/64"	0.8906	3 5/8"	5 5/8"	**72-682-8**	30.50
29/32"	0.9062	3 5/8"	5 5/8"	**72-683-6**	29.45
59/64"	0.9219	3 3/4"	5 3/4"	**72-684-4**	33.75
15/16"	0.9375	3 3/4"	5 3/4"	**72-685-1**	32.15
61/64"	0.9531	3 7/8"	5 7/8"	**72-686-9**	36.65
31/32"	0.9688	3 7/8"	5 7/8"	**72-687-7**	35.35
63/64"	0.9844	4"	6"	**72-688-5**	37.90
1"	1.0000	4"	6"	**72-689-3**	36.65
1 1/16"	1.0625	4"	6 1/4"	**72-690-1**	43.90
1 1/8"	1.1250	4"	6 3/8"	**72-691-9**	50.15
1 3/16"	1.1875	4 1/4"	6 5/8"	**72-692-7**	153.20
1 1/4"	1.2500	4 3/8"	6 3/4"	**72-693-5**	57.30
1 5/16"	1.3125	4 3/8"	7"	**72-694-3**	77.55
1 3/8"	1.3750	4 1/2"	7 1/8"	**72-695-0**	82.45
1 7/16"	1.4375	4 3/4"	7 3/8"	**72-696-8**	88.30
1 1/2"	1.5000	4 7/8"	7 1/2"	**72-697-6**	92.95
1 9/16"	1.5625	4 7/8"	7 3/4"	**72-698-4**	105.50
1-5/8"	1.6250	4 7/8"	7 3/4"	**72-699-2**	118.45
1 11/16"	1.6875	5 1/8"	8"	**72-700-8**	135.10
1 3/4"	1.7500	5 1/8"	8"	**72-701-6**	140.00
1 13/16"	1.8125	5 3/8"	8 1/4"	**72-702-4**	53.55
1 7/8"	1.8750	5 3/8"	8 1/4"	**72-703-2**	157.80
1 15/16"	1.9375	5 5/8"	8 1/2"	**72-704-0**	167.35
2"	2.000	5 5/8"	8 1/2"	**72-705-7**	175.35

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	1 5/16"	2 7/16"	**72-801-4**	$1.50
#2	0.2210"	1 5/16"	2 7/16"	**72-802-2**	1.50
#3	0.2130"	1 1/4"	2 3/8"	**72-803-0**	1.45
#4	0.2090"	1 1/4"	2 3/8"	**72-804-8**	1.45
#5	0.2055"	1 1/4"	2 3/8"	**72-805-5**	1.45
#6	0.2040"	1 1/4"	2 3/8"	**72-806-3**	1.45
#7	0.2010"	1 3/16"	2 1/4"	**72-807-1**	1.20
#8	0.1990"	1 3/16"	2 1/4"	**72-808-9**	1.20
#9	0.1960"	1 3/16"	2 1/4"	**72-809-7**	1.20
#10	0.1935"	1 3/16"	2 1/4"	**72-810-5**	1.20
#11	0.1910"	1 3/16"	2 1/4"	**72-811-3**	1.15
#12	0.1890"	1 3/16"	2 1/4"	**72-812-1**	1.20
#13	0.1850"	1 1/8"	2 3/16"	**72-813-9**	1.20
#14	0.1820"	1 1/8"	2 3/16"	**72-814-7**	1.20
#15	0.1800"	1 1/8"	2 3/16"	**72-815-4**	1.20
#16	0.1770"	1 1/8"	2 3/16"	**72-816-2**	1.20
#17	0.1730"	1 1/8"	2 3/16"	**72-817-0**	1.20
#18	0.1695"	1 1/16"	2 1/8"	**72-818-8**	1.00
#19	0.1660"	1 1/16"	2 1/8"	**72-819-6**	1.00
#20	0.1610"	1 1/16"	2 1/8"	**72-820-4**	1.00
#21	0.1590"	1 1/16"	2 1/8"	**72-821-2**	1.00
#22	0.1570"	1 1/16"	2 1/8"	**72-822-0**	1.00
#23	0.1540"	1"	2 1/16"	**72-823-8**	1.00
#24	0.1520"	1"	2 1/16"	**72-824-6**	1.00
#25	0.1495"	1"	2 1/16"	**72-825-3**	0.95
#26	0.1470"	1"	2 1/16"	**72-826-1**	0.95
#27	0.1440"	1"	2 1/16"	**72-827-9**	0.95
#28	0.1405"	15/16"	1 15/16"	**72-828-7**	0.85
#29	0.1360"	15/16"	1 15/16"	**72-829-5**	0.85
#30	0.1285"	15/16"	1 15/16"	**72-830-3**	0.85

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
#31	0.1200"	7/8"	1 7/8"	**72-831-1**	$0.85
#32	0.1160"	7/8"	1 7/8"	**72-832-9**	0.85
#33	0.1130"	7/8"	1 7/8"	**72-833-7**	0.85
#34	0.1110"	7/8"	1 7/8"	**72-834-5**	0.85
#35	0.1100"	7/8"	1 7/8"	**72-835-2**	0.85
#36	0.1065"	13/16"	1 13/16"	**72-836-0**	0.85
#37	0.1040"	13/16"	1 13/16"	**72-837-8**	0.85
#38	0.1015"	13/16"	1 13/16"	**72-838-6**	0.85
#39	0.0995"	13/16"	1 13/16"	**72-839-4**	0.85
#40	0.0980"	13/16"	1 13/16"	**72-840-2**	0.85
#41	0.0960"	13/16"	1 13/16"	**72-841-0**	0.85
#42	0.0935"	3/4"	1 3/4"	**72-842-8**	0.85
#43	0.0890"	3/4"	1 3/4"	**72-843-6**	0.85
#44	0.0860"	3/4"	1 3/4"	**72-844-4**	0.85
#45	0.0820"	3/4"	1 3/4"	**72-845-1**	0.85
#46	0.0810"	3/4"	1 3/4"	**72-846-9**	0.85
#47	0.0785"	3/4"	1 3/4"	**72-847-7**	0.85
#48	0.0760"	11/16"	1 11/16"	**72-848-5**	0.85
#49	0.0730"	11/16"	1 11/16"	**72-849-3**	0.85
#50	0.0700"	11/16"	1 11/16"	**72-850-1**	0.85
#51	0.0670"	11/16"	1 11/16"	**72-851-9**	0.85
#52	0.0635"	11/16"	1 11/16"	**72-852-7**	0.85
#53	0.0595"	5/8"	1 5/8"	**72-853-5**	0.85
#54	0.0550"	5/8"	1 5/8"	**72-854-3**	0.85
#55	0.0520"	5/8"	1 5/8"	**72-855-0**	0.85
#56	0.0465"	1/2"	1 3/8"	**72-856-8**	0.85
#57	0.0430"	1/2"	1 3/8"	**72-857-6**	0.85
#58	0.0420"	1/2"	1 3/8"	**72-858-4**	0.85
#59	0.0410"	1/2"	1 3/8"	**72-859-2**	0.85
#60	0.0400"	1/2"	1 3/8"	**72-860-0**	0.85



SHOP GRADE

Number HSS Bright Finish Screw Machine Drills

118° Point, Oxide Coated

- High Speed Steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Oxide prevents chip building, galling and welding on the workpiece. It is commonly used on low carbons, stainless steel and iron based ferrous metals.
- Spiral flutes are constructed of a higher flute angle to remove chips easier.
- 118° point for quick penetration.



SHOP GRADE

Letter HSS Bright Finish Screw Machine Drills

118° Point, Oxide Coated

- High Speed Steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Oxide prevents chip building, galling and welding on the workpiece. It is commonly used on low carbons, stainless steel and iron based ferrous metals.
- Spiral flutes are constructed of a higher flute angle to remove chips easier.
- 118° point for quick penetration.

- A to L sold in packs of 12
  M to Z sold in packs of 6

SIZE	DEC. EQUIV.	OAL	PART NUMBER	PRICE EACH
A	0.2340"	1 5/16"	**72-706-5**	$2.20
B	0.2380"	1 3/8"	**72-707-3**	2.20
C	0.2420"	1 3/8"	**72-708-1**	2.20
D	0.2460"	1 3/8"	**72-709-9**	2.20
E	0.2500"	1 3/8"	**72-641-4**	1.80
F	0.2570"	1 7/16"	**72-710-7**	2.40
G	0.2610"	1 7/16"	**72-711-5**	2.55
H	0.2660"	1 1/2"	**72-712-3**	2.55
I	0.2720"	1 1/2"	**72-713-1**	2.55
J	0.2770"	1 1/2"	**72-714-9**	2.80
K	0.2810"	1 1/2"	**72-715-6**	3.00
L	0.2900"	1 9/16"	**72-716-4**	3.00
M	0.2950"	1 9/16"	**72-717-2**	3.25
N	0.3020"	1 5/8"	**72-718-0**	3.25
O	0.3160"	1 11/16"	**72-719-8**	3.45
P	0.3230"	1 11/16"	**72-720-6**	3.65
Q	0.3320"	1 11/16"	**72-721-4**	3.65
R	0.3390"	1 11/16"	**72-722-2**	3.65
S	0.3480"	1 3/4"	**72-723-0**	4.25
T	0.3580"	1 3/4"	**72-724-8**	4.95
U	0.3680"	1 13/16"	**72-725-5**	4.95
V	0.3770"	1 7/8"	**72-726-3**	5.20
W	0.3860"	1 7/8"	**72-727-1**	5.50
X	0.3970"	1 15/16"	**72-728-9**	6.30
Y	0.4040"	1 15/16"	**72-729-7**	7.50
Z	0.4130"	2"	**72-730-5**	7.50

SHOP GRADE

Metric HSS Bright Finish Screw Machine Drills

118° Point, Oxide Coated



- High Speed Steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Oxide prevents chip building, galling and welding on the workpiece. It is commonly used on low carbons, stainless steel and iron based ferrous metals.
- Spiral flutes are constructed of a higher flute angle to remove chips easier.
- 118° point for quick penetration.

SIZE (MM)	DEC. EQUIV.	FLUTE L (MM)	OAL (MM)	PART NUMBER	PRICE EACH
1.0	0.0394"	6	26	**72-731-3**	$2.00
1.1	0.0433"	7	28	**72-732-1**	2.00
1.2	0.0472"	8	30	**72-733-9**	1.95
1.3	0.0512"	8	30	**72-734-7**	2.00
1.5	0.0591"	9	32	**72-735-4**	1.95
1.6	0.0630"	10	34	**72-736-2**	2.00
1.7	0.0669"	10	34	**72-737-0**	2.00
1.8	0.0709"	11	36	**72-738-8**	2.00
1.9	0.0748"	11	36	**72-739-6**	2.00
2.0	0.0787"	12	38	**72-740-4**	2.00
2.1	0.0827"	12	38	**72-741-2**	2.00
2.2	0.0866"	13	40	**72-742-0**	2.00
2.3	0.0906"	13	40	**72-743-8**	1.95
2.4	0.0945"	14	43	**72-744-6**	2.00
2.5	0.0984"	14	43	**72-745-3**	2.00
2.6	0.1024"	14	43	**72-746-1**	2.00
2.9	0.1152"	16	46	**72-747-9**	2.00
3.0	0.1181"	16	46	**72-748-7**	1.95
3.1	0.1220"	18	49	**72-749-5**	1.90
3.2	0.1260"	18	49	**72-750-3**	1.90
3.3	0.1299"	18	49	**72-751-1**	1.90
3.4	0.1339"	20	52	**72-752-9**	1.90
3.5	0.1378"	20	52	**72-753-7**	1.90
3.6	0.1417"	20	52	**72-754-5**	2.15
3.7	0.1457"	20	52	**72-755-2**	2.15
4.0	0.1575"	22	55	**72-756-0**	2.20
4.1	0.1614"	22	55	**72-757-8**	2.30
4.2	0.1654"	22	55	**72-758-6**	2.20
4.6	0.1811"	24	58	**72-759-4**	2.50
5.0	0.1969"	26	62	**72-760-2**	2.55
5.5	0.2165"	28	66	**72-761-0**	3.10
5.7	0.2244"	28	66	**72-762-8**	3.10
5.9	0.2323"	28	66	**72-763-6**	3.20
6.0	0.2362"	28	70	**72-764-4**	3.10
6.3	0.2480"	31	70	**72-765-1**	3.50

SIZE (MM)	DEC. EQUIV.	FLUTE L (MM)	OAL (MM)	PART NUMBER	PRICE EACH
6.4	0.2520"	31	70	**72-766-9**	$3.95
6.5	0.2559"	31	70	**72-767-7**	3.95
6.6	0.2598"	34	74	**72-768-5**	4.00
6.7	0.2638"	34	74	**72-769-3**	3.95
6.8	0.2677"	34	74	**72-770-1**	4.25
7.0	0.2756"	34	74	**72-771-9**	4.25
7.2	0.2835"	34	74	**72-772-7**	4.70
7.3	0.2874"	34	74	**72-773-5**	4.70
8.0	0.3150"	37	79	**72-774-3**	5.55
8.5	0.3346"	37	79	**72-775-0**	6.30
9.0	0.3543"	40	84	**72-776-8**	7.15
10.0	0.3937"	43	89	**72-777-6**	8.75
10.5	0.4134"	43	89	**72-778-4**	9.85
11.0	0.4331"	47	95	**72-779-2**	9.65
12.0	0.4724"	51	102	**72-780-0**	12.75
12.5	0.4921"	51	102	**72-781-8**	12.75
13.0	0.5118"	51	102	**72-782-6**	17.25
13.5	0.5315"	54	107	**72-783-4**	33.30
14.0	0.5512"	54	107	**72-784-2**	32.70
14.5	0.5709"	56	111	**72-785-9**	42.60
15.0	0.5906"	56	111	**72-786-7**	42.60
15.5	0.6102"	58	115	**72-787-5**	42.95
16.0	0.6299"	58	115	**72-788-3**	55.25
16.5	0.6496"	60	119	**72-789-1**	56.35
17.0	0.6693"	60	119	**72-790-9**	62.50
17.5	0.3890"	62	123	**72-791-7**	69.05
18.0	0.7087"	62	125	**72-792-5**	67.85
18.5	0.7283"	64	127	**72-793-3**	74.35
19.0	0.7480"	64	129	**72-794-1**	74.35
20.0	0.7874"	66	131	**72-795-8**	84.00
21.0	0.8268"	68	136	**72-796-6**	87.75
22.0	0.8661"	70	141	**72-797-4**	89.40
23.0	0.9055"	72	146	**72-798-2**	95.70
24.0	0.9449"	75	151	**72-799-0**	113.15
25.0	0.9843"	75	151	**72-800-6**	124.60

SHOP GRADE

Fractional Cobalt Screw Machine Drills

135° Point



- Cobalt – provides better wear resistance in hardness and toughness compared to high speed steel (HSS)
- Use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.
- 135° Self-centering split point prevents "walking".
- Heavy-Duty core construction fives greater strength and rigidity than conventional drills

- 1/16" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
1/16"	0.0625"	5/8"	1 5/8"	**73-417-8**	$1.60
5/64"	0.0781"	11/16"	1 11/16"	**73-418-6**	1.65
3/32"	0.0938"	3/4"	1 3/4"	**73-419-4**	1.65
7/64"	0.1094"	13/16"	1 13/16"	**73-420-2**	1.80
1/8"	0.1250"	7/8"	1 7/8"	**73-421-0**	2.10
9/64"	0.1406"	15/16"	1 15/16"	**73-422-8**	2.15
5/32"	0.1562"	1"	2 1/16"	**73-423-6**	2.15
11/64"	0.1719"	1 1/16"	2 1/8"	**73-424-4**	2.40
3/16"	0.1875"	1 1/8"	2 3/16"	**73-425-1**	2.60
13/64"	0.2031"	1 3/16"	2 1/4"	**73-426-9**	2.85
7/32"	0.2188	1 1/4"	2 3/8"	**73-427-7**	3.10
15/64"	0.2344	1 5/16"	2 7/16"	**73-428-5**	3.25
1/4"	0.2500	1 3/8"	2 1/2"	**73-429-3**	3.45
17/64"	0.2656	1 7/16"	2 5/8"	**73-430-1**	4.00
9/32"	0.2812	1 1/2"	2 11/16"	**73-431-9**	4.15

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
19/64"	0.2969"	1 9/16"	2 3/4"	**73-432-7**	$4.70
5/16"	0.3125"	1 5/8"	2 13/16"	**73-433-5**	5.05
21/64"	0.3281"	1 11/16"	2 15/16"	**73-434-3**	5.75
11/32"	0.3438"	1 11/16"	3"	**73-435-0**	6.05
23/64"	0.3594"	1 3/4"	3 1/16"	**73-436-8**	6.95
3/8"	0.3750"	1 13/16"	3 1/8"	**73-437-6**	7.05
25/64"	0.3906"	1 7/8"	3 1/4"	**73-438-4**	8.20
13/32"	0.4062"	1 15/16"	3 5/16"	**73-439-2**	8.40
27/64"	0.4219"	2"	3 3/8"	**73-440-0**	9.50
7/16"	0.4375"	2 1/16"	3 7/16"	**73-441-8**	9.65
29/64"	0.4531"	2 1/8"	3 9/16"	**73-442-6**	10.55
15/32"	0.4688"	2 1/8"	3 5/8"	**73-443-4**	10.90
31/64"	0.4844"	2 3/16"	3 11/16"	**73-444-2**	11.70
1/2"	0.5000"	2 1/4"	3 3/4"	**73-445-9**	11.80
–	–	–	–	–	–

CUTTING TOOLS

SHOP GRADE
Number Cobalt Screw Machine Drills
135° Split Point



- Cobalt – provides better wear resistance in hardness and toughness compared to high speed steel (HSS)
- Use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steel.
- 135° Self-centering split point prevents "walking".
- Heavy-Duty core construction fives greater strength and rigidity than conventional drills
- #1 to #60 sold in packs of 12

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	5 5/16"	2 7/16"	**73-731-2**	$3.55
#2	0.2210"	5 5/16"	2 7/16"	**73-732-0**	3.55
#3	0.2130"	1 1/4"	2 3/8"	**73-733-8**	3.40
#4	0.2090"	1 1/4"	2 3/8"	**73-734-6**	3.40
#5	0.2055"	1 1/4"	2 3/8"	**73-735-3**	3.40
#6	0.2040"	1 1/4"	2 3/8"	**73-736-1**	3.40
#7	0.2010"	1 3/16"	2 1/4"	**73-737-9**	2.80
#8	0.1990"	1 3/16"	2 1/4"	**73-738-7**	2.75
#9	0.1960"	1 3/16"	2 1/4"	**73-739-5**	2.75
#10	0.1935"	1 3/16"	2 1/4"	**73-740-3**	2.75
#11	0.1910"	1 3/16"	2 1/4"	**73-741-1**	2.75
#12	0.1890"	1 3/16"	2 1/4"	**73-742-9**	2.75
#13	0.1850"	1 1/8"	2 3/16"	**73-743-7**	2.65
#14	0.1820"	1 1/8"	2 3/16"	**73-744-5**	2.65
#15	0.1800"	1 1/8"	2 3/16"	**73-745-2**	2.65
#16	0.1770"	1 1/8"	2 3/16"	**73-746-0**	2.65
#17	0.1730"	1 1/8"	2 3/16"	**73-747-8**	2.70
#18	0.1695"	1 1/16"	2 1/8"	**73-748-6**	2.45
#19	0.1660"	1 1/16"	2 1/8"	**73-749-4**	2.45
#20	0.1610"	1 1/16"	2 1/8"	**73-750-2**	2.45
#21	0.1590"	1 1/16"	2 1/8"	**73-751-0**	2.45
#22	0.1570"	1 1/16"	2 1/8"	**73-752-8**	2.45
#23	0.1540"	1"	2 1/16"	**73-753-6**	2.45
#24	0.1520"	1"	2 1/16"	**73-754-4**	2.45
#25	0.1495"	1"	2 1/16"	**73-755-1**	2.25
#26	0.1470"	1"	2 1/16"	**73-756-9**	2.25
#27	0.1440"	1"	2 1/16"	**73-757-7**	2.25
#28	0.1405"	15/16"	1 15/16"	**73-758-5**	2.10
#29	0.1360"	15/16"	1 15/16"	**73-759-3**	2.10
#30	0.1285"	15/16"	1 15/16"	**73-760-1**	2.00
#31	0.1200"	7/8"	1 7/8"	**73-761-9**	$2.00
#32	0.1160"	7/8"	1 7/8"	**73-762-7**	2.00
#33	0.1130"	7/8"	1 7/8"	**73-763-5**	1.90
#34	0.1110"	7/8"	1 7/8"	**73-764-3**	1.90
#35	0.1100"	7/8"	1 7/8"	**73-765-0**	1.90
#36	0.1065"	13/16"	1 13/16"	**73-766-8**	1.90
#37	0.1040"	13/16"	1 13/16"	**73-767-6**	1.90
#38	0.1015"	13/16"	1 13/16"	**73-768-4**	1.70
#39	0.0995"	13/16"	1 13/16"	**73-769-2**	1.70
#40	0.0980"	13/16"	1 13/16"	**73-770-0**	1.70
#41	0.0960"	13/16"	1 13/16"	**73-771-8**	1.65
#42	0.0935"	3/4"	1 3/4"	**73-772-6**	1.65
#43	0.0890"	3/4"	1 3/4"	**73-773-4**	1.65
#44	0.0860"	3/4"	1 3/4"	**73-774-2**	1.65
#45	0.0820"	3/4"	1 3/4"	**73-775-9**	1.65
#46	0.0810"	3/4"	1 3/4"	**73-776-7**	1.65
#47	0.0785"	3/4"	1 3/4"	**73-777-5**	1.65
#48	0.0760"	11/16"	1 11/16"	**73-778-3**	1.65
#49	0.0730"	11/16"	1 11/16"	**73-779-1**	1.65
#50	0.0700"	11/16"	1 11/16"	**73-780-9**	1.65
#51	0.0670"	11/16"	1 11/16"	**73-781-7**	1.65
#52	0.0635"	11/16"	1 11/16"	**73-782-5**	1.65
#53	0.0595"	5/8"	1 5/8"	**73-783-3**	1.85
#54	0.0550"	5/8"	1 5/8"	**73-784-1**	1.85
#55	0.0520"	5/8"	1 5/8"	**73-785-8**	1.85
#56	0.0465"	1/2"	1 3/8"	**73-786-6**	1.85
#57	0.0430"	1/2"	1 3/8"	**73-787-4**	1.85
#58	0.0420"	1/2"	1 3/8"	**73-788-2**	1.95
#59	0.0410"	1/2"	1 3/8"	**73-789-0**	1.95
#60	0.0400"	1/2"	1 3/8"	**73-790-8**	2.00



HERTEL
Production Grade Tooling Since 1947

Letter HSS TiN Coated 118° Jobber Drills

- Grade: general purpose.
- A to L sold in packs of 12
  M to Z sold in packs of 6

Tool Material:
HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:
TiN

- Increases lubricity and heat resistance.
  Allows increase in machine speeds of 25 - 35%.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**48-285-1**	$4.40
B	0.2380"	2 3/4"	4"	**48-286-9**	4.40
C	0.2420"	2 3/4"	4"	**48-287-7**	4.40
D	0.2460"	2 3/4"	4"	**48-288-5**	4.45
E	0.2500"	2 3/4"	4"	**48-209-1**	4.25
F	0.2570"	2 7/8"	4 1/8"	**48-289-3**	5.20
G	0.2610"	2 7/8"	4 1/8"	**48-290-1**	5.45
H	0.2660"	2 7/8"	4 1/8"	**48-291-9**	5.45
I	0.2720"	2 7/8"	4 1/8"	**48-292-7**	5.65
J	0.2770"	2 7/8"	4 1/8"	**48-293-5**	5.80
K	0.2810"	2 15/16"	4 1/4"	**48-294-3**	6.60
L	0.2900"	2 15/16"	4 1/4"	**48-295-0**	6.30
M	0.2950"	3 1/16"	4 3/8"	**48-296-8**	6.95
N	0.3020"	3 1/16"	4 3/8"	**48-297-6**	6.60
O	0.3160"	3 3/16"	4 1/2"	**48-298-4**	7.15
P	0.3230"	3 5/16"	4 5/8"	**48-299-2**	7.65
Q	0.3320"	3 7/16"	4 3/4"	**48-300-8**	7.65
R	0.3390"	3 7/16"	4 3/4"	**48-301-6**	8.25
S	0.3480"	3 1/2"	4 7/8"	**48-302-4**	8.65
T	0.3580"	3 1/2"	4 7/8"	**48-303-2**	9.30
U	0.3680"	3 5/8"	5"	**48-304-0**	9.85
V	0.3770"	3 5/8"	5"	**48-305-7**	10.70
W	0.3860"	3 3/4"	5 1/8"	**48-306-5**	10.95
X	0.3970"	3 3/4"	5 1/8"	**48-307-3**	12.60
Y	0.4040"	3 7/8"	5 1/4"	**48-308-1**	13.85
Z	0.4130"	3 7/8"	5 1/4"	**48-309-9**	14.25





SHOP GRADE
Jobber Drills Letter Sizes
HSS 118° • Cobalt HD 135°

- These drills are recommended for ferrous metals (steel/iron).
- They have a surface treatment that reduces the amount of chip welding, increases abrasion resistance and improves the chip flow.
- Sold individually.

SIZE	DEC. EQUIV. (IN.)	FLUTE L (IN.)	OAL (IN.)	HSS 118° PART NUMBER	HSS 118° PRICE EACH	COBALT HD 135° PART NUMBER	COBALT HD 135° PRICE EACH
A	0.2340	2 5/8	3 7/8	**41-369-0**	$1.95	**41-421-9**	$4.70
B	0.2380	2 3/4	4	**41-370-8**	2.00	**41-422-7**	4.90
C	0.2420	2 3/4	4	**41-371-6**	2.00	**41-423-5**	4.95
D	0.2460	2 3/4	4	**41-372-4**	2.00	**41-424-3**	5.50
E	0.2500	2 3/4	4	**41-090-2**	1.85	**41-152-0**	3.95
F	0.2570	2 7/8	4 1/8	**41-374-0**	2.00	**41-426-8**	5.15
G	0.2610	2 7/8	4 1/8	**41-375-7**	2.40	**41-427-6**	5.20
H	0.2660	2 7/8	4 1/8	**41-376-5**	2.40	**41-428-4**	5.65
I	0.2720	2 7/8	4 1/8	**41-377-3**	2.45	**41-429-2**	5.65
J	0.2770	2 7/8	4 1/8	**41-378-1**	2.65	**41-430-0**	5.80
K	0.2810	2 15/16	4 1/4	**41-379-9**	2.70	**41-431-8**	5.90
L	0.2900	2 15/16	4 1/4	**41-380-7**	2.75	**41-432-6**	6.15
M	0.2950	3 1/16	4 3/8	**41-381-5**	2.90	**41-433-4**	6.40
N	0.3020	3 1/16	4 3/8	**41-382-3**	$2.95	**41-434-2**	$6.65
O	0.3160	3 3/16	4 1/2	**41-383-1**	3.00	**41-435-9**	7.55
P	0.3230	3 5/16	4 5/8	**41-384-9**	3.40	**41-436-7**	7.70
Q	0.3320	3 7/16	4 3/4	**41-385-6**	3.40	**41-437-5**	7.95
R	0.3390	3 7/16	4 3/4	**41-386-4**	3.50	**41-438-3**	8.15
S	0.3480	3 1/2	4 7/8	**41-387-2**	3.95	**41-439-1**	9.75
T	0.3580	3 1/2	4 7/8	**41-388-0**	4.10	**41-440-9**	9.90
U	0.3680	3 5/8	5	**41-389-8**	4.10	**41-441-7**	10.20
V	0.3770	3 5/8	5	**41-390-6**	4.65	**41-442-5**	10.70
W	0.3860	3 3/4	5 1/8	**41-391-4**	4.75	**41-443-3**	11.45
X	0.3970	3 3/4	5 1/8	**41-392-2**	5.45	**41-444-1**	12.15
Y	0.4040	3 7/8	5 1/4	**41-393-0**	5.80	**41-445-8**	12.60
Z	0.4130	3 7/8	5 1/4	**41-394-8**	6.40	**41-446-6**	13.40

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**48-225-7**	$4.15
#2	0.2210"	2 5/8"	3 7/8"	**48-226-5**	4.15
#3	0.2130"	2 1/2"	3 3/4"	**48-227-3**	4.10
#4	0.2090"	2 1/2"	3 3/4"	**48-228-1**	3.75
#5	0.2055"	2 1/2"	3 3/4"	**48-229-9**	3.75
#6	0.2040"	2 1/2"	3 3/4"	**48-230-7**	3.75
#7	0.2010"	2 7/16"	3 5/8"	**48-231-5**	3.45
#8	0.1990"	2 7/16"	3 5/8"	**48-232-3**	3.45
#9	0.1960"	2 7/16"	3 5/8"	**48-233-1**	3.45
#10	0.1935"	2 7/16"	3 5/8"	**48-234-9**	3.45
#11	0.1910"	2 5/16"	3 1/2"	**48-235-6**	3.20
#12	0.1890"	2 5/16"	3 1/2"	**48-236-4**	3.20
#13	0.1850"	2 5/16"	3 1/2"	**48-237-2**	3.05
#14	0.1820"	2 3/16"	3 3/8"	**48-238-0**	3.05
#15	0.1800"	2 3/16"	3 3/8"	**48-239-8**	3.05
#16	0.1770"	2 3/16"	3 3/8"	**48-240-6**	3.05
#17	0.1730"	2 3/16"	3 3/8"	**48-241-4**	3.05
#18	0.1695"	2 1/8"	3 1/4"	**48-242-2**	2.70
#19	0.1660"	2 1/8"	3 1/4"	**48-243-0**	2.55
#20	0.1610"	2 1/8"	3 1/4"	**48-244-8**	2.55
#21	0.1590"	2 1/8"	3 1/4"	**48-245-5**	2.40
#22	0.1570"	2"	3 1/8"	**48-246-3**	2.40
#23	0.1540"	2"	3 1/8"	**48-247-1**	2.35
#24	0.1520"	2"	3 1/8"	**48-248-9**	2.35
#25	0.1495"	1 7/8"	3"	**48-249-7**	2.30
#26	0.1470"	1 7/8"	3"	**48-250-5**	2.30
#27	0.1440"	1 7/8"	3"	**48-251-3**	2.30
#28	0.1405"	1 3/4"	2 7/8"	**48-252-1**	2.10
#29	0.1360"	1 3/4"	2 7/8"	**48-253-9**	2.10
#30	0.1285"	1 5/8"	2 3/4"	**48-254-7**	2.10

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#31	0.1200"	1 5/8"	2 3/4"	**48-255-4**	$2.10
#32	0.1160"	1 1/2"	2 3/4"	**48-256-2**	2.10
#33	0.1130"	1 1/2"	2 5/8"	**48-257-0**	2.10
#34	0.1110"	1 1/2"	2 5/8"	**48-258-8**	2.10
#35	0.1100"	1 1/2"	2 5/8"	**48-259-6**	2.10
#36	0.1065"	1 7/16"	2 1/2"	**48-260-4**	2.15
#37	0.1040"	1 7/16"	2 1/2"	**48-261-2**	2.15
#38	0.1015"	1 7/16"	2 1/2"	**48-262-0**	2.15
#39	0.0995"	1 3/8"	2 3/8"	**48-263-8**	2.15
#40	0.0980"	1 3/8"	2 3/8"	**48-264-6**	2.10
#41	0.0960"	1 3/8"	2 3/8"	**48-265-3**	2.10
#42	0.0935"	1 1/4"	2 1/4"	**48-266-1**	2.10
#43	0.0890"	1 1/4"	2 1/4"	**48-267-9**	2.10
#44	0.0860"	1 1/8"	2 1/8"	**48-268-7**	2.10
#45	0.0820"	1 1/8"	2 1/8"	**48-269-5**	2.10
#46	0.0810"	1 1/8"	2 1/8"	**48-270-3**	2.10
#47	0.0785"	1"	2"	**48-271-1**	2.10
#48	0.0760"	1"	2"	**48-272-9**	2.10
#49	0.0730"	1"	2"	**48-273-7**	2.10
#50	0.0700"	1"	2"	**48-274-5**	2.10
#51	0.0670"	1"	2"	**48-275-2**	2.10
#52	0.0635"	7/8"	1 7/8"	**48-276-0**	2.10
#53	0.0595"	7/8"	1 7/8"	**48-277-8**	2.15
#54	0.0550"	7/8"	1 7/8"	**48-278-6**	2.15
#55	0.0520"	7/8"	1 7/8"	**48-279-4**	2.15
#56	0.0465"	3/4"	1 3/4"	**48-280-2**	2.15
#57	0.0430"	3/4"	1 3/4"	**48-281-0**	2.15
#58	0.0420"	11/16"	1 5/8"	**48-282-8**	2.15
#59	0.0410"	11/16"	1 5/8"	**48-283-6**	2.15
#60	0.0400"	11/16"	1 5/8"	**48-284-4**	2.15



HERTEL
Production Grade Tooling Since 1947

Number HSS TiN Coated 118° Jobber Drills

- Grade: general purpose.
- #1 to 60 sold in packs of 12.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

TiN

- Increases lubricity and heat resistance. Allows increase in machine speeds of 25 - 35%.



SHOP GRADE

Number HSS Bright Finish 118° Left Hand Jobber Drills

- Grade: general purpose.
- Used extensively in screw machine operations and dose multiple spindle operations where the spindles operate alternately left hand and right hand.
- Requires left hand spindle rotation.
- Sold in packs of 12.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**48-728-0**	$6.95
#2	0.2210"	2 5/8"	3 7/8"	**48-729-8**	6.95
#3	0.2130"	2 1/2"	3 3/4"	**48-730-6**	6.55
#4	0.2090"	2 1/2"	3 3/4"	**48-731-4**	6.55
#5	0.2055"	2 1/2"	3 3/4"	**48-732-2**	6.55
#6	0.2040"	2 1/2"	3 3/4"	**48-733-0**	6.55
#7	0.2010"	2 7/16"	3 5/8"	**48-734-8**	5.35
#8	0.1990"	2 7/16"	3 5/8"	**48-735-5**	5.55
#9	0.1960"	2 7/16"	3 5/8"	**48-736-3**	5.55
#10	0.1935"	2 7/16"	3 5/8"	**48-737-1**	5.55
#11	0.1910"	2 5/16	3 1/2	**48-738-9**	5.35
#12	0.1890"	2 5/16	3 1/2	**48-739-7**	5.35
#13	0.1850"	2 5/16"	3 1/2"	**48-740-5**	4.85
#14	0.1820"	2 3/16"	3 3/8"	**48-741-3**	4.85
#15	0.1800"	2 3/16"	3 3/8"	**48-742-1**	4.85
#16	0.1770"	2 3/16"	3 3/8"	**48-743-9**	4.85
#17	0.1730"	2 3/16"	3 3/8"	**48-744-7**	4.85
#18	0.1695"	2 1/8"	3 1/4"	**48-745-4**	4.35
#19	0.1660"	2 1/8"	3 1/4"	**48-746-2**	4.35
#20	0.1610"	2 1/8"	3 1/4"	**48-747-0**	4.25
#21	0.1590"	2 1/8"	3 1/4"	**48-748-8**	4.05
#22	0.1570"	2"	3 1/8"	**48-749-6**	4.05
#23	0.1540"	2"	3 1/8"	**48-750-4**	3.90
#24	0.1520"	2"	3 1/8"	**48-751-2**	3.90
#25	0.1495"	1 7/8"	3"	**48-752-0**	3.75
#26	0.1470"	1 7/8"	3"	**48-753-8**	3.80
#27	0.1440"	1 7/8"	3"	**48-754-6**	3.80
#28	0.1405"	1 3/4"	2 7/8"	**48-755-3**	3.15
#29	0.1360"	1 3/4"	2 7/8"	**48-756-1**	3.15
#30	0.1285"	1 5/8"	2 3/4"	**48-757-9**	3.15
#31	0.1200"	1 5/8"	2 3/4"	**48-758-7**	3.25
#32	0.1160"	1 5/8"	2 3/4"	**48-759-5**	3.25
#33	0.1130"	1 1/2"	2 5/8"	**48-760-3**	3.25
#34	0.1110"	1 1/2"	2 5/8"	**48-761-1**	3.25
#35	0.1100"	1 1/2"	2 5/8"	**48-762-9**	3.25
#36	0.1065"	1 7/16"	2 1/2"	**48-763-7**	3.25
#37	0.1040"	1 7/16"	2 1/2"	**48-764-5**	3.25
#38	0.1015"	1 7/16"	2 1/2"	**48-765-2**	3.25
#39	0.0995"	1 3/8"	2 3/8"	**48-766-0**	3.25

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#40	0.0980"	1 3/8"	2 3/8"	**48-767-8**	$3.25
#41	0.0960"	1 3/8"	2 3/8"	**48-768-6**	3.25
#42	0.0935"	1 1/4"	2 1/4"	**48-769-4**	3.25
#43	0.0890"	1 1/4"	2 1/4"	**48-770-2**	3.25
#44	0.0860"	1 1/8"	2 1/8"	**48-771-0**	3.25
#45	0.0820"	1 1/8"	2 1/8"	**48-772-8**	3.25
#46	0.0810"	1 1/8"	2 1/8"	**48-773-6**	3.25
#47	0.0785"	1"	2"	**48-774-4**	3.25
#48	0.0760"	1"	2"	**48-775-1**	3.25
#49	0.0730"	1"	2"	**48-776-9**	3.25
#50	0.0700"	1"	2"	**48-777-7**	3.25
#51	0.0670"	1"	2"	**48-778-5**	3.25
#52	0.0635"	7/8"	1 7/8"	**48-779-3**	3.25
#53	0.0595"	7/8"	1 7/8"	**48-780-1**	3.25
#54	0.0550"	7/8"	1 7/8"	**48-781-9**	3.25
#55	0.0520"	7/8"	1 7/8"	**48-782-7**	3.25
#56	0.0465"	3/4"	1 3/4"	**48-783-5**	3.25
#57	0.0430"	3/4"	1 3/4"	**48-784-3**	3.25
#58	0.0420"	11/16"	1 5/8"	**48-785-0**	3.25
#59	0.0410"	11/16"	1 5/8"	**48-786-8**	3.25
#60	0.0400"	11/16"	1 5/8"	**48-787-6**	3.25
#61	0.0390"	11/16"	1 5/8"	**48-788-4**	3.25
#64	0.0360"	5/8"	1 1/2"	**48-790-0**	6.85
#65	0.0350"	5/8"	1 1/2"	**48-791-8**	6.85
#66	0.0330"	1/2"	1 3/8"	**48-792-6**	6.85
#67	0.0320"	1/2"	1 3/8"	**48-793-4**	6.85
#68	0.0310"	1/2"	1 3/8"	**48-794-2**	6.85
#69	0.0292"	1/2"	1 3/8"	**48-795-9**	7.65
#70	0.0280"	3/8"	1 1/4"	**48-796-7**	7.65
#72	0.0250"	5/16"	1 1/8"	**48-797-5**	7.30
#73	0.0240"	5/16"	1 1/8"	**48-798-3**	7.30
#74	0.0225"	1/4"	1"	**48-799-1**	7.30
#75	0.0210"	1/4"	1"	**48-800-7**	7.30
#76	0.0200"	3/16"	7/8"	**48-801-5**	7.30
#77	0.0180"	3/16"	7/8"	**48-802-3**	7.30
#78	0.0160"	3/16"	7/8"	**48-803-1**	7.30
#79	0.0145"	1/8"	3/4"	**48-804-9**	8.60
#80	0.0135"	1/8"	3/4"	**48-805-6**	8.60
--	–	–	–	–	

CUTTING TOOLS



Fast Spiral

SHOP GRADE

Letter HSS Bright Finish 118° Fast Spiral Jobber Drills

38° Helix

- Grade: general purpose.
- Fast spiral drills are designed for use in the softer low tensile strength materials, copper alloy, magnesium, aluminum and aluminum alloy.
- A to L sold in packs of 12
  M to Z sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**48-673-8**	$4.20
B	0.2380"	2 3/4"	4"	**48-674-6**	4.15
C	0.2420"	2 3/4"	4"	**48-675-3**	4.15
D	0.2460"	2 3/4"	4"	**48-676-1**	4.15
E	0.2500"	2 3/4"	4"	**48-467-5**	3.20
F	0.2570"	2 7/8"	4 1/8"	**48-677-9**	4.50
G	0.2610"	2 7/8"	4 1/8"	**48-678-7**	4.95
H	0.2660"	2 7/8"	4 1/8"	**48-679-5**	5.10
I	0.2720"	2 7/8"	4 1/8"	**48-680-3**	4.95
J	0.2770"	2 7/8"	4 1/8"	**48-681-1**	5.35
K	0.2810"	2 15/16"	4 1/4"	**48-682-9**	5.85
L	0.2900"	2 15/16"	4 1/4"	**48-683-7**	5.85
M	0.2950"	3 1/16"	4 3/8"	**48-684-5**	6.30
N	0.3020"	3 1/16"	4 3/8"	**48-685-2**	6.30
O	0.3160"	3 3/16"	4 1/2"	**48-686-0**	6.15
P	0.3230"	3 5/16"	4 5/8"	**48-687-8**	7.05
Q	0.3320"	3 7/16"	4 3/4"	**48-688-6**	7.15
R	0.3390"	3 7/16"	4 3/4"	**48-689-4**	7.15
S	0.3480"	3 1/2"	4 7/8"	**48-690-2**	8.00
T	0.3580"	3 1/2"	4 7/8"	**48-691-0**	9.30
U	0.3680"	3 5/8"	5"	**48-692-8**	9.15
V	0.3770"	3 5/8"	5"	**48-693-6**	9.70
W	0.3860"	3 3/4"	5 1/8"	**48-694-4**	10.15
X	0.3970"	3 3/4"	5 1/8"	**48-695-1**	11.55
Y	0.4040"	3 7/8"	5 1/4"	**48-696-9**	13.55
Z	0.4130"	3 7/8"	5 1/4"	**48-697-7**	13.95



SHOP GRADE

Fractional HSS Bright Finish 118° Left Hand Jobber Drills

- Grade: general purpose.
- Used extensively in screw machine operations and close multiple spindle operations where the spindles operate alternately left hand and right hand.
- Requires left hand spindle rotation.
- 1/32" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE
3/64"	0.0469"	3/4"	1 3/4"	**48-698-5**	$3.60
1/16"	0.0625"	7/8"	1 7/8"	**48-699-3**	2.95
5/64"	0.0781"	1"	2"	**48-700-9**	2.95
3/32"	0.0938"	1 1/4"	2 1/4"	**48-701-7**	3.05
7/64"	0.1094"	1 1/2"	2 5/8"	**48-702-5**	3.10
1/8"	0.1250"	1 5/8"	2 3/4"	**48-703-3**	3.10
9/64"	0.1406"	1 3/4"	2 7/8"	**48-704-1**	3.25
5/32"	0.1562"	2"	3 1/8"	**48-705-8**	3.55
11/64"	0.1719"	2 1/8"	3 1/4"	**48-706-6**	3.90
3/16"	0.1875"	2 5/16"	3 1/2"	**48-707-4**	4.20
13/64"	0.2031"	2 7/16"	3 5/8"	**48-708-2**	4.35
7/32"	0.2188"	2 1/2"	3 3/4"	**48-709-0**	4.40
15/64"	0.2344"	2 5/8"	3 7/8"	**48-710-8**	5.70
1/4"	0.2500"	2 3/4"	4"	**48-711-6**	5.70
17/64"	0.2656"	2 7/8"	4 1/8"	**48-712-4**	6.35
9/32"	0.2812"	2 15/16"	4 1/4"	**48-713-2**	6.35
19/64"	0.2969"	3 1/16"	4 3/8"	**48-714-0**	7.25
5/16"	0.3125"	3 3/16"	4 1/2"	**48-715-7**	7.50
21/64"	0.3281"	3 5/16"	4 5/8"	**48-716-5**	8.30
11/32"	0.3438"	3 7/16"	4 3/4"	**48-717-3**	9.20
23/64"	0.3594"	3 1/2"	4 7/8"	**48-718-1**	10.85
3/8"	0.3750"	3 5/8"	5"	**48-719-9**	11.00
25/64"	0.3906"	3 3/4"	5 1/8"	**48-720-7**	12.80
13/32"	0.4062"	3 7/8"	5 1/4"	**48-721-5**	12.80
27/64"	0.4219"	3 15/16"	5 3/8"	**48-722-3**	14.85
7/16"	0.4375"	4 1/16"	5 1/2"	**48-723-1**	15.05
29/64"	0.4531"	4 3/16"	5 5/8"	**48-724-9**	17.55
15/32"	0.4688"	4 5/16"	5 3/4"	**48-725-6**	18.05
31/64"	0.4844"	4 3/8"	5 7/8"	**48-726-4**	19.15
1/2"	0.5000"	4 1/2"	6"	**48-727-2**	19.15



SHOP GRADE

Fractional HSS Bright Finish 118° Fast & Slow Spiral Jobber Drills

- Grade: general purpose.
- Fast spiral drills are designed for use in the softer low tensile strength materials, copper alloy, magnesium, aluminum and aluminum alloy.
- Slow spiral designed for free machining brass, bronze and plastics.
- 1/32" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.

SIZE	DEC. EQUIV.	FLUTE L	OAL	FAST SPIRAL - 38° HELIX PART NO.	FAST SPIRAL - 38° HELIX PRICE EA.	SLOW SPIRAL - 17° HELIX PART NO.	SLOW SPIRAL - 17° HELIX PRICE EA.
3/64"	0.0469"	3/4"	1 3/4"	**48-454-3**	$1.65	–	–
1/16"	0.0625"	7/8"	1 7/8"	**48-455-0**	1.70	**48-484-0**	$2.30
5/64"	0.0781"	1"	2"	**48-456-8**	1.70	**48-485-7**	2.30
3/32"	0.0938"	1 1/4"	2 1/4"	**48-457-6**	1.70	**48-486-5**	2.30
7/64"	0.1094"	1 1/2"	2 5/8"	**48-458-4**	1.70	**48-487-3**	2.25
1/8"	0.1250"	1 5/8"	2 3/4"	**48-459-2**	1.70	**48-488-1**	2.25
9/64"	0.1406"	1 3/4"	2 7/8"	**48-460-0**	1.75	**48-489-9**	2.25
5/32"	0.1562"	2"	3 1/8"	**48-461-8**	1.80	**48-490-7**	3.10
11/64"	0.1719"	2 1/8"	3 1/4"	**48-462-6**	2.10	**48-491-5**	3.50
3/16"	0.1875"	2 5/16"	3 1/2"	**48-463-4**	2.35	**48-492-3**	3.65
13/64"	0.2031"	2 7/16"	3 5/8"	**48-464-2**	2.60	**48-493-1**	4.10
7/32"	0.2188"	2 1/2"	3 3/4"	**48-465-9**	2.80	**48-494-9**	4.80
15/64"	0.2344"	2 5/8"	3 7/8"	**48-466-7**	3.10	**48-495-6**	5.15
1/4"	0.2500"	2 3/4"	4"	**48-467-5**	3.20	**48-496-4**	5.05
17/64"	0.2656"	2 7/8"	4 1/8"	**48-468-3**	3.95	**48-497-2**	6.40
9/32"	02812"	2 15/16"	4 1/4"	**48-469-1**	4.05	**48-498-0**	7.30
19/64"	0.2969"	3 1/16"	4 3/8"	**48-470-9**	4.45	**48-499-8**	8.10
5/16"	0.3125"	3 3/16"	4 1/2"	**48-471-7**	4.60	**48-500-3**	8.35
21/64"	0.3281"	3 5/16"	4 5/8"	**48-472-5**	5.70	**48-501-1**	9.25
11/32"	0.3438"	3 7/16"	4 3/4"	**48-473-3**	6.50	**48-502-9**	10.50
23/64"	0.3594"	3 1/2"	4 7/8"	**48-474-1**	7.55	**48-503-7**	11.15
3/8"	0.3750"	3 5/8"	5"	**48-475-8**	7.75	**48-504-5**	11.05
25/64"	0.3906"	3 3/4"	5 1/8"	**48-476-6**	8.20	**48-505-2**	13.25
13/32"	0.4062"	3 7/8"	5 1/4"	**48-477-4**	8.95	**48-506-0**	13.40
27/64"	0.4219"	3 15/16"	5 3/8"	**48-478-2**	9.80	**48-507-8**	15.00
7/16"	0.4375"	4 1/16"	5 1/2"	**48-479-0**	10.20	**48-508-6**	14.70
29/64"	0.4531"	4 3/16"	5 5/8"	**48-480-8**	10.65	**48-509-4**	16.50
15/32"	0.4688"	4 5/16"	5 3/4"	**48-481-6**	11.30	**48-510-2**	17.55
31/64"	0.4844"	4 3/8"	5 7/8"	**48-482-4**	12.00	**48-511-0**	18.00
1/2"	0.5000"	4 1/2"	6"	**48-483-2**	12.20	**48-512-8**	18.35

SHOP GRADE

Number HSS Bright Finish 118° Fast & Slow Spiral Jobber Drills

- Grade: general purpose.
- Fast spiral drills are designed for use in the softer low tensile strength materials, copper alloy, magnesium, aluminum and aluminum alloy.
- Slow spiral designed for free machining brass, bronze and plastics.
- Sold in packs of 12.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Bright (Polished) Finish

- Improves chip flow of soft and low carbon materials.



SIZE	DEC. EQUIV.	FLUTE L	OAL	FAST SPIRAL - 38° HELIX PART NUMBER	PRICE EACH	SLOW SPIRAL - 17° HELIX PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**48-513-6**	$3.40	**48-593-8**	$5.30
#2	0.2210"	2 5/8"	3 7/8"	**48-514-4**	3.40	**48-594-6**	5.50
#3	0.2130"	2 1/2"	3 3/4"	**48-515-1**	3.15	**48-595-3**	5.30
#4	0.2090"	2 1/2"	3 3/4"	**48-516-9**	3.15	**48-596-1**	5.15
#5	0.2055"	2 1/2"	3 3/4"	**48-517-7**	3.15	**48-597-9**	5.30
#6	0.2040"	2 1/2"	3 3/4"	**48-518-5**	3.15	**48-598-7**	5.30
#7	0.2010"	2 7/16"	3 5/8"	**48-519-3**	2.70	**48-599-5**	4.30
#8	0.1990"	2 7/16"	3 5/8"	**48-520-1**	2.70	**48-600-1**	4.30
#9	0.1960"	2 7/16"	3 5/8"	**48-521-9**	2.70	**48-601-9**	4.40
#10	0.1935"	2 7/16"	3 5/8"	**48-522-7**	2.70	**48-602-7**	4.40
#11	0.1910"	2 5/16"	3 1/2"	**48-523-5**	2.60	**48-603-5**	4.25
#12	0.1890"	2 5/16"	3 1/2"	**48-524-3**	2.60	**48-604-3**	4.50
#13	0.1850"	2 5/16"	3 1/2"	**48-525-0**	2.45	**48-605-0**	4.15
#14	0.1820"	2 3/16"	3 3/8"	**48-526-8**	2.45	**48-606-8**	4.10
#15	0.1800"	2 3/16"	3 3/8"	**48-527-6**	2.45	**48-607-6**	4.10
#16	0.1770"	2 3/16"	3 3/8"	**48-528-4**	2.45	**48-608-4**	4.10
#17	0.1730"	2 3/16"	3 3/8"	**48-529-2**	2.45	**48-609-2**	3.90
#18	0.1695"	2 1/8"	3 1/4"	**48-530-0**	2.15	**48-610-0**	3.40
#19	0.1660"	2 1/8"	3 1/4"	**48-531-8**	2.15	**48-611-8**	3.40
#20	0.1610"	2 1/8"	3 1/4"	**48-532-6**	2.15	**48-612-6**	3.40
#21	0.1590"	2 1/8"	3 1/4"	**48-533-4**	1.95	**48-613-4**	3.30
#22	0.1570"	2"	3 1/8"	**48-534-2**	1.95	**48-614-2**	3.30
#23	0.1540"	2"	3 1/8"	**48-535-9**	1.80	**48-615-9**	3.20
#24	0.1520"	2"	3 1/8"	**48-536-7**	1.80	**48-616-7**	3.10
#25	0.1495"	1 7/8"	3"	**48-537-5**	1.80	**48-617-5**	3.05
#26	0.1470"	1 7/8"	3"	**48-538-3**	1.80	**48-618-3**	2.60
#27	0.1440"	1 7/8"	3"	**48-539-1**	1.80	**48-619-1**	3.00
#28	0.1405"	1 3/4"	2 7/8"	**48-540-9**	1.75	**48-620-9**	2.70
#29	0.1360"	1 3/4"	2 7/8"	**48-541-7**	1.65	**48-621-7**	2.35
#30	0.1285"	1 5/8"	2 3/4"	**48-542-5**	1.65	**48-622-5**	2.30
#31	0.1200"	1 5/8"	2 3/4"	**48-543-3**	1.65	**48-623-3**	2.30
#32	0.1160"	1 5/8"	2 3/4"	**48-544-1**	1.65	**48-624-1**	2.40
#33	0.1130"	1 1/2"	2 5/8"	**48-545-8**	1.65	**48-625-8**	2.40
#34	0.1110"	1 1/2"	2 5/8"	**48-546-6**	1.65	**48-626-6**	2.55
#35	0.1100"	1 1/2"	2 5/8"	**48-547-4**	1.65	**48-627-4**	2.55
#36	0.1065"	1 7/16"	2 1/2"	**48-548-2**	1.65	**48-628-2**	2.35
#37	0.1040"	1 7/16"	2 1/2"	**48-549-0**	1.65	**48-629-0**	2.40
#38	0.1015"	1 7/16"	2 1/2"	**48-550-8**	1.65	**48-630-8**	2.25
#39	0.0995"	1 3/8"	2 3/8"	**48-551-6**	1.65	**48-631-6**	2.25
#40	0.0980"	1 3/8"	2 3/8"	**48-552-4**	1.65	**48-632-4**	2.25
#41	0.0960"	1 3/8"	2 3/8"	**48-553-2**	$1.65	**48-633-2**	$2.70
#42	0.0935"	1 1/4"	2 1/4"	**48-554-0**	1.65	**48-634-0**	2.35
#43	0.0890"	1 1/4"	2 1/4"	**48-555-7**	1.65	**48-635-7**	2.25
#44	0.0860"	1 1/8"	2 1/8"	**48-556-5**	1.65	**48-636-5**	2.30
#45	0.0820"	1 1/8"	2 1/8"	**48-557-3**	1.65	**48-637-3**	2.25
#46	0.0810"	1 1/8"	2 1/8"	**48-558-1**	1.65	**48-638-1**	2.25
#47	0.0785"	1"	2"	**48-559-9**	1.65	**48-639-9**	2.30
#48	0.0760"	1"	2"	**48-560-7**	1.65	**48-640-7**	2.70
#49	0.0730"	1"	2"	**48-561-5**	1.65	**48-641-5**	2.70
#50	0.0700"	1"	2"	**48-562-3**	1.65	**48-642-3**	2.70
#51	0.0670"	1"	2"	**48-563-1**	1.65	**48-643-1**	2.25
#52	0.0635"	7/8"	1 7/8"	**48-564-9**	1.65	**48-644-9**	2.70
#53	0.0595"	7/8"	1 7/8"	**48-565-6**	1.65	**48-645-6**	2.35
#54	0.0550"	7/8"	1 7/8"	**48-566-4**	1.65	**48-646-4**	2.30
#55	0.0520"	7/8"	1 7/8"	**48-567-2**	1.65	**48-647-2**	2.35
#56	0.0465"	3/4"	1 3/4"	**48-568-0**	1.65	**48-648-0**	2.45
#57	0.0430"	3/4"	1 3/4"	**48-569-8**	1.65	**48-649-8**	2.45
#58	0.0420"	11/16"	1 5/8"	**48-570-6**	1.65	**48-650-6**	2.70
#59	0.0410"	11/16"	1 5/8"	**48-571-4**	1.65	**48-651-4**	2.45
#60	0.0400"	11/16"	1 5/8"	**48-572-2**	1.65	**48-652-2**	2.45
#61	0.0390"	11/16"	1 5/8"	**48-573-0**	2.00	**48-653-0**	3.10
#62	0.0380"	5/8"	1 1/2"	**48-574-8**	2.00	**48-654-8**	3.10
#63	0.0370"	5/8"	1 1/2"	**48-575-5**	2.00	**48-655-5**	3.10
#64	0.0360"	5/8"	1 1/2"	**48-576-3**	2.00	**48-656-3**	3.00
#65	0.0350"	5/8"	1 1/2"	**48-577-1**	2.00	**48-657-1**	3.10
#66	0.0330"	1/2"	1 3/8"	**48-578-9**	2.00	**48-658-9**	3.10
#67	0.0320"	1/2"	1 3/8"	**48-579-7**	2.00	**48-659-7**	3.10
#68	0.0310"	1/2"	1 3/8"	**48-580-5**	2.00	**48-660-5**	3.10
#69	0.0292"	1/2"	1 3/8"	**48-581-3**	2.05	**48-661-3**	3.30
#70	0.0280"	3/8"	1 1/4"	**48-582-1**	2.05	**48-662-1**	3.30
#71	0.0260"	3/8"	1 1/4"	**48-583-9**	2.40	**48-663-9**	4.40
#72	0.0250"	5/16"	1 1/8"	**48-584-7**	2.40	**48-664-7**	4.40
#73	0.0240"	5/16"	1 1/8"	**48-585-4**	2.40	**48-665-4**	4.40
#74	0.0225"	1/4"	1"	**48-586-2**	2.40	**48-666-2**	4.40
#75	0.0210"	1/4"	1"	**48-587-0**	2.40	**48-667-0**	4.40
#76	0.0200"	3/16"	7/8"	**48-588-8**	2.40	**48-668-8**	4.35
#77	0.0180"	3/16"	7/8"	**48-589-6**	2.80	**48-669-6**	4.40
#78	0.0160"	3/16"	7/8"	**48-590-4**	2.80	**48-670-4**	4.40
#79	0.0145"	1/8"	3/4"	**48-591-2**	3.20	**48-671-2**	5.25
#80	0.0135"	1/8"	3/4"	**48-592-0**	3.10	**48-672-0**	5.25

CUTTING TOOLS



SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
5/64"	0.0781"	1"	2"	**74-798-0**	$2.10
3/32"	0.0938"	1 1/4"	2 1/4"	**74-799-8**	2.10
7/64"	0.1094"	1 1/2"	2 5/8"	**74-800-4**	2.35
1/8"	0.1250"	1 5/8"	2 3/4"	**74-801-2**	2.40
9/64"	0.1406"	1 3/4"	2 7/8"	**74-802-0**	2.50
5/32"	0.1562"	2	3 1/8"	**74-803-8**	2.55
11/64"	0.1719"	2 1/8"	3 1/4"	**74-804-6**	2.65
3/16"	0.1875"	2 5/16"	3 1/2"	**74-805-3**	2.95
13/64"	0.2031"	2 7/16"	3 5/8"	**74-806-1**	3.30
7/32"	0.2188"	2 1/2"	3 3/4"	**74-807-9**	3.80
15/64"	0.2344"	2 5/8"	3 7/8"	**74-808-7**	3.95
1/4"	0.2500"	2 3/4"	4"	**74-809-5**	4.35
17/64"	0.2656"	2 7/8"	4 1/8"	**74-810-3**	5.00
9/32"	0.2812"	2 15/16"	4 1/4"	**74-811-1**	5.15
5/16"	0.3125"	3 3/16"	4 1/2"	**74-812-9**	6.50
21/64"	0.3281"	3 5/16"	4 5/8"	**74-813-7**	7.15
11/32"	0.3438"	3 7/16"	4 3/4"	**74-814-5**	8.45
3/8"	0.3750"	3 5/8"	5"	**74-815-2**	9.45
13/32"	0.4062"	3 7/8"	5 1/4"	**74-816-0**	10.95
7/16"	0.4375"	4 1/16"	5 1/2"	**74-817-8**	12.70
29/64"	0.4531"	4 3/16"	5 5/8"	**74-818-6**	14.50
1/2"	0.5000"	4 1/2"	6"	**74-819-4**	16.05

SHOP GRADE

Fractional HSS Parabolic Jobber Drills

135° Split Point

- HSS General Purpose—provides good wear resistance in mild steel and nonferrous materials
- 135° Self centering split point prevents "walking"
- 1/64" to 9/32" sold in packs of 12
  5/16" to 1/2" sold in packs of 6



HERTEL
Production Grade Tooling Since 1947

Fractional HSS TiN Coated 118° Jobber Drills

- Grade: general purpose.
- 1/64" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

TiN

- Increases lubricity and heat resistance. Allows increase in machine speeds of 25 - 35%.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/16"	3/4"	**48-194-5**	$4.25
1/32"	0.0312"	1/2"	1 3/8"	**48-195-2**	2.70
3/64"	0.0469"	3/4"	1 3/4"	**48-196-0**	2.25
1/16"	0.0625"	7/8"	1 7/8"	**48-197-8**	2.25
5/64"	0.0781"	1"	2"	**48-198-6**	2.25
3/32"	0.0938"	1 1/4"	2 1/4"	**48-199-4**	2.25
7/64"	0.1094"	1 1/2"	2 5/8"	**48-200-0**	2.35
1/8"	0.1250"	1 5/8"	2 3/4"	**48-201-8**	2.35
9/64"	0.1406"	1 3/4"	2 7/8"	**48-202-6**	2.90
5/32"	0.1562"	2"	3 1/8"	**48-203-4**	2.90
11/64"	0.1719"	2 1/8"	3 1/4"	**48-204-2**	3.20
3/16"	0.1875"	2 5/16"	3 1/2"	**48-205-9**	3.50
13/64"	0.2031"	2 7/16"	3 5/8"	**48-206-7**	3.90
7/32"	0.2188"	2 1/2"	3 3/4"	**48-207-5**	4.25
15/64"	0.2344"	2 5/8"	3 7/8"	**48-208-3**	4.40
1/4"	0.2500"	2 3/4"	4"	**48-209-1**	4.25
17/64"	0.2656"	2 7/8"	4 1/8"	**48-210-9**	6.10
9/32"	0.2812"	2 15/16"	4 1/4"	**48-211-7**	6.30
19/64"	0.2969"	3 1/16"	4 3/8"	**48-212-5**	7.00
5/16"	0.3125"	3 3/16"	4 1/2"	**48-213-3**	7.30
21/64"	0.3281"	3 5/16"	4 5/8"	**48-214-1**	9.15
11/32"	0.3438"	3 7/16"	4 3/4"	**48-215-8**	9.85
23/64"	0.3594"	3 1/2"	4 7/8"	**48-216-6**	10.70
3/8"	0.3750"	3 5/8"	5"	**48-217-4**	10.85
25/64"	0.3906"	3 3/4"	5 1/8"	**49-249-6**	12.55
13/32"	0.4062"	3 7/8"	5 1/4"	**48-218-2**	13.00
27/64"	0.4219"	3 15/16"	5 3/8"	**48-219-0**	13.50
7/16"	0.4375"	4 1/16"	5 1/2"	**48-220-8**	13.90
29/64"	0.4531"	4 3/16"	5 5/8"	**48-221-6**	15.10
15/32"	0.4688"	4 5/16"	5 3/4"	**48-222-4**	15.60
31/64"	0.4844"	4 3/8"	5 7/8"	**48-223-2**	15.95
1/2"	0.5000"	4 1/2"	6"	**48-224-0**	16.00

SHOP GRADE

Heavy Duty HSS Parabolic Taper Length Drills

Bright Finish, 135° Split Point



- Parabolic Drills — use for deep holes without the need to "peck".
- High speed steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Bright Finish (Polished) — Improves chip flow of soft and low carbon materials.
- 135° Split Point — Self centering prevents "walking".
- 5/64" to 9/32" sold in packs of 12
  5/16" to 3/8" sold in packs of 6
  25/64" to 3/4" sold individually.

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
5/64"	0.0781"	1"	3 3/4"	**72-221-5**	$8.30
3/32"	0.0938"	2 1/4"	4 1/4"	**72-222-3**	8.15
7/64"	0.1094"	2 1/2"	4 5/8"	**72-223-1**	8.30
1/8"	0.1250"	2 3/4"	5 1/8"	**72-224-9**	6.75
9/64"	0.1406"	3"	5 3/8"	**72-225-6**	8.90
5/32"	0.1562"	3"	5 3/8"	**72-226-4**	8.00
11/64"	0.1719"	3 3/8"	5 3/4"	**72-227-2**	9.35
3/16"	0.1875"	3 3/8"	5 3/4"	**72-228-0**	8.00
13/64"	0.2031"	3 5/8"	6"	**72-229-8**	10.85
7/32"	0.2188"	3 5/8"	6"	**72-230-6**	11.65
15/64"	0.2344"	3 3/4"	6 1/8"	**72-231-4**	11.65
1/4"	0.2500"	3 3/4"	6 1/8"	**72-232-2**	9.20
17/64"	0.2656"	3 7/8"	6 1/4"	**72-233-0**	12.10
9/32"	0.2813"	3 7/8"	6 1/4"	**72-234-8**	11.65
5/16"	0.3125"	4"	6 3/8"	**72-235-5**	11.65
21/64"	0.3281"	4 1/8"	6 1/2"	**72-236-3**	13.40
11/32"	0.3438"	4 1/8"	6 1/2"	**72-237-1**	$13.10
23/64"	0.3594"	4 1/4"	6 3/4"	**72-238-9**	15.60
3/8"	0.3750"	4 1/4"	6 3/4"	**72-239-7**	15.60
25/64"	0.3906"	4 3/8"	7"	**72-240-5**	16.35
13/32"	0.4063"	4 3/8"	7"	**72-241-3**	16.30
27/64"	0.4219"	4 5/8"	7 1/4"	**72-242-1**	17.75
7/16"	0.4375"	4 5/8"	7 1/4"	**72-243-9**	17.75
29/64"	0.4531"	4 3/4"	7 1/2"	**72-244-7**	20.25
31/64"	0.4844"	4 3/4"	7 3/4"	**72-245-4**	23.10
1/2"	0.5000"	4 3/4"	7 3/4"	**72-246-2**	22.05
17/32"	0.5313"	4 3/4"	8 1/16"	**72-247-0**	32.10
9/16"	0.5625"	4 7/8"	8 1/4"	**72-248-8**	33.30
19/32"	0.5938"	4 7/8"	8 3/4"	**72-249-6**	40.10
5/8"	0.6250"	4 7/8"	8 3/4"	**72-250-4**	40.10
23/32"	0.7188"	5 5/8"	9 1/2"	**72-251-2**	78.55
3/4"	0.7500"	5 7/8"	9 3/4"	**72-252-0**	83.25

SIZE	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/8"	1 5/8"	2 3/4"	**44-296-2**	$13.10
9/64"	1 3/4"	2 7/8"	**44-297-0**	14.25
5/32"	2"	3 1/8"	**44-298-8**	13.95
11/64"	2 1/8"	3 1/4"	**44-299-6**	15.15
3/16"	2 5/16"	3 1/2"	**44-300-2**	14.85
13/64"	2 7/16"	3 5/8"	**44-301-0**	16.30
7/32"	2 1/2"	3 3/4"	**44-302-8**	16.30
15/64"	2 5/8"	3 7/8"	**44-303-6**	17.60
1/4"	2 3/4"	4"	**44-304-4**	17.60
17/64"	2 7/8"	4 1/8"	**44-305-1**	17.60
9/32"	2 15/16"	4 1/4"	**44-306-9**	20.60
19/64"	3 1/16"	4 3/8"	**44-307-7**	22.00
5/16"	3 3/16"	4 1/2"	**44-308-5**	22.35
21/64"	3 5/16"	4 5/8"	**44-309-3**	23.70
11/32"	3 7/16"	4 3/4"	**44-310-1**	23.70
23/64"	3 1/2"	4 7/8"	**44-311-9**	25.15
3/8"	3 5/8"	5"	**44-312-7**	25.15
25/64"	3 3/4"	5 1/8"	**44-313-5**	27.40
13/32"	3 7/8"	5 1/4"	**44-314-3**	27.40
27/64"	3 7/8"	5 1/4"	**44-315-0**	29.65
7/16"	4 1/16"	5 1/2"	**44-316-8**	29.65
29/64"	4 3/16"	5 5/8"	**44-317-6**	34.05
15/32"	4 5/16"	5 3/4"	**44-318-4**	33.30
31/64"	4 3/8"	5 7/8"	**44-319-2**	37.35
1/2"	4 1/2"	6"	**44-320-0**	37.35
33/64"	4 13/16"	6 5/8"	**44-321-8**	51.80
17/32"	4 13/16"	6 5/8"	**44-322-6**	51.80
35/64"	4 13/16"	6 5/8"	**44-323-4**	52.30
9/16"	4 13/16"	6 5/8"	**44-324-2**	52.30
37/64"	4 13/16"	6 5/8"	**44-325-9**	56.75
19/32"	5 3/16"	7 1/8"	**44-326-7**	57.10
39/64"	5 3/16"	7 1/8"	**44-327-5**	67.55
5/8"	5 3/16"	7 1/8"	**44-328-3**	63.50
41/64"	5 3/16"	7 1/8"	**44-329-1**	74.70
21/32"	5 3/16"	7 1/8"	**44-330-9**	66.75
43/64"	5 5/8"	7 5/8"	**44-331-7**	85.70
11/16"	5 5/8"	7 5/8"	**44-332-5**	65.85
45/64"	5 5/8"	7 7/8"	**44-333-3**	85.70
23/32"	5 5/8"	7 7/8"	**44-334-1**	78.30
47/64"	5 7/8"	8 1/4"	**44-335-8**	84.15
3/4"	5 7/8"	8 1/4"	**44-336-6**	78.20



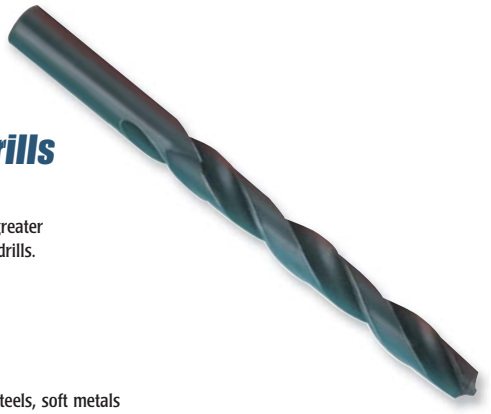
Carbide Tipped 118° Point Jobber Drills

Fractional sizes

- Recommended for production drilling on cast iron, bronze, hard copper, cast steel, nonmetals and other hard abrasive nonferrous materials.

HERTEL
Production Grade Tooling Since 1947

Fractional HSS Black Oxide 135° Split Point Jobber Drills



- Grade: heavy-duty.
- Heavy-duty core construction provides greater strength and rigidity than conventional drills.
- 1/64" to 19/64" sold in packs of 12
  5/16" to 1/2" sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SIZES SMALLER THAN 0.0625" ARE NOT SPLIT POINT.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/16"	3/4"	**48-337-0**	$2.45
1/32"	0.0312"	1/2"	1 3/8"	**48-338-8**	1.55
3/64"	0.0469"	3/4"	1 3/4"	**48-339-6**	1.65
1/16"	0.0625"	7/8"	1 7/8"	**48-340-4**	1.50
5/64"	0.0781"	1"	2"	**48-341-2**	1.45
3/32"	0.0938"	1 1/4"	2 1/4"	**48-342-0**	1.50
7/64"	0.1094"	1 1/2"	2 5/8"	**48-343-8**	1.50
1/8"	0.1250"	1 5/8"	2 3/4"	**48-344-6**	1.50
9/64"	0.1406"	1 3/4"	2 7/8"	**48-345-3**	1.60
5/32"	0.1562"	2"	3 1/8"	**48-346-1**	1.65
11/64"	0.1719"	2 1/8"	3 1/4"	**48-347-9**	1.80
3/16"	0.1875"	2 5/16"	3 1/2"	**48-348-7**	2.00
13/64"	0.2031"	2 7/16"	3 5/8"	**48-349-5**	2.25
7/32"	0.2188"	2 1/2"	3 3/4"	**48-350-3**	2.60
15/64"	0.2344"	2 5/8"	3 7/8"	**48-351-1**	2.70
1/4"	0.2500"	2 3/4"	4"	**48-352-9**	2.75

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
17/64"	0.2656"	2 7/8"	4 1/8"	**48-353-7**	$3.40
9/32"	0.2812"	2 15/16"	4 1/4"	**48-354-5**	3.60
19/64"	0.2969"	3 1/16"	4 3/8"	**48-355-2**	4.00
5/16"	0.3125"	3 3/16"	4 1/2"	**48-356-0**	4.35
21/64"	0.3281"	3 5/16"	4 5/8"	**48-357-8**	5.20
11/32"	0.3438"	3 7/16"	4 3/4"	**48-358-6**	5.65
23/64"	0.3594"	3 1/2"	4 7/8"	**48-359-4**	6.25
3/8"	0.3750"	3 5/8"	5"	**48-360-2**	6.35
25/64"	0.3906"	3 3/4"	5 1/8"	**48-361-0**	7.50
13/32"	0.4062"	3 7/8"	5 1/4"	**48-362-8**	7.95
27/64"	0.4219"	3 15/16"	5 3/8"	**48-363-6**	8.45
7/16"	0.4375"	4 1/16"	5 1/2"	**48-364-4**	8.60
29/64"	0.4531"	4 3/16"	5 5/8"	**48-365-1**	10.00
15/32"	0.4688"	4 5/16"	5 3/4"	**48-366-9**	10.50
31/64"	0.4844"	4 3/8"	5 7/8"	**48-367-7**	10.60
1/2"	0.5000"	4 1/2"	6"	**48-368-5**	10.85

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**48-369-3**	$2.80
#2	0.2210"	2 5/8"	3 7/8"	**48-370-1**	2.80
#3	0.2130"	2 1/2"	3 3/4"	**48-371-9**	2.65
#4	0.2090"	2 1/2"	3 3/4"	**48-372-7**	2.65
#5	0.2055"	2 1/2"	3 3/4"	**48-373-5**	2.65
#6	0.2040"	2 1/2"	3 3/4"	**48-374-3**	2.65
#7	0.2010"	2 7/16"	3 5/8"	**48-375-0**	2.25
#8	0.1990"	2 7/16"	3 5/8"	**48-376-8**	2.25
#9	0.1960"	2 7/16"	3 5/8"	**48-377-6**	2.25
#10	0.1935"	2 7/16"	3 5/8"	**48-378-4**	2.25
#11	0.1910"	2 5/16"	3 1/2"	**48-379-2**	2.25
#12	0.1890"	2 5/16"	3 1/2"	**48-380-0**	2.20
#13	0.1850"	2 5/16"	3 1/2"	**48-381-8**	2.20
#14	0.1820"	2 3/16"	3 3/8"	**48-382-6**	2.15
#15	0.1800"	2 3/16"	3 3/8"	**48-383-4**	2.15
#16	0.1770"	2 3/16"	3 3/8"	**48-384-2**	2.15
#17	0.1730"	2 3/16"	3 3/8"	**48-385-9**	2.20
#18	0.1695"	2 1/8"	3 1/4"	**48-386-7**	1.80
#19	0.1660"	2 1/8"	3 1/4"	**48-387-5**	1.80
#20	0.1610"	2 1/8"	3 1/4"	**48-388-3**	1.80
#21	0.1590"	2 1/8"	3 1/4"	**48-389-1**	1.65
#22	0.1570"	2"	3 1/8"	**48-390-9**	1.65
#23	0.1540"	2"	3 1/8"	**48-391-7**	1.65
#24	0.1520"	2"	3 1/8"	**48-392-5**	1.70
#25	0.1495"	1 7/8"	3"	**48-393-3**	1.60
#26	0.1470"	1 7/8"	3"	**48-394-1**	1.60
#27	0.1440"	1 7/8"	3"	**48-395-8**	1.55
#28	0.1405"	1 3/4"	2 7/8"	**48-396-6**	1.60
#29	0.1360"	1 3/4"	2 7/8"	**48-397-4**	1.60
#30	0.1285"	1 5/8"	2 3/4"	**48-398-2**	1.45

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#31	0.1200"	1 5/8"	2 3/4v	**48-399-0**	$1.50
#32	0.1160"	1 5/8"	2 3/4"	**48-400-6**	1.50
#33	0.1130"	1 1/2"	2 5/8"	**48-401-4**	1.50
#34	0.1110"	1 1/2"	2 5/8"	**48-402-2**	1.50
#35	0.1100"	1 1/2"	2 5/8"	**48-403-0**	1.50
#36	0.1065"	1 7/16"	2 1/2"	**48-404-8**	1.45
#37	0.1040"	1 7/16"	2 1/2"	**48-405-5**	1.50
#38	0.1015"	1 7/16"	2 1/2"	**48-406-3**	1.50
#39	0.0995"	1 3/8"	2 3/8"	**48-407-1**	1.50
#40	0.0980"	1 3/8"	2 3/8"	**48-408-9**	1.45
#41	0.0960"	1 3/8"	2 3/8"	**48-409-7**	1.50
#42	0.0935"	1 1/4"	2 1/4"	**48-410-5**	1.50
#43	0.0890"	1 1/4"	2 1/4"	**48-411-3**	1.50
#44	0.0860"	1 1/8"	2 1/8"	**48-412-1**	1.50
#45	0.0820"	1 1/8"	2 1/8"	**48-413-9**	1.50
#46	0.0810	1 1/8"	2 1/8"	**48-414-7**	1.50
#47	0.0785	1"	2"	**48-415-4**	1.50
#48	0.0760	1"	2"	**48-416-2**	1.50
#49	0.0730	1"	2"	**48-417-0**	1.50
#50	0.0700	1"	2"	**48-418-8**	1.45
#51	0.0670	1"	2"	**48-419-6**	1.50
#52	0.0635	7/8"	1 7/8"	**48-420-4**	1.50
#53	0.0595	7/8"	1 7/8"	**48-421-2**	1.60
#54	0.0550	7/8"	1 7/8"	**48-422-0**	1.60
#55	0.0520	7/8"	1 7/8"	**48-423-8**	1.55
#56	0.0465	3/4"	1 3/4"	**48-424-6**	1.60
#57	0.0430	3/4"	1 3/4"	**48-425-3**	1.55
#58	0.0420	11/16"	1 5/8"	**48-426-1**	1.60
#59	0.0410	11/16"	1 5/8"	**48-427-9**	1.60
#60	0.0400	11/16"	1 5/8"	**48-428-7**	1.60



HERTEL
Production Grade Tooling Since 1947

Number HSS Black Oxide 135° Split Point Jobber Drills

- Grade: heavy-duty.
- Heavy-duty core construction provides greater strength and rigidity than conventional drills.
- #1 to 60 sold in packs of 12.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

CUTTING TOOLS



HERTEL
Production Grade Tooling Since 1947

Letter HSS Black Oxide 135° Split Point Jobber Drills

- Grade: heavy-duty.
- Heavy-duty core construction provides greater strength and rigidity than conventional drills.
- A to N sold in packs of 12
  O to Z sold in packs of 6

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**48-429-5**	$3.15
B	0.2380"	2 3/4"	4"	**48-430-3**	3.20
C	0.2420"	2 3/4"	4"	**48-431-1**	3.20
D	0.2460"	2 3/4"	4"	**48-432-9**	3.20
E	0.2500"	2 3/4"	4"	**48-352-9**	2.75
F	0.2570"	2 7/8"	4 1/8"	**48-433-7**	3.20
G	0.2610"	2 7/8"	4 1/8"	**48-434-5**	3.80
H	0.2660"	2 7/8"	4 1/8"	**48-435-2**	3.80
I	0.2720"	2 7/8"	4 1/8"	**48-436-0**	3.90
J	0.2770"	2 7/8"	4 1/8"	**48-437-8**	4.20
K	0.2810"	2 15/16"	4 1/4"	**48-438-6**	4.30
L	0.2900"	2 15/16"	4 1/4"	**48-439-4**	4.45
M	0.2950"	3 1/16"	4 3/8"	**48-440-2**	4.65
N	0.3020"	3 1/16"	4 3/8"	**48-441-0**	4.75
O	0.3160"	3 3/16"	4 1/2"	**48-442-8**	4.85
P	0.3230"	3 5/16"	4 5/8"	**48-443-6**	5.55
Q	0.3320"	3 7/16"	4 3/4"	**48-444-4**	5.55
R	0.3390"	3 7/16"	4 3/4"	**48-445-1**	5.65
S	0.3480"	3 1/2"	4 7/8"	**48-446-9**	6.30
T	0.3580"	3 1/2"	4 7/8"	**48-447-7**	6.65
U	0.3680"	3 5/8"	5"	**48-448-5**	6.60
V	0.3770"	3 5/8"	5"	**48-449-3**	7.50
W	0.3860"	3 3/4"	5 1/8"	**48-450-1**	7.60
X	0.3970"	3 3/4"	5 1/8"	**48-451-9**	8.70
Y	0.4040"	3 7/8"	5 1/4"	**48-452-7**	9.45
Z	0.4130"	3 7/8"	5 1/4"	**48-453-5**	10.30

SHOP GRADE

Fractional Cobalt 135° Split Point Jobber Drills



- Grade: heavy-duty.
- 3/64" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

SIZES SMALLER THAN 0.0625" ARE NOT SPLIT POINT.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
3/64"	0.0469"	3/4"	1 3/4"	**41-139-7**	$1.95
1/16"	0.0625"	7/8"	1 7/8"	**41-140-5**	1.60
5/64"	0.0781"	1"	2"	**41-141-3**	1.60
3/32"	0.0938"	1 1/4"	2 1/4"	**41-142-1**	1.60
7/64"	0.1094"	1 1/2"	2 5/8"	**41-143-9**	1.80
1/8"	0.1250"	1 5/8"	2 3/4"	**41-144-7**	2.00
9/64"	0.1406"	1 3/4"	2 7/8"	**41-145-4**	2.15
5/32"	0.1562"	2"	3 1/8"	**41-146-2**	2.35
11/64"	0.1719"	2 1/8"	3 1/4"	**41-147-0**	2.60
3/16"	0.1875"	2 5/16"	3 1/2"	**41-148-8**	2.90
13/64"	0.2031"	2 7/16"	3 5/8"	**41-149-6**	3.15
7/32"	0.2188"	2 1/2"	3 3/4"	**41-150-4**	3.40
15/64"	0.2344"	2 5/8"	3 7/8"	**41-151-2**	3.70
1/4"	0.2500"	2 3/4"	4"	**41-152-0**	3.95
17/64"	0.2656"	2 7/8"	4 1/8"	**41-153-8**	4.50
9/32"	0.2812"	2 15/16"	4 1/4"	**41-154-6**	$5.05
19/64"	0.2969"	3 1/16"	4 3/8"	**41-155-3**	5.80
5/16"	0.3125"	3 3/16"	4 1/2"	**41-156-1**	6.10
21/64"	0.3281"	3 5/16"	4 5/8"	**41-157-9**	7.00
11/32"	0.3438"	3 7/16"	4 3/4"	**41-158-7**	7.50
23/64"	0.3594"	3 1/2"	4 7/8"	**41-159-5**	8.55
3/8"	0.3750"	3 5/8"	5"	**41-160-3**	8.80
25/64"	0.3906"	3 3/4"	5 1/8"	**41-161-1**	9.85
13/32"	0.4062"	3 7/8"	5 1/4"	**41-162-9**	10.35
27/64"	0.4219"	3 15/16"	5 3/8"	**41-163-7**	11.25
7/16"	0.4375"	4 1/16"	5 1/2"	**41-164-5**	11.80
29/64"	0.4531"	4 3/16"	5 5/8"	**41-165-2**	13.60
15/32"	0.4688"	4 5/16"	5 3/4"	**41-166-0**	13.95
31/64"	0.4844"	4 3/8"	5 7/8"	**41-167-8**	15.05
1/2"	0.5000"	4 1/2"	6"	**41-168-6**	15.75

HERTEL
Production Grade Tooling Since 1947

Fractional Cobalt 135° Split Point Jobber Drills



- Grade: heavy-duty.
- 3/64" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/16"	3/4"	**48-986-4**	$4.45
1/32"	0.0312"	1/2"	1 3/8"	**48-987-2**	4.00
3/64"	0.0469"	3/4"	1 3/4"	**48-988-0**	2.45
1/16"	0.0625"	7/8"	1 7/8"	**48-989-8**	2.00
5/64"	0.0781"	1"	2"	**48-990-6**	2.00
3/32"	0.0938"	1 1/4"	2 1/4"	**48-991-4**	2.05
7/64"	0.1094"	1 1/2"	2 5/8"	**48-992-2**	2.25
1/8"	0.1250"	1 5/8"	2 3/4"	**48-993-0**	2.55
9/64"	0.1406"	1 3/4"	2 7/8"	**48-994-8**	2.70
5/32"	0.1562"	2"	3 1/8"	**48-995-5**	2.95
11/64"	0.1719"	2 1/8"	3 1/4"	**48-996-3**	3.30
3/16"	0.1875"	2 5/16"	3 1/2"	**48-997-1**	3.65
13/64"	0.2031"	2 7/16"	3 5/8"	**48-998-9**	3.95
7/32"	0.2188"	2 1/2"	3 3/4"	**48-999-7**	4.20
15/64"	0.2344"	2 5/8"	3 7/8"	**49-000-3**	4.65
1/4"	0.2500"	2 3/4"	4"	**49-001-1**	4.85
17/64"	0.2656"	2 7/8"	4 1/8"	**49-002-9**	$5.65
9/32"	0.2812"	2 15/16"	4 1/4"	**49-003-7**	6.30
19/64"	0.2969"	3 1/16"	4 3/8"	**49-004-5**	7.35
5/16"	0.3125"	3 3/16"	4 1/2"	**49-005-2**	7.75
21/64"	0.3281"	3 5/16"	4 5/8"	**49-006-0**	8.70
11/32"	0.3438"	3 7/16"	4 3/4"	**49-007-8**	9.40
23/64"	0.3594"	3 1/2"	4 7/8"	**49-008-6**	10.80
3/8"	0.3750"	3 5/8"	5"	**49-009-4**	11.15
25/64"	0.3906"	3 3/4"	5 1/8"	**49-010-2**	12.55
13/32"	0.4062"	3 7/8"	5 1/4"	**49-011-0**	13.15
27/64"	0.4219"	3 15/16"	5 3/8"	**49-012-8**	14.30
7/16"	0.4375"	4 1/16"	5 1/2"	**49-013-6**	15.00
29/64"	0.4531"	4 3/16"	5 5/8"	**49-014-4**	17.25
15/32"	0.4688"	4 5/16"	5 3/4"	**49-015-1**	17.70
31/64"	0.4844"	4 3/8"	5 7/8"	**49-016-9**	19.00
1/2"	0.5000"	4 1/2"	6"	**49-017-7**	19.60



SHOP GRADE
Number Cobalt 135° Split Point Jobber Drills

- Grade: heavy-duty.
- 3/64" to 9/32" sold in packs of 12
  19/64" to 1/2" sold in packs of 6

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**41-309-6**	$3.55
#2	0.2210"	2 5/8"	3 7/8"	**41-310-4**	3.55
#3	0.2130"	2 1/2"	3 3/4"	**41-311-2**	4.00
#4	0.2090"	2 1/2"	3 3/4"	**41-312-0**	4.00
#5	0.2055"	2 1/2"	3 3/4"	**41-313-8**	4.00
#6	0.2040"	2 1/2"	3 3/4"	**41-314-6**	3.95
#7	0.2010"	2 7/16"	3 5/8"	**41-315-3**	3.30
#8	0.1990"	2 7/16"	3 5/8"	**41-316-1**	3.40
#9	0.1960"	2 7/16"	3 5/8"	**41-317-9**	3.40
#10	0.1935"	2 7/16"	3 5/8"	**41-318-7**	3.20
#11	0.1910"	2 5/16"	3 1/2"	**41-319-5**	3.25
#12	0.1890"	2 5/16"	3 1/2"	**41-320-3**	3.30
#13	0.1850"	2 5/16"	3 1/2"	**41-321-1**	3.10
#14	0.1820"	2 3/16"	3 3/8"	**41-322-9**	3.10
#15	0.1800"	2 3/16"	3 3/8"	**41-323-7**	3.10
#16	0.1770"	2 3/16"	3 3/8"	**41-324-5**	3.05
#17	0.1730"	2 3/16"	3 3/8"	**41-325-2**	3.05
#18	0.1695"	2 1/8"	3 1/4"	**41-326-0**	2.90
#19	0.1660"	2 1/8"	3 1/4"	**41-327-8**	2.75
#20	0.1610"	2 1/8"	3 1/4"	**41-328-6**	2.55
#21	0.1590"	2 1/8"	3 1/4"	**41-329-4**	2.55
#22	0.1570"	2"	3 1/8"	**41-330-2**	2.70
#23	0.1540"	2"	3 1/8"	**41-331-0**	2.70
#24	0.1520"	2"	3 1/8"	**41-332-8**	2.65
#25	0.1495"	1 7/8"	3"	**41-333-6**	2.45
#26	0.1470"	1 7/8"	3"	**41-334-4**	2.50
#27	0.1440"	1 7/8"	3"	**41-335-1**	2.45
#28	0.1405"	1 3/4"	2 7/8"	**41-336-9**	2.35
#29	0.1360"	1 3/4"	2 7/8"	**41-337-7**	2.20
#30	0.1285"	1 5/8"	2 3/4"	**41-338-5**	2.00

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#31	0.1200	1 5/8"	2 3/4"	**41-339-3**	$2.05
#32	0.1160	1 5/8"	2 3/4"	**41-340-1**	2.05
#33	0.1130	1 1/2"	2 5/8"	**41-341-9**	2.00
#34	0.1110	1 1/2"	2 5/8"	**41-342-7**	2.00
#35	0.1100	1 1/2"	2 5/8"	**41-343-5**	2.00
#36	0.1065	1 7/16"	2 1/2"	**41-344-3**	2.00
#37	0.1040"	1 7/16"	2 1/2"	**41-345-0**	2.00
#38	0.1015"	1 7/16"	2 1/2"	**41-346-8**	1.95
#39	0.0995"	1 3/8"	2 3/8"	**41-347-6**	1.95
#40	0.0980"	1 3/8"	2 3/8"	**41-348-4**	1.75
#41	0.0960"	1 3/8"	2 3/8"	**41-349-2**	1.85
#42	0.0935"	1 1/4"	2 1/4"	**41-350-0**	1.75
#43	0.0890"	1 1/4"	2 1/4"	**41-351-8**	1.70
#44	0.0860"	1 1/8"	2 1/8"	**41-352-6**	1.70
#45	0.0820"	1 1/8"	2 1/8"	**41-353-4**	1.70
#46	0.0810"	1 1/8"	2 1/8"	**41-354-2**	1.70
#47	0.0785"	1"	2"	**41-355-9**	1.70
#48	0.0760"	1"	2"	**41-356-7**	1.70
#49	0.0730"	1"	2"	**41-357-5**	1.70
#50	0.0700"	1"	2"	**41-358-3**	1.65
#51	0.0670"	1"	2"	**41-359-1**	1.65
#52	0.0635"	7/8"	1 7/8"	**41-360-9**	1.65
#53	0.0595"	7/8"	1 7/8"	**41-361-7**	1.80
#54	0.0550"	7/8"	1 7/8"	**41-362-5**	1.80
#55	0.0520"	7/8"	1 7/8"	**41-363-3**	1.80
#56	0.0465"	3/4"	1 3/4"	**41-364-1**	1.90
#57	0.0430"	3/4"	1 3/4"	**41-365-8**	1.90
#58	0.0420"	11/16"	1 5/8"	**41-366-6**	1.90
#59	0.0410"	11/16"	1 5/8"	**41-367-4**	1.90
#60	0.0400"	11/16"	1 5/8"	**41-368-2**	2.15



HERTEL
Production Grade Tooling Since 1947

Number Cobalt 135° Split Point Jobber Drills

- Grade: heavy-duty.
- #1 to 80 sold in packs of 12

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

Sizes #1 - 60

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	2 5/8"	3 7/8"	**49-018-5**	$5.30
#2	0.2210"	2 5/8"	3 7/8"	**49-019-3**	5.30
#3	0.2130"	2 1/2"	3 3/4"	**49-020-1**	5.10
#4	0.2090"	2 1/2"	3 3/4"	**49-021-9**	5.10
#5	0.2055"	2 1/2"	3 3/4"	**49-022-7**	5.10
#6	0.2040"	2 1/2"	3 3/4"	**49-023-5**	5.00
#7	0.2010"	2 7/16"	3 5/8"	**49-024-3**	4.10
#8	0.1990"	2 7/16"	3 5/8"	**49-025-0**	4.35
#9	0.1960"	2 7/16"	3 5/8"	**49-026-8**	4.35
#10	0.1935"	2 7/16"	3 5/8"	**49-027-6**	4.00
#11	0.1910"	2 5/16"	3 1/2"	**49-028-4**	4.10
#12	0.1890"	2 5/16"	3 1/2"	**49-029-2**	4.15
#13	0.1850"	2 5/16"	3 1/2"	**49-030-0**	3.95
#14	0.1820"	2 3/16"	3 3/8"	**49-031-8**	3.95
#15	0.1800"	2 3/16"	3 3/8"	**49-032-6**	3.95
#16	0.1770"	2 3/16"	3 3/8"	**49-033-4**	3.85
#17	0.1730"	2 3/16"	3 3/8"	**49-034-2**	3.85
#18	0.1695"	2 1/8"	3 1/4"	**49-035-9**	3.60
#19	0.1660"	2 1/8"	3 1/4"	**49-036-7**	3.45
#20	0.1610"	2 1/8"	3 1/4"	**49-037-5**	3.25
#21	0.1590"	2 1/8"	3 1/4"	**49-038-3**	3.25
#22	0.1570"	2"	3 1/8"	**49-039-1**	3.35
#23	0.1540"	2"	3 1/8"	**49-040-9**	3.35
#24	0.1520"	2"	3 1/8"	**49-041-7**	3.30
#25	0.1495"	1 7/8"	3"	**49-042-5**	3.05
#26	0.1470"	1 7/8"	3"	**49-043-3**	3.10
#27	0.1440"	1 7/8"	3"	**49-044-1**	3.10
#28	0.1405"	1 3/4"	2 7/8"	**49-045-8**	2.90
#29	0.1360"	1 3/4"	2 7/8"	**49-046-6**	2.80
#30	0.1285"	1 5/8"	2 3/4"	**49-047-4**	2.50

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#31	0.1200"	1 5/8"	2 3/4"	**49-048-2**	$2.60
#32	0.1160"	1 5/8"	2 3/4"	**49-049-0**	2.60
#33	0.1130"	1 1/2"	2 5/8"	**49-050-8**	2.55
#34	0.1110"	1 1/2"	2 5/8"	**49-051-6**	2.55
#35	0.1100"	1 1/2"	2 5/8"	**49-052-4**	2.55
#36	0.1065"	1 7/16"	2 1/2"	**49-053-2**	2.50
#37	0.1040"	1 7/16"	2 1/2"	**49-054-0**	2.50
#38	0.1015"	1 7/16"	2 1/2"	**49-055-7**	2.45
#39	0.0995"	1 3/8"	2 3/8"	**49-056-5**	2.45
#40	0.0980"	1 3/8"	2 3/8"	**49-057-3**	2.20
#41	0.0960"	1 3/8"	2 3/8"	**49-058-1**	2.30
#42	0.0935"	1 1/4"	2 1/4"	**49-059-9**	2.20
#43	0.0890"	1 1/4"	2 1/4"	**49-060-7**	2.10
#44	0.0860"	1 1/8"	2 1/8"	**49-061-5**	2.10
#45	0.0820"	1 1/8"	2 1/8"	**49-062-3**	2.10
#46	0.0810"	1 1/8"	2 1/8"	**49-063-1**	2.10
#47	0.0785"	1"	2"	**49-064-9**	2.10
#48	0.0760"	1"	2"	**49-065-6**	2.10
#49	0.0730"	1"	2"	**49-066-4**	2.10
#50	0.0700"	1"	2"	**49-067-2**	2.10
#51	0.0670"	1"	2"	**49-068-0**	2.10
#52	0.0635"	7/8"	1 7/8"	**49-069-8**	2.10
#53	0.0595"	7/8"	1 7/8"	**49-070-6**	2.30
#54	0.0550"	7/8"	1 7/8"	**49-071-4**	2.30
#55	0.0520"	7/8"	1 7/8"	**49-072-2**	2.30
#56	0.0465"	3/4"	1 3/4"	**49-073-0**	2.45
#57	0.0430"	3/4"	1 3/4"	**49-074-8**	2.45
#58	0.0420"	11/16"	1 5/8"	**49-075-5**	2.45
#59	0.0410"	11/16"	1 5/8"	**49-076-3**	2.45
#60	0.0400"	11/16"	1 5/8"	**49-077-1**	2.45

Sizes #61 - 80 Not Split Point

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
#61	0.0390"	11/16"	1 5/8"	**49-078-9**	$2.70
#62	0.0380"	5/8"	1 1/2"	**49-079-7**	2.70
#63	0.0370"	5/8"	1 1/2"	**49-080-5**	2.70
#64	0.0360"	5/8"	1 1/2"	**49-081-3**	2.70
#65	0.0350"	5/8"	1 1/2"	**49-082-1**	2.70
#66	0.0330"	1/2"	1 3/8"	**49-083-9**	2.95
#67	0.0320"	1/2"	1 3/8"	**49-084-7**	2.95
#68	0.0310"	1/2"	1 3/8"	**49-085-4**	2.95
#69	0.0292"	1/2"	1 3/8"	**49-086-2**	3.20
#70	0.0280"	3/8"	1 1/4"	**49-087-0**	3.20
#71	0.0260"	3/8"	1 1/4"	**49-088-8**	3.45
#72	0.0250"	5/16"	1 1/8"	**49-089-6**	3.45
#73	0.0240"	5/16"	1 1/8"	**49-090-4**	3.45
#74	0.0225"	1/2"	1"	**49-091-2**	3.45
#75	0.0210"	1/4"	1"	**49-092-0**	3.85
#76	0.0200"	3/16"	7/8"	**49-093-8**	3.85
#77	0.0180"	3/16"	7/8"	**49-094-6**	4.50
#78	0.0160"	3/16"	7/8"	**49-095-3**	4.50
#79	0.0145"	1/8"	3/4"	**49-096-1**	4.50
#80	0.0135"	1/8"	3/4"	**49-097-9**	4.50

CUTTING TOOLS

SHOP GRADE

Letter Cobalt 135° Split Point Jobber Drills



- Grade: heavy-duty.
- A to L sold in packs of 12
  M to Z sold in packs of 6

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**41-421-9**	$4.70
B	0.2380"	2 3/4"	4"	**41-422-7**	4.90
C	0.2420"	2 3/4"	4"	**41-423-5**	4.95
D	0.2460"	2 3/4"	4"	**41-424-3**	5.50
E	0.2500"	2 3/4"	4"	**41-152-0**	3.95
F	0.2570"	2 7/8"	4 1/8"	**41-426-8**	5.15
G	0.2610"	2 7/8"	4 1/8"	**41-427-6**	5.20
H	0.2660"	2 7/8"	4 1/8"	**41-428-4**	5.65
I	0.2720"	2 7/8"	4 1/8"	**41-429-2**	5.65
J	0.2770"	2 7/8"	4 1/8"	**41-430-0**	5.80
K	0.2810"	2 15/16"	4 1/4"	**41-431-8**	5.90
L	0.2900"	2 15/16"	4 1/4"	**41-432-6**	6.15
M	0.2950"	3 1/16"	4 3/8"	**41-433-4**	6.40
N	0.3020"	3 1/16"	4 3/8"	**41-434-2**	6.65
O	0.3160"	3 3/16"	4 1/2"	**41-435-9**	7.55
P	0.3230"	3 5/16"	4 5/8"	**41-436-7**	7.70
Q	0.3320"	3 7/16"	4 3/4"	**41-437-5**	7.95
R	0.3390"	3 7/16"	4 3/4"	**41-438-3**	8.15
S	0.3480"	3 1/2"	4 7/8"	**41-439-1**	9.75
T	0.3580"	3 1/2"	4 7/8"	**41-440-9**	9.90
U	0.3680"	3 5/8"	5"	**41-441-7**	10.20
V	0.3770"	3 5/8"	5"	**41-442-5**	10.70
W	0.3860"	3 3/4"	5 1/8"	**41-443-3**	11.45
X	0.3970"	3 3/4"	5 1/8"	**41-444-1**	12.15
Y	0.4040"	3 7/8"	5 1/4"	**41-445-8**	12.60
Z	0.4130"	3 7/8"	5 1/4"	**41-446-6**	13.40

HERTEL
Production Grade Tooling Since 1947

Letter Cobalt 135° Split Point Jobber Drills



- Grade: heavy-duty.
- A to L sold in packs of 12
  M to Z sold in packs of 6

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
A	0.2340"	2 5/8"	3 7/8"	**49-098-7**	$5.75
B	0.2380"	2 3/4"	4"	**49-099-5**	6.00
C	0.2420"	2 3/4"	4"	**49-100-1**	6.10
D	0.2460"	2 3/4"	4"	**49-101-9**	6.10
E	0.2500"	2 3/4"	4"	**49-001-1**	4.85
F	0.2570"	2 7/8"	4 1/8"	**49-102-7**	6.20
G	0.2610"	2 7/8"	4 1/8"	**49-103-5**	6.65
H	0.2660"	2 7/8"	4 1/8"	**49-104-3**	6.65
I	0.2720"	2 7/8"	4 1/8"	**49-105-0**	6.85
J	0.2770"	2 7/8"	4 1/8"	**49-106-8**	7.10
K	0.2810"	2 15/16"	4 1/4"	**49-107-6**	7.30
L	0.2900"	2 15/16"	4 1/4"	**49-108-4**	8.10
M	0.2950"	3 1/16"	4 3/8"	**49-109-2**	8.60
N	0.3020"	3 1/16"	4 3/8"	**49-110-0**	8.85
O	0.3160"	3 3/16"	4 1/2"	**49-111-8**	9.65
P	0.3230"	3 5/16"	4 5/8"	**49-112-6**	10.05
Q	0.3320"	3 7/16"	4 3/4"	**49-113-4**	10.20
R	0.3390"	3 7/16"	4 3/4"	**49-114-2**	10.25
S	0.3480"	3 1/2"	4 7/8"	**49-115-9**	12.65
T	0.3580"	3 1/2"	4 7/8"	**49-116-7**	12.95
U	0.3680"	3 5/8"	5"	**49-117-5**	13.05
V	0.3770"	3 5/8"	5"	**49-118-3**	13.65
W	0.3860"	3 3/4"	5 1/8"	**49-119-1**	13.90
X	0.3970"	3 3/4"	5 1/8"	**49-120-9**	14.90
Y	0.4040"	3 7/8"	5 1/4"	**49-121-7**	15.35
Z	0.4130"	3 7/8"	5 1/4"	**49-122-5**	16.40





82-516-6

CLIMAX
METAL PRODUCTS COMPANY

Drill Stop Collar Kits

Now Quickly & Easily Drill All Holes to a Uniform Depth

- **11 Pc. Standard Kit** includes collars for bit sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16" & 1/2" along with 4 hex wrenches.
- **Replacement Collars** for Standard Kit include all 7 collars shown above.
- **4 Pc. Large Kit** includes collars for bit sizes: 5/8", 3/4", 7/8" & 1".

NO. OF PCS.	DESCRIPTION	PART NUMBER	PRICE
11	Standard Kit	**82-516-6**	$24.24
7	Repl. Collars for Standard Kit	**82-517-4**	12.98
4	Large Kit	**82-518-2**	11.17



SHOP GRADE

Metric Cobalt 135° Split Point Jobber Drills

- Grade: heavy-duty.
- Sold in individually.

Tool Material:

Cobalt

- Provides good wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, inconel and high-nickel stainless steels.

SIZE (MM)	DEC. EQUIV.	FLUTE LENGTH (MM)	OAL (MM)	PART NUMBER	PRICE
14.00	0.5512"	108	160	**49-123-3**	$41.30
14.50	0.5709"	114	169	**49-124-1**	44.25
15.00	0.5906"	114	169	**49-125-8**	45.55
16.00	0.6299"	120	178	**49-126-6**	52.00
16.50	0.6496"	125	184	**49-127-4**	54.55
17.00	0.6693"	125	184	**49-128-2**	59.75
18.00	0.7087"	130	191	**49-129-0**	64.55
20.00	0.7874"	140	205	**49-130-8**	69.75

SHOP GRADE

HSS 4 Flute Oxide Coated Morse Taper Shank Core Drills

118° Chamfer



- HSS General Purpose — provides good wear resistance in mild steel and nonferrous materials.
- Used for ENLARGING cored, drilled or punched holes. Not designed to drill solid materials
- For holes requiring slight to medium enlarging and provide a better surface finish than 3 flute.
- Oxide Coated—Retains lubricants to aid in wear resistance and chip flow.

SIZE	DEC. EQUIV.	TAPER SIZE	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
1/2"	0.5000"	2MT	4 3/8"	8 1/4"	**75-593-4**	$39.80
17/32"	0.5313"	2MT	4 5/8"	8 1/2"	**75-594-2**	41.25
9/16"	0.5625"	2MT	4 7/8"	8 3/4"	**75-595-9**	43.85
19/32"	0.5938"	2MT	4 7/8"	8 3/4"	**75-596-7**	48.50
5/8"	0.6250"	2MT	4 7/8"	8 3/4"	**75-597-5**	51.00
21/32"	0.6563"	2MT	5 1/8"	9	**75-598-3**	55.05
11/16"	0.6875"	2MT	5 3/8"	9 1/4"	**75-599-1**	57.80
23/32"	0.7188"	2MT	5 5/8"	9 1/2"	**75-600-7**	62.35
3/4"	0.7500"	2MT	5 7/8"	9 3/4"	**75-601-5**	66.75
25/32"	0.7813"	2MT	6"	9 7/8"	**75-602-3**	72.70
13/16"	0.8125"	3MT	6 1/8"	10 3/4"	**75-603-1**	81.60
27/32"	0.8438"	3MT	6 1/8"	10 3/4"	**75-604-9**	86.25
7/8"	0.8750"	3MT	6 1/8"	10 3/4"	**75-605-6**	88.90
29/32"	0.9063"	3MT	6 1/8"	10 3/4"	**75-606-4**	93.15
15/16"	0.9375"	3MT	6 1/8"	10 3/4"	**75-607-2**	96.30
31/32"	0.9688"	3MT	6 3/8"	11"	**75-608-0**	107.70
1"	1.0000"	3MT	6 3/8"	11"	**75-609-8**	112.65
1 1/32"	1.0313"	3MT	6 1/2"	11 1/8"	**75-610-6**	121.20
1 1/16"	1.0625"	3MT	6 5/8"	11 1/4"	**75-611-4**	126.10
1 3/32"	1.0938"	4MT	6 7/8"	12 1/2"	**75-612-2**	143.30
1 1/8"	1.1250"	4MT	7 1/2"	12 3/4"	**75-613-0**	149.60
1 5/32"	1.1563"	4MT	7 1/4"	12 7/8"	**75-614-8**	158.10
1 3/16"	1.1875"	4MT	7 3/8"	13"	**75-615-5**	165.45
1 7/32"	1.2188"	4MT	7 1/2"	13 1/8"	**75-616-3**	176.40
1 1/4"	1.2500"	4MT	7 5/8"	13 1/2"	**75-617-1**	192.85
1 9/32"	1.2813"	4MT	8 1/2"	14 1/8"	**75-618-9**	218.55
1 5/16"	1.3125"	4MT	8 5/8"	14 1/4"	**75-619-7**	232.30
1 11/32"	1.3438"	4MT	8 3/4"	14 3/8"	**75-620-5**	247.20
1 3/8"	1.3750"	4MT	8 7/8"	14 1/2"	**75-621-3**	241.55
1 13/32"	1.4063"	4MT	9"	14 5/8"	**75-622-1**	$257.50
1 7/16"	1.4375"	4MT	9 1/8"	14 3/4"	**75-623-9**	271.20
1 15/32"	1.4688"	4MT	9 1/4"	14 7/8"	**75-624-7**	283.60
1 1/2"	1.5000"	4MT	9 3/8"	15"	**75-625-4**	285.95
1 17/32"	1.5313"	5MT	9 3/8"	16 3/8"	**75-626-2**	329.05
1 9/16"	1.5625"	5MT	9 5/8"	16 5/8"	**75-627-0**	351.20
1 19/32"	1.5938"	5MT	9 7/8"	16 7/8"	**75-628-8**	367.65
1 5/8"	1.6250"	5MT	10"	17"	**75-629-6**	371.60
1 11/16"	1.6875"	5MT	10 1/8"	17 1/8"	**75-630-4**	390.15
1 23/32"	1.7188"	5MT	10 1/8"	17 1/8"	**75-631-2**	390.15
1 3/4"	1.7500"	5MT	10 1/8"	17 1/8"	**75-632-0**	407.40
1 25/32"	1.7813"	5MT	10 1/8"	17 1/8"	**75-633-8**	424.70
1 13/16"	1.8125"	5MT	10 1/8"	17 1/8"	**75-634-6**	447.00
1 27/32"	1.8438"	5MT	10 1/8"	17 1/8"	**75-635-3**	458.70
1 7/8"	1.8750"	5MT	10 3/8"	17 3/8"	**75-636-1**	485.95
1 29/32"	1.9063"	5MT	10 3/8"	17 3/8"	**75-637-9**	508.35
1 31/32"	1.9688"	5MT	10 3/8"	17 3/8"	**75-638-7**	519.20
2"	2.0000"	5MT	10 3/8"	17 3/8"	**75-639-5**	537.10
2 1/32"	2.0313"	5MT	10 3/8"	17 3/8"	**75-640-3**	613.70
2 1/16"	2.0625"	5MT	10 1/4"	17 3/8"	**75-641-1**	596.30
2 1/8"	2.1250"	5MT	10 1/4"	17 3/8"	**75-642-9**	587.80
2 3/16"	2.1875"	5MT	10 1/4"	17 3/8"	**75-643-7**	660.60
2 1/4"	2.2500"	5MT	10 3/8"	17 3/8"	**75-644-5**	666.35
2 5/16"	2.3125"	5MT	10 3/8"	17 3/8"	**75-645-2**	761.15
2 3/8"	2.3750"	5MT	10 3/8"	17 3/8"	**75-646-0**	748.95
2 7/16"	2.4375"	5MT	11 1/4"	18 3/4"	**75-647-8**	916.45
2 1/2"	2.5000"	5MT	11 1/4"	18 3/4"	**75-648-6**	937.75
2 5/8"	2.6250"	5MT	11 7/8"	19 1/2"	**75-649-4**	1,059.55
2 3/4"	2.7500"	5MT	12 3/4"	20 3/8"	**75-650-2**	1,202.70



SHOP GRADE

HSS 3 & 4 Flute Straight Shank Core Drills

118° Chamfer

- HSS General Purpose—provides good wear resistance in mild steel and nonferrous materials.
- Used for ENLARGING cored, drilled or punched holes. Not designed to drill solid materials
- 3 Flute are designed to be used in deep holes and holes requiring significant enlarging
- 4 Flute run at higher metal removal rates on holes requiring slight to medium enlarging and provide a better surface finish than 3 flute
- Left hand cut produces left hand threads.

3 Flute

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
1/4"	0.25000"	3 3/4"	6 1/8"	**75-372-3**	$26.85
9/32"	0.28130"	3 7/8"	6 1/4"	**75-373-1**	27.50
5/16"	0.31250"	4"	6 3/8"	**75-374-9**	28.95
11/32"	0.34380"	4 1/8"	6 1/2"	**75-375-6**	34.90
3/8"	0.37500"	4 1/4"	6 3/4"	**75-376-4**	34.90
13/32"	0.40630"	4 3/8"	7"	**75-377-2**	33.40
7/16"	0.43750"	4 5/8"	7 1/4"	**75-378-0**	34.95
15/32"	0.46880"	4 3/4"	7 1/2"	**75-379-8**	37.30
1/2"	0.50000"	4 3/4"	7 3/4"	**75-380-6**	$38.75
17/32"	0.53130"	4 3/4"	8"	**75-381-4**	38.75
9/16"	0.56250"	4 7/8"	8 1/4"	**75-382-2**	42.30
19/32"	0.59380"	4 7/8"	8 3/4"	**75-383-0**	47.00
5/8"	0.62500"	4 7/8"	8 3/4"	**75-384-8**	48.05
21/32"	0.65630"	5 1/8"	9"	**75-385-5**	52.60
11/16"	0.68750"	5 3/8"	9 1/4"	**75-386-3**	56.55
3/4"	0.75000"	5 7/8"	9 3/4"	**75-387-1**	64.25

4 Flute

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
1/2"	0.50000"	4 3/4"	7 3/4"	**75-388-9**	$39.90
17/32"	0.53130"	4 3/4"	8"	**75-389-7**	40.30
9/16"	0.56250"	4 7/8"	8 1/4"	**75-390-5**	44.05
19/32"	0.59380"	4 7/8"	8 3/4"	**75-391-3**	48.85
5/8"	0.62500"	4 7/8"	8 3/4"	**75-392-1**	49.90
21/32"	0.65630"	5 1/8"	9"	**75-393-9**	54.75
11/16"	0.68750"	5 3/8"	9 1/4"	**75-394-7**	58.10
23/32"	0.71880"	5 3/8"	9 1/4"	**75-395-4**	63.55
3/4"	0.75000"	5 7/8"	9 3/4"	**75-396-2**	66.85
25/32"	0.78130"	6"	9 7/8"	**75-397-0**	71.80
13/16"	0.81250"	6 1/8"	10"	**75-398-8**	81.75
27/32"	0.84380	6 1/8"	10"	**75-399-6**	$86.50
7/8"	0.87500	6 1/8"	10"	**75-400-2**	89.05
29/32"	0.90630	6 1/8"	10"	**75-401-0**	94.55
15/16"	0.93750	6 1/8"	10 3/4"	**75-402-8**	97.85
31/32"	0.96880	6 3/8"	11"	**75-403-6**	107.85
1"	1.00000	6 3/8"	11"	**75-404-4**	112.80
1 1/32"	1.03130	6 1/2"	11 1/8"	**75-405-1**	136.45
1 1/16"	1.06250	6 5/8"	11 1/4"	**75-406-9**	142.40
1 3/32"	1.09380	6 7/8"	11 1/2"	**75-407-7**	175.15
1 1/8"	1.12500	7 1/8"	11 3/4"	**75-408-5**	183.40
1 1/4"	1.25000	7 7/8"	12 1/2"	**75-409-3**	226.95

CUTTING TOOLS



SHOP GRADE

Fractional HSS Black Oxide 118° Taper Shank Drills

- Grade: general purpose.

Tool Material:

HSS

- Provides good wear resistance in mild steels, soft metals (aluminum, copper, brass, bronze) and nonferrous materials.

Coating Advantages:

Black Oxide

- Retains lubricants to aid in wear resistance and chip flow.

SIZE	DEC. EQUIV.	MORSE TAPER	FLUTE L	OAL	PART NUMBER	PRICE EACH
7/32	0.2188	1MT	2 1/4	5 7/16	**49-131-6**	$7.55
1/4	0.2500	1MT	2 1/2	5 11/16	**41-714-7**	7.70
17/64	0.2656	1MT	2 23/32	5 29/32	**41-715-4**	8.65
9/32	0.2812	1MT	2 23/32	5 29/32	**41-716-2**	8.30
19/64	0.2969	1MT	2 15/16	6 1/8	**41-717-0**	10.45
5/16	0.3125	1MT	2 15/16	6 1/8	**41-718-8**	8.15
21/64	0.3281	1MT	2 15/16	6 1/8	**41-719-6**	11.65
11/32	0.3438	1MT	3 3/16	6 3/8	**41-720-4**	12.25
23/64	0.3594	1MT	3 3/16	6 3/8	**41-721-2**	13.45
3/8	0.3750	1MT	3 7/16	6 3/8	**41-722-0**	13.55
3/8	0.3750	2MT	3 1/2	7 3/8	**41-735-2** *	13.25
25/64	0.3906	2MT	3 5/8	7 1/2	**41-736-0** *	14.15
13/32	0.4062	1MT	3 7/16	6 5/8	**41-724-6**	12.85
13/32	0.4062	2MT	3 5/8	7 1/2	**41-737-8** *	14.15
27/64	0.4219	1MT	3 11/16	6 7/8	**41-725-3**	14.90
27/64	0.4219	2MT	3 7/8	7 3/4	**41-738-6** *	14.50
7/16	0.4375	1MT	3 11/16	6 7/8	**41-726-1**	14.65
7/16	0.4375	2MT	3 7/8	7 3/4	**41-739-4** *	14.50
29/64	0.4531	1MT	3 11/16	6 7/8	**41-727-9**	16.20
29/64	0.4531	2MT	4 1/8	8	**41-740-2** *	20.45
15/32	0.4688	1MT	3 31/32	7 5/32	**41-728-7**	16.30
15/32	0.4688	2MT	4 1/8	8	**41-741-0** *	16.90
31/64	0.4844	1MT	3 31/32	7 5/32	**41-729-5** †	21.50
31/64	0.4844	2MT	4 3/8	8 1/4	**41-742-8**	16.65
1/2	0.5000	1MT	3 31/32	7 5/32	**41-730-3** †	18.75
1/2	0.5000	2MT	4 3/8	8 1/4	**41-743-6**	16.80
33/64	0.5156	1MT	3 31/32	7 5/32	**41-731-1** †	23.55
33/64	0.5156	2MT	4 5/8	8 1/2	**41-744-4**	18.35
17/32	0.5313	1MT	4 1/4	7 7/16	**41-732-9** †	21.50
17/32	0.5313	2MT	4 5/8	8 1/2	**41-745-1**	17.75
35/64	0.5469	1MT	4 1/4	7 7/16	**41-733-7** †	25.15
35/64	0.5469	2MT	4 7/8	8 3/4	**41-746-9**	19.55
9/16	0.5625	1MT	4 1/2	8 3/8	**41-734-5** †	23.60
9/16	0.5625	2MT	4 7/8	8 3/4	**41-747-7**	19.55
37/64	0.5781	2MT	4 1/2	8 3/8	**41-748-5**	21.30
19/32	0.5938	2MT	4 3/4	8 5/8	**41-749-3**	22.05
39/64	0.6094	2MT	4 3/4	8 5/8	**41-750-1**	22.05
5/8	0.6250	2MT	4 3/4	8 5/8	**41-751-9**	22.05
41/64	0.6406	2MT	4 7/8	8 3/4	**41-752-7**	22.80
41/64	0.6406	3MT	5 1/8	9 3/4	**41-771-7** *	19.05
21/32	0.6562	2MT	4 7/8	8 3/4	**41-753-5**	22.80
21/32	0.6562	3MT	5 1/8	9 3/4	**41-772-5** *	20.10
43/64	0.6719	2MT	5 1/8	9	**41-754-3**	23.15
43/64	0.6719	3MT	5 3/8	10	**41-773-3** *	23.90
11/16	0.6875	2MT	5 1/8	9	**41-755-0**	23.15
11/16	0.6875	3MT	5 3/8	10	**41-774-1** *	23.70
45/64	0.7031	2MT	5 1/8	9	**41-756-8**	30.65
45/64	0.7031	3MT	5 5/8	10 1/4	**41-775-8** *	24.00
23/32	0.7188	2MT	5 1/4	9 1/8	**41-757-6**	26.90
23/32	0.7188	3MT	5 5/8	10 1/4	**41-776-6** *	25.10
47/64	0.7344	2MT	5 1/4	9 1/8	**41-758-4**	31.75
47/64	0.7344	3MT	5 7/8	10 1/2	**41-777-4** *	26.90
3/4	0.7500	2MT	5 1/2	9 3/8	**41-759-2**	27.65
3/4	0.7500	3MT	5 7/8	10 1/2	**41-778-2** *	42.60
49/64	0.7656	2MT	5 1/2	9 3/8	**41-760-0**	36.95
49/64	0.7656	3MT	6	10 5/8	**41-779-0** *	30.95
25/32	0.7812	2MT	5 1/2	9 3/8	**41-761-8**	$33.30
25/32	0.7812	3MT	6	10 5/8	**41-780-8** *	32.70
51/64	0.7969	2MT	5 3/4	9 5/8	**41-762-6** †	45.90
51/64	0.7969	3MT	6 1/8	10 3/4	**41-781-6**	33.20
13/16	0.8125	2MT	5 3/4	9 5/8	**41-763-4** †	42.05
13/16	0.8125	3MT	6 1/8	10 3/4	**41-782-4**	33.85
53/64	0.8281	2MT	5 3/4	9 5/8	**41-764-2** †	48.90
53/64	0.8281	3MT	6 1/8	10 3/4	**41-783-2**	37.20
27/32	0.8438	2MT	5 7/8	9 3/4	**41-765-9** †	44.95
27/32	0.8438	3MT	6 1/8	10 3/4	**41-784-0**	37.65
55/64	0.8594	2MT	5 7/8	9 3/4	**41-766-7** †	50.95
55/64	0.8594	3MT	6 1/8	10 3/4	**41-785-7**	38.10
7/8	0.8750	2MT	5 7/8	9 3/4	**41-767-5** †	46.10
7/8	0.8750	3MT	6 1/8	10 3/4	**41-786-5**	38.15
57/64	0.8906	2MT	6 1/8	10	**41-768-3** †	52.55
57/64	0.8906	3MT	6 1/8	10 3/4	**41-787-3**	40.05
29/32	0.9375	2MT	6 1/8	10	**41-769-1** †	48.30
29/32	0.9375	3MT	6 1/8	10 3/4	**41-788-1**	39.90
59/64	0.9219	3MT	6 1/4	10 7/8	**41-789-9**	40.95
15/16	0.9375	2MT	6 1/8	10 1/4	**48-806-4**	30.80
15/16	0.9375	3MT	6 1/4	11	**41-790-7**	39.60
61/64	0.9531	3MT	6 1/4	11	**41-791-5**	45.35
31/32	0.9688	3MT	6 1/4	11	**41-792-3**	42.45
63/64	0.9844	3MT	6 1/2	11 1/4	**41-793-1**	43.20
1	1.0000	2MT	6 1/2	11 1/4	**41-770-9** †	33.60
1	1.0000	3MT	6 1/2	11 1/4	**41-794-9**	43.30
1	1.0000	4MT	6 3/8	12	**48-807-2**	47.00
1 1/64	1.0156	3MT	6 1/2	11 1/8	**41-795-6**	49.75
1 1/64	1.0156	4MT	6 1/2	12 1/8	**41-814-5** *	54.85
1 1/32	1.0312	3MT	6 1/2	11 1/4	**41-796-4**	50.25
1 1/32	1.0312	4MT	6 1/2	12 1/8	**41-815-2** *	74.90
1 3/64	1.0469	3MT	6 5/8	11 1/4	**41-797-2** †	54.50
1 3/64	1.0469	4MT	6	11	**41-816-0**	61.60
1 1/16	1.0625	3MT	6 5/8	11 3/8	**41-798-0**	50.70
1 1/16	1.0625	4MT	6 5/8	12 1/4	**41-817-8** *	61.05
1 5/64	1.0781	3MT	6 7/8	11 1/2	**41-799-8** †	81.35
1 5/64	1.0781	4MT	6 7/8	12 1/2	**41-818-6**	63.80
1 3/32	1.0938	3MT	6 5/8	11 3/8	**41-800-4** †	72.25
1 3/32	1.0938	4MT	6 7/8	12 1/2	**41-819-4**	63.70
1 7/64	1.1094	3MT	7 1/8	11 3/4	**41-801-2** †	82.55
1 7/64	1.1094	4MT	7 1/8	12 3/4	**41-820-2**	67.05
1 1/8	1.1250	3MT	6 7/8	11 5/8	**41-802-0** †	76.15
1 1/8	1.1250	4MT	7 1/8	12 3/4	**41-821-0**	62.30
1 9/64	1.1406	3MT	7 1/4	11 7/8	**41-803-8** †	87.70
1 9/64	1.1406	4MT	7 1/4	12 7/8	**41-822-8**	69.30
1 5/32	1.1562	3MT	7 1/4	11 5/8	**41-804-6** †	82.95
1 5/32	1.1562	4MT	7 1/4	12 7/8	**41-823-6**	66.60
1 11/64	1.1719	3MT	7 3/8	12	**41-805-3** †	89.90
1 11/64	1.1719	4MT	7 3/8	13	**41-824-4**	71.55
1 3/16	1.1875	3MT	7 1/8	11 7/8	**41-806-1** †	84.60
1 3/16	1.1875	4MT	7 3/8	13	**41-825-1**	67.80
1 13/64	1.2031	3MT	7 1/2	12 1/8	**41-807-9** †	96.45
1 13/64	1.2031	4MT	7 1/2	13 1/8	**41-826-9**	77.00
1 7/32	1.2188	3MT	7 1/2	11 7/8	**41-808-7** †	90.20
1 7/32	1.2188	4MT	7 1/2	13 1/8	**41-827-7**	76.50
1 15/64	1.2344	3MT	7 7/8	12 1/2	**41-809-5** †	105.15
1 15/64	1.2344	4MT	7 7/8	13 1/2	**41-828-5**	85.00
1 1/4	1.2500	3MT	7 1/4	12	**41-810-3** †	99.00
1 1/4	1.2500	4MT	7 7/8	13 1/2	**41-829-3**	73.75
1 17/64	1.2656	4MT	8 1/2	14 1/8	**41-830-1**	95.15
1 9/32	1.2812	4MT	8 1/2	13 1/8	**41-831-9**	97.45
1 19/64	1.2969	4MT	8 5/8	14 1/4	**41-832-7**	100.80
1 5/16	1.3125	3MT	8	13	**41-811-1** †	87.70
1 5/16	1.3125	4MT	7 1/4	13 1/8	**41-833-5**	100.85
1 21/64	1.3281	4MT	8 3/4	14 3/8	**41-834-3**	105.40
1 11/32	1.3438	4MT	7 1/2	13 3/8	**41-835-0**	106.10
1 23/64	1.3594	4MT	8 7/8	14 1/2	**41-836-8**	108.80
1 3/8	1.3750	3MT	6 1/2	11 3/4	**41-812-9** †	87.50

† Shank is smaller than standard, * Shank is larger than standard.

Continued on next page



SHOP GRADE
Fractional
HSS Black Oxide
118° Taper Shank Drills (cont.)

SIZE	DEC. EQUIV.	MORSE TAPER	FLUTE L	OAL	PART NUMBER	PRICE EACH
1 3/8"	1.3750"	4MT	7 1/2"	13 3/28"	**41-837-6**	$108.70
1 25/64"	1.3906"	4MT	9"	14 5/8"	**41-838-4**	113.85
1 13/32"	1.4062"	4MT	7 5/8"	13 1/2"	**41-839-2**	115.60
1 27/64"	1.4219"	4MT	9 1/8"	14 3/4"	**41-840-0**	116.70
1 7/16"	1.4375"	3MT	6 1/2"	11 3/4"	**41-813-7** †	100.45
1 7/16"	1.4375"	4MT	7 5/8"	13 1/2"	**41-841-8**	115.60
1 29/64"	1.4531"	4MT	9 1/4"	14 7/8"	**41-842-6**	121.80
1 15/32"	1.4688"	4MT	7 5/8"	13 1/2"	**41-843-4**	119.65
1 31/64"	1.4844"	4MT	9 3/8"	15"	**41-844-2**	124.65
1 1/2"	1.5000"	3MT	9 3/8"	14 3/8"	**48-808-0**	109.20
1 1/2"	1.5000"	4MT	7 7/8"	15"	**41-845-9**	118.55
1 33/64"	1.5156"	4MT	9 3/8"	15"	**41-846-7** †	188.80
1 33/64"	1.5156"	5MT	9 3/8"	16 3/8"	**41-872-3**	128.10
1 17/32"	1.5313"	4MT	7 7/8"	13 3/4"	**41-847-5** †	186.60
1 17/32"	1.5313"	5MT	9 3/8"	16 3/8"	**41-873-1**	144.45
1 35/64"	1.5469"	4MT	9 5/8"	15 1/4"	**41-848-3** †	200.80
1 35/64"	1.5469"	5MT	9 5/8"	16 5/8"	**41-874-9**	185.00
1 9/16"	1.5625"	4MT	7 7/8"	13 3/4"	**41-849-1** †	179.70
1 9/16"	1.5626"	5MT	9 5/8"	16 5/8"	**41-875-6**	149.45
1 37/64"	1.5781"	4MT	9 7/8"	15 1/2"	**41-850-9** †	213.40
1 37/64"	1.5781"	5MT	9 7/8"	16 7/8"	**41-876-4**	210.25
1 19/32"	1.5938"	4MT	8 1/8"	14"	**41-851-7** †	213.40
1 19/32"	1.5938"	5MT	9 7/8"	16 7/8"	**41-877-2**	161.45
1 39/64"	1.6094"	4MT	10"	15 5/8"	**41-852-5** †	221.60
1 39/64"	1.6094"	5MT	10"	17"	**41-878-0**	203.15
1 5/8"	1.6250"	4MT	8 1/8"	14"	**41-853-3** †	196.45
1 5/8"	1.6250"	5MT	10"	17"	**41-879-8**	156.35
1 41/64"	1.6406"	4MT	10 1/8"	15 3/4"	**41-854-1** †	238.90
1 41/64"	1.6406"	5MT	10 1/8"	17 1/8"	**41-880-6**	213.75
1 21/32"	1.6562"	4MT	8 1/8"	14"	**41-855-8** †	237.85
1 21/32"	1.6562"	5MT	10 1/8"	17 1/8"	**41-881-4**	178.45
1 43/64"	1.6719"	4MT	10 1/8"	15 3/4"	**41-856-6** †	248.00
1 43/64"	1.6719"	5MT	10 1/8"	17 1/8"	**41-882-2**	224.60
1 11/16"	1.6875"	4MT	8 1/4"	14 1/8"	**41-857-4** †	244.70
1 11/16"	1.6875"	5MT	10 1/8"	17 1/8"	**41-883-0**	180.50
1 45/64"	1.7031"	4MT	10 1/8"	15 3/4"	**41-858-2** †	255.45
1 45/64"	1.7031"	5MT	10 1/8"	17 1/8"	**41-884-8**	229.90
1 23/32"	1.7188"	4MT	8 1/4"	16 3/8"	**41-859-0** †	243.50
1 23/32"	1.7188"	5MT	10 1/8"	17 1/8"	**41-885-5**	192.60
1 47/64"	1.7344"	4MT	10 3/8"	16 1/4"	**41-860-8** †	253.30
1 47/64"	1.7344"	5MT	10 1/8"	17 1/8"	**41-886-3**	224.60
1 3/4"	1.7500"	4MT	10 3/8"	16 1/4"	**41-861-6** †	222.05
1 3/4"	1.7500"	5MT	10 1/8"	17 1/8"	**41-887-1**	194.60
1 49/64"	1.7656"	4MT	10 3/8"	16 1/4"	**48-809-8**	223.60
1 49/64"	1.7656"	5MT	10 1/8"	17 1/8"	**41-888-9**	233.25
1 25/32"	1.7812"	4MT	8 1/2"	14 3/8"	**41-862-4** †	261.45
1 25/32"	1.7812"	5MT	10 1/8"	17 1/8"	**41-889-7**	203.90
1 51/64"	1.7969"	5MT	10 3/8"	16 1/4"	**41-890-5**	209.65
1 13/16"	1.8125"	4MT	8 1/2"	14 3/8"	**41-863-2** †	261.85
1 13/16"	1.8125"	5MT	10 1/8"	17 1/8"	**41-891-3**	205.85
1 53/64"	1.8281"	4MT	7 1/2"	14 1/2"	**41-864-0** †	235.85
1 53/64"	1.8281"	5MT	10 1/8"	17 1/8"	**41-892-1**	235.85
1 27/32"	1.8436"	4MT	8 1/2"	14 3/8"	**41-865-7** †	271.40
1 27/32"	1.8436"	5MT	10 1/8"	17 1/8"	**41-893-9**	215.25
1 55/64"	1.8594"	5MT	10 1/2"	16 1/2"	**41-894-7**	236.65
1 7/8"	1.8750"	4MT	8 5/8"	14 1/2"	**41-866-5** †	282.70
1 7/8"	1.8750"	5MT	10 3/8"	17 3/8"	**41-895-4**	217.15
1 57/64"	1.8906"	4MT	8"	14 1/4"	**41-867-3** †	247.05
1 57/64"	1.8906"	5MT	10 3/8"	17 3/8"	**41-896-2**	$247.25
1 29/32"	1.9062"	4MT	8 5/8"	14 1/2"	**41-868-1** †	291.70
1 29/32"	1.9062"	5MT	10 3/8"	17 3/8"	**41-897-0**	229.45
1 59/64"	1.9219"	4MT	10 1/2"	16 1/2"	**48-810-6**	239.35
1 59/64"	1.9219"	5MT	10 3/8"	17 3/8"	**41-898-8**	255.60
1 15/16"	1.9375"	4MT	8 5/8"	14 1/2"	**41-869-9** †	296.00
1 15/16"	1.9375"	5MT	10 3/8"	17 3/8"	**41-899-6**	232.25
1 61/64"	1.9531"	5MT	10 3/8"	17 3/8"	**41-900-2**	261.20
1 31/32"	1.9688"	4MT	8 7/8"	14 3/4"	**41-870-7** †	305.10
1 31/32"	1.9688"	5MT	10 3/8"	17 3/8"	**41-901-0**	237.90
1 63/64"	1.9844"	5MT	10 3/8"	17 3/8"	**41-902-8**	263.80
2"	2.0000"	4MT	11"	17"	**41-871-5** †	308.85
2"	2.0000"	5MT	10 3/8"	17 3/8"	**41-903-6**	229.15
2 1/64"	2.0156"	5MT	8"	15 3/4"	**41-904-4**	241.30
2 1/32"	2.0312"	5MT	10 3/8"	17 3/8"	**41-905-1**	279.00
2 1/16"	2.0625"	5MT	8 7/8"	16 1/4"	**41-907-7**	247.25
2 3/32"	2.0938"	5MT	10 1/4"	17 3/8"	**41-909-3**	297.45
2 1/8"	2.1250"	5MT	9"	16 3/8"	**41-911-9**	261.60
2 5/32"	2.1562"	5MT	9"	16 3/8"	**41-913-5**	317.20
2 11/64"	2.1719"	5MT	10 1/4"	17 3/8"	**41-914-3**	317.75
2 3/16"	2.1875"	5MT	9"	16 3/8"	**41-915-0**	322.75
2 13/64"	2.2031"	5MT	10 1/8"	17 3/8"	**41-916-8**	333.40
2 7/32"	2.2188"	5MT	9 1/4"	16 5/8"	**41-917-6**	326.85
2 1/4"	2.2500"	4MT	10 1/8"	16 5/8"	**41-919-2**	296.35
2 1/4"	2.2500"	5MT	9 1/4"	16 5/8"	**48-811-4**	287.20
2 9/32"	2.2812"	5MT	10 3/8"	17 1/2"	**41-920-0**	379.05
2 5/16"	2.3125"	4MT	10 1/8"	16 5/8"	**48-812-2**	290.15
2 5/16"	2.3125"	5MT	9 1/4"	16 5/8"	**41-921-8**	359.70
2 11/32"	2.3438"	5MT	10 5/8"	18"	**41-922-6**	394.60
2 3/8"	2.3750"	4MT	10 1/8"	16 5/8"	**48-813-0**	314.05
2 3/8"	2.3750"	5MT	9 1/2	16 7/8"	**41-923-4**	328.80
2 13/32"	2.4062"	5MT	11 1/8	18 1/2"	**41-924-2**	497.65
2 7/16"	2.4375"	5MT	9 1/2"	16 7/8"	**41-925-9**	472.15
2 15/32"	2.4688"	5MT	11 5/8"	19"	**41-926-7**	524.15
2 1/2"	2.5000"	4MT	11 1/4"	17 3/8"	**48-814-8**	399.95
2 1/2"	2.5000"	5MT	9 5/8"	17"	**41-927-5**	428.65
2 17/32"	2.5313"	5MT	11 7/8"	19 1/4"	**41-928-3**	592.25
2 9/16"	2.5625"	5MT	11 7/8"	19 1/2"	**41-929-1**	532.25
2 19/32"	2.5938"	5MT	12"	19 1/2"	**41-930-9**	446.45
2 5/8"	2.6250"	5MT	9 5/8"	17"	**41-931-7**	502.05
2 21/32"	2.6562"	5MT	12 1/2"	20"	**41-932-5**	548.70
2 11/16"	2.6875"	5MT	12 3/4"	20 1/8"	**41-933-3**	613.80
2 23/32"	2.7188"	5MT	13"	20 1/2"	**41-934-1**	690.75
2 3/4"	2.7500"	5MT	9 7/8"	17 1/4"	**41-935-8**	558.70
2 13/16"	2.8125"	5MT	13 3/8"	21 1/8"	**41-937-4**	691.05
2 27/32"	2.8436"	5MT	13 1/2"	21"	**41-938-2**	794.90
2 7/8"	2.8750"	5MT	10"	17 3/8"	**41-939-0**	641.75
2 15/16"	2.9375"	5MT	14"	21 3/4"	**41-943-2**	768.40
2 31/32"	2.9688"	5MT	14 1/2"	22"	**41-944-0**	602.95
3"	3.0000"	5MT	10 1/4"	17 5/8"	**41-945-7**	789.85
3 1/16"	3.0625"	5MT	14 1/8"	22"	**41-946-5**	922.95
3 1/8"	3.1250"	6MT	15"	24"	**41-959-8**	977.70
3 1/4"	3.2500"	5MT	15 1/4"	23"	**41-949-9**	856.00
3 1/4"	3.2500"	6MT	16"	26"	**41-961-4** *	742.80
3 3/8"	3.3750"	5MT	15 1/4"	23"	**41-951-5**	1,126.75
3 7/16"	3.4375"	5MT	15 1/4"	23"	**41-952-3**	1,137.55
3 1/2"	3.5000"	5MT	16 1/4"	25 1/2"	**41-953-1** *	1,312.55
3 7/8"	3.8750"	5MT	16 1/4"	25 7/8"	**41-956-4** †	1,270.85

† Shank is smaller than standard, * Shank is larger than standard.

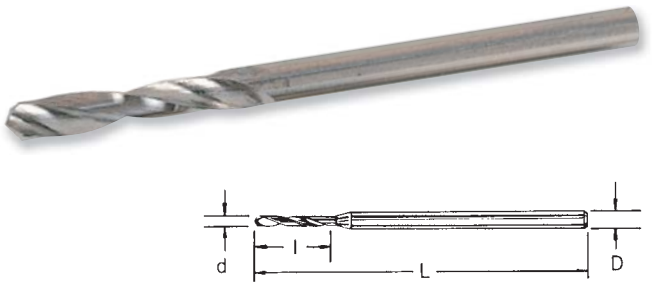
CUTTING TOOLS



SHOP GRADE
HSS 118°
Extra Long Straight Shank Drills

Fractional Sizes

SIZE	OAL	FLUTE L	PART NUMBER	PRICE EACH	SIZE	OAL	FLUTE L	PART NUMBER	PRICE EACH
1/8"	8"	5"	41-967-1	$11.30	1/4"	12"	9"	42-025-7	$18.30
9/64"	8"	5"	41-968-9	12.80	17/64"	12"	9"	42-026-5	20.30
5/32"	8"	5"	41-969-7	12.80	9/32"	12"	9"	42-027-3	18.95
11/64"	8"	5"	41-970-5	13.25	19/64"	12"	9"	42-028-1	21.20
3/16"	8"	5"	41-971-3	12.50	5/16"	12"	9"	42-029-9	19.75
13/64"	8"	5"	41-972-1	14.30	21/64"	12"	9"	42-030-7	20.85
7/32"	8"	5"	41-973-9	13.35	11/32"	12"	9"	42-031-5	20.10
15/64"	8"	5"	41-974-7	15.05	23/64"	12"	9"	42-032-3	22.10
1/4"	8"	5"	41-975-4	13.90	3/8"	12"	9"	42-033-1	20.70
17/64"	8"	5"	41-976-2	15.05	25/64"	12"	9"	42-034-9	23.15
9/32"	8"	5"	41-977-0	14.45	13/32"	12"	9"	42-035-6	23.15
19/64"	8"	5"	41-978-8	15.55	27/64"	12"	9"	42-036-4	24.50
5/16"	8"	5"	41-979-6	15.40	7/16"	12"	9"	42-037-2	25.70
21/64"	8"	5"	41-980-4	16.65	15/32"	12"	9"	42-039-8	28.45
11/32"	8"	5"	41-981-2	15.90	31/64"	12"	9"	42-040-6	31.15
23/64"	8"	5"	41-982-0	18.60	1/2"	12"	9"	42-041-4	28.85
3/8"	8"	5"	41-983-8	17.65	17/32"	12"	9"	42-042-2	35.60
25/64"	8"	5"	41-984-6	19.55	9/16"	12"	9"	42-043-0	37.90
13/32"	8"	5"	41-985-3	18.75	19/32"	12"	9"	42-044-8	40.85
27/64"	8"	5"	41-986-1	20.85	5/8"	12"	9"	42-045-5	42.45
7/16"	8"	5"	41-987-9	20.65	21/32"	12"	9"	42-046-3	46.15
29/64"	8"	5"	41-988-7	23.55	11/16"	12"	9"	42-047-1	49.45
15/32"	8"	5"	41-989-5	23.35	23/32"	12"	9"	42-048-9	53.85
31/64"	8"	5"	41-990-3	23.45	3/4"	12"	9"	42-049-7	56.85
1/2"	8"	5"	41-991-1	23.45	3/16"	18"	13"	42-050-5	34.60
1/8"	10"	7"	41-992-9	14.75	13/64"	18"	13"	42-051-3	36.65
9/64"	10"	7"	41-993-7	16.15	7/32"	18"	13"	42-052-1	38.60
5/32"	10"	7"	41-994-5	15.85	1/4"	18"	13"	42-054-7	35.10
11/64"	10"	7"	41-995-2	16.90	9/32"	18"	13"	42-056-2	38.75
3/16"	10"	7"	41-996-0	16.60	19/64"	18"	13"	42-057-0	42.80
13/64"	10"	7"	41-997-8	18.10	5/16"	18"	13"	42-058-8	36.30
7/32"	10"	7"	41-998-6	17.80	11/32"	18"	13"	42-060-4	39.90
15/64"	10"	7"	41-999-4	18.10	23/64"	18"	13"	42-061-2	44.05
1/4"	10"	7"	42-000-0	18.30	3/8"	18"	13"	42-062-0	37.35
17/64"	10"	7"	42-001-8	19.50	25/64"	18"	13"	42-063-8	47.75
9/32"	10"	7"	42-002-6	19.20	13/32"	18"	13"	42-064-6	40.20
19/64"	10"	7"	42-003-4	19.85	27/64"	18"	13"	42-065-3	51.00
5/16"	10"	7"	42-004-2	19.50	7/16"	18"	13"	42-066-1	39.50
21/64"	10"	7"	42-005-9	21.15	15/32"	18"	13"	42-068-7	54.35
11/32"	10"	7"	42-006-7	20.95	1/2"	18"	13"	42-070-3	55.80
23/64"	10"	7"	42-007-5	21.75	33/64"	18"	13"	42-071-1	67.40
3/8"	10"	7"	42-008-3	21.75	9/16"	18"	13"	42-074-5	69.35
25/64"	10"	7"	42-009-1	23.75	19/32"	18"	13"	42-076-0	72.10
13/32"	10"	7"	42-010-9	23.55	5/8"	18"	13"	42-078-6	75.75
27/64"	10"	7"	42-011-7	24.50	41/64"	18"	13"	42-079-4	90.20
7/16"	10"	7"	42-012-5	24.80	21/32"	18"	13"	42-080-2	88.95
29/64"	10"	7"	42-013-3	28.60	43/64"	18"	13"	42-081-0	91.45
15/32"	10"	7"	42-014-1	27.65	11/16"	18"	13"	42-082-8	88.95
31/64"	10"	7"	42-015-8	27.40	45/64"	18"	13"	42-083-6	105.65
1/2	10	7	42-016-6	27.40	3/4"	18"	13"	42-086-9	103.90
1/8"	12"	9"	42-017-4	14.45	49/64"	18"	13"	42-087-7	124.65
9/64"	12"	9"	42-018-2	16.85	25/32"	18"	13"	42-088-5	115.90
5/32"	12"	9"	42-019-0	16.85	13/16"	18"	13"	42-090-1	120.35
11/64"	12"	9"	42-020-8	17.70	27/32"	18"	13"	42-092-7	124.20
3/16"	12"	9"	42-021-6	16.40	7/8"	18"	13"	42-094-3	124.20
13/64"	12"	9"	42-022-4	18.80	15/16"	18"	13"	42-098-4	130.40
7/32"	12"	9"	42-023-2	18.80	1"	18"	13"	42-102-4	138.50
15/64"	12"	9"	42-024-0	18.80	–	–	–	–	–



COBALT HSS

Helix Angle 20°, Point Angle 118°
2 Facet Point

CARBIDE

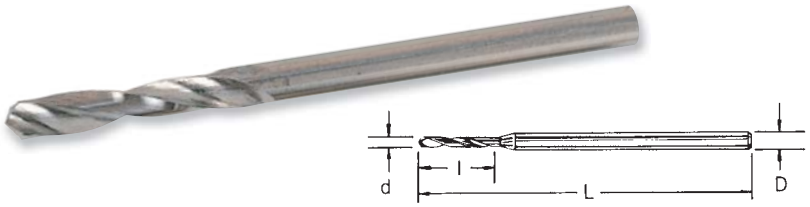
Helix Angle 30°, Point Angle 130°
4 Facet Point (secondary relief)

SPHINX®
Drills SPIREC Micro Drills
Cobalt HSS & Carbide

- Available in COBALT High Speed Steel as well as in MICRO GRAIN Carbide.
- 2 spiral flutes, right hand cut.
- Accuracy +0.0000 -0.00015".

Packaged and sold in quantities of 10 pcs. per size.

DRILL SIZE (d) MM	INCHES	SHANK DIA. (D) MM	INCHES	OVERALL LENGTH (L)	FLUTE LENGTH (l)	COBALT HSS PART NO.	EACH DRILL	CARBIDE PART NO.	EACH DRILL
0.10	0.0039					–		81-880-7	
0.11	0.0043	1.0	0.039	0.984"	00.020"	81-681-9	$13.35	81-881-5	$27.45
0.12	0.0047					81-682-7		81-882-3	
0.13	0.0051					81-683-5		81-883-1	
0.14	0.0055	1.0	0.039	0.984"	0.031"	81-684-3	13.35	81-884-9	27.45
0.15	0.0059					–		81-885-6	
0.16	0.0063					81-686-8		81-886-4	
0.17	0.0067	1.0	0.039	0.984"	0.043"	81-687-6	13.35	81-887-2	27.45
0.18	0.0071					81-688-4		81-888-0	
0.19	0.0075					81-689-2		81-889-8	
0.20	0.0079					–		81-890-6	
0.21	0.0083					–		81-891-4	
0.22	0.0087	1.0	0.039	0.984"	0.059"	81-692-6	9.80	81-892-2	22.25
0.23	0.0091					81-693-4		81-893-0	
0.24	0.0095					81-694-2		81-894-8	
0.25	0.0098					81-695-9		81-895-5	
0.26	0.0102					81-696-7		81-896-3	
0.27	0.0106					81-697-5		81-897-1	
0.28	0.0110	1.0	0.039"	0.984"	0.075"	81-698-3	9.80	81-898-9	22.25
0.29	0.0114					81-699-1		81-899-7	
0.30	0.0118					81-700-7		81-900-3	
0.31	0.0122					81-701-5		81-901-1	
0.32	0.0126					–		81-902-9	
0.33	0.0130					81-703-1		81-903-7	
0.34	0.0134					81-704-9		81-904-5	
0.35	0.0138	1.0	0.039	0.984"	0.095"	81-705-6	9.80	81-905-2	18.55
0.36	0.0142					81-706-4		81-906-0	
0.37	0.0146					81-707-2		81-907-8	
0.38	0.0150					81-708-0		81-908-6	
0.39	0.0154					81-709-8		81-909-4	
0.40	0.0157					81-711-4		81-911-0	
0.41	0.0161					81-712-2		81-912-8	
0.42	0.0165					81-713-0		81-913-6	
0.43	0.0169					81-714-8		81-914-4	
0.44	0.0173	1.0	0.039	0.984"	0.118"	81-715-5	9.80	81-915-1	18.55
0.45	0.0177					81-716-3		81-916-9	
0.46	0.0181					81-717-1		81-917-7	
0.47	0.0185					81-718-9		–	
0.48	0.0189					81-719-7		81-919-3	
0.49	0.0193	1.0	0.039	0.984"	0.134"	81-720-5	9.80	81-920-1	18.55
0.50	0.0197					81-721-3		81-921-9	



COBALT HSS

Helix Angle 20°, Point Angle 118°
2 Facet Point

CARBIDE

Helix Angle 30°, Point Angle 130°
4 Facet Point (secondary relief)

SPHINX®

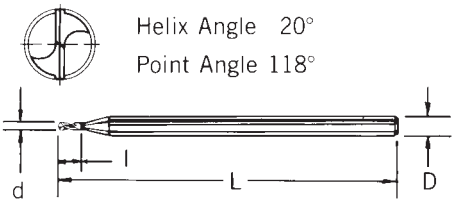
Drills SPIREC Micro Drills (cont.)

Cobalt HSS & Carbide

- Available in COBALT High Speed Steel as well as in MICRO GRAIN Carbide.
- 2 spiral flutes, right hand cut.
- Accuracy +0.0000 -0.00015".

Packaged and sold in quantities of 10 pcs. per size.

DRILL SIZE (d) MM	DRILL SIZE (d) INCHES	SHANK DIA. (D) MM	SHANK DIA. (D) INCHES	OVERALL LENGTH (L)	FLUTE LENGTH (l)	COBALT HSS PART NO.	EACH DRILL	CARBIDE PART NO.	EACH DRILL
0.51	0.0201					81-722-1		81-922-7	
0.52	0.0205	1.0	0.039	0.984"	0.134"	81-723-9	$9.80	81-923-5	$18.55
0.53	0.0209					81-724-7		81-924-3	
0.54	0.0213					81-725-4		81-925-0	
0.55	0.0217					81-726-2		—	
0.56	0.0221					81-727-0		81-927-6	
0.57	0.0224	1.0	0.039	0.984"	0.154"	81-728-8	9.80	81-928-4	18.55
0.58	0.0228					81-729-6		81-929-2	
0.59	0.0232					81-730-4		81-930-0	
0.60	0.0236					81-731-2		81-931-8	
0.61	0.0240					81-732-0		81-932-6	
0.62	0.0244					81-733-8		81-933-4	
0.63	0.0248					81-734-6		81-934-2	
0.64	0.0252	1.0	0.039	0.984"	0.165"	81-735-3	9.80	81-935-9	18.55
0.65	0.0256					81-736-1		81-936-7	
0.66	0.0260					81-737-9		81-937-5	
0.67	0.0264					81-738-7		81-938-3	
0.68	0.0268					81-739-5		81-939-1	
0.69	0.0272					81-740-3		81-940-9	
0.70	0.0276					81-741-1		81-941-7	
0.71	0.0280	1.0	0.039	0.984"	0.188"	81-742-9	9.80	81-942-5	18.55
0.72	0.0283					81-743-7		81-943-3	
0.73	0.0287					81-744-5		81-944-1	
0.74	0.0291					81-745-2		81-945-8	
0.75	0.0295					81-746-0		81-946-6	
0.76	0.0299					81-747-8		81-947-4	
0.77	0.0303	1.0	0.039	0.984"	0.209"	81-748-6	9.80	81-948-2	18.55
0.78	0.0307					81-749-4		81-949-0	
0.79	0.0311					81-750-2		81-950-8	
0.80	0.0315					81-752-8		81-952-4	
0.81	0.0319					81-753-6		81-953-2	
0.82	0.0323	1.5	0.059	0.984"	0.209"	81-754-4	9.80	81-954-0	18.55
0.83	0.0327					81-755-1		81-955-7	
0.84	0.0331					81-756-9		81-956-5	
0.85	0.0335					81-757-7		81-957-3	
0.86	0.0339					81-758-5		81-958-1	
0.87	0.0343					81-759-3		81-959-9	
0.88	0.0346					81-760-1		81-960-7	
0.89	0.0350					81-761-9		81-961-5	
0.90	0.0354	1.5	0.059	0.984"	0.236"	81-762-7	9.80	81-962-3	18.55
0.91	0.0358					81-763-5		81-963-1	
0.92	0.0362					81-764-3		81-964-9	
0.93	0.0366					81-765-0		81-965-6	
0.94	0.0370					81-766-8		81-966-4	
0.95	0.0374					81-767-6		81-967-2	
0.96	0.0378					81-768-4		81-968-0	
0.97	0.0382					81-769-2		81-969-8	
0.98	0.0386	1.5	0.059	0.984"	0.268"	81-770-0	9.80	81-970-6	18.55
0.99	0.0390					81-771-8		81-971-4	
1.00	0.0394					81-772-6		81-972-2	
1.05	0.0413					81-773-4		81-973-0	
1.10	0.0433	1.5	0.059	0.984"	0.299"	81-774-2	9.80	81-974-8	18.55
1.15	0.0453					81-775-9		81-975-5	
1.20	0.0472					81-777-5		81-977-1	
1.25	0.0492	1.5	0.059	0.984"	0.335"	81-778-3	9.80	81-978-9	18.55
1.30	0.0512					81-779-1		81-979-7	
1.35	0.0531					81-780-9		81-980-5	
1.40	0.0551	1.5	0.059	0.984"	0.374"	81-781-7	9.80	81-981-3	18.55
1.45	0.0571					81-782-5		81-982-1	



SPHINX®

Drills SPIREC Micro Center Drills

Cobalt HSS

- Up to size 0.35 mm center drills have straight flutes. All larger sizes feature 2 spiral flutes, right hand cut. 4-facet point (secondary relief).
- Thick shank combined with extra short flute length provides maximum stability for center drilling and drilling tough materials.
- Accuracy: ±0.0002".

Packaged and sold in quantities of 10 pcs. per size.

DRILL SIZE (d) MM	DRILL SIZE (d) INCHES	SHANK DIA. (D) MM	SHANK DIA. (D) INCHES	OVERALL LENGTH (L)	FLUTE LENGTH (l)	PART NUMBER	EACH DRILL
0.10	0.0039	1.5	0.059	0.984"	0.016"	81-240-4	$12.70
0.15	0.0059					81-241-2	10.90
0.20	0.0079	1.5	0.059	0.984"	0.024"	81-242-0	9.70
0.25	0.0098					81-243-8	8.95
0.35	0.0138	1.5	0.059	0.984"	0.035"	81-245-3	8.15
0.40	0.0158	1.5	0.059	0.984"	0.039"	81-247-9	7.80
0.45	0.0177					81-248-7	
0.50	0.0197	1.5	0.059	0.984"	0.047"	81-249-5	7.80
0.55	0.0217					81-250-3	
0.60	0.0236	1.5	0.059	0.984"	0.055"	81-251-1	7.80
0.65	0.0256					81-252-9	
0.70	0.0276					81-253-7	
0.75	0.0295					81-254-5	
0.80	0.0315	1.5	0.059	0.984"	0.067"	81-256-0	7.80
0.85	0.0335					81-257-8	
0.90	0.0354					81-258-6	
0.95	0.0374	1.5	0.059	0.984"	0.071"	81-259-4	7.80
1.00	0.0394					81-260-2	
1.05	0.0413	1.5	0.059	0.984"	0.079"	81-261-0	7.80
1.10	0.0433					81-262-8	
1.15	0.0453	1.5	0.059	0.984"	0.090"	81-263-6	7.80
1.20	0.0472					81-265-1	
1.25	0.0492					81-266-9	
1.30	0.0512					81-267-7	
1.35	0.0531	1.5	0.059	0.984"	0.106"	81-268-5	7.80
1.40	0.0551					81-269-3	
1.45	0.0571					81-270-1	
1.50	0.0591	1.5	0.059	0.984"	0.118"	81-271-9	7.80


52-511-3

Jupiter Pneumatics
universal air solutions

½" Pneumatic Reactionless Ratchet Wrench

See Pg. 378

CUTTING TOOLS





Helix Angle 20°
Point Angle 118°



SPHINX®
Drills SPIREC Micro Drills
Cobalt HSS

- Cobalt High Speed Steel.
- 2 spiral flutes, right hand cut.
- Accuracy: ±0.0002".

Packaged and sold in quantities of 10 pcs. per size.

DRILL SIZE (D) MM	DRILL SIZE (D) INCHES	FRACTIONS	SHANK DIA. (D) MM	SHANK DIA. (D) INCHES	OVERALL LENGTH (L)	FLUTE LENGTH (l)	PART NUMBER	EACH DRILL
1.50	0.0591		2.0	0.079	1.496"	0.441"	**81-550-6**	$7.80
1.55	0.0610						**81-551-4**	
1.5875	0.0625	1/16					**81-552-2**	
1.60	0.0630						**81-553-0**	
1.65	0.0650						**81-554-8**	
1.70	0.0669		2.0	0.079	1.496"	0.453"	**81-555-5**	8.60
1.75	0.0689						**81-556-3**	
1.80	0.0709						**81-557-1**	
1.85	0.0728						**81-558-9**	
1.90	0.0748						**81-559-7**	
1.95	0.0768		2.0	0.079	1.496"	0.472"	**81-560-5**	8.60
1.9844	0.0781	5/64					**81-561-3**	7.80
2.00	0.0787						**81-562-1**	
2.05	0.0807		2.5	0.098	1.693"	0.512"	**81-563-9**	8.15
2.10	0.0827						**81-564-7**	
2.15	0.0846						**81-565-4**	
2.20	0.0866						**81-566-2**	
2.25	0.0886						**81-567-0**	
2.30	0.0906		2.5	0.098	1.693"	0.551"	**81-568-8**	8.15
2.35	0.0925						**81-569-6**	
2.3812	0.0938	3/32					**81-570-4**	8.15
2.40	0.0945		2.5	0.098	1.693"	0.590"	**81-571-2**	8.15
2.45	0.0965						**81-572-0**	
2.50	0.0984		3.0	0.118	1.811"	0.590"	**81-573-8**	8.15
2.55	0.1004						**81-574-6**	8.95
2.60	0.1024		3.0	0.118	1.811"	0.630"	**81-575-3**	8.95
2.65	0.1043						**81-576-1**	
2.70	0.1063		3.0	0.118	1.811"	0.669"	**81-577-9**	8.95
2.75	0.1083						**81-578-7**	
2.7781	0.1094	7/64	3.0	0.118	1.811"	0.708"	**81-579-5**	8.95
2.80	0.1102						**81-580-3**	
2.85	0.1122						**81-581-1**	
2.90	0.1142		3.0	0.118	1.811"	0.748"	**81-582-9**	8.95
2.95	0.1161		3.0				**81-583-7**	
3.00	0.1181		3.0	0.118	1.811"	0.787"	**81-584-5**	8.95
3.175	0.125	1/8	3.175				**81-585-2**	

SIZE	DEC. EQUIV.	OAL	PART NUMBER	PRICE EACH
1/64"	0.0156"	3/4"	**70-445-2**	$1.60
1/32"	0.0312"	1 3/8"	**70-446-0**	1.90
3/64"	0.0469"	1 3/4"	**70-447-8**	1.90
1/16"	0.0625"	1 7/8"	**70-448-6**	2.40
5/64"	0.0781"	2"	**70-449-4**	2.50
3/32"	0.0938"	2 1/4"	**70-450-2**	2.50
7/64"	0.1094"	2 5/8"	**70-451-0**	2.50
1/8"	0.1250"	2 3/4"	**70-452-8**	2.50
9/64"	0.1406"	2 7/8"	**70-453-6**	2.50
5/32"	0.1562"	3 1/8"	**70-454-4**	2.85
11/64"	0.1719"	3 1/4"	**70-455-1**	2.85
3/16"	0.1875"	3 1/2"	**70-456-9**	3.25
13/64"	0.2031"	3 5/8"	**70-457-7**	4.25
7/32"	0.2188"	3 3/4"	**70-458-5**	4.25
15/64"	0.2344"	3 7/8"	**70-459-3**	4.70
1/4"	0.2500"	4"	**70-460-1**	5.25
17/64"	0.2656"	4 1/8"	**70-461-9**	5.45
9/32"	0.2812"	4 1/4"	**70-462-7**	5.90
19/64"	0.2969"	4 3/8"	**70-463-5**	6.60
5/16"	0.3125"	4 1/2"	**70-464-3**	6.80
21/64"	0.3281"	4 5/8"	**70-465-0**	7.65
11/32"	0.3438"	4 3/4"	**70-466-8**	8.15
23/64"	0.3594"	4 7/8"	**70-467-6**	9.35
3/8"	0.3750"	5"	**70-468-4**	9.95
25/64"	0.3906"	5 1/8"	**70-469-2**	10.80
13/32"	0.4062"	5 1/4"	**70-470-0**	11.45

SIZE	DEC. EQUIV.	OAL	PART NUMBER	PRICE EACH
27/64"	0.4219"	5 3/8"	**70-471-8**	$13.05
7/16"	0.4375"	5 1/2"	**70-472-6**	14.30
29/64"	0.4531"	5 5/8"	**70-473-4**	15.05
15/32"	0.4688"	5 3/4"	**70-474-2**	15.45
31/64"	0.4844"	5 7/8"	**70-475-9**	17.45
1/2"	0.5000"	6"	**70-476-7**	17.05
33/64"	0.5156"	6"	**70-477-5**	27.30
17/32"	0.5312"	6"	**70-478-3**	28.40
35/64"	0.5469"	6"	**70-479-1**	30.35
9/16"	0.5625"	6"	**70-480-9**	30.75
37/64"	0.5781"	6"	**70-481-7**	22.30
19/32"	0.5938"	6"	**70-482-5**	24.00
39/64"	0.6094"	6"	**70-483-3**	24.55
5/8"	0.6250"	6"	**70-484-1**	35.60
41/64"	0.6406"	6"	**70-485-8**	26.45
21/32"	0.6562"	6"	**70-486-6**	25.55
43/64"	0.6719"	6"	**70-487-4**	28.10
11/16"	0.6875"	6"	**70-488-2**	42.85
23/32"	0.7188"	6"	**70-489-0**	45.90
47/64"	0.7344"	6"	**70-490-8**	28.90
3/4"	0.7500"	6"	**70-491-6**	46.20
49/64"	0.7365"	6"	**70-492-4**	33.80
51/64"	0.7969"	6"	**70-493-2**	39.15
7/8"	0.8750"	6"	**70-494-0**	45.60
1"	1.0000"	6"	**70-495-7**	63.20
–	–	–	–	–



SHOP GRADE
Fractional HSS Bright Finish Jobber Length Drill Blanks

- High Speed Steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Use as gages for checking hole size as well as drill bushing sizes.
- Also used as guide pins for die sets and can easily be modified as punches or cutting tools.

- 1/64" to 19/64" sold in packs of 10
  5/8" to 1/2" sold in packs of 5
  33/64" to 1" sold individually

SIZE	DEC. EQUIV.	OAL	PART NUMBER	PRICE EACH
#1	0.2280"	3 7/8"	**70-776-0**	$4.55
#2	0.2210"	3 7/8"	**70-777-8**	4.55
#3	0.2130"	3 3/4"	**70-778-6**	4.55
#4	0.2090"	3 3/4"	**70-779-4**	4.55
#5	0.2055"	3 3/4"	**70-780-2**	4.55
#6	0.2040"	3 3/4"	**70-781-0**	4.10
#7	0.2010"	3 5/8"	**70-782-8**	4.05
#8	0.1990"	3 5/8"	**70-783-6**	4.10
#9	0.1960"	3 5/8"	**70-784-4**	4.10
#10	0.1935"	3 5/8"	**70-785-1**	4.10
#11	0.1910"	3 1/2"	**70-786-9**	3.35
#12	0.1890"	3 1/2"	**70-787-7**	3.35
#13	0.1850"	3 1/2"	**70-788-5**	3.35
#14	0.1820"	3 3/8"	**70-789-3**	3.35
#15	0.1800"	3 3/8"	**70-790-1**	3.35
#16	0.1770"	3 3/8"	**70-791-9**	2.90
#17	0.1730"	3 3/8"	**70-792-7**	2.90
#18	0.1695"	3 1/4"	**70-793-5**	2.90
#19	0.1660"	3 1/4"	**70-794-3**	2.90
#20	0.1610"	3 1/4"	**70-795-0**	2.90
#21	0.1590"	3 1/4"	**70-796-8**	2.85
#22	0.1570"	3 1/8"	**70-797-6**	2.90
#23	0.1540"	3 1/8"	**70-798-4**	2.90
#24	0.1520"	3 1/8"	**70-799-2**	2.90
#25	0.1495"	3"	**70-800-8**	2.85
#26	0.1470"	3"	**70-801-6**	2.55
#27	0.1440"	3"	**70-802-4**	2.55
#28	0.1405"	2 7/8"	**70-803-2**	2.40
#29	0.1360"	2 7/8"	**70-804-0**	2.40
#30	0.1285"	2 3/4"	**70-805-7**	2.40
#31	0.1200"	2 3/4"	**70-806-5**	2.40
#32	0.1160"	2 3/4"	**70-807-3**	2.55
#33	0.1130"	2 5/8"	**70-808-1**	2.55
#34	0.1110"	2 5/8"	**70-809-9**	2.55
#35	0.1100"	2 5/8"	**70-810-7**	2.40
#36	0.1065"	2 1/2"	**70-811-5**	2.55
#37	0.1040"	2 1/2"	**70-812-3**	2.55
#38	0.1015"	2 1/2"	**70-813-1**	2.40
#39	0.0995"	2 3/8"	**70-814-9**	2.40
#40	0.0980"	2 3/8"	**70-815-6**	2.55

SIZE	DEC. EQUIV.	OAL	PART NUMBER	PRICE EACH
#41	0.0960"	2 3/8"	**70-816-4**	$2.55
#42	0.0935"	2 1/4"	**70-817-2**	2.55
#43	0.0890"	2 1/4"	**70-818-0**	2.40
#44	0.0860"	2 1/8"	**70-819-8**	2.40
#45	0.0820"	2 1/8"	**70-820-6**	2.55
#46	0.0810"	2 1/8"	**70-821-4**	2.40
#47	0.0785"	2"	**70-822-2**	2.40
#48	0.0760"	2"	**70-823-0**	2.40
#49	0.0730"	2"	**70-824-8**	2.40
#50	0.0700"	2"	**70-825-5**	2.40
#51	0.0670"	2"	**70-826-3**	2.40
#52	0.0635"	1 7/8"	**70-827-1**	2.40
#53	0.0595"	1 7/8"	**70-828-9**	2.40
#54	0.0550"	1 7/8"	**70-829-7**	2.40
#55	0.0520"	1 7/8"	**70-830-5**	2.40
#56	0.0465"	1 3/4"	**70-831-3**	2.40
#57	0.0430"	1 3/4"	**70-832-1**	2.40
#58	0.0420"	1 5/8"	**70-833-9**	2.40
#59	0.0410"	1 5/8"	**70-834-7**	2.40
#60	0.0400"	1 5/8"	**70-835-4**	2.40
#61	0.0390"	1 5/8"	**70-836-2**	2.00
#62	0.0380"	1 1/2"	**70-837-0**	2.00
#63	0.0370"	1 1/2"	**70-838-8**	2.00
#64	0.0360"	1 1/2"	**70-839-6**	2.00
#65	0.0350"	1 1/2"	**70-840-4**	2.15
#66	0.0330"	1 3/8"	**70-841-2**	2.00
#67	0.0320"	1 3/8"	**70-842-0**	2.00
#68	0.0310"	1 3/8"	**70-843-8**	2.00
#69	0.0292"	1 3/8"	**70-844-6**	2.00
#70	0.0280"	1 1/4"	**70-845-3**	2.00
#71	0.0260"	1 1/4"	**70-846-1**	2.00
#72	0.0250"	1 1/8"	**70-847-9**	2.00
#73	0.0240"	1 1/8"	**70-848-7**	2.00
#74	0.0225"	1"	**70-749-5**	2.00
#75	0.0210"	1"	**70-850-3**	2.00
#76	0.0200"	7/8"	**70-851-1**	2.00
#77	0.0180"	7/8"	**70-852-9**	2.00
#78	0.0160"	7/8"	**70-853-7**	2.00
#79	0.0145"	3/4"	**70-854-5**	2.00
#80	0.0135"	3/4"	**70-855-2**	2.00



SHOP GRADE

Numbers HSS Bright Finish Jobber Length Drill Blanks

- Use as gages for checking hole size as well as drill bushing sizes.
- Also used as guide pins for die sets and can easily be modified as punches or cutting tools.
- #1 to #80 sold in packs of 10.



SHOP GRADE

HSS Spiral Point Plug Taps

Production Grade, Ground Thread

- Oversize taps are +0.005" larger than the standard pitch diameter.
- Chamfer: 3 - 5 threads.

THREAD SIZE	THREAD LIMIT	NO. OF FLUTES	OAL	PART NUMBER	PRICE EACH
#8-32	H11	2	2 1/8"	**73-182-8**	$5.80
#10-24	H11	2	2 3/8"	**73-183-6**	5.10
#10-32	H11	2	2 3/8"	**73-184-4**	5.80
1/4-20	H11	2	2 1/2"	**73-185-1**	6.45
1/4-28	H11	2	2 1/2"	**73-186-9**	6.45
5/16-18	H11	2	2 23/32"	**73-187-7**	7.55
5/16-24	H11	2	2 23/32"	**73-188-5**	6.80
3/8-16	H11	3	2 15/16"	**73-189-3**	8.45
3/8-24	H11	3	2 15/16"	**73-190-1**	8.45
7/16-14	H11	3	3 5/32"	**73-191-9**	14.60
7/16-20	H11	3	3 5/32"	**73-192-7**	14.60
1/2-13	H11	3	3 3/8"	**73-193-5**	14.00
1/2-20	H11	3	3 3/8"	**73-194-3**	15.95
5/8-11	H11	3	3 13/16"	**73-195-0**	27.40
5/8-18	H11	3	3 13/16"	**73-196-8**	27.40
3/4-10	H11	3	4 1/4"	**73-197-6**	39.05
3/4-16	H11	3	4 1/4"	**73-198-4**	39.00
7/8-9	H11	3	4 11/16"	**73-199-2**	45.70
1-8	H11	3	5 1/8"	**73-200-8**	58.35



SHOP GRADE

Letter HSS Bright Finish Jobber Length Drill Blanks

- HSS General Purpose—provides good wear resistance in mild steel and nonferrous materials
- A to L sold in packs of 5
  M to Z sold individually

SIZE	DEC. EQUIV.	OAL	PART NUMBER	PRICE EACH
A	0.2340"	3 7/8"	**75-215-4**	$3.50
B	0.2380"	4"	**75-216-2**	3.50
C	0.2420"	4"	**75-217-0**	3.50
D	0.2460"	4"	**75-218-8**	3.75
E	0.2500"	4"	**70-460-1**	5.25
F	0.2570"	4 1/8"	**75-219-6**	3.90
G	0.2610"	4 1/8"	**75-220-4**	3.90
H	0.2660"	4 1/8"	**75-221-2**	3.90
I	0.2720"	4 1/8"	**75-222-0**	4.40
J	0.2770"	4 1/8"	**75-223-8**	4.40
K	0.2810"	4 1/4"	**75-224-6**	4.35
L	0.2900"	4 1/4"	**75-225-3**	4.35
M	0.2950"	4 3/8"	**75-226-1**	4.60
N	0.3020"	4 3/8"	**75-227-9**	4.60
O	0.3160"	4 1/2"	**75-228-7**	4.90
P	0.3230"	4 5/8"	**75-229-5**	5.40
Q	0.3320"	4 3/4"	**75-230-3**	5.45
R	0.3390"	4 3/4"	**75-231-1**	5.80
S	0.3480"	4 7/8"	**75-232-9**	6.50
T	0.3580"	4 7/8"	**75-233-7**	6.50
U	0.3680"	5"	**75-234-5**	6.90
V	0.3770"	5"	**75-235-2**	7.30
W	0.3860"	5 1/8"	**75-236-0**	7.30
X	0.3970"	5 1/8"	**75-237-8**	6.95
Y	0.4040"	5 1/4"	**75-238-6**	8.15
Z	0.4130"	5 1/4"	**75-239-4**	8.15

CUTTING TOOLS



SHOP GRADE
High Speed Hand Taps
Plug Style

- HSS Ground Thread for Ferrous, Nonferrous Materials and Nonmetallic Threading.
- Use all types of hand and machine tool operations.
- These taps have up to five threads chamfered. (3-5 pitches).

THREAD SIZE	H LIMIT	NO. OF FLUTES	THREAD L	OAL	PART NUMBER	PRICE EACH
0-80	H1	2	5/16"	1 5/8"	**73-627-2**	$10.20
0-80	H2	2	5/16"	1 5/8"	**42-121-4**	8.80
1-64	H1	2	3/8"	1 11/16"	**73-628-0**	9.25
1-72	H2	2	3/8"	1 11/16"	**42-122-2**	9.50
2-56	H1	3	7/16"	1 3/4"	**73-629-8**	8.85
2-56	H2	3	7/16"	1 3/4"	**42-123-0**	6.85
2-64	H1	3	7/16"	1 3/4"	**73-630-6**	8.65
2-64	H2	3	7/16"	1 3/4"	**42-124-8**	8.85
3-48	H2	3	1/2"	1 13/16"	**42-125-5**	6.25
3-56	H1	3	1/2"	1 13/16"	**73-631-4**	6.40
3-56	H2	3	1/2"	1 13/16"	**42-126-3**	7.00
4-36	H1	3	9/16"	1 7/8"	**73-632-2**	5.40
4-36	H2	3	9/16"	1 7/8"	**42-127-1**	5.50
4-40	H1	3	9/16"	1 7/8"	**73-633-0**	6.20
4-40	H2	3	9/16"	1 7/8"	**42-128-9**	4.15
4-48	H1	3	9/16"	1 7/8"	**73-634-8**	5.70
4-48	H2	3	9/16"	1 7/8"	**42-129-7**	5.55
5-40	H1	3	5/8"	1 15/16"	**73-635-5**	5.55
5-40	H2	3	5/8"	1 15/16"	**42-130-5**	5.15
6-32	H1	3	11/16"	2"	**73-636-3**	4.85
6-32	H2	3	11/16"	2"	**42-131-3**	5.25
6-32	H3	3	11/16"	2"	**42-137-0**	3.40
6-40	H1	3	11/16"	2"	**42-132-1**	4.20
8-32	H1	4	3/4"	2 1/8"	**73-637-1**	5.95
8-32	H3	4	3/4"	2 1/8"	**42-133-9**	4.20
8-32	H3	4	3/4"	2 1/8"	**42-138-8**	3.55
8-36	H2	4	3/4"	2 1/8"	**42-134-7**	4.20
10-24	H1	4	7/8"	2 3/8"	**73-638-9**	4.30
10-24	H2	4	7/8"	2 3/8"	**42-135-4**	4.30
10-24	H3	4	7/8"	2 3/8"	**42-139-6**	3.70
10-32	H1	4	7/8"	2 3/8"	**73-639-7**	5.30
10-32	H2	4	7/8"	2 3/8"	**42-136-2**	4.45
10-32	H3	4	7/8"	2 3/8"	**42-140-4**	3.60
12-24	H3	4	15/16"	2 3/8"	**42-141-2**	4.45
12-28	H3	4	15/16"	2 3/8"	**42-142-0**	4.85
14-20	H3	4	1 1/4"	2 1/2"	**42-143-8**	5.95
1/4-20	H1	4	1"	2 1/2"	**73-640-5**	6.80
1/4-20	H2	4	1"	2 1/2"	**73-641-3**	6.50
1/4-20	H3	4	1"	2 1/2"	**42-145-3**	3.50
1/4-20	H5	4	1"	2 1/2"	**73-642-1**	5.40
1/4-28	H2	4	1"	2 1/2"	**73-643-9**	6.80
1/4-28	H3	4	1"	2 1/2"	**42-146-1**	3.70
1/4-28	H4	4	1"	2 1/2"	**73-644-7**	5.55
5/16-18	H1	4	1 1/8"	2 23/32"	**73-645-4**	6.30
5/16-18	H2	4	1 1/8"	2 23/32"	**73-646-2**	6.30
5/16-18	H3	4	1 1/8"	2 23/32"	**42-147-9**	4.95
5/16-18	H5	4	1 1/8"	2 23/32"	**73-647-0**	6.30
5/16-24	H1	4	1 1/8"	2 23/32"	**73-648-8**	7.60



SHOP GRADE
HSS Hand Taps Sets

- HSS Ground Thread For Ferrous, Nonferrous Materials and Nonmetallic Threading.
- Used in all types of hand or machine tool operations.
- Sets consist of one each: Taper, Plug and Bottoming.

THREAD SIZE	H LIMIT	NO. OF FLUTES	THREAD L	OAL	PART NUMBER	PRICE EACH
5/16-24	H2	4	1 1/8"	2 23/32"	**73-649-6**	$6.30
5/16-24	H3	4	1 1/8"	2 23/32"	**42-148-7**	4.95
3/8-16	H1	4	1 1/4"	2 15/16"	**73-650-4**	7.95
3/8-16	H2	4	1 1/4"	2 15/16"	**73-651-2**	8.50
3/8-16	H3	4	1 1/4"	2 15/16"	**42-149-5**	5.55
3/8-16	H5	4	1 1/4"	2 15/16"	**73-652-0**	8.50
3/8-24	H1	4	1 1/4"	2 15/16"	**73-653-8**	9.40
3/8-24	H3	4	1 1/4"	2 15/16"	**42-150-3**	5.55
7/16-14	H1	4	1 7/16"	3 5/32"	**73-654-6**	12.30
7/16-14	H3	4	1 7/16"	3 5/32"	**42-151-1**	10.80
7/16-20	H2	4	1 7/16"	3 5/32"	**73-655-3**	13.70
7/16-20	H3	4	1 7/16"	3 5/32"	**42-152-9**	10.80
7/16-20	H5	4	1 7/16"	3 5/32"	**73-656-1**	11.70
1/2-13	H1	4	1 21/32"	3 3/8"	**73-657-9**	13.55
1/2-13	H2	4	1 21/32"	3 3/8"	**73-658-7**	14.50
1/2-13	H3	4	1 21/32"	3 3/8"	**42-153-7**	9.95
1/2-13	H5	4	1 21/32"	3 3/8"	**73-659-5**	13.55
1/2-20	H2	4	1 21/32"	3 3/8"	**73-660-3**	11.30
1/2-20	H3	4	1 21/32"	3 3/8"	**42-154-5**	10.80
9/16-12	H2	4	1 21/32"	3 19/32"	**73-661-1**	19.85
9/16-12	H3	4	1 21/32"	3 19/32"	**42-155-2**	18.70
9/16-18	H2	4	1 21/32"	3 19/32"	**73-662-9**	20.15
9/16-18	H3	4	1 21/32"	3 19/32"	**42-156-0**	19.45
5/8-11	H2	4	1 13/16"	3 13/16"	**73-663-7**	25.55
5/8-11	H3	4	1 13/16"	3 13/16"	**42-157-8**	22.40
5/8-11	H5	4	1 13/16"	3 13/16"	**73-664-5**	25.55
5/8-18	H2	4	1 13/16"	3 13/16"	**73-665-2**	25.55
5/8-18	H3	4	1 13/16"	3 13/16"	**42-158-6**	22.40
11/16-16	H3	4	1 13/16"	4 1/32"	**42-160-2**	27.75
3/4-10	H2	4	2"	4 1/4"	**73-666-0**	33.45
3/4-10	H3	4	2"	4 1/4"	**42-161-0**	31.35
3/4-10	H5	4	2"	4 1/4"	**73-667-8**	33.75
3/4-16	H3	4	2"	4 1/4"	**42-162-8**	31.35
7/8-9	H4	4	2 7/32"	4 11/16"	**42-163-6**	43.70
7/8-14	H4	4	2 7/32"	4 11/16"	**42-164-4**	43.70
1-8	H2	4	2 1/2"	5 1/8"	**73-668-6**	63.15
1-8	H4	4	2 1/2"	5 1/8"	**42-165-1**	58.15
1-8	H6	4	2 1/2"	5 1/8"	**73-669-4**	59.45
1-12	H4	4	2 1/2"	5 1/8"	**42-166-9**	59.45
1-14	H4	4	2 1/2"	5 1/8"	**42-167-7**	58.15
1 1/8-7	H4	4	2 9/16"	5 7/16"	**42-168-5**	94.20
1 1/8-12	H4	4	2 9/16"	5 7/16"	**42-169-3**	97.95
1 1/4-7	H4	4	2 9/16"	5 3/4"	**42-170-1**	120.65
1 1/4-12	H4	6	2 9/16"	5 3/4"	**42-171-9**	169.55
1 3/8-6	H4	4	3"	6 1/16"	**42-172-7**	158.85
1 3/8-12	H4	6	3"	6 1/16"	**42-173-5**	174.50
1 1/2-6	H4	4	3"	6 3/8"	**42-174-3**	174.50
1 1/2-12	H4	6	3"	6 3/8"	**42-175-0**	194.20

THREAD SIZE	H LIMIT	NO. OF FLUTES	THREAD L (IN.)	OAL (IN.)	PART NUMBER	SET PRICE
0-80	H2	2	5/16	1 5/8	**42-281-6**	$25.15
1-72	H2	2	3/8	1 11/16	**41-069-6**	25.15
2-56	H1	3	7/16	1 3/4	**77-246-7**	29.00
2-56	H2	3	7/16	1 3/4	**42-282-4**	20.35
3-48	H2	3	1/2	1 13/16	**42-283-2**	17.35
4-40	H1	3	9/16	1 7/8	**77-247-5**	16.35
4-40	H2	3	9/16	1 7/8	**42-284-0**	12.45
4-48	H2	3	9/16	1 7/8	**42-285-7**	15.40
5-40	H2	3	5/8	1 15/16	**42-286-5**	14.50
6-32	H1	3	11/16	2	**77-248-3**	13.25
6-32	H2	3	11/16	2	**42-287-3**	11.85
6-32	H3	3	11/16	2	**42-288-1**	10.80
6-40	H2	3	11/16	2	**42-289-9**	11.85
8-32	H1	4	3/4	2 1/8	**77-249-1**	12.50
8-32	H2	4	3/4	2 1/8	**42-290-7**	12.10
8-32	H3	4	3/4	2 1/8	**42-291-5**	11.15
8-36	H2	4	3/4	2 1/8	**42-292-3**	12.10
10-24	H1	4	7/8	2 3/8	**77-250-9**	16.15
10-24	H2	4	7/8	2 3/8	**42-293-1**	12.50
10-24	H3	4	7/8	2 3/8	**42-294-9**	11.45
10-32	H1	4	7/8	2 3/8	**77-251-7**	14.25
10-32	H2	4	7/8	2 3/8	**42-295-6**	12.50
10-32	H3	4	7/8	2 3/8	**42-296-4**	11.90
12-24	H3	4	15/16	2 3/8	**42-297-2**	12.75
12-28	H3	4	15/16	2 3/8	**42-298-0**	12.75
1/4-20	H1	4	1	2 1/2	**77-252-5**	17.95
1/4-20	H2	4	1	2 1/2	**77-253-3**	13.60
1/4-20	H3	4	1	2 1/2	**42-299-8**	11.20
1/4-28	H1	4	1	2 1/2	**77-254-1**	14.35
1/4-28	H2	4	1	2 1/2	**77-255-8**	13.60
1/4-28	H3	4	1	2 1/2	**42-300-4**	12.00
5/16-18	H1	4	1 1/8	2 23/32	**77-256-6**	17.70
5/16-18	H2	4	1 1/8	2 23/32	**77-257-4**	16.85
5/16-18	H3	4	1 1/8	2 23/32	**42-301-2**	13.80
5/16-24	H1	4	1 1/8	2 23/32	**77-258-2**	17.70
5/16-24	H2	4	1 1/8	2 23/32	**77-259-0**	17.70
5/16-24	H3	4	1 1/8	2 23/32	**42-302-0**	14.35
3/8-16	H1	4	1 1/4	2 15/16	**77-260-8**	19.95
3/8-16	H2	4	1 1/4	2 15/16	**77-261-6**	17.10
3/8-16	H3	4	1 1/4	2 15/16	**42-303-8**	15.85
3/8-24	H1	4	1 1/4	2 15/16	**77-262-4**	24.10
3/8-24	H3	4	1 1/4	2 15/16	**42-304-6**	16.50
7/16-14	H2	4	1 7/16	3 5/32	**77-263-2**	35.80
7/16-14	H3	4	1 7/16	3 5/32	**42-305-3**	27.05
7/16-20	H3	4	1 7/16	3 5/32	**77-264-0**	32.80
1/2-13	H2	4	1 21/32	3 3/8	**77-265-7**	35.60
1/2-13	H3	4	1 21/32	3 3/8	**42-306-1**	28.15
1/2-20	H1	4	1 21/32	3 3/8	**77-266-5**	35.55
1/2-20	H2	4	1 21/32	3 3/8	**77-267-3**	35.70
1/2-20	H3	4	1 21/32	3 3/8	**42-307-9**	29.45
9/16-12	H3	4	1 21/32	3 19/32	**42-308-7**	49.35
9/16-18	H2	4	1 21/32	3 19/32	**77-268-1**	65.00
9/16-18	H3	4	1 21/32	3 19/32	**42-309-5**	49.35
5/8-11	H2	4	1 13/16	3 13/16	**77-269-9**	75.80
5/8-11	H3	4	1 13/16	3 13/16	**42-310-3**	59.55
5/8-18	H1	4	1 13/16	3 13/16	**77-270-7**	72.00
5/8-18	H3	4	1 13/16	3 13/16	**42-311-1**	59.55
11/16-11	H3	4	1 13/16	4 1/32	**42-312-9**	73.85
11/16-16	H3	4	1 13/16	4 1/32	**42-313-7**	73.85
3/4-10	H3	4	2	4 1/4	**42-314-5**	81.90
3/4-16	H3	4	2	4 1/4	**42-315-2**	82.70
7/8-9	H4	4	2 7/32	4 11/16	**42-316-0**	112.35
7/8-14	H4	4	2 7/32	4 11/16	**42-317-8**	114.60
1-8	H4	4	2 1/2	5 1/8	**42-318-6**	151.65
1-12	H4	4	2 1/2	5 1/8	**42-319-4**	153.10
1-14	H4	4	2 1/2	5 1/8	**42-320-2**	153.10
1 1/8-7	H4	4	2 9/16	5 7/16	**42-321-0**	246.15
1 1/8-12	H4	4	2 9/16	5 7/16	**42-322-8**	246.15
1 1/4-7	H4	4	2 9/16	5 3/4	**42-323-6**	323.70
1 1/4-12	H4	6	2 9/16	5 3/4	**42-324-4**	323.70
1 3/8-6	H4	4	3	6 1/16	**42-325-1**	405.65
1 3/8-12	H4	6	3	6 1/16	**42-326-9**	419.10
1 1/2-6	H4	4	3	6 3/8	**42-327-7**	466.35



SHOP GRADE

Spiral Point Taps

Plug Style Ground Threads

- Spiral point taps are the most efficient, rigid and useful cutting taps and are recommended for through holes in most materials.
- Plug style taps have up to five threads chamfered.

THREAD SIZE	H LIMIT	NO. OF FLUTES	THREAD L	OAL	PART NUMBER	SET PRICE
0-80	H1	2	5/16"	1 5/8"	74-144-7	$10.25
0-80	H2	2	5/16"	1 5/8"	42-329-3	9.80
1-64	H1	2	3/8"	1 11/16"	74-145-4	9.85
1-64	H2	2	3/8"	1 11/16"	42-330-1	10.15
1-72	H1	2	3/8"	1 11/16"	74-146-2	9.15
1-72	H2	2	3/8"	1 11/16"	42-331-9	10.15
2-56	H1	2	7/16"	1 3/4"	74-147-0	8.75
2-56	H2	2	7/16"	1 3/4"	42-332-7	7.45
2-64	H2	2	7/16"	1 3/4"	42-333-5	9.70
3-48	H1	2	1/2"	1 13/16"	74-148-8	8.15
3-48	H2	2	1/2"	1 13/16"	42-334-3	6.90
3-56	H1	2	1/2"	1 13/16"	74-149-6	8.15
3-56	H2	2	1/2"	1 13/16"	42-335-0	7.65
4-36	H2	2	9/16"	1 7/8"	42-336-8	7.00
4-40	H1	2	9/16"	1 7/8"	74-150-4	6.25
4-40	H2	2	9/16"	1 7/8"	42-337-6	4.70
4-48	H1	2	9/16"	1 7/8"	74-151-2	6.50
4-48	H2	2	9/16"	1 7/8"	42-338-4	6.30
5-40	H1	2	5/8"	1 15/16"	74-152-0	6.25
5-40	H2	2	5/8"	1 15/16"	42-339-2	5.50
5-44	H2	2	5/8"	1 15/16"	42-340-0	6.70
6-32	H1	2	11/16"	2"	74-153-8	5.15
6-32	H2	2	11/16"	2"	42-341-8	4.65
6-32	H3	2	11/16"	2"	42-342-6	3.90
6-32	H7	2	11/16"	2"	74-154-6	5.15
6-40	H1	2	11/16"	2"	74-155-3	5.50
6-40	H2	2	11/16"	2"	42-343-4	5.75
8-32	H1	2	3/4"	2 1/8"	74-156-1	5.65
8-32	H2	2	3/4"	2 1/8"	42-344-2	4.65
8-32	H3	2	3/4"	2 1/8"	42-345-9	3.90
8-32	H7	2	3/4"	2 1/8"	74-157-9	5.15
8-36	H1	2	3/4"	2 1/8"	74-158-7	6.35
8-36	H2	2	3/4"	2 1/8"	42-346-7	5.30
10-24	H1	2	7/8"	2 3/8"	74-159-5	5.65
10-24	H2	2	7/8"	2 3/8"	42-347-5	5.30
10-24	H3	2	7/8"	2 3/8"	42-348-3	4.20
10-24	H7	2	7/8"	2 3/8"	74-160-3	5.65
10-32	H1	2	7/8"	2 3/8"	74-161-1	5.15
10-32	H2	2	7/8"	2 3/8"	42-349-1	4.65
10-32	H3	2	7/8"	2 3/8"	42-350-9	4.05
10-32	H7	2	7/8"	2 3/8"	74-162-9	5.65
12-24	H1	2	15/16"	2 3/8"	74-163-7	6.30
12-24	H3	2	15/16"	2 3/8"	42-351-7	5.30
12-28	H1	2	15/16"	2 3/8"	74-164-5	5.60
12-28	H3	2	15/16"	2 3/8"	42-352-5	5.30
1/4-20	H1	2	1"	2 1/2"	74-165-2	5.15
1/4-20	H2	2	1"	2 1/2"	74-166-0	5.15
1/4-20	H2	3	1"	2 1/2"	74-167-8	4.65
1/4-20	H3	2	1"	2 1/2"	42-353-3	3.65
1/4-20	H3	3	1"	2 1/2"	74-168-6	5.20
1/4-20	H5	2	1"	2 1/2"	74-169-4	5.15
1/4-20	H1	2	1"	2 1/2"	74-170-2	6.25
1/4-28	H1	2	1"	2 1/2"	74-171-0	$5.65
1/4-28	H2	2	1"	2 1/2"	74-172-8	5.15
1/4-28	H3	2	1"	2 1/2"	42-354-1	3.90
1/4-28	H4	2	1"	2 1/2"	74-173-6	5.65
5/16-18	H1	2	1 1/8"	2 23/32"	74-174-4	6.90
5/16-18	H2	2	1 1/8"	2 23/32"	74-175-1	5.65
5/16-18	H3	2	1 1/8"	2 23/32"	42-355-8	4.40
5/16-18	H5	2	1 1/8"	2 23/32"	74-176-9	5.65
5/16-18	H7	2	1 1/8"	2 23/32"	74-177-7	7.35
5/16-24	H1	2	1 1/8"	2 23/32"	74-178-5	6.40
5/16-24	H2	2	1 1/8"	2 23/32"	74-179-3	6.40
5/16-24	H3	2	1 1/8"	2 23/32"	42-356-6	4.40
5/16-24	H4	2	1 1/8"	2 23/32"	74-180-1	7.50
3/8-16	H1	3	1 1/4"	2 15/16"	74-181-9	8.40
3/8-16	H2	3	1 1/4"	2 15/16"	74-182-7	6.70
3/8-16	H3	3	1 1/4"	2 15/16"	42-357-4	5.00
3/8-16	H5	3	1 1/4"	2 15/16"	74-183-5	7.30
3/8-16	H7	3	1 1/4"	2 15/16"	74-184-3	8.60
3/8-24	H1	3	1 1/4"	2 15/16"	74-185-0	8.40
3/8-24	H2	3	1 1/4"	2 15/16"	74-186-8	8.00
3/8-24	H3	3	1 1/4"	2 15/16"	42-358-2	5.55
3/8-24	H4	3	1 1/4"	2 15/16"	74-187-6	8.40
7/16-14	H1	3	1 7/16"	3 5/32"	74-188-4	11.20
7/16-14	H2	3	1 7/16"	3 5/32"	74-189-2	10.80
7/16-14	H3	3	1 7/16"	3 5/32"	42-359-0	10.15
7/16-14	H5	3	1 7/16"	3 5/32"	74-190-0	10.80
7/16-20	H1	3	1 7/16"	3 5/32"	74-191-8	11.20
7/16-20	H2	3	1 7/16"	3 5/32"	74-192-6	11.45
7/16-20	H3	3	1 7/16"	3 5/32"	42-360-8	10.15
7/16-20	H5	3	1 7/16"	3 5/32"	74-193-4	10.80
1/2-13	H1	3	1 21/32"	3 3/8"	74-194-2	12.95
1/2-13	H2	3	1 21/32"	3 3/8"	74-195-9	12.95
1/2-13	H3	3	1 21/32"	3 3/8"	42-361-6	8.35
1/2-13	H5	3	1 21/32"	3 3/8"	74-196-7	11.70
1/2-20	H1	3	1 21/32"	3 3/8"	74-197-5	14.40
1/2-20	H2	3	1 21/32"	3 3/8"	74-198-3	12.95
1/2-20	H3	3	1 21/32"	3 3/8"	42-362-4	10.40
1/2-20	H5	3	1 21/32"	3 3/8"	74-199-1	12.95
9/16-12	H3	3	1 21/32"	3 19/32"	74-200-7	16.35
9/16-18	H3	3	1 21/32"	3 19/32"	74-201-5	16.35
5/8-11	H3	3	1 13/16"	3 13/16"	42-363-2	24.80
5/8-11	H5	3	1 13/16"	3 13/16"	74-202-3	22.30
5/8-18	H3	3	1 13/16"	3 13/16"	42-364-0	24.80
11/16-11	H3	3	1 15/16"	4 1/32"	42-365-7	28.40
11/16-16	H3	3	1 13/16"	4 1/32"	74-203-1	25.55
3/4-10	H3	3	2"	4 1/4"	42-366-5	35.10
3/4-16	H3	3	2"	4 1/4"	42-367-3	35.10
7/8-9	H4	3	2 7/32"	4 11/16"	42-368-1	68.95
7/8-14	H4	3	2 7/32"	4 11/16"	42-369-9	63.60
1-8	H4	3	2 1/2"	5 1/8"	42-370-7	79.45
1-12	H4	3	2 1/2"	5 1/8"	42-371-5	84.95
1-14	H4	3	2 1/2"	5 1/8"	42-372-3	87.40



SHOP GRADE

High Speed Hand Taps

Bottoming Style

- HSS Ground Thread for Ferrous, Nonferrous and Nonmetallic Materials.
- These taps have one to two chamfered threads which enable them to thread closer to the bottom of a blind hole with full threads.
- Smaller sizes may have a point. (Male center) (1-2 Pitches).

THREAD SIZE	H LIMIT	NO. OF FLUTES	THREAD L (IN.)	OAL (IN.)	PART NUMBER	PRICE EACH
0-80	H2	2	5/16	1 5/8	42-176-8	$7.55
2-56	H1	3	7/16	1 3/4	73-670-2	8.40
2-56	H2	3	7/16	1 3/4	42-178-4	6.10
2-64	H1	3	7/16	1 3/4	73-671-0	8.20
2-64	H2	3	7/16	1 3/4	73-672-8	7.95
4-40	H1	3	9/16	1 7/8	73-673-6	5.80
4-40	H2	3	9/16	1 7/8	42-181-8	3.95
4-48	H2	3	9/16	1 7/8	42-182-6	4.75
5-40	H2	3	5/8	1 15/16	42-183-4	4.55
6-32	H1	3	11/16	2	73-674-4	4.60
6-32	H2	3	11/16	2	42-185-9	3.75
6-32	H3	3	11/16	2	42-191-7	3.30
8-32	H1	4	3/4	2 1/8	73-675-1	5.70
8-32	H3	4	3/4	2 1/8	42-187-5	3.75
8-32	H3	4	3/4	2 1/8	42-192-5	3.40
10-24	H2	4	7/8	2 3/8	42-189-1	3.75
10-24	H3	4	7/8	2 3/8	42-193-3	3.40
10-32	H1	4	7/8	2 3/8	73-676-9	4.95
10-32	H2	4	7/8	2 3/8	42-190-9	3.75
10-32	H3	4	7/8	2 3/8	42-194-1	3.40
12-24	H3	4	15/16	2 3/8	42-195-8	4.25
12-28	H3	4	15/16	2 3/8	42-196-6	4.25
14-24	H3	4	1 1/4	2 5/8	42-197-4	5.20
1/4-20	H1	4	1	2 1/2	73-677-7	6.45
1/4-20	H2	4	1	2 1/2	73-678-5	6.20
1/4-20	H3	4	1	2 1/2	42-198-2	3.50
1/4-20	H5	4	1	2 1/2	73-679-3	5.15
1/4-28	H1	4	1	2 1/2	73-680-1	5.05
1/4-28	H2	4	1	2 1/2	73-681-9	6.45
1/4-28	H3	4	1	2 1/2	42-199-0	3.70
5/16-18	H1	4	1 1/8	2 23/32	73-682-7	6.00
5/16-18	H2	4	1 1/8	2 23/32	73-683-5	6.00
5/16-18	H3	4	1 1/8	2 23/32	42-200-6	4.55
5/16-18	H5	4	1 1/8	2 23/32	73-684-3	6.00
5/16-24	H1	4	1 1/8	2 23/32	73-685-0	7.30
5/16-24	H2	4	1 1/8	2 23/32	73-686-8	7.25
5/16-24	H3	4	1 1/8	2 23/32	42-201-4	4.60
3/8-16	H1	4	1 1/4	2 15/16	73-687-6	7.60
3/8-16	H2	4	1 1/4	2 15/16	73-688-4	8.10
3/8-16	H3	4	1 1/4	2 15/16	42-202-2	5.10
3/8-24	H1	4	1 1/4	2 15/16	73-689-2	9.00
3/8-24	H2	4	1 1/4	2 15/16	73-690-0	9.00
3/8-24	H3	4	1 1/4	2 15/16	42-203-0	5.25
7/16-14	H3	4	1 7/16	3 5/32	42-204-8	8.75
7/16-20	H2	4	1 7/16	3 5/32	73-691-8	11.00
7/16-20	H3	4	1 7/16	3 5/32	42-205-5	9.10
1/2-13	H1	4	1 21/32	3 3/8	73-692-6	14.70
1/2-13	H2	4	1 21/32	3 3/8	73-693-4	11.00
1/2-13	H3	4	1 21/32	3 3/8	42-206-3	9.15
1/2-13	H5	4	1 21/32	3 3/8	73-694-2	12.90
1/2-20	H3	4	1 21/32	3 3/8	42-207-1	9.50
9/16-12	H2	4	1 21/32	3 5/8	73-695-9	19.35
9/16-12	H3	4	1 21/32	3 5/8	42-208-9	15.90
9/16-18	H2	4	1 21/32	3 3/8	73-696-7	19.35
9/16-18	H3	4	1 21/32	3 5/8	42-209-7	15.90
9/16-18	H5	4	1 21/32	3 3/8	73-697-5	22.15
5/8-11	H2	4	1 13/16	3 13/16	73-698-3	28.80
5/8-11	H3	4	1 13/16	3 13/16	42-210-5	19.30
5/8-18	H2	4	1 13/16	3 13/16	73-699-1	23.30
5/8-18	H3	4	1 13/16	3 13/16	42-211-3	19.30
11/16-16	H3	4	1 13/16	4 1/32	42-213-9	23.95
3/4-10	H3	4	2	4 1/4	42-214-7	26.50
3/4-16	H3	4	2	4 1/4	42-215-4	26.50
7/8-9	H4	4	2 7/32	4 11/16	42-216-2	37.20
7/8-14	H4	4	2 7/32	4 11/16	42-217-0	37.20
1-8	H4	4	2 1/2	5 1/8	42-218-8	49.20
1-12	H4	4	2 1/2	5 1/8	42-219-6	49.65
1-14	H4	4	2 1/2	5 1/8	42-220-4	49.20
1 1/8-7	H4	4	2 9/16	5 3/4	42-221-2	80.30
1 1/8-12	H4	4	2 9/16	5 3/4	42-222-0	79.55
1 1/4-7	H4	4	2 9/16	5 3/4	42-223-8	105.70
1 1/4-12	H4	6	2 9/16	5 3/4	42-224-6	104.65
1 3/8-6	H4	4	3	6 1/16	42-225-3	132.10
1 3/8-12	H4	6	3	6 1/16	42-226-1	130.85
1 1/2-6	H4	4	3	6 3/8	42-227-9	149.75
1 1/2-12	H4	6	3	6 3/8	42-228-7	149.75

CUTTING TOOLS



SHOP GRADE
HSS Spiral Point Bottoming Taps
Bottoming Style Ground Thread

- Spiral point taps are the most efficient, rigid and useful cutting taps and are recommended for through holes in most materials.
- Bottoming style taps have from one to three threads chamfered.

THREAD SIZE	H LIMIT	NO. OF FLUTES	THREAD L (IN.)	OAL (IN.)	PART NUMBER	PRICE EACH
0-80	H1	2	5/16	1 5/8	**73-387-3**	$13.00
0-80	H2	2	5/16	1 5/8	**42-373-1**	11.10
1-64	H2	2	3/8	1 11/16	**42-374-9**	12.10
1-72	H1	2	3/8	1 11/16	**73-388-1**	12.00
2-56	H1	2	7/16	1 3/4	**73-389-9**	11.00
2-56	H2	2	7/16	1 3/4	**42-375-6**	8.75
3-48	H2	2	1/2	1 13/16	**42-376-4**	8.80
3-56	H2	2	1/2	1 13/16	**42-377-2**	10.90
4-40	H1	2	9/16	1 7/8	**73-390-7**	7.00
4-40	H2	2	9/16	1 7/8	**42-378-0**	6.25
4-48	H2	2	9/16	1 7/8	**42-379-8**	6.50
5-40	H2	2	5/8	1 15/16	**42-380-6**	6.95
6-32	H1	2	11/16	2	**73-391-5**	6.00
6-32	H2	2	11/16	2	**42-381-4**	5.25
6-32	H3	2	11/16	2	**42-382-2**	4.85
6-40	H2	2	11/16	2	**42-383-0**	$6.00
8-32	H1	2	3/4	2 1/8	**73-392-3**	6.00
8-32	H2	2	3/4	2 1/8	**42-384-8**	5.25
8-32	H3	2	3/4	2 1/8	**42-385-5**	4.85
10-24	H2	2	7/8	2 3/8	**42-386-3**	6.95
10-24	H3	2	7/8	2 3/8	**42-387-1**	4.75
10-32	H1	2	7/8	2 3/8	**73-393-1**	7.00
10-32	H2	2	7/8	2 3/8	**42-388-9**	5.00
10-32	H3	2	7/8	2 3/8	**42-389-7**	4.75
12-24	H3	2	15/16	2 3/8	**42-390-5**	5.85
1/4-20	H3	2	1	2 1/2	**42-391-3**	4.85
1/4-28	H3	2	1	2 1/2	**42-392-1**	5.60
5/16-18	H3	2	1 1/8	2 23/32	**42-393-9**	5.90
5/16-24	H3	2	1 1/8	2 23/32	**42-394-7**	5.90
–	–	–	–	–	–	–



SHOP GRADE
HSS Left Hand Plug Taps
Ground Thread

- Best for tapping through holes.
- Used for all types of hand and machine tool operations in ferrous and nonferrous materials.
- Effective when tapping hardened steels.
- Ground threads for better surface finish and tighter tolerances.
- Left hand cut produces left hand threads.
- Chamfer: 3 - 5 Threads.

THREAD SIZE	THREAD LIMIT	NO. OF FLUTES	OAL	PART NUMBER	PRICE EACH
#2-56	H2	3	1 3/4"	**74-975-4**	$7.45
#2-64	H2	3	1 3/4"	**74-976-2**	7.45
#4-40	H2	3	1 7/8"	**74-977-0**	7.45
#5-40	H2	3	1 15/16"	**74-978-8**	7.45
#5-44	H2	3	1 15/16"	**74-979-6**	7.45
#6-32	H2	3	2"	**74-980-4**	7.45
#6-40	H3	3	2"	**74-981-2**	7.45
#8-32	H3	4	2 1/8"	**74-982-0**	7.45
#10-24	H3	4	2 3/8"	**74-983-8**	7.45
#10-32	H3	4	2 3/8"	**74-984-6**	7.45
#12-24	H3	4	2 3/8"	**74-985-3**	7.45
1/4-20	H3	4	2 1/2"	**74-986-1**	7.70
1/4-28	H3	4	2 1/2"	**74-987-9**	7.70
5/16-18	H3	4	2 23/32"	**74-988-7**	8.50
5/16-24	H3	4	2 23/32"	**74-989-5**	8.50
3/8-16	H3	4	2 15/16"	**74-990-3**	11.00
3/8-24	H3	4	3 15/16"	**74-991-1**	11.00
7/16-14	H3	4	3 5/32"	**74-992-9**	16.80
7/16-20	H3	4	3 5/32"	**74-993-7**	16.80
1/2-13	H3	4	3 3/8"	**74-994-5**	17.80
1/2-20	H3	4	3 3/8"	**74-995-2**	17.80
9/16-12	H3	4	3 19/32"	**74-996-0**	18.25
9/16"	H3	4	3 19/32"	**74-997-8**	26.50
5/8-11	H3	4	3 13/16"	**74-998-6**	33.25
5/8-18	H3	4	3 13/16"	**74-999-4**	33.25
11/16"-18	H3	4	4 1/4"	**75-000-0**	47.40
3/4-10	H3	4	4 1/4"	**75-001-8**	41.05
3/4-16	H3	4	4 1/4"	**75-002-6**	41.05
3/4-20	H3	4	4 1/4"	**75-003-4**	41.05
7/8-9	H4	4	4 11/16"	**75-004-2**	56.40
7/8-14	H4	4	4 11/16"	**75-005-9**	56.40
1-8	H4	4	5 1/8"	**75-006-7**	73.15
1-12	H4	4	5 1/8"	**75-007-5**	73.85
1-14	H4	4	5 1/8"	**75-008-3**	73.85
1-20	H4	4	5 1/8"	**75-009-1**	211.00
1 1/8-7	H4	4	5 7/16"	**75-010-9**	109.60
1 1/8-12	H4	4	5 7/16"	**75-011-7**	109.60
1 1/4-7	H4	4	5 3/4"	**75-012-5**	129.80
1 1/4-12	H4	4	5 3/4"	**75-013-3**	128.55
1 3/8-6	H4	4	6 1/16"	**75-014-1**	171.75
1 3/8-8	H4	4	6 1/16"	**75-015-8**	194.90
1 3/8-12	H4	4	6 1/16"	**75-016-6**	171.75
1 1/2-6	H4	4	6-3/8	**75-017-4**	198.30
1 1/2-12	H4	4	6-3/8	**75-018-2**	204.25



SHOP GRADE
HSS Left Hand Taper Taps
Ground Thread

- Used for all types of hand and machine tool operations in ferrous and nonferrous materials.
- Effective when tapping hardened steels.
- Ground threads for better surface finish and tighter tolerances.
- Left hand cut produces left hand threads.
- Chamfer: 7 - 10 Threads.

THREAD SIZE	THREAD LIMIT	NO. OF FLUTES	OAL	PART NUMBER	PRICE EACH
#10-32	H3	4	2 3/8"	**71-444-4**	$8.55
1/4-20	H3	4	2 1/2"	**71-445-1**	8.65
1/4-28	H3	4	2 1/2"	**71-446-9**	8.65
5/16-18	H3	4	2 23/32"	**71-447-7**	9.75
5/16-24	H3	4	2 23/32"	**71-448-5**	9.75
3/8-16	H3	4	2 15/16"	**71-449-3**	12.45
3/8-24	H3	4	2 15/16"	**71-450-1**	12.45
7/16-14	H3	4	3 5/32"	**71-451-9**	19.10
7/16-20	H3	4	3 5/32"	**71-452-7**	19.10
1/2-13	H3	4	3 3/8"	**71-453-5**	20.25
1/2-20	H3	4	3 3/8"	**71-454-3**	20.25
9/16-18	H3	4	3 19/32"	**71-455-0**	30.10
5/8-11	H3	4	3 13/16"	**71-456-8**	38.25
5/8-18	H3	4	3 13/16"	**71-457-6**	38.25
3/4-10	H3	4	4 1/4"	**71-458-4**	47.25
3/4-16	H3	4	4 1/4"	**71-459-2**	47.25
7/8-9	H4	4	4 11/16"	**71-460-0**	64.30
7/8-14	H4	4	4 11/16"	**71-461-8**	64.30
1-8	H4	4	5 1/8"	**71-462-6**	84.20
1-12	H4	4	5 1/8"	**71-463-4**	84.20
1-14	H4	4	5 1/8"	**71-464-2**	84.20
1 1/8-12	H4	4	5 7/16"	**71-466-7**	124.95
1 1/4-7	H4	4	5 3/4"	**71-467-5**	147.95
1 1/4-12	H4	6	5 3/4"	**71-468-3**	147.95
1 1/2-12	H4	6	6 3/8"	**71-469-1**	240.60



SHOP GRADE
HSS Left Hand Bottoming Taps
Ground Thread

- Used for all types of hand and machine tool operations in ferrous and nonferrous materials.
- Ground threads for better surface finish and tighter tolerances.
- Allows threading closer to the bottom of a blind hole.
- Left hand cut produces left hand threads.
- Chamfer: 1 - 2 Threads.

THREAD SIZE	THREAD LIMIT	NO. OF FLUTES	OAL	PART NUMBER	PRICE EACH
6-32	H3	3	2"	**74-114-0**	$7.05
#8-32	H3	4	2 1/8"	**74-115-7**	7.05
#10-32	H3	4	2 3/8"	**74-116-5**	6.15
1/4-20	H3	4	2 1/2"	**74-117-3**	7.35
1/4-28	H3	4	2 1/2"	**74-118-1**	7.35
5/16-18	H3	4	2 23/32"	**74-119-9**	8.50
5/16-24	H3	4	2 23/32"	**74-120-7**	8.75
3/8-16	H3	4	2 15/16"	**74-121-5**	11.55
3/8-24	H3	4	2 15/16"	**74-122-3**	11.55
7/16-14	H3	4	3 5/32"	**74-123-1**	16.65
7/16-20	H3	4	3 5/32"	**74-124-9**	17.65
1/2-13	H3	4	3 3/8"	**74-125-6**	17.65
1/2-20	H3	4	3 3/8"	**74-126-4**	18.15
9/16-18	H3	4	3 19/32"	**74-127-2**	27.90
5/8-11	H3	4	3 13/16"	**74-128-0**	35.45
5/8-18	H3	4	3 13/16"	**74-129-8**	35.45
11/16-11	H3	4	4 1/32"	**74-130-6**	40.55
3/4-10	H3	4	4 1/4"	**74-131-4**	43.80
3/4-16	H3	4	4 1/4"	**74-132-2**	43.80
7/8-9	H4	4	4 11/16"	**74-133-0**	59.60
7/8-14	H4	4	4 11/16"	**74-134-8**	59.60
1-8	H4	4	5 1/8"	**74-135-5**	78.10
1-12	H4	4	5 1/8"	**74-136-3**	81.20
1-14	H4	4	5 1/8"	**74-137-1**	81.20
1 1/8-12	H4	4	5 7/16"	**74-139-7**	120.50
1 1/4-7	H4	4	5 3/4"	**74-140-5**	142.70
1 1/4-12	H4	6	5 3/4"	**74-141-3**	142.70
1 1/2-6	H4	4	6 3/8"	**74-142-1**	218.05
1 1/2-12	H4	6	6 3/8"	**74-143-9**	224.60

SHOP GRADE

HSS Combination Drill Taps

Drill and Tap in 1 Operation with 1 Set-Up

- Reduce production costs up to 50%.
- 25° Helix provides correct cutting action for both drilling and tapping.
- For use in material up to 2 times the nominal tap diameter.
- 118° self-centering helical point eliminates the need for a center punch.
- Shank and square fit standard tap holders.
- HSS – provides good wear resistance in mild steels and nonferrous materials.



Machine

THREAD SIZE	DRILL LENGTH	DRILL SIZE	OAL	PART NUMBER	PRICE EACH
#4-40	1/4"	0.0910"	1 7/8"	**72-334-6**	$23.25
#6-32	5/16"	0.1115"	2"	**72-335-3**	23.25
#8-32	3/8"	0.1375"	2 1/8"	**72-336-1**	23.25
#10-24	13/32"	0.1545"	2 3/8"	**72-337-9**	23.25
#10-32	13/32"	0.1635"	2 3/8"	**72-338-7**	23.25
#12-24	15/32"	0.1805"	2 3/8"	**72-339-5**	23.50

Fractional

THREAD SIZE	DRILL LENGTH	DRILL SIZE	OAL	PART NUMBER	PRICE EACH
1/4-20	17/32"	0.2080"	2 1/2"	**72-340-3**	$22.60
1/4-28	17/32"	0.2200"	2 1/2"	**72-341-1**	23.25
5/16-18	11/16"	0.2660"	2 27/32"	**72-342-9**	33.30
5/16-24	11/16"	0.2770"	2 27/32"	**72-343-7**	34.65
3/8-16	13/16"	0.3225"	3 3/8"	**72-344-5**	40.30
3/8-24	13/16"	0.3395"	3 3/8"	**72-345-2**	41.95
7/16-14	1"	0.3770"	3 3/4"	**72-346-0**	50.20
7/16-20	1"	0.3955"	3 3/4"	**72-347-8**	50.20
1/2-13	1 1/8"	0.4350"	4 1/16"	**72-348-6**	54.55
1/2-20	1 1/8"	0.4580"	4 1/16"	**72-349-4**	56.70

Taper Pipe Tap Sizes

THREAD SIZE	DRILL LENGTH	DRILL SIZE	OAL	PART NUMBER	PRICE EACH
1/8-27	3/4"	R	2 7/8"	**72-350-2**	$94.80
1/4-18	7/8"	7/16"	3 5/16"	**72-351-0**	106.50
3/8-18	15/16"	37/64"	3 1/2"	**72-352-8**	125.35
1/2-14	1 1/4"	45/64"	4 3/8"	**72-353-6**	189.20
3/4-14	1 5/16"	59/64"	4 9/16"	**72-354-4**	264.20

Metric Sizes

THREAD SIZE	DRILL LENGTH	DRILL SIZE	OAL	PART NUMBER	PRICE EACH
M3x0.50	9/32"	M2.50	1 15/16"	**72-355-1**	$24.65
M4x0.70	3/8"	M3.30	2 1/8"	**72-356-9**	24.65
M5x0.80	13/32"	M4.20	2 3/8"	**72-357-7**	24.65
M6x1.00	17/32"	M5.00	2 1/2"	**72-358-5**	24.65
M8x1.25	11/16"	M6.75	2 27/32"	**72-359-3**	44.50
M10x1.50	13/16"	M8.50	3 3/8"	**72-360-1**	50.90

SHOP GRADE

NPT & BSPT Hex Rethreading Dies

- Carbon steel.



SIZE	THREAD	PART NO.	PRICE EA.
1/8"	27	**42-555-3**	$9.20
1/8"	28	**42-556-1** *	29.85
1/4"	18	**42-557-9**	13.80
1/4"	19	**42-558-7** *	49.65
3/8"	18	**42-559-5**	18.10
3/8"	19	**42-560-3** *	66.75
1/2"	14	**42-561-1**	23.90
3/4"	14	**42-562-9**	30.95
1"	11 1/2	**42-563-7**	41.05
1 1/4"	11 1/2	**42-564-5**	93.40
1 1/2"	11 1/2	**42-565-2**	139.20
2"	11 1/2	**42-566-0**	180.55
2 1/2"	8	**42-567-8**	300.50
3"	8	**42-568-6**	321.10

*BSPT sizes



42-406-9

SHOP GRADE

NPT Pipe Taps Carbon & HSS

- HSS Ground Thread For Ferrous, Nonferrous Materials and Nonmetallic Threading.
- Used in all types of hand or machine tool operations.

THREAD SIZE (IN.)	NO. OF FLUTES	OAL	CARBON PART NUMBER	CARBON PRICE EACH	HSS PART NUMBER	HSS PRICE EACH
1/16-27	4	2 1/8"	–	–	**42-401-0**	$14.80
1/8-27	4	2 1/8"	–	–	**72-325-4**	12.35
1/8-27	4	2 1/8"	**42-395-4**	$6.60	**42-402-8**	14.80
1/4-18	4	2 7/16"	**42-396-2**	7.35	**42-403-6**	16.50
3/8-18	4	2 9/16"	**42-397-0**	10.10	**42-404-4**	21.45
1/2-14	4	3 1/8"	**42-398-8**	13.85	**42-405-1**	34.15
3/4-14	5	3 1/4"	**42-399-6**	21.75	**42-406-9**	47.90
1-11 1/2	5	3 3/4"	**42-400-2**	33.30	**42-407-7**	77.95
1 1/4-11 1/2	5	4"	**72-322-1**	67.45	**42-408-5**	111.00
1 1/2-11 1/2	7	4 1/4"	**72-323-9**	93.30	**42-409-3**	149.95
2-11 1/2	7	4 1/2"	–	–	**42-410-1**	203.30
2 1/2-8	8	5 1/2"	–	–	**42-411-9**	492.00
3-8	8	6"	–	–	**42-412-7**	539.50
3 1/2-8	9	6 1/2"	–	–	**72-326-2**	831.55
4-8	10	7"	**72-324-7**	698.00	**42-413-5**	1,411.70

*Reduced shank 5/16" dia.

SHOP GRADE

Hex Rethreading Bolt Dies HSS & Carbon

- A cost effective and easy to use thread restoring tool. Ideal for shop maintenance or in the field. Always use an appropriate wrench.



THREAD SIZE	ACROSS FLAT	THICK.	HSS PART NO.	HSS PRICE EACH	CARBON STEEL PART NO.	CARBON STEEL PRICE EACH
2-56	19/32"	1/4"	–	–	**73-380-8**	$14.95
4-40	19/32"	1/4"	–	–	**73-381-6**	14.95
5-40	19/32"	1/4"	–	–	**73-382-4**	14.95
6-32	19/32"	1/4"	–	–	**42-414-3**	12.35
8-32	19/32"	1/4"	–	–	**42-415-0**	12.35
10-24	19/32"	1/4"	–	–	**42-416-8**	12.35
10-32	19/32"	1/4"	–	–	**42-417-6**	12.35
12-24	19/32"	1/4"	–	–	**73-383-2**	14.95
1/4-20	19/32"	1/4"	**73-351-9**	$26.35	**42-418-4**	7.30
1/4-28	19/32"	1/4"	**73-352-7**	26.35	**45-148-4**	9.30
5/16-18	11/16"	5/16"	**73-353-5**	31.15	**42-419-2**	8.25
5/16-24	11/16"	5/16"	**73-354-3**	31.15	**42-420-0**	8.25
3/8-16	25/32"	3/8"	**73-355-0**	34.55	**42-421-8**	8.55
3/8-24	25/32"	3/8"	**73-356-8**	34.90	**42-422-6**	8.55
7/16-14	7/8"	7/16"	**73-357-6**	42.35	**42-423-4**	9.60
7/16-20	7/8"	7/16"	**73-358-4**	42.35	**42-424-2**	9.60
1/2-13	1 1/16"	1/2"	**73-359-2**	45.70	**42-425-9**	10.25
1/2-20	1 1/16"	1/2"	**73-360-0**	46.20	**42-426-7**	10.25
9/16-12	1 1/16"	1/2"	**73-361-8**	57.35	**42-427-5**	11.00
9/16-18	1 1/16"	1/2"	**73-362-6**	57.35	**42-428-3**	11.00
5/8-11	1 1/4"	5/8"	**73-363-4**	56.85	**42-429-1**	12.65
5/8-18	1 1/4"	5/8"	**73-364-2**	57.35	**42-430-9**	12.65
11/16-16	1 7/16"	3/4"	–	–	**42-432-5**	14.05
3/4-10	1 7/16"	3/4"	**73-365-9**	67.20	**42-433-3**	16.75
3/4-16	1 7/16"	3/4"	**73-366-7**	67.20	**42-434-1**	16.75
7/8-9	1 5/8"	7/8"	**73-367-5**	78.65	**42-435-8**	19.25
7/8-14	1 5/8"	7/8"	**73-368-3**	78.65	**42-436-6**	19.25
1-8	1 13/16"	1"	**73-369-1**	117.15	**42-437-4**	22.90
1-12	1 13/16"	1"	**73-370-9**	117.15	**42-438-2**	23.05
1-14	1 13/16"	1"	**73-371-7**	117.15	**42-439-0**	22.90
1 1/8-7	2"	1"	**73-372-5**	144.70	**42-440-8**	27.05
1 1/8-12	2"	1"	**73-373-3**	144.70	**42-441-6**	25.25
1 1/4-7	2 3/16"	1"	**73-374-1**	194.70	**42-442-4**	31.15
1 1/4-12	2 3/16"	1"	**73-375-8**	194.70	**42-443-2**	31.15
1 3/8-6	2 3/8"	1"	**73-376-6**	241.55	**42-444-0**	35.70
1 3/8-12	2 3/8"	1"	**73-377-4**	241.55	**42-445-7**	35.70
1 1/2-6	2 9/16"	1"	**73-378-2**	254.25	**42-446-5**	40.05
1 1/2-12	2 9/16"	1"	**73-379-0**	254.25	**42-447-3**	39.65

CUTTING TOOLS

SHOP GRADE

HSS Round Adjustable Split Dies



- For use in hand die stocks or die holders with shank.
- Adjustment is made by means of a screw in the die or screw in die stock.

THREAD SIZE	PART NUMBER	PRICE EACH
13/16" O.D.		
0-80	**42-448-1**	$15.25
1-64	**42-449-9**	15.25
1-72	**42-450-7**	15.25
2-56	**42-451-5**	15.25
2-64	**42-452-3**	15.25
3-48	**42-453-1**	15.25
3-56	**42-454-9**	15.25
4-36	**42-455-6**	15.25
4-40	**42-456-4**	14.50
4-48	**42-457-2**	14.50
5-40	**42-458-0**	14.35
5-44	**42-459-8**	14.35
6-32	**42-460-6**	14.35
6-40	**42-461-4**	14.35
8-32	**42-462-2**	14.50
8-36	**42-463-0**	14.35
10-24	**42-464-8**	14.35
10-32	**42-465-5**	14.50
12-24	**42-466-3**	14.35
12-28	**42-467-1**	14.35
1/4-20	**42-468-9**	12.95
1/4-28	**42-469-7**	12.95
5/16-18	**42-470-5**	12.95
5/16-24	**42-471-3**	12.95
1" O.D.		
4-36	**42-472-1**	$15.30
4-40	**42-473-9**	17.50
4-48	**42-474-7**	17.50
5-40	**42-475-4**	17.50
5-44	**42-476-2**	17.50
6-32	**42-477-0**	17.50
6-40	**42-478-8**	17.35
8-32	**42-479-6**	17.50
8-36	**42-480-4**	17.35
10-24	**42-481-2**	17.50
10-32	**42-482-0**	17.50
12-24	**42-483-8**	17.35
12-28	**42-484-6**	17.35
14-20	**42-485-3**	17.50
14-24	**42-486-1**	17.50
1/4-20	**42-487-9**	17.50
1/4-28	**42-488-7**	17.50
5/16-18	**42-489-5**	17.50
5/16-24	**42-490-3**	17.50
3/8-16	**42-491-1**	17.50
3/8-24	**42-492-9**	17.50
7/16-14	**42-493-7**	17.50
7/16-20	**42-494-5**	17.50
1/2-13	**42-495-2**	17.50
1/2-20	**42-496-0**	17.50
1 13/16" O.D.		
1/4-20	**42-497-8**	$28.30
1/4-28	**42-498-6**	28.60
5/16-18	**42-499-4**	28.30
5/16-24	**42-500-9**	28.30

THREAD SIZE	PART NUMBER	PRICE EACH
1 13/16" O.D. (cont.)		
3/8-16	**42-501-7**	$28.30
3/8-24	**42-502-5**	28.30
7/16-14	**42-503-3**	28.30
7/16-20	**42-504-1**	28.30
1/2-13	**42-505-8**	28.30
1/2-20	**42-506-6**	28.30
9/16-12	**42-507-4**	28.75
9/16-18	**42-508-2**	28.55
5/8-11	**42-509-0**	28.55
5/8-18	**42-510-8**	28.55
11/16-11	**42-511-6**	28.75
11/16-16	**42-512-4**	28.75
3/4-10	**42-513-2**	28.55
3/4-16	**42-514-0**	28.45
2" O.D.		
1/4-20	**42-515-7**	$53.90
1/4-28	**42-516-5**	53.90
5/16-18	**42-517-3**	53.90
5/16-24	**42-518-1**	53.90
3/8-16	**42-519-9**	53.90
3/8-24	**42-520-7**	53.90
7/16-20	**42-522-3**	53.90
1/2-13	**42-523-1**	53.95
1/2-20	**42-524-9**	53.90
9/16-12	**42-525-6**	54.00
9/16-18	**42-526-4**	53.90
5/8-11	**42-527-2**	51.05
5/8-18	**42-528-0**	50.55
11/16-16	**42-530-6**	51.00
3/4-10	**42-531-4**	46.45
3/4-16	**42-532-2**	46.45
7/8-9	**42-533-0**	46.00
7/8-14	**42-534-8**	46.00
1-8	**42-535-5**	46.45
1-12	**42-536-3**	46.00
1-14	**42-537-1**	46.00
2 1/2" O.D.		
1-8	**42-538-9**	$83.65
1-14	**42-540-5**	83.60
1 1/8-7	**42-541-3**	83.65
1 1/8-12	**42-542-1**	83.60
1 1/4-7	**42-543-9**	83.60
1 1/4-12	**42-544-7**	83.60
1 3/8-12	**42-546-2**	83.65
1 1/2-6	**42-547-0**	83.65
1 1/2-12	**42-548-8**	83.60
3" O.D.		
1-8	**70-133-4**	$149.00
1-14	**70-134-2**	149.00
1 1/8-7	**42-549-6**	146.55
1 1/8-12	**42-550-4**	146.55
1 1/4-7	**42-551-2**	146.55
1 1/4-12	**42-552-0**	141.85
1 3/8-12	**42-554-6**	146.55

SHOP GRADE

HSS Metric Round Adjustable Split Dies



- For use in hand die stocks or die holders with shank.
- Adjustment is made by means of a screw in the die or screw in die stock.
- Used for cutting new threads in mold steel and nonferrous materials.

THREAD SIZE	PART NUMBER	PRICE EACH
13/16" O.D.		
M1x0.20	**73-035-8**	$25.95
M1x0.25	**73-036-6**	25.95
M1.2x0.20	**73-037-4**	27.00
M1.2x0.25	**73-038-2**	25.95
M1.4x0.20	**73-039-0**	27.00
M1.4x0.30	**73-040-8**	25.95
M1.6x0.35	**73-041-6**	25.95
M1.7x0.20	**73-042-4**	27.00
M1.7x0.35	**73-043-2**	25.95
M1.8x0.35	**73-044-0**	25.95
M2x0.25	**73-045-7**	24.15
M2x0.40	**73-046-5**	24.15
M2x0.45	**73-047-3**	24.15
M2x0.50	**73-048-1**	24.15
M2.2x0.45	**73-049-9**	24.15
M2.3x0.40	**73-050-7**	24.15
M2.5x0.45	**73-051-5**	24.15
M2.6x0.35	**73-052-3**	25.00
M2.6x0.45	**73-053-1**	24.15
M3x0.35	**73-054-9**	24.15
M3x0.50	**73-055-6**	24.15
M3x0.60	**73-056-4**	24.15
M3x0.75	**73-057-2**	24.15
M3.5x0.35	**73-058-0**	24.15
M3.5x0.60	**73-059-8**	24.15
M4x0.50	**73-060-6**	24.15
M4x0.70	**73-061-4**	24.15
M4x0.75	**73-062-2**	24.15
M4.5x0.50	**73-063-0**	24.15
M4.5x0.75	**73-064-8**	24.15
1" O.D.		
M1.5x0.35	**73-065-5**	$22.20
M2x0.40	**73-066-3**	17.20
M2x0.45	**73-067-1**	17.20
M3x0.50	**73-068-9**	17.20
M3.5x0.60	**73-069-7**	17.20
M4x0.50	**73-070-5**	17.20
M4x0.70	**73-071-3**	22.20
M5x0.50	**73-072-1**	22.20
M5x0.75	**73-073-9**	22.20
M5x0.80	**73-074-7**	22.20
M5x0.90	**73-075-4**	22.20
M5x1.00	**73-076-2**	22.20
M5.5x0.70	**73-077-0**	23.05
M5.5x0.90	**73-078-8**	22.20
M6x0.50	**73-079-6**	22.20
M6x0.75	**73-080-4**	22.20
M6x1.00	**73-081-2**	22.20
M6x1.25	**73-082-0**	22.20

THREAD SIZE	PART NUMBER	PRICE EACH
1" O.D. (cont.)		
M6.3x1.00	**73-083-8**	$22.20
M7x0.50	**73-084-6**	22.20
M7x0.75	**73-085-3**	22.20
M7x1.00	**73-086-1**	22.20
M7x1.25	**73-087-9**	22.20
M8x0.75	**73-088-7**	22.20
M8x1.00	**73-089-5**	22.20
M8x1.25	**73-090-3**	22.20
M9x0.75	**73-091-1**	22.20
M9x1.00	**73-092-9**	22.20
M9x1.25	**73-093-7**	22.20
M10x0.75	**73-094-5**	22.20
M10x1.00	**73-095-2**	22.20
M10x1.25	**73-096-0**	22.20
M10x1.50	**73-097-8**	22.20
M11x1.00	**73-098-6**	22.20
M11x1.25	**73-099-4**	22.20
M11x1.50	**73-100-0**	22.20
1 1/2" O.D.		
M12x1.00	**73-101-8**	30.00
M12x1.25	**73-102-6**	30.00
M12x1.50	**73-103-4**	30.00
M12x1.75	**73-104-2**	30.00
M13x1.50	**73-105-9**	30.35
M14x0.75	**73-106-7**	29.50
M14x1.00	**73-107-5**	29.15
M14x1.25	**73-108-3**	30.00
M14x1.50	**73-109-1**	30.00
M14x1.75	**73-110-9**	30.35
M14x2.00	**73-111-7**	30.00
M15x1.00	**73-112-5**	30.00
M15x1.50	**73-113-3**	30.00
M16x0.75	**73-114-1**	29.50
M16x1.00	**73-115-8**	29.15
M16x1.25	**73-116-6**	30.35
M16x1.50	**73-117-4**	30.00
M16x2.00	**73-119-0**	30.00
M17x0.50	**73-120-8**	30.00
M17x1.00	**73-121-6**	30.00
M17x1.25	**73-122-4**	30.00
M17x1.50	**73-123-2**	30.00
M18x1.00	**73-124-0**	23.80
M18x1.25	**73-125-7**	29.50
M18x1.50	**73-126-5**	30.00
M18x2.50	**73-128-1**	30.35
M19x1.50	**73-129-9**	29.50
M20x1.00	**73-130-7**	29.15
M20x1.25	**73-131-5**	29.50

THREAD SIZE	PART NUMBER	PRICE EACH
1 1/2" O.D. (cont.)		
M20x1.50	**73-132-3**	$30.00
M20x2.00	**73-133-1**	23.80
M20x2.50	**73-134-9**	30.00
2" O.D.		
M18x1.00	**73-135-6**	47.70
M21x2.50	**73-138-0**	47.70
M22x1.00	**73-139-8**	51.60
M22x1.50	**73-140-6**	51.15
M22x2.00	**73-141-4**	47.70
M22x2.50	**73-142-2**	51.60
M23x2.00	**73-143-0**	47.70
M23x2.50	**73-144-8**	47.70
M24x1.00	**73-145-5**	42.20
M24x1.50	**73-146-3**	42.20
M24x2.00	**73-147-1**	53.15
M24x3.00	**73-148-9**	51.15
M26x1.50	**73-149-7**	47.70
M26x3.00	**73-150-5**	47.70
M27x1.50	**73-151-3**	42.20
M27x2.00	**73-152-1**	42.20
M30x1.50	**73-153-9**	42.20
M30x2.00	**73-154-7**	42.20
M30x3.50	**73-155-4**	42.20
2 1/2" O.D.		
M30x150	**73-158-8**	$106.95
M30x2.00	**73-159-6**	106.95
M30x3.50	**73-161-2**	106.95
M32x1.50	**73-162-0**	106.95
M33x1.50	**73-163-8**	106.95
M33x3.00	**73-165-3**	106.95
M34x1.50	**73-167-9**	106.95
M36x1.00	**73-168-7**	106.95
M36x1.50	**73-169-5**	106.95
M36x3.00	**73-170-3**	106.95
M36x4.00	**73-171-1**	106.95
M38x1.50	**73-172-9**	106.95
M38x2.50	**73-173-7**	106.95
3" O.D.		
M39x3.00	**73-174-5**	$171.30
M39x4.00	**73-175-2**	171.30
M40x1.50	**73-176-0**	171.30
M40x4.00	**73-177-8**	171.30
M42x2.00	**73-178-6**	171.30
M48x2.00	**73-179-4**	171.30
M52x3.00	**73-180-2**	171.30
M52x5.00	**73-181-0**	171.30

SHOP GRADE

HSS NPS & NPT Round Split Adjustable Pipe Dies

For Use With Hand Die Stocks or Die Holders

- Used for cutting new threads in mild steel or nonferrous materials.
- Adjustment made by means of a screw in the die or screw in the die stock.
- Overall lengths may vary from ANSI standards.



71-222-4



73-605-8

THREAD SIZE	OUTSIDE DIA.	NPS STYLE PART NO.	NPS STYLE PRICE EA.	NPT STYLE PART NO.	NPT STYLE PRICE EA.
1/16 - 27	1"	**71-218-2**	$31.25	**73-605-8**	$24.00
1/8 - 27	1"	**71-219-0**	31.25	**73-606-6**	24.00
1/8 - 27	1 1/2"	**71-220-8**	47.90	**73-607-4**	36.10
1/4 - 18	1 1/2"	**71-221-6**	47.90	**73-608-2**	36.10
1/4 - 18	2"	**71-222-4**	50.35	**73-609-0**	61.65
3/8 - 18	1 1/2"	**71-223-2**	47.90	**73-610-8**	36.10
3/8 - 18	2"	**71-224-0**	50.35	**73-611-6**	50.15
1/2 - 14	1 1/2"	—	—	**73-612-4**	36.10
1/2 - 14	2	**71-225-7**	64.65	**73-613-2**	61.00
3/4 - 14	2	**71-226-5**	64.65	**73-614-0**	61.00
1 – 11 1/2	2 1/2"	**71-227-3**	116.80	**73-615-7**	94.75
1 1/4 - 11 1/2"	3	**71-228-1**	190.85	**73-616-5**	176.95
1 1/2 - 11 1/2"	3	**71-229-9**	256.90	**73-617-3**	209.45


49-288-4

GENERAL®

Plain Tap Wrenches & Set

Individual

- Self-centering, hardened steel jaws and knurled chuck sleeve.
- For holding taps, reamers, screw extractors, hand turned tools and drill bits.
- No. 163 has rigid T-Handle.
- No. 164 and 166 have sliding T-handle for fitting into tight spaces with greater leverage.

Set

- Includes: No. 164 and 166 Plain Tap Wrench and No. 715P Reference Table.
- The plastic reference table is the essential reference table for tool makers, machinists and mechanics.
- The front of the table has machine screw size tap drill chart for recommended 75% depth thread.
- The back of the table has decimal equivalents table in 64ths from 1/64" to 63/64".
- Packed in a sturdy, fitted foam lined plastic case.

Individual

TAP SIZE	LENGTH	MODEL #	PART NO.	PRICE
#0 - #8	2 1/4"	163	**49-288-4**	$15.95
#0 – 1/4"	2 3/4"	164	**49-289-2**	16.65
#12 – 1/2"	3 3/4"	166	**49-290-0**	21.05

Optional:

DESCRIPTION	MODEL #	PART NO.	PRICE
Plain Tap Wrench Set	167M	**49-291-8**	$44.35


80-546-5


80-541-6

SHOP GRADE

Round Die Holders & Hex Adapters

Round Die Holders

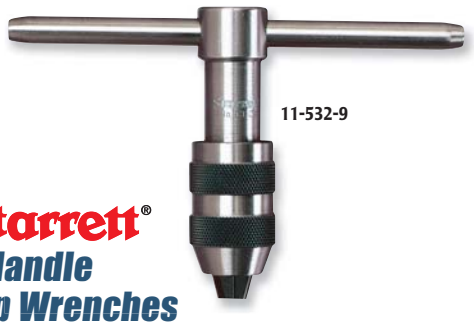
- Countersunk on center hole for smoother chip flow.
- 2 set screws 90° apart.
- Black oxide finish.
- Dies not included.

OD	SHANK SIZE	BODY DIA.	BODY L	OAL	PART NUMBER	PRICE
13/16"	1/2"	1 1/2"	1"	3"	**80-545-7**	$24.90
1"	1/2"	1 1/2"	1"	3"	**80-546-5**	24.90
1 1/2"	1/2"	2 1/8"	1 1/4"	3 1/4"	**80-538-2**	32.20

Hex Adapters

- Easily converts round dies to hex.
- Great to use when conventional die stocks are difficult to use.
- Black oxide finish.
- 2 set screws 90° apart.

ROUND DIE OD	PART NUMBER	PRICE
13/16"	**80-539-0**	$12.65
1"	**80-540-8**	15.95
1 1/2"	**80-541-6**	19.40
2"	**80-542-4**	22.00
2 1/2"	**80-543-2**	33.50
3"	**80-544-0**	49.90


11-532-9

Starrett®

T-Handle Tap Wrenches

- For holding taps, drills, reamers and other small tools to be turned by hand.
- All wrenches have a sliding handle that is frictionally held. This permits the handle to be removed entirely or positioned so that leverage can be applied when working in close quarters.
- These longer tap wrenches are very handy in machine, automobile service and aviation repair shops because they eliminate the need for stocking special long taps for depths which cannot be reached with shorter wrenches.

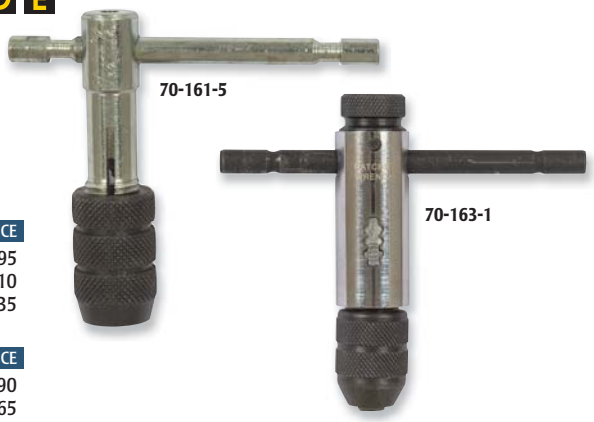
TAP SIZE	SQUARE SHANK	BODY LENGTH	STARRETT MODEL #	PART NUMBER	PRICE EACH
1/16 – 3/16"	1/16 – 5/32"	2"	93A	**11-530-3**	$36.05
7/32 – 7/16"	5/32 – 1/4"	2 1/2"	93B	**11-531-1**	38.40
1/4 – 1/2"	3/16 – 5/16"	3 1/2"	93C	**11-532-9**	49.40
1/16 – 3/16"	1/16 – 5/32"	6"	93D	**11-533-7**	52.90
7/32 – 7/16"	5/32 – 1/4"	10"	93E	**11-534-5**	69.75
1/4 – 1/2"	3/16 – 5/16"	13"	93F	**11-535-2**	76.70

SHOP GRADE

T-Handle Tap Wrenches

Plain Type & Ratchet Type

- Use for hand tapping. Also use with drills and reamers.


70-161-5

70-163-1

Plain Type

TAP SIZE	OAL	PART NO.	PRICE
1/16 – 3/16"	2 23/64"	**70-160-7**	$5.95
5/32 – 1/4"	2 3/4"	**70-161-5**	7.10
1/4 – 1/2"	3 35/64"	**70-162-3**	8.35

Ratchet Type

TAP SIZE	OAL	PART NO.	PRICE
5/32 – 1/4"	3 3/8"	**70-163-1**	$26.90
1/4 – 1/2"	4 3/8"	**70-164-9**	22.65

CUTTING TOOLS



49-292-6

GENERAL®

Reversible Ratchet Tap Wrenches & Set

Individual

- Ratchet can be set for right or left hand operation or locked for non-ratchet use.
- Self-centering, hardened steel jaws and knurled chuck sleeve provide positive grip on taps.
- For holding taps, reamers, screw extractors, hand turned tools and drill bits.
- Sliding T-handle for fitting into tight spaces with operator leverage.

Set

- Includes: No. 161R and 162R Ratcheting Tap Wrench and No. 715P Reference Table.
- The plastic reference table is the essential reference table for tool makers, machinists and mechanics.
- Front of the table has machine screw size tap drill chart for recommended 75% depth thread.
- Back of the table has decimal equivalents table in 64ths from 1/64" to 63/64".
- Packed in a sturdy, fitted foam lined plastic case.

Individual

TAP SIZE	LENGTH	MODEL #	PART NO.	PRICE
#0 - #8	2 3/4"	160R	**49-292-6**	$40.20
#0 - 1/4"	3 1/2"	161R	**49-293-4**	41.15
#12 - 1/2"	4 1/4"	162R	**49-294-2**	51.90

Optional:

DESCRIPTION	MODEL #	PART NO.	PRICE
Reversible Ratcheting Tap Wrench Set	165M	**49-295-9**	$91.70



SHOP GRADE Straight Tap Wrenches

- Straight handle design provides good leverage.
- Adjust for different sizes by turning on the handle.

CAP. HAND TAPS	CAP. HAND REAMERS	APPROX. OAL	PART NUMBER	PRICE EACH
1/16 - 1/4"	1/8 - 21/64"	7"	**42-579-3**	$9.90
3/32 - 3/8"	1/8 - 25/64"	9"	**42-580-1**	14.15
3/16 - 1/2"	11/64 - 7/16"	11"	**42-581-9**	15.15
1/4 - 3/4"	11/64 - 41/64"	15"	**42-582-7**	22.95
1/4 - 1 1/8"	9/32 - 29/32"	19"	**42-583-5**	39.90
3/8 - 1 3/4"	17/64 - 1"	38"	**42-584-3**	64.30



42-571-0

SHOP GRADE Round Die Stocks & Set

3 Screw Type

- Stocks of this design will hold round adjustable dies of any construction although they are specifically manufactured for holding dies with the open type adjustment.

Individuals

DIA.	OAL	PART NO.	PRICE EA.
13/16"	6 1/2"	**42-570-2**	$5.90
1"	8 1/4"	**42-571-0**	5.90
1 1/2"	12 3/8"	**42-572-8**	8.05
2"	15 3/8"	**42-573-6**	12.95
2 1/2"	19"	**42-574-4**	23.50
3"	22 1/4"	**42-575-1**	39.60
3 1/2"	29 3/4"	**42-576-9**	56.70
4"	33"	**42-577-7**	65.10
5"	43"	**42-578-5**	133.65

4 pc. Set

SIZES	PART NO.	PRICE
13/16, 1, 1 1/2, 2"	**72-385-8**	$25.60

GW GEARWRENCH

5 Pc. Medium Ratcheting Tap & Die Drive Tool Set

- Die adapter works on round and hex shaped dies.
- 5 degree ratcheting arc with reversible lever eliminates hand over hand guard.
- Auto locking feature allows for safe removal of tap adapter.
- Spring-loaded cap allows for quick-release of large tap adapter.
- Extension adapters provide access in tight confined areas.
- Set Includes:
  - Medium Ratcheting Sliding "T" Wrench.
  - Small Tap Adapter: 0.110 – 0.191".
  - Medium Tap Adapter: 0.219 – 0.280".
  - Medium Hex die adapter.
  - Sliding "T" for adapters.



46-555-9

DESCRIPTION	PART NO.	PRICE
5 Pc. Med. Ratcheting Tap & Die Drive Tool Set	**46-555-9**	$90.35





Self-Aligning Hand Tapper & Reamer

- Accurate, economical and time saving!
- Automatically squares up the tap or reamer with the surface.
- Holds tap and reamer true, preventing breakage.
- 3/8" dia. x 1/2" stem for chucking alignment.
- Center on top of stem for use with Tap-guide.
- Slip-fit T-wrench made of steel, finish ground all over.
- Base of guide has two 120° Vees, which also accepts round parts.
- Hardened jaws. When changing jaws, housing slots serve as wrench for closing sleeve.

DESCRIPTION	PART NO.	PRICE
Complete set with guide, holder plus "A" and "B" jaws	**98-365-0**	$96.85

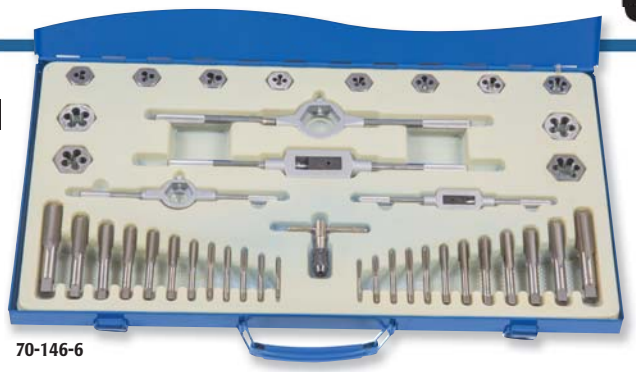
Extra Jaws

DESCRIPTION	PART NO.	PRICE
"A" Jaws for 0-80 to 1/4" - 20/28 Taps	**98-366-8**	$19.12
"B" Jaws for 1/4 -20 to 1/2 -13 Taps	**98-367-6**	19.12

SHOP GRADE

Tap & Hex Die Sets

- Case included with each set.



70-146-6

Carbon Steel

NO. OF PCS.	SIZE RANGE	THREAD TYPE	SET INCLUDES	ACCESSORIES	PART NUMBER	PRICE
Includes: 1 each Tap & Hex Die Sizes						
41	1/8" – 3/4"	UNF	1/8 - 44, 5/32 - 36, 3/16 - 32, 7/32 - 32, 1/4 - 28, 5/16 - 24, 3/8 - 24, 7/16 - 20, 1/2 - 20, 9/16 - 18, 5/8 - 18, 3/4 - 16	2 Straight and 1 T-Handle Tap Wrenches and 2 Die Stocks	**70-146-6**	$187.15
Metric Set Includes: 1 each Metric Tap & Hex Die Sizes						
41	M3 – M12	Metric Coarse Metric Fine NPT	M3 x 0.5, M3 x 0.6, M4 x 0.7, M4 x 0.75, M5 x 0.8, M5 x 0.9, M6 x 0.75, M6 x 1, M7 x 0.75, M7 x 1, M8 x 1, M8 x 1.25, M10 x 1.25, M10 x 1.5, M12 x 1.5, M12 x 1.75, 1/8 - 27 NPT	Adjustable Die Stock, Adjustable Handle Tap Wrench, Screw Pitch Gage, Screwdriver and T-Handle Tap Wrench	**70-147-4**	185.45
Pipe Tap & Hex Die Sizes Includes: 2 Each Tap						
12	1/8" – 1"	NPT	1/8 - 27, 1/4 - 18, 3/8 - 18, 1/2 - 14, 3/4 - 14, 1 - 11 1/2		**70-148-2**	248.70

HSS

NO. OF PCS.	SIZE RANGE	THREAD TYPE	SET INCLUDES	ACCESSORIES	PART NUMBER	PRICE
Includes: 2 Each Tap & 1 Each Hex Die Sizes						
41	1/8" – 3/4"	UNF	1/8 - 44, 5/32 - 36, 3/16 - 32, 7/32 - 32, 1/4 - 28, 5/16 - 24, 3/8 - 24, 7/16 - 20, 1/2 - 20, 9/16 - 18, 5/8 - 18, 3/4 - 16	2 Die Stocks, 2 Straight Tap Wrenches and 1 T-Handle Tap Wrench	**70-149-0**	$383.30



98-368-4

SHOP GRADE

Self-Aligning Hand-Tapper & Reamer Aligner Set

Made of Mild Steel for Easy Modifications

- V-Shape – for use on round stock. Holds fixture perpendicular to the surface

Set includes:

- Stop body plus 4 stop rods.
- 1 Tap holder (wrench).
- 2 Sets of jaws accepting up to 1/2" taps.

DESCRIPTION	PART NO.	PRICE
Self-Aligning Hand-Tapper & Reamer Aligner Set	**98-368-4**	$44.95

SHOP GRADE

Tap Guide

Reversible Tension Pin for Male and Female Centering of Tap

- 1/2" Diameter hardened shank, knurled foreasy handling.
- 3/16" Diameter hardened spring tension pin.



70-224-1

TAP RANGE	SHANK DIA.	LENGTH	PART NUMBER	PRICE
#10 - 1"	1/2"	3"	**70-224-1**	$16.95



60-515-4

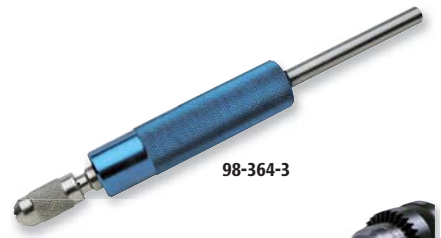
IRWIN
HANSON

Adjustable Tap Adapter Set

Use With Taps, Reamers, Screw Extractors and Tools with Square Shanks

- Tap Range: #0 - 1/2"
- Fits 3/8" square drive wrenches
- Shank Diameter: 3/8"
- Length: 2"

DESCRITPION	PART NO.	PRICE
Adjustable Tap Adapter Set	**60-515-4**	$41.25



98-364-3



SHOP GRADE

Machine Hand Tap Guide

Start Every Hole Straight & Prevent Tap Breakage

- Provides sensitive feel for hand-tapping small holes on mills, drills and lathes.
- Extra-long 6 1/2" axial float, for convenient loading and unloading of parts

TAP RANGE	SHANK DIA.	HANDLE DIA.	PART NUMBER	PRICE
#0 - #12	3/8"	1"	**98-364-3**	$34.60

CUTTING TOOLS

SHOP GRADE

Hand Tapper

#6 to 5/8" Capacity

- Spindle hardened and ground.
- Spindle balance for highly sensitive tap feel.
- Offset handle for speed and ease of operation.
- Slide lock vise jaw prevents tap breakage.
- Complete with offset handle, hardened precision spindle, 9 tap adapters (#6 to 5/8") and adapter rack.



70-255-5

Specifications:

Table Length: 12 1/2"
Table Width: 6 1/2"
Clearance Height: 7 7/8"
Throat Depth: 7 1/2"
Weight (approx.): 37 Lbs.

DESCRIPTION	PART NO.	PRICE
Hand Tapper	**70-255-5**	$299.95

Set of 9 Replacement Adapters

- Sizes: #6, #8, #10, 1/4", 5/16", 3/8", 7/16", 1/2", 5/8"

DESCRIPTION	PART NO.	PRICE
Set of 9 Repl. Adapters	**70-256-3**	$79.95

SHOP GRADE

HSS Straight Shank Chucking Reamer Sets

- Use with drill presses on ferrous and non-ferrous materials.



72-361-9

NO. OF PCS.	SIZE	STYLE	CASE	PART NUMBER	PRICE
29	1/16" to 1/2" X 64ths	RH Spiral, RH Cut	Metal	**72-361-9**	$401.10
14	Over/Under 0.124" – 0.501"	Straight	Plastic Pouch	**72-362-7**	235.95



SHOP GRADE

HSS Straight Flute Hand Reamers

- Used by hand for the finishing of holes.
- Square end can be held in wrench, tap wrenches, vises, etc.

SIZE	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/8"	1 1/2"	3"	**44-394-5**	$24.00
3/16"	1 3/4"	3 1/2"	**44-395-2**	24.00
1/4"	2"	4"	**44-396-0**	26.35
9/32"	2 1/8"	4 1/4"	**44-397-8**	30.15
5/16"	2 1/4"	4 1/2"	**44-398-6**	29.15
11/32"	2 3/8"	4 3/4"	**44-399-4**	34.35
3/8"	2 1/2"	5"	**44-400-0**	32.90
13/32"	2 5/8"	5 1/4"	**44-401-8**	38.15
7/16"	2 3/4"	5 1/2"	**44-402-6**	37.35
15/32"	2 7/8"	5 3/4"	**44-403-4**	42.55
1/2"	3"	6"	**44-404-2**	39.85
9/16"	3 1/4"	6 1/2"	**44-405-9**	46.55
5/8"	3 1/2"	7"	**44-406-7**	49.25
21/32"	3 11/16"	7 3/8"	**44-407-5**	56.25

SIZE	FLUTE L	OAL	PART NUMBER	PRICE EACH
11/16	3 7/8"	7 3/4"	**44-409-1**	$55.05
3/4"	4 3/16"	8 3/8"	**44-410-9**	57.70
25/32"	4 3/8"	8 3/4"	**44-411-7**	60.30
13/16"	4 9/16"	9 1/8"	**44-412-5**	66.40
7/8"	4 7/8"	9 3/4"	**44-414-1**	69.75
15/16"	5 1/8"	10 1/4"	**44-415-8**	70.40
31/32"	5 5/16"	10 5/8"	**44-416-6**	82.65
1"	5 7/16"	10 7/8"	**44-417-4**	84.50
1 1/16"	5 5/8"	11 1/4"	**44-418-2**	100.65
1 1/8"	5 13/16"	11 5/8"	**44-419-0**	105.85
1 1/4"	6 1/8"	12 1/4"	**44-420-8**	128.55
1 3/8"	6 5/16"	12 5/8"	**44-421-6**	153.35
1 7/16"	6 7/16"	12 7/8"	**44-422-4**	170.15
1 1/2"	6 1/2"	13"	**44-423-2**	181.00



SHOP GRADE

HSS Taper Pin Reamers Straight Flute

- These reamers are designed for hand reaming holes into which standard taper pins will fit.
- Taper of 1/4" to the foot.

SIZE	DIA. SMALL END	DIA. LARGE END	FLUTE L	OAL	PART NUMBER	PRICE EACH
5/0	0.0719"	0.0966"	1 3/16"	2 3/16"	**43-432-4**	$22.30
4/0	0.0869"	0.1142"	1 5/16"	2 5/16"	**43-433-2**	22.30
3/0	0.1029"	0.1302"	1 5/16"	2 5/16"	**43-434-0**	18.90
2/0	0.1137"	0.1462"	1 9/16"	2 9/16"	**43-435-7**	16.85
0	0.1287"	0.1638"	1 11/16"	2 15/16"	**43-436-5**	16.20
1	0.1447"	0.1798"	1 11/16"	2 15/16"	**43-437-3**	15.80
2	0.1605"	0.2008"	1 15/16"	3 3/16"	**43-438-1**	15.85
3	0.1813"	0.2294"	2 5/16"	3 11/16"	**43-439-9**	15.80
4	0.2071"	0.2604"	2 9/16"	4 1/16"	**43-440-7**	17.60
5	0.2409"	0.2994"	2 13/16"	4 5/16"	**43-441-5**	18.90
6	0.2773"	0.3540"	3 11/16"	5 7/16"	**43-442-3**	22.75
7	0.3297"	0.4220"	4 7/16"	6 5/16"	**43-443-1**	29.30
8	0.3971"	0.5050"	5 3/16"	7 3/16"	**43-444-9**	37.45
9	0.4805"	0.6066"	6 1/16"	8 5/16"	**43-445-6**	45.55
10	0.5799"	0.7216"	6 13/16"	9 5/16"	**43-446-4**	50.05
11	0.7060"	0.8780"	8 1/4"	11 1/4"	**43-447-2**	147.10
12	0.8420"	1.0500"	10"	13 5/8"	**43-448-0**	215.65
13	1.0090"	1.2590"	12"	16"	**43-449-8**	314.45
14	1.2500"	1.5420"	14"	18 1/4"	**43-450-6**	433.15



43-451-4

SHOP GRADE

HSS Taper Pin Reamer Sets

- Straight flute and left-handed flute are intended for hand reaming in easy-to-ream materials.
- Helical flute is designed for machine reaming.
- Supplied in plastic pouch.

FLUTE	NO. OF PCS.	SIZE RANGE	PART NO.	PRICE
Straight	6	#0, 1, 2, 3, 4, 5	**43-451-4**	$87.15
Straight	11	#0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	**43-452-2**	283.70
Left-Hand	6	#0, 1, 2, 3, 4, 5	**72-503-6**	115.05
Left-Hand	11	#0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	**72-504-4**	314.90
Helical	17	#7/0, 6/0, 5/0, 4/0, 3/0, 2/0 #0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	**72-505-1**	257.35

SHOP GRADE

HSS Straight Flute Chucking Reamers

Fractional Sizes



SIZE	DEC. EQUIV.	FLUTE L	OAL	PART NUMBER	PRICE EACH
1/32"	0.0312"	1/2"	1 3/8"	**43-275-7**	$16.80
3/64"	0.0469"	1/2"	2 1/2"	**43-276-5**	18.10
1/16"	0.0625"	1/2"	2 1/2"	**43-277-3**	16.25
5/64"	0.0781"	3/4"	3"	**43-278-1**	11.75
3/32"	0.0938"	3/4"	3"	**43-279-9**	10.85
7/64"	0.1094"	7/8"	3 1/2"	**43-280-7**	11.80
1/8"	0.1250"	7/8"	3 1/2"	**43-281-5**	9.90
9/64"	0.1406"	1"	4"	**43-282-3**	14.40
5/32"	0.1562"	1"	4"	**43-283-1**	14.40
11/64"	0.1719"	1 1/8"	4 1/2"	**43-284-9**	15.40
3/16"	0.1875"	1 1/8"	4 1/2"	**43-285-6**	13.90
13/64"	0.2031"	1 1/4"	5"	**43-286-4**	17.05
7/32"	0.2188"	1 1/4"	5"	**43-287-2**	17.15
15/64"	0.2344"	1 1/2"	6"	**43-288-0**	17.50
1/4"	0.2500"	1 1/2"	6"	**43-289-8**	16.30
17/64"	0.2656"	1 1/2"	6"	**43-290-6**	21.10
9/32"	0.2812"	1 1/2"	6"	**43-291-4**	21.10
19/64"	0.2969"	1 1/2"	6"	**43-292-2**	21.10
5/16"	0.3125"	1 1/2"	6"	**43-293-0**	18.95
21/64"	0.3281"	1 1/2"	6"	**43-294-8**	22.65
11/32"	0.3438"	1 1/2"	6"	**43-295-5**	22.65
23/64"	0.3594"	1 3/4"	7"	**43-296-3**	22.65
3/8"	0.3750"	1 3/4"	7"	**43-297-1**	21.10
25/64"	0.3906"	1 3/4"	7"	**43-298-9**	25.40
13/32"	0.4062"	1 3/4"	7"	**43-299-7**	26.70
27/64"	0.4219"	1 3/4"	7"	**43-300-3**	26.70
7/16"	0.4375"	1 3/4"	7"	**43-301-1**	25.05
29/64"	0.4531"	1 3/4"	7"	**43-302-9**	29.30
15/32"	0.4688"	1 3/4"	7"	**43-303-7**	29.30
31/64"	0.4844"	2"	8"	**43-304-5**	29.30
1/2"	0.5000"	2"	8"	**43-305-2**	27.15
33/64"	0.5156"	2"	8"	**43-306-0**	35.60
17/32"	0.5312"	2"	8"	**43-307-8**	35.60
35/64"	0.5469"	2"	8"	**43-308-6**	35.60
9/16"	0.5625"	2"	8"	**43-309-4**	33.90
37/64"	0.5781"	2"	8"	**43-310-2**	35.60
19/32"	0.5938"	2"	8"	**43-311-0**	39.25
39/64"	0.6094"	2 1/4"	9"	**43-312-8**	39.25
5/8"	0.6250"	2 1/4"	9"	**43-313-6**	45.10
41/64"	0.6406"	2 1/4"	9"	**43-314-4**	46.45
21/32"	0.6562"	2 1/4"	9"	**43-315-1**	49.25
43/64"	0.6719"	2 1/4"	9"	**43-316-9**	$52.15
11/16"	0.6875"	2 1/4"	9"	**43-317-7**	49.25
45/64"	0.7031"	2 1/4"	9"	**43-318-5**	56.20
23/32"	0.7188"	2 1/4"	9"	**43-319-3**	56.20
47/64"	0.7344"	2 1/2"	9 1/2"	**43-320-1**	65.10
3/4"	0.7500"	2 1/2"	9 1/2"	**43-321-9**	58.25
49/64"	0.7656"	2 1/2"	9 1/2"	**43-322-7**	63.00
25/32"	0.7812"	2 1/2"	9 1/2"	**43-323-5**	61.30
51/64"	0.7969"	2 1/2"	9 1/2"	**43-324-3**	66.45
13/16"	0.8125"	2 1/2"	9 1/2"	**43-325-0**	60.75
53/64"	0.8281"	2 1/2"	9 1/2"	**43-326-8**	66.85
27/32"	0.8438"	2 1/2"	9 1/2"	**43-327-6**	69.55
55/64"	0.8594"	2 5/8"	10"	**43-328-4**	76.80
7/8"	0.8750"	2 5/8"	10"	**43-329-2**	71.40
57/64"	0.8906"	2 5/8"	10"	**43-330-0**	78.05
29/32"	0.9062"	2 5/8"	10"	**43-331-8**	76.90
59/64"	0.9219"	2 5/8"	10"	**43-332-6**	83.95
15/16"	0.9375"	2 5/8"	10"	**43-333-4**	81.75
61/64"	0.9531"	2 5/8"	10"	**43-334-2**	83.95
31/32"	0.9688"	2 5/8"	10"	**43-335-9**	86.15
63/64"	0.9844"	2 3/4"	10 1/2"	**43-336-7**	88.00
1"	1.0000"	2 3/4"	10 1/2"	**43-337-5**	88.00
1 1/32"	1.0313"	2 3/4"	10 1/2"	**71-359-4**	77.50
1 1/16"	1.0625"	2 3/4"	10 1/2"	**43-338-3**	104.70
1 3/32"	1.0938"	2 7/8"	11"	**71-360-2**	89.65
1 1/8"	1.1250"	2 7/8"	11"	**43-339-1**	109.15
1 5/32"	1.1562"	2 7/8"	11"	**71-361-0**	93.45
1 3/16"	1.1875"	2 7/8"	11"	**43-340-9**	130.45
1 7/32"	1.2188"	2 7/8"	11"	**71-362-8**	111.65
1 1/4"	1.2500"	3"	11 1/2"	**43-341-7**	137.25
1 9/32"	1.2812"	3"	11 1/2"	**71-363-6**	117.50
1 5/16"	1.3125"	3"	11 1/2"	**43-342-5**	159.20
1 3/8"	1.3750"	3 1/4"	12"	**43-343-3**	167.50
1 7/16"	1.4375"	3 1/2"	12 1/2"	**43-344-1**	180.40
1 1/2"	1.5000"	3 1/2"	12 1/2"	**43-345-8**	193.05
1 9/16"	1.5625"	3 1/2"	12 1/2"	**71-364-4**	222.50
1 5/8"	1.6250"	3 1/2"	13"	**71-365-1**	230.85
1 11/16"	1.6875"	3 5/8"	13"	**71-366-9**	315.60
1 3/4"	1.7500"	4"	13 1/2"	**71-367-7**	295.50
1 7/8"	1.8750"	4"	14"	**71-368-5**	334.75
2"	2.0000"	4"	14"	**71-369-3**	362.10

SIZE	DIA. SMALL END	DIA. LARGE END	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
#7/0	0.0497"	0.0666"	13/16"	1 13/16"	**70-022-9**	$18.00
#6/0	0.0611"	0.0806"	15/16"	1 15/16"	**70-023-7**	18.00
#5/0	0.0719"	0.0966"	1 3/16"	2 3/16"	**70-024-5**	28.00
#4/0	0.0869"	0.1142"	1 5/16"	2 5/16"	**70-025-2**	27.50
#3/0	0.1029"	0.1302"	1 5/16"	2 5/16"	**70-026-0**	23.85
#2/0	0.1137"	0.1462"	1 9/16"	2 9/16"	**70-027-8**	20.80
#0	0.1287"	0.1638"	1 11/16"	2 15/16"	**70-028-6**	19.60
#1	0.1447"	0.1798"	1 11/16"	2 15/16"	**70-029-4**	20.25
#2	0.1605"	0.2006"	1 15/16"	3 3/16"	**70-030-2**	20.05
#3	0.1813"	0.2294"	2 5/16"	3 11/16"	**70-031-0**	20.05
#4	0.2071"	0.2604"	2 9/16"	4 1/16"	**70-032-8**	21.60
#5	0.2409"	0.2994"	2 13/16"	4 5/16"	**70-033-6**	23.05
#6	0.2773"	0.3540"	3 11/16"	5 7/16"	**70-034-4**	28.45
#7	0.3297"	0.4220"	4 7/16"	6 5/16"	**70-035-1**	35.90
#8	0.3971"	0.5050"	5 3/16"	7 3/16"	**70-036-9**	46.35
#9	0.4805"	0.6066"	6 1/16"	8 5/16"	**70-037-7**	56.00
#10	0.5799"	0.7216"	6 13/16"	9 5/16"	**70-038-5**	62.00
#11	0.7060"	0.8780"	8 1/4"	11 1/4"	**70-039-3**	179.40
#12	0.8420"	1.0500"	10"	13 5/8"	**70-040-1**	281.00
#13	1.0090"	1.2590"	12"	16"	**70-568-1**	395.80
#14	1.2500"	1.5420"	14"	18 1/4"	**70-569-9**	534.70

SHOP GRADE

HSS Straight Flute Chucking Reamers

Dowel Pin Sizes



- Straight flute reamers are used in through hole applications ONLY.
- High speed steel (HSS) provides good wear resistance and can be used in general purpose applications for both ferrous and nonferrous materials.
- Straight flute reamers are the most common and are used in general purpose though-hole applications. They are used for reaming holes without interrupted cuts.
- 45° chamfer for easy hole entry.
- Over/Under sizes all for a loose or tight fit.
- Dowel pin sizes help to make a perfect hole for dowel pin insertion.

SIZE	TYPE*	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
0.1230"	DP	7/8"	3 1/2"	**77-043-8**	$11.80
0.1240"	US	7/8"	3 1/2"	**77-044-6**	11.80
0.1247"	DP	7/8"	3 1/2"	**77-045-3**	11.80
0.1260"	OS	7/8"	3 1/2"	**77-046-1**	12.20
0.1855"	DP	1 1/8"	4 1/2"	**77-047-9**	15.40
0.1865"	US	1 1/8"	4 1/2"	**77-048-7**	15.40
0.1870"	DP	1 1/8"	4 1/2"	**77-049-5**	15.40
0.1885"	OS	1 1/8"	4 1/2"	**77-050-3**	15.40
0.2480"	DP	1 1/2"	6"	**77-051-1**	18.60
0.2490"	US	1 1/2"	6"	**77-052-9**	18.60
0.2495"	DP	1 1/2"	6"	**77-053-7**	16.70
0.2510"	OS	1 1/2"	6"	**77-054-5**	17.15
0.3105"	DP	1 1/2"	6"	**77-055-2**	21.10
0.3115"	US	1 1/2"	6"	**77-056-0**	20.30
0.3120"	DP	1 1/2"	6"	**77-057-8**	20.30
0.3135"	OS	1 1/2"	6"	**77-058-6**	20.30
0.3730"	DP	1 3/4"	7"	**77-059-4**	22.65
0.3740"	US	1 3/4"	7"	**77-060-2**	22.00
0.3745"	DP	1 3/4"	7"	**77-061-0**	22.65
0.3760"	OS	1 3/4"	7"	**77-062-8**	22.70
0.4355"	DP	1 3/4"	7"	**77-063-6**	25.05
0.4365"	US	1 3/4"	7"	**77-064-4**	25.05
0.4370"	DP	1 3/4"	7"	**77-065-1**	25.05
0.4385"	OS	1 3/4"	7"	**77-066-9**	25.50
0.4980"	DP	2"	8"	**77-067-7**	29.30
0.4990"	US	2"	8"	**77-068-5**	27.75
0.4995"	DP	2"	8"	**77-069-3**	27.75
0.5010"	OS	2"	8"	**77-070-1**	27.15

* Type: DP = Dowel Pin OS = Oversize US = Undersize



SHOP GRADE

Spiral Flute Taper Pin Reamers

Left Hand Spiral/Right Hand Cut

- Reamers have a taper of 1/4" to the foot and are designed to ream holes for standard taper pins.
- Primarily for hand reaming.
- Best results when the hole to be reamed is drilled a few thousandths smaller than the small diameter of the finish reamed hole.
- HSS gives good wear resistance in mild steel and nonferrous materials.

CUTTING TOOLS



SHOP GRADE

HSS Spiral Flute Straight Shank Chucking Reamers

Right Hand Spiral/Right Hand Cut

- High speed steel (HSS) provides good wear resistance and can be used in general purpose applications for both ferrous and nonferrous materials.
- Spiral flute reamers are used in blind and through-hole operations. They are used to bridge interrupted cuts.
- 45° Chamfer provides easy hole entry
- Right hand spiral design adds extra shear to the workpiece

SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	PART NUMBER	PRICE EACH
5/64"	0.0781"	3/4"	3"	**74-367-4**	$17.30
3/32"	0.0938"	3/4"	3"	**74-368-2**	14.15
7/64"	0.1094"	7/8"	3 1/2"	**74-369-0**	15.45
1/8"	0.1250"	7/8"	3 1/2"	**74-370-8**	11.35
9/64"	0.1406"	1"	4"	**74-371-6**	16.00
5/32"	0.1562"	1"	4"	**74-372-4**	16.15
11/64"	0.1719"	1 1/8"	4 1/2"	**74-373-2**	17.40
3/16"	0.1875"	1 1/8"	4 1/2"	**74-374-0**	15.55
13/64"	0.2031"	1 1/4"	5"	**74-375-7**	18.00
7/32"	0.2188"	1 1/4"	5"	**74-376-5**	18.95
15/64"	0.2344"	1 1/2"	6"	**74-377-3**	19.55
1/4"	0.2500"	1 1/2"	6"	**74-378-1**	17.85
17/64"	0.2656"	1 1/2"	6"	**74-379-9**	22.45
9/32"	0.2812"	1/2"	6"	**74-380-7**	23.95
19/64"	0.2969"	1 1/2"	6"	**74-381-5**	24.30
5/16"	0.3125"	1 1/2"	6"	**74-382-3**	20.75
21/64"	0.3281"	1 1/2"	6"	**74-383-1**	26.20
11/32"	0.3438"	1 1/2"	6"	**74-384-9**	26.30
23/64"	0.3594"	1 3/4"	7"	**74-385-6**	26.80
3/8"	0.3750"	1 3/4"	7"	**74-386-4**	22.00
25/64"	0.3906"	1 3/4"	7"	**74-387-2**	27.45
13/32"	0.4062"	1 3/4"	7"	**74-388-0**	27.55
27/64"	0.4219"	1 3/4"	7"	**74-389-8**	28.60
7/16"	0.4375"	1 3/4"	7"	**74-390-6**	26.65
29/64"	0.4531"	1 3/4"	7"	**74-391-4**	32.20
15/32"	0.4688"	1 3/4"	7"	**74-392-2**	32.55
31/64"	0.4844"	2"	8"	**74-393-0**	32.90
1/2"	0.5000"	2"	8"	**74-394-8**	29.25
17/32"	0.5313"	2"	8"	**74-395-5**	36.50

SHOP GRADE

HSS Adjustable Blade Reamers and Reamer Sets

- Blades are adjusted by loosening one nut and tightening the other.
- Each reamer expands to the next size.



43-489-4

SIZE	SIZE RANGE (IN.)	OAL	PART NUMBER	PRICE EACH
8/A	1/4 to 9/32	3 1/4"	**43-471-2**	$22.95
7/A	9/32 to 5/16	3 1/2"	**43-472-0**	22.95
6/A	5/16 to 11/32	4 1/8"	**43-473-8**	20.75
5/A	11/32 to 3/8	4 3/8"	**43-474-6**	20.75
4/A	3/8 to 13/32	4 3/4"	**43-475-3**	21.95
3/A	13/32 to 7/16	5"	**43-476-1**	24.15
2/A	7/16 to 15/32	5 1/4"	**43-477-9**	24.15
A	15/32 to 17/32	5 1/2"	**43-478-7**	25.85
B	17/32 to 19/32	5 3/4"	**43-479-5**	25.85
C	19/32 to 21/32	6 1/2"	**43-480-3**	27.90
D	21/32 to 23/32	6 3/4"	**43-481-1**	28.55
E	23/32 to 25/32	7"	**43-482-9**	29.95
F	25/32 to 27/32	7 3/8"	**43-483-7**	30.95
G	27/32 to 15/16	8"	**43-484-5**	32.05
H	15/16 to 1 1/16	9"	**43-485-2**	33.90
I	1 1/16 to 1 3/16	10"	**43-486-0**	44.70
J	1 3/16 to 1 11/32	11"	**43-487-8**	52.50
K	1 11/32 to 1 1/2	12"	**43-488-6**	64.50
L	1 1/2 to 1 13/16	14"	**43-489-4**	91.40
M	1 13/16 to 2 7/32	16"	**43-490-2**	122.15
N	2 7/32 to 2 3/4	18"	**43-491-0**	225.70
O	2 3/4 to 3 11/32	20"	**43-492-8**	338.40



43-496-9

SIZE RANGE MIN	SIZE RANGE MAX.	SIZES INCLUDED	NO. OF PIECES	PART NUMBER	PRICE EACH
1/4"	3/8"	8/A to 5/A	4	**43-493-6**	$74.10
3/8"	15/32"	4/A to 2/A	3	**43-494-4**	55.55
15/32"	1 1/16"	A to H	8	**43-495-1**	157.20
15/32"	1 1/2"	A to K	11	**43-496-9**	275.30
3/8"	2 7/32"	4/A to M	16	**43-497-7**	434.95

HSS Hand Spiral & Straight Flute Expansion Reamers

- Left hand spiral/Right hand cut.



RECOMMENDED EXPANSION LIMITS	
SIZES	LIMITS
9/32" to 21/32"	0.010
11/16" to 1"	0.013
1 1/16" to 1 1/2"	0.015
1 9/16" to 1 1/2"	0.017



Spiral Flute

SIZE	FLUTE L	OAL	SPIRAL FLUTE PART NO.	PRICE EA.
5/16"	1 3/4"	4"	**44-480-2**	$185.05
11/32"	1 3/4"	4 1/4"	**44-481-0**	198.50
3/8"	1 3/4"	4 1/4"	**44-482-8**	191.05
13/32"	1 3/4"	4 1/2"	**44-483-6**	205.95
7/16"	1 3/4"	4 1/2"	**44-484-4**	198.50
15/32"	1 13/16"	5"	**44-485-1**	213.40
1/2"	1 13/16"	5"	**44-486-9**	207.45
17/32"	2 1/8"	5 1/2"	**44-487-7**	223.90
9/16"	2 1/8"	5 1/2"	**44-488-5**	214.90
19/32"	2 1/2"	6"	**44-489-3**	228.30
5/8"	2 1/2"	6"	**44-490-1**	217.90
11/16"	2 1/2"	6 1/4"	**44-491-9**	228.30
23/32"	2 11/16"	6 9/16"	**44-492-7**	274.55

SIZE	FLUTE L	OAL	SPIRAL FLUTE PART NO.	PRICE EA.
3/4"	2 11/16"	6 9/16"	**44-493-5**	$264.15
25/32"	3 1/16"	7 1/16"	**44-494-3**	308.90
13/16"	3 1/16"	7 1/16"	**44-495-0**	295.45
27/32"	3 5/16"	7 1/2"	**44-496-8**	328.30
7/8"	3 5/16"	7 1/2"	**44-497-6**	314.90
29/32"	3 9/16"	7 7/8"	**44-498-4**	350.70
15/16"	3 9/16"	7 7/8"	**44-499-2**	335.80
31/32"	3 3/4"	8 3/8"	**44-500-7**	388.00
1"	3 3/4"	8 3/8"	**44-501-5**	373.10
1 1/8"	4 1/8"	9"	**44-502-3**	413.40
1 1/4"	4 3/8"	9 3/4"	**44-503-1**	455.20
1 3/8"	4 9/16"	10 1/2"	**44-504-9**	523.85
1 1/2"	4 13/16"	11 5/8"	**44-505-6**	664.10

Straight Flute

SIZE	FLUTE L	OAL	STRAIGHT FLUTE PART NO.	PRICE EA.
9/32"	1 3/4"	4"	**44-449-7**	$178.00
5/16"	1 3/4"	4"	**44-450-5**	158.20
11/32"	1 3/4"	4 1/4"	**44-451-3**	174.60
3/8"	1 3/4"	4 1/4"	**44-452-1**	167.15
13/32"	1 3/4"	4 1/2"	**44-453-9**	180.55
7/16"	1 3/4"	4 1/2"	**44-454-7**	173.15
15/32"	1 13/16"	5"	**44-455-4**	186.55
1/2"	1 13/16"	5"	**44-456-2**	182.05
17/32"	2 1/8"	5 1/2"	**44-457-0**	201.45
9/16"	2 1/8"	5 1/2"	**44-458-8**	192.55
19/32"	2 1/2"	6"	**44-459-6**	208.95
5/8"	2 1/2"	6"	**44-460-4**	200.00
21/32"	2 1/2"	6 1/4"	**44-461-2**	217.90
11/16"	2 1/2"	6 1/4"	**44-462-0**	208.95

SIZE	FLUTE L	OAL	STRAIGHT FLUTE PART NO.	PRICE EA.
3/4"	2 11/16"	6 9/16"	**44-464-6**	$238.80
25/32"	3 1/16"	7 1/16"	**44-465-3**	285.05
13/16"	3 1/16"	7 1/16"	**44-466-1**	273.10
27/32"	3 5/16"	7 1/2"	**44-467-9**	304.45
7/8"	3 5/16"	7 1/2"	**44-468-7**	292.50
29/32"	3 9/16"	7 7/8"	**44-469-5**	325.30
15/16"	3 9/16"	7 7/8"	**44-470-3**	311.90
31/32"	3 3/4"	8 3/8"	**44-471-1**	370.10
1"	3 3/4"	8 3/8"	**44-472-9**	356.70
1 1/8"	4 1/8"	9"	**44-473-7**	386.55
1 1/4"	4 3/8"	9 3/4"	**44-474-5**	428.30
1 3/8"	4 9/16"	10 1/2"	**44-475-2**	498.45
1 1/2"	4 13/16"	11 5/8"	**44-476-0**	631.25



Straight Shank

SHOP GRADE

HSS Straight Flute & Taper Shank Chucking Expansion Reamers

- Straight shank reamers should ONLY be used in thru-hole applications.
- Expansion: 0.015" – 0.020"
- Expansion feature permits the reamer to be re-sharpened while keeping its original diameter.
- These reamers are NOT for reaming oversized holes.
- High Speed Steel (HSS) provides good wear resistance and can be used in general purpose applications for both ferrous and nonferrous materials.
- Over expansion and misuse of these reamers may cause damage to the tool, the workpiece and injury to the operator.

				STRAIGHT SHANK			TAPER SHANK		
SIZE	DEC. EQUIV.	FLUTE LENGTH	OAL	SHANK DIA.	PART NUMBER	PRICE	MORSE TAPER	PART NUMBER	PRICE
3/8"	0.3750"	3/4"	7"	5/16"	**78-371-2**	$56.50	–	–	–
13/32"	0.4062"	3/4"	7"	5/16"	**78-372-0**	60.30	–	–	–
7/16"	0.4375"	7/8"	7"	3/8"	**78-373-8**	55.90	–	–	–
1/2"	0.5000"	1"	8"	7/16"	**78-374-6**	63.60	1MT	**78-392-8**	$63.30
17/32"	0.5313"	1"	8"	7/16"	**78-375-3**	67.00	–	–	–
9/16"	0.5625"	1 1/8"	8"	7/16"	**78-376-1**	62.95	–	–	–
5/8"	0.6250"	1 1/4"	9"	9/16"	**78-377-9**	71.00	–	–	–
11/16"	0.6875"	1 1/4"	9"	9/16"	**78-378-7**	78.55	–	–	–
23/32"	0.7188"	1 1/4"	9"	9/16"	**78-379-5**	79.30	–	–	–
3/4"	0.7500"	1 3/8"	9 1/2"	5/8"	**78-380-3**	81.90	2MT	**78-393-6**	93.30
25/32"	0.7812"	1 3/8"	9 1/2"	5/8"	**78-381-1**	81.10	–	–	–
7/8"	0.8750"	1 1/2"	10"	3/4"	**78-382-9**	97.70	–	–	–
1"	1.0000"	1 5/8"	10 1/2"	7/8"	**78-383-7**	116.85	3MT	**78-394-4**	117.90
1 1/16"	1.0625"	1 5/8"	10 1/2"	7/8"	**78-384-5**	136.65	–	–	–
1 1/8"	1.1250"	1 3/4"	11"	7/8"	**78-385-2**	150.45	–	–	–
1 3/16"	1.1875"	1 3/4"	11"	1"	**78-386-0**	160.65	–	–	–
1 1/4"	1.2500"	1 7/8"	11 1/2"	1"	**78-387-8**	170.60	4MT	**78-395-1**	178.30
1 3/8"	1.3750"	2"	12"	1"	**78-388-6**	185.70	4MT	**78-396-9**	195.55
1 1/2"	1.5000"	2 1/8"	12 1/2"	1 1/4"	**78-389-4**	189.20	4MT	**78-397-7**	209.65
1 3/16"	1.8125"	2 3/8"	13 1/2"	1 1/2"	**78-390-2**	342.80	–	–	–
1 7/8"	1.8750"	2 1/4"	14"	1 1/2"	**78-391-0**	357.50	–	–	–
2"	2.0000"	2 1/4"	14"	–	–	–	5MT	**78-398-5**	357.50
2 15/16"	2.9375"	3 1/2"	16"	–	–	–	5MT	**78-403-3**	609.20

HSS Bridge Reamers



- Straight shank, left hand spiral/right hand cut.
- Used to align existing holes prior to bolt or rivet installation.
- Point tapered to permit entry into overlapping holes.
- Three symmetrically placed flats on shank provide positive grip in portable electric and pneumatic tools.
- Black oxide finish.
- Tolerances ±0.010 -0.000.
- Shank length: 1 1/2".

CUT DIA.	POINT DIA.	FLUTE. L	SHANK DIA.	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
1/4"	5/32"	2 1/2"	5/16"	4 3/8"	4	**44-506-4**	$39.45
5/16"	3/16"	2 3/4"	3/8"	4 5/8"	4	**44-507-2**	39.45
3/8"	1/4"*	2 3/4"	13/32"	4 5/8"	4	**44-508-0**	40.20
7/16"	1/4"*	3 1/2"	1/2"	5 3/8"	5	**44-509-8**	44.35
1/2"	9/32"	4"	1/2"	5 7/8"	5	**44-510-6**	47.90
9/16"	11/32"	4"	1/2"	5 7/8"	5	**44-511-4**	50.85
5/8"	11/32"	4 1/2"	1/2"	6 3/8"	5	**44-512-2**	55.55
21/32"	3/8"	4 1/2"	1/2"	6 3/8"	5	**44-513-0**	61.65
11/16"	3/8"	4 1/2"	1/2"	6 3/8"	5	**44-514-8**	61.65
3/4"	13/32"	5"	1/2"	6 7/8"	5	**44-515-5**	74.05
25/32"	13/32"	5"	1/2"	6 7/8"	5	**44-516-3**	74.70
13/16"	7/16"	5"	1/2"	6 7/8"	5	**44-517-1**	74.05
7/8"	15/32"	5"	1/2"	6 7/8"	5	**44-518-9**	83.55
15/16"	9/16"	5"	1/2"	6 7/8"	5	**44-519-7**	83.55
1"	19/32"	5"	1/2"	6 7/8"	5	**44-520-5**	98.15
1 1/16"	5/8"	5"	1/2"	6 7/8"	5	**44-521-3**	112.30

*No flats on 1/4" point diameter.



SHOP GRADE

78-614-5

HSS Brown & Sharpe Taper Finishing Reamers

Straight Shank

- Use in the finish and maintenance of holes intended for use with B & S tapered tooling.
- HSS provides good wear resistance and can be used in general purpose applications for both ferrous and nonferrous materials.

B&S TAPER	SHANK DIA.	DIA. SM. END	DIA. LG. END	FLUTE LENGTH	OAL	PART NUMBER	PRICE
1	9/32"	0.2000"	0.2280"	2 7/8"	4 3/4"	**78-608-7**	$57.95
2	11/32"	0.2500"	0.3800"	3 1/8"	5 1/8"	**78-609-5**	65.25
3	13/32"	0.3120"	0.4530"	3 3/8"	5 1/2"	**78-610-3**	69.65
4	7/16"	0.3500"	0.5040"	3 11/16"	5 7/8"	**78-611-1**	73.10
5	9/16"	0.4500"	0.6170"	4"	6 3/8"	**78-612-9**	82.65
6	5/8"	0.5000"	0.6820"	4 3/8"	6 7/8"	**78-613-7**	86.35
7	3/4"	0.6000"	0.8030"	4 7/8"	7 1/2"	**78-614-5**	94.20
8	13/16"	0.7500"	0.9790"	5 1/2"	8 1/8"	**78-615-2**	125.20
9	1"	0.9000"	0.1550"	6 1/8"	8 7/8"	**78-616-0**	159.25
10	1 1/8"	1.0450"	1.3400"	6 7/8"	9 3/4"	**78-617-8**	209.45



SHOP GRADE

HSS Morse Taper Straight Flute & Taper Shank Hand Reamers

- High Speed Steel provides good wear resistance in mild steel & nonferrous materials.
- Straight shank is used in the finishing and maintenance of tapered holes for Morse Tapered Tooling.
- Taper shank is used for production machine reaming of tapered holes for Morse Taper shanks.

Straight Flute

FOR MORSE TAPER	SHANK DIA.	DIA. SMALL END	DIA. LARGE END	FLUTE LENGTH	OAL	ROUGHING PART NUMBER	ROUGHING PRICE	FINISHING PART NUMBER	FINISHING PRICE
0 MT	5/16"	0.2503"	0.3673"	2 1/4"	3 3/4"	–	–	**78-623-6**	$56.30
1 MT	7/16"	0.3674"	0.2280"	3"	5"	**78-618-6**	$86.50	**78-624-4**	72.45
2 MT	5/8"	0.5696"	0.2210"	3 1/2"	6"	**78-619-4**	101.20	**78-625-1**	85.45
3 MT	7/8"	0.7748"	0.2130"	4 1/4"	7 1/4"	**78-620-2**	148.95	**78-626-9**	124.90
4 MT	1 1/4"	1.0167"	0.2090"	5 1/4"	8 1/2"	**78-621-0**	231.15	**78-627-7**	193.35
5 MT	1 1/2"	1.4717"	0.2055"	6 1/4"	9 3/4"	**78-622-8**	443.50	**78-628-5**	365.95
6 MT	2"	2.1120"	0.2040"	8 1/4"	12 1/4"	–	–	**78-629-3**	764.15

Taper Shank

FOR MORSE TAPER	SHANK DIA.	DIA. SMALL END	DIA. LARGE END	FLUTE LENGTH	OAL	ROUGHING PART NUMBER	ROUGHING PRICE	FINISHING PART NUMBER	FINISHING PRICE
0 MT	5/16"	0.2503"	0.3673"	2 1/4"	5 11/32"	–	–	**71-845-2**	$58.65
1 MT	7/16"	0.3674"	0.2280"	3"	6 5/16"	**71-842-9**	$107.45	**71-846-0**	66.40
2 MT	5/8"	0.5696"	0.2210"	3 1/2"	7 3/8"	**71-843-7**	126.31	**71-847-8**	80.40
3 MT	7/8"	0.7748"	0.2130"	4 1/4"	8 7/8"	–	–	**71-848-6**	111.15
4 MT	1 1/4"	1.0167"	0.2090"	5 1/4"	10 7/8"	**71-844-5**	250.55	**71-849-4**	195.20
5 MT	1 1/2"	1.4717"	0.2055"	6 1/4"	13 1/4"	–	–	**71-850-2**	389.15

CUTTING TOOLS

SHOP GRADE
HSS Taper Pipe Reamers
Straight Flute & Left Hand Spiral/Right Hand Cut



Straight Flute

- High Speed Steel (HSS) provides good wear resistance in mild steel & nonferrous materials
- Taper reamers used prior to tapping with taper pipe taps provide threads of better quality and are recommended when tapping Dryseal, NPTF and Military Aeronautical Pipe Thread Specifications.
- Generally used by hand.



Left Hand Spiral/ Right Hand Cut

NPT SIZE	DIA. SMALL END	DIA. LARGE END	FLUTE LENGTH	OAL	STRAIGHT FLUTE PART NO.	STRAIGHT FLUTE PRICE	LEFT HAND SPIRAL PART NO.	LEFT HAND SPIRAL PRICE
1/8"	0.316"	0.362"	3/4"	2 1/8"	**75-869-8**	$38.80	**75-878-9**	$45.25
1/4"	0.406"	0.472"	1 1/16"	2 7/16"	**75-870-6**	45.90	**75-879-7**	52.15
3/8"	0.540"	0.606"	1 1/16"	2 9/16"	**75-871-4**	49.95	**75-880-5**	61.30
1/2"	0.665"	0.751"	1 3/8"	3 1/8"	**75-872-2**	62.90	**75-881-3**	74.25
3/4"	0.876"	0.962"	1 3/8"	3 1/4"	**75-873-0**	88.50	**75-882-1**	102.85
1"	1.103"	1.212"	1 3/4"	3 3/4"	**75-874-8**	131.45	**75-883-9**	155.75
1 1/4"	1.144"	1.553"	1 3/4"	4"	**75-875-5**	217.85	**75-884-7**	260.90
1 1/2"	1.684"	1.793"	1 3/4"	4 1/4"	**75-876-3**	290.45	**75-885-4**	328.45
2"	2.159"	2.268"	1 3/4"	4 1/2"	**75-877-1**	430.00	**75-886-2**	438.90



SHOP GRADE
HSS Shell Reamers

- Straight flute.
- Used with shell reamer arbors.
- One size arbor fits a range of sizes.
- More economical for larger sizes.

SIZE	HOLE DIA. LARGE END	FITTING ARBOR NO.	OAL	PART NUMBER	PRICE EACH
3/4"	3/8"	4	2 1/4"	**44-561-9**	$54.05
13/16"	1/2"	5	2 1/2"	**44-562-7**	60.10
7/8"	1/2"	5	2 1/2"	**44-563-5**	64.75
15/16"	1/2"	5	2 1/2"	**44-564-3**	65.65
1"	1/2"	5	2 1/2"	**44-565-0**	66.40
1 1/16"	5/8"	6	2 3/4"	**44-566-8**	73.75
1 1/8"	5/8"	6	2 3/4"	**44-567-6**	78.30
1 3/16"	5/8"	6	2 3/4"	**44-568-4**	82.05
1 1/4"	5/8"	6	2 3/4"	**44-569-2**	84.30
1 5/16"	3/4"	7	3"	**44-570-0**	87.35
1 3/8"	3/4"	7	3"	**44-571-8**	93.25
1 7/16"	3/4"	7	3"	**44-572-6**	109.65
1 15/32"	3/4"	7	3"	**44-573-4**	112.15
1 1/2"	3/4"	7	3"	**44-574-2**	109.65
1 9/16"	3/4"	7	3"	**44-575-9**	121.40
1 5/8"	3/4"	7	3"	**44-576-7**	130.30
1 11/16"	1"	8	3 1/2"	**44-577-5**	142.00
1 23/32"	1"	8	3 1/2"	**75-887-0**	127.15
1 3/4"	1"	8	3 1/2"	**44-578-3**	152.65
1 25/32"	1"	8	3 1/2"	**75-888-8**	136.70
1 13/16"	1"	8	3 1/2"	**44-579-1**	163.05
1 27/32"	1"	8	3 1/2"	**75-889-6**	146.05
1 7/8"	1"	8	3 1/2"	**44-580-9**	174.30
1 29/32"	1"	8	3 1/2"	**75-890-4**	156.05
1 15/16"	1"	8	3 1/2"	**44-581-7**	185.45
1 31/32"	1"	8	3 1/2"	**75-891-2**	166.05
2"	1"	8	3 1/2"	**44-582-5**	196.65
2 1/16"	1 1/4"	9	3 3/4"	**44-583-3**	207.05
2 1/8"	1 1/4"	9	3 3/4"	**44-584-1**	218.70
2 3/16"	1 1/4"	9	3 3/4"	**44-585-8**	$227.90
2 1/4"	1 1/4"	9	3 3/4"	**44-586-6**	243.25
2 5/16"	1 1/4"	9	3 3/4"	**44-587-4**	248.55
2 3/8"	1 1/4"	9	3 3/4"	**44-588-2**	258.75
2 7/16"	1 1/4"	9	3 3/4"	**44-589-0**	269.25
2 1/2"	1 1/4"	9	3 3/4"	**44-590-8**	280.95
2 9/16"	1 1/2"	10	4"	**44-591-6**	292.00
2 5/8"	1 1/2"	10	4"	**44-592-4**	312.00
2 11/16"	1 1/2"	10	4"	**44-593-2**	323.85
2 3/4"	1 1/2"	10	4"	**44-594-0**	359.25
2 13/16"	1 1/2"	10	4"	**44-595-7**	373.70
2 7/8"	1 1/2"	10	4"	**44-596-5**	387.40
2 15/16"	1 1/2"	10	4"	**44-597-3**	419.10
3"	1 1/2"	10	4"	**44-598-1**	435.40
3 1/8"	1 3/4"	11	4 1/2"	**75-892-0**	375.85
3 1/4"	1 3/4"	11	4 1/2"	**75-893-8**	400.15
3 5/16"	1 3/4"	11	4 1/2"	**75-894-6**	425.40
3 3/8"	1 3/4"	11	4 1/2"	**75-895-3**	443.05
3 7/16"	1 3/4"	11	4 1/2"	**75-896-1**	460.60
3 1/2"	1 3/4"	11	4 1/2"	**75-897-9**	464.15
3 9/16"	2"	12	5"	**75-898-7**	492.60
3 5/8"	2"	12	5"	**75-899-5**	519.75
3 11/16"	2"	12	5"	**75-900-1**	542.20
3 3/4"	2"	12	5"	**75-901-9**	563.00
3 13/16"	2"	12	5"	**75-902-7**	565.15
3 7/8"	2"	12	5"	**75-903-5**	613.15
3 15/16"	2"	12	5"	**75-904-3**	653.10
4"	2"	12	5"	**75-905-0**	683.45
– –	–	–	–	–	–



SHOP GRADE
HSS Shell Reamers
Spiral Flute

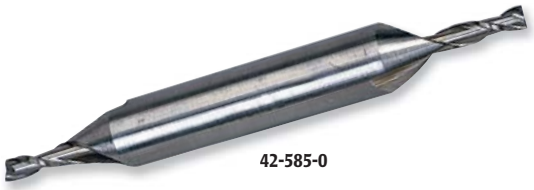
- Left hand spiral, right hand cut.
- Used with shell reamer arbors.
- One size arbor fits a range of sizes.
- More economical, particularly where larger sizes are concerned.

SIZE	HOLE DIA. LARGE END	FITTING ARBOR NO.	OAL	PART NUMBER	PRICE EACH
3/4"	3/8"	4	2 1/4"	**44-599-9**	$64.75
13/16"	1/2"	5	2 1/2"	**44-600-5**	66.55
7/8"	1/2"	5	2 1/2"	**44-601-3**	65.55
15/16"	1/2"	5	2 1/2"	**44-602-1**	66.55
1"	1/2"	5	2 1/2"	**44-603-9**	77.60
1 1/16"	5/8"	6	2 3/4"	**44-604-7**	81.25
1 1/8"	5/8"	6	2 3/4"	**44-605-4**	84.35
1 3/16"	5/8"	6	2 3/4"	**44-606-2**	86.45
1 1/4"	5/8"	6	2 3/4"	**44-607-0**	85.70
1 5/16"	3/4"	7	3"	**44-608-8**	94.00
1 3/8"	3/4"	7	3"	**44-609-6**	103.65
1 7/16"	3/4"	7	3"	**44-610-4**	107.85
1 1/2"	3/4"	7	3"	**44-611-2**	120.20
1 9/16"	3/4"	7	3"	**44-612-0**	130.25
1 5/8"	3/4"	7	3"	**44-613-8**	139.35
1 11/16"	1"	8	3 1/2"	**44-614-6**	154.05
1 3/4"	1"	8	3 1/2"	**44-615-3**	162.25
1 13/16"	1"	8	3 1/2"	**44-616-1**	183.10
1 7/8"	1"	8	3 1/2"	**44-617-9**	194.95
1 15/16"	1"	8	3 1/2"	**44-618-7**	206.90
2"	1"	8	3 1/2"	**44-619-5**	214.60
2 1/16"	1 1/4"	9	3 3/4"	**44-620-3**	226.20
2 1/8"	1 1/4"	9	3 3/4"	**44-621-1**	237.45
2 3/16"	1 1/4"	9	3 3/4"	**44-622-9**	249.65
2 1/4"	1 1/4"	9	3 3/4"	**44-623-7**	256.20
2 5/16"	1 1/4"	9	3 3/4"	**44-624-5**	275.70
2 3/8"	1 1/4"	9	3 3/4"	**44-625-2**	280.25
2 7/16"	1 1/4"	9	3 3/4"	**44-626-0**	295.95
2 1/2"	1 1/4"	9	3 3/4"	**44-627-8**	308.85
2 9/16"	1 1/2"	10	4"	**44-628-6**	335.25
2 5/8"	1 1/2"	10	4"	**44-629-4**	361.05
2 11/16"	1 1/2"	10	4"	**44-630-2**	370.05
2 3/4"	1 1/2"	10	4"	**44-631-0**	381.40
2 13/16"	1 1/2"	10	4"	**44-632-8**	392.45
2 7/8"	1 1/2"	10	4"	**44-633-6**	433.00
2 15/16"	1 1/2"	10	4"	**44-634-4**	455.40
3"	1 1/2"	10	4"	**44-635-1**	465.60
3 1/16"	1 3/4"	11	4 1/2"	**44-636-9**	467.85
3 1/8"	1 3/4"	11	4 1/2"	**44-637-7**	505.30
3 3/16"	1 3/4"	11	4 1/2"	**44-638-5**	524.60
3 1/4"	1 3/4"	11	4 1/2"	**44-639-3**	537.90
3 5/16"	1 3/4"	11	4 1/2"	**44-640-1**	571.95
3 3/8"	1 3/4"	11	4 1/2"	**44-641-9**	595.65
3 7/16"	1 3/4"	11	4 1/2"	**44-642-7**	619.25
3 1/2"	1 3/4"	11	4 1/2"	**44-643-5**	624.00
3 9/16"	2"	12	5"	**44-644-3**	662.25
3 5/8"	2"	12	5"	**44-645-0**	698.80
3 11/16"	2"	12	5"	**44-646-8**	728.95
3 3/4"	2"	12	5"	**44-647-6**	756.85
3 13/16"	2"	12	5"	**44-648-4**	759.70
3 7/8"	2"	12	5"	**44-649-2**	824.30
3 15/16"	2"	12	5"	**44-650-0**	878.05
4"	2"	12	5"	**44-651-8**	918.85

SHOP GRADE

HSS Double End Mills Regular Length

30° Helix



42-585-0

2 Flute

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/8"	3/8"	3/8"	3 1/16"	42-585-0	$11.45
5/32"	3/8"	7/16"	3 1/8"	42-586-8	12.30
3/16"	3/8"	7/16"	3 1/8"	42-587-6	11.45
13/64"	3/8"	1/2"	3 1/8"	42-588-4	12.90
7/32"	3/8"	1/2"	3 1/8"	42-589-2	12.30
15/64"	3/8"	1/2"	3 1/8"	42-590-0	12.90
1/4"	3/8"	1/2"	3 1/8"	42-591-8	11.65
9/32"	3/8"	9/16"	3 1/8"	42-592-6	12.40
5/16"	3/8"	9/16"	3 1/8"	42-593-4	11.45
11/32"	3/8"	9/16"	3 1/8"	42-594-2	12.30
3/8"	3/8"	9/16"	3 1/8"	42-595-9	11.65
13/32"	1/2"	13/16"	3 3/4"	42-596-7	18.55
7/16"	1/2"	13/16"	3 3/4"	42-597-5	17.85
15/32"	1/2"	13/16"	3 3/4"	42-598-3	18.45
1/2"	1/2"	13/16"	3 3/4"	42-599-1	17.85
9/16"	5/8"	1 1/8"	4 1/2"	42-600-7	25.10
5/8"	5/8"	1 1/8"	4 1/2"	42-601-5	24.60
11/16"	3/4"	1 5/16"	5"	42-602-3	31.05
3/4"	3/4"	1 5/16"	5"	42-603-1	31.05
13/16"	7/8"	1 9/16"	5 1/2"	42-604-9	39.10
7/8"	7/8"	1 9/16"	5 1/2"	42-605-6	39.10
1"	1"	1 5/8"	5 7/8"	42-607-2	48.05



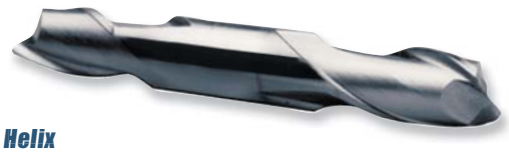
42-608-0

4 Flute

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/8"	3/8"	3/8"	3 1/16"	42-608-0	$11.65
5/32"	3/8"	7/16"	3 1/8"	42-609-8	12.30
3/16"	3/8"	1/2"	3 1/4"	42-610-6	11.65
7/32"	3/8"	9/16"	3 1/4"	42-612-2	12.30
15/64"	3/8"	5/8"	3 3/8"	42-613-0	12.40
1/4"	3/8"	5/8"	3 3/8"	42-614-8	11.45
9/32"	3/8"	11/16"	3 3/8"	42-615-5	12.30
5/16"	3/8"	3/4"	3 1/2"	42-616-3	11.45
11/32"	3/8"	3/4"	3 1/2"	42-617-1	12.30
3/8"	3/8"	3/4"	3 1/2"	42-618-9	11.45
13/32"	1/2"	1"	4 1/8"	42-619-7	17.10
7/16"	1/2"	1"	4 1/8"	42-620-5	16.70
15/32"	1/2"	1"	4 1/8"	42-621-3	17.10
1/2"	1/2"	1"	4 1/8"	42-622-1	16.70
9/16"	5/8"	1 3/8"	5"	42-623-9	24.30
5/8"	5/8"	1 3/8"	5"	42-624-7	24.30
11/16"	3/4"	1 5/8"	5 5/8"	42-625-4	30.55
3/4"	3/4"	1 5/8"	5 5/8"	42-626-2	30.55
13/16"	7/8"	1 7/8"	6 1/8"	42-627-0	38.85
7/8"	7/8"	1 7/8"	6 1/8"	42-628-8	38.85
1"	1"	1 7/8"	6 3/8"	42-630-4	47.15

HERTEL Production Grade Tooling Since 1947

2 Flute HSS Double End Mills



Stub & Regular Lengths • 30° Helix

- Centercutting design with good chip removal capability.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.
- More economical in production milling than single end mills.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
5/64"	3/8"	5/16"	3 1/16"	40-476-4	$18.75
3/32"	3/8"	5/16"	3 1/16"	40-477-2	18.75
7/64"	3/8"	3/8"	3 1/16"	40-478-0	19.30
1/8"	3/8"	3/16"	2 3/4"	40-479-8	16.65
1/8"	3/8"	3/8"	3 1/16"	40-480-6	19.30
9/64"	3/8"	7/16"	3 1/8"	40-481-4	21.50
5/32"	3/8"	15/64"	2 3/4"	40-482-2	17.85
5/32"	3/8"	7/16"	3 1/8"	40-483-0	20.50
11/64"	3/8"	7/16"	3 1/8"	40-484-8	21.50
3/16"	3/8"	9/32"	2 3/4"	40-485-5	16.65
3/16"	3/8"	7/16"	3 1/8"	40-486-3	19.30
13/64"	3/8"	1/2"	3 1/8"	40-487-1	21.50
7/32"	3/8"	21/64"	2 7/8"	40-488-9	16.65
7/32"	3/8"	1/2"	3 1/8"	40-489-7	20.50
15/64"	3/8"	1/2"	3 1/8"	40-490-5	21.50
1/4"	3/8"	3/8"	2 7/8"	40-491-3	16.65
1/4"	3/8"	1/2"	3 1/8"	40-492-1	19.60
17/64"	3/8"	9/16"	3 1/8"	40-493-9	21.50
9/32"	3/8"	9/16"	3 1/8"	40-494-7	20.60
19/64"	3/8"	9/16"	3 1/8"	40-495-4	21.50
5/16"	3/8"	9/16"	3 1/8"	40-496-2	19.30
21/64"	3/8"	9/16"	3 1/8"	40-497-0	21.50
11/32"	3/8"	9/16"	3 1/8"	40-498-8	20.50
23/64"	3/8"	9/16"	3 1/8"	40-499-6	21.50

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
3/8"	3/8"	9/16"	3 1/8"	40-500-1	$19.60
25/64"	1/2"	13/16"	3 3/4"	40-501-9	32.90
13/32"	1/2"	13/16"	3 3/4"	40-502-7	31.05
27/64"	1/2"	13/16"	3 3/4"	40-503-5	32.90
7/16"	1/2"	13/16"	3 3/4"	40-504-3	29.60
29/64"	1/2"	13/16"	3 3/4"	40-505-0	32.90
15/32"	1/2"	13/16"	3 3/4"	40-506-8	30.80
31/64"	1/2"	13/16"	3 3/4"	40-507-6	32.90
1/2"	1/2"	13/16"	3 3/4"	40-508-4	29.60
17/32"	5/8"	1 1/8"	4 1/2"	40-509-2	46.25
9/16"	5/8"	1 1/8"	4 1/2"	40-510-0	41.55
19/32"	5/8"	1 1/8"	4 1/2"	40-511-8	46.25
5/8"	5/8"	1 1/8"	4 1/2"	40-512-6	40.95
21/32"	3/4"	1 5/16"	5	40-513-4	58.20
11/16"	3/4"	1 5/16"	5	40-514-2	51.70
23/32"	3/4"	1 5/16"	5	40-515-9	58.20
3/4"	3/4"	1 5/16"	5	40-516-7	51.70
25/32"	7/8"	1 9/16"	5 1/2"	40-517-5	77.90
13/16"	7/8"	1 9/16"	5 1/2"	40-518-3	65.10
27/32"	7/8"	1 9/16"	5 1/2"	40-519-1	77.90
7/8"	7/8"	1 9/16"	5 1/2"	40-520-9	65.10
15/16"	1	1 5/8"	5 7/8"	40-521-7	80.10
1	1	1 5/8"	5 7/8"	40-522-5	80.10
–	–	–	–	–	–

HERTEL Production Grade Tooling Since 1947

4 Flute HSS Double End Mills



Stub & Regular Lengths • 30° Helix

- Recommended for finishing operations in a wide range of ferrous and nonferrous materials.
- Multiple flutes generate higher surface finish than 2 flute end mills.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
7/64"	3/8"	3/8"	3 1/16"	40-523-3	$19.60
1/8"	3/8"	3/16"	2 3/4"	40-524-1	18.10
1/8"	3/8"	3/8"	3 1/16"	40-525-8	19.60
9/64"	3/8"	7/16"	3 1/8"	40-526-6	20.60
5/32"	3/8"	15/64"	2 3/4"	40-527-4	18.10
5/32"	3/8"	7/16"	3 1/8"	40-528-2	20.50
11/64"	3/8"	1/2"	3 1/4"	40-529-0	20.60
3/16"	3/8"	9/32"	2 3/4"	40-530-8	18.10
3/16"	3/8"	1/2"	3 1/4"	40-531-6	19.60
13/64"	3/8"	9/16"	3 1/4"	40-532-4	20.60
7/32"	3/8"	21/64"	2 7/8"	40-533-2	18.10
7/32"	3/8"	9/16"	3 1/4"	40-534-0	20.50
15/64"	3/8"	5/8"	3 3/8"	40-535-7	20.60
1/4"	3/8"	3/8"	2 7/8"	40-536-5	18.10
1/4"	3/8"	5/8"	3 3/8"	40-537-3	19.30
17/64"	3/8"	11/16"	3 3/8"	40-538-1	20.60
9/32"	3/8"	11/16"	3 3/8"	40-539-9	20.50
19/64"	3/8"	3/4"	3 1/2"	40-540-7	20.60
5/16"	3/8"	3/4"	3 1/2"	40-541-5	19.30
21/64"	3/8"	3/4"	3 1/2"	40-542-3	20.60
11/32"	3/8"	3/4"	3 1/2"	40-543-1	20.50
23/64"	3/8"	3/4"	3 1/2"	40-544-9	20.60

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
3/8"	3/8"	3/4"	3 1/2"	40-545-6	$19.30
25/64"	1/2"	1"	4 1/8"	40-546-4	30.65
13/32"	1/2"	1"	4 1/8"	40-547-2	28.60
27/64"	1/2"	1"	4 1/8"	40-548-0	31.80
7/16"	1/2"	1"	4 1/8"	40-549-8	27.85
29/64"	1/2"	1"	4 1/8"	40-550-6	31.80
15/32"	1/2"	1"	4 1/8"	40-551-4	28.60
31/64"	1/2"	1"	4 1/8"	40-552-2	31.80
1/2"	1/2"	1"	4 1/8"	40-553-0	27.85
17/32"	5/8"	1 3/8"	5"	40-554-8	38.15
9/16"	5/8"	1 3/8"	5"	40-555-5	40.35
19/32"	5/8"	1 3/8"	5"	40-556-3	42.35
5/8"	5/8"	1 3/8"	5"	40-557-1	40.35
21/32"	3/4"	1 5/8"	5 5/8"	40-558-9	50.40
11/16"	3/4"	1 5/8"	5 5/8"	40-559-7	50.45
23/32"	3/4"	1 5/8"	5 5/8"	40-560-5	50.45
3/4"	3/4"	1 5/8"	5 5/8"	40-561-3	50.45
13/16"	7/8"	1 7/8"	6 1/8"	40-562-1	64.80
7/8"	7/8"	1 7/8"	6 1/8"	40-563-9	64.80
15/16"	1	1 7/8"	6 3/8"	40-564-7	74.50
1	1	1 7/8"	6 3/8"	40-565-4	78.35

CUTTING TOOLS



SHOP GRADE

2 Flute HSS TiN Coated Double End Mills

Regular Length • 30° Helix

- Centercutting design with good chip removal capability.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.
- More economical in production milling than single end mills.

Surface Treatments:
TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-441-8	$15.40
5/32"	3/8"	7/16"	3 1/8"	40-442-6	16.25
3/16"	3/8"	7/16"	3 1/8"	40-443-4	15.40
7/32"	3/8"	1/2"	3 1/8"	40-444-2	16.25
1/4"	3/8"	1/2"	3 1/8"	40-445-9	15.60
9/32"	3/8"	9/16"	3 1/8"	40-446-7	16.60
5/16"	3/8"	9/16"	3 1/8"	40-447-5	15.40
11/32"	3/8"	9/16"	3 1/8"	40-448-3	16.25
3/8"	3/8"	9/16"	3 1/8"	40-449-1	17.40
13/32"	1/2"	13/16"	3 3/4"	40-450-9	24.70
7/16"	1/2"	13/16"	3 3/4"	40-451-7	23.50
1/2"	1/2"	13/16"	3 3/4"	40-452-5	23.50
9/16"	5/8"	1 1/8"	4 1/2"	40-453-3	33.30
5/8"	5/8"	1 1/8"	4 1/2"	40-454-1	32.45
3/4"	3/4"	1 5/16"	5"	40-455-8	41.05
7/8"	7/8"	1 9/16"	5 1/2"	40-456-6	51.60
1"	1"	1 5/8"	5 7/8"	40-457-4	63.45



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS TiN Coated Double End Mills

Regular Length • 30° Helix

- Centercutting design with good chip removal capability.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.
- More economical in production milling than single end mills.

Surface Treatments:
TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-458-2	$20.60
5/32"	3/8"	7/16"	3 1/8"	40-459-0	21.75
3/16"	3/8"	7/16"	3 1/8"	40-460-8	20.60
7/32"	3/8"	1/2"	3 1/8"	40-461-6	21.75
1/4"	3/8"	1/2"	3 1/8"	40-462-4	20.90
9/32"	3/8"	9/16"	3 1/8"	40-463-2	21.70
5/16"	3/8"	9/16"	3 1/8"	40-464-0	20.60
11/32"	3/8"	9/16"	3 1/8"	40-465-7	21.75
3/8"	3/8"	9/16"	3 1/8"	40-466-5	20.90
13/32"	1/2"	13/16"	3 3/4"	40-467-3	33.05
7/16"	1/2"	13/16"	3 3/4"	40-468-1	31.15
15/32"	1/2"	13/16"	3 3/4"	40-469-9	31.15
1/2"	1/2"	13/16"	3 3/4"	40-470-7	31.15
9/16"	5/8"	1 1/8"	4 1/2"	40-471-5	44.55
5/8"	5/8"	1 1/8"	4 1/2"	40-472-3	43.55
3/4"	3/4"	1 5/16"	5"	40-473-1	55.00
7/8"	7/8"	1 9/16"	5 1/2"	40-474-9	68.50
1"	1"	1 5/8"	5 7/8"	40-475-6	85.05



SHOP GRADE

2 Flute M-42 Cobalt Double End Mills

Regular Length • 30° Helix

- Centercutting design with good chip removal capability.
- Designed for plunge cutting and milling slots and pockets.
- Premium 8% cobalt is especially effective for machining high strength, heat resistant, exotic and other difficult-to-machine materials.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	54-151-6	$15.65
5/32"	3/8"	7/16"	3 1/8"	54-152-4	16.55
3/16"	3/8"	7/16"	3 1/8"	54-153-2	15.65
7/32"	3/8"	1/2"	3 1/8"	54-154-0	16.55
1/4"	3/8"	1/2"	3 1/8"	54-155-7	15.90
9/32"	3/8"	9/16"	3 1/8"	54-156-5	16.85
5/16"	3/8"	9/16"	3 1/8"	54-157-3	15.65
11/32"	3/8"	9/16"	3 1/8"	54-158-1	16.55
3/8"	3/8"	9/16"	3 1/8"	54-159-9	15.90
13/32"	1/2"	13/16"	3 3/4"	54-160-7	24.40
7/16"	1/2"	13/16"	3 3/4"	54-161-5	23.55
15/32"	1/2"	13/16"	3 3/4"	54-162-3	36.15
1/2"	1/2"	13/16"	3 3/4"	54-163-1	24.15
9/16"	5/8"	1 1/8"	4 1/2"	54-164-9	35.15
5/8"	5/8"	1 1/8"	4 1/2"	54-165-6	32.00
11/16"	3/4"	1 5/16"	5"	54-150-8	68.60
3/4"	3/4"	1 5/16"	5"	54-166-4	40.70
7/8"	7/8"	1 9/16"	5 1/2"	54-167-2	52.05
1"	1"	1 5/8"	5 7/8"	54-168-0	64.00



HERTEL
Production Grade Tooling Since 1947

2 Flute M-42 Cobalt Double End Mills

Regular Length • 30° Helix

- Centercutting design with good chip removal capability.
- Designed for plunge cutting and milling slots and pockets.
- Premium 8% cobalt is especially effective for machining high strength, heat resistant, exotic and other difficult-to-machine materials.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	47-964-2	$21.40
9/64"	3/8"	7/16"	3 1/8"	47-965-9	16.90
5/32"	3/8"	7/16"	3 1/8"	47-966-7	24.95
11/64"	3/8"	7/16"	3 1/8"	47-967-5	16.90
3/16"	3/8"	7/16"	3 1/8"	47-968-3	21.40
13/64"	3/8"	1/2"	3 1/8"	47-969-1	16.90
7/32"	3/8"	1/2"	3 1/8"	47-970-9	24.95
15/64"	3/8"	1/2"	3 1/8"	47-971-7	16.90
1/4"	3/8"	1/2"	3 1/8"	47-972-5	21.40
17/64"	3/8"	9/16"	3 1/8"	47-973-3	16.90
9/32"	3/8"	9/16"	3 1/8"	47-974-1	24.95
19/64"	3/8"	9/16"	3 1/8"	47-975-8	16.90
5/16"	3/8"	9/16"	3 1/8"	47-976-6	21.40
21/64"	3/8"	9/16"	3 1/8"	47-977-4	16.90
11/32"	3/8"	9/16"	3 1/8"	47-978-2	24.95
23/64"	3/8"	9/16"	3 1/8"	47-979-0	16.90
3/8"	3/8"	9/16"	3 1/8"	47-980-8	21.40
13/32"	1/2"	13/16"	3 3/4"	47-981-6	34.15
7/16"	1/2"	13/16"	3 3/4"	47-982-4	32.95
1/2"	1/2"	13/16"	3 3/4"	47-983-2	32.50
9/16"	5/8"	1 1/8"	4 1/2"	47-984-0	46.35
5/8"	5/8"	1 1/8"	4 1/2"	47-985-7	44.10
3/4"	3/4"	1 5/16"	5"	47-986-5	57.25
7/8"	7/8"	1 9/16"	5 1/2"	47-987-3	74.95
1"	1"	1 5/8"	5 7/8"	47-988-1	87.30



SHOP GRADE

2 Flute HSS Centercutting Double End Mills

Regular Length • 30° Helix

- Recommended for finishing operations in a wide range of ferrous and nonferrous materials.
- Centercutting design allows for plunge milling into solid materials at the beginning of a slotting operation.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-617-3	$15.35
3/16"	3/8"	1/2"	3 1/4"	40-618-1	15.35
1/4"	3/8"	5/8"	3 3/8"	40-619-9	15.35
5/16"	3/8"	3/4"	3 1/2"	40-620-7	15.35
3/8"	3/8"	3/4"	3 1/2"	40-621-5	15.35
15/32"	1/2"	1"	4 1/8"	40-622-3	20.70
1/2"	1/2"	1"	4 1/8"	40-623-1	21.60
5/8"	5/8"	1 3/8"	5"	40-624-9	30.50
11/16"	3/4"	1 5/8"	5 5/8"	40-625-6	36.30
3/4"	3/4"	1 5/8"	5 5/8"	40-626-4	38.30
13/16"	7/8"	1 7/8"	6 1/4"	40-627-2	33.90
7/8"	7/8"	1 7/8"	6 1/8"	40-628-0	49.50
1"	1"	1 7/8"	6 3/8"	40-629-8	59.60



SHOP GRADE

4 Flute TiN Coated Double End Mills

Regular Length • 30° Helix

- Facilitates chip flow, resists galling and reduces the heat generated during metal removal.
- Allows for elevated feeds and speeds to increase productivity.

Surface Treatments:
TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-583-7	$15.65
5/32"	3/8"	7/16"	3 1/8"	40-584-5	16.25
3/16"	3/8"	1/2"	3 1/4"	40-585-2	15.65
7/32"	3/8"	9/16"	3 1/4"	40-586-0	16.25
1/4"	3/8"	5/8"	3 3/8"	40-587-8	15.45
9/32"	3/8"	11/16"	3 3/8"	40-588-6	16.25
5/16"	3/8"	3/4"	3 1/2"	40-589-4	15.45
11/32"	3/8"	3/4"	3 1/2"	40-590-2	16.25
3/8"	3/8"	3/4"	3 1/2"	40-591-0	15.45
13/32"	1/2"	1"	4 1/8"	40-592-8	22.85
7/16"	1/2"	1"	4 1/8"	40-593-6	22.15
1/2"	1/2"	1"	4 1/8"	40-594-4	22.15
9/16"	5/8"	1 3/8"	5"	40-595-1	32.15
5/8"	5/8"	1 3/8"	5"	40-596-9	32.15
3/4"	3/4"	1 5/8"	5 5/8"	40-597-7	40.55
7/8"	7/8"	1 7/8"	6 1/8"	40-598-5	40.55
1	1	1 7/8"	6 3/8"	40-599-3	62.45



HERTEL
Production Grade Tooling Since 1947

4 Flute HSS Centercutting Double End Mills

Regular Length • 30° Helix

- Recommended for finishing operations in a wide range of ferrous and nonferrous materials.
- Centercutting design allows for plunge milling into solid materials at the beginning of a slotting operation.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-630-6	$25.25
3/16"	3/8"	1/2"	3 1/4"	40-631-4	25.25
1/4"	3/8"	5/8"	3 3/8"	40-632-2	25.25
5/16"	3/8"	3/4"	3 1/2"	40-633-0	25.25
3/8"	3/8"	3/4"	3 1/2"	40-634-8	25.25
15/32"	1/2"	1"	4 1/8"	40-635-5	37.30
1/2"	1/2"	1"	4 1/8"	40-636-3	39.50
5/8"	5/8"	1 3/8"	5"	40-637-1	50.55
11/16"	3/4"	1 5/8"	5 5/8"	40-638-9	66.40
3/4"	3/4"	1 5/8"	5 5/8"	40-639-7	62.85
7/8"	7/8"	1 7/8"	6 1/8"	40-640-5	82.10
15/16"	1"	1 7/8"	6 3/8"	40-641-3	102.40
1"	1"	1 7/8"	6 3/8"	40-642-1	98.80



HERTEL
Production Grade Tooling Since 1947

4 Flute TiN Coated Double End Mills

Regular Length • 30° Helix

- Facilitates chip flow, resists galling and reduces the heat generated during metal removal.
- Allows for elevated feeds and speeds to increase productivity.

Surface Treatments:
TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-600-9	$20.00
5/32"	3/8"	7/16"	3 1/8"	40-601-7	21.75
3/16"	3/8"	1/2"	3 1/4"	40-602-5	20.90
7/32"	3/8"	9/16"	3 1/4"	40-603-3	21.75
1/4"	3/8"	5/8"	3 3/8"	40-604-1	20.60
9/32"	3/8"	11/16"	3 3/8"	40-605-8	21.75
5/16"	3/8"	3/4"	3 1/2"	40-606-6	20.60
11/32"	3/8"	3/4"	3 1/2"	40-607-4	21.75
3/8"	3/8"	3/4"	3 1/2"	40-608-2	20.60
13/32"	1/2"	1"	4 1/8"	40-609-0	30.40
7/16"	1/2"	1"	4 1/8"	40-610-8	29.50
1/2"	1/2"	1"	4 1/8"	40-611-6	29.50
9/16"	5/8"	1 3/8"	5"	40-612-4	42.90
5/8"	5/8"	1 3/8"	5"	40-613-2	42.90
3/4"	3/4"	1 5/8"	5 5/8"	40-614-0	54.10
7/8"	7/8"	1 7/8"	6 1/8"	40-615-7	68.80
1	1	1 7/8"	6 3/8"	40-616-5	83.30



HERTEL
Production Grade Tooling Since 1947

4 Flute M-42 Cobalt Double End Mills

Regular Length • 30° Helix

- Recommended for finishing operations in a wide range of ferrous and nonferrous materials.
- Multiple flutes generate higher surface finish than 2 flute end mills.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-566-2	$26.20
5/32"	3/8"	7/16"	3 1/8"	40-567-0	27.70
3/16"	3/8"	1/2"	3 1/4"	40-568-8	26.20
7/32"	3/8"	9/16"	3 1/4"	40-569-6	27.70
1/4"	3/8"	5/8"	3 3/8"	40-570-4	26.20
9/32"	3/8"	11/16"	3 3/8"	40-571-2	27.70
5/16"	3/8"	3/4"	3 1/2"	40-572-0	26.20
11/32"	3/8"	3/4"	3 1/2"	40-573-8	27.70
3/8"	3/8"	3/4"	3 1/2"	40-574-6	26.20
13/32"	1/2"	1"	4 1/8"	40-575-3	37.60
7/16"	1/2"	1"	4 1/8"	40-576-1	39.90
1/2"	1/2"	1"	4 1/8"	40-577-9	40.20
9/16"	5/8"	1 3/8"	5"	40-578-7	54.80
5/8"	5/8"	1 3/8"	5"	40-579-5	53.85
3/4"	3/4"	1 5/8"	5 5/8"	40-580-3	69.05
7/8"	7/8"	1 7/8"	6 1/8"	40-581-1	86.40
1	1	1 7/8"	6 3/8"	40-582-9	103.60

Cordless 72 LED Magnetic Light Bar

Multi-Purpose Light

See Pg. 604



60-506-3



SHOP GRADE

4 Flute M-42 Cobalt Centercutting Double End Mills

Regular Length • 30° Helix

- Designed for plunge cutting and milling slots and pockets.
- Features centercutting design with good chip removal capability.
- High resistance to abrasion for increased tool life.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-643-9	$21.15
5/32"	3/8"	7/16"	3 1/8"	40-644-7	22.65
3/16"	3/8"	1/2"	3 1/4"	40-645-4	21.15
7/32"	3/8"	9/16"	3 1/4"	40-646-2	22.65
1/4"	3/8"	5/8"	3 3/8"	40-647-0	21.15
9/32"	3/8"	11/16"	3 3/8"	40-648-8	22.65
5/16"	3/8"	3/4"	3 1/2"	40-649-6	21.15
11/32"	3/8"	3/4"	3 1/2"	40-650-4	22.65
3/8"	3/8"	3/4"	3 1/2"	40-651-2	21.15
13/32"	1/2"	1"	4 1/8"	40-652-0	22.70
7/16"	1/2"	1"	4 1/8"	40-653-8	31.50
15/32"	1/2"	1"	4 1/8"	40-654-6	37.20
1/2"	1/2"	1"	4 1/8"	40-655-3	30.80
9/16"	5/8"	1 3/8"	5"	40-656-1	42.40
5/8"	5/8"	1 3/8"	5"	84-339-1	41.20
3/4"	3/4"	1 5/8"	5 5/8"	84-341-7	52.05
7/8"	7/8"	1 7/8"	6 1/8"	84-343-3	59.85
1	1	1 7/8"	6 3/8"	84-345-8	85.90

CUTTING TOOLS



HERTEL
Production Grade Tooling Since 1947

4 Flute M-42 Cobalt Centercutting Double End Mills

Regular Length • 30° Helix

- Designed for plunge cutting and milling slots and pockets.
- Features centercutting design with good chip removal capability.
- High resistance to abrasion for increased tool life.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	40-657-9	$26.39
9/64"	3/8"	7/16"	3 1/8"	40-658-7	21.10
5/32"	3/8"	7/16"	3 1/8"	40-659-5	28.60
11/64"	3/8"	1/2"	3 1/4"	40-660-3	22.90
3/16"	3/8"	1/2"	3 1/4"	40-661-1	26.40
13/64"	3/8"	9/16"	3 1/4"	40-662-9	21.10
7/32"	3/8"	9/16"	3 1/4"	40-663-7	28.60
15/64"	3/8"	5/8"	3 3/8"	40-664-5	21.10
1/4"	3/8"	5/8"	3 3/8"	40-665-2	26.40
9/32"	3/8"	11/16"	3 3/8"	40-666-0	28.60
5/16"	3/8"	3/4"	3 1/2"	40-667-8	26.40
11/32"	3/8"	3/4"	3 1/2"	40-668-6	28.60
3/8"	3/8"	3/4"	3 1/2"	40-669-4	26.40
13/32"	1/2"	1"	4 1/8"	40-670-2	28.65
7/16"	1/2"	1"	4 1/8"	40-671-0	39.75
1/2"	1/2"	1"	4 1/8"	40-672-8	38.85
9/16"	5/8"	1 3/8"	5"	40-673-6	53.50
5/8"	5/8"	1 3/8"	5"	40-674-4	52.00
3/4"	3/4"	1 5/8"	5 5/8"	40-675-1	65.65
7/8"	7/8"	1 7/8"	6 1/8"	40-676-9	75.50
1	1	1 7/8"	6 3/8"	40-677-7	108.35



74-003-5

SHOP GRADE

3 Flute Cobalt Centercutting End Mills

Spiral Flute, Single End, 30° Helix, 1/4" Shank

- 3 Flutes—excellent for slotting and provides smoother finish.
- Cobalt is harder than high speed steel and provides better wear resistance and is commonly used on high tensile alloys.
- Spiral flutes are constructed of a high flute angle to remove chips more easily.
- 30° Helix—allows for smooth cutting without chatter.
- Stub and long lengths.

MILL DIA.	SHANK DIA.	LOC	OAL	STUB LENGTH	PART NUMBER	PRICE
1/16"	1/4"	3/32"	31/32"	Stub	73-991-2	$9.05
1/16"	1/4"	5/32"	1 3/32"	Long	73-992-0	9.90
3/32"	1/4"	5/32"	1 1/64"	Stub	73-993-8	9.05
3/32"	1/4"	1/4"	1 1/4"	Long	73-994-6	9.90
1/8"	1/4"	3/16"	1 3/32"	Stub	73-995-3	9.05
1/8"	1/4"	5/16"	1 11/32"	Long	73-996-1	9.90
5/32"	1/4"	1/4"	1 9/32"	Stub	73-997-9	9.05
5/32"	1/4"	3/8"	1 17/32"	Long	73-998-7	9.90
3/16"	1/4"	9/32"	1 11/32"	Stub	73-999-5	9.05
3/16"	1/4"	7/16"	1 21/32"	Long	74-000-1	9.90
7/32"	1/4"	5/16"	1 13/32"	Stub	74-001-9	9.05
7/32"	1/4"	1/2"	1 3/4"	Long	74-002-7	9.90
1/4"	1/4"	3/8"	1 13/32"	Stub	74-003-5	9.05
1/4"	1/4"	5/8"	1 3/4"	Long	74-004-3	9.90

HERTEL
Production Grade Tooling Since 1947



2 Flute HSS Single End Mills

Stub, Regular, Medium, Long & Extra Long Lengths • 30° Helix

- 2 flutes allow maximum space for chip evacuation.
- Longer length of cut for greater depth capacity.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/16"	2 1/8"	46-844-7	$10.65
1/8"	3/8"	3/8"	2 5/16"	46-845-4	14.00
1/8"	3/8"	3/4"	2 5/8"	46-846-2	11.25
5/32"	3/8"	7/16"	2 5/16"	46-847-0	14.00
5/32"	3/8"	5/8"	2 3/8"	46-848-8	14.05
5/32"	3/8"	3/4"	2 5/8"	46-849-6	14.90
3/16"	3/8"	3/16"	2 1/16"	46-850-4	14.00
3/16"	3/8"	7/16"	2 5/16"	46-851-2	14.00
3/16"	3/8"	5/8"	2 3/8"	46-852-0	20.60
3/16"	3/8"	3/4"	2 5/8"	46-853-8	21.50
3/16"	3/8"	1 1/4"	3 1/16"	46-854-6	20.55
7/32"	3/8"	1/4"	2 1/8"	46-855-3	14.90
7/32"	3/8"	1/2"	2 3/8"	46-856-1	15.80
7/32"	3/8"	7/8"	2 3/4"	46-857-9	18.15
7/32"	3/8"	1 1/4"	3 1/16"	46-858-7	21.80
1/4"	3/8"	1/4"	2 1/16"	46-859-5	14.00
1/4"	3/8"	1/2"	2 5/16"	46-860-3	14.00
1/4"	3/8"	3/4"	2 3/4"	46-861-1	20.60
1/4"	3/8"	1"	3 1/16"	46-862-9	20.95
1/4"	3/8"	1 3/4"	3 9/16"	46-863-7	20.50
9/32"	3/8"	9/16"	2 3/8"	46-864-5	16.90
9/32"	3/8"	1"	2 3/4"	46-865-2	21.50
9/32"	3/8"	1 3/8"	3 1/8"	46-866-0	21.50
9/32"	3/8"	1 3/4"	3 1/2"	46-867-8	22.30
5/16"	3/8"	9/16"	2 5/16"	46-868-6	14.00
5/16"	3/8"	1"	2 3/4"	46-869-4	20.60
5/16"	3/8"	1 1/4"	3 5/16"	46-870-2	20.95
5/16"	3/8"	1 3/8"	3 1/8"	46-871-0	21.50
5/16"	3/8"	2"	3 3/4"	46-872-8	22.60
11/32"	3/8"	9/16"	2 3/8"	46-873-6	16.90
11/32"	3/8"	1"	2 3/4"	46-874-4	17.55
11/32"	3/8"	1 1/2"	3 1/4"	46-875-1	21.50
3/8"	3/8"	3/8"	2 1/8"	46-876-9	14.00
3/8"	3/8"	9/16"	2 5/16"	46-877-7	14.00
3/8"	3/8"	1"	2 3/4"	46-878-5	17.90
3/8"	3/8"	1 1/2"	3 1/4"	46-879-3	21.50
3/8"	3/8"	2 1/2"	4 1/4"	46-880-1	42.50
13/32"	3/8"	13/16"	2 1/2"	46-881-9	20.20
7/16"	3/8"	7/16"	2 7/16"	46-882-7	17.80
7/16"	3/8"	13/16"	2 1/2"	46-883-5	19.65
7/16"	3/8"	1 1/4"	3 1/4"	46-884-3	22.65
7/16"	3/8"	1 3/4"	3 3/4"	46-885-0	25.25
7/16"	3/8"	2 3/4"	4 3/4"	46-886-8	46.60
7/16"	1/2"	1 3/4"	3 3/4"	46-887-6	25.50
15/32"	3/8"	13/16"	2 1/2"	46-888-4	20.95
15/32"	1/2"	1"	3 3/8"	46-889-2	23.20
1/2"	3/8"	13/16"	2 1/2"	46-890-0	23.25
1/2"	3/8"	13/16"	2 1/2"	46-891-8	19.65
1/2"	1/2"	1"	3"	46-892-6	20.20
1/2"	1/2"	1"	4"	46-768-8	26.60
1/2"	1/2"	1 1/2"	3 1/2"	46-894-2	24.15
1/2"	1/2"	2"	4"	46-895-9	26.70
1/2"	1/2"	3"	5"	46-896-7	30.65
17/32"	1/2"	1 1/8"	3 3/8"	46-897-5	27.95
9/16"	1/2"	1 1/8"	3 1/8"	46-898-3	24.35
19/32"	1/2"	1 1/8"	3 3/8"	46-899-1	30.95
5/8"	1/2"	5/8"	2 3/4"	46-900-7	28.60
5/8"	1/2"	1 1/8"	3 1/8"	46-901-5	27.30
5/8"	5/8"	1 5/16"	3 7/16"	46-902-3	28.65
5/8"	5/8"	1 5/8"	3 3/4"	46-903-1	32.20
5/8"	5/8"	2"	4 5/8"	46-904-9	32.35
5/8"	5/8"	4"	6 1/8"	46-905-6	47.65
21/32"	5/8"	1 5/16"	3 5/16"	46-906-4	33.80
11/16"	1/2"	1 5/16"	3 5/16"	46-907-2	29.90
11/16"	5/8"	1 5/16"	3 7/16"	46-908-0	29.40
23/32"	1/2"	1 5/16"	3 5/16"	46-909-8	44.50
23/32"	3/4"	1 5/16"	3 5/16"	46-910-6	44.50
3/4"	1/2"	1 5/16"	3 5/16"	46-911-4	32.35
3/4"	5/8"	1 5/16"	3 7/16"	46-912-2	$32.35
3/4"	3/4"	3/4"	3"	46-913-0	33.40
3/4"	3/4"	1 5/16"	3 15/16"	46-914-8	32.35
3/4"	3/4"	1 3/4"	4"	46-915-5	36.70
3/4"	3/4"	2 1/4"	4 1/2"	46-916-3	45.10
3/4"	3/4"	4"	6 1/4"	46-917-1	46.25
25/32"	1/2"	1 1/2"	3 1/2"	46-918-9	37.70
25/32"	3/4"	1 1/2"	3 1/2"	46-919-7	37.70
13/16"	1/2"	1 1/2"	3 15/16"	46-920-5	39.05
13/16"	5/8"	1 1/2"	3 5/8"	46-921-3	38.90
13/16"	3/4"	1 1/2"	3 3/4"	46-922-1	38.90
27/32"	1/2"	1 1/2"	3 1/2"	46-923-9	38.30
27/32"	7/8"	1 1/2"	3 1/2"	46-924-7	43.60
7/8"	1/2"	1 1/2"	3 1/2"	46-925-4	39.50
7/8"	5/8"	1 1/2"	3 5/8"	46-926-2	38.90
7/8"	3/4"	1 1/2"	4 5/32"	46-927-0	39.35
7/8"	7/8"	1 1/2"	3 3/4"	46-928-8	40.70
7/8"	7/8"	2"	4 1/4"	46-929-6	46.20
7/8"	7/8"	2 1/2"	4 3/4"	46-930-4	46.50
29/32"	1/2"	1 1/2"	3 1/2"	46-931-2	39.50
29/32"	7/8"	1 1/2"	3 1/2"	46-932-0	50.70
15/16"	5/8"	1 1/2"	3 5/8"	46-933-8	46.40
15/16"	3/4"	1 1/2"	3 3/4"	46-934-6	43.70
15/16"	7/8"	1 1/2"	3 3/4"	46-935-3	43.90
31/32"	1"	1 1/2"	3 1/2"	46-936-1	52.35
1"	1/2"	1 1/2"	3 1/2"	46-937-9	40.10
1"	5/8"	1 1/2"	4"	46-938-7	45.20
1"	3/4"	1 1/2"	4 5/8"	46-939-5	45.20
1"	7/8"	1 1/2"	4 1/8"	46-940-3	45.40
1"	1"	1 5/8"	4 1/8"	46-941-1	50.40
1"	1"	2 1/4"	4 3/4"	46-942-9	62.55
1"	1"	3"	5 1/2"	46-943-7	65.15
1"	1"	4"	6 1/2"	46-944-5	64.45
1 1/16"	3/4"	1 5/8"	3 3/4"	46-945-2	83.80
1 1/8"	7/8"	1 5/8"	4 1/8"	46-946-0	72.20
1 1/8"	1"	1 5/8"	4 1/8"	46-947-8	73.15
1 1/8"	1"	3"	5 1/2"	46-948-6	88.05
1 3/16"	3/4"	1 5/8"	3 7/8"	46-949-4	92.35
1 1/4"	3/4"	1 1/2"	3 7/8"	46-950-2	92.00
1 1/4"	7/8"	1 5/8"	4 1/8"	46-951-0	72.35
1 1/4"	1"	1 5/8"	4 1/8"	46-952-8	87.75
1 1/4"	1"	2 1/4"	4 3/4"	46-953-6	94.90
1 1/4"	1"	3"	5 1/2"	46-954-4	108.30
1 1/4"	1 1/4"	1 5/8"	4 1/8"	46-955-1	81.65
1 1/4"	1 1/4"	3"	5 1/2"	46-956-9	109.05
1 3/8"	3/4"	1 5/8"	3 7/8"	46-957-7	92.35
1 3/8"	1"	1 5/8"	4 1/8"	46-958-5	91.30
1 3/8"	1"	2 1/4"	4 3/4"	46-959-3	102.20
1 3/8"	1"	3"	6 1/2"	46-960-1	118.05
1 1/2"	3/4"	1 5/8"	3 7/8"	46-961-9	109.50
1 1/2"	1"	1 5/8"	4 1/8"	46-962-7	100.10
1 1/2"	1 1/4"	1 5/8"	4 1/8"	46-963-5	100.10
1 1/2"	1 1/4"	2 1/4"	4 3/4"	46-964-3	112.95
1 5/8"	3/4"	1 5/8"	3 7/8"	46-965-0	107.20
1 5/8"	1 1/4"	1 5/8"	4 1/8"	46-966-8	106.35
1 5/8"	1 1/4"	3"	5 1/2"	46-967-6	129.45
1 3/4"	3/4"	1 5/8"	3 7/8"	46-968-4	122.75
1 3/4"	1 1/4"	1 5/8"	4 1/8"	46-969-2	122.75
1 3/4"	1 1/4"	3"	5 1/2"	46-970-0	149.90
1 7/8"	3/4"	1 5/8"	3 7/8"	46-971-8	124.90
1 7/8"	1 1/4"	1 5/8"	4 1/8"	46-972-6	133.00
1 7/8"	1 1/4"	3"	5 1/2"	46-973-4	170.15
2"	3/4"	1 5/8"	3 7/8"	46-974-2	145.25
2"	1 1/4"	1 5/8"	4 1/8"	46-975-9	145.25
2"	1 1/4"	2 1/4"	4 3/4"	46-976-7	165.50
2"	1 1/4"	3"	6 1/2"	46-977-5	199.15
2 1/4"	1 1/4"	1 5/8"	4 1/8"	46-978-3	170.45
–	–	–	–	–	–

SHOP GRADE

2 Flute HSS Single End Mills

Stub, Regular, Medium, Long & Extra Long Lengths • 30° Helix



- 2 flutes allow maximum space for chip evacuation.
- Longer length of cut for greater depth capacity.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	46-774-6	$9.20
9/64"	3/8"	3/8"	2 5/16"	46-775-3	9.15
5/32"	3/8"	7/16"	2 5/16"	46-776-1	9.05
11/64"	3/8"	7/16"	2 5/16"	46-777-9	12.55
3/16"	3/8"	7/16"	2 5/16"	46-778-7	9.20
13/64"	3/8"	7/16"	2 5/16"	46-779-5	12.55
7/32"	3/8"	1/2"	2 3/8"	46-780-3	10.25
15/64"	3/8"	1/2"	2 3/8"	46-781-1	12.55
1/4"	3/8"	1/2"	2 5/16"	46-782-9	9.20
1/4"	3/8"	1"	3 1/16"	46-783-7	15.60
17/64"	3/8"	9/16"	2 3/8"	46-784-5	11.50
9/32"	3/8"	9/16"	2 3/8"	46-785-2	11.50
19/64"	3/8"	9/16"	2 3/8"	46-786-0	12.95
5/16"	3/8"	9/16"	2 5/16"	46-787-8	9.20
5/16"	3/8"	1 1/4"	3 5/16"	46-788-6	18.05
21/64"	3/8"	9/16"	2 3/8"	46-789-4	11.25
11/32"	3/8"	9/16"	2 3/8"	46-790-2	11.25
23/64"	3/8"	9/16"	2 3/8"	46-791-0	11.25
3/8"	3/8"	9/16"	2 5/16"	46-792-8	9.20
3/8"	3/8"	1"	2 3/4"	46-793-6	11.95
3/8"	3/8"	1 1/2"	3 1/4"	46-794-4	13.40
7/16"	3/8"	13/16"	2 1/2"	46-795-1	12.85
1/2"	3/8"	13/16"	2 1/2"	46-796-9	12.85
1/2"	1/2"	1"	3"	46-797-7	12.55
1/2"	1/2"	1 1/2"	3 1/2"	46-798-5	15.75
1/2"	1/2"	2"	4"	46-799-3	17.55
9/16"	1/2"	1 1/8"	3 1/8"	46-800-9	15.20
5/8"	1/2"	1 1/8"	3 1/8"	46-801-7	17.15
5/8"	5/8"	1 5/16"	3 7/16"	46-802-5	17.55
5/8"	5/8"	2"	4 1/8"	46-803-3	22.40
5/8"	5/8"	2 1/2"	4 5/8"	46-804-1	21.15
5/8"	5/8"	3"	5 1/8"	46-805-8	40.55
11/16"	1/2"	1 5/16"	3 5/16"	46-806-6	23.25
11/16"	5/8"	1 5/16"	3 7/16"	46-807-4	18.70
3/4"	1/2"	1 5/16"	3 5/16"	46-808-2	20.10
3/4"	5/8"	1 5/16"	3 7/16"	46-809-0	$20.10
3/4"	3/4"	1 5/16"	3 7/16"	46-810-8	20.10
3/4"	3/4"	2 1/4"	4 1/2"	46-811-6	35.65
3/4"	3/4"	2 1/2"	4 3/4"	46-812-4	54.05
3/4"	3/4"	3"	5 1/4"	46-813-2	54.05
3/4"	3/4"	3 1/2"	5 3/4"	46-814-0	62.85
13/16"	5/8"	1 1/2"	3 5/8"	46-815-7	24.70
13/16"	3/4"	1 1/2"	3 3/4"	46-816-5	24.70
7/8"	1/2"	1 1/2"	3 1/2"	46-817-3	26.40
7/8"	5/8"	1 1/2"	3 5/8"	46-818-1	24.70
7/8"	3/4"	1 1/2"	3 3/4"	46-819-9	24.70
7/8"	7/8"	1 1/2"	3 3/4"	46-820-7	26.25
15/16"	3/4"	1 1/2"	3 3/4"	46-821-5	32.00
1"	1/2"	1 1/2"	3 1/2"	46-822-3	27.05
1"	5/8"	1 1/2"	3 5/8"	46-823-1	28.70
1"	3/4"	1 1/2"	3 3/4"	46-824-9	28.70
1"	1"	1 5/8"	4 1/8"	46-825-6	31.45
1"	1"	2"	4 1/2"	46-826-4	67.30
1"	1"	2 1/2"	5"	46-827-2	68.45
1"	1"	3"	5 1/2"	46-828-0	53.90
1"	1"	4"	6 1/2"	46-829-8	42.50
1 1/16"	3/4"	1 5/8"	3 3/4"	46-830-6	55.40
1 1/8"	3/4"	1 5/8"	3 7/8"	46-831-4	61.20
1 1/8"	1"	1 5/8"	4 1/8"	46-832-2	52.60
1 1/8"	1"	3"	5 1/2"	46-833-0	75.00
1 1/4"	3/4"	1 5/8"	3 7/8"	46-834-8	60.80
1 1/4"	1"	1 5/8"	4 1/8"	46-835-5	71.80
1 1/4"	1 1/4"	4 3/4"	7 1/4"	46-836-3	129.75
1 3/8"	3/4"	1 5/8"	3 7/8"	46-837-1	60.80
1 3/8"	1"	1 5/8"	4 1/8"	46-838-9	63.75
1 1/2"	3/4"	1 5/8"	3 7/8"	46-839-7	66.65
1 1/2"	1"	1 5/8"	4 1/8"	46-840-5	65.80
1 5/8"	3/4"	1 5/8"	3 7/8"	46-841-3	71.60
1 3/4"	3/4"	1 5/8"	3 7/8"	46-842-1	80.30
2"	3/4"	1 5/8"	3 7/8"	46-843-9	93.90



HERTEL Production Grade Tooling Since 1947

2 Flute HSS Keyway Single End Mills

Spiral Flute • 30° Helix

- 2 flutes allow maximum space for chip ejection.
- Tolerances of tools are correct fit for keystock.

Tolerances:
Cutting Dia: +0.00/-0.0015".

MILL DIA.	DEC. EQUIV.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	0.1220"	3/8"	3/8"	2 5/16"	40-412-9	$15.65
1/8"	0.1230"	3/8"	3/8"	2 5/16"	40-413-7	15.65
1/8"	0.1240"	3/8"	3/8"	2 5/16"	40-414-5	15.65
3/16"	0.1845"	3/8"	3/8"	2 5/16"	40-415-2	17.15
3/16"	0.1855"	3/8"	3/8"	2 5/16"	40-416-0	17.15
3/16"	0.1865"	3/8"	3/8"	2 5/16"	40-417-8	17.35
1/4"	0.2470"	3/8"	1/2"	2 5/16"	40-418-6	16.20
1/4"	0.2480"	3/8"	1/2"	2 5/16"	40-419-4	16.20
1/4"	0.2490"	3/8"	1/2"	2 5/16"	40-420-2	16.20
5/16"	0.3095"	3/8"	9/16"	2 5/16"	40-421-0	16.20
5/16"	0.3105"	3/8"	9/16"	2 5/16"	40-422-8	16.20
5/16"	0.3115"	3/8"	9/16"	2 5/16"	40-423-6	16.20
3/8"	0.3720"	3/8"	9/16"	2 5/16"	40-424-4	17.05
3/8"	0.3730"	3/8"	9/16"	2 5/16"	40-425-1	17.05
3/8"	0.3740"	3/8"	9/16"	2 5/16"	40-426-9	17.05
1/2"	0.4970"	1/2"	1"	3"	40-427-7	23.20
1/2"	0.4980"	1/2"	1"	3"	40-428-5	23.20
1/2"	0.4990"	1/2"	1"	3"	40-429-3	23.20
5/8"	0.6220"	5/8"	1 5/16"	3 7/16"	40-430-1	33.40
5/8"	0.6230"	5/8"	1 5/16"	3 7/16"	40-431-9	33.40
5/8"	0.6240"	5/8"	1 5/16"	3 7/16"	40-432-7	33.40
3/4"	0.7470"	3/4"	1 5/16"	3 9/16"	40-433-5	37.85
3/4"	0.7480"	3/4"	1 5/16"	3 9/16"	40-434-3	37.85
3/4"	0.7490"	3/4"	1 5/16"	3 9/16"	40-435-0	37.85
7/8"	0.8720"	7/8"	1 1/2"	3 3/4"	40-436-8	47.95
7/8"	0.8740"	7/8"	1 1/2"	3 3/4"	40-437-6	47.95
1"	0.9970"	1"	1 5/8"	4 1/8"	40-438-4	58.70
1"	0.9990"	1"	1 5/8"	4 1/8"	40-439-2	58.70
1 1/4"	1.2490"	1 1/4"	1 5/8"	4 1/8"	40-440-0	97.45



SHOP GRADE

2 Flute HSS Extended Reach Single End Mills

30° Helix

- Extended length necked tools provide strength and rigidity for deep pocketing applications.

MILL DIA.	SHANK DIA.	L BELOW SHANK	LOC	OAL	PART NUMBER	PRICE
1/4"	3/8"	1 1/2"	5/8"	3 1/16"	45-594-9	$16.50
5/16"	3/8"	1 3/4"	3/4"	3 5/16"	45-595-6	17.20
3/8"	3/8"	1 3/4"	3/4"	3 5/16"	46-756-3	17.20
1/2"	1/2"	2 1/4"	1"	4"	46-757-1	21.05
5/8"	5/8"	2 3/4"	1 3/8"	4 5/8"	46-758-9	33.65
3/4"	3/4"	3 3/8"	1 5/8"	5 3/8"	46-759-7	42.60
7/8"	7/8"	4"	2"	6"	46-760-5	52.25
1"	1"	5"	2 1/2"	7 1/4"	46-761-3	49.30
1 1/4"	1 1/4"	5"	3"	7 1/4"	46-762-1	94.55

SHOP GRADE

3 Flute Cobalt Semi-Roughing & Finishing Centercutting End Mills

45° & 60° High Helix with Weldon Shank



74-324-5



74-337-7

- Smooth cutting.
- Low resistance.

MILL DIA.	SHANK DIA.	LOC	OAL	45° HELIX PART NO.	PRICE EACH	60° HELIX PART NO.	PRICE EACH
1/4"	3/8"	5/8"	2 7/16"	74-324-5	$21.70	74-334-4	$19.80
5/16"	3/8"	3/4"	2 1/2"	74-325-2	22.25	74-335-1	20.10
3/8"	3/8"	3/4"	2 1/2"	74-326-0	21.70	74-336-9	19.80
1/2"	1/2"	1 1/4"	3 1/4"	74-327-8	33.50	74-337-7	30.00
1/2"	1/2"	2"	4"	74-328-6	48.60	–	–
5/8"	5/8"	1 5/8"	3 3/4"	74-329-4	49.90	74-338-5	56.15
3/4"	3/4"	1 5/8"	3 7/8"	74-330-2	58.65	74-339-3	73.00
3/4"	3/4"	3"	5 1/4"	74-331-0	86.60	–	–
1"	3/4"	2"	4 1/2"	74-332-8	92.95	–	–
1"	1"	2"	4 1/2"	74-333-6	92.95	74-340-1*	97.50

*4 Flute

CUTTING TOOLS



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS Keyway Single End Mills

Straight Flute • 30° Helix

- 2 flutes allow maximum space for chip ejection.
- Tolerances of tools are correct fit for keystock.

Tolerances:
Cutting Dia: +0.00/-0.0015".

MILL DIA.	DEC. EQUIV.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	0.1240"	3/8"	3/8"	2 5/16"	**40-388-1**	$25.05
3/16"	0.1865"	3/8"	3/8"	2 5/16"	**40-389-9**	25.05
1/4"	0.2490"	3/8"	1/2"	2 5/16"	**40-390-7**	25.05
5/16"	0.3115"	3/8"	9/16"	2 5/16"	**40-391-5**	25.05
3/8"	0.3740"	3/8"	9/16"	2 5/16"	**40-392-3**	25.05
1/2"	0.4990"	1/2"	1"	3"	**40-393-1**	34.75
5/8"	0.6240"	5/8"	1 5/16"	3 7/16"	**40-394-9**	45.70
3/4"	0.7490"	3/4"	1 5/16"	3 9/16"	**40-395-6**	52.15
7/8"	0.8740"	7/8"	1 1/2"	3 3/4"	**40-396-4**	77.10
1"	0.9990"	1"	1 5/8"	4 1/8"	**40-397-2**	99.30
1 1/4"	1.2490"	1 1/4"	1 5/8"	4 1/8"	**40-398-0**	133.65

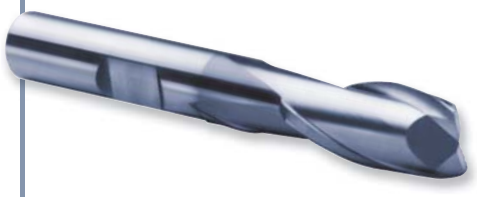
SHOP GRADE
Multiple Flute HSS Single End Mills

Regular, Long & Extra Long Lengths • 30° Helix



- Designed for general purpose work, including cam milling, die sinking and slot milling.
- Excellent for use in finishing operations.
- Multiple flute design allows for higher feed rates.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
7/64"	3/8"	3/8"	2 5/16"	4	**47-267-0**	$10.70
1/8"	3/8"	3/8"	2 5/16"	4	**47-268-8**	8.55
5/32"	3/8"	7/16"	2 3/8"	4	**47-269-6**	9.85
11/64"	3/8"	7/16"	2 3/8"	4	**47-270-4**	9.90
3/16"	3/8"	1/2"	2 3/8"	4	**47-271-2**	8.55
13/64"	3/8"	1/2"	2 3/8"	4	**47-272-0**	9.90
7/32"	3/8"	9/16"	2 1/2"	4	**47-273-8**	8.55
1/4"	3/8"	5/8"	2 1/2"	4	**47-274-6**	8.55
1/4"	3/8"	1 1/4"	3 1/16"	4	**47-275-3**	11.25
1/4"	3/8"	1 3/4"	3 9/16"	4	**47-276-1**	13.35
17/64"	3/8"	5/8"	2 1/2"	4	**47-277-9**	11.20
9/32"	3/8"	11/16"	2 1/2"	4	**47-278-7**	9.75
19/64"	3/8"	11/16"	2 1/2"	4	**47-279-5**	11.20
5/16"	3/8"	3/4"	2 1/2"	4	**47-280-3**	8.55
5/16"	3/8"	1 3/8"	3 1/8"	4	**47-281-1**	11.25
5/16"	3/8"	2"	3 3/4"	4	**47-282-9**	14.00
21/64"	3/8"	3/4"	2 1/2"	4	**47-283-7**	11.00
11/32"	3/8"	3/4"	2 1/2"	4	**47-284-5**	10.05
23/64"	3/8"	3/4"	2 1/2"	4	**47-285-2**	11.10
3/8"	3/8"	3/4"	2 1/2"	4	**47-286-0**	10.45
3/8"	3/8"	1 1/2"	3 1/4"	4	**47-287-8**	13.55
3/8"	3/8"	2 1/2"	4 1/4"	4	**47-288-6**	17.55
7/16"	3/8"	1"	2 11/16"	4	**47-289-4**	14.30
7/16"	1/2"	1 3/4"	3 3/4"	4	**47-290-2**	19.10
1/2"	3/8"	1"	2 11/16"	4	**47-291-0**	14.30
1/2"	1/2"	1 1/4"	3 1/4"	4	**47-292-8**	14.30
1/2"	1/2"	2"	4"	4	**47-293-6**	18.65
1/2"	1/2"	3"	5"	4	**47-294-4**	22.70
9/16"	1/2"	1 3/8"	3 3/8"	4	**47-295-1**	18.20
5/8"	1/2"	1 3/8"	3 3/8"	4	**47-296-9**	19.95
5/8"	5/8"	1 5/8"	3 3/4"	4	**47-297-7**	21.80
5/8"	5/8"	2 1/2"	4 5/8"	4	**47-298-5**	26.25
5/8"	5/8"	4"	6 1/8"	4	**47-299-3**	35.55
11/16"	5/8"	1 5/8"	3 3/4"	4	**47-300-9**	23.30
3/4"	1/2"	1 5/8"	3 5/8"	4	**47-301-7**	24.05
3/4"	5/8"	1 5/8"	3 3/4"	4	**47-302-5**	23.90
3/4"	3/4"	1 5/8"	3 3/4"	4	**47-303-3**	24.85
3/4"	3/4"	3"	5 1/4"	4	**47-304-1**	32.05
3/4"	3/4"	4"	6 1/4"	4	**47-305-8**	38.45
13/16"	3/4"	1 7/8"	4 1/8"	4	**47-306-6**	31.05
7/8"	5/8"	1 7/8"	4"	6	**47-307-4**	$31.60
7/8"	3/4"	1 7/8"	4 1/8"	4	**47-308-2**	32.70
7/8"	7/8"	1 7/8"	4 1/8"	4	**47-309-0**	31.15
7/8"	7/8"	3 1/2"	5 3/4"	4	**47-310-8**	40.10
7/8"	7/8"	5"	7 1/4"	4	**47-311-6**	50.85
15/16"	3/4"	1 7/8"	4 1/8"	4	**47-312-4**	34.45
1"	1/2"	1 7/8"	4"	4	**47-313-2**	37.40
1"	5/8"	1 7/8"	4"	6	**47-314-0**	36.05
1"	3/4"	1 7/8"	4 1/8"	4	**47-315-7**	35.40
1"	1"	2"	4 1/2"	4	**47-316-5**	37.60
1"	1"	4"	6 1/2"	4	**47-317-3**	54.35
1"	1"	6"	8 1/2"	4	**47-318-1**	67.00
1 1/8"	3/4"	2"	4 1/2"	6	**47-319-9**	44.15
1 1/8"	1"	2"	4 1/2"	6	**47-320-7**	51.10
1 3/16"	3/4"	2"	4 1/4"	6	**47-321-5**	66.35
1 1/4"	3/4"	2"	4 1/4"	6	**47-322-3**	46.85
1 1/4"	1"	2"	4 1/2"	6	**47-323-1**	55.55
1 1/4"	1 1/4"	2"	4 1/2"	4	**47-324-9**	59.10
1 1/4"	1 1/4"	2"	4 1/2"	6	**47-325-6**	58.60
1 1/4"	1 1/4"	4"	6 1/2"	4	**47-326-4**	85.40
1 1/4"	1 1/4"	6"	8 1/2"	6	**47-327-2**	100.65
1 5/16"	3/4"	2"	4 1/2"	6	**47-328-0**	64.60
1 3/8"	3/4"	2"	4 1/2"	6	**47-329-8**	55.50
1 3/8"	1"	2"	4 1/2"	6	**47-330-6**	63.40
1 7/16"	3/4"	2"	4 1/2"	6	**47-331-4**	73.05
1 1/2"	3/4"	2"	4 1/2"	6	**47-332-2**	73.65
1 1/2"	1"	2"	4 1/2"	6	**47-333-0**	71.50
1 1/2"	1"	4"	6 1/2"	6	**47-334-8**	101.15
1 1/2"	1 1/4"	2"	4 1/2"	4	**47-335-5**	72.05
1 1/2"	1 1/4"	4"	6 1/2"	4	**47-336-3**	102.00
1 1/2"	1 1/4"	4"	6 1/2"	6	**47-337-1**	101.15
1 1/2"	1 1/4"	6"	8 1/2"	4	**47-338-9**	94.55
1 1/2"	1 1/4"	6"	8 1/2"	6	**47-339-7**	110.00
1 1/2"	1 1/4"	8"	10 9/16"	6	**47-340-5**	161.10
1 3/4"	3/4"	2"	4 1/2"	6	**47-341-3**	90.25
1 3/4"	1 1/4"	4"	6 1/2"	6	**47-342-1**	131.80
2"	3/4"	2"	4 1/2"	6	**47-343-9**	103.65
2"	1 1/4"	2"	5 1/2"	6	**47-344-7**	133.65
2"	1 1/4"	4"	6 1/2"	6	**47-345-4**	162.95
–	–	–	–	–	–	–



SHOP GRADE
2 Flute M-42 Cobalt Single End Mills

Regular, Medium & Long Lengths • 30° Helix

- 2 flutes allow maximum space for chip ejection.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	**54-101-1**	$11.20
3/16"	3/8"	7/16"	2 5/16"	**54-102-9**	11.20
1/4"	3/8"	1/2"	2 5/16"	**54-103-7**	11.20
5/16"	3/8"	9/16"	2 5/16"	**54-104-5**	11.20
3/8"	3/8"	9/16"	2 5/16"	**54-105-2**	11.20
3/8"	3/8"	1 1/2"	3 1/4"	**54-106-0**	15.35
7/16"	3/8"	13/16"	2 1/2"	**54-107-8**	16.60
1/2"	3/8"	13/16"	2 1/2"	**54-097-1**	16.60
1/2"	1/2"	1"	3"	**54-108-6**	17.55
1/2"	1/2"	2"	4"	**54-109-4**	19.45
9/16"	1/2"	1 1/8"	3 1/8"	**54-110-2**	20.40
5/8"	1/2"	1 1/8"	3 1/8"	**54-111-0**	22.95
5/8"	5/8"	1 5/16"	3 7/16"	**54-112-8**	23.25
5/8"	5/8"	2"	4 1/8"	**54-113-6**	26.15
11/16"	5/8"	1 5/16"	3 7/16"	**54-114-4**	38.45
3/4"	1/2"	1 5/16"	3 5/16"	**54-115-1**	26.55
3/4"	5/8"	1 5/16"	3 7/16"	**54-098-9**	26.55
3/4"	3/4"	1 5/16"	3 7/16"	**54-116-9**	26.55
3/4"	3/4"	2 1/4"	4 1/2"	**54-117-7**	31.50
13/16"	3/4"	1 1/2"	3 3/4"	**54-118-5**	26.60
7/8"	1/2"	1 1/2"	3 1/2"	**54-119-3**	54.35
7/8"	5/8"	1 1/2"	3 3/4"	**54-099-7**	35.45
7/8"	3/4"	1 1/2"	3 5/8"	**54-100-3**	52.25
7/8"	7/8"	1 1/2"	3 5/8"	**54-120-1**	30.50
15/16"	3/4"	1 1/2"	3 5/8"	**54-121-9**	63.30
1"	1/2"	1 1/2"	3 5/8"	**54-122-7**	62.75
1"	5/8"	1 5/8"	4 1/8"	**54-123-5**	37.05
1"	3/4"	1 1/2"	3 3/4"	**54-124-3**	37.05
1"	1"	1 5/8"	3 7/8"	**54-125-0**	39.45
1 1/16"	3/4"	1 5/8"	3 7/8"	**54-126-8**	61.85
1 1/8"	3/4"	1 5/8"	3 7/8"	**54-127-6**	67.25
1 1/8"	1"	1 5/8"	3 7/8"	**54-128-4**	103.55
1 3/16"	3/4"	1 5/8"	3 7/8"	**54-129-2**	123.35
1 1/4"	3/4"	1 5/8"	3 7/8"	**54-130-0**	56.25
1 1/4"	1 1/4"	1 5/8"	4 1/8"	**54-131-8**	69.05
1 5/16"	3/4"	1 5/8"	3 7/8"	**54-132-6**	167.40
1 3/8"	3/4"	1 5/8"	4 1/8"	**54-133-4**	139.85
1 3/8"	1"	1 5/8"	3 7/8"	**54-134-2**	129.85
1 7/16"	3/4"	1 5/8"	3 7/8"	**54-135-9**	183.15
1 1/2"	3/4"	1 5/8"	4 1/8"	**54-136-7**	89.70
1 1/2"	1"	1 5/8"	4 1/8"	**54-137-5**	110.35
1 5/8"	3/4"	1 5/8"	4 1/8"	**54-138-3**	194.20
1 3/4"	3/4"	1 5/8"	4 1/8"	**54-139-1**	224.00
1 3/4"	1 1/4"	1 5/8"	4 1/8"	**54-140-9**	172.80
2"	1 1/4"	1 5/8"	4 1/8"	**54-141-7**	125.00

HERTEL
Production Grade Tooling Since 1947

2 Flute M-42 Cobalt Single End Mills

Regular, Medium & Long Lengths • 30° Helix



- 2 flutes allow maximum space for chip ejection.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	47-989-9	$15.20
3/16"	3/8"	7/16"	2 5/16"	47-990-7	15.20
7/32"	3/8"	1/2"	2 3/8"	47-991-5	17.60
1/4"	3/8"	1/2"	2 5/16"	47-992-3	15.20
9/32"	3/8"	9/16"	2 3/8"	47-993-1	18.80
5/16"	3/8"	9/16"	2 5/16"	47-994-9	15.20
11/32"	3/8"	9/16"	2 3/8"	47-995-6	18.80
3/8"	3/8"	9/16"	2 5/16"	47-996-4	15.20
3/8"	3/8"	1"	2 3/4"	47-997-2	18.80
3/8"	3/8"	1 1/2"	3 1/4"	47-998-0	23.50
13/32"	3/8"	13/16"	2 1/2"	47-999-8	23.25
7/16"	3/8"	13/16"	2 1/2"	48-000-4	23.25
7/16"	3/8"	1"	2 11/16"	48-001-2	23.25
1/2"	3/8"	13/16"	2 1/2"	46-890-0	23.25
1/2"	1/2"	1"	3"	48-002-0	20.20
1/2"	1/1"	1 1/2"	3 1/2"	48-003-8	28.05
1/2"	1/2"	2"	4"	48-004-6	31.40
9/16"	1/2"	1 1/8"	3 1/8"	48-005-3	32.35
5/8"	1/2"	1 1/8"	3 1/8"	48-006-1	31.40
5/8"	5/8"	1 5/16"	3 7/16"	48-007-9	31.75
5/8"	5/8"	1 5/8"	3 3/4"	48-008-7	40.25
5/8"	5/8"	2"	4 1/8"	48-009-5	42.65
3/4"	1/2"	1 5/16"	3 5/16"	48-010-3	34.40
3/4"	5/8"	1 5/16"	3 7/16"	48-011-1	$34.40
3/4"	3/4"	1 5/16"	3 7/16"	48-012-9	34.40
3/4"	3/4"	1 3/4"	4"	48-013-7	46.90
3/4"	3/4"	2 1/4"	4 1/2"	48-014-5	51.30
13/16"	3/4"	1 1/2"	3 3/4"	48-015-2	41.55
7/8"	3/4"	1 1/2"	4 1/8"	48-016-0	49.80
7/8"	7/8"	1 1/2"	3 5/8"	48-017-8	47.80
1"	5/8"	1 5/8"	4 1/8"	48-018-6	60.35
1"	3/4"	1 1/2"	3 3/4"	48-019-4	57.25
1"	1"	1 5/8"	3 7/8"	48-020-2	52.80
1"	1"	2 1/4"	4 3/4"	48-021-0	74.35
1"	1"	3"	5 1/2"	48-022-8	84.50
1 1/8"	3/4"	1 5/8"	3 7/8"	48-023-6	108.10
1 1/4"	3/4"	1 5/8"	3 7/8"	48-024-4	90.45
1 1/4"	1 1/4"	1 5/8"	4 1/8"	48-025-1	97.55
1 1/4"	1 1/4"	2 1/4"	4 3/4"	48-026-9	127.15
1 1/4"	1 1/4"	3"	5 1/2"	48-027-7	141.75
1 1/2"	3/4"	1 5/8"	4 1/8"	48-028-5	123.75
1 1/2"	1 1/4"	1 5/8"	4 1/8"	48-029-3	125.15
2"	3/4"	1 5/8"	4 1/8"	48-030-1	206.05
2"	1 1/4"	1 5/8"	4 1/8"	48-031-9	166.85
2"	1 1/4"	2 1/4"	4 3/4"	48-032-7	235.00
–	–	–	–	–	



HERTEL
Production Grade Tooling Since 1947

Multiple Flute M-42 Cobalt Single End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- For use in finishing operations following heavy roughing cuts.
- Ideal for high strength, heat resistant and difficult to machine materials.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	46-658-1	$14.90
3/16"	3/8"	1/2"	2 3/8"	4	46-659-9	14.90
1/4"	3/8"	5/8"	2 7/16"	4	46-660-7	14.90
1/4"	3/8"	1 1/4"	3 1/16"	4	46-661-5	14.90
1/4"	3/8"	1 3/4"	3 9/16"	4	46-662-3	25.35
5/16"	3/8"	3/4"	2 1/2"	4	46-663-1	14.90
5/16"	3/8"	1 3/8"	3 1/8"	4	46-664-9	20.90
5/16"	3/8"	2"	3 3/4"	4	46-665-6	25.35
3/8"	3/8"	3/4"	2 1/2"	4	46-666-4	14.90
3/8"	3/8"	1 1/2"	3 1/4"	4	46-667-2	20.90
3/8"	3/8"	2 1/2"	4 1/4"	4	46-668-0	27.60
7/16"	3/8"	1"	2 11/16"	4	46-669-8	21.40
7/16"	1/2"	1 3/4"	3 3/4"	4	46-670-6	29.25
1/2"	3/8"	1"	2 11/16"	4	46-671-4	22.90
1/2"	1/2"	1 1/4"	3 1/4"	4	46-672-2	21.10
1/2"	1/2"	2"	4"	4	46-673-0	28.95
1/2"	1/2"	3"	5"	4	46-674-8	31.00
9/16"	1/2"	1 3/8"	3 3/8"	4	46-675-5	28.20
5/8"	1/2"	1 3/8"	3 3/8"	4	46-676-3	28.95
5/8"	5/8"	1 5/8"	3 3/4"	4	46-677-1	30.85
5/8"	5/8"	2 1/2"	4 5/8"	4	46-678-9	40.25
5/8"	5/8"	4"	6 1/8"	4	46-679-7	50.35
3/4"	1/2"	1 5/8"	3 5/8"	4	46-680-5	35.75
3/4"	5/8"	1 5/8"	3 3/4"	4	46-681-3	35.75
3/4"	3/4"	1 5/8"	3 7/8"	4	46-682-1	34.40
3/4"	3/4"	3"	5 1/4"	4	46-683-9	45.60
3/4"	3/4"	4"	6 1/4"	4	46-684-7	58.75
7/8"	3/4"	1 7/8"	4 1/8"	4	46-685-4	58.55
7/8"	7/8"	3 1/2"	5 3/4"	4	46-686-2	64.35
7/8"	7/8"	5"	7 1/4"	4	46-687-0	78.20
1"	5/8"	1 7/8"	4"	6	46-688-8	58.60
1"	3/4"	1 7/8"	4 1/8"	4	46-689-6	49.65
1"	1"	2"	4 1/2"	4	46-690-4	52.60
1"	1"	4"	6 1/2"	4	46-691-2	80.30
1"	1"	6"	8 1/2"	4	46-692-0	106.70
1 1/4"	1 1/4"	2"	4 1/2"	4	46-693-8	100.40
1 1/4"	1 1/4"	4"	6 1/2"	4	46-694-6	118.15
1 1/4"	1 1/4"	6"	8 1/2"	4	46-695-3	125.90
1 1/2"	1 1/4"	2"	4 1/2"	6	46-696-1	111.30
1 1/2"	1 1/4"	4"	6 1/2"	6	46-697-9	134.55
1 1/2"	1 1/4"	8"	10 1/2"	6	46-698-7	201.70
1 3/4"	1 1/4"	4"	6 1/2"	6	46-699-5	197.25
2"	1 1/4"	2"	4 1/2"	8	46-700-1	136.80
2"	1 1/4"	4"	6 1/2"	8	46-701-9	189.80



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS Extended Reach Single End Mills

30° Helix

- Extended length necked tools provide strength and rigidity for deep pocketing applications.

MILL DIA.	SHANK DIA.	L BELOW SHANK	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	13/16"	3/8"	2 3/8"	46-763-9	$23.45
3/16"	3/8"	1 1/8"	1/2"	2 11/16"	46-764-7	23.45
1/4"	3/8"	1 1/2"	5/8"	3 1/16"	46-765-4	23.45
5/16"	3/8"	1 3/4"	3/4"	3 5/16"	46-766-2	23.85
3/8"	3/8"	1 3/4"	3/4"	3 5/16"	46-767-0	23.85
1/2"	1/2"	2 1/4"	1"	4"	46-768-8	26.60
5/8"	5/8"	2 3/4"	1 3/8"	4 5/8"	46-769-6	44.00
3/4"	3/4"	3 3/8"	1 5/8"	5 3/8"	46-770-4	55.45
7/8"	7/8"	4"	2"	6"	46-771-2	62.85
1"	1"	5"	2 1/2"	7 1/4"	46-772-0	97.65
1 1/4"	1 1/4"	5"	3"	7 1/4"	46-773-8	133.65

HERTEL
Production Grade Tooling Since 1947

2 Flute M-42 Cobalt Extended Reach Single End Mills

CNC Qualified • Regular Lengths • 30° Helix



- Flutes allow maximum space for chip ejection.
- Used when a longer reach is required, but not a longer cutting length.
- Extended neck provides greater rigidity and reduces deflection.

MILL DIA.	SHANK DIA.	L BELOW SHANK	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	13/16"	3/8"	2 3/8"	47-123-5	$26.50
3/16"	3/8"	1 1/8"	1/2"	2 11/16"	47-124-3	26.50
1/4"	3/8"	1 1/2"	5/8"	3 1/16"	47-125-0	26.50
5/16"	3/8"	1 3/4"	3/4"	3 5/16"	47-126-8	27.50
3/8"	3/8"	1 3/4"	3/4"	3 5/16"	47-127-6	28.80
1/2"	1/2"	2 1/4"	1"	4"	47-128-4	33.55
3/4"	3/4"	3 3/8"	1 5/8"	5 3/8"	47-129-2	63.35
1"	1"	5"	2 1/2"	7 1/4"	47-130-0	111.75

CUTTING TOOLS

HERTEL
Production Grade Tooling Since 1947

Multiple Flute HSS Single End Mills

Regular, Long & Extra Long Lengths • 30° Helix



- Designed for general purpose work, including cam milling, die sinking and slot milling.
- Excellent for use in finishing operations.
- Multiple flute design allows for higher feed rates.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	47-346-2	$14.30
5/32"	3/8"	7/16"	2 3/8"	4	47-347-0	12.75
3/16"	3/8"	1/2"	2 3/8"	4	47-348-8	14.30
7/32"	3/8"	5/8"	2 7/16"	4	47-181-3	19.95
1/4"	3/8"	5/8"	2 1/2"	4	47-349-6	14.30
1/4"	3/8"	1 1/4"	3 1/16"	4	47-350-4	18.75
1/4"	3/8"	1 3/4"	3 9/16"	4	47-351-2	22.35
9/32"	3/8"	11/16"	2 1/2"	4	47-352-0	19.95
5/16"	3/8"	3/4"	2 1/2"	4	47-353-8	14.30
5/16"	3/8"	1 3/8"	3 1/8"	4	47-354-6	18.75
5/16"	3/8"	2"	3 3/4"	4	47-355-3	23.55
11/32"	3/8"	3/4"	2 1/2"	4	47-356-1	14.25
3/8"	3/8"	3/4"	2 1/2"	4	47-357-9	14.30
3/8"	3/8"	1 1/2"	3 1/4"	4	47-358-7	18.50
3/8"	3/8"	2 1/2"	4 1/4"	4	47-359-5	23.75
13/32"	3/8"	1"	2 11/16"	4	47-360-3	26.00
7/16"	3/8"	1"	2 11/16"	4	47-361-1	19.35
7/16"	1/2"	1 3/4"	3 3/4"	4	47-362-9	25.85
15/32"	3/8"	1"	2 1/2"	4	47-363-7	22.30
15/32"	1/2"	1 1/4"	3 1/4"	4	47-364-5	24.20
1/2"	3/8"	1"	2 11/16"	4	47-365-2	19.35
1/2"	1/2"	1 1/4"	3 1/4"	4	47-366-0	19.35
1/2"	1/2"	2"	4"	4	47-367-8	25.25
1/2"	1/2"	3"	5"	4	47-368-6	31.00
17/32"	1/2"	1 3/8"	3 3/8"	4	47-369-4	24.95
9/16"	1/2"	1 3/8"	3 3/8"	4	47-370-2	24.65
19/32"	1/2"	1 3/8"	3 3/8"	4	47-371-0	30.10
5/8"	1/2"	1 3/8"	3 3/8"	4	47-372-8	27.05
5/8"	5/8"	1 5/8"	3 3/4"	4	47-373-6	29.80
5/8"	5/8"	2 1/2"	4 5/8"	4	47-374-4	35.90
5/8"	5/8"	4"	6 1/8"	4	47-375-1	48.65
21/32"	5/8"	1 5/8"	3 3/4"	4	47-376-9	33.80
11/16"	1/2"	1 5/8"	3 5/8"	4	47-377-7	30.10
11/16"	5/8"	1 5/8"	3 3/4"	4	47-378-5	31.90
23/32"	3/4"	1 5/8"	3 7/8"	4	47-379-3	$36.10
3/4"	1/2"	1 5/8"	3 5/8"	4	47-380-1	32.90
3/4"	5/8"	1 5/8"	3 3/4"	4	47-381-9	32.35
3/4"	3/4"	1 5/8"	3 3/4"	4	47-382-7	34.00
3/4"	3/4"	3"	5 1/4"	4	47-383-5	43.85
3/4"	3/4"	4"	6 1/2"	4	47-384-3	52.60
25/32"	1/2"	1 5/8"	3 5/8"	4	47-385-0	40.65
25/32"	3/4"	1 7/8"	4 1/8"	4	47-386-8	35.80
13/16"	5/8"	1 7/8"	4"	6	47-387-6	41.85
13/16"	3/4"	1 7/8"	4 1/8"	4	47-388-4	42.50
27/32"	7/8"	1 7/8"	4 1/8"	4	47-389-2	49.05
7/8"	1/2"	1 5/8"	3 5/8"	4	47-390-0	34.30
7/8"	5/8"	1 7/8"	4"	6	47-391-8	43.25
7/8"	3/4"	1 7/8"	4 1/8"	4	47-392-6	44.70
7/8"	7/8"	1 7/8"	4 1/8"	4	47-393-4	42.60
7/8"	7/8"	3 1/2"	5 3/4"	4	47-394-2	54.85
7/8"	7/8"	5"	7 1/4"	4	47-395-9	69.60
29/32"	7/8"	1 7/8"	4 1/8"	6	47-396-7	50.45
15/16"	5/8"	1 7/8"	4"	6	47-397-5	47.10
15/16"	3/4"	1 7/8"	4 1/8"	4	47-398-3	47.10
15/16"	7/8"	1 7/8"	4 1/8"	4	47-399-1	47.10
31/32"	7/8"	2"	4 1/2"	4	47-400-7	48.05
1"	5/8"	1 7/8"	4"	6	47-401-5	49.30
1"	3/4"	1 7/8"	4 1/8"	4	47-402-3	48.45
1"	7/8"	1 7/8"	4 1/8"	4	47-403-1	48.45
1"	1"	2"	4 1/2"	4	47-404-9	51.40
1"	1"	4"	6 1/2"	4	47-405-6	74.35
1"	1"	6"	8 1/2"	4	47-406-4	91.60
1 1/16"	3/4"	2"	4 1/4"	6	47-407-2	83.45
1 1/8"	3/4"	1 1/2"	3 7/8"	6	47-408-0	68.30
1 1/8"	7/8"	2"	4 1/4"	6	47-409-8	67.80
1 1/8"	1"	2"	4 1/2"	6	47-410-6	69.90
1 1/8"	1"	4"	6 1/2"	6	47-411-4	98.20
1 3/16"	3/4"	2"	4 1/4"	6	47-412-2	90.75
1 1/4"	3/4"	1 1/2"	3 7/8"	6	47-413-0	$75.80
1 1/4"	7/8"	2"	4 1/2"	6	47-414-8	73.45
1 1/4"	1"	2"	4 1/2"	6	47-415-5	75.30
1 1/4"	1"	4"	6 1/2"	6	47-416-3	115.90
1 1/4"	1 1/4"	2"	4 1/2"	4	47-417-1	80.80
1 1/4"	1 1/4"	2"	4 1/2"	6	47-418-9	80.15
1 1/4"	1 1/4"	4"	6 1/2"	4	47-419-7	116.80
1 1/4"	1 1/4"	4"	6 1/2"	6	47-420-5	115.90
1 1/4"	1 1/4"	6"	8 1/2"	4	47-421-3	138.75
1 1/4"	1 1/4"	6"	8 1/2"	6	47-422-1	137.65
1 3/8"	3/4"	1 1/2"	3 7/8"	6	47-423-9	107.55
1 3/8"	1"	2"	4 1/2"	6	47-424-7	86.70
1 3/8"	1"	4"	6 1/2"	6	47-425-4	127.35
1 1/2"	3/4"	1 1/2"	3 7/8"	6	47-426-2	108.55
1 1/2"	1"	2"	4 1/2"	6	47-427-0	97.75
1 1/2"	1"	4"	6 1/2"	6	47-428-8	138.40
1 1/2"	1 1/4"	2"	4 1/2"	4	47-429-6	98.55
1 1/2"	1 1/4"	2"	4 1/2"	6	47-430-4	97.75
1 1/2"	1 1/4"	4"	6 1/2"	4	47-431-2	139.50
1 1/2"	1 1/4"	4"	6 1/2"	6	47-432-0	138.40
1 1/2"	1 1/4"	8"	10 9/16"	6	47-433-8	220.35
1 5/8"	3/4"	2"	4 1/2"	4	47-434-6	124.10
1 5/8"	1 1/4"	2"	4 1/2"	6	47-435-3	104.85
1 3/4"	3/4"	1 1/2"	3 7/8"	6	47-436-1	146.05
1 3/4"	1 1/4"	2"	4 1/2"	6	47-437-9	117.85
1 3/4"	1 1/4"	4"	6 1/2"	6	47-438-7	180.25
1 7/8"	3/4"	2"	4 1/2"	4	47-439-5	134.15
1 7/8"	1 1/4"	2"	4 1/2"	8	47-440-3	121.75
2"	3/4"	1 1/2"	3 7/8"	6	47-441-1	270.55
2"	1 1/4"	2"	4 1/2"	4	47-443-7	140.00
2"	1 1/4"	2"	4 1/2"	6	47-444-5	140.00
2"	1 1/4"	2"	4 1/2"	8	47-445-2	135.70
2"	1 1/4"	4"	6 1/2"	6	47-446-0	222.90
2"	1 1/4"	4"	6 1/2"	8	47-447-8	220.75

SHOP GRADE

Multiple Flute HSS Centercutting Single End Mills

Stub, Regular, Medium, Long & Extra Long Lengths • 30° Helix



- Ideal for general purpose plunge, pocket and profile machining.
- Design is suitable for all slotting applications.
- For use in a wide range of ferrous and nonferrous materials.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	47-043-5	$13.95
3/16"	3/8"	1/2"	2 3/8"	4	47-044-3	13.95
1/4"	3/8"	5/8"	2 1/2"	4	47-045-0	15.90
1/4"	3/8"	1 1/4"	3 1/16"	4	47-046-8	15.90
1/4"	3/8"	1 3/4"	3 1/2"	4	47-047-6	18.75
5/16"	3/8"	3/4"	2 1/2"	4	47-048-4	13.40
5/16"	3/8"	1 3/8"	3 1/8"	4	47-049-2	15.90
5/16"	3/8"	2"	3 3/4"	4	47-050-0	19.70
3/8"	3/8"	3/4"	2 1/2"	4	47-051-8	13.40
3/8"	3/8"	1 1/2"	3 1/4"	4	47-052-6	15.25
3/8"	3/8"	2 1/2"	4 1/4"	4	47-053-4	19.95
1/2"	1/2"	1 1/4"	3 1/4"	4	47-054-2	19.70
1/2"	1/2"	2"	4"	4	47-055-9	21.25
1/2"	1/2"	3"	5"	4	47-056-7	25.65
5/8"	5/8"	1 5/8"	3 3/4"	4	47-057-5	24.75
5/8"	5/8"	2 1/2"	4 5/8"	4	47-058-3	34.75
5/8"	5/8"	4"	6 1/8"	4	47-059-1	$36.95
11/16"	5/8"	1 5/8"	3 3/4"	4	47-060-9	26.90
3/4"	3/4"	1 5/8"	3 7/8"	4	47-061-7	28.45
3/4"	3/4"	3"	5 1/4"	4	47-062-5	36.40
3/4"	3/4"	4"	6 1/4"	4	47-063-3	43.25
7/8"	7/8"	1 7/8"	4 1/8"	4	47-064-1	35.95
7/8"	7/8"	3 1/2"	5 3/4"	4	47-065-8	45.35
7/8"	7/8"	5"	7 1/4"	4	47-066-6	56.85
1"	1"	2"	4 1/2"	4	47-067-4	43.25
1"	1"	4"	6 1/2"	4	47-068-2	61.00
1"	1"	6"	8 1/2"	4	47-069-0	74.50
1 1/8"	1"	2"	4 1/2"	4	47-070-8	59.90
1 1/4"	1 1/4"	2"	4 1/2"	6	47-071-6	65.70
1 1/4"	1 1/4"	4"	6 1/2"	6	47-072-4	95.00
1 1/4"	1 1/4"	6"	8 1/2"	6	47-073-2	108.70
1 1/2"	1 1/4"	2"	4 1/2"	6	47-074-0	83.10



HERTEL
Production Grade Tooling Since 1947

Multiple Flute HSS Centercutting Single End Mills

Stub, Regular, Medium, Long & Extra Long Lengths • 30° Helix

- Ideal for general purpose plunge, pocket and profile machining.
- Design is suitable for all slotting applications.
- For use in a wide range of ferrous and nonferrous materials.

DIA.	MILL DIA.	SHANK LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	47-075-7	$19.10
5/32"	3/8"	1/2"	2 3/8"	4	47-076-5	16.40
3/16"	3/8"	1/2"	2 3/8"	4	47-077-3	19.10
7/32"	3/8"	5/8"	2 7/16"	4	47-078-1	18.70
1/4"	3/8"	5/8"	2 7/16"	4	47-079-9	18.15
1/4"	3/8"	5/8"	2 1/2"	4	47-080-7	21.75
1/4"	3/8"	1 1/4"	3 1/16"	4	47-081-5	21.75
1/4"	3/8"	1 3/4"	3 1/2"	4	47-082-3	25.65
9/32"	3/8"	3/4"	2 1/2"	4	47-083-1	19.95
5/16"	3/8"	3/4"	2 1/2"	4	47-084-9	18.15
5/16"	3/8"	1 3/8"	3 1/8"	4	47-085-6	21.75
5/16"	3/8"	2"	3 3/4"	4	47-086-4	26.70
11/32"	3/8"	3/4"	2 1/2"	4	47-087-2	18.70
3/8"	3/8"	3/4"	2 1/2"	4	47-088-0	18.15
3/8"	3/8"	1 1/2"	3 1/4"	4	47-089-8	20.90
3/8"	3/8"	2 1/2"	4 1/4"	4	47-090-6	27.05
13/32"	3/8"	1"	2 11/16"	4	47-091-4	19.95
7/16"	3/8"	1"	2 11/16"	4	47-092-2	24.20
15/32"	1/2"	1 1/4"	3 1/4"	4	47-093-0	26.10
1/2"	1/2"	1 1/4"	3 1/4"	4	47-094-8	26.70
1/2"	1/2"	2"	4"	4	47-095-5	28.80
1/2"	1/2"	3"	5"	4	47-096-3	34.70
5/8"	5/8"	5/8"	2 3/4"	4	47-097-1	35.35
5/8"	5/8"	1 5/8"	3 3/4"	4	47-098-9	33.80
5/8"	5/8"	2 1/2"	4 5/8"	4	47-099-7	47.55
5/8"	5/8"	4"	6 1/8"	4	47-100-3	50.55
11/16"	5/8"	1 5/8"	3 3/4"	4	47-101-1	36.80
3/4"	3/4"	3/4"	3"	4	47-102-9	36.80
3/4"	3/4"	1 5/8"	3 7/8"	4	47-103-7	38.90
3/4"	3/4"	2"	4 1/4"	4	47-104-5	47.10
3/4"	3/4"	2 1/4"	4 1/2"	4	47-105-2	47.10
3/4"	3/4"	3"	5 1/4"	4	47-106-0	49.25
3/4"	3/4"	4"	6 1/4"	4	47-107-8	59.15
7/8"	7/8"	1 7/8"	4 1/8"	4	47-108-6	49.15
7/8"	7/8"	3 1/2"	5 3/4"	4	47-109-4	61.40
7/8"	7/8"	5"	7 1/4"	4	47-110-2	77.75
1"	1"	2"	4 1/2"	4	47-111-0	59.15
1"	1"	3"	5 1/2"	4	47-112-8	79.40
1"	1"	3"	5 1/2"	6	47-113-6	98.50
1"	1"	4"	6 1/2"	4	47-114-4	83.45
1"	1"	6"	8 1/2"	4	47-115-1	101.90
1 1/8"	1"	2"	4 1/2"	4	47-116-9	81.95
1 1/4"	1 1/4"	2"	4 1/2"	4	47-117-7	89.85
1 1/4"	1 1/4"	3"	5 1/2"	4	47-118-5	107.55
1 1/4"	1 1/4"	4"	6 1/2"	6	47-119-3	129.90
1 1/4"	1 1/4"	6"	8 1/2"	4	47-120-1	152.55
1 1/2"	1 1/4"	2"	4 1/2"	6	47-121-9	113.70
1 1/2"	1 1/4"	3"	5 1/2"	4	47-122-7	139.70



SHOP GRADE

Multiple Flute HSS TiN Coated Single End Mills

Regular & Long Lengths • 30° Helix

- Suitable for use in a wide range of ferrous and nonferrous materials.
- Excellent for use in finishing operations.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	63-200-0	$12.65
3/16"	3/8"	1/2"	2 3/8"	4	63-201-8	12.65
1/4"	3/8"	5/8"	2 7/16"	4	63-202-6	12.65
5/16"	3/8"	3/4"	2 1/2"	4	63-203-4	12.65
3/8"	3/8"	3/4"	2 1/2"	4	63-204-2	12.65
7/16"	3/8"	1"	2 11/16"	4	63-205-9	17.20
1/2"	3/8"	1"	2 11/16"	4	46-979-1	17.25
1/2"	1/2"	1 1/4"	3 1/4"	4	63-206-7	17.30
9/16"	1/2"	1 3/8"	3 3/8"	4	63-207-5	20.20
5/8"	1/2"	1 3/8"	3 3/8"	4	46-980-9	21.40
5/8"	5/8"	1 5/8"	3 3/4"	4	63-208-3	24.25
11/16"	1/2"	1 5/8"	3 5/8"	4	46-981-7	24.80
11/16"	5/8"	1 5/8"	3 3/4"	4	63-209-1	26.95
3/4"	1/2"	1 5/8"	3 5/8"	4	46-982-5	30.05
3/4"	5/8"	1 5/8"	3 3/4"	4	46-983-3	25.60
3/4"	3/4"	1 5/8"	3 7/8"	4	63-210-9	27.60
13/16"	5/8"	1 7/8"	4"	6	46-984-1	34.35
13/16"	3/4"	1 7/8"	4 1/8"	4	46-985-8	35.85
7/8"	5/8"	1 7/8"	4"	6	46-986-6	41.85
7/8"	3/4"	1 7/8"	4 1/8"	4	46-987-4	35.00
7/8"	7/8"	1 7/8"	4 1/8"	4	46-988-2	34.80
15/16"	7/8"	1 7/8"	4 1/8"	4	46-989-0	54.05
1"	1/2"	1 7/8"	3 7/8"	4	46-990-8	31.30
1"	5/8"	1 7/8"	4"	4	46-991-6	44.60
1"	3/4"	1 7/8"	4 1/8"	4	46-992-4	37.90
1"	7/8"	1 7/8"	4 1/8"	4	46-993-2	51.35
1"	1"	2"	4 1/2"	4	63-211-7	41.75
1 1/8"	3/4"	1 3/4"	4"	6	46-994-0	59.60
1 1/8"	1"	2"	4 1/2"	6	46-995-7	57.15
1 1/4"	3/4"	1 3/4"	4"	6	46-996-5	78.60
1 1/4"	1"	2"	4 1/2"	6	46-997-3	64.60
1 1/4"	1 1/4"	2"	4 1/2"	6	46-998-1	65.65
1 3/8"	3/4"	1 1/2"	3 7/8"	6	46-999-9	66.15
1 1/2"	3/4"	2"	4 1/2"	6	47-000-5	67.90
1 1/2"	1"	2"	4 1/2"	6	47-001-3	83.50
1 5/8"	1 1/4"	2"	4 1/2"	6	47-002-1	86.95
1 3/4"	3/4"	2"	4 1/2"	4	47-003-9	97.80
2"	3/4"	1 1/2"	3 7/8"	6	47-004-7	112.35



HERTEL
Production Grade Tooling Since 1947

Multiple Flute HSS TiN Coated Single End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- Suitable for use in a wide range of ferrous and nonferrous materials.
- Excellent for use in finishing operations.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	47-005-4	$16.35
3/16"	3/8"	1/2"	2 3/8"	4	47-006-2	16.35
1/4"	3/8"	5/8"	2 7/16"	4	47-007-0	16.35
5/16"	3/8"	3/4"	2 1/2"	4	47-008-8	16.35
3/8"	3/8"	3/4"	2 1/2"	4	47-009-6	16.35
7/16"	3/8"	1"	2 11/16"	4	47-010-4	21.95
1/2"	3/8"	1"	2 11/16"	4	47-011-2	22.30
1/2"	1/2"	1 1/4"	3 1/4"	4	47-012-0	22.30
9/16"	1/2"	1 3/8"	3 3/8"	4	47-013-8	25.85
5/8"	1/2"	1 3/8"	3 3/8"	4	47-014-6	28.65
5/8"	5/8"	1 5/8"	3 3/4"	4	47-015-3	31.30
11/16"	1/2"	1 5/8"	3 5/8"	4	47-016-1	33.25
11/16"	5/8"	1 5/8"	3 3/4"	4	47-017-9	34.45
3/4"	1/2"	1 5/8"	3 5/8"	4	47-018-7	36.20
3/4"	5/8"	1 5/8"	3 3/4"	4	47-019-5	34.30
3/4"	3/4"	1 5/8"	3 7/8"	4	47-020-3	35.30
13/16"	1/2"	1 3/4"	3 3/4"	4	47-021-1	64.05
13/16"	5/8"	1 7/8"	4"	6	47-022-9	46.05
13/16"	3/4"	1 7/8"	4 1/8"	4	47-023-7	45.95
7/8"	3/4"	1 7/8"	4 1/8"	4	47-024-5	46.95
7/8"	7/8"	1 7/8"	4 1/8"	4	47-025-2	46.60
1"	5/8"	1 7/8"	4"	6	47-026-0	59.85
1"	3/4"	1 7/8"	4 1/8"	4	47-027-8	50.80
1"	1"	2"	4 1/2"	4	47-028-6	53.95
1 1/8"	3/4"	1 1/2"	3 7/8"	6	47-029-4	79.70
1 1/8"	3/4"	1 3/4"	4"	2	47-030-2	78.95
1 1/8"	1"	2"	4 1/2"	6	47-031-0	76.60
1 1/4"	3/4"	1 1/2"	3 7/8"	6	47-032-8	105.15
1 1/4"	3/4"	1 3/4"	4"	6	47-033-6	104.10
1 1/4"	1"	2"	4 1/2"	6	47-034-4	83.65
1 1/4"	1 1/4"	2"	4 1/2"	6	47-035-1	88.00
1 3/8"	3/4"	1 1/2"	3 7/8"	6	47-036-9	117.15
1 1/2"	3/4"	2"	4 1/2"	6	47-037-7	95.25
1 1/2"	3/4"	1 1/2"	3 7/8"	6	47-038-5	118.25
1 1/2"	1"	2"	4 1/2"	6	47-039-3	111.95
1 5/8"	1 1/4"	2"	4 1/2"	6	47-040-1	115.15
2"	3/4"	1 1/2"	3 7/8"	6	47-041-9	192.15
2"	1 1/4"	2"	4 1/2"	6	47-042-7	152.50

CUTTING TOOLS



SHOP GRADE

2 Flute HSS TiN Coated Single End Mills

Regular & Long Lengths • 30° Helix

- 2 flutes allow maximum space for chip evacuation.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	**63-212-5**	$10.80
3/16"	3/8"	7/16"	2 5/16"	**63-213-3**	10.80
1/4"	3/8"	1/2"	2 5/16"	**63-214-1**	10.80
5/16"	3/8"	9/16"	2 5/16"	**63-215-8**	10.80
3/8"	3/8"	9/16"	2 5/16"	**63-216-6**	10.80
7/16"	3/8"	13/16"	2 1/2"	**63-217-4**	15.20
1/2"	3/8"	13/16"	2 1/2"	**63-147-3**	16.25
1/2"	1/2"	1"	3"	**63-218-2**	15.75
9/16"	1/2"	1 1/8"	3 1/8"	**63-219-0**	18.90
5/8"	1/2"	1 1/8"	3 1/8"	**63-148-1**	21.15
5/8"	5/8"	1 5/16"	3 7/16"	**63-220-8**	22.00
11/16"	5/8"	1 5/16"	3 7/16"	**63-221-6**	34.65
3/4"	1/2"	1 5/16"	3 5/16"	**63-149-9**	24.85
3/4"	5/8"	1 5/16"	3 7/16"	**63-150-7**	24.85
3/4"	3/4"	1 5/16"	3 9/16"	**63-222-4**	24.85
13/16"	1/2"	1 1/2"	3 1/2"	**63-151-5**	50.55
13/16"	5/8"	1 1/2"	3 5/8"	**63-152-3**	47.75
13/16"	3/4"	1 1/2"	3 3/4"	**63-153-1**	36.05
7/8"	5/8"	1 1/2"	3 5/8"	**63-154-9**	35.40
7/8"	3/4"	1 1/2"	3 3/4"	**63-155-6**	30.20
7/8"	7/8"	1 1/2"	3 3/4"	**63-156-4**	31.25
15/16"	3/4"	1 1/2"	3 3/4"	**63-157-2**	32.80
15/16"	7/8"	1 1/2"	3 3/4"	**63-158-0**	55.60
1"	5/8"	1 1/2"	3 5/8"	**63-159-8**	41.20
1"	3/4"	1 1/2"	3 3/4"	**63-160-6**	41.20
1"	1"	1 5/8"	4 1/8"	**63-223-2**	48.15
1 1/8"	3/4"	1 1/2"	3 3/4"	**63-173-9**	53.05
1 1/4"	3/4"	1 1/2"	3 3/4"	**63-174-7**	57.50
1 1/4"	1 1/4"	1 5/8"	4 1/8"	**63-224-0**	96.30
1 3/8"	3/4"	1 1/2"	3 7/8"	**63-225-7**	68.75
1 1/2"	3/4"	1 1/2"	3 7/8"	**63-226-5**	83.25



HERTEL Production Grade Tooling Since 1947

2 Flute HSS TiN Coated Single End Mills

Regular & Long Lengths • 30° Helix

- 2 flutes allow maximum space for chip evacuation.
- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	**46-702-7**	$14.65
3/16"	3/8"	7/16"	2 5/16"	**46-703-5**	14.65
1/4"	3/8"	1/2"	2 7/16"	**46-704-3**	14.65
5/16"	3/8"	9/16"	2 5/16"	**46-705-0**	14.65
3/8"	3/8"	9/16"	2 5/16"	**46-706-8**	14.65
7/16"	3/8"	13/16"	2 1/2"	**46-707-6**	20.55
1/2"	3/8"	13/16"	2 1/2"	**46-708-4**	20.55
1/2"	1/2"	1"	3"	**46-709-2**	21.50
9/16"	1/2"	1 1/8"	3 1/8"	**46-710-0**	25.55
5/8"	1/2"	1 1/8"	3 1/8"	**46-711-8**	28.95
5/8"	5/8"	1 5/16"	3 7/16"	**46-712-6**	30.10
11/16"	1/2"	1 5/16"	3 5/16"	**46-713-4**	30.65
3/4"	1/2"	1 5/16"	3 5/16"	**46-714-2**	34.00
3/4"	5/8"	1 5/16"	3 7/16"	**46-715-9**	34.00
3/4"	3/4"	1 5/16"	3 9/16"	**46-716-7**	34.00
13/16"	3/4"	1 1/2"	3 3/4"	**46-717-5**	49.25
7/8"	5/8"	1 1/2"	3 5/8"	**46-718-3**	48.40
7/8"	3/4"	1 1/2"	3 3/4"	**46-719-1**	41.30
7/8"	7/8"	1 1/2"	3 3/4"	**46-720-9**	42.70
15/16"	5/8"	1 1/2"	3 5/8"	**46-721-7**	42.75
1"	5/8"	1 1/2"	3 5/8"	**46-722-5**	55.80
1"	3/4"	1 1/2"	3 3/4"	**46-723-3**	55.80
1"	1"	1 5/8"	4 1/8"	**46-724-1**	65.85
1 1/8"	3/4"	1 1/2"	3 3/4"	**46-725-8**	72.50
1 1/4"	3/4"	1 1/2"	3 3/4"	**46-726-6**	78.65
1 1/2"	3/4"	1 1/2"	3 7/8"	**46-727-4**	113.85



51-480-2

SHOP GRADE

2 & 4 Flute HSS & Cobalt Single End Mill Sets

- Furnished in wooden case or stand.

HSS End Mill Sets

NO. OF PCS.	DESCRIPTION	INCLUDES	NO. OF FLUTES	SUPPLIED IN WOOD	UNCOATED PART NO.	PRICE	TiN COATED PART NO.	PRICE
6	Centercutting	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	2	Case	**71-523-5**	$38.15	–	–
6	Noncentercutting	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	4	Stand	**71-524-3**	45.35	–	–
10	Centercutting	3/16 - 3/4"	2	Case	**71-525-0**	72.35	**71-533-4**	$90.45
10	Centercutting	3/16 - 3/4"	4	Case	**71-526-8**	74.55	**71-534-2**	93.15
10	Centercutting	1/4, 3/8, 1/2, 5/8, 3/4"	2; 4	Case	**71-527-6**	94.60	–	–
20	Centercutting	3/16 - 3/4"	2; 4	Case	**71-528-4**	120.70	**51-480-2**	167.20

Cobalt End Mill Sets

NO. OF PCS.	DESCRIPTION	INCLUDES	NO. OF FLUTES	SUPPLIED IN WOOD	UNCOATED PART NO.	PRICE
6	Centercutting	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	2	Stand	**71-529-2**	$59.35
6	Noncentercutting	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	4	Stand	**71-530-0**	60.70
8	Centercutting	1/2, 5/8, 3/4, 1"	2; 4	Stand	**71-531-8**	159.30
20	Centercutting	3/16 - 3/4"	2; 4	Stand	**71-532-6**	237.85



71-529-2



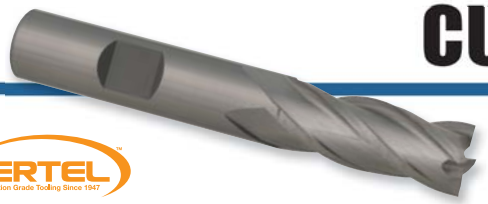
SHOP GRADE

Multiple Flute M-42 Cobalt Centercutting Single End Mills

Stub, Regular, Medium, Long & Extra Long Lengths • 30° Helix

- For general and finishing applications in ferrous materials.
- Ideal choice for high strength, heat-resistant, exotic and difficult to machine materials.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	54-301-7	$13.75
3/16"	3/8"	1/2"	2 3/8"	4	54-302-5	13.75
1/4"	3/8"	5/8"	2 7/16"	4	54-303-3	17.50
1/4"	3/8"	1 1/4"	3 1/16"	4	54-350-4	18.85
1/4"	3/8"	1 3/4"	3 9/16"	4	47-131-8	24.60
5/16"	3/8"	3/4"	2 1/2"	4	54-304-1	13.75
5/16"	3/8"	1 3/8"	3 1/8"	4	54-351-2	18.85
5/16"	3/8"	2"	3 3/4"	4	47-132-6	24.60
3/8"	3/8"	3/4"	2 1/2"	4	54-305-8	13.75
3/8"	3/8"	1 1/2"	3 1/4"	4	54-352-0	18.85
3/8"	3/8"	2 1/2"	4 1/4"	4	47-133-4	24.60
7/16"	3/8"	1"	2 11/16"	4	54-306-6	19.55
1/2"	3/8"	1"	2 11/16"	4	47-134-2	20.30
1/2"	1/2"	1 1/4"	3 1/4"	4	54-307-4	19.20
1/2"	1/2"	2"	4"	4	54-353-8	27.85
1/2"	1/2"	3"	5"	4	47-135-9	31.15
9/16"	1/2"	1 3/8"	3 3/8"	4	54-308-2	29.65
5/8"	1/2"	1 3/8"	3 3/8"	4	47-136-7	38.40
5/8"	5/8"	1 5/8"	3 3/4"	4	54-309-0	28.40
5/8"	5/8"	2 1/2"	4 5/8"	4	54-354-6	37.00
5/8"	5/8"	4"	6 1/8"	4	47-137-5	41.40
11/16"	5/8"	1 5/8"	3 3/4"	4	84-310-2	28.65
3/4"	1/2"	1 5/8"	3 5/8"	4	47-138-3	33.50
3/4"	5/8"	1 5/8"	3 3/4"	4	47-139-1	29.95
3/4"	3/4"	1 5/8"	3 7/8"	4	54-311-6	32.35
3/4"	3/4"	3"	5 1/4"	4	54-355-3	41.35
3/4"	3/4"	4"	6 1/2"	4	47-140-9	53.85
13/16"	3/4"	1 7/8"	4 1/8"	4	47-141-7	42.60
7/8"	1/2"	1 7/8"	4"	4	47-142-5	42.45
7/8"	5/8"	1 7/8"	4"	4	47-143-3	44.05
7/8"	3/4"	1 7/8"	4 1/8"	4	47-144-1	38.45
7/8"	7/8"	1 7/8"	4 1/8"	4	54-314-0	42.50
7/8"	7/8"	5"	7 1/4"	4	47-145-8	106.70
15/16"	3/4"	1 7/8"	4 1/8"	4	47-146-6	34.95
1"	1/2"	1 7/8"	4 1/8"	4	47-147-4	44.60
1"	5/8"	1 7/8"	4"	4	47-148-2	46.25
1"	3/4"	1 7/8"	4 1/8"	4	47-149-0	52.05
1"	1"	2"	4 1/2"	4	54-319-9	48.50
1"	1"	4"	6 1/2"	4	54-357-9	74.75
1"	1"	6"	8 1/2"	4	47-150-8	91.45
1 1/16"	3/4"	1 1/2"	3 7/8"	6	47-151-6	78.70
1 1/8"	3/4"	1 1/2"	3 7/8"	6	47-152-4	78.70
1 1/8"	1"	2"	4 1/2"	6	47-153-2	116.55
1 3/16"	3/4"	1 1/2"	3 7/8"	6	47-154-0	78.70
1 1/4"	3/4"	1 1/2"	3 7/8"	6	47-155-7	75.80
1 1/4"	1"	2"	4 1/2"	6	47-156-5	86.60
1 1/4"	1 1/4"	2"	4 1/2"	6	47-157-3	86.60
1 1/4"	1 1/4"	4"	6 1/2"	6	47-158-1	111.85
1 1/4"	1 1/4"	6"	8 1/2"	4	47-159-9	155.45
1 5/16"	3/4"	2"	4 3/8"	6	47-160-7	184.25
1 3/8"	3/4"	2"	4 3/8"	6	47-161-5	75.70
1 3/8"	1"	2"	4 3/8"	6	47-162-3	158.45
1 7/16"	3/4"	2"	4 3/8"	6	47-163-1	208.25
1 1/2"	3/4"	2"	4 3/8"	6	47-164-9	141.90
1 1/2"	1 1/4"	2"	4 1/2"	6	47-165-6	99.85
1 5/8"	3/4"	2"	4 1/2"	6	47-166-4	155.60
1 5/8"	1 1/4"	2"	4 1/2"	6	47-167-2	208.15
1 3/4"	3/4"	2"	4 1/2"	6	47-168-0	170.05
2"	3/4"	2"	4 1/2"	6	47-169-8	114.80
2"	1 1/4"	2"	4 1/2"	6	47-170-6	155.45



HERTEL
Production Grade Tooling Since 1947

Multiple Flute M-42 Cobalt Centercutting Single End Mills

Stub, Regular, Medium, Long & Extra Long Lengths • 30° Helix

- For general and finishing applications in ferrous materials.
- Ideal choice for high strength, heat-resistant, exotic and difficult to machine materials.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/16"	2 1/8"	4	47-171-4	$13.10
1/8"	3/8"	3/8"	2 5/16"	4	47-172-2	17.60
1/8"	3/8"	3/4"	2 5/8"	4	47-173-0	14.95
5/32"	3/8"	7/16"	2 3/8"	4	47-174-8	19.95
5/32"	3/8"	3/4"	2 5/8"	4	47-175-5	17.60
3/16"	3/8"	3/16"	2 1/16"	4	47-176-3	16.40
3/16"	3/8"	1/2"	2 3/8"	4	47-177-1	17.60
3/16"	3/8"	5/8"	2 1/2"	4	47-178-9	16.60
3/16"	3/8"	3/4"	2 5/8"	4	47-179-7	18.10
3/16"	3/8"	1 1/4"	3 1/16"	4	47-180-5	20.85
7/32"	3/8"	5/8"	2 7/16"	4	47-181-3	19.95
7/32"	3/8"	7/8"	2 3/4"	4	47-182-1	18.15
7/32"	3/8"	1 1/4"	3 1/16"	4	47-183-9	20.55
1/4"	3/8"	1/4"	2 1/16"	4	47-184-7	16.40
1/4"	3/8"	5/8"	2 7/16"	4	47-185-4	22.35
1/4"	3/8"	7/8"	2 11/16"	4	47-186-2	18.40
1/4"	3/8"	1 1/4"	3 1/16"	4	47-187-0	24.05
1/4"	3/8"	1 3/4"	3 9/16"	4	47-188-8	31.45
9/32"	3/8"	1"	2 3/4"	4	47-190-4	19.95
5/16"	3/8"	5/16"	2 1/16"	4	47-191-2	16.40
5/16"	3/8"	3/4"	2 1/2"	4	47-192-0	17.60
5/16"	3/8"	1"	2 3/4"	4	47-193-8	20.50
5/16"	3/8"	1 3/8"	3 1/8"	4	47-194-6	24.05
5/16"	3/8"	2"	3 3/4"	4	47-195-3	31.45
3/8"	3/8"	3/4"	2 1/2"	4	47-196-1	17.60
3/8"	3/8"	1"	2 3/4"	4	47-197-9	16.00
3/8"	3/8"	1 1/2"	3 1/4"	4	47-198-7	24.05
3/8"	3/8"	2 1/2"	4 1/4"	4	47-199-5	31.45
7/16"	3/8"	7/16"	2 7/16"	4	47-200-1	18.45
7/16"	3/8"	1"	2 11/16"	4	47-201-9	24.95
7/16"	1/2"	1 1/4"	3 1/4"	4	47-202-7	23.45
7/16"	1/2"	1 3/4"	3 3/4"	4	47-203-5	24.55
7/16"	1/2"	2 3/4"	4 3/4"	4	47-204-3	49.25
1/2"	3/8"	1"	2 11/16"	4	47-205-0	26.20
1/2"	1/2"	1/2"	2 1/2"	4	47-206-8	15.25
1/2"	1/2"	1 1/4"	3 1/4"	4	47-207-6	24.75
1/2"	1/2"	1 1/4"	3 1/4"	6	47-208-4	27.60
1/2"	1/2"	1 5/8"	3 5/8"	4	47-209-2	28.20
1/2"	1/2"	2"	4"	4	47-210-0	35.90
1/2"	1/2"	3"	5"	4	47-211-8	40.25
9/16"	1/2"	1 3/8"	3 3/8"	4	47-212-6	38.30
5/8"	5/8"	1 5/8"	3 3/4"	4	47-213-4	36.70
5/8"	5/8"	2 1/2"	4 5/8"	4	47-214-2	47.80
5/8"	5/8"	4"	6 1/8"	4	47-215-9	53.50
11/16"	5/8"	1 5/8"	3 3/4"	4	47-216-7	37.00
3/4"	5/8"	1 5/8"	3 3/4"	4	47-217-5	38.30
3/4"	3/4"	1 5/8"	3 7/8"	4	47-218-3	41.70
3/4"	3/4"	1 5/8"	3 7/8"	6	47-219-1	45.60
3/4"	3/4"	2"	4 1/4"	6	47-220-9	$54.10
3/4"	3/4"	2 1/4"	4 1/2"	4	47-221-7	48.15
3/4"	3/4"	3"	5 1/4"	4	47-222-5	52.80
3/4"	3/4"	3"	5 1/4"	6	47-223-3	61.85
3/4"	3/4"	4"	6 1/2"	4	47-224-1	69.60
3/4"	3/4"	4"	6 1/2"	6	47-225-8	78.85
13/16"	3/4"	1 7/8"	4 1/8"	4	47-226-6	55.05
7/8"	1/2"	1 7/8"	4"	4	47-227-4	54.85
7/8"	3/4"	1 7/8"	4 1/8"	4	47-228-2	49.65
7/8"	7/8"	1 7/8"	4 1/8"	4	47-229-0	54.85
15/16"	3/4"	1 7/8"	4 1/8"	4	47-230-8	45.20
1"	1/2"	1 7/8"	4 1/8"	4	47-231-6	57.60
1"	3/4"	1 7/8"	4 1/8"	4	47-232-4	67.20
1"	1"	2"	4 1/2"	4	47-233-2	61.95
1"	1"	2"	4 1/2"	6	47-234-0	67.95
1"	1"	3"	5 1/2"	4	47-235-7	83.45
1"	1"	3"	5 1/2"	6	47-236-5	96.55
1"	1"	4"	6 1/2"	4	47-237-3	96.55
1"	1"	4"	6 1/2"	6	47-238-1	109.65
1"	1"	6"	8 1/2"	4	47-239-9	118.15
1"	1"	6"	8 1/2"	6	47-240-7	131.25
1 1/16"	3/4"	1 1/2"	3 7/8"	6	47-241-5	101.65
1 1/8"	3/4"	1 1/2"	3 7/8"	6	47-242-3	101.65
1 3/16"	3/4"	1 1/2"	3 7/8"	6	47-243-1	101.65
1 1/4"	3/4"	1 1/2"	3 7/8"	6	47-244-9	97.95
1 1/4"	1"	2"	4 1/2"	6	47-245-6	111.90
1 1/4"	1 1/4"	2"	4 1/2"	4	47-246-4	100.40
1 1/4"	1 1/4"	2"	4 1/2"	6	47-247-2	111.90
1 1/4"	1 1/4"	4"	6 1/2"	4	47-248-0	131.25
1 1/4"	1 1/4"	4"	6 1/2"	6	47-249-8	144.50
1 1/4"	1 1/4"	6"	8 1/2"	4	47-250-6	200.80
1 1/4"	1 1/4"	6"	8 1/2"	6	47-251-4	200.80
1 3/8"	3/4"	2"	4 3/8"	6	47-252-2	93.10
1 1/2"	3/4"	2"	4 3/8"	6	47-253-0	183.30
1 1/2"	1 1/4"	2"	4 1/2"	4	47-254-8	129.00
1 1/2"	1 1/4"	2"	4 1/2"	6	47-255-5	129.00
1 1/2"	1 1/4"	4"	6 1/2"	4	47-256-3	159.10
1 5/8"	3/4"	2"	4 1/2"	6	47-257-1	201.00
1 3/4"	3/4"	2"	4 1/2"	6	47-258-9	219.65
1 3/4"	1 1/4"	2"	4 1/2"	6	47-259-7	176.10
1 7/8"	3/4"	2"	4 3/8"	6	47-260-5	223.70
2"	3/4"	2"	4 1/2"	6	47-261-3	148.30
2"	1 1/4"	2"	4 1/2"	6	47-262-1	200.80
2"	2"	4"	7 3/4"	6	47-263-9	338.75
2"	2"	5"	8 3/4"	6	47-264-7	362.30
2"	2"	6"	9 3/4"	6	47-265-4	389.30
2"	2"	8"	11 3/4"	6	47-266-2	538.95
–	–	–	–	–	–	–

SHOP GRADE

6 Pc. 2 & Multi-Flute HSS Single End Mill Sets

TiN Coated - Titanium Nitride For Extended Tool Life

- TiN coating provides increase in machining speeds of 25% to 30% vs. uncoated tools
- Use for aggressive machining in steel.
- Great for use in vertical mills.
- Complete in wooden stand.



70-265-4



70-266-2

SIZES	2 FLUTE PART NO.	PRICE	MULTI-FLUTE PART NO.	PRICE
3/4, 7/8, 1, 1 1/8, 1 1/4, 1 1/2"	70-265-4	$174.80	70-266-2	$180.00

CUTTING TOOLS



SHOP GRADE

Coarse Tooth M-42 Cobalt Centercutting Roughing End Mills

- Best for heavy cuts, deep slotting & pocketing applications.
- Excellent in all steels and nonferrous materials.
- Centercutting for plunge cuts.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
3/16"	3/8"	1/2"	2 3/8"	4	**40-732-0**	$26.05
1/4"	3/8"	5/16"	2 1/8"	3	**40-733-8**	19.60
1/4"	3/8"	5/8"	2 7/16"	3	**40-734-6**	34.85
1/4"	3/8"	7/8"	2 11/16"	3	**40-735-3**	27.25
1/4"	3/8"	1 1/8"	2 15/16"	4	**40-736-1**	29.45
1/4"	3/8"	1 3/8"	3 1/8"	3	**40-737-9**	39.05
9/32"	3/8"	3/4"	2 1/2"	3	**40-738-7**	24.30
5/16"	3/8"	7/16"	2 3/16"	3	**40-739-5**	23.65
5/16"	3/8"	3/4"	2 1/2"	4	**40-740-3**	26.30
5/16"	3/8"	1 1/8"	2 15/16"	3	**40-741-1**	24.75
5/16"	3/8"	1 3/8"	3 1/8"	4	**40-742-9**	38.15
11/32"	3/8"	3/4"	2 1/2"	3	**40-743-7**	22.10
3/8"	3/8"	3/8"	2 5/32"	3	**40-744-5**	27.15
3/8"	3/8"	7/16"	2 3/16"	4	**40-745-2**	23.65
3/8"	3/8"	3/4"	2 1/2"	4	**40-746-0**	26.30
3/8"	3/8"	1 1/8"	2 15/16"	4	**40-747-8**	27.25
3/8"	3/8"	1 5/8"	3 3/16"	4	**40-748-6**	36.90
7/16"	3/8"	1"	2 11/16"	4	**40-749-4**	28.10
15/32"	1/2"	1 1/4"	3 1/4"	4	**40-750-2**	41.50
1/2"	1/2"	1/2"	2 1/2"	3	**70-730-7**	36.50
1/2"	1/2"	5/8"	2 5/8"	4	**40-751-0**	26.35
1/2"	1/2"	1"	3"	4	**40-752-8**	39.35
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-753-6**	34.65
1/2"	1/2"	1 5/8"	3 5/8"	4	**40-754-4**	46.75
1/2"	1/2"	2"	4"	4	**40-755-1**	46.80
1/2"	1/2"	2 1/2"	4 1/2"	4	**40-756-9**	61.60
1/2"	1/2"	3"	5"	4	**40-757-7**	65.05
9/16"	1/2"	1 3/8"	3 3/8"	4	**40-758-5**	31.15
5/8"	5/8"	3/4"	2 7/8"	4	**40-759-3**	31.90
5/8"	5/8"	1 1/4"	3 3/8"	4	**40-760-1**	44.30
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-761-9**	42.70
5/8"	5/8"	2 1/8"	4 1/4"	4	**40-762-7**	47.80
5/8"	5/8"	2 1/2"	4 5/8"	4	**40-763-5**	55.95
5/8"	5/8"	3 1/8"	5 1/4"	4	**40-764-3**	53.95
11/16"	5/8"	1 5/8"	3 3/4"	4	**40-765-0**	46.15
3/4"	5/8"	1 5/8"	3 3/4"	4	**40-766-8**	46.15
3/4"	3/4"	3/4"	2 7/8"	3	**40-767-6**	43.35
3/4"	3/4"	1 1/4"	3 1/2"	4	**40-768-4**	61.00
3/4"	3/4"	1 5/8"	3 3/4"	4	**40-769-2**	48.15
3/4"	3/4"	2 1/2"	4 5/8"	4	**40-770-0**	58.25
3/4"	3/4"	3"	5 1/4"	4	**40-771-8**	62.35
3/4"	3/4"	4 1/8"	6 3/8"	4	**40-772-6**	63.10
13/16"	3/4"	1 7/8"	4 1/8"	4	**40-773-4**	65.80
7/8"	3/4"	7/8"	3 1/8"	3	**40-774-2**	58.85
7/8"	3/4"	1 7/8"	4 1/8"	5	**40-775-9**	75.50
7/8"	7/8"	3 1/2"	5 3/4"	5	**40-776-7**	87.05
1"	3/4"	1 1/8"	3 3/8"	6	**40-777-5**	86.15
1"	3/4"	1 1/2"	3 3/8"	5	**40-778-3**	86.15
1"	3/4"	2"	4 1/4"	5	**40-779-1**	94.20
1"	1"	1"	3 1/2"	3	**40-780-9**	67.75
1"	1"	1 1/8"	3 5/8"	5	**40-781-7**	57.15
1"	1"	1 5/8"	4 1/8"	5	**40-782-5**	92.95
1"	1"	2"	4 1/2"	5	**40-783-3**	75.05
1"	1"	3"	5 1/2"	5	**40-784-1**	91.70
1"	1"	4"	6 1/2"	5	**40-785-8**	98.10
1"	1"	6"	8 1/2"	5	**40-786-6**	171.90
1 1/8"	3/4"	2"	4 1/4"	6	**40-787-4**	106.00
1 1/4"	3/4"	2"	4 1/4"	6	**40-788-2**	101.80
1 1/4"	1 1/4"	2"	4 1/2"	6	**40-789-0**	98.10
1 1/4"	1 1/4"	3"	5 1/2"	6	**40-790-8**	129.85
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-791-6**	145.70
1 1/4"	1 1/4"	6"	8 1/2"	6	**40-792-4**	200.20
1 1/2"	3/4"	1 1/8"	3 3/8"	6	**40-793-2**	146.35
1 1/2"	1 1/4"	4"	6 1/2"	6	**40-794-0**	200.15
1 1/2"	1 1/4"	6"	8 1/2"	6	**40-795-7**	217.80

HERTEL
Production Grade Tooling Since 1947

Coarse Tooth M-42 Cobalt Roughing End Mills

30° Helix



- Best for heavy cuts, deep slotting & pocketing applications.
- Excellent for all steels and ferrous materials.
- 2" Shanks have combination drive type.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
3/16"	3/8"	1/2"	2 3/8"	4	**40-678-5**	$27.90
1/4"	3/8"	5/8"	2 7/16"	4	**40-679-3**	28.20
1/4"	3/8"	1 1/4"	3 1/8"	4	**40-680-1**	33.25
9/32"	3/8"	3/4"	2 1/2"	3	**40-681-9**	27.90
5/16"	3/8"	3/4"	2 1/2"	3	**40-682-7**	28.20
5/16"	3/8"	1 3/8"	3 3/8"	4	**40-683-5**	33.25
11/32"	3/8"	3/4"	2 1/2"	3	**40-684-3**	28.65
3/8"	3/8"	3/4"	2 1/2"	4	**40-685-0**	28.20
3/8"	3/8"	1 1/2"	3 1/4"	4	**40-686-8**	33.25
13/32"	3/8"	1"	2 11/16"	4	**40-687-6**	29.80
7/16"	1/2"	1 1/4"	3 1/4"	4	**40-688-4**	36.60
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-689-2**	36.95
1/2"	1/2"	2"	4"	4	**40-690-0**	49.20
1/2"	1/2"	3"	5"	4	**40-691-8**	60.75
9/16"	1/2"	1 3/8"	3 3/8"	4	**40-692-6**	44.55
5/8"	5/8"	3/4"	2 7/8"	4	**40-693-4**	38.90
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-694-2**	44.80
5/8"	5/8"	2 1/2"	4 5/8"	4	**40-695-9**	57.90
5/8"	5/8"	3 1/8"	5 1/4"	4	**40-696-7**	70.60
11/16"	5/8"	1 5/8"	3 3/4"	4	**40-697-5**	56.55
3/4"	5/8"	1 5/8"	3 3/4"	4	**40-698-3**	56.55
3/4"	3/4"	3/4"	3"	4	**40-699-1**	52.95
3/4"	3/4"	1 5/8"	3 3/4"	4	**40-700-7**	51.40
3/4"	3/4"	3"	5 1/4"	4	**40-701-5**	67.30
3/4"	3/4"	4"	6 1/4"	4	**40-702-3**	88.65
7/8"	3/4"	1 7/8"	4 1/8"	5	**40-703-1**	73.80
7/8"	7/8"	1 7/8"	4 1/8"	5	**40-704-9**	70.25

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
7/8"	7/8"	3 1/2"	5 3/4"	5	**40-705-6**	$85.20
1"	3/4"	1 7/8"	4 1/8"	5	**40-706-4**	81.00
1"	1"	2"	4 1/2"	5	**40-707-2**	77.40
1"	1"	3"	5 1/2"	5	**40-708-0**	99.10
1"	1"	4"	6 1/2"	5	**40-709-8**	104.90
1"	1"	6"	8 1/2"	5	**40-710-6**	141.85
1 1/8"	3/4"	2"	4 1/4"	6	**40-711-4**	109.35
1 1/8"	1"	2"	4 1/2"	6	**40-712-2**	110.70
1 1/4"	3/4"	2"	4 1/4"	6	**40-713-0**	139.10
1 1/4"	1 1/4"	2"	4 1/2"	6	**40-714-8**	102.70
1 1/4"	1 1/4"	3"	5 1/2"	6	**40-715-5**	133.90
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-716-3**	151.90
1 1/4"	1 1/4"	6"	8 1/2"	6	**40-717-1**	197.50
1 1/2"	3/4"	2"	4 1/4"	6	**40-718-9**	214.85
1 1/2"	1 1/4"	2"	4 1/2"	6	**40-719-7**	143.25
1 1/2"	1 1/4"	3"	5 1/2"	6	**40-720-5**	137.45
1 1/2"	1 1/4"	4"	6 1/2"	6	**40-721-3**	177.20
1 1/2"	1 1/4"	6"	8 1/2"	6	**40-722-1**	287.25
1 3/4"	1 1/4"	2"	4 1/2"	6	**40-723-9**	175.45
2"	1 1/4"	2"	4 1/2"	8	**40-724-7**	206.95
2"	1 1/4"	4"	6 1/2"	8	**40-725-4**	251.45
2"	2"	2"	5 3/4"	8	**40-726-2**	228.45
2"	2"	3"	6 3/4"	8	**40-727-0**	244.25
2"	2"	4"	7 3/4"	8	**40-728-8**	284.95
2"	2"	6"	9 3/4"	8	**40-729-6**	348.75
2"	2"	8"	11 3/4"	8	**40-730-4**	449.00
–	–	–	–	–	–	–

HERTEL
Production Grade Tooling Since 1947

Coarse Tooth M-42 Cobalt Centercutting Roughing End Mills



- Best for heavy cuts, deep slotting & pocketing applications.
- Excellent in all steels and nonferrous materials.
- Centercutting for plunge cuts.
- 2" Shanks have combination drive.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
3/16"	3/8"	1/2"	2 3/8"	4	**40-796-5**	$36.25
1/4"	3/8"	1/4"	2 1/16"	4	**40-797-3**	36.25
1/4"	3/8"	5/8"	2 7/16"	3	**40-798-1**	47.60
1/4"	3/8"	1 1/4"	3 1/8"	4	**40-799-9**	44.65
5/16"	3/8"	3/4"	2 1/2"	4	**40-800-5**	36.60
3/8"	3/8"	3/8"	2 5/32"	4	**40-801-3**	34.20
3/8"	3/8"	3/4"	2 1/2"	4	**40-802-1**	36.60
3/8"	3/8"	1 1/2"	3 1/4"	4	**40-803-9**	44.65
7/16"	3/8"	1"	2 11/16"	4	**40-804-7**	39.10
1/2"	1/2"	1/2"	2 1/2"	4	**40-805-4**	39.00
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-806-2**	48.25
1/2"	1/2"	2"	4"	4	**40-807-0**	65.20
5/8"	5/8"	5/8"	2 3/4"	4	**40-808-8**	47.40
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-809-6**	59.45
5/8"	5/8"	2 1/2"	4 5/8"	4	**40-810-4**	77.95

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
3/4"	3/4"	3/4"	2 7/8"	4	**40-811-2**	$56.30
3/4"	3/4"	1 5/8"	3 7/8"	4	**40-812-0**	67.00
3/4"	3/4"	3"	5 1/4"	4	**40-813-8**	86.85
3/4"	3/4"	4 1/8"	6 3/8"	4	**40-814-6**	87.85
1"	1"	1"	3 1/2"	5	**40-815-3**	85.25
1"	1"	2"	4 1/2"	5	**40-816-1**	104.50
1"	1"	3"	5 1/2"	5	**40-817-9**	127.75
1"	1"	4"	6 1/2"	5	**40-818-7**	136.65
1 1/4"	1 1/4"	2"	4 1/2"	6	**40-819-5**	136.65
1 1/4"	1 1/4"	3"	5 1/2"	6	**40-820-3**	180.85
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-821-1**	202.90
1 1/2"	1 1/4"	3"	5 1/2"	6	**40-822-9**	239.55
2"	2"	3"	6 3/4"	8	**40-823-7**	394.30
2"	2"	4"	7 3/4"	6	**40-824-5**	435.80
2"	2"	6"	9 3/4"	6	**40-825-2**	561.55



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS TiN Coated Single End Mills for Aluminum

Regular, Long & Extra Long Lengths • 37° Helix

- Designed to cut aluminum and other nonferrous materials.
- The 37° helix sheers the material cleanly and allows for more of the cutting flutes to be engaged with the workpiece, eliminating chatter.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 1/2"	46-387-7	$17.60
1/4"	3/8"	1 1/4"	3 1/8"	46-388-5	19.95
1/4"	3/8"	1 3/4"	3 1/2"	46-389-3	23.25
5/16"	3/8"	3/4"	3 1/2"	46-390-1	17.60
3/8"	3/8"	3/4"	2 1/2"	46-391-9	17.60
3/8"	3/8"	1 1/2"	3 1/4"	46-392-7	21.15
7/16"	3/8"	1"	2 11/16"	46-393-5	22.60
1/2"	1/2"	1 1/4"	3 1/4"	46-394-3	24.35
1/2"	1/2"	2"	4"	46-395-0	29.10
1/2"	1/2"	3"	5"	46-396-8	34.60
5/8"	1/2"	1 3/8"	3 3/8"	46-397-6	34.90
5/8"	5/8"	1 5/8"	3 3/4"	46-398-4	32.35
3/4"	1/2"	1 5/8"	3 5/8"	46-399-2	39.65
3/4"	3/4"	1 5/8"	3 7/8"	46-400-8	36.80
3/4"	3/4"	3"	5 1/4"	46-401-6	51.70
3/4"	3/4"	4"	6 1/4"	46-402-4	61.40
7/8"	7/8"	1 7/8"	4 1/8"	46-403-2	52.60
1"	1"	2"	4 1/2"	46-404-0	60.65
1"	1"	4"	6 1/2"	46-405-7	87.75
1"	1"	6"	8 1/2"	46-406-5	107.70



SHOP GRADE

3 Flute M-42 Cobalt TiN Coated Centercutting Roughing End Mills for Aluminum

- For maximum metal removal rates in heavy machining of aluminum and nonferrous materials.
- High helix and extra coarse pitch for freer chip evacuation.
- Best in horizontal setups.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides increase of 25 to 30% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
3/16"	3/8"	1/2"	2 3/8"	47-873-5	$29.30
1/4"	3/8"	5/8"	2 7/16"	47-874-3	28.75
1/4"	3/8"	1 1/8"	2 15/16"	47-875-0	33.10
9/32"	3/8"	3/4"	2 1/2"	47-876-8	37.60
5/16"	3/8"	3/4"	2 1/2"	47-877-6	27.00
5/16"	3/8"	1 1/8"	2 15/16"	47-878-4	44.65
3/8"	3/8"	7/16"	2 3/16"	47-879-2	36.60
3/8"	3/8"	3/4"	2 1/2"	47-880-0	30.25
3/8"	3/8"	1 1/8"	2 13/16"	47-881-8	44.65
3/8"	3/8"	1 5/8"	3 3/16"	47-882-6	33.10
7/16"	3/8"	1"	2 11/16"	47-883-4	38.80
15/32"	1/2"	1 1/4"	3 1/4"	47-884-2	48.60
1/2"	1/2"	5/8"	2 5/8"	47-885-9	50.05
1/2"	1/2"	1"	3"	47-886-7	28.70
1/2"	1/2"	1 1/4"	3 1/4"	47-887-5	29.70

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/2"	1/2"	2"	4"	47-888-3	$47.90
1/2"	1/2"	3"	5"	47-889-1	61.80
5/8"	5/8"	3/4"	2 7/8"	47-890-9	48.55
5/8"	5/8"	1 1/4"	3 3/8"	47-891-7	49.75
5/8"	5/8"	1 5/8"	3 3/4"	47-892-5	47.20
5/8"	5/8"	2 1/2"	4 5/8"	47-893-3	58.70
3/4"	3/4"	3/4"	3"	47-894-1	71.10
3/4"	3/4"	1 5/8"	3 3/4"	47-895-8	45.90
3/4"	3/4"	3"	5 1/4"	47-896-6	87.85
7/8"	3/4"	1 1/8"	3 3/8"	47-897-4	80.55
1"	1"	1 5/8"	4 1/8"	47-898-2	93.65
1"	1"	3"	5 1/2"	47-899-0	98.85
1 1/4"	1 1/4"	2"	4 1/2"	47-900-6	106.25
1 3/4"	1 1/4"	2"	4 1/2"	47-901-4	204.25
–	–	–	–	–	–



SHOP GRADE

2 Flute HSS Single End Mills for Aluminum

Regular, Long & Extra Long Lengths • 37° Helix

- Designed to cut aluminum and other nonferrous materials.
- The 37° helix sheers the material cleanly and allows for more of the cutting flutes to be engaged with the workpiece, eliminating chatter.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 1/2"	46-407-3	$12.30
1/4"	3/8"	1 1/4"	3 1/8"	46-408-1	15.30
1/4"	3/8"	1 3/4"	3 1/2"	46-409-9	15.30
5/16"	3/8"	3/4"	2 1/2"	46-410-7	12.30
5/16"	3/8"	1 3/8"	3 1/8"	46-411-5	14.75
5/16"	3/8"	2"	3 3/4"	46-412-3	16.55
3/8"	3/8"	3/4"	2 1/2"	46-413-1	12.30
3/8"	3/8"	1 1/2"	3 1/4"	46-414-9	14.75
3/8"	3/8"	2 1/2"	4 1/4"	46-415-6	17.80
7/16"	3/8"	1"	2 11/16"	46-416-4	15.90
7/16"	1/2"	1 3/4"	3 3/4"	46-417-2	20.15
7/16"	1/2"	2 3/4"	4 3/4"	46-418-0	24.10
1/2"	1/2"	1 1/4"	3 1/4"	46-419-8	17.15
1/2"	1/2"	2"	4"	46-420-6	20.50
1/2"	1/2"	3"	5"	46-421-4	24.10
5/8"	5/8"	1 5/8"	3 3/4"	46-422-2	22.80
5/8"	5/8"	2 1/2"	4 5/8"	46-423-0	27.35
5/8"	5/8"	4"	6 1/8"	46-424-8	32.50
3/4"	3/4"	1 5/8"	3 7/8"	46-425-5	25.65
3/4"	3/4"	3"	5 1/4"	46-426-3	35.95
3/4"	3/4"	4"	6 1/4"	46-427-1	42.70
7/8"	7/8"	1 7/8"	4 1/8"	46-428-9	36.60
7/8"	7/8"	3 1/2"	5 3/4"	46-429-7	48.40
7/8"	7/8"	5"	7 1/4"	46-430-5	54.80
1"	1"	2"	4 1/2"	46-431-3	42.25
1"	1"	4"	6 1/2"	46-432-1	61.10
1"	1"	6"	8 1/2"	46-433-9	75.05
1 1/4"	1 1/4"	2"	4 1/2"	46-434-7	64.70
1 1/4"	1 1/4"	4"	6 1/2"	46-435-4	100.80
1 1/4"	1 1/4"	6"	8 1/2"	46-436-2	109.70
1 1/2"	1 1/4"	2"	4 1/2"	46-437-0	80.20
1 1/2"	1 1/4"	4"	6 1/2"	46-438-8	96.30
1 1/2"	1 1/4"	8"	10 1/2"	46-439-6	155.30
1 3/4"	1 1/4"	4"	6 1/2"	46-440-4	179.60
2"	1 1/4"	4"	6 1/2"	46-441-2	178.50



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS Single End Mills for Aluminum

Regular, Long & Extra Long Lengths • 37° Helix

- Designed to cut aluminum and other nonferrous materials.
- The 37° helix sheers the material cleanly and allows for more of the cutting flutes to be engaged with the workpiece, eliminating chatter.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 1/2"	46-442-0	$15.85
1/4"	3/8"	1 1/4"	3 1/16"	46-443-8	19.80
1/4"	3/8"	1 3/4"	3 9/16"	46-444-6	20.90
5/16"	3/8"	3/4"	2 1/2"	46-445-3	15.85
5/16"	3/8"	1 3/8"	3 1/8"	46-446-1	18.95
5/16"	3/8"	2"	3 3/4"	46-447-9	21.50
3/8"	3/8"	3/4"	2 1/2"	46-448-7	15.85
3/8"	3/8"	1 1/2"	3 1/4"	46-449-5	18.95
3/8"	3/8"	2 1/2"	4 1/4"	46-450-3	22.85
7/16"	3/8"	1"	2 11/16"	46-451-1	20.70
7/16"	1/2"	1 3/4"	3 3/4"	46-452-9	25.95
7/16"	1/2"	2 3/4"	4 3/4"	46-453-7	31.00
1/2"	1/2"	1 1/4"	3 1/4"	46-454-5	22.05
1/2"	1/2"	2"	4"	46-455-2	26.65
1/2"	1/2"	3"	5"	46-456-0	31.00
5/8"	1/2"	1 3/8"	3 3/8"	46-457-8	31.30
5/8"	5/8"	1 5/8"	3 3/4"	46-458-6	29.30
5/8"	5/8"	2 1/2"	4 5/8"	46-459-4	35.55
5/8"	5/8"	4"	6 1/8"	46-460-2	42.25
3/4"	1/2"	1 5/8"	3 5/8"	46-461-0	35.85
3/4"	3/4"	1 5/8"	3 7/8"	46-462-8	33.00
3/4"	3/4"	3"	5 1/4"	46-463-6	46.70
3/4"	3/4"	4"	6 1/4"	46-464-4	54.95
7/8"	3/4"	1 7/8"	4 1/8"	46-465-1	54.95
7/8"	7/8"	1 7/8"	4 1/8"	46-466-9	47.10
7/8"	7/8"	3 1/2"	5 3/4"	46-467-7	62.25
7/8"	7/8"	5"	7 1/4"	46-468-5	71.20
1"	3/4"	1 7/8"	4 1/8"	46-469-3	58.35
1"	1"	2"	4 1/2"	46-470-1	54.40
1"	1"	4"	6 1/2"	46-471-9	79.40
1"	1"	6"	8 1/2"	46-472-7	97.55
1 1/4"	1 1/4"	2"	4 1/2"	46-473-5	84.10
1 1/4"	1 1/4"	6"	8 1/2"	46-474-3	142.55
1 1/2"	1 1/4"	2"	4 1/2"	46-475-0	104.15
1 1/2"	1 1/4"	8"	10 1/2"	46-476-8	201.80
2"	1 1/4"	4"	6 1/2"	46-477-6	231.95

CUTTING TOOLS

SHOP GRADE

3 Flute M-42 Cobalt Centercutting Roughing End Mills for Aluminum

- For maximum metal removal rates in heavy machining of aluminum and other nonferrous materials.
- High helix and extra coarse pitch for freer chip evacuation.
- Best in horizontal set-ups.



MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
3/16"	3/8"	1/2"	2 3/8"	**40-913-6**	$24.00
1/4"	3/8"	5/8"	2 7/16"	**40-914-4**	24.00
1/4"	3/8"	1 1/8"	2 15/16"	**40-915-1**	27.75
1/4"	3/8"	1 3/8"	3 1/8"	**40-916-9**	39.80
9/32"	3/8"	3/4"	2 1/2"	**40-917-7**	27.50
5/16"	3/8"	3/4"	2 1/2"	**40-918-5**	23.70
5/16"	3/8"	1 1/8"	2 15/16"	**40-919-3**	28.80
5/16"	3/8"	1 3/8"	3 1/8"	**40-920-1**	27.75
11/32"	3/8"	3/4"	2 1/2"	**40-921-9**	29.75
3/8"	3/8"	7/16"	2 3/16"	**40-922-7**	27.40
3/8"	3/8"	3/4"	2 1/2"	**55-860-1**	24.00
3/8"	3/8"	1 1/8"	2 13/16"	**40-923-5**	34.85
3/8"	3/8"	1 5/8"	3 3/16"	**40-924-3**	25.20
7/16"	3/8"	1"	2 11/16"	**40-925-0**	33.10
15/32"	1/2"	1 1/4"	3 1/4"	**40-926-8**	41.40
1/2"	1/2"	5/8"	2 5/8"	**40-927-6**	30.70
1/2"	1/2"	1"	3"	**40-928-4**	29.35
1/2"	1/2"	1 1/4"	3 1/4"	**55-861-9**	28.30
1/2"	1/2"	2"	4"	**55-862-7**	36.55
1/2"	1/2"	3"	5"	**40-929-2**	53.15

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
5/8"	5/8"	3/4"	2 7/8"	**40-930-0**	$38.55
5/8"	5/8"	1 1/4"	3 3/8"	**40-931-8**	39.10
5/8"	5/8"	1 5/8"	3 3/4"	**55-863-5**	34.30
5/8"	5/8"	2 1/2"	4 5/8"	**55-964-1**	43.50
5/8"	5/8"	3 1/8"	5 1/4"	**40-932-6**	60.55
3/4"	5/8"	1 5/8"	3 3/4"	**40-933-4**	59.80
3/4"	3/4"	3/4"	3"	**40-934-2**	56.90
3/4"	3/4"	1 5/8"	3 3/4"	**55-865-0**	56.90
3/4"	3/4"	1 5/8"	3 7/8"	**40-935-9**	42.25
3/4"	3/4"	2"	4 1/4"	**40-936-7**	53.55
3/4"	3/4"	3"	5 1/4"	**40-937-5**	51.45
1"	3/4"	1 1/2"	3 3/4"	**40-938-3**	78.60
1"	3/4"	3"	5 1/4"	**40-939-1**	87.65
1"	1"	1 5/8"	4 1/8"	**40-940-9**	73.95
1"	1"	2"	4 1/2"	**55-968-2**	61.75
1"	1"	3"	5 1/2"	**55-869-2**	70.35
1"	1"	4"	6 1/2"	**40-941-7**	77.15
1 1/4"	1 1/4"	4"	6 1/2"	**40-942-5**	140.35
1 1/2"	1 1/4"	2"	4 1/2"	**40-943-3**	101.75
–	–	–	–	–	–

3 Flute M-42 Cobalt Centercutting Roughing End Mills for Aluminum

- For maximum metal removal rates in heavy machining of aluminum and other nonferrous materials.
- High helix and extra coarse pitch for freer chip evacuation.
- Best in horizontal set-ups.



MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
3/16"	3/8"	1/2"	2 3/8"	**40-944-1**	$33.45
1/4"	3/8"	5/8"	2 7/16"	**40-945-8**	33.45
1/4"	3/8"	1 1/8"	2 15/16"	**40-946-6**	38.65
5/16"	3/8"	1 3/8"	3 1/8"	**40-947-4**	38.65
3/8"	3/8"	3/4"	2 1/2"	**40-948-2**	33.45
3/8"	3/8"	1 1/2"	3 1/4"	**40-949-0**	38.65
1/2"	1/2"	1 1/4"	3 1/4"	**40-950-8**	39.40
1/2"	1/2"	2"	4"	**40-951-6**	50.90
1/2"	1/2"	3"	5"	**40-952-4**	74.05
5/8"	5/8"	1 5/8"	3 1/4"	**40-953-2**	47.75
5/8"	5/8"	2 1/2"	4 5/8"	**40-954-0**	60.55
3/4"	3/4"	1 5/8"	3 7/8"	**40-955-7**	58.85
3/4"	3/4"	2 1/4"	4 1/2"	**40-956-5**	66.10
3/4"	3/4"	3"	5 1/4"	**40-957-3**	71.65
3/4"	3/4"	4"	6 1/4"	**40-958-1**	107.40
7/8"	3/4"	1 1/2"	3 3/4"	**40-959-9**	82.70

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
7/8"	7/8"	1 7/8"	4 1/8"	**40-960-7**	$97.80
1"	3/4"	1 1/2"	3 3/4"	**40-961-5**	109.45
1"	1"	2"	4 1/2"	**40-962-3**	86.00
1"	1"	3"	5 1/2"	**40-963-1**	97.95
1"	1"	4"	6 1/2"	**40-964-9**	107.40
1"	1"	6"	8 1/2"	**40-965-6**	156.05
1 1/4"	3/4"	1 1/2"	3 3/4"	**40-966-4**	111.80
1 1/4"	1 1/4"	2"	4 1/2"	**40-967-2**	109.85
1 1/4"	1 1/4"	3"	5 1/2"	**40-968-0**	138.40
1 1/4"	1 1/4"	4"	6 1/2"	**40-969-8**	166.15
1 1/4"	1 1/4"	6"	8 1/2"	**40-970-6**	228.35
1 1/2"	3/4"	1 1/2"	3 3/4"	**40-971-4**	149.95
1 1/2"	1 1/4"	2"	4 1/2"	**40-972-2**	141.65
1 1/2"	1 1/4"	4"	6 1/2"	**40-973-0**	194.10
2"	3/4"	3/4"	3"	**40-974-8**	242.70
–	–	–	–	–	–



3 Flute M-42 Cobalt TiN & TiCN Coated Centercutting Roughing End Mills for Aluminum

- For maximum metal removal rates in heavy machining of aluminum and other nonferrous materials.
- High helix and extra coarse pitch for freer chip evacuation.
- Best in horizontal setups.
- 2" shanks have combination drive.

Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Provides an ability to increase machining speeds of 25 to 30% in machining vs. uncoated tools.

TiCN (Titanium Carbonitride)

- For stainless steels, medium and hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	TiN COATED PART NO.	PRICE	TiCN COATED PART NO.	PRICE
5/16"	3/8"	3/4"	2 1/2"	**47-902-2**	$37.55	–	–
3/8"	3/8"	3/4"	2 1/2"	–	–	**47-910-5**	$36.80
1/2"	1/2"	1"	3"	**47-903-0**	39.95	–	–
1/2"	1/2"	1 1/4"	3 1/4"	**47-904-8** *	41.40	**47-911-3**	43.35
1/2"	1/2"	1 5/8"	3 5/8"	**47-905-5**	54.70	–	–
1/2"	1/2"	2"	4"	–	–	**47-912-1**	56.00
5/8"	5/8"	1 5/8"	3 3/4"	–	–	**47-913-9**	52.60
5/8"	5/8"	2 1/2"	4 5/8"	–	–	**47-914-7**	74.90
3/4"	3/4"	1 5/8"	3 7/8"	**47-906-3**	63.95	**47-915-4** †	64.65
3/4"	3/4"	2 1/4"	4 1/2"	**47-907-1**	98.65	**47-916-2**	103.35
3/4"	3/4"	3"	5 1/4"	–	–	**47-917-0**	106.95
3/4"	3/4"	4"	6 1/4"	–	–	**47-918-8**	118.25
1"	1"	2"	4 1/2"	–	–	**47-919-6**	90.95
1"	1"	3"	5 1/2"	–	–	**47-920-4**	116.25
1"	1"	4"	6 1/2"	**47-908-9**	112.80	**47-921-2**	118.25
1"	1"	6"	8 1/2"	–	–	**47-922-0**	171.65
1 1/4"	1 1/4"	2"	4 1/2"	–	–	**47-923-8**	134.85
1 1/4"	1 1/4"	3"	5 1/2"	–	–	**47-924-6**	152.20
1 1/4"	1 1/4"	4"	6 1/2"	–	–	**47-925-3**	168.95
1 1/4"	1 1/4"	6"	8 1/2"	–	–	**47-926-1**	251.25
1 1/2"	3/4"	2"	4 1/4"	**47-909-7**	159.90	–	–
1 1/2"	1 1/4"	2"	4 1/2"	–	–	**47-927-9**	167.40

* OAL: 3" † OAL: 4"



HERTEL
Production Grade Tooling Since 1947

Multiple Flute Fine Tooth M-42 Cobalt TiN, TiCN & TiAlN Coated Centercutting Roughing End Mills

Stub, Regular, & Long Lengths

- For profiling applications and shallow slotting (≤ 1 x D axial depth).
- Centercutting for plunge cuts.
- 2" shanks have combination drive.
- Fine tooth style for harder metals (Stainless, Inconel, mold steels).
- Provides longer tools life.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

Surface Treatments: TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

Surface Treatments: TiAlN (Titanium Aluminum Nitride)

- For harder materials, high temperature and titanium alloys.
- Extends in cast and nodular irons.
- For use at higher machining speeds.
- At proper speeds, can be run in dry conditions.
- Provides outstanding heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. TiCN coated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	TiN COATED PART NO.	TiN COATED PRICE	TiCN COATED PART NO.	TiCN COATED PRICE	TiAlN COATED PART NO.	TiAlN COATED PRICE
1/4"	3/8"	1/4"	2 1/16"	4	47-817-2	$47.05	47-839-6	$49.00	–	–
1/4"	3/8"	5/8"	2 7/16"	3	–	–	47-840-4	44.35	–	–
5/16"	3/8"	3/4"	2 1/2"	3	–	–	47-841-2	44.35	–	–
3/8"	3/8"	3/8"	2 5/32"	4	47-818-0	30.15	47-842-0	32.20	47-863-6	$33.15
3/8"	3/8"	3/4"	2 1/2"	4	47-819-8	38.10	47-843-8	40.35	47-864-4	41.55
3/8"	3/8"	1 1/2"	3 1/4"	4	47-820-6	46.90	47-844-6	49.00	–	–
1/2"	1/2"	1/2"	2 1/2"	4	47-821-4	40.65	47-845-3	42.50	47-865-1	43.80
1/2"	1/2"	1 1/4"	3 1/4"	4	47-822-2	50.20	47-846-1	53.10	47-866-9	54.70
1/2"	1/2"	2"	4"	4	47-823-0	67.80	47-847-9	71.65	–	–
5/8"	5/8"	5/8"	2 3/4"	4	47-824-8	49.30	47-848-7	51.60	47-867-7	53.15
5/8"	5/8"	1 5/8"	3 3/4"	4	47-825-5	61.85	47-849-5	66.65	–	–
5/8"	5/8"	2 1/2"	4 5/8"	4	47-826-3	81.00	47-850-3	85.70	–	–
3/4"	3/4"	3/4"	2 7/8"	4	47-827-1	58.55	47-851-1	61.25	47-868-5	63.10
3/4"	3/4"	1 5/8"	3 3/4"	4	47-828-9	71.05	47-852-9	76.70	47-869-3	79.05
3/4"	3/4"	3"	5 1/4"	4	47-829-7	90.25	47-853-7	97.50	–	–
7/8"	7/8"	7/8"	3 1/8"	5	47-830-5	141.30	–	–	–	–
1"	3/4"	2"	4 1/4"	5	–	–	47-854-5	109.70	–	–
1"	1"	1"	3 1/2"	5	47-831-3	88.70	47-855-2	92.85	47-870-1	95.60
1"	1"	2"	4 1/2"	5	47-832-1	108.55	47-856-0	114.95	47-871-9	118.40
1"	1"	3"	5 1/2"	5	47-833-9	132.85	47-857-8	140.50	–	–
1"	1"	4"	6 1/2"	5	47-834-7	142.10	47-858-6	150.30	–	–
1 1/4"	1 1/4"	2"	4 1/2"	6	47-835-4	142.10	47-859-4	150.30	47-872-7	154.75
1 1/4"	1 1/4"	3"	5 1/2"	6	47-836-2	188.00	47-860-2	198.90	–	–
1 1/4"	1 1/4"	4"	6 1/2"	6	47-837-0	213.00	47-861-0	225.50	–	–
2"	2"	4"	7 3/4"	8	47-838-8	569.85	47-862-8	416.75	–	–



HERTEL
Production Grade Tooling Since 1947

Multiple Flute Coarse Tooth M-42 Cobalt TiN, TiCN & TiAlN Coated Centercutting Roughing End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- Best for heavy cuts, deep slotting and pocketing applications.
- Excellent in all steels and ferrous materials.
- Centercutting for plunge cuts.
- 2" shanks have combination drive.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

Surface Treatments: TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

Surface Treatments: TiAlN (Titanium Aluminum Nitride)

- For harder materials, high temperature and titanium alloys.
- Extends in cast and nodular irons.
- For use at higher machining speeds.
- At proper speeds, can be run in dry conditions.
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. TiCN coated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	TiN COATED PART NO.	TiN COATED PRICE	TiCN COATED PART NO.	TiCN COATED PRICE	TiAlN COATED PART NO.	TiAlN COATED PRICE
3/16"	3/8"	1/2"	2 3/8"	3	47-644-0	$33.60	–	–	–	–
1/4"	3/8"	1/4"	2 1/16"	4	47-645-7	48.30	47-674-7 *	$41.85	–	–
1/4"	3/8"	5/8"	2 7/16"	3	47-646-5	50.85	47-675-4 †	40.35	–	–
5/16"	3/8"	3/4"	2 1/2"	4	47-647-3 °	38.10	47-676-2	39.95	–	–
3/8"	3/8"	3/8"	2 5/32"	4	47-648-1	30.15	47-677-0	31.85	47-696-0	$31.85
3/8"	3/8"	3/4"	2 1/2"	4	47-649-9	38.10	47-678-8	40.35	47-697-8	40.35
3/8"	3/8"	1 1/2"	3 1/4"	4	47-650-7	46.90	47-679-6	49.00	–	–
7/16"	3/8"	1"	2 11/16"	4	47-651-5	41.10	–	–	–	–
1/2"	1/2"	1/2"	2 1/2"	3	47-527-7	42.55	47-680-4	44.70	47-698-6	46.95
1/2"	1/2"	1 1/4"	3 1/4"	4	47-653-1	50.20	47-681-2	53.10	47-699-4	53.10
1/2"	1/2"	2"	4"	4	47-654-9	67.80	47-682-0	71.65	–	–
5/8"	5/8"	5/8"	2 3/4"	4	47-531-9	58.40	47-683-8	52.15	47-700-0	52.15
5/8"	5/8"	1 5/8"	3 3/4"	4	47-656-4	61.85	47-684-6	65.30	47-701-8	65.30
5/8"	5/8"	2 1/2"	4 5/8"	4	47-657-2	81.00	47-685-3	85.70	–	–
3/4"	3/4"	3/4"	3"	4	47-534-3	61.70	47-686-1	61.85	47-702-6 §	61.85
3/4"	3/4"	1 5/8"	3 3/4"	4	47-658-0	71.05	47-687-9 ‡	75.20	47-703-4	75.20
3/4"	3/4"	3"	5 1/4"	4	47-659-8	93.00	47-688-7	95.60	–	–
3/4"	3/4"	4 1/8"	6 3/8"	4	47-660-6	92.25	–	–	–	–
13/16"	3/4"	1 7/8"	4 1/8"	4	47-661-4	70.80	–	–	–	–
1"	1"	1"	3 1/2"	4	47-662-2	88.70	47-689-5 ◊	93.70	47-704-2	93.70
1"	1"	2"	4 1/2"	5	47-663-0	108.55	47-690-3	114.95	47-705-9	114.95
1"	1"	3"	5 1/2"	5	47-664-8	132.85	47-691-1	140.50	–	–
1"	1"	4"	6 1/2"	5	47-665-5	142.10	47-692-9	150.30	–	–
1 1/4"	1 1/4"	2"	4 1/2"	6	47-666-3	142.10	47-693-7	150.30	47-706-7	150.30
1 1/4"	1 1/4"	3"	5 1/2"	6	47-667-1	188.00	47-694-5	198.90	–	–
1 1/2"	3/4"	2"	4 1/4"	6	47-668-9	194.70	–	–	–	–
1 1/2"	1 1/4"	3"	5 1/2"	6	47-669-7	251.50	–	–	–	–
2"	3/4"	2"	4 1/2"	8	47-670-5	259.60	–	–	–	–
2"	2"	3"	6 3/4"	8	47-671-3	414.05	–	–	–	–
2"	2"	4"	7 3/4"	8	47-672-1	457.55	–	–	–	–
2"	2"	6"	9 3/4"	8	47-673-9	589.70	47-695-2	617.65	–	–

* 3 Flute † 4 Flute ° OAL: 5/16" ‡ OAL: 3 7/8" ◊ 5 Flute § OAL: 2 7/8"

CUTTING TOOLS



SHOP GRADE

M-42 Cobalt Coarse Tooth Premium Roughing End Mills

- Best for heavy cuts, deep slotting & pocketing applications.
- Excellent for mild steels.
- 2" Shanks are combination drive type.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
3/16"	3/8"	1/2"	2 3/8"	3	42-701-3	$22.25
1/4"	3/8"	5/16"	2 1/8"	3	42-702-1	19.90
1/4"	3/8"	5/8"	2 7/16"	3	42-703-9	22.40
1/4"	3/8"	7/8"	2 11/16"	3	42-704-7	22.10
1/4"	3/8"	1 1/8"	2 15/16"	3	42-705-4	24.15
1/4"	3/8"	1 3/8"	3 1/8"	3	42-706-2	29.60
9/32"	3/8"	3/4"	2 1/2"	3	42-707-0	22.25
5/16"	3/8"	7/16"	2 3/16"	3	42-708-8	21.35
5/16"	3/8"	3/4"	2 1/2"	3	42-709-6	22.45
5/16"	3/8"	1 1/8"	2 15/16"	3	42-710-4	22.10
5/16"	3/8"	1 3/8"	3 3/8"	4	42-711-2	26.55
11/32"	3/8"	3/4"	2 1/2"	3	42-712-0	22.80
3/8"	3/8"	7/16"	2 3/16"	4	42-713-8	19.65
3/8"	3/8"	3/4"	2 1/2"	4	42-714-6	22.45
3/8"	3/8"	1 1/8"	2 15/16"	4	42-715-3	23.60
3/8"	3/8"	1 5/8"	3 3/16"	4	42-716-1	31.30
13/32"	3/8"	1"	2 11/16"	4	42-717-9	23.75
7/16"	3/8"	1"	2 11/16"	4	42-718-7	$25.95
15/32"	1/2"	1 1/4"	3 1/4"	4	42-719-5	43.15
1/2"	1/2"	5/8"	2 5/8"	4	42-720-3	24.30
1/2"	1/2"	1"	3"	4	42-721-1	26.65
1/2"	1/2"	1 1/4"	3 1/4"	4	42-722-9	29.50
1/2"	1/2"	1 5/8"	3 5/8"	4	42-723-7	32.30
1/2"	1/2"	2"	4"	4	42-724-5	39.30
1/2"	1/2"	2 1/2"	4 1/2"	4	42-725-2	41.05
1/2"	1/2"	3"	5"	4	42-726-0	48.50
9/16"	1/2"	1 3/8"	3 3/8"	4	42-727-8	35.55
5/8"	5/8"	3/4"	2 7/8"	4	42-728-6	31.05
5/8"	5/8"	1 1/4"	3 3/8"	4	42-729-4	33.85
5/8"	5/8"	1 5/8"	3 3/4"	4	42-730-2	35.75
5/8"	5/8"	2 1/8"	4 1/4"	4	42-731-0	35.90
5/8"	5/8"	2 1/2"	4 5/8"	4	42-732-8	46.20
5/8"	5/8"	3 1/8"	5 1/4"	4	42-733-6	56.35
11/16"	5/8"	1 5/8"	3 3/4"	4	42-734-4	45.10
3/4"	5/8"	1 5/8"	3 7/8"	4	42-735-1	45.10
3/4"	3/4"	3/4"	3"	4	42-736-9	42.25
3/4"	3/4"	1 1/4"	3 1/2"	4	42-737-7	37.70
3/4"	3/4"	1 5/8"	3 7/8"	4	42-738-5	41.05
3/4"	3/4"	2 1/2"	4 3/4"	4	42-739-3	46.35
3/4"	3/4"	3"	5 1/4"	4	42-740-1	53.70
3/4"	3/4"	4 1/8"	6 3/8"	4	42-741-9	64.50
13/16"	3/4"	1 7/8"	4 1/8"	4	42-742-7	76.85
7/8"	3/4"	1 1/8"	3 3/8"	5	42-743-5	76.85
7/8"	3/4"	1 7/8"	4 1/8"	5	42-744-3	58.85
7/8"	3/4"	3 1/2"	5 3/4"	5	42-745-0	65.35
7/8"	7/8"	1 1/8"	3 3/8"	5	42-746-8	51.30
7/8"	7/8"	1 7/8"	4 1/8"	5	42-747-6	56.05
7/8"	7/8"	3 1/2"	5 3/4"	5	42-748-4	68.00
1"	3/4"	1 1/8"	3 3/8"	5	42-749-2	52.15
1"	3/4"	1 1/2"	3 3/4"	5	42-750-0	62.75
1"	3/4"	2"	4 1/4"	5	42-751-8	64.65
1"	3/4"	3"	5 1/4"	5	42-752-6	81.80
1"	3/4"	4"	6 1/4"	5	42-753-4	$82.70
1"	1"	4"	6 1/4"	5	42-754-2	53.80
1"	1"	1 5/8"	4 1/8"	5	42-756-7	59.90
1"	1"	2"	4 1/2"	5	42-757-5	61.75
1"	1"	3"	5 1/2"	5	42-758-3	79.05
1"	1"	4"	6 1/2"	5	42-759-1	83.70
1"	1"	6"	8 1/2"	5	42-760-9	113.15
1 1/8"	3/4"	1 1/8"	3 3/8"	6	42-761-7	75.95
1 1/8"	3/4"	2"	4 1/4"	6	42-762-5	87.25
1 1/8"	1"	2"	4 1/2"	6	42-763-3	88.30
1 1/4"	3/4"	1 1/8"	3 3/8"	6	42-765-8	85.20
1 1/4"	3/4"	2"	4 1/4"	6	42-766-6	111.00
1 1/4"	1 1/4"	1 3/8"	3 7/8"	6	42-767-4	93.20
1 1/4"	1 1/4"	2"	4 1/2"	6	42-768-2	81.95
1 1/4"	1 1/4"	3"	5 1/2"	6	42-769-0	106.80
1 1/4"	1 1/4"	4"	6 1/2"	6	42-770-8	121.20
1 1/4"	1 1/4"	6"	8 1/2"	6	42-771-6	171.40
1 3/8"	3/4"	2"	4 1/4"	6	42-773-2	101.00
1 1/2"	3/4"	1 1/8"	3 3/8"	6	42-774-0	96.15
1 1/2"	3/4"	1 1/2"	3 3/4"	6	42-775-7	103.60
1 1/2"	3/4"	2"	4 1/4"	6	42-776-5	114.30
1 1/2"	1 1/4"	2"	4 1/2"	6	42-777-3	109.65
1 1/2"	1 1/4"	3"	5 1/2"	6	42-778-1	141.40
1 1/2"	1 1/4"	4"	6 1/2"	6	42-779-9	157.55
1 1/2"	1 1/4"	6 1/8"	8 5/8"	6	42-780-7	160.45
1 3/4"	3/4"	1 1/8"	3 3/8"	6	42-781-5	136.65
1 3/4"	3/4"	2"	4 1/4"	6	42-782-3	145.20
1 3/4"	1 1/4"	2"	4 1/2"	6	42-783-1	140.00
2"	3/4"	1 1/8"	3 3/8"	8	42-785-6	145.40
2"	3/4"	2"	4 1/2"	8	42-786-4	161.65
2"	1 1/4"	2"	4 1/2"	8	42-787-2	165.10
2"	1 1/4"	4"	6 1/2"	8	42-789-8	200.55
2"	2"	4"	7 3/4"	8	42-792-2	227.30
2"	2"	6"	9 3/4"	8	42-794-8	278.20
2"	2"	8"	11 3/4"	8	42-795-5	358.20



SHOP GRADE

Coarse Tooth M-42 Cobalt TiN Coated Roughing End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- Best for heavy cuts, deep slotting and pocketing applications.
- Excellent in all steels and ferrous materials.
- Noncentercutting unless noted.

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
3/16"	3/8"	1/2"	2 3/8"	4	47-448-6	$24.25
1/4"	3/8"	5/16"	2 1/8"	3	47-449-4	20.55
1/4"	3/8"	5/8"	2 7/16"	3	47-450-2	24.95
1/4"	3/8"	7/8"	2 11/16"	3	47-451-0	24.15
1/4"	3/8"	1 1/8"	2 15/16"	3	47-452-8	24.15
1/4"	3/8"	1 3/8"	3 1/8"	3	47-453-6	$46.75
9/32"	3/8"	3/4"	2 1/2"	3	47-454-4	34.45
5/16"	3/8"	7/16"	2 3/16"	3	47-455-1	32.35
5/16"	3/8"	3/4"	2 1/2"	3	47-456-9	27.40
5/16"	3/8"	1 1/8"	2 15/16"	3	47-457-7	42.10
5/16"	3/8"	1 3/8"	3 3/16"	4	47-458-5	32.95
11/32"	3/8"	3/4"	2 1/2"	3	47-459-3	33.80
3/8"	3/8"	7/16"	2 3/8"	4	47-460-1	32.35
3/8"	3/8"	3/4"	2 1/2"	4	47-461-9	24.50
3/8"	3/8"	1 1/8"	2 15/16"	4	47-462-7	24.15
3/8"	3/8"	1 5/8"	3 3/16"	4	47-463-5	28.60
13/32"	3/8"	1"	2 11/16"	4	47-464-3	48.10
7/16"	3/8"	1"	2 11/16"	4	47-465-0	40.15
15/32"	1/2"	1 1/4"	3 1/4"	4	47-466-8	48.60
1/2"	1/2"	1/2"	2 1/2"	3	47-467-6	31.75
1/2"	1/2"	5/8"	2 5/8"	4	47-468-4	27.45
1/2"	1/2"	1"	3"	4	47-469-2	27.45
1/2"	1/2"	1 1/4"	3 1/4"	4	47-470-0	32.10
1/2"	1/2"	1 5/8"	3 5/8"	4	47-471-8	36.10
1/2"	1/2"	2"	4"	4	47-472-6	42.80
1/2"	1/2"	2 1/2"	4 1/2"	4	47-473-4	53.05
1/2"	1/2"	3"	5"	4	47-474-2	62.75
9/16"	1/2"	1 3/8"	3 3/8"	4	47-475-9	38.65
5/8"	5/8"	5/8"	2 3/4"	3	47-476-7	43.50
5/8"	5/8"	3/4"	2 7/8"	4	47-477-5	41.65
5/8"	5/8"	1 1/4"	3 3/8"	4	47-478-3	43.55
5/8"	5/8"	1 5/8"	3 3/4"	4	47-479-1	38.95
5/8"	5/8"	2 1/8"	4 1/4"	4	47-480-9	52.65
5/8"	5/8"	2 1/2"	4 5/8"	4	47-481-7	50.25
5/8"	5/8"	3 1/8"	5 1/4"	4	47-482-5	67.10
11/16"	5/8"	1 5/8"	3 3/4"	4	47-483-3	67.40
3/4"	5/8"	1 5/8"	3 3/4"	4	47-484-1	56.85
3/4"	3/4"	1 5/8"	3 3/4"	4	47-485-8	46.00
3/4"	3/4"	1 1/4"	3 1/2"	4	47-486-6	40.30
3/4"	3/4"	3/4"	2 1/2"	4	47-487-4	$44.70
3/4"	3/4"	2 1/2"	4 3/4"	4	47-488-2	52.15
3/4"	3/4"	3"	5 1/4"	4	47-489-0	58.50
3/4"	3/4"	4 1/8"	6 3/8"	4	47-490-8	83.50
13/16"	3/4"	1 7/8"	4 1/8"	4	47-491-6	109.15
7/8"	3/4"	1 1/8"	3 3/8"	5	47-492-4	67.95
7/8"	3/4"	1 7/8"	4 1/8"	5	47-493-2	64.15
7/8"	7/8"	1 1/8"	3 3/8"	5	47-494-0	73.10
7/8"	7/8"	1 7/8"	4 1/8"	5	47-495-7	61.00
7/8"	7/8"	3 1/2"	5 3/4"	5	47-496-5	74.00
1"	3/4"	1 1/8"	3 3/8"	6	47-497-3	69.45
1"	3/4"	1 1/2"	3 3/4"	5	47-498-1	78.40
1"	3/4"	2"	4 1/4"	5	47-499-9	69.65
1"	3/4"	3"	5 1/4"	5	47-500-4	103.05
1"	3/4"	4"	6 1/4"	5	47-501-2	107.75
1"	1"	1 1/8"	3 5/8"	5	47-502-0	103.85
1"	1"	1 5/8"	4 1/8"	5	47-503-8	82.80
1"	1"	2"	4 1/2"	5	47-504-6	67.25
1"	1"	3"	5 1/2"	5	47-505-3	85.20
1"	1"	4"	6 1/2"	5	47-506-1	91.20
1"	1"	6"	8 1/2"	5	47-507-9	123.20
1 1/8"	1"	2"	4 1/2"	6	47-508-7	95.10
1 1/8"	1"	3 1/2"	6"	6	47-509-5	101.30
1 1/4"	3/4"	1 1/8"	3 3/8"	6	47-510-3	106.95
1 1/4"	3/4"	2"	4 1/4"	6	47-511-1	95.30
1 1/4"	1 1/4"	2"	4 1/2"	6	47-512-9	89.30
1 1/4"	1 1/4"	3"	5 1/2"	6	47-513-7	117.50
1 1/4"	1 1/4"	4"	6 1/2"	6	47-514-5	130.75
1 1/4"	1 1/4"	6"	8 1/2"	6	47-515-2	186.75
1 1/2"	3/4"	1 1/8"	3 3/8"	6	47-516-0	119.45
1 1/2"	3/4"	1 1/2"	3 3/4"	6	47-517-8	119.45
1 1/2"	1 1/4"	2"	4 1/2"	6	47-518-6	119.45
1 1/2"	1 1/4"	4"	6 1/2"	6	47-519-4	171.60
– –	–	–	–	–	–	–

HERTEL
Production Grade Tooling Since 1947

Coarse Tooth M-42 Cobalt TiN, TiCN & TiAlN Coated Roughing End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- Best for heavy cuts, deep slotting and pocketing applications.
- Excellent in all steels and ferrous materials.
- 2" shanks have combination drive.
- Noncentercutting unless noted.



Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

TiAlN (Titanium Aluminum Nitride)

- For harder materials, high temperature and titanium alloys.
- Extends in cast and nodular irons.
- For use at higher machining speeds.
- At proper speeds, can be run in dry conditions.
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. TiCN coated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	TiN COATED PART NO.	PRICE	TiCN COATED PART NO.	PRICE	TiAlN COATED PART NO.	PRICE
3/16"	3/8"	1/2"	2 3/8"	3	47-520-2	$32.55	47-561-6	$34.10	–	–
1/4"	3/8"	5/8"	2 7/16"	4	47-521-0	32.90	47-562-4	34.45	–	–
1/4"	3/8"	1 1/4"	3 1/8"	3	47-522-8	33.30	47-563-2	40.65	–	–
5/16"	3/8"	3/4"	2 1/2"	4	47-523-6	32.90	47-564-0	34.45	–	–
3/8"	3/8"	3/4"	2 1/2"	4	47-524-4	32.90	47-565-7	34.45	–	–
3/8"	3/8"	1 1/2"	3 1/4"	4	–	–	47-566-5	40.65	–	–
3/8"	3/8"	1 5/8"	3 3/16"	4	47-525-1	38.35	–	–	–	–
7/16"	3/8"	1"	2 11/16"	4	–	–	47-567-3	50.50	–	–
7/16"	1/2"	1 1/4"	3 1/4"	4	47-526-9	42.65	–	–	–	–
1/2"	1/2"	1/2"	2 1/2"	3	47-527-7	42.55	–	–	–	–
1/2"	1/2"	1 1/4"	3 1/4"	4	47-528-5	43.05	47-568-1	45.20	–	–
1/2"	1/2"	2"	4"	4	47-529-3	57.40	47-569-9	60.15	–	–
9/16"	1/2"	1 3/8"	3 3/8"	4	47-530-1	51.90	47-570-7	54.45	–	–
5/8"	5/8"	5/8"	2 3/4"	3	47-531-9	58.40	–	–	–	–
5/8"	5/8"	1 5/8"	3 3/4"	4	47-532-7	52.25	47-571-5	54.85	–	–
5/8"	5/8"	2 1/2"	4 5/8"	4	47-533-5	67.45	–	–	–	–
3/4"	3/4"	3/4"	3"	4	47-534-3	61.70	–	–	–	–
3/4"	3/4"	1 5/8"	3 3/4"	4	47-535-0	60.00	47-572-3	62.90	–	–
3/4"	3/4"	3"	5 1/4"	4	47-536-8	78.55	47-573-1	82.25	–	–
3/4"	3/4"	4"	6 1/4"	4	47-537-6	102.25	47-574-9	129.15	–	–
7/8"	3/4"	1 7/8"	4 1/8"	5	47-538-4	86.10	47-575-6	90.15	–	–
7/8"	7/8"	1 7/8"	4 1/8"	5	47-539-2	81.85	47-576-4	85.85	–	–
7/8"	7/8"	3 1/2"	5 3/4"	5	47-540-0	99.35	47-577-2	104.15	–	–
1"	3/4"	1 7/8"	4 1/8"	5	47-541-8	88.85	–	–	–	–
1"	3/4"	1 7/8"	4 1/4"	5	47-542-6	–	–	–	–	–
1"	1"	2"	4 1/2"	5	47-543-4	90.30	47-578-0	94.60	47-592-1	$94.60
1"	1"	3"	5 1/2"	5	47-544-2	114.40	47-579-8	119.95	–	–
1"	1"	4"	6 1/2"	5	47-545-9	122.45	47-580-6	128.15	47-593-9	128.15
1"	1"	6"	8 1/2"	5	47-546-7	165.40	47-581-4	173.35	–	–
1 1/8"	1"	2"	4 1/2"	6	47-547-5	127.65	–	–	–	–
1 1/8"	1"	3 1/2"	6"	6	47-548-3	136.00	–	–	–	–
1 1/4"	3/4"	2"	4 1/2"	6	47-549-1	127.90	–	–	–	–
1 1/4"	1 1/4"	2"	4 1/2"	6	47-550-9	119.85	47-582-2	125.55	47-594-7	125.55
1 1/4"	1 1/4"	3"	5 1/2"	6	47-551-7	157.70	47-583-0	165.30	–	–
1 1/4"	1 1/4"	4"	6 1/2"	6	47-552-5	175.50	47-584-8	185.70	47-595-4	185.70
1 1/4"	1 1/4"	6"	8 1/2"	6	47-553-3	250.65	47-585-5	265.20	–	–
1 1/2"	1 1/4"	2"	4 1/2"	6	47-554-1	160.30	47-586-3	166.25	–	–
1 1/2"	1 1/4"	4"	6 1/2"	6	47-555-8	230.35	47-587-1	241.40	–	–
1 1/2"	1 1/4"	6"	8 1/2"	6	47-556-6	335.05	47-588-9	351.10	–	–
2"	1 1/4"	2"	4 1/2"	8	47-557-4	239.00	47-589-7	250.35	–	–
2"	1 1/4"	4"	6 1/2"	8	47-558-2	289.85	47-590-5	307.35	–	–
2"	2"	4"	7 3/4"	8	47-559-0	329.05	–	–	47-596-2	344.85
2"	2"	6"	9 3/4"	8	–	–	–	–	47-597-0	426.25
2"	2"	8"	11 3/4"	8	47-560-8	523.90	47-591-3	548.75	–	–



SHOP GRADE

Multiple Flute Coarse Tooth M-42 Cobalt TiN Coated Centercutting Roughing End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- Best for heavy cuts, deep slotting and pocketing applications.
- Excellent in all steels and ferrous materials.
- Centercutting for plunge cuts.

Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
3/16"	3/8"	1/2"	2 3/8"	4	47-599-6	$24.15
1/4"	3/8"	5/16"	2 1/8"	3	47-600-2	44.65
1/4"	3/8"	5/8"	2 7/16"	3	47-601-0	36.55
1/4"	3/8"	7/8"	2 11/16"	3	47-602-8	31.50
1/4"	3/8"	1 1/8"	2 15/16"	4	47-603-6	31.65
1/4"	3/8"	1 3/8"	3 1/8"	3	47-604-4	60.75
9/32"	3/8"	3/4"	2 1/2"	3	47-605-1	44.65
5/16"	3/8"	7/16"	2 3/16"	3	47-606-9	44.65
5/16"	3/8"	3/4"	2 1/2"	4	47-607-7	27.35
5/16"	3/8"	1 1/8"	2 15/16"	3	47-608-5	54.30
5/16"	3/8"	1 3/8"	3 3/16"	4	47-609-3	46.90
11/32"	3/8"	3/4"	2 1/2"	3	47-610-1	42.55
3/8"	3/8"	7/16"	2 3/16"	4	47-611-9	45.90
3/8"	3/8"	3/4"	2 1/2"	4	47-612-7	27.35
3/8"	3/8"	1 1/8"	2 15/16"	4	47-613-5	31.65
3/8"	3/8"	1 5/8"	3 3/16"	4	47-614-3	23.60
7/16"	3/8"	1"	2 11/16"	4	47-615-0	29.50
15/32"	1/2"	1 1/4"	3 1/4"	4	47-616-8	62.95
1/2"	1/2"	5/8"	2 5/8"	4	47-617-6	44.35
1/2"	1/2"	1"	3"	4	47-618-4	27.60
1/2"	1/2"	1 1/4"	3 1/4"	4	47-619-2	36.05
1/2"	1/2"	1 5/8"	3 5/8"	4	47-620-0	43.20
1/2"	1/2"	2"	4"	4	47-621-8	48.70
1/2"	1/2"	2 1/2"	4 1/2"	4	47-622-6	70.45
1/2"	1/2"	3"	5"	4	47-623-4	78.00
9/16"	1/2"	1 3/8"	3 3/8"	4	47-624-2	32.65
5/8"	5/8"	1 1/4"	3 3/8"	4	47-625-9	55.25
5/8"	5/8"	1 5/8"	3 3/4"	4	47-626-7	44.40
5/8"	5/8"	2 1/2"	4 5/8"	4	47-627-5	58.20
5/8"	5/8"	3 1/8"	5 1/4"	4	47-628-3	89.85
3/4"	3/4"	3/4"	3"	4	47-629-1	44.35
3/4"	3/4"	1 1/4"	3 1/2"	4	47-630-9	52.65
3/4"	3/4"	1 5/8"	3 3/4"	4	47-631-7	51.05
3/4"	3/4"	2 1/2"	4 5/8"	4	47-632-5	87.30
3/4"	3/4"	3"	5 1/4"	4	47-633-3	66.80
3/4"	3/4"	4 1/8"	6 3/8"	4	47-634-1	66.25
13/16"	3/4"	1 7/8"	4 1/8"	4	47-635-8	50.85
1"	3/4"	1 1/8"	3 3/8"	6	47-636-6	106.35
1"	3/4"	2"	4 1/4"	5	47-637-4	116.10
1"	3/4"	4"	6 1/4"	5	47-638-2	149.60
1"	1"	1 1/8"	3 5/8"	5	47-639-0	113.60
1"	1"	1 5/8"	4 1/8"	5	47-640-8	115.30
1"	1"	2"	4 1/2"	5	47-641-6	77.95
1"	1"	3"	5 1/2"	5	47-642-4	95.40
1"	1"	4"	6 1/2"	5	47-643-2	102.05

CUTTING TOOLS



SHOP GRADE
M-42 Cobalt Fine Tooth Premium Roughing End Mills

- For profiling, shallow slots.
- Fine tooth style for harder steels (stainless, Inconel, mold steels).
- 2" shanks are combination drive type.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
1/4"	3/8"	5/8"	2 7/16"	3	**42-796-3**	$22.25
1/4"	3/8"	7/8"	2 11/16"	3	**42-797-1**	20.65
1/4"	3/8"	1 1/8"	3 1/8"	4	**42-798-9**	34.85
5/16"	3/8"	7/16"	2 3/16"	3	**42-799-7**	19.15
5/16"	3/8"	3/4"	2 1/2"	3	**42-800-3**	22.45
5/16"	3/8"	1 1/8"	2 15/16"	3	**42-801-1**	24.30
3/8"	3/8"	3/4"	2 1/2"	4	**42-802-9**	22.45
3/8"	3/8"	1 1/8"	2 15/16"	4	**42-803-7**	21.95
7/16"	3/8"	1"	2 5/16"	3	**42-804-5**	35.85
1/2"	1/2"	5/8"	2 5/8"	4	**42-805-2**	24.50
1/2"	1/2"	1"	3"	4	**42-806-0**	27.80
1/2"	1/2"	1 1/4"	3 1/4"	4	**42-807-8**	29.50
1/2"	1/2"	1 5/8"	3 5/8"	4	**42-808-6**	33.75
1/2"	1/2"	2"	4"	4	**42-809-4**	39.30
1/2"	1/2"	3"	5"	4	**42-810-2**	48.50
5/8"	5/8"	3/4"	2 7/8"	4	**42-811-0**	33.60
5/8"	5/8"	1 1/4"	3 3/8"	4	**42-812-8**	33.05
5/8"	5/8"	1 5/8"	3 3/4"	4	**42-813-6**	35.75
5/8"	5/8"	2 1/2"	4 5/8"	4	**42-814-4**	46.20
3/4"	5/8"	1 5/8"	3 3/4"	4	**42-815-1**	47.95
3/4"	3/4"	3/4"	3"	4	**42-816-9**	36.70
3/4"	3/4"	1 1/4"	3 1/2"	4	**42-817-7**	37.70
3/4"	3/4"	1 5/8"	3 3/4"	4	**42-818-5**	41.05
3/4"	3/4"	2 1/2"	4 5/8"	4	**42-819-3**	49.35
3/4"	3/4"	3"	5 1/4"	4	**42-820-1**	53.70
7/8"	3/4"	1 7/8"	4 1/8"	5	**42-821-9**	58.85
7/8"	3/4"	3 1/2"	5 5/8"	5	**42-822-7**	70.45
1"	3/4"	1 1/8"	3 3/8"	6	**42-824-3**	51.50
1"	3/4"	2"	4 1/4"	5	**42-825-0**	64.00
1"	3/4"	3"	5 1/4"	5	**42-826-8**	78.45
1"	1"	1 1/8"	3 5/8"	5	**42-828-4**	51.50
1"	1"	1 5/8"	4 1/8"	5	**42-829-2**	59.80
1"	1"	2"	4 1/2"	5	**42-830-0**	61.75
1"	1"	3"	5 1/2"	5	**42-831-8**	79.05
1"	1"	4"	6 1/2"	5	**42-832-6**	82.85
1 1/8"	3/4"	1 1/8"	3 3/8"	6	**42-833-4**	75.15
1 1/8"	3/4"	2"	4 1/4"	6	**42-834-2**	79.50
1 1/4"	3/4"	1 1/8"	3 3/8"	6	**42-836-7**	85.10
1 1/4"	3/4"	2"	4 1/4"	6	**42-837-5**	87.45
1 1/4"	1 1/4"	2"	4 1/2"	6	**42-838-3**	81.10
1 1/4"	1 1/4"	3"	5 1/2"	6	**72-407-0**	106.80
1 1/4"	1 1/4"	4"	6 1/2"	6	**42-840-9**	120.00
1 1/4"	1 1/4"	6"	8 1/2"	6	**42-841-7**	171.40
1 1/2"	3/4"	2"	4 1/4"	6	**42-845-8**	112.50
2"	3/4"	2"	4 1/2"	8	**42-854-0**	164.55
2"	1 1/4"	4"	6 1/2"	8	**42-856-5**	200.55

HERTEL
Production Grade Tooling Since 1947

Fine Tooth M-42 Cobalt Roughing End Mills



- For all profiling applications and shallow slotting.
- Fine tooth style for harder metals (stainless steel, Inconel, mold steels).
- 2" Shanks have combination drive type.
- Noncentercutting unless noted.
- Provides longer tool life vs. coarse tooth roughers.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE EACH
3/16"	3/8"	1/2"	2 3/8"	4	**40-826-0**	$31.00
1/4"	3/8"	5/8"	2 7/16"	3	**40-827-8**	31.00
1/4"	3/8"	1 1/4"	3 1/8"	4	**40-828-6**	36.95
5/16"	3/8"	3/4"	2 1/2"	3	**40-829-4**	31.30
3/8"	3/8"	3/4"	2 1/2"	4	**40-830-2**	31.30
3/8"	3/8"	1 1/2"	3 1/4"	4	**40-831-0**	36.95
7/16"	1/2"	1 1/4"	3 1/4"	4	**40-832-8**	49.45
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-833-6**	41.05
1/2"	1/2"	2"	4"	4	**40-834-4**	54.65
1/2"	1/2"	3"	5"	4	**40-835-1**	67.50
9/16"	1/2"	1 3/8"	3 3/8"	4	**40-836-9**	49.45
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-837-7**	49.80
5/8"	5/8"	2 1/2"	4 5/8"	4	**40-838-5**	64.30
3/4"	3/4"	1 5/8"	3 3/4"	4	**40-839-3**	57.15
3/4"	3/4"	3"	5 1/4"	4	**40-840-1**	74.80
3/4"	3/4"	4"	6 1/4"	4	**40-841-9**	98.50
7/8"	3/4"	1 7/8"	4 1/8"	5	**40-842-7**	82.00
7/8"	7/8"	1 7/8"	4 1/8"	5	**40-843-5**	78.05
7/8"	7/8"	3 1/2"	5 5/8"	5	**40-844-3**	91.00
1"	3/4"	2"	4 1/4"	5	**40-845-0**	89.15
1"	1"	2"	4 1/2"	5	**40-846-8**	$86.00
1"	1"	3"	5 1/2"	5	**40-847-6**	110.10
1"	1"	4"	6 1/2"	5	**40-848-4**	115.40
1"	1"	6"	8 1/2"	5	**40-849-2**	157.60
1 1/4"	3/4"	2"	4 1/4"	6	**40-850-0**	121.80
1 1/4"	1 1/4"	2"	4 1/2"	6	**40-851-8**	113.00
1 1/4"	1 1/4"	3"	5 1/2"	6	**40-852-6**	148.75
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-853-4**	167.15
1 1/4"	1 1/4"	6"	8 1/2"	6	**40-854-2**	238.70
1 1/2"	1 1/4"	2"	4 1/2"	6	**40-855-9**	151.20
1 1/2"	1 1/4"	3"	5 1/2"	6	**40-856-7**	194.95
1 1/2"	1 1/4"	4"	6 1/2"	6	**40-857-5**	217.30
1 1/2"	1 1/4"	6"	8 1/2"	6	**40-858-3**	319.15
2"	1 1/4"	2"	4 1/2"	8	**40-859-1**	227.60
2"	1 1/4"	4"	6 1/2"	8	**40-860-9**	279.35
2"	2"	3"	6 3/4"	8	**40-861-7**	271.40
2"	2"	4"	7 3/4"	8	**40-862-5**	313.45
2"	2"	6"	9 3/4"	8	**40-863-3**	387.50
2"	2"	8"	11 3/4"	8	**40-864-1**	498.90
2"	2"	10"	13 3/4"	8	**40-865-8**	688.30



HERTEL
Production Grade Tooling Since 1947

Fine Tooth M-42 Cobalt Centercutting Roughing End Mills

- For all profiling applications and shallow slotting (≤1 x D axial depth).
- Centercutting for plunge cuts.
- Fine tooth style for harder metals (stainless, Inconel, mold steels).
- 2" shanks have combination drive.
- Longer tool life.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/4"	3/8"	1/4"	2 1/16"	4	**40-866-6**	$34.55
1/4"	3/8"	5/8"	2 7/16"	3	**40-867-4**	36.60
1/4"	3/8"	1 1/4"	3 1/8"	4	**40-868-2**	28.70
5/16"	3/8"	3/4"	2 1/2"	3	**40-869-0**	36.60
3/8"	3/8"	3/8"	2 5/32"	4	**40-870-8**	28.70
3/8"	3/8"	3/4"	2 1/2"	4	**40-871-6**	36.60
3/8"	3/8"	1 1/2"	3 1/4"	4	**40-872-4**	44.65
1/2"	1/2"	1/2"	2 1/2"	4	**40-873-2**	38.65
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-874-0**	48.25
1/2"	1/2"	2"	4"	4	**40-875-7**	65.20
5/8"	5/8"	5/8"	2 3/4"	4	**40-876-5**	46.90
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-877-3**	59.45
5/8"	5/8"	2 1/2"	4 5/8"	4	**40-878-1**	77.95
3/4"	3/4"	3/4"	2 7/8"	4	**40-879-9**	55.75
3/4"	3/4"	1 5/8"	3 3/4"	4	**40-880-7**	68.35
3/4"	3/4"	3"	5 1/4"	4	**40-881-5**	86.85
7/8"	7/8"	7/8"	3 1/8"	5	**40-882-3**	86.00
7/8"	7/8"	1 7/8"	4 1/8"	5	**40-883-1**	88.10
1"	1"	1"	3 1/2"	5	**40-884-9**	84.40
1"	1"	2"	4 1/2"	5	**40-885-6**	104.50
1"	1"	3"	5 1/2"	5	**40-886-4**	127.75
1"	1"	4"	6 1/2"	5	**40-887-2**	135.30
1 1/4"	1 1/4"	2"	4 1/2"	6	**40-888-0**	136.65
1 1/4"	1 1/4"	3"	5 1/2"	6	**40-889-8**	179.05
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-890-6**	202.90
2"	2"	3"	6 3/4"	8	**40-891-4**	327.10
2"	2"	6"	9 3/4"	8	**40-892-2**	468.65



HERTEL
Production Grade Tooling Since 1947

Metric Fine Tooth M-42 Cobalt & TiCN Coated Centercutting Roughing End Mills

- Extends tool life in profiling applications and shallow slots (≤1 x D axial depth).
- Best in harder metals - stainless steels, Inconels & mold steels.

Surface Treatments:
TiCN (Titanium Carbonitride)

- High performance applications.
- Increases lubricity and prevents "edge buildup".
- Used for very aggressive machining of stainless steels and nonferrous materials.
- Extremely hard, wear resistant.
- Provides increase of 35 to 50% in machining speeds vs. uncoated tools.

MILL DIA. (MM)	SHANK DIA. (MM)	LOC (MM)	OAL (MM)	NO. OF FLUTES (MM)	M-42 COATED PART NUMBER	PRICE	TiCN COATED PART NUMBER	PRICE
6	6	13	57	4	**40-893-0**	$58.60	–	–
8	10	19	69	4	**40-894-8**	58.60	–	–
10	10	22	72	4	**40-895-5**	58.60	**40-904-5**	$96.40
10	10	45	95	4	**40-896-3**	70.15	**40-905-2**	108.00
12	12	26	83	4	**40-897-1**	75.85	**40-906-0**	113.70
12	12	53	110	4	**40-898-9**	91.00	**40-907-8**	128.85
14	12	26	83	4	**40-899-7**	97.55	**40-908-6**	167.40
16	16	63	123	4	**40-900-3**	111.35	**40-909-4**	184.10
18	16	32	92	4	**40-901-1**	116.45	**40-910-2**	186.35
20	20	38	104	4	**40-902-9**	148.70	**40-911-0**	230.20
20	20	75	141	4	**40-903-7**	195.70	**40-912-8**	315.05

Magnetic Chuck V-Blocks & Parallels

Laminated Aluminum

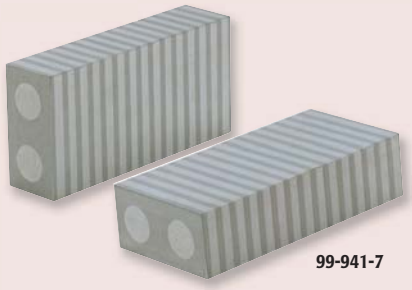
See Pg. 131



99-943-3



99-942-5



99-941-7

SHOP GRADE

Multiple Flute Fine Tooth M-42 Cobalt TiN Coated Roughing End Mills

Stub, Regular, & Long Lengths



- For use in high production milling in a variety of exotic materials.
- Fine tooth design provides a better finish than coarse tooth end mills and eliminates chipping in harder materials.
- For profiling applications and shallow slotting (≤ 1 x D axial depth).
- Fine tooth style for harder metals (Stainless, Inconel, mold steels).

Surface Treatments:
TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 7/16"	3	**47-707-5**	$23.65
1/4"	3/8"	7/8"	2 11/16"	3	**47-708-3**	36.50
1/4"	3/8"	1 1/8"	3 1/8"	4	**47-709-1**	50.75
5/16"	3/8"	7/16"	2 3/16"	3	**47-710-9**	32.60
5/16"	3/8"	3/4"	2 1/2"	3	**47-711-7**	23.65
5/16"	3/8"	1 1/8"	2 15/16"	3	**47-712-5**	51.20
3/8"	3/8"	3/4"	2 1/2"	4	**47-713-3**	23.65
3/8"	3/8"	1 1/8"	2 15/16"	4	**47-714-1**	26.45
7/16"	3/8"	1"	2 5/16"	4	**47-715-8**	37.40
1/2"	1/2"	5/8"	2 5/8"	4	**47-716-6**	26.35
1/2"	1/2"	1"	3"	4	**47-717-4**	29.20
1/2"	1/2"	1 1/4"	3 1/4"	4	**47-718-2**	30.95
1/2"	1/2"	1 5/8"	3 5/8"	4	**47-719-0**	35.40
1/2"	1/2"	2"	4"	4	**47-720-8**	41.25
1/2"	1/2"	3"	5"	4	**47-721-6**	50.90
5/8"	5/8"	3/4"	2 7/8"	4	**47-722-4**	33.60
5/8"	5/8"	1 1/4"	3 3/8"	4	**47-723-2**	34.70
5/8"	5/8"	1 5/8"	3 3/4"	4	**47-724-0**	37.55
5/8"	5/8"	2 1/2"	4 5/8"	4	**47-725-7**	47.95
3/4"	5/8"	1 5/8"	3 3/4"	4	**47-726-5**	57.40
3/4"	3/4"	3/4"	3"	4	**47-727-3**	$52.25
3/4"	3/4"	1 1/4"	3 1/2"	4	**47-728-1**	39.55
3/4"	3/4"	1 5/8"	3 3/4"	4	**47-729-9**	43.10
3/4"	3/4"	2 1/2"	4 5/8"	4	**47-730-7**	51.75
3/4"	3/4"	3"	5 1/4"	4	**47-731-5**	56.40
7/8"	3/4"	1 7/8"	4 1/8"	5	**47-732-3**	61.25
1"	3/4"	1 1/8"	3 3/8"	5	**47-733-1**	75.30
1"	3/4"	2"	4 1/4"	5	**47-734-9**	67.15
1"	3/4"	3"	5 1/4"	5	**47-735-6**	104.90
1"	1"	1 1/8"	3 5/8"	5	**47-736-4**	94.05
1"	1"	1 5/8"	4 1/8"	5	**47-737-2**	82.00
1"	1"	2"	4 1/2"	5	**47-738-0**	64.85
1"	1"	3"	5 1/2"	5	**47-739-8**	82.95
1"	1"	4"	6 1/2"	5	**47-740-6**	87.90
1 1/4"	3/4"	1 1/8"	3 3/8"	6	**47-741-4**	107.20
1 1/4"	3/4"	2"	4 1/4"	6	**47-742-2**	91.85
1 1/4"	1 1/4"	2"	4 1/2"	6	**47-743-0**	85.20
1 1/4"	1 1/4"	4"	6 1/2"	6	**47-744-8**	126.00
1 1/4"	1 1/4"	6"	8 1/2"	6	**47-745-5**	180.00
1 1/2"	3/4"	1 1/8"	3 3/8"	6	**47-746-3**	122.75



70-497-3

SHOP GRADE

4 Pc. Coarse & Fine Tooth Cobalt Roughing End Mill Sets

- Regular flute.
- Complete with wooden stand.

SIZES	COARSE TOOTH PART NO.	PRICE	FINE TOOTH PART NO.	PRICE
1/4, 5/16, 3/8, 1/2"	**70-496-5**	$102.40	**70-498-1**	$103.40
1/2, 5/8, 3/4, 1"	**70-497-3**	187.45	**70-499-9**	189.35

CUTTING TOOLS

HERTEL
Production Grade Tooling Since 1947

Multiple Flute Fine Tooth M-42 Cobalt TiN, TiCN & TiAlN Coated Roughing End Mills

Stub, Regular & Long Lengths



- For use in high production milling in a variety of exotic materials.
- Fine tooth design provides a better finish than coarse tooth end mills and eliminates chipping in harder materials.
- For profiling applications and shallow slotting (≤ 1 x D axial depth).
- 2" shanks have combination drive.
- Fine tooth style for harder metals (Stainless, Inconel, mold steels).

Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

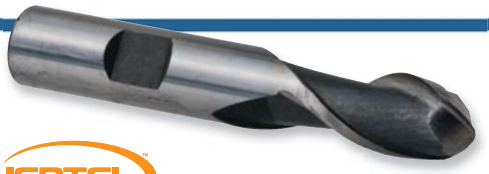
TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

TiAlN (Titanium Aluminum Nitride)

- For harder materials, high temperature and titanium alloys.
- Extends in cast and nodular irons.
- For use at higher machining speeds.
- At proper speeds, can be run in dry conditions.
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. TiCN coated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	TiN COATED PART NO.	PRICE	TiCN COATED PART NO.	PRICE	TiAlN COATED PART NO.	PRICE
3/16"	3/8"	1/2"	2 3/8"	4	47-748-9	$32.55	–	–	–	–
1/4"	3/8"	5/8"	2 7/16"	3	47-749-7	32.90	47-785-1	$34.10	–	–
1/4"	3/8"	1 5/16"	3 1/8"	4	47-750-5	38.80	–	–	–	–
5/16"	3/8"	3/4"	2 1/2"	3	47-751-3	32.90	–	–	–	–
3/8"	3/8"	3/4"	2 1/2"	4	47-752-1	32.90	47-786-9	34.10	–	–
3/8"	3/8"	1 1/2"	3 1/4"	4	47-753-9	38.80	–	–	–	–
7/16"	1/2"	1 1/4"	3 1/4"	4	47-754-7	42.15	–	–	–	–
1/2"	1/2"	1 1/4"	3 1/4"	4	47-755-4	43.05	47-787-7	44.80	–	–
1/2"	1/2"	2"	4"	4	47-756-2	57.40	47-788-5	59.55	–	–
1/2"	1/2"	3"	5"	4	47-757-0	70.90	–	–	–	–
9/16"	1/2"	1 3/8"	3 3/8"	4	47-758-8	51.90	–	–	–	–
5/8"	5/8"	1 5/8"	3 3/4"	4	47-759-6	52.25	47-789-3	54.30	–	–
5/8"	5/8"	2 1/2"	4 5/8"	4	47-760-4	66.80	47-790-1	70.05	–	–
3/4"	3/4"	1 5/8"	3 3/4"	4	47-761-2	60.00	47-791-9	62.25	–	–
3/4"	3/4"	3"	5 1/4"	4	47-762-0	78.55	47-792-7	81.40	–	–
3/4"	3/4"	4"	6 1/4"	4	47-763-8	103.50	47-793-5	108.30	–	–
7/8"	3/4"	1 7/8"	4 1/8"	5	47-764-6	85.25	47-794-3	89.25	–	–
7/8"	7/8"	1 7/8"	4 1/8"	5	47-765-3	81.85	47-795-0	85.85	–	–
1"	3/4"	1 1/2"	3 3/4"	5	–	–	47-796-8	99.05	–	–
1"	3/4"	2"	4 1/4"	5	47-766-1	93.50	–	–	–	–
1"	1"	2"	4 1/2"	5	47-767-9	90.30	47-797-6	93.65	47-812-3	$93.65
1"	1"	3"	5 1/2"	5	47-768-7	115.55	47-798-4	119.95	–	–
1"	1"	4"	6 1/2"	5	47-769-5	122.45	47-799-2	126.90	47-813-1	126.90
1"	1"	6"	8 1/2"	5	47-770-3	165.40	47-800-8	173.35	–	–
1 1/8"	1"	3 1/2"	6"	6	47-771-1	136.00	–	–	–	–
1 1/4"	3/4"	2"	4 1/4"	6	47-772-9	127.90	–	–	–	–
1 1/4"	1 1/4"	2"	4 1/2"	6	47-773-7	118.65	47-801-6	124.35	47-814-9	124.35
1 1/4"	1 1/4"	3"	5 1/2"	6	47-774-5	156.15	47-802-4	163.70	–	–
1 1/4"	1 1/4"	4"	6 1/2"	6	47-775-2	175.50	47-803-2	183.90	47-815-6	183.90
1 1/4"	1 1/4"	6"	8 1/2"	6	47-776-0	250.65	47-804-0	262.60	–	–
1 1/2"	3/4"	2"	4 1/4"	6	47-777-8	167.15	–	–	–	–
1 1/2"	1 1/4"	2"	4 1/2"	6	47-778-6	174.40	47-805-7	166.25	–	–
1 1/2"	1 1/4"	3"	5 1/2"	6	47-779-4	204.75	47-806-5	214.45	–	–
1 1/2"	1 1/4"	4"	6 1/2"	6	47-780-2	228.05	47-807-3	239.00	–	–
1 1/2"	1 1/4"	6"	8 1/2"	6	–	–	47-808-1	351.10	–	–
2"	1 1/4"	2"	4 1/2"	8	47-781-0	239.00	47-809-9	250.35	–	–
2"	1 1/4"	4"	6 1/2"	8	47-782-8	293.30	47-810-7	307.35	–	–
2"	2"	3"	6 3/4"	8	47-783-6	285.05	–	–	–	–
2"	2"	4"	7 3/4"	8	47-784-4	329.05	–	–	–	–
2"	2"	6"	9 3/4"	8	–	–	–	–	47-816-4	426.25
2"	2"	8"	11 3/4"	8	–	–	47-811-5	548.75	–	–



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS Ball Single End Mills

Regular & Long Lengths • 30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of slotting cut.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	46-501-3	$19.65
5/32"	3/8"	7/16"	2 5/16"	46-502-1	13.40
3/16"	3/8"	1/2"	2 3/8"	46-503-9	19.65
7/32"	3/8"	1/2"	2 3/8"	46-504-7	15.25
1/4"	3/8"	5/8"	2 7/16"	46-505-4	19.65
9/32"	3/8"	9/16"	2 3/8"	46-506-2	18.75
5/16"	3/8"	3/4"	2 1/2"	46-507-0	22.05
11/32"	3/8"	3/4"	2 1/2"	46-508-8	15.10
3/8"	3/8"	3/4"	2 1/2"	46-509-6	22.60
7/16"	1/2"	1"	3"	46-510-4	29.70
1/2"	1/2"	1"	3"	46-511-2	29.70
9/16"	1/2"	1"	3"	46-512-0	37.10
5/8"	5/8"	1 1/8"	3 1/8"	46-513-8	42.75
5/8"	5/8"	1 3/8"	3 1/2"	46-514-6	42.75
3/4"	1/2"	1 5/16"	3 5/16"	46-515-3	49.55
3/4"	3/4"	1 5/8"	3 7/8"	46-516-1	49.55
13/16"	3/4"	2"	4 1/4"	46-517-9	63.60
7/8"	3/4"	2"	4 1/4"	46-518-7	63.60
7/8"	7/8"	2"	4 1/4"	46-519-5	63.60
15/16"	3/4"	2 1/4"	4 1/2"	46-520-3	74.20
1"	3/4"	2 1/4"	4 1/2"	46-521-1	80.30
1"	1"	2 1/4"	4 3/4"	46-522-9	80.30
1 1/8"	1"	2 1/4"	4 3/4"	46-523-7	101.00
1 1/4"	1 1/4"	2 1/2"	5"	46-524-5	111.25
1 3/8"	1 1/4"	2 1/2"	5"	46-525-2	124.40
1 1/2"	1 1/4"	2 1/2"	5"	46-526-0	136.90



SHOP GRADE

2 Flute HSS Extended Reach Ball Single End Mills

30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of slotting cut.

MILL DIA.	SHANK DIA.	L BELOW SHANK	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	13/16"	3/8"	2 3/8"	46-527-8	$24.75
3/16"	3/8"	1 1/8"	1/2"	2 11/16"	46-528-6	24.75
1/4"	3/8"	1 1/2"	5/8"	3 1/16"	46-529-4	24.75
5/16"	3/8"	1 3/4"	3/4"	3 5/16"	46-530-2	26.50
3/8"	3/8"	1 3/4"	3/4"	3 5/16"	46-531-0	26.50
7/16"	1/2"	1 7/8"	1"	3 11/16"	46-532-8	38.40
1/2"	1/2"	2 1/4"	1"	4"	46-533-6	38.40
5/8"	5/8"	2 3/4"	1 3/8"	4 5/8"	46-534-4	52.80
3/4"	3/4"	3 3/8"	1 5/8"	5 3/8"	46-535-1	63.90
1"	1"	5"	2 1/2"	7 1/4"	46-536-9	101.85



HERTEL
Production Grade Tooling Since 1947

2 Flute HSS & M-42 Cobalt Extended Reach Ball Single End Mills

30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of slotting cut.

MILL DIA.	SHANK DIA.	L BELOW SHANK	LOC	OAL	HSS PART NO.	HSS PRICE	M-42 COBALT PART NO.	M-42 COBALT PRICE
1/8"	3/8"	13/16"	3/8"	2 3/8"	46-537-7	$30.40	46-547-6	$37.95
3/16"	3/8"	1 1/8"	1/2"	2 11/16"	46-538-5	30.40	46-548-4	37.95
1/4"	3/8"	1 1/2"	5/8"	3 1/16"	46-539-3	30.40	46-549-2	37.95
5/16"	3/8"	1 3/4"	3/4"	3 5/16"	46-540-1	32.50	46-550-0	46.65
3/8"	3/8"	1 3/4"	3/4"	3 5/16"	46-541-9	32.50	46-551-8	45.45
7/16"	1/2"	1 7/8"	1"	3 11/16"	46-542-7	47.10	–	–
1/2"	1/2"	2 1/4"	1"	4"	46-543-5	47.10	46-552-6	58.25
5/8"	5/8"	2 3/4"	1 3/8"	4 5/8"	46-544-3	64.80	–	–
3/4"	3/4"	3 3/8"	1 5/8"	5 3/8"	46-545-0	78.35	46-553-4	86.25
1"	1"	5"	2 1/2"	7 1/4"	46-546-8	124.95	46-554-2	138.20



HERTEL
Production Grade Tooling Since 1947

Multiple Flute M-42 Cobalt Ball Single End Mills

Regular & Long Lengths • 30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	46-569-0	$29.50
3/16"	3/8"	1/2"	2 3/8"	4	46-570-8	29.50
1/4"	3/8"	5/8"	2 7/16"	4	46-571-6	29.50
1/4"	3/8"	3/4"	2 7/16"	4	46-572-4	28.95
1/4"	3/8"	1"	2 13/16"	4	46-573-2	29.70
1/4"	3/8"	1 1/4"	3 1/16"	4	45-599-8	37.55
1/4"	3/8"	1 3/4"	3 9/16"	4	46-574-0	40.70
5/16"	3/8"	3/4"	2 1/2"	4	46-575-7	31.70
3/8"	3/8"	3/4"	2 1/2"	4	46-576-5	31.70
3/8"	3/8"	1"	2 3/4"	4	46-577-3	28.15
3/8"	3/8"	1 1/2"	3 1/4"	4	46-578-1	40.25
3/8"	3/8"	2 1/2"	4 1/4"	4	46-579-9	41.55
1/2"	1/2"	1 1/4"	3 1/4"	4	46-580-7	41.20
1/2"	1/2"	2"	4"	4	46-581-5	58.15
1/2"	1/2"	3"	5"	4	46-582-3	68.40
5/8"	5/8"	1 5/8"	3 3/4"	4	46-583-1	54.85
3/4"	3/4"	1 5/8"	3 7/8"	4	46-584-9	64.05
3/4"	3/4"	3"	5 1/4"	4	46-585-6	83.45
3/4"	3/4"	4"	6 1/8"	4	46-586-4	94.60
7/8"	7/8"	1 7/8"	4 1/8"	4	46-587-2	82.85
1"	1"	2"	4 1/2"	4	46-588-0	100.90
1"	1"	2"	5 1/2"	4	46-589-8	135.00
1"	1"	4"	6 1/2"	4	46-590-6	144.50
1"	1"	6"	8 1/2"	4	46-591-4	216.90
1 1/4"	1 1/4"	2"	4 1/2"	4	46-592-2	165.35
1 1/4"	1 1/4"	2"	4 1/2"	6	46-593-0	161.65
1 1/2"	1 1/4"	2"	4 1/2"	4	46-594-8	195.75
1 1/2"	1 1/4"	2"	4 1/2"	6	46-595-5	199.45

SHOP GRADE

2 Flute HSS Ball Double End Mills

30° Helix



MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	3 1/16"	46-728-2	$27.05
3/16"	3/8"	7/16"	3 1/8"	46-729-0	25.35
1/4"	3/8"	1/2"	3 1/8"	46-730-8	27.05
5/16"	3/8"	9/16"	3 1/8"	46-731-6	27.05
3/8"	3/8"	9/16"	3 1/8"	46-732-4	27.05
7/16"	1/2"	13/16"	3 3/4"	46-733-2	38.00
1/2"	1/2"	13/16"	3 3/4"	46-734-0	38.00
5/8"	5/8"	1 1/8"	4 1/2"	46-735-7	52.05
3/4"	3/4"	1 5/16"	5"	46-736-5	65.95
1	1	1 5/8"	5 7/8"	46-737-3	100.00

- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of a slotting cut.

HERTEL
Production Grade Tooling Since 1947



2 Flute HSS Ball Double End Mills

Regular & Long Lengths • 30° Helix

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/16"	2 11/16"	46-738-1	$34.45
1/8"	3/8"	3/8"	3 1/16"	46-739-9	39.05
5/32"	3/8"	7/16"	3 1/8"	46-740-7	40.25
3/16"	3/8"	9/32"	3 1/8"	46-741-5	36.20
7/32"	3/8"	1/2"	3 1/8"	46-743-1	40.25
1/4"	3/8"	3/8"	2 7/8"	46-744-9	42.35
1/4"	3/8"	1/2"	3 1/8"	46-745-6	39.05
9/32"	3/8"	9/16"	3 1/8"	46-746-4	40.25
5/16"	3/8"	9/16"	3 1/8"	46-747-2	39.05
11/32"	3/8"	9/16"	3 1/8"	46-748-0	40.25
3/8"	3/8"	9/16"	3 1/8"	46-749-8	39.05
13/32"	1/2"	13/16"	3 3/4"	46-750-6	37.40
7/16"	1/2"	13/16"	3 3/4"	46-751-4	54.85
1/2"	1/2"	13/16"	3 3/4"	46-752-2	54.85
5/8"	5/8"	1 1/8"	4 1/2"	46-753-0	75.10
3/4"	3/4"	1 5/16"	5"	46-754-8	95.20
1	1	1 5/8"	5 7/8"	46-755-5	144.35

- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of a slotting cut.

SHOP GRADE

Multiple Flute M-42 Cobalt Ball Single End Mills

Regular & Long Lengths • 30° Helix



MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	4	46-557-5	$20.45
3/16"	3/8"	1/2"	2 3/8"	4	46-558-3	20.45
1/4"	3/8"	5/8"	2 7/16"	4	46-559-1	20.45
5/16"	3/8"	3/4"	2 1/2"	4	46-560-9	21.95
3/8"	3/8"	3/4"	2 1/2"	4	46-561-7	21.95
7/16"	1/2"	1 1/4"	3 1/4"	4	46-562-5	50.75
1/2"	1/2"	1 1/4"	3 1/4"	4	46-563-3	28.55
5/8"	5/8"	1 5/8"	3 3/4"	4	46-564-1	38.00
3/4"	3/4"	1 5/8"	3 7/8"	4	46-565-8	44.40
1"	1"	2"	4 1/2"	4	46-566-6	69.90
1 1/4"	1 1/4"	2"	4 1/2"	6	46-567-4	112.00
1 1/2"	1 1/4"	2"	4 1/2"	6	46-568-2	138.20

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.

CUTTING TOOLS



SHOP GRADE

4 Flute HSS Ball Single End Mills

Regular & Long Lengths • 30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 1/2"	46-596-3	$23.35
1/4"	3/8"	1 1/4"	3 1/16"	46-597-1	26.65
5/16"	3/8"	1"	2 3/4"	46-598-9	22.25
5/16"	3/8"	1 1/2"	3 1/4"	46-599-7	24.20
3/8"	3/8"	1"	2 3/4"	46-600-3	26.25
3/8"	3/8"	1 1/2"	3 1/4"	46-601-1	30.15
1/2"	1/2"	1"	3 1/4"	46-602-9	31.65
1/2"	1/2"	2"	4"	46-603-7	35.70
5/8"	5/8"	1 5/8"	3 3/4"	46-604-5	46.05
5/8"	5/8"	2 1/2"	4 5/8"	46-605-2	50.40
3/4"	3/4"	1 5/8"	3 7/8"	46-606-0	53.25
3/4"	3/4"	3"	5 1/4"	46-607-8	63.30
7/8"	7/8"	1 7/8"	4 1/8"	46-608-6	59.25
1"	1"	2"	4 1/2"	46-609-4	89.30
1"	1"	4"	6 1/2"	46-610-2	102.20
1 1/4"	1 1/4"	2"	4 1/2"	46-611-0	105.25
1 1/2"	1 1/4"	2"	4 1/2"	46-612-8	143.65



HERTEL Production Grade Tooling Since 1947

4 Flute HSS Ball Single End Mills

Regular, Long & Extra Long Lengths • 30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 1/2"	46-613-6	$33.65
1/4"	3/8"	1 1/4"	3 1/16"	46-614-4	38.45
5/16"	3/8"	3/4"	2 1/2"	46-615-1	29.85
5/16"	3/8"	1"	2 3/4"	46-616-9	31.80
5/16"	3/8"	1 1/2"	3 1/4"	46-617-7	34.95
3/8"	3/8"	3/4"	2 1/2"	46-618-5	37.70
3/8"	3/8"	1 1/2"	3 1/4"	46-619-3	43.55
1/2"	1/2"	1 1/2"	3 1/4"	46-620-1	45.65
1/2"	1/2"	2"	4"	46-621-9	51.05
5/8"	5/8"	1 5/8"	3 3/4"	46-622-7	66.45
5/8"	5/8"	2 1/2"	4 5/8"	46-623-5	72.70
3/4"	3/4"	1 5/8"	3 7/8"	46-624-3	76.85
3/4"	3/4"	3"	5 1/4"	46-625-0	91.30
7/8"	7/8"	1 7/8"	4 1/8"	46-626-8	85.50
1"	1"	2"	4 1/2"	46-627-6	128.80
1"	1"	4"	6 1/2"	46-628-4	147.50
1 1/4"	1 1/4"	2"	4 1/2"	46-629-2	151.90
1 1/2"	1 1/4"	2"	4 1/2"	46-630-0	207.35



SHOP GRADE

2 Flute M-42 Cobalt Ball Single End Mills

30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of a slotting cut.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	46-631-8	$17.50
3/16"	3/8"	1/2"	2 3/8"	46-632-6	16.65
1/4"	3/8"	5/8"	2 7/16"	46-633-4	18.45
5/16"	3/8"	3/4"	2 1/2"	46-634-2	20.65
3/8"	3/8"	3/4"	2 1/2"	46-635-9	20.65
7/16"	1/2"	1"	3"	46-636-7	22.65
1/2"	1/2"	1"	3"	46-637-5	24.10
9/16"	1/2"	1 1/8"	3 1/8"	46-638-3	65.15
5/8"	1/2"	1 1/8"	3 1/8"	46-639-1	69.75
5/8"	5/8"	1 3/8"	3 1/2"	46-640-9	35.95
3/4"	1/2"	1 5/16"	3 1/8"	46-641-7	81.50
3/4"	3/4"	1 5/8"	3 7/8"	46-642-5	48.40
7/8"	7/8"	2"	4 1/4"	46-643-3	101.10
1"	1"	2 1/4"	4 3/4"	46-644-1	77.75
1 1/8"	1"	2 1/4"	4 3/4"	46-645-8	89.70
1 1/4"	1 1/4"	2 1/2"	5"	46-646-6	166.15



HERTEL Production Grade Tooling Since 1947

2 Flute M-42 Cobalt Ball Single End Mills

Regular & Long Lengths • 30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of a slotting cut.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	46-647-4	$24.95
3/16"	3/8"	1/2"	2 3/8"	46-648-2	23.75
1/4"	3/8"	5/8"	2 7/16"	46-649-0	26.60
5/16"	3/8"	3/4"	2 1/2"	46-650-8	29.75
3/8"	3/8"	3/4"	2 1/2"	46-651-6	29.75
7/16"	1/2"	1"	3"	46-652-4	32.35
1/2"	1/2"	1"	3"	46-653-2	34.40
3/4"	3/4"	1 5/8"	3 7/8"	46-654-0	69.85
7/8"	3/4"	2"	4 1/4"	46-655-7	88.20
1"	1"	2 1/4"	4 3/4"	46-656-5	112.15
1 1/8"	1"	2 1/4"	4 3/4"	46-657-3	129.50



SHOP GRADE

2 Flute HSS Ball Single End Mills

Regular & Long Lengths • 30° Helix

- For general applications in ferrous materials.
- Designed for milling radius bottom slots, fillets and special contours.
- Centercutting design is used to plunge into solid material at the beginning of slot cut.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	3/8"	3/8"	2 5/16"	46-478-4	$13.65
3/16"	3/8"	1/2"	2 3/8"	46-479-2	13.65
1/4"	3/8"	5/8"	2 7/16"	46-480-0	13.65
5/16"	3/8"	3/8"	2 1/2"	46-481-8	15.30
3/8"	3/8"	3/4"	2 1/2"	46-482-6	15.80
7/16"	1/2"	1"	3"	46-483-4	20.80
1/2"	1/2"	1"	3"	46-484-2	20.80
9/16"	1/2"	1"	3"	46-485-9	26.00
5/8"	5/8"	1 3/8"	3 3/8"	46-486-7	28.25
5/8"	1/2"	1 1/8"	3 1/8"	46-487-5	25.25
3/4"	1/2"	1 5/8"	3 5/8"	46-488-3	29.80
3/4"	3/4"	1 5/8"	3 7/8"	46-489-1	34.70
13/16"	3/4"	2"	4 1/4"	46-490-9	44.05
7/8"	3/4"	2"	4 1/4"	46-491-7	44.05
7/8"	7/8"	2"	4 1/4"	46-492-5	44.05
15/16"	3/4"	2 1/4"	4 1/2"	46-493-3	51.40
1"	3/4"	2 1/4"	4 9/16"	46-494-1	55.65
1"	1"	2 1/4"	4 3/4"	46-495-8	55.65
1 1/8"	1"	2 1/4"	4 3/4"	46-496-6	70.00
1 1/4"	1 1/4"	2 1/2"	5"	46-497-4	77.10
1 3/8"	1 1/4"	2 1/2"	5"	46-498-2	86.20
1 1/2"	1 1/4"	2 1/2"	5"	46-499-0	94.85
2"	1 1/4"	2 1/2"	5"	46-500-5	129.80



HERTEL Production Grade Tooling Since 1947

Multiple Flute Fine Tooth M-42 Cobalt Ball Roughing End Mills

- Fine tooth design for harder metals.
- For all profiling applications and shallow slotting.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/2"	1/2"	1 1/4"	3 1/4"	4	47-935-2	$65.25
5/8"	5/8"	1 5/8"	3 3/4"	4	47-936-0	80.40
3/4"	3/4"	1 5/8"	3 7/8"	4	47-937-8	86.85
1"	1"	2"	4 1/2"	5	47-939-4	126.45



HERTEL
Production Grade Tooling Since 1947

Multiple Flute Fine Tooth M-42 Cobalt TiN & TiCN Coated Ball Roughing End Mills

Non-Centercutting

- Fine tooth design for harder metals.
- Coating provides lubricity, aids in smooth cutting action and prolongs tool life.
- For all profiling applications and shallow slotting (≤ 1 x D Axial Depth).

Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Reduces chipping.
- Provides an ability to increase machine speeds by 10 to 20% vs. uncoated tools.

TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	TiN COATED PART NO.	PRICE	TiCN COATED PART NO.	PRICE
1/2"	1/2"	1 1/4"	3 1/4"	4	**47-957-6**	$68.50	**47-960-0**	$72.50
3/4"	3/4"	1 5/8"	3 7/8"	4	**47-958-4**	90.25	**47-961-8**	95.60
1"	1"	2"	4 1/2"	5	**47-959-2**	132.85	**47-963-4**	140.50



HERTEL
Production Grade Tooling Since 1947

Multiple Flute Coarse Tooth M-42 Cobalt TiCN Coated Ball Roughing End Mills

Stub, Regular & Long Lengths

- Best for heavy cuts, deep slotting and pocketing applications.
- Excellent in all steels and ferrous materials.

Surface Treatments:

TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	TiCN COATED PART NO.	PRICE
1/2"	1/2"	1 1/4"	3 1/4"	4	**47-930-3**	$72.50
3/4"	3/4"	1 5/8"	3 7/8"	4	**47-931-1**	95.60
3/4"	3/4"	3"	5 1/4"	4	**47-932-9**	124.35
1"	1"	2"	4 1/2"	5	**47-933-7**	140.50
1"	1"	4"	6 1/2"	5	**47-934-5**	188.15

SHOP GRADE

Coarse Tooth M-42 Cobalt Ball Roughing End Mills



MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/4"	3/8"	5/8"	2 7/16"	3	**40-975-5**	$58.45
5/16"	3/8"	3/4"	2 1/2"	3	**40-976-3**	58.45
3/8"	3/8"	3/4"	2 1/2"	4	**40-977-1**	58.45
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-978-9**	47.35
1/2"	1/2"	2 1/2"	4 1/2"	4	**40-979-7**	71.15
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-980-5**	57.70
5/8"	5/8"	2 1/2"	4 5/8"	4	**40-981-3**	85.85
3/4"	3/4"	1 3/4"	4"	4	**40-982-1**	76.90
3/4"	3/4"	3"	5 1/4"	4	**40-983-9**	87.75
1"	3/4"	2"	4 1/2"	5	**40-984-7**	197.30
1"	1"	2"	4 1/2"	5	**40-985-4**	98.75
1"	1"	4"	6 1/2"	5	**40-986-2**	122.85
1 1/4"	3/4"	2"	4 1/2"	6	**40-987-0**	172.40
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-988-8**	190.15
1 1/2"	3/4"	2"	4 1/2"	6	**40-989-6**	279.15

- Best for heavy cuts, deep slotting & pocketing applications.
- Excellent in mild steels.

HERTEL
Production Grade Tooling Since 1947

Coarse Tooth M-42 Cobalt Ball Roughing End Mills



MILL DIA.	SHANK DIA.	LOC	OAL	NO. OF FLUTES	PART NUMBER	PRICE
1/2"	1/2"	1 1/4"	3 1/4"	4	**40-990-4**	$65.90
5/8"	5/8"	1 5/8"	3 3/4"	4	**40-991-2**	80.40
3/4"	3/4"	1 5/8"	3 7/8"	4	**40-992-0**	86.85
3/4"	3/4"	3"	5 1/4"	4	**40-993-8**	122.20
1"	1"	2"	4 1/2"	5	**40-994-6**	137.55
1"	1"	4"	6 1/2"	5	**40-995-3**	171.10
1 1/4"	1 1/4"	4"	6 1/2"	6	**40-996-1**	264.85
2"	2"	4"	7 3/4"	6	**40-997-9**	411.55

- Best for heavy cuts, deep slotting & pocketing applications.
- Excellent in mild steels.
- 2" Shank has combination drive.

INDUSTRIAL
PERFORMANCE GRADE

2 Flute NC/CNC Centercutting Single End Mills

Solid Micrograin Carbide and TiN Coated - 30° Helix



- Tolerances:

	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	All Sizes	+.001/-.000"

Carbide

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/16"	1/8"	3/16"	1 1/2"	**45-247-4**	$17.10
3/32"	1/8"	3/8"	1 1/2"	**45-248-2**	17.10
1/8"	1/8"	1/2"	1 1/2"	**45-249-0**	17.10
3/16"	3/16"	5/8"	2"	**45-250-8**	22.35
1/4"	1/4"	3/4"	2 1/2"	**45-251-6**	25.45
5/16"	5/16"	13/16"	2 1/2"	**45-255-7**	32.85
3/8"	3/8"	7/8"	2 1/2"	**45-256-5**	41.65
7/16"	7/16"	1"	2 3/4"	**45-257-3**	63.40
1/2"	1/2"	1"	3"	**45-258-1**	73.85
5/8"	5/8"	1 1/4"	3 1/2"	**45-259-9**	130.50
3/4"	3/4"	1 1/2"	4"	**45-260-7**	192.65

TiN Coated

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/16"	1/8"	3/16"	1 1/2"	**45-253-2**	$20.75
1/4"	1/4"	3/4"	2 1/2"	**45-254-0**	32.30

Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Requires increase of 25 to 30% in machining speeds vs. HSS.

CUTTING TOOLS





SHOP GRADE

HSS 2-Flute Ball End Mill Sets —Single End

- 6 and 9 piece sets.
- 1/8" to 3/8" with 3/8" shank .
- 7/16" & 1/2" with 1/2" shank.
- 5/8" & 3/4" with straight shank.
- Sets supplied in wooden block.

NO. OF PCS.	SIZES IN SET	PART NUMBER	PRICE
6	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	70-319-9	$97.00
9	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4"	70-320-7	182.40



INDUSTRIAL PERFORMANCE GRADE

2 Flute Centercutting Single End Mills

Solid Micrograin Carbide Stub, Regular, Long and Extra Long Lengths - 30° RH Spiral RHC

- Length of cut may vary on mill dia. 1/32" - 7/64".
- Higher rake and helix angle.
- All end mills are centercutting, allowing for 3 axis capability of plunging, ramping and profile milling.
- Two flute end mills are excellent for deep slotting applications and also for use on aluminum and nonferrous materials.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	17/64 - 1 1/4"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	1/16"	1 1/2"	45-150-0	$9.55
1/32"	1/8"	3/32"	1 1/2"	45-151-8	9.55
3/64"	1/8"	1/8"	1 1/2"	45-152-6	9.55
1/16"	1/8"	1/8"	1 1/2"	45-153-4	7.05
1/16"	1/8"	3/16"	1 1/2"	45-154-2	8.25
5/64"	1/8"	1/4"	1 1/2"	45-155-9	9.00
3/32"	1/8"	3/16"	1 1/2"	45-156-7	6.70
3/32"	1/8"	3/8"	1 1/2"	45-157-5	7.85
1/8"	1/8"	1/4"	1 1/2"	45-158-3	6.50
1/8"	1/8"	1/2"	1 1/2"	45-159-1	7.25
1/8"	1/8"	3/4"	1 1/2"	45-160-9	16.70
1/8"	1/8"	3/4"	2 1/4"	45-161-7	16.30
1/8"	1/8"	1"	3"	45-162-5	16.30
5/32"	5/32"	3/4"	2"	45-163-3	23.55
5/32"	3/16"	5/16"	2"	45-164-1	9.15
5/32"	3/16"	9/16"	2"	45-165-8	10.70
3/16"	3/16"	5/16"	2"	45-166-6	8.65
3/16"	3/16"	5/8"	2"	45-167-4	10.10
3/16"	3/16"	3/4"	2 1/2"	45-168-2	18.00
3/16"	3/16"	1"	2 1/2"	45-169-0	19.25
3/16"	3/16"	1 1/8"	3"	45-170-8	18.00
7/32"	7/32"	1"	2 1/2"	45-171-6	28.65
7/32"	1/4"	7/16"	2"	45-172-4	13.00
7/32"	1/4"	5/8"	2 1/2"	45-173-2	13.35
1/4"	1/4"	1/2"	2"	45-174-0	11.30
1/4"	1/4"	3/4"	2 1/2"	45-175-7	12.15
1/4"	1/4"	1 1/8"	3"	45-176-5	20.85
1/4"	1/4"	1 1/4"	2 1/2"	45-177-3	30.20

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/4"	1/4"	1 1/2"	4"	45-178-1	$22.00
9/32"	5/16"	3/4"	2 1/2"	45-179-9	21.35
5/16"	5/16"	1/2"	2"	45-180-7	15.45
5/16"	5/16"	13/16"	2 1/2"	45-181-5	17.10
5/16"	5/16"	1 1/8"	3"	45-182-3	25.70
3/8"	3/8"	5/8"	2"	45-183-1	19.05
3/8"	3/8"	7/8"	2 1/2"	45-184-9	21.30
3/8"	3/8"	1"	4"	45-185-6	33.95
3/8"	3/8"	1 1/8"	3"	45-186-4	28.95
3/8"	3/8"	1 3/8"	2 1/2"	45-187-2	42.85
3/8"	3/8"	1 3/4"	4"	45-188-0	31.75
7/16"	7/16"	5/8"	2 1/2"	45-189-8	23.55
7/16"	7/16"	7/8"	2 1/2"	45-190-6	23.55
7/16"	7/16"	2"	4"	45-191-4	46.75
1/2"	1/2"	5/8"	2 1/2"	45-192-2	31.45
1/2"	1/2"	1"	3"	45-193-0	34.05
1/2"	1/2"	1 1/2"	3"	45-194-8	47.00
1/2"	1/2"	2"	4"	45-195-5	46.50
1/2"	1/2"	3"	6"	45-196-3	67.20
9/16"	9/16"	1 1/8"	3 1/2"	45-197-1	58.15
5/8"	5/8"	3/4"	3"	45-198-9	60.10
5/8"	5/8"	1 1/4"	3 1/2"	45-199-7	65.65
11/16"	3/4"	1"	3"	45-201-1	93.55
3/4"	3/4"	1"	3"	45-202-9	86.35
3/4"	3/4"	1 1/2"	4"	45-203-7	96.25
3/4"	3/4"	2 1/4"	5"	45-204-5	152.55
1"	1"	1 1/2"	4"	45-205-2	144.00
1"	1"	2 1/4"	5"	45-206-0	252.75

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	5/64"	1 1/2"	45-207-8	$12.45
1/16"	1/8"	1/8"	1 1/2"	45-208-6	9.55
1/16"	1/8"	3/16"	1 1/2"	45-209-4	11.60
3/32"	1/8"	3/8"	1 1/2"	45-210-2	10.40
1/8"	1/8"	1/4"	1 1/2"	45-211-0	9.55
1/8"	1/8"	1/2"	1 1/2"	45-212-8	10.40
1/8"	1/8"	3/4"	2 1/4"	45-213-6	20.25
1/8"	1/8"	1"	3"	45-214-4	25.60
5/32"	3/16"	9/16"	2"	45-215-1	14.30
3/16"	3/16"	5/16"	2"	45-216-9	13.35
3/16"	3/16"	5/8"	2"	45-217-7	15.15
3/16"	3/16"	3/4"	2 1/2"	45-218-5	23.55
3/16"	3/16"	1 1/8"	3"	45-219-3	28.00
7/32"	1/4"	5/8"	2 1/2"	45-220-1	18.40
1/4"	1/4"	1/2"	2"	45-221-9	17.25
1/4"	1/4"	3/4"	2 1/2"	45-222-7	19.45
1/4"	1/4"	1 1/2"	4"	45-223-5	39.45
9/32"	5/16"	3/4"	2 1/2"	45-224-3	21.35

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
5/16"	5/16"	1/2"	2"	45-225-0	$20.25
5/16"	5/16"	13/16"	2 1/2"	45-226-8	26.25
5/16"	5/16"	1 1/8"	3"	45-227-6	35.85
3/8"	3/8"	3/8"	2"	45-228-4	25.60
3/8"	3/8"	7/8"	2 1/2"	45-229-2	29.20
3/8"	3/8"	1 1/8"	3"	45-230-0	45.05
3/8"	3/8"	1 3/4"	4"	45-231-8	61.40
7/16"	7/16"	5/8"	2 1/2"	45-232-6	37.70
7/16"	7/16"	1"	2 3/4"	45-233-4	40.80
7/16"	7/16"	2"	4"	45-234-2	71.50
1/2"	1/2"	5/8"	2 1/2"	45-235-9	41.80
1/2"	1/2"	1"	3"	45-236-7	47.10
1/2"	1/2"	2"	4"	45-237-5	81.05
9/16"	9/16"	1 1/8"	3 1/2"	45-239-1	80.05
5/8"	5/8"	1 1/4"	3 1/2"	45-241-7	87.05
3/4"	3/4"	1 1/2"	4"	45-244-1	173.60
1"	1"	1 1/2"	4"	45-246-6	209.90
–	–	–	–	–	–



INDUSTRIAL PERFORMANCE GRADE

2 Flute TiN Coated Centercutting Single End Mills

Solid Micrograin Carbide, Stub, Regular, Long and Extra Long Lengths - 30° RH Spiral RHC

- Surface Treatments: TiN (Titanium Nitride).
- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Requires increase of 25 to 30% in machining speeds vs. HSS.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	9/32 - 1"	+.000/-.003"

ACCUPRO® High Performance Milling

3 Flute Zirconium Coated Extended Reach High Performance Single End Mills for Aluminum

Solid Micrograin Carbide Stub Length with Long Shanks, with Relieved Neck - 37° Helix



- Best for heavy cuts, deep slotting and pocketing applications.
- Excellent in all steels and ferrous materials.
- Necked shank for long reach.
- Heavy chip loads per tooth.
- Extended length necked tools provide strength and rigidity for deep pocketing applications.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0002"
Cutting Dia.	All Sizes	+.0001/-.0004"

Surface Treatments: ZrN (Zirconium Nitride)

- Higher oxidation temperature than TiN.
- Offers an improved finish when used in aluminum, brass, copper and other nonferrous materials.
- Resists sticking of heated aluminum.
- Increases lubricity and prevents "edge buildup".

MILL DIA.	SHANK DIA.	LOC	NECK LENGTH	OAL	PART NUMBER	PRICE
1/8"	1/8"	1/4"	1/2"	1 1/2"	**37-344-9**	$28.45
3/16"	3/16"	5/16"	1/2"	2"	**37-345-6**	35.35
1/4"	1/4"	3/8"	1 1/8"	2 1/2"	**37-346-4**	44.45
1/4"	1/4"	3/4"	2 1/8"	4"	**37-347-2**	66.65
5/16"	5/16"	7/16"	1 1/8"	2 1/2"	**37-348-0**	47.10
5/16"	5/16"	13/16"	2 1/8"	4"	**37-349-8**	79.65
3/8"	3/8"	1/2"	1 1/8"	2 1/2"	**37-350-6**	50.30
3/8"	3/8"	1"	2 1/8"	4"	**37-351-4**	74.20
1/2"	1/2"	5/8"	1 3/8"	3"	**37-352-2**	74.75
1/2"	1/2"	5/8"	2 3/8"	4"	**37-353-0**	118.35
1/2"	1/2"	5/8"	3 3/8"	6"	**37-354-8**	133.60
1/2"	1/2"	1 1/4"	3 3/8"	6"	**37-355-5**	172.80
5/8"	5/8"	3/4"	1 5/8"	3 1/2"	**37-356-3**	186.60
5/8"	5/8"	3/4"	2 3/8"	5"	**37-357-1**	198.25
5/8"	5/8"	1 5/8"	3 3/8"	6"	**37-358-9**	213.85
3/4"	3/4"	1"	1 5/8"	4"	**37-359-7**	174.45
3/4"	3/4"	1"	2 1/2"	5"	**37-360-5**	209.40
3/4"	3/4"	1 5/8"	3 3/8"	6"	**37-361-3**	269.40
1"	1"	1 1/4"	2 1/8"	5"	**37-362-1**	316.40
1"	1"	1 1/4"	3 3/8"	6"	**37-363-9**	311.65
1"	1"	2"	4 3/8"	7"	**37-364-7**	395.35



Solid Carbide



TiN Coated

INDUSTRIAL PERFORMANCE GRADE

4 Flute NC/CNC Centercutting Single End Mills

Solid Micrograin Carbide & TiN Coated 30° Helix

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Requires increase of 25 to 30% in machining speeds vs. HSS.

Tolerances:	Size	Tolerance
Cutting Dia.	All Sizes	+.001/-.000"
Shank Dia.	All Sizes	+.000/-.0005"

Solid Carbide End Mills

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/16"	1/8"	3/16"	1 1/2"	**45-436-3**	$17.10
3/32"	1/8"	3/8"	1 1/2"	**45-437-1**	17.10
1/8"	1/8"	1/2"	1 1/2"	**45-438-9**	17.10
5/32"	3/16"	9/16"	2"	**45-439-7**	21.65
3/16"	3/16"	5/8"	2"	**45-440-5**	22.35
1/4"	1/4"	3/4"	2 1/2"	**45-441-3**	25.45
5/16"	5/16"	13/16"	2 1/2"	**45-442-1**	32.85
3/8"	3/8"	7/8"	2 1/2"	**45-443-9**	41.65
7/16"	7/16"	1"	2 3/4"	**45-444-7**	63.40
1/2"	1/2"	1"	3"	**45-445-4**	73.85
9/16"	9/16"	1 1/8"	3 1/2"	**45-446-2**	116.90
5/8"	5/8"	1 1/4"	3 1/2"	**45-447-0**	130.50
3/4"	3/4"	1 1/2"	4"	**45-448-8**	192.65

TiN Coated End Mills

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	3/32"	1 1/2"	**45-451-2**	$24.75
1/16"	1/8"	3/16"	1 1/2"	**45-452-0**	20.75
3/32"	1/8"	3/8"	1 1/2"	**45-453-8**	20.75
1/8"	1/8"	1/2"	1 1/2"	**45-454-6**	20.75
3/16"	3/16"	5/8"	2"	**45-455-3**	29.45
1/4"	1/4"	3/4"	2 1/2"	**45-456-1**	32.30
3/8"	3/8"	7/8"	2 1/2"	**45-457-9**	53.45
1/2"	1/2"	1"	3"	**45-458-7**	90.20



MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	1/8"	1/4"	1 1/2"	**37-217-7**	$16.10
1/8"	1/8"	1/2"	2"	**37-218-5**	18.05
5/32"	3/16"	9/16"	2"	**37-219-3**	19.25
3/16"	3/16"	5/8"	2 1/2"	**37-220-1**	23.10
3/16"	3/16"	3/4"	2 1/2"	**37-221-9**	33.90
1/4"	1/4"	3/8"	2 1/2"	**37-222-7**	29.85
1/4"	1/4"	1/2"	2 1/2"	**37-223-5**	29.60
1/4"	1/4"	5/8"	2 1/2"	**37-224-3**	30.65
1/4"	1/4"	3/4"	2 1/2"	**37-225-0**	33.20
1/4"	1/4"	1"	2 1/2"	**37-226-8**	36.15
1/4"	1/4"	2"	4"	**37-227-6**	46.15
5/16"	5/16"	13/16"	2 1/2"	**37-228-4**	39.45
3/8"	3/8"	1/2"	2 1/2"	**37-229-2**	43.95
3/8"	3/8"	3/4"	2 1/2"	**37-230-0**	39.70
3/8"	3/8"	1"	2 1/2"	**37-231-8**	48.80
3/8"	3/8"	1 1/4"	3"	**37-232-6**	51.25
3/8"	3/8"	2"	4"	**37-233-4**	74.00
1/2"	1/2"	5/8"	3"	**37-234-2**	67.15
1/2"	1/2"	3/4"	3"	**37-235-9**	57.30
1/2"	1/2"	1"	3"	**37-236-7**	58.85
1/2"	1/2"	1 1/4"	3"	**37-237-5**	74.75
1/2"	1/2"	1 1/2"	4"	**37-238-3**	80.10
1/2"	1/2"	2"	4"	**37-239-1**	106.25
5/8"	5/8"	1 5/8"	3 1/2"	**37-240-9**	114.25
3/4"	3/4"	1 1/2"	4"	**37-241-7**	134.95
3/4"	3/4"	1 5/8"	4"	**37-242-5**	157.70
3/4"	3/4"	2"	5"	**37-243-3**	165.55
3/4"	3/4"	3"	6"	**37-244-1**	226.75
1"	1"	2"	5"	**37-245-8**	268.15

ACCUPRO® High Performance Milling

3 Flute Zirconium Coated High Performance Single End Mills for Aluminum

Solid Micrograin Carbide 37° Helix

- Edge prep for process vibration dampening.
- Rough and finish.
- Improved chip flow geometries.
- Heavier chip loads by 2 to 3 times.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.002"
Cutting Dia.	All Sizes	+.000/-.005"

Surface Treatments: ZrN (Zirconium Nitride)

- Higher oxidation temperature than TiN.
- Offers an improved finish when used in aluminum, brass, copper and other nonferrous materials.
- Resists sticking of heated aluminum.
- Increases lubricity and prevents "edge buildup".

CUTTING TOOLS



INDUSTRIAL PERFORMANCE GRADE

4 Flute Centercutting TiN & TiAlN Single End Mills

Solid Micrograin Carbide - 30° RH Spiral RHC Stub, Regular, Long and Extra Long Lengths

Surface Treatments:

TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Requires increase of 25 to 30% in machining speeds vs. HSS.

TiAlN (Titanium Aluminum Nitride)

- Recommended for difficult to machine materials.
- Used for aggressive machining of steels, high alloy carbon steels, nickel-based high-temperature alloys and titanium alloys.
- Extremely hard, wear resistant.
- Requires increase of 75 to 100% in machining speeds vs. HSS.

- Tolerances:

Size	Tolerance
Shank Dia.	All Sizes	+.000/-.005"
Cutting Dia.	3/32 - 1/4"	+.000/-.002"
	9/32 - 1"	+.000/-.0003"

TiN Coated End Mills

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
3/32"	1/8"	3/8"	1 1/2"	**45-378-7**	$10.40
7/64"	1/8"	3/8"	1 1/2"	**45-379-5**	14.15
1/8"	1/8"	1/4"	1 1/2"	**45-380-3**	9.55
1/8"	1/8"	1/2"	1 1/2"	**45-381-1**	9.25
1/8"	1/8"	3/4"	2 1/4"	**45-382-9**	20.25
1/8"	1/8"	1"	3"	**45-383-7**	25.60
9/64"	3/16"	1/2"	2"	**45-384-5**	18.30
5/32"	3/16"	9/16"	2"	**45-385-2**	14.30
3/16"	3/16"	5/16"	2"	**45-386-0**	13.35
3/16"	3/16"	5/8"	2"	**45-387-8**	12.40
3/16"	3/16"	3/4"	2 1/2"	**45-388-6**	23.55
3/16"	3/16"	1 1/8"	3"	**45-389-4**	28.00
13/64"	1/4"	5/8"	2 1/2"	**45-390-2**	25.05
7/32"	1/4"	5/8"	2 1/2"	**45-391-0**	18.40
1/4"	1/4"	1/2"	2"	**45-392-8**	17.25
1/4"	1/4"	3/4"	2 1/2"	**45-393-6**	16.05
1/4"	1/4"	1 1/8"	3"	**45-394-4**	28.15
1/4"	1/4"	1 1/2"	4"	**45-395-1**	39.45
9/32"	5/16"	3/4"	2 1/2"	**45-396-9**	21.35
5/16"	5/16"	1/2"	2"	**45-397-7**	20.25
5/16"	5/16"	13/16"	2 1/2"	**45-398-5**	22.35
5/16"	5/16"	1 1/8"	3"	**45-399-3**	35.85
5/16"	5/16"	1 5/8"	4"	**45-400-9**	43.00
11/32"	3/8"	7/8"	2 1/2"	**45-401-7**	27.15

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
3/8"	3/8"	5/8"	2"	**45-402-5**	$25.60
3/8"	3/8"	7/8"	2 1/2"	**45-403-3**	26.95
3/8"	3/8"	1 1/8"	3"	**45-404-1**	45.05
3/8"	3/8"	1 3/4"	4"	**45-405-8**	61.40
7/16"	7/16"	5/8"	2 1/2"	**45-406-6**	32.85
7/16"	7/16"	1"	2 3/4"	**45-407-4**	40.80
7/16"	7/16"	2"	4"	**45-408-2**	71.50
1/2"	1/2"	5/8"	2 1/2"	**45-409-0**	41.80
1/2"	1/2"	1"	3"	**45-410-8**	41.65
1/2"	1/2"	2"	4"	**45-411-6**	81.05
1/2"	1/2"	3"	6"	**45-412-4**	125.10
9/16"	9/16"	1 1/8"	3 1/2"	**45-413-2**	80.05
5/8"	5/8"	3/4"	3	**45-414-0**	82.95
5/8"	5/8"	1 1/4"	3 1/2"	**45-415-7**	78.55
5/8"	5/8"	2 1/4"	5"	**45-416-5**	151.55
11/16"	3/4"	1 3/8"	4"	**45-417-3**	121.15
3/4"	3/4"	1"	3"	**45-418-1**	115.55
3/4"	3/4"	1 1/2"	4"	**45-419-9**	112.95
3/4"	3/4"	2 1/4"	5"	**45-420-7**	170.30
3/4"	3/4"	3"	6"	**45-421-5**	265.35
1"	1"	1 1/2"	4"	**45-422-3**	171.00
1"	1"	2 1/4"	5"	**45-423-1**	330.90
1"	1"	3"	6"	**45-424-9**	399.15

TiAlN Coated End Mills

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
3/64"	1/8"	9/64"	1 1/2"	**45-425-6**	$11.80
3/32"	1/8"	3/8"	1 1/2"	**45-426-4**	16.20
1/8"	1/8"	1/2"	1 1/2"	**45-427-2**	9.35
3/16"	3/16"	5/8"	2"	**45-428-0**	12.25
1/4"	1/4"	1/2"	2"	**45-429-8**	15.65
1/4"	1/4"	3/4"	2 1/2"	**45-430-6**	16.60

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
5/16"	5/16"	13/16"	2 1/2"	**45-431-4**	$23.65
3/8"	3/8"	7/8"	2 1/2"	**45-432-2**	27.85
1/2"	1/2"	1"	3"	**45-433-0**	41.60
5/8"	5/8"	1 1/4"	3 1/2"	**45-434-8**	86.00
3/4"	3/4"	1 1/2"	4"	**45-435-5**	126.10
–	–	–	–	–	–

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	5/64"	1 1/2"	**45-304-3**	$9.55
1/32"	1/8"	3/32"	1 1/2"	**45-305-0**	9.55
3/64"	1/8"	1/8"	1 1/2"	**45-306-8**	11.25
3/64"	1/8"	9/64"	1 1/2"	**45-307-6**	10.30
1/16"	1/8"	1/8"	1 1/2"	**45-308-4**	7.05
1/16"	1/8"	3/16"	1 1/2"	**45-309-2**	8.25
5/64"	1/8"	1/4"	1 1/2"	**45-310-0**	8.85
3/32"	1/8"	3/16"	1 1/2"	**45-311-8**	6.70
3/32"	1/8"	3/8"	1 1/2"	**45-312-6**	7.85
7/64"	1/8"	3/8"	1 1/2"	**45-313-4**	7.85
1/8"	1/8"	1/4"	1 1/2"	**45-314-2**	6.50
1/8"	1/8"	1/2"	1 1/2"	**45-315-9**	7.25
1/8"	1/8"	3/4"	1 1/2"	**45-316-7**	16.70
1/8"	1/8"	3/4"	2 1/4"	**45-317-5**	16.30
1/8"	1/8"	1"	3"	**45-318-3**	16.30
9/64"	3/16"	1/2"	2"	**45-319-1**	10.70
5/32"	3/16"	5/16"	2"	**45-320-9**	9.15
5/32"	3/16"	1/2"	2"	**45-321-7**	10.70
5/32"	5/32"	3/4"	2"	**45-322-5**	23.55
3/16"	3/16"	5/16"	2"	**45-323-3**	8.65
3/16"	3/16"	5/8"	2"	**45-324-1**	10.10
3/16"	3/16"	3/4"	2 1/4"	**45-325-8**	19.85
3/16"	3/16"	1"	2"	**45-326-6**	19.25
3/16"	3/16"	1 1/8"	3"	**45-327-4**	18.00
13/64"	1/4"	5/8"	2 1/2"	**45-328-2**	13.35
7/32"	1/4"	7/16"	2"	**45-329-0**	12.35
7/32"	1/4"	5/8"	2 1/2"	**45-330-8**	13.60
7/32"	7/32"	1"	2 1/2"	**45-331-6**	28.65
1/4"	1/4"	1/2"	2"	**45-332-4**	11.30
1/4"	1/4"	3/4"	2 1/2"	**45-333-2**	12.15
1/4"	1/4"	1 1/8"	3"	**45-334-0**	20.85
1/4"	1/4"	1 1/4"	2 1/2"	**45-335-7**	23.60
1/4"	1/4"	1 1/2"	4"	**45-336-5**	22.00
9/32"	9/32"	1 1/4"	2 1/2"	**45-337-3**	32.75
9/32"	5/16"	3/4"	2 1/2"	**45-338-1**	18.80

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
5/16"	5/16"	1/2"	2"	**45-339-9**	$15.45
5/16"	5/16"	13/16"	2 1/2"	**45-340-7**	17.10
5/16"	5/16"	1 1/8"	3"	**45-341-5**	25.70
5/16"	5/16"	1 3/8"	2 1/2"	**45-342-3**	34.10
5/16"	5/16"	1 5/8"	4"	**45-343-1**	28.70
11/32"	3/8"	7/8"	2 1/2"	**45-344-9**	27.05
3/8"	3/8"	5/8"	2"	**45-345-6**	19.05
3/8"	3/8"	7/8"	2 1/2"	**45-346-4**	21.30
3/8"	3/8"	1"	4"	**45-347-2**	33.95
3/8"	3/8"	1 1/8"	3"	**45-348-0**	28.95
3/8"	3/8"	1 3/8"	2 1/2"	**45-349-8**	42.85
3/8"	3/8"	1 3/4"	4"	**45-350-6**	31.75
13/32"	7/16"	1"	2 3/4"	**45-351-4**	32.35
7/16"	7/16"	5/8"	2 1/2"	**45-352-2**	23.55
7/16"	7/16"	1"	2 3/4"	**45-353-0**	27.75
7/16"	7/16"	1 3/8"	2 3/4"	**45-354-8**	62.10
7/16"	7/16"	2"	4"	**45-355-5**	46.75
1/2"	1/2"	5/8"	2 1/2"	**45-356-3**	31.45
1/2"	1/2"	1"	3"	**45-357-1**	34.05
1/2"	1/2"	1 1/2"	3"	**45-358-9**	45.75
1/2"	1/2"	2"	4"	**45-359-7**	46.50
1/2"	1/2"	3"	6"	**45-360-5**	67.20
9/16"	9/16"	1 1/8"	3 1/2"	**45-361-3**	62.20
5/8"	5/8"	3/4"	3"	**45-362-1**	60.10
5/8"	5/8"	1 1/4"	3 1/2"	**45-363-9**	65.65
5/8"	5/8"	2 1/4"	5"	**45-364-7**	115.75
11/16"	3/4"	1 3/8"	4"	**45-365-4**	109.35
3/4"	3/4"	1"	3"	**45-366-2**	86.35
3/4"	3/4"	1 1/2"	4"	**45-367-0**	96.25
3/4"	3/4"	2 1/4"	5"	**45-368-8**	152.55
3/4"	3/4"	3"	6"	**45-369-6**	167.80
1"	1"	1 1/2"	4"	**45-370-4**	144.00
1"	1"	2 1/4"	5"	**45-371-2**	259.35
1"	1"	3"	6"	**45-372-0**	259.35



INDUSTRIAL PERFORMANCE GRADE

4 Flute Centercutting Single End Mills

Solid Micrograin Carbide Stub, Regular, Long and Extra Long Lengths - 30° RH Spiral RHC

- Tolerances:

Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	9/32 - 1 1/4"	+.000/-.003"

ACCUPRO® High Performance Milling

4 Flute nACRo® Coated Centercutting Single End Mills

Solid Micrograin Carbide

40° Helix

NEW



Accupro carbide end mills are manufactured with an advanced tool geometry that will out perform conventional style end mills. They feature a helix angle of 40° that provides higher shearing action with superior workpiece finish. This also enhances chip ejection and allows for higher speeds and feeds.

- 4 Flute end mills are excellent for deep slotting applications and also for use on aluminum and nonferrous materials.
- All end mills are centercutting, allowing for 3-axis capability of plunging, ramping and profile milling.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.0001/-.0004"
Cutting Dia.	All Sizes	+.000/-.002"

Surface Treatments:

AlTiN (Aluminum Titanium Nitride)

- Recommended for difficult to machine materials.
- Used for aggressive machining of aircraft/aerospace materials, stainless steels, high alloy carbon steels, nickelbased high-temperature alloys and titanium alloys. Also used in dry machining of cast irons, nodular iron and selected carbon steel.
- Extremely hard, wear resistant.
- Provides increase of 75 to 100% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/32"	1/8"	3/32"	1 1/2"	**37-289-6**	$15.40
1/16"	1/8"	1/8"	1 1/2"	**37-290-4**	13.75
1/8"	1/8"	1/4"	1 1/2"	**37-291-2**	10.75
1/8"	1/8"	1/2"	1 1/2"	**37-292-0**	10.85
1/8"	1/8"	3/4"	2 1/4"	**37-293-8**	18.20
3/16"	3/16"	3/8"	2"	**37-294-6**	15.20
3/16"	3/16"	3/4"	2 1/2"	**37-295-3**	24.70
1/4"	1/4"	3/8"	2"	**37-296-1**	30.45
1/4"	1/4"	3/4"	2 1/2"	**37-297-9**	34.70
3/8"	3/8"	5/8"	2"	**37-298-7**	31.50
3/8"	3/8"	7/8"	2 1/2"	**37-299-5**	40.40
1/2"	1/2"	5/8"	2 1/2"	**37-300-1**	52.05
1/2"	1/2"	1	3"	**37-301-9**	56.35
3/4"	3/4"	1 1/2"	4"	**37-302-7**	169.10
1"	1"	3/4"	4"	**37-303-5**	249.90

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	1/16"	1 1/2"	**45-263-1**	$16.95
3/64"	1/8"	3/32"	1 1/2"	**45-264-9**	16.95
1/16"	1/8"	1/8"	1 1/2"	**45-265-6**	14.45
3/32"	1/8"	3/16"	1 1/2"	**45-266-4**	14.45
1/8"	1/8"	1/4"	1 1/2"	**45-267-2**	10.50
1/8"	3/16"	1/4"	2"	**45-268-0**	17.15
1/8"	3/8"	3/8"	3 1/16"	**45-269-8**	33.20
5/32"	3/16"	5/16"	2"	**45-270-6**	18.65
5/32"	3/8"	7/16"	3 1/8"	**45-271-4**	33.20
3/16"	3/16"	3/8"	2"	**45-272-2**	17.35
3/16"	3/8"	1/2"	3 1/4"	**45-273-0**	33.20
7/32"	1/4"	7/16"	2 1/2"	**45-274-8**	21.75
1/4"	1/4"	1/2"	2 1/2"	**45-275-5**	19.80
1/4"	3/8"	5/8"	3 1/2"	**45-276-3**	33.20
5/16"	5/16"	1/2"	2 1/2"	**45-277-1**	24.60
5/16"	3/8"	3/4"	3 1/2"	**45-278-9**	38.15
3/8"	3/8"	9/16"	2 1/2"	**45-279-7**	26.20
3/8"	3/8"	3/4"	3 1/2"	**45-280-5**	38.15
7/16"	7/16"	9/16"	2 3/4"	**45-281-3**	37.50
1/2"	1/2"	5/8"	3"	**45-282-1**	44.50
1/2"	1/2"	1"	4"	**45-283-9**	56.65



INDUSTRIAL PERFORMANCE GRADE

2 Flute Centercutting Double End Mills

Solid Micrograin Carbide

Stub and Regular Lengths

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/64 - 1/4"	+.000/-.002"
	9/32 - 3/4"	+.000/-.003"



ACCUPRO® High Performance Milling

4 Flute AlTiN Coated Progressive Helix Single End Mills

Solid Micrograin Carbide

NEW

Stub, Regular & Long Lengths

- Progresses helix design changes from 35° at the tip to 60° at the shank, reducing vibration and chatter allowing for aggressive machining of stainless steels, steels, Inconels, cast iron and high-temperature alloys.
- Allows for increased feed rates by up to 50%, larger chip loads per tooth and extended tool life when compared to standard carbide end mills.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.0001/-.0004"
Cutting Dia.	All Sizes	+.000/-.002"

Surface Treatments:

AlTiN (Aluminum Titanium Nitride)

- Recommended for difficult to machine materials.
- Used for aggressive machining of aircraft/aerospace materials, stainless steels, high alloy carbon steels, nickelbased high-temperature alloys and titanium alloys. Also used in dry machining of cast irons, nodular iron and selected carbon steel.
- Extremely hard, wear resistant.
- Provides increase of 75 to 100% in machining speeds vs. uncoated tools.

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE
1/8"	1/8"	1/4"	1 1/2"	**37-272-2**	$15.25
1/8"	1/8"	1/2"	1 1/2"	**37-273-0**	16.40
1/8"	1/8"	3/4"	3"	**37-274-8**	21.75
3/16"	3/16"	3/8"	2"	**37-275-5**	21.80
3/16"	3/16"	5/8"	2"	**37-276-3**	23.45
3/16"	3/16"	3/4"	3"	**37-277-1**	30.45
1/4"	1/4"	3/8"	2"	**37-278-9**	26.05
1/4"	1/4"	3/4"	2 1/2"	**37-279-7**	27.50
1/4"	1/4"	1 1/4"	3"	**37-280-5**	38.45
3/8"	3/8"	1/2"	2"	**37-281-3**	39.75
3/8"	3/8"	1"	2 1/2"	**37-282-1**	42.00
3/8"	3/8"	1 1/2"	4"	**37-283-9**	57.90
1/2"	1/2"	5/8"	2 1/2"	**37-284-7**	58.00
1/2"	1/2"	1 1/4"	3"	**37-285-4**	64.00
1/2"	1/2"	2"	4"	**37-286-2**	85.15
3/4"	3/4"	1 5/8"	4"	**37-287-0**	165.05
1"	1"	2"	4"	**37-288-8**	276.50

INDUSTRIAL PERFORMANCE GRADE

2 Flute TiN Coated Centercutting Double End Mills

Solid Micrograin Carbide TiN Coated

Stub and Regular Length



Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Requires increase of 25 to 30% in machining speeds vs. HSS.

Tolerances:	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	9/32 - 1/2"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	3/32"	1 1/2"	**45-284-7**	$26.05
3/64"	1/8"	1/8"	1 1/2"	**45-285-4**	26.05
1/16"	1/8"	1/8"	1 1/2"	**45-286-2**	18.90
3/32"	1/8"	3/16"	1 1/2"	**45-287-0**	17.30
1/8"	3/16"	1/4"	2"	**45-288-8**	13.20
1/8"	3/8"	3/8"	3 1/16"	**45-289-6**	41.50
5/32"	3/16"	5/16"	2"	**45-290-4**	20.95
3/16"	3/16"	3/8"	2"	**45-292-0**	17.70
3/16"	3/8"	1/2"	3 1/4"	**45-293-8**	41.50

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/4"	1/4"	1/2"	2 1/2"	**45-295-3**	$25.45
1/4"	3/8"	5/8"	3 1/2"	**45-296-1**	52.85
5/16"	5/16"	1/2"	2 1/2"	**45-297-9**	33.35
5/16"	3/8"	3/4"	3 1/2"	**45-298-7**	48.90
3/8"	3/8"	9/16"	2 1/2"	**45-299-5**	46.30
3/8"	3/8"	3/4"	3 1/2"	**45-300-1**	48.85
7/16"	1/2"	9/16"	3"	**45-301-9**	81.70
1/2"	1/2"	5/8"	3"	**45-302-7**	68.95
1/2"	1/2"	1"	4"	**45-303-5**	109.30

CUTTING TOOLS



INDUSTRIAL
PERFORMANCE GRADE

4 Flute Centercutting Double End Mills

Solid Micrograin Carbide Stub and Regular Lengths

- Tolerances:

	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/64 - 1/4"	+.000/-.002"
	9/32 - 3/4"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	1/16"	1 1/2"	**45-459-5**	$15.70
3/64"	1/8"	3/32"	1 1/2"	**45-460-3**	15.70
1/16"	1/8"	1/8"	1 1/2"	**45-461-1**	13.30
3/32"	1/8"	3/16"	1 1/2"	**45-462-9**	15.25
1/8"	1/8"	1/4"	1 1/2"	**45-463-7**	11.75
1/8"	3/16"	1/4"	2"	**45-464-5**	17.15
1/8"	3/8"	3/8"	3 1/16"	**45-465-2**	33.20
5/32"	3/16"	5/16"	2"	**45-466-0**	17.75
5/32"	3/8"	7/16"	3 1/8"	**45-467-8**	31.90
3/16"	3/16"	3/8"	2"	**45-468-6**	17.00
3/16"	3/8"	1/2"	3 1/4"	**45-469-4**	33.20
7/32"	1/4"	7/16"	2 1/2"	**45-470-2**	21.75
7/32"	3/8"	9/16"	3 1/2"	**45-471-0**	33.20
1/4"	1/4"	1/2"	2 1/2"	**45-472-8**	21.85
1/4"	3/8"	5/8"	3 1/2"	**45-473-6**	33.20
5/16"	5/16"	1/2"	2 1/2"	**45-474-4**	27.45
5/16"	3/8"	3/4"	3 1/2"	**45-475-1**	42.55
3/8"	3/8"	9/16"	2 1/2"	**45-476-9**	29.25
3/8"	3/8"	3/4"	3 1/2"	**45-477-7**	42.55
1/2"	1/2"	5/8"	3"	**45-479-3**	49.70
1/2"	1/2"	1"	4"	**45-480-1**	56.65



TiAlN Coated



TiN Coated

TiN Coated End Mills

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	3/32"	1 1/2"	**45-481-9**	$26.85
3/64"	1/8"	1/8"	1 1/2"	**45-482-7**	21.45
1/16"	1/8"	1/8"	1 1/2"	**45-483-5**	20.25
3/32"	1/8"	3/16"	1 1/2"	**45-484-3**	18.85
3/32"	1/8"	3/8"	2"	**45-485-0**	23.00
1/8"	3/16"	1/4"	2"	**45-486-8**	13.60
1/8"	3/8"	3/8"	3 1/16"	**45-487-6**	42.75
5/32"	3/16"	5/16"	2"	**45-488-4**	21.55
5/32"	3/8"	7/16"	3 1/8"	**45-489-2**	42.75
3/16"	3/16"	3/8"	2"	**45-490-0**	18.20
3/16"	3/8"	1/2"	3 1/4"	**45-491-8**	42.75
7/32"	1/4"	7/16"	2 1/2"	**45-492-6**	28.10
7/32"	3/8"	9/16"	3 1/2"	**45-493-4**	42.75
1/4"	1/4"	1/2"	2 1/2"	**45-494-2**	26.20
1/4"	3/8"	5/8"	3 1/2"	**45-495-9**	54.45
5/16"	5/16"	1/2"	2 1/2"	**45-496-7**	34.35
5/16"	3/8"	3/4"	3 1/2"	**45-497-5**	50.35
3/8"	3/8"	9/16"	2 1/2"	**45-498-3**	50.50
3/8"	3/8"	3/4"	3 1/2"	**45-499-1**	50.35
1/2"	1/2"	5/8"	3"	**45-500-6**	75.00
1/2"	1/2"	1"	4"	**45-501-4**	112.60

TiAlN Coated End Mills

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/16"	1/8"	1/8"	1 1/2"	**45-502-2**	$16.05
1/8"	3/16"	1/4"	2"	**45-503-0**	14.30
3/16"	3/16"	3/8"	2"	**45-504-8**	19.15
1/4"	1/4"	1/2"	2 1/2"	**45-505-5**	27.60
3/8"	3/8"	1/2"	2 1/2"	**45-506-3**	35.25
1/2"	1/2"	5/8"	3"	**45-507-1**	55.45

INDUSTRIAL
PERFORMANCE GRADE

4 Flute TiN & TiAlN Centercutting Double End Mills

Solid Micrograin Carbide, TiN & TiAlN Coated 30° Helix

Surface Treatments: TiN (Titanium Nitride)

- General purpose use.
- Extends tool life.
- Used for aggressive machining of steels.
- Requires increase of 25 to 30% in machining speeds vs. HSS.

TiAlN (Titanium Aluminum Nitride)

- Recommended for difficult to machine materials.
- Used for aggressive machining of steels, high alloy carbon steels, nickel-based high-temperature alloys and titanium alloys.
- Extremely hard, wear resistant.
- Requires increase of 75 to 100% in machining speeds vs. HSS.

ACCUPRO®
High Performance Milling

4 Flute High Performance TiCN & AlTin Coated Fine Tooth Roughing End Mills

Solid Micrograin Carbide

30° Helix

- For steels, stainless steels, titanium & high temperature alloys.
- Reduces vibration and chatter.

Surface Treatments: TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 35 to 50% vs. uncoated tools.

AlTiN (Aluminum Titanium Nitride)

- Recommended for difficult to machine materials.
- Used for aggressive machining of aircraft/aerospace materials, stainless steels, high alloy carbon steels, nickel based high-temperature alloys and titanium alloys. Also used in dry machining of cast irons, nodular iron and selected carbon steel.
- Extremely hard, wear resistant.
- Provides increase of 75 to 100% in machining speeds vs. uncoated tools.



TiCN Coated

AlTiN Coated

SIZE	LOC	OAL	TiCN COATED PART NO.	PRICE EACH	AlTiN COATED PART NO.	PRICE EACH
1/4"	3/8"	2"	**37-246-6**	$45.05	**37-259-9**	$47.40
1/4"	3/4"	2 1/2"	**37-247-4**	53.45	**37-260-7**	56.25
5/16"	7/16"	2"	**37-248-2**	58.95	**37-261-5**	62.05
3/8"	1/2"	2"	**37-249-0**	63.05	**37-262-3**	66.40
3/8"	1"	2 1/2"	**37-250-8**	74.75	**37-263-1**	78.70
1/2"	5/8"	2 1/2"	**37-251-6**	89.65	**37-264-9**	94.35
1/2"	1 1/4"	3"	**37-252-4**	98.15	**37-265-6**	103.35
1/2"	2"	4"	**37-253-2**	132.35	**37-266-4**	139.30
5/8"	1 1/2"	3 1/2"	**37-254-0**	164.15	**37-267-2**	172.80
3/4"	1 5/8"	4"	**37-255-7**	216.00	**37-268-0**	227.35
3/4"	2 1/4"	5"	**37-256-5**	304.50	**37-269-8**	320.50
1"	2"	4"	**37-257-3**	333.05	**37-270-6**	350.55
1"	3 1/4"	6"	**37-258-1**	410.00	**37-271-4**	431.55



INDUSTRIAL
PERFORMANCE GRADE

3 Flute Centercutting Ball Single End Mills

Solid Micrograin Carbide Stub, Regular, Long and Extra Long Lengths - 30° Helix

- Tolerances:

	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/64 - 1/4"	+.000/-.002"
	3/8 - 1/2"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/16"	1/8"	3/16"	1 1/2"	**45-548-5**	$16.00
3/32"	1/8"	5/16"	1 1/2"	**45-549-3**	17.70
1/8"	1/8"	7/16"	1 1/2"	**45-550-1**	15.25
3/16"	3/16"	9/16"	2"	**45-551-9**	21.65
1/4"	1/4"	3/4"	2 1/2"	**45-552-7**	27.75
3/8"	3/8"	7/8"	2 1/2"	**45-553-5**	39.55
1/2"	1/2"	1"	3"	**45-554-3**	67.35



INDUSTRIAL
PERFORMANCE GRADE

2 Flute Centercutting Ball Single End Mills

30° Helix, Stub, Regular, Long & Extra Long Lengths

Length of cut may vary on Mill Diameters 1/32 - 7/64"

- Tolerances:

	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	9/32 - 1"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	5/64"	1 1/2"	45-508-9	$16.00
1/32"	1/8"	3/32"	1 1/2"	45-509-7	21.75
3/64"	1/8"	1/8"	1 1/2"	45-510-5	21.75
1/16"	1/8"	1/8"	1 1/2"	45-511-3	15.25
1/16"	1/8"	3/16"	1 1/2"	45-512-1	16.80
3/32"	1/8"	3/16"	1 1/2"	45-513-9	15.25
3/32"	1/8"	3/8"	1 1/2"	45-514-7	16.05
1/8"	1/8"	1/4"	1 1/2"	45-515-4	15.25
1/8"	1/8"	1/2"	1 1/2"	45-516-2	14.45
5/32"	3/16"	5/16"	2"	45-517-0	24.40
5/32"	3/16"	9/16"	2"	45-518-8	22.20
3/16"	3/16"	5/16"	2"	45-519-6	21.60
3/16"	3/16"	5/8"	2"	45-520-4	19.15
7/32"	1/4"	5/8"	2 1/2"	45-521-2	27.65
1/4"	1/4"	1/2"	2"	45-522-0	27.60
1/4"	1/4"	3/4"	2 1/2"	45-523-8	23.75
9/32"	5/16"	3/4"	2 1/2"	45-524-6	31.50
5/16"	5/16"	13/16"	2 1/2"	45-525-3	31.20
3/8"	3/8"	7/8"	2 1/2"	45-526-1	38.15
7/16"	7/16"	1"	2 3/4"	45-527-9	58.20
1/2"	1/2"	5/8"	2 1/2"	45-528-7	70.65
1/2"	1/2"	1"	3"	45-529-5	67.60
3/4"	3/4"	1 1/2"	4"	45-530-3	167.30



INDUSTRIAL
PERFORMANCE GRADE

4 Flute Centercutting Ball Single End Mills

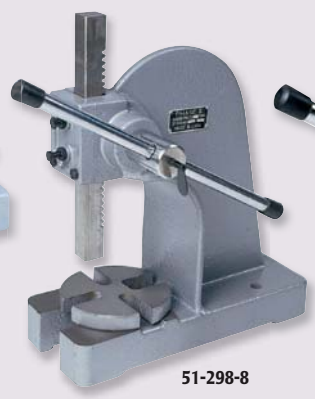
Solid Micrograin Carbide Stub, Regular, Long and Extra Long Lengths

- Tolerances:

	Size	Tolerance
Shank Dia.	All Sizes	+.010/-.0005"
Cutting Dia.	1/64 - 1/4"	+.000/-.002"
	17/64 - 1"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	1/16"	1 1/2"	45-555-0	$21.75
1/32"	1/8"	3/32"	1 1/2"	45-556-8	12.75
3/64"	1/8"	1/8"	1 1/2"	45-557-6	21.75
1/16"	1/8"	1/8"	1 1/2"	45-558-4	10.10
1/16"	1/8"	3/16"	1 1/2"	45-559-2	15.10
3/32"	1/8"	3/16"	1 1/2"	45-560-0	10.10
3/32"	1/8"	3/8"	1 1/2"	45-561-8	16.00
1/8"	1/8"	1/4"	1 1/2"	45-562-6	10.10
1/8"	1/8"	1/2"	1 1/2"	45-563-4	14.45
5/32"	3/16"	5/16"	2"	45-564-2	14.15
5/32"	3/16"	9/16"	2"	45-565-9	22.15
3/16"	3/16"	5/16"	2"	45-566-7	25.00
3/16"	3/16"	5/8"	2"	45-567-5	19.15
1/4"	1/4"	1/2"	2"	45-569-1	24.05
1/4"	1/4"	3/4"	2 1/2"	45-570-9	23.75
9/32"	5/16"	3/4"	2 1/2"	45-571-7	27.35
5/16"	5/16"	13/16"	2 1/2"	45-572-5	31.20
3/8"	3/8"	7/8"	2 1/2"	45-573-3	38.15
7/16"	7/16"	1"	2 3/4"	45-574-1	58.05
1/2"	1/2"	5/8"	2 1/2"	45-575-8	71.65
1/2"	1/2"	1"	3"	45-576-6	67.60
3/4"	3/4"	1 1/2"	4"	45-577-4	187.60


51-220-2


51-298-8


51-299-6

Single Leverage Type Arbor Presses

See Pg. 272



INDUSTRIAL
PERFORMANCE GRADE

2 Flute Centercutting Ball Double End Mills

Solid Micrograin Carbide Stub and Regular Lengths

- Tolerances:

	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	9/32 - 1/2"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	3/32"	1 1/2"	45-531-1	$30.95
1/16"	1/8"	1/8"	1 1/2"	45-533-7	20.70
3/32"	1/8"	3/16"	1 1/2"	45-534-5	21.70
3/32"	1/8"	3/8"	2"	45-535-2	36.85
1/8"	1/8"	1/4"	1 1/2"	45-536-0	19.50
1/8"	3/8"	3/8"	3 1/16"	45-537-8	61.15
5/32"	3/16"	5/16"	2"	45-538-6	29.15
3/16"	3/16"	3/8"	2"	45-539-4	29.40
3/16"	3/8"	1/2"	3 1/4"	45-540-2	49.50
1/4"	1/4"	1/2"	2 1/2"	45-542-8	36.30
1/4"	3/8"	5/8"	3 1/2"	45-543-6	72.80
5/16"	5/16"	1/2"	2 1/2"	45-544-4	52.30
3/8"	3/8"	9/16"	2 1/2"	45-545-1	69.00
1/2"	1/2"	5/8"	3"	45-547-7	90.65



INDUSTRIAL
PERFORMANCE GRADE

4 Flute Centercutting Ball Double End Mills

Solid Micrograin Carbide Stub, Regular, Long and Extra Long Lengths - 30° Helix

- Tolerances:

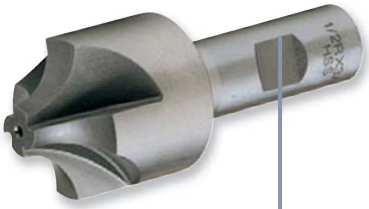
	Size	Tolerance
Shank Dia.	All Sizes	+.000/-.0005"
Cutting Dia.	1/32 - 1/4"	+.000/-.002"
	5/16 - 1/2"	+.000/-.003"

MILL DIA.	SHANK DIA.	LOC	OAL	PART NUMBER	PRICE EACH
1/32"	1/8"	3/32"	1 1/2"	45-578-2	$30.95
1/16"	1/8"	1/8"	1 1/2"	45-579-0	23.75
3/32"	1/8"	3/16"	1 1/2"	45-580-8	24.90
3/32"	1/8"	3/8"	2"	45-581-6	36.85
1/8"	3/16"	1/4"	1 1/2"	45-582-4	23.20
1/8"	3/8"	3/8"	3 1/16"	45-583-2	61.15
5/32"	3/16"	5/16"	2"	45-584-0	29.15
3/16"	3/16"	3/8"	2"	45-585-7	29.40
3/16"	3/8"	1/2"	3 1/4"	45-586-5	65.05
7/32"	1/4"	7/16"	2 1/2"	45-587-3	35.50
1/4"	1/4"	1/2"	2 1/2"	45-588-1	36.30
1/4"	3/8"	5/8"	3 1/2"	45-589-9	72.80
5/16"	5/16"	1/2"	2 1/2"	45-590-7	52.30
3/8"	3/8"	9/16"	2 1/2"	45-591-5	69.00
1/2"	1/2"	5/8"	3"	45-593-1	79.10

CUTTING TOOLS

SHOP GRADE

4 Flute Corner Rounding End Mills HSS, Cobalt & HSS TiN Coated



- These end mills are of the formed relieved type and can be resharpened many times without changing the form.

RADIUS SIZE	CUTTER DIA.	SHANK DIA.	OAL	HSS PART NO.	PRICE EACH	COBALT PART NO.	PRICE EACH	HSS TIN COATED PART NO.	PRICE EACH
1/32"	3/8"	3/8"	2 1/2"	42-631-2	$42.15	73-801-3	$42.45	73-845-0	$46.45
3/64"	7/16"	3/8"	2 1/2"	42-632-0	42.15	73-802-1	42.45	73-846-8	46.45
1/16"	7/16"	3/8"	2 1/2"	42-633-8	30.70	73-803-9	34.25	73-847-6	33.90
5/64"	1/2"	3/8"	2 1/2"	42-634-6	46.00	73-804-7	48.35	73-848-4	50.65
3/32"	1/2"	3/8"	2 1/2"	42-635-3	33.95	73-805-4	37.80	73-849-2	37.40
3/32"	1/2"	1/2"	2 1/2"	42-636-1	33.25	–	–	73-850-0	36.65
7/64"	5/8"	3/8"	2 1/2"	42-637-9	46.00	73-806-2	48.35	73-851-8	50.65
1/8"	5/8"	3/8"	3"	42-638-7	37.90	73-807-0	41.20	73-852-6	41.80
1/8"	5/8"	1/2"	3"	42-639-5	37.90	73-808-8	41.20	73-853-4	41.80
1/8"	5/8"	3/4"	3"	42-640-3	37.20	–	–	73-854-2	41.00
9/64"	3/4"	1/2"	3"	42-641-1	50.50	73-809-6	53.25	73-855-9	55.75
5/32"	3/4"	1/2"	3"	42-642-9	41.40	73-810-4	44.70	73-856-7	45.70
11/64"	3/4"	1/2"	3"	42-643-7	53.35	73-811-2	56.15	73-857-5	58.30
3/16"	7/8"	1/2"	3 1/8"	42-644-5	45.60	73-812-0	47.10	73-858-3	50.15
3/16"	7/8"	3/4"	3 1/8"	42-645-2	46.75	73-813-8	47.10	73-859-1	51.45
13/64"	7/8"	1/2"	3 1/8"	42-646-0	64.15	73-814-6	67.70	73-860-9	70.80
13/64"	7/8"	3/4"	3 1/8"	42-647-8	64.75	73-815-3	68.35	73-861-7	70.80
7/32"	7/8"	1/2"	3 1/4"	42-648-6	77.70	73-816-1	79.75	73-862-5	85.70
7/32"	7/8"	3/4"	3 1/4"	42-649-4	77.70	73-817-9	79.75	73-863-3	85.70
15/64"	7/8"	1/2"	3 1/8"	42-650-2	85.40	73-818-7	88.90	73-864-1	93.30
1/4"	1"	1/2"	3 1/8"	42-651-0	54.00	73-819-5	57.10	73-865-8	59.55
1/4"	1"	3/4"	3 1/4"	42-652-8	54.80	73-820-3	57.10	73-866-6	60.45
17/64"	1"	1/2"	3 1/8"	42-653-6	84.90	73-821-1	90.80	73-867-4	92.80
17/64"	1"	3/4"	3 1/8"	42-654-4	86.50	73-822-9	90.55	73-868-2	92.80
9/32"	1 1/8"	1/2"	3 1/4"	42-655-1	84.60	73-823-7	88.80	73-869-0	93.30
9/32"	1 1/8"	3/4"	3 1/4"	42-656-9	87.90	73-824-5	92.20	73-870-8	95.85
19/64"	1 1/8"	3/4"	3 1/4"	42-658-5	84.90	73-825-2	90.80	73-871-6	92.80
5/16"	1 1/8"	1/2"	3 1/4"	42-659-3	59.70	73-826-0	63.15	73-872-4	65.90
5/16"	1 1/8"	3/4"	3 1/4"	42-660-1	59.70	73-827-8	63.15	73-873-2	65.90
5/16"	1 1/8"	7/8"	3 1/2"	–	–	–	–	73-874-0	65.90
21/64"	1 1/8"	1/2"	3 1/4"	–	–	–	–	42-662-7	100.30
21/64"	1 1/8"	3/4"	3 1/4"	42-663-5	93.70	–	–	73-875-7	100.30
11/32"	1 1/8"	1/2"	3 1/2"	42-664-3	71.30	73-828-6	78.05	73-876-5	82.70
11/32"	1 1/8"	3/4"	3 1/2"	42-665-0	71.30	73-829-4	78.05	73-877-3	82.70
3/8"	1 1/4"	1/2"	3 1/2"	42-666-8	69.80	73-830-2	73.65	73-878-1	77.00
3/8"	1 1/4"	3/4"	3 1/2"	42-667-6	69.80	73-831-0	73.65	73-879-9	77.00
3/8"	1 1/4"	7/8"	3 1/4"	42-668-4	65.70	–	–	73-880-7	71.75
13/32"	1 1/4"	3/4"	3 1/2"	42-669-2	113.40	73-832-8	119.35	73-881-5	125.05
7/16"	1 3/8"	3/4"	3 3/4"	42-670-0	78.95	–	–	73-882-3	89.90
7/16"	1 3/8"	1"	4"	42-671-8	81.30	73-833-6	87.90	73-883-1	89.90
15/32"	1 3/8"	3/4"	3 3/4"	42-672-6	120.45	73-834-4	126.75	73-884-9	132.85
1/2"	1 1/2"	1/2"	3 7/8"	42-673-4	90.00	–	–	–	–
1/2"	1 1/2"	3/4"	3 7/8"	42-674-2	91.80	73-835-1	106.15	73-886-4	104.95
1/2"	1 1/2"	1"	4 1/8"	42-675-9	91.80	73-836-9	106.15	73-887-2	104.95
17/32"	1 1/2"	3/4"	3 7/8"	42-676-7	120.45	73-837-7	130.35	73-888-0	126.20
9/16"	1 15/16"	3/4"	4"	42-677-5	151.80	73-838-5	161.75	73-890-6	167.40
9/16"	1 15/16"	1"	4 1/4"	42-678-3	151.80	73-839-3	161.75	73-891-4	167.40
19/32"	1 15/16"	3/4"	4"	42-679-1	181.60	73-840-1	186.30	73-892-2	198.75
5/8"	1 15/16"	3/4"	4"	42-680-9	161.90	73-841-9	170.75	73-893-0	164.25
5/8"	1 15/16"	1"	4 1/4"	42-681-7	161.90	73-842-7	170.75	73-894-8	164.25
21/32"	1 15/16"	1"	4 1/4"	–	–	–	–	73-896-3	187.95
11/16"	2 1/4"	3/4"	4 1/8"	42-683-3	198.15	–	–	73-897-1	218.55
11/16"	2 1/4"	1"	4 5/16"	42-684-1	208.00	–	–	73-898-9	219.95
23/32"	2 1/4"	3/4"	4 1/8"	42-685-8	198.15	–	–	73-899-7	218.55
23/32"	2 1/4"	1"	4 5/16"	42-686-6	185.10	–	–	73-900-3	205.65
3/4"	2 1/4"	3/4"	4 1/8"	42-687-4	182.10	73-843-5	182.55	73-901-1	199.35
3/4"	2 1/4"	1"	4 5/16"	42-688-2	182.10	73-844-3	192.00	73-902-9	199.35
25/32"	2 1/4"	3/4"	4 1/8"	42-689-0	185.45	–	–	73-903-7	195.20
25/32"	2 1/4"	1"	4 5/16"	42-690-8	214.80	–	–	73-904-5	231.50
13/16"	2 1/4"	3/4"	4 1/8"	42-691-6	198.15	–	–	73-905-2	218.55
13/16"	2 1/4"	1"	4 5/16"	42-692-4	208.00	–	–	73-906-0	231.50
27/32"	2 1/2"	3/4"	4 1/2"	42-693-2	276.25	–	–	73-907-8	297.70
7/8"	2 1/2"	3/4"	4 1/2"	42-695-7	269.95	–	–	73-908-6	297.70
7/8"	2 1/2"	1"	4 1/2"	42-696-5	296.90	–	–	73-909-4	330.55
15/16"	2 5/8"	3/4"	4 1/2"	42-697-3	276.40	–	–	73-910-2	307.10
1"	2 5/8"	3/4"	4 1/2"	42-699-9	300.65	–	–	73-911-0	331.50
1"	2 5/8"	1"	4 3/4"	42-700-5	331.35	–	–	73-912-8	365.40



70-154-0

SHOP GRADE

HSS & Cobalt Corner Rounding End Mill Sets

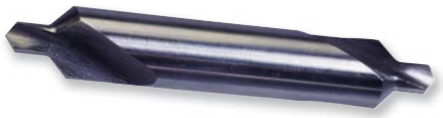
4 Pc. Sets

- All sizes have 3/4" shanks.

8 Pc. Sets

- Sizes 1/16" thru 1/8" have 3/8" shanks.
- Sizes 5/32" thru 3/8" have 1/2" shanks.

NO. OF PCS.	SIZES IN SET	HSS PART NO.	PRICE	COBALT PART NO.	PRICE
4	1/2, 9/16, 5/8, 3/4"	70-151-6	$356.25	70-153-2	$333.60
8	1/2, 3/32, 1/8, 5/32" 3/16, 1/4, 5/16, 3/8"	70-152-4	317.65	70-154-0	275.30



SHOP GRADE

HSS & Cobalt Combined Drills & Countersinks

82° & 90° Short Series

- Improves productivity by performing the drill and countersink operation in one pass.
- For producing a center hole on a workpiece for turning or cylindrical grinding.
- 82° designed to create holes that match the angle of the most popular flat and oval head screws.
- 90° use to create holes that match the angle of flat and oval head screws, and to enlarge existing holes.
- HSS – provides good wear resistance in mild steels and nonferrous materials.
- Cobalt – better wear resistance in harder materials such as high-tensile alloys and Inconel and high-nickel stainless steels.

3 Flute

SIZE	BODY DIA.	DRILL DIA.	DRILL LENGTH	OAL	HSS PART NO.	PRICE	COBALT PART NO.	PRICE
#1	1/8"	3/64"	3/64"	1 1/4"	74-820-2	$4.90	–	–
#2	3/16"	5/64"	5/64"	1 7/8"	74-821-0	5.05	74-836-8	$6.85
#3	1/4"	7/64"	7/64"	2	74-822-8	5.25	74-837-6	7.10
#4	5/16"	1/8"	1/8"	2 1/8"	74-823-6	5.40	74-838-4	7.35
#5	7/16"	3/16"	3/16"	2 3/4"	74-824-4	8.25	74-839-2	11.60
#6	1/2"	7/32"	7/32"	3	74-825-1	12.45	74-840-0	18.00
#7	5/8"	1/4"	1/4"	3 1/4"	74-826-9	17.65	74-841-8	27.05
#8	3/4"	5/16"	5/16"	3 1/2"	74-827-7	24.70	74-842-6	38.30

4 Flute

SIZE	BODY DIA.	DRILL DIA.	DRILL LENGTH	OAL	HSS PART NO.	PRICE	COBALT PART NO.	PRICE
#1	1/8"	3/64"	3/64"	1 1/4"	74-828-5	$4.90	–	–
#2	3/16"	5/64"	5/64"	1 7/8"	74-829-3	5.05	74-843-4	$6.85
#3	1/4"	7/64"	7/64"	2	74-830-1	5.25	74-844-2	7.10
#4	5/16"	1/8"	1/8"	2 1/8"	74-831-9	5.40	74-845-9	7.35
#5	7/16"	3/16"	3/16"	2 3/4"	74-832-7	8.25	74-846-7	11.60
#6	1/2"	7/32"	7/32"	3	74-833-5	12.45	74-847-5	18.00
#7	5/8"	1/4"	1/4"	3 1/4"	74-834-3	17.65	74-848-3	27.05
#8	3/4"	5/16"	5/16"	3 1/2"	74-835-0	24.70	74-849-1	38.30



SHOP GRADE

HSS & Cobalt
3 Flute Solid Pilot Counterbores
Fractional & Metric, Shank & Morse Taper

- For socket head cap screws
- High speed steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- Cobalt provides good wear resistance in hard materials such as high tensile alloys, Inconel and high nickel allows.

Fractional Straight Shank

SCREW SIZE	CUTTER DIA.	PILOT DIA.	SHANK DIA.	HSS PART NO.	PRICE	M42 COBALT PART NO.	PRICE
#6	0.242"	0.150"	7/32"	**43-498-5**	$16.90	–	–
#8	19/64"	11/64"	1/4"	**43-499-3**	16.90	–	–
#10	21/64"	13/64"	5/16"	**43-500-8**	17.75	–	–
1/4"	13/32"	9/32"	3/8"	**43-501-6**	21.45	**74-308-8**	$27.15
5/16"	1/2"	11/32"	7/16"	**43-502-4**	25.70	**74-309-6**	32.30
3/8"	19/32"	13/32"	1/2"	**43-503-2**	26.70	**74-310-4**	33.70
7/16"	11/16"	15/32"	1/2"	**43-504-0**	27.05	**74-311-2**	35.25
1/2"	25/32"	17/32"	3/4"	**43-505-7**	31.95	**74-312-0**	42.40
5/8"	31/32"	21/32"	3/4"	**43-506-5**	40.65	**74-313-8**	58.50
3/4"	1 3/16"	13/16"	1"	**43-507-3**	57.70	–	–
1"	1 9/16"	1 1/16"	1"	**43-508-1**	99.15	–	–
1/4"	13/32"	9/32"	MT 2	**82-575-2**	27.05	–	–
5/16"	1/2"	11/32"	MT 2	**82-576-0**	32.10	–	–
3/8"	19/32"	13/32"	MT 2	**82-577-8**	33.35	–	–
7/16"	11/16"	15/32"	MT 2	**82-578-6**	36.40	–	–
1/2"	25/32"	17/32"	MT 2	**82-579-4**	39.90	–	–
5/8"	31/32"	21/32"	MT 2	**82-580-2**	53.50	–	–
3/4"	1 3/16"	13/16"	MT 3	**82-581-0**	76.75	–	–
1"	1 9/16"	1 1/16"	MT 3	**82-584-4**	125.60	–	–

Metric Straight Shank

SCREW SIZE (MM)	CUTTER DIA. (MM)	PILOT DIA. (MM)	SHANK DIA.	HSS PART NUMBER	PRICE
3	6	3.4	0.219"	**74-314-6**	$16.00
4	8	4.5	0.312"	**74-315-3**	16.00
5	10	5.5	0.375"	**74-316-1**	21.35
6	11	6.6	0.437"	**74-317-9**	25.40
8	15	9.0	0.500"	**74-318-7**	26.50
10	18	11.0	0.500"	**74-319-5**	30.40
12	20	14.0	0.500"	**74-320-3**	32.70
14	24	15	2 MT	**74-321-1**	38.05
16	26	17	2 MT	**74-322-9**	60.45
20	33	21	2 MT	**74-323-7**	99.60

SHOP GRADE

HSS & M-42 Cobalt
60° Combined Drills & Countersinks
Plain Short Type



- Combined drills and countersinks are designed with spiral flutes to give long tool life and high quality center holes where accurate centering is essential to good quality for subsequent operations.
- Sold individually.

SIZE	BODY DIA.	DRILL DIA.	DRILL L	OAL	HSS PART NO.	PRICE EACH	M-42 COBALT PART NO.	PRICE EACH
#1	1/8"	3/64"	3/64"	1 1/4"	**43-267-4**	$2.55	**73-722-1**	$5.95
#2	3/16"	5/64"	5/64"	1 7/8"	**43-268-2**	2.65	**73-723-9**	6.15
#3	1/4"	7/64"	7/64"	2"	**43-269-0**	2.65	**73-724-7**	6.35
#4	5/16"	1/8"	1/8"	2 1/8"	**43-270-8**	2.65	**73-725-4**	6.65
#5	7/16"	3/16"	3/16"	2 3/4"	**43-271-6**	4.95	**73-726-2**	10.45
#6	1/2"	7/32"	7/32"	3"	**43-272-4**	8.30	**73-727-0**	16.20
#7	5/8"	1/4"	1/4"	3 1/4"	**43-273-2**	12.10	**73-728-8**	24.35
#8	3/4"	5/16"	5/16"	3 1/2"	**43-274-0**	16.30	**73-729-6**	34.70

SHOP GRADE

HSS 90° & 118°
Spotting & Centering Drills



- Designed for drilling center holes and making pilot holes for larger hole drilling.
- No body clearance allows the drill to be chucked close to the point ensuring accurate centering or starting.

SIZE	FLUTE LENGTH	OAL	90° PART NO.	118° PART NO.	PRICE EACH
1/4"	5/8"	1 1/2"	**74-687-5**	**74-690-9**	$3.00
3/8"	1"	2"	**74-688-3**	**74-691-7**	4.00
7/16"	1"	2"	–	**74-692-5**	5.40
1/2"	1"	2"	**74-689-1**	**74-693-3**	7.60
5/8"	1 1/8"	2 1/4"	–	**74-694-1**	12.60
3/4"	1 1/8"	2 1/4"	–	**74-695-8**	15.15
7/8"	1 1/4"	2 1/2"	–	**74-696-6**	18.60
1"	1 1/4"	2 1/2"	–	**74-697-4**	23.75
1 1/4"	2"	4"	–	**74-698-2**	75.45
1 1/2"	2 1/2"	5"	–	**74-699-0**	117.35
1 3/4"	2 3/4"	5 1/2"	–	**74-700-6**	177.00



SHOP GRADE

HSS 60° Combined Drills & Countersinks
Long Plain Type

- Combined drills and countersinks are designed with spiral flutes to give long tool life and high quality center holes where accurate centering is essential to good quality for subsequent operations.
- Sold individually.

SIZE	BODY DIA.	POINT DIA.	OAL	PART NUMBER	PRICE EACH
#1	1/8"	3/64"	3"	**43-244-3**	$7.20
#1	1/8"	3/64"	4"	**43-245-0**	7.55
#1	1/8"	3/64"	5"	**43-246-8**	10.45
#1	1/8"	3/64"	6"	**43-247-6**	13.70
#2	3/16"	5/64"	4"	**43-248-4**	8.25
#2	3/16"	5/64"	5"	**43-249-2**	10.55
#2	3/16"	5/64"	6"	**43-250-0**	13.75
#3	1/4"	7/64"	4"	**43-251-8**	8.70
#3	1/4"	7/64"	5"	**43-252-6**	11.40
#3	1/4"	7/64"	6"	**43-253-4**	13.85
#4	5/16"	1/8"	4"	**43-254-2**	9.65
#4	5/16"	1/8"	5"	**43-255-9**	12.30

SIZE	BODY DIA.	POINT DIA.	OAL	PART NUMBER	PRICE EACH
#4	5/16"	1/8"	6"	**43-256-7**	$14.20
#4 1/2	3/8"	9/64"	4"	**43-257-5**	10.80
#4 1/2	3/8"	9/64"	5"	**43-258-3**	12.80
#4 1/2	3/8"	9/64"	6"	**43-259-1**	15.45
#5	7/16"	3/16"	5"	**43-260-9**	14.65
#5	7/16"	3/16"	6"	**43-261-7**	16.45
#6	1/2"	7/32"	5"	**43-262-5**	15.75
#6	1/2"	7/32"	6"	**43-263-3**	19.00
#7	5/8"	1/4"	5"	**43-264-1**	25.50
#7	5/8"	1/4"	6"	**43-265-8**	35.40
#8	3/4"	5/16"	6"	**43-266-6**	38.25
– –	–	–	–	–	

SHOP GRADE

5 Piece M42 Cobalt Combined Drill & Countersink Set

- Plain type #1 - #5.
- M42 Cobalt—provides greater wear resistance in hardness and toughness compared to high speed steel.
- Use for high-tensile alloy, titanium, cast iron, Inconel and high nickel stainless steel.



72-370-0

DESCRIPTION	PART NO.	PRICE
5 Pc. M42 Cobalt Combined Drill & Countersink Set	**72-370-0**	$29.50

CUTTING TOOLS


73-706-4

SHOP GRADE
HSS Bell Type Combined Drills & Countersinks
60° Countersink Angle

- Used to prevent marring of the center hole when a workpiece is used in multiple machining operations.
- HSS provides good wear resistance in mild steel and nonferrous materials like plastics, aluminum, copper, brass, bronze, rubber and wood.

SIZE	BODY DIA.	BELL LENGTH	DRILL DIA.	OAL	PART NUMBER	PRICE EACH
#13	1/4"	0.20"	3/32"	2	**73-704-9**	$4.10
#14	5/16"	0.25"	7/64"	2 1/8"	**73-705-6**	4.20
#15	7/16"	0.35"	5/32"	2 3/4"	**73-706-4**	6.50
#16	1/2"	0.40"	3/16"	3"	**73-707-2**	10.00
#17	5/8"	0.50"	7/32"	3 1/4"	**73-708-0**	15.30
#18	3/4"	0.60"	1/4"	3 1/2"	**73-709-8**	20.45



90°



120°

SHOP GRADE
Fractional HSS NC Spotting Drills
90° & 120°

- High speed steel (HSS) provides good wear resistance and can be used in general purpose applications on both ferrous and nonferrous materials.
- 90° points to start drills up to 120°.
- 120° points to start drills above 120°.
- Zero back taper for perfect chuck fit.

SIZE	FLUTE LENGTH	OAL	90° PART NO.	120° PART NO.	PRICE EACH
1/4"	3/4"	2 1/2"	**70-196-1**	**70-208-4**	$14.30
1/4"	3/4"	4"	**70-197-9**	**70-209-2**	20.55
3/8"	1 1/8"	3 1/8"	**70-198-7**	**70-210-0**	15.45
3/8"	1 1/8"	5"	**70-199-5**	**70-211-8**	21.90
1/2"	1 3/8"	3 3/4"	**70-200-1**	**70-212-6**	19.80
1/2"	1 3/8"	6"	**70-201-9**	**70-213-4**	27.40
5/8"	1 5/8"	4 3/8"	**70-202-7**	**70-214-2**	25.75
5/8"	1 5/8"	7"	**70-203-5**	**70-215-9**	34.65
3/4"	1 7/8"	5"	**70-204-3**	**70-216-7**	35.20
3/4"	1 7/8"	8"	**70-205-0**	**70-217-5**	47.60
1"	2 1/4"	6"	**70-206-8**	**70-218-3**	60.55
1"	2 1/4"	8"	**70-207-6**	**70-219-1**	64.45

magafor

5 Pc. HSS Drills & Countersink Sets
60° Countersink Angle

- Plain or bulge short.
- Bulge Type reinforces the point and increases chip removal.
- Ground spiral flutes.
- High Speed Steel (HSS) provides goodwear resistance and can be used in general purpose applications on both ferrous and non-ferrous materials.
- Sizes in set: 1, 2, 3, 4 & 5
- Furnished in fitted case.

TYPE	PART NO.	PRICE
Plain	**82-300-5**	$30.55
Bulge	**82-250-2**	59.95



82-300-5

magafor

4 Pc. M-35 Cobalt 90° NC Spotting Drill Set
Fractional Sizes

- Designed for accurate spotting on NC machines; where a high performance drill with less of a point angle will be used for the drilling application.

SIZES IN SET	PART NO.	PRICE
1/4", 3/8", 1/2" & 5/8"	**82-154-6**	$132.30


82-154-6



HERTEL
Production Grade Tooling Since 1947

60° Carbide Center Drills

- Solid carbide combined center drill and countersinks. Right hand plain short type.

SIZE #	BODY DIA.	DRILL DIA.	OAL	PART NUMBER	PRICE EACH
00	1/8"	0.025"	1 1/2"	**49-239-7**	$23.50
0	1/8"	1/32"	1 1/2"	**49-240-5**	24.95
1	1/8"	3/64"	1 1/2"	**49-241-3**	20.80
2	3/16"	5/64"	2"	**49-242-1**	30.85
3	1/4"	7/64"	2"	**49-243-9**	35.25
4	5/16"	1/8"	2 1/2"	**49-244-7**	47.15
5	7/16"	3/16"	3"	**49-245-4**	71.60
6	1/2"	7/32"	3"	**49-246-2**	97.40
7	5/8"	1/4"	3 1/4"	**49-247-0**	174.95
8	3/4"	5/16"	3 1/2"	**49-248-8**	237.50

Fine Grade Solid Carbide Spotting & Chamfering Drills

SIZE	OVERALL LENGTH	NUMBER OF FLUTES	60° PART NO.	90° PART NO.	120° PART NO.	PRICE
1/4"	2 1/2"	2	**82-590-1**	**82-620-6**	**82-690-9**	$41.90
1/4"	2 1/2"	4	**82-591-9**	**82-621-4**	**82-691-7**	41.90
3/8"	2 1/2"	2	**82-592-7**	**82-622-2**	**82-692-5**	56.25
3/8"	2 1/2"	4	**82-593-5**	**82-623-0**	**82-693-3**	56.25
1/2"	3"	2	**82-594-3**	**82-624-8**	**82-694-1**	70.60
1/2"	3"	4	**82-595-0**	**82-625-5**	**82-695-8**	70.60
3/4"	4"	2	—	**82-626-3**	—	177.55
3/4"	4"	4	—	**82-627-1**	—	177.55

Sizes 3/8" and larger feature Weldon flat.





NEW

ACCUPRO® High Performance Milling

2 & 4 Flute Carbide & TiCN Coated 90° End Chamfer Mills

Single & Double End

- Designed to perform a variety of jobs including chamfering, deburring and countersinking.
- Two and four flute designs increase beveling speeds.
- The uniform bevel and finish will enhance any machined part in a fraction of the time than hand deburring.
- Solid carbide is extremely heat resistant and used for high speed applications on cast iron, non-ferrous materials, plastics, and other tough-to-machine materials. It is commonly used in high performance applications.

Surface Treatments:
TiCN (Titanium Carbonitride)

- For stainless steel, medium hard ferrous and nonferrous materials.
- Extends tool life.
- Has excellent lubricity and prevents "edge build-up".
- Provides excellent heat and wear resistance.
- Provides an ability to increase machine speeds by 30 to 50% vs. uncoated tools.

Double End

2 Flute - Solid Carbide & TiCN Coated

SIZE	OAL	CARBIDE PART NO.	PRICE EACH	TICN COATED PART NO.	PRICE EACH
1/8"	1 1/2"	37-304-3	$26.40	37-310-0	$31.65
3/16"	2"	37-305-0	29.55	37-311-8	36.00
1/4"	2 1/2"	37-306-8	33.60	37-312-6	46.60
3/8"	2 1/2"	37-307-6	59.60	37-313-4	79.00
1/2"	3"	37-308-4	81.15	37-314-2	105.05
3/4"	4"	37-309-2	173.70	37-315-9	215.25

4 Flute - Solid Carbide & TiCN Coated

SIZE	OAL	CARBIDE PART NO.	PRICE EACH	TICN COATED PART NO.	PRICE EACH
1/4"	2 1/2"	37-316-7	$33.60	37-320-9	$46.60
3/8"	2 1/2"	37-317-5	59.60	37-321-7	79.00
1/2"	3"	37-318-3	81.15	37-322-5	105.05
3/4"	4"	37-319-1	173.70	37-323-3	215.25

Single End

2 Flute - Solid Carbide & TiCN Coated

SIZE	OAL	CARBIDE PART NO.	PRICE EACH	TICN COATED PART NO.	PRICE EACH
1/8"	1 1/2"	37-324-1	$18.90	37-334-0	$22.10
3/16"	2"	37-325-8	21.30	37-335-7	25.25
1/4"	2 1/2"	37-326-6	24.65	37-336-5	32.60
3/8"	2 1/2"	37-327-4	34.55	37-337-3	46.25
1/2"	3"	37-328-2	50.00	37-338-1	64.55
3/4"	4"	37-329-0	111.20	37-339-9	140.15

4 Flute - Solid Carbide & TiCN Coated

SIZE	OAL	CARBIDE PART NO.	PRICE EACH	TICN COATED PART NO.	PRICE EACH
1/4"	2 1/2"	37-330-8	$24.65	37-340-7	$32.60
3/8"	2 1/2"	37-331-6	34.55	37-341-5	46.25
1/2"	3"	37-332-4	50.00	37-342-3	64.55
3/4"	4"	37-333-2	111.20	37-343-1	140.15

SHOP GRADE

HSS Single Flute Countersink



- Enables burr-free deburring and countersinking.
- Eliminates deburring and countersinking problems on aluminum, brass, bronze, plastics, rubber, soft steels, wood and other materials.
- Many hole sizes can be countersunk with a single tool size.

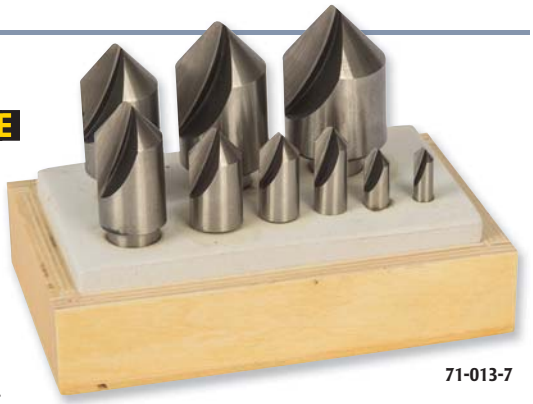
SIZE	SHANK DIA.	OAL	60° PART NO.	82° PART NO.	90° PART NO.	100° PART NO.	PRICE EACH
3/16"	3/16"	1 3/8"	43-150-2	43-162-7	43-174-2	43-186-6	$5.75
1/4"	1/4"	1 1/2"	43-151-0	43-163-5	43-175-9	43-187-4	5.95
5/16"	1/4"	1 1/2"	43-152-8	43-164-3	43-176-7	43-188-2	6.25
3/8"	1/4"	1 3/4"	43-153-6	43-165-0	43-177-5	43-189-0	6.85
1/2"	1/4"	2"	43-154-4	43-166-8	43-178-3	43-190-8	8.35
5/8"	1/2"	2 1/4"	43-155-1	43-167-6	43-179-1	43-191-6	11.20
3/4"	1/2"	2 5/8"	43-156-9	43-168-4	43-180-9	43-192-4	16.35
7/8"	1/2"	2 3/4"	43-157-7	43-169-2	43-181-7	43-193-2	25.40
1"	1/2"	2 3/4"	43-158-5	43-170-0	43-182-5	43-194-0	27.20
1 1/4"	3/4"	2 3/4"	43-159-3	43-171-8	43-183-3*	43-195-7*†	41.45
1 1/2"	3/4"	2 7/8"	43-160-1	43-172-6	43-184-1	43-196-5	71.95
2"	3/4"	3 1/4"	43-161-9	43-173-4	43-185-8	43-197-3	128.30

* 1/2" shank dia. † 3 3/8" OAL.

SHOP GRADE

HSS Single Flute Countersink Sets

Countersink Angles: 60°, 82°, 90°, and 100°



- Use with portable drills and drill presses on ferrous and non-ferrous materials.
- Complete with wooden storage block.

NO. OF PCS.	SIZE RANGE	60° PART NO.	82° PART NO.	90° PART NO.	100° PART NO.	PRICE
5	1/4, 3/8, 1/2, 3/4, 1"	71-009-5	71-012-9	71-015-2	71-018-6	$62.00
9	3/8, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1"	71-010-3	71-013-7	71-016-0	71-019-4	104.15
12	3/8, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/4, 1 1/2, 2"	71-011-1	71-014-5	71-017-8	–	345.50

SHOP GRADE

HSS Center Reamers & Sets – 3 Flute

Countersinks 60°, 82° & 90°



- Designed to perform a variety of jobs including chamfering, deburring and countersinking.
- Sets are supplied in a wooden stand.

SIZE	SHANK DIA.	OAL	60° PART NO.	82° PART NO.	90° PART NO.	PRICE EACH
1/4" *	3/16"	2"	43-453-0	43-459-7	43-465-4	$6.25
5/16"	1/4"	2"	–	73-465-7	73-467-3	9.30
3/8" *	1/4"	2"	43-454-8	43-460-5	43-466-2	7.00
1/2" *	3/8"	2"	43-455-5	43-461-3	43-467-0	8.35
5/8"	3/8"	2 3/4"	43-456-3	43-462-1	43-468-8	11.40
3/4" *	1/2"	2 3/4"	43-457-1	43-463-9	43-469-6	16.15
7/8"	1/2"	2 3/4"	–	73-466-5	73-468-1	31.65
1" *	1/2"	2 3/4"	43-458-9	43-464-7	43-470-4	25.05
5 Pc. Sets			73-464-0	–	73-469-9	87.75

*Included in set

CUTTING TOOLS



SHOP GRADE

HSS Machine Countersinks 60° & 82° — 4 Flute

- General purpose machine countersink, chamfer and deburring tool.
- Shank dia. 1/2", 4 flutes.

SIZE	SHANK LENGTH	OAL	60° PART NO.	82° PART NO.	PRICE EACH
1/2"	3 3/8"	3 7/16"	43-234-4	43-239-3	$20.70
5/8"	2 1/4"	4"	43-235-1	43-240-1	23.30
3/4"	2 1/4"	4 1/8"	43-236-9	43-241-9	31.05
7/8"	2 1/4"	4 3/8"	43-237-7	43-242-7	36.85
1"	2 1/4"	4 15/64"	43-238-5	43-243-5	43.15



43-198-1

43-203-9

SHOP GRADE

HSS & M-35 Cobalt 6 Flute Chatterless Countersinks 60°, 82° & 90°

- Designed to perform a variety of jobs including chamfering, deburring and countersinking.
- To be used on all types of machine setups.

HSS

- Provides good wear resistance in mild steels and non ferrous materials such as plastics, aluminum, copper, brass, bronze, rubber and wood.

SIZE	SHANK DIA.	OAL	60° PART NO.	82° PART NO.	90° PART NO.	PRICE EACH
1/4"	1/4"	2"	43-198-1	43-210-4	43-222-9	$7.65
5/16"	1/4"	2"	43-199-9	43-211-2	43-223-7	9.30
3/8"	1/4"	2"	43-200-5	43-212-0	43-224-5	9.45
1/2"	1/4"	2"	43-201-3	43-213-8	43-225-2	11.60
5/8"	1/2"	2 3/4"	43-202-1	43-214-6	43-226-0	16.80
3/4"	1/2"	2 3/4"	43-203-9	43-215-3	43-227-8	24.15
7/8"	1/2"	2 3/4"	43-204-7	43-216-1	43-228-6	34.15
1"	1/2"	2 3/4"	43-205-4	43-217-9	43-229-4	35.25
1 1/4"	3/4"	3 3/8"	43-206-2	43-218-7	43-230-2	54.00
1 1/2"	3/4"	3 1/2"	43-207-0	43-219-5	43-231-0	77.40
1 3/4"	1"	4 1/4"	43-208-8	43-220-3	43-232-8	117.10
2"	1"	4 3/8"	43-209-6	43-221-1	43-233-6	130.65

M-35 Cobalt

- Provides better wear resistance in hardness and toughness compared to HSS.
- For use in high-tensile alloys, titanium, cast iron, Inconel and high-nickel stainless steels.

SIZE	SHANK DIA.	OAL	60° PART NO.	82° PART NO.	90° PART NO.	PRICE EACH
3/16"	3/16"	1 1/2"	73-532-4	73-545-6	73-558-9	$10.40
1/4"	1/4"	2"	73-533-2	73-546-4	73-559-7	10.40
5/16"	1/4"	2"	73-534-0	73-547-2	73-560-5	11.75
3/8"	1/4"	2"	73-535-7	73-548-0	73-561-3	14.15
1/2"	1/4"	2"	73-536-5	73-549-8	73-562-1	18.45
5/8"	1/2"	2 3/4"	73-537-3	73-550-6	73-563-9	26.30
3/4"	1/2"	2 3/4"	73-538-1	73-551-4	73-564-7	35.00
7/8"	1/2"	2 3/4"	73-539-9	73-552-2	73-565-4	44.40
1"	1/2"	2 3/4"	73-540-7	73-553-0	—	53.75
1 1/4"	3/4"	3 3/8"	73-541-5	73-554-8	73-566-2	83.70
1 1/2"	3/4"	3 1/2"	73-542-3	73-555-5	73-567-0	111.70
1 3/4"	1"	4 1/4"	73-543-1	73-556-3	73-568-8	140.15
2"	1"	4 3/8"	73-544-9	73-557-1	73-569-6	168.25

SHOP GRADE

HSS & Cobalt Chatterless Countersink Sets

Countersink Angles: 60°, 82° and 90°



70-758-8

- Use with portable drills and drill presses on ferrous and non-ferrous materials.
- Complete with wooden storage block.

HSS

- Provides good wear resistance in mild steel and nonferrous materials.

NO. OF PCS.	SIZE RANGE	60° PART NO.	82° PART NO.	90° PART NO.	PRICE
8	1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1"	70-757-0	70-760-4	70-763-8	$112.60
10	1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/4, 1 1/2"	70-758-8	70-761-2	70-764-6	239.95
10	3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/4"	70-759-6	70-762-0	70-765-3	168.50

M-42 Cobalt

- Provides better wear resistance in harness and toughness compared to HSS.
- Use in high-tensile alloys, titanium, cast iron, Inconel and high nickel stainless steel.

NO. OF PCS.	SIZE RANGE	60° PART NO.	82° PART NO.	90° PART NO.	PRICE
8	1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1"	70-766-1	70-768-7	70-770-3	$184.95
10	3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/4"	70-767-9	70-769-5	70-771-1	269.80

SHOP GRADE

HSS Countersink & Deburring Tools



- HSS—provides good wear resistance in mild steels and nonferrous materials.
- Single cutting edge gives fast stock removal and a finish free from chatter.
- Can easily be sharpened using a small mounted grinding wheel.

CUTTER DIA. MIN.	CUTTER DIA. MAX.	SHANK DIA.	60° PART NO.	82° PART NO.	90° PART NO.	100° PART NO.	PRICE EACH
1/16"*	15/64"	1/4"	73-570-4	73-575-3	73-584-5	73-589-4	$9.60
5/32"	13/32"	1/4"	73-571-2	73-576-1	73-585-2	73-590-2	10.30
3/16"	17/32"	1/4"	73-572-0	73-577-9	73-586-0	73-591-0	11.85
3/16"	25/32"	1/2"	73-573-8	73-578-7	73-587-8	73-592-8	20.60
9/16"	1 1/16"	1/2"	73-574-6	73-579-5	73-588-6	73-593-6	36.30
5/8"	1 15/32"	1/2"	—	73-580-3	—	—	70.75
3/4"	1 3/4"	5/8"	—	73-581-1	—	—	110.95
1"	2"	5/8"	—	73-582-9	—	—	152.25
1 1/4"	2 1/2"	5/8"	—	73-583-7	—	—	169.05

* 1/16" size is double ended

SHOP GRADE

5 Pc. HSS Countersink & Deburring Tool Sets

Countersink Angles: 60°, 82°, 90°, and 100°



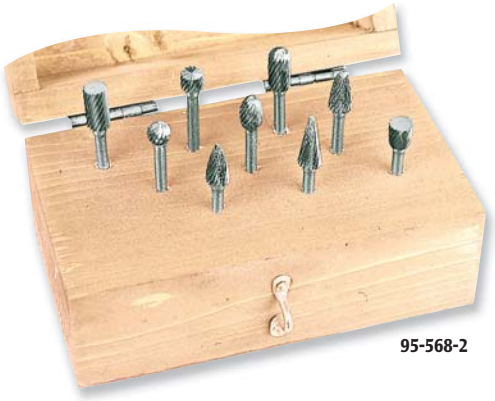
73-595-1

- Use with portable drills and drill presses on ferrous and non-ferrous materials.
- Complete in fitted case.

SIZE RANGE	60° PART NO.	82° PART NO.	90° PART NO.	100° PART NO.	PRICE
1/16, 5/32, 3/16, 5/16, 9/16"	73-594-4	73-595-1	73-596-9	73-597-7	$91.30



95-566-6



95-568-2



95-567-4

Steel Shank Solid Carbide Burr Sets

- Sets **95-566-6** & **95-567-4** Include: 2 Cylindrical, 2 Cylindrical Ball Nose, 1 Ball, 1 Egg, 1 Round Tree Shape, 1 Pointed Tree Shape, 1 60° Cone, 1 8° Included Angle, 1 Flame Point, 1 Inverted Taper, and 1 wooden case.
- Set **95-568-2** Includes: 2 Cylindrical, 1 Cylindrical Ball Nose, 1 Ball, 1 Egg, 1 Round Tree Shape, 1 Pointed Tree Shape, 1 Cone, 1 Inverted Taper, and 1 wooden case.
- **95-566-6** 1/8" Dia. 1/8" Shank
- **95-568-2** 1/4" Dia. 1/8" Shank
- **95-567-4** 1/4" Dia. 1/4" Shank
- No end cut included in Set **95-567-4**.

DESCRIPTION	PART NO.	PRICE
12 Pc. Single Cut Set	**95-566-6**	$91.30
9 Pc. Single Cut Set	**95-568-2**	126.85
12 Pc. Single Cut Set	**95-567-4**	172.50

DREMEL®
Small Engraving Cutters

- Carbon Steel.
- Ideal for engraving, carving and routing in soft metals, fiber and wood.
- 3/32" shanks.

DESC.	HEAD DIA.	DREMEL MODEL #	PART NUMBER	PRICE
BALL	1/16"	106	**95-944-5** *	$4.65
BALL	3/32"	107	**95-945-2** *	4.65
INV. CONE	5/64"	110	**95-950-2**	4.75
CYLINDER	1/16"	113	**95-946-0**	4.75
CYLINDER	1/32"	111	**95-947-8**	4.75

*Sold in packs of 2



95-945-2 (107) **95-950-2** (110) **95-946-0** (113)



95-920-5 (199) **95-921-3** (194) **95-924-7** (193) **95-925-4** (118)



95-928-8 (121) **95-929-6** (134) **95-930-4** (144) **95-931-2** (116)



95-932-0 (114) **95-933-8** (124)

DREMEL®
High Speed Steel Cutters

- Made of High Quality Steel.
- 1/8" shank.
- Use for shaping many metals, plastics and wood.

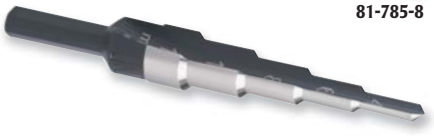
TYPE	DIA.	DREMEL® MODEL #	PART NUMBER	PRICE EACH
Flat Wheel	3/8"	199	**95-920-5**	$9.65
Cylindrical	1/8"	194	**95-921-3**	9.65
Cylindrical	5/64"	193	**95-924-7**	9.65
Cone	1/8"	118	**95-925-4**	9.65
Teardrop	1/4"	121	**95-928-8**	9.15
Squashed Egg	5/16"	134	**95-929-6**	9.65
Egg Shape	5/16"	144	**95-930-4**	9.65
Inverted Cone	1/4"	116	**95-931-2**	9.65
Pointed Ball	5/16"	114	**95-932-0**	9.65
Teardrop	5/16"	124	**95-933-8**	9.65

Unibit®
Metric Self-Starting Step Drills
HSS Multiple Hole Sizes

- UNIBIT Step Drills have an exclusive single radial concave flute. Allows the drilling of perfectly round holes in thin materials quickly and with less effort.
- Each bit is constructed of industrial grade high speed molybdenum steel, and is heat treated to a hardness of between 61 - 63 RC. This assures maximum strength and long life.
- Use for steel, copper, brass, aluminum and other thin materials.
- Also ideal for drilling through wood, composition board, and even plexiglass and plastics which often crack with standard twist drills.
- Handle thicker materials by drilling from both sides of work surface.
- Use for reaming, deburring and cutting through soft wood or plasterboard.



81-785-8



81-788-2



81-787-4



81-786-6

SIZE RANGE (MM) MIN.	MAX.	NO. OF HOLE SIZE	SHANK DIA. (MM)	STEP THICK. (MM)	PART NUMBER	PRICE EACH
4	12	9	6.5	5.0	**81-785-8**	$27.20
4	12	5	6.5	11.0	**81-788-2**	27.20
6	18	7	10.0	5.0	**81-787-4**	49.45
4	22	10	10.0	5.0	**81-786-6**	59.00

CUTTING TOOLS

Unibit® Self-Starting Single Hole Step Drills


54-328-0

- UNIBIT Step Drills have an exclusive single radial concave flute.
- This design allows the drilling of perfectly round holes in thin materials quickly and with less effort.
- Each bit is constructed of industrial grade high speed molybdenum steel, and is heat treated to a hardness of between 61 - 63 RC. This assures maximum strength and long life.

HOLE SIZE	SHANK SIZE	PART NUMBER	PRICE EACH
3/8"	1/4"	**81-784-1**	$19.30
1/2"	1/4"	**54-328-0**	24.45
7/8"	3/8"	**54-332-2**	50.30
1 1/8"	1/2"	**54-335-5**	85.10
1 7/32"	1/2"	**81-783-3**	76.80


54-321-5 54-324-9

Unibit® Self-Starting Step Drills


54-323-1

- Multiple Hole Sizes UNIBIT Step Drills have an exclusive single radial concave flute.
- Allows the drilling of perfectly round holes in thin materials quickly and with less effort.
- Each bit is constructed of industrial grade high speed molybdenum steel, and is heat treated to a hardness of between 61 and 63 on the Rockwell "C" scale. This assures maximum strength and long life.
- Use for steel, copper, brass, aluminum and other thin materials.
- Also ideal for drilling through wood, composition board, and even plexiglass and plastics which often crack with standard twist drills.
- Handle thicker materials by drilling from both sides of work surface.
- Use for reaming, deburring and cutting through soft wood or plasterboard.

HSS Self-Starting Step Drill

SIZE RANGE MIN.	SIZE RANGE MAX.	NO. OF HOLE SIZE	SHANK DIA.	STEP THICK.	PART NUMBER	PRICE EACH
1/8"	1/2"	13	1/4"	1/8"	**54-321-5**	$27.20
3/16"	1/2"	6	1/4"	3/8"	**54-324-9**	27.20
1/4"	3/4"	9	3/8"	1/8"	**54-323-1**	49.45
3/16"	7/8"	12	3/8"	1/8"	**54-322-3**	59.00
1/4"	1 3/8"	10	1/2"	1/8"	**54-325-6**	103.60

TiN Coated Self-Starting Step Drill

SIZE RANGE MIN.	SIZE RANGE MAX.	NO. OF HOLE SIZE	SHANK DIA.	STEP THICK.	PART NUMBER	PRICE EACH
1/8"	1/2"	13	1/4"	1/8"	**54-326-4**	$37.45
3/16"	1/2"	6	1/4"	3/8"	**54-330-6**	37.45
1/4"	3/4"	9	3/8"	1/8"	**54-329-8**	66.50
3/16"	7/8"	12	3/8"	1/8"	**54-327-2**	80.40

Unibit® HSS Step Drill Set


54-320-7

- 28 hole sizes with just 3 bits.
- Self starting multiple hole sizes.
- 1/8 - 1/2" x 32nds
- 3/16 - 1/2" x 16ths
- 1/4 - 3/4" x 16ths

DESCRIPTION	PART NO.	PRICE
UNIBIT® Step Drill Sets	**54-320-7**	$89.75

Unibit® Hole-Enlarging Step Drills

- UNIBIT Step Drills have an exclusive single radial concave flute.
- This design allows the drilling of perfectly round holes in thin materials quickly and with less effort.
- Each bit is constructed of industrial grade high speed molybdenum steel, and is heat treated to a hardness of between 61 - 63 RC. This assures maximum strength and long life.
- Shank size: 1/2".
- Step thick: 1/8".


54-331-4

HOLE INCH SIZE	NO. OF HOLE SIZES	PART NUMBER	PRICE EACH
9/16" - 1"	8	**54-331-4**	$53.05
13/16" - 1 3/16"	10	**54-334-8**	113.20

SHOP GRADE HSS & M-42 Cobalt Straight Tooth Woodruff Key Seat Cutters


43-025-6

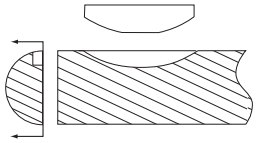
- 1/2" straight shank.

NOMINAL DIA.	FACE W	OAL	OLD STD.	AMERICAN STD.	HSS PART NO.	HSS PRICE EA.	M-42 COBALT PART NO.	M-42 COBALT PRICE EA.
1/4"	1/16"	2 1/16"	201	202	**42-997-7**	$16.35	**43-038-9**	$22.70
5/16"	1/16"	2 1/16"	206	202 1/2	**42-998-5**	16.35	**43-039-7**	23.10
5/16"	3/32"	2 3/32"	207	302 1/2	**42-999-3**	16.35	**43-040-5**	22.70
3/8"	1/16"	2 1/16"	211	203	**43-000-9**	16.35	**43-041-3**	22.80
3/8"	3/32"	2 3/32"	212	303	**43-001-7**	16.35	**43-042-1**	22.70
3/8"	1/8"	2 1/8"	213	403	**43-002-5**	16.35	**43-043-9**	22.70
1/2"	1/16"	2 1/16"	1	204	**43-003-3**	13.50	**43-044-7**	23.20
1/2"	3/32"	2 3/32"	2	304	**43-004-1**	13.50	**43-045-4**	23.20
1/2"	1/8"	2 1/8"	3	404	**43-005-8**	13.50	**43-046-2**	23.20
5/8"	3/32"	2 3/32"	4	305	**43-006-6**	13.50	**43-047-0**	23.20
5/8"	1/8"	2 1/8"	5	405	**43-007-4**	13.50	**43-048-8**	23.20
5/8"	5/32"	2 5/32"	6	505	**43-008-2**	13.50	**43-049-6**	23.60
5/8"	3/16"	2 3/16"	61	605	**43-009-0**	13.50	**43-050-4**	23.20
3/4"	1/8"	2 1/8"	7	406	**43-010-8**	15.25	**43-051-2**	26.25
3/4"	5/32"	2 5/32"	8	506	**43-011-6**	16.90	–	–
3/4"	1/4"	2 1/4"	91	806	**43-012-4**	16.90	**43-052-0**	29.10
3/4"	3/16"	2 3/16"	9	606	**43-013-2**	16.90	**43-053-8**	29.10
7/8"	5/32"	2 5/32"	10	507	**43-014-0**	17.55	**43-054-6**	30.40
7/8"	3/16"	2 3/16"	11	607	**43-015-7**	17.50	**43-055-3**	25.70
7/8"	7/32"	2 7/32"	12	707	**43-016-5**	18.85	–	–
7/8"	1/4"	2 1/4"	A	807	**43-017-3**	18.25	**43-056-1**	27.45
1"	3/16"	2 3/16"	13	608	**43-018-1**	18.80	**43-057-9**	32.20
1"	7/32"	2 7/32"	14	708	**43-019-9**	21.10	**43-058-7**	32.80
1"	3/8"	2 3/8"	152	1208	**43-020-7**	21.30	**43-059-5**	37.35
1"	1/4"	2 1/4"	15	808	**43-021-5**	21.30	**43-060-3**	30.90
1"	5/16"	2 5/16"	B	1008	**43-022-3**	21.95	**43-061-1**	32.60
1 1/8"	3/16"	2 3/16"	16	609	**43-023-1**	23.20	**43-062-9**	34.50
1 1/8"	7/32"	2 7/32"	17	709	**43-024-9**	23.20	–	–
1 1/8"	1/4"	2 1/4"	18	809	**43-025-6**	22.70	**43-063-7**	34.50
1 1/8"	5/16"	2 5/16"	C	1009	**43-026-4**	25.95	–	–
1 1/4"	3/16"	2 3/16"	19	610	**43-027-2**	22.65	**43-064-5**	40.25
1 1/4"	7/32"	2 7/32"	20	710	**43-028-0**	25.50	–	–
1 1/4"	1/4"	2 1/4"	21	810	**43-029-8**	25.05	**43-065-2**	41.95
1 1/4"	5/16"	2 5/16"	D	1010	**43-030-6**	27.65	**43-066-0**	40.95
1 1/4"	3/8"	2 3/8"	E	1210	**43-031-4**	27.25	**43-067-8**	40.95
1 3/8"	1/4"	2 1/4"	22	811	**43-032-2**	25.05	**43-068-6**	40.95
1 3/8"	5/16"	2 5/16"	23	1011	**43-033-0**	30.25	–	–
1 3/8"	3/8"	2 3/8"	F	1211	**43-034-8**	29.70	**43-069-4**	44.60
1 1/2"	1/4"	2 1/4"	24	812	**43-035-5**	25.05	**43-070-2**	45.85
1 1/2"	5/16"	2 5/16"	25	1012	**43-036-3**	29.15	**43-071-0**	44.60
1 1/2"	3/8"	2 3/8"	G	1212	**43-037-1**	32.75	**43-072-8**	47.55

HSS Straight Tooth Woodruff Key Seat Cutters

- Right hand cut.
- Made from M-4 high speed steel.
- Cutting diameter tolerance +.015".
- 1/2" shank with 2" under head length.





AMERICAN STANDARD	CUT DIA.	WIDTH	PART NUMBER	PRICE EACH
#202	1/4"	1/16"	**65-100-0**	$24.30
#202.5	5/16"	1/16"	**65-101-8**	24.30
#302.5	5/16"	3/32"	**65-102-6**	24.30
#203	3/8"	1/16"	**65-103-4**	24.30
#303	3/8"	3/32"	**65-104-2**	24.30
#403	3/8"	1/8"	**65-105-9**	24.30
#204	1/2"	1/16"	**65-106-7**	24.60
#304	1/2"	3/32"	**65-107-5**	24.60
#404	1/2"	1/8"	**65-108-3**	24.60
#305	5/8"	3/32"	**65-109-1**	24.60
#405	5/8"	1/8"	**65-110-9**	24.60
#505	5/8"	5/32"	**65-111-7**	24.60
#605	5/8"	3/16"	**65-112-5**	24.60
#406	3/4"	1/8"	**65-113-3**	26.05
#506	3/4"	5/32"	**65-114-1**	26.75
#606	3/4"	3/16"	**65-115-8**	26.05
#806	3/4"	1/4"	**65-116-6**	26.05
#507	7/8"	5/32"	**65-117-4**	29.20
#607	7/8"	3/16"	**65-118-2**	28.65
#707	7/8"	7/32"	**65-119-0**	29.70
#807	7/8"	1/4"	**65-120-8**	28.60
#608	1"	3/16"	**65-121-6**	30.45
#708	1"	7/32"	**65-122-4**	31.30
#808	1"	1/4"	**65-123-2**	30.75
#1008	1"	5/16"	**65-124-0**	31.20
#1208	1"	3/8"	**65-125-7**	31.30
#609	1 1/8"	3/16"	**65-126-5**	34.95
#709	1 1/8"	7/32"	**65-127-3**	34.95
#809	1 1/8"	1/4"	**65-128-1**	35.60
#1009	1 1/8"	5/16"	**65-129-9**	36.70
#610	1 1/4"	3/16"	**65-130-7**	38.05
#710	1 1/4"	7/32"	**65-131-5**	39.15
#810	1 1/4"	1/4"	**65-132-3**	39.30
#1010	1 1/4"	5/16"	**65-133-1**	40.90
#1210	1 1/4"	3/8"	**65-134-9**	40.90
#811	1 3/8"	1/4"	**65-135-6**	45.00
#1011	1 3/8"	5/16"	**65-136-4**	45.00
#1211	1 3/8"	3/8"	**65-137-2**	44.75
#812	1 1/2"	1/4"	**65-138-0**	46.15
#1012	1 1/2"	5/16"	**65-139-8**	47.75
#1212	1 1/2"	3/8"	**65-140-6**	48.35

TOLERANCE OF FACE WIDTH	
1/16" to 5/32"	+.0000, -.0005"
3/16" to 7/32"	-.0002, -.0007
1/4"	-.0003, -.0008
5/16"	-.0004, -.0009
3/8"	-.0005, -.0010



43-140-3



43-146-0

SHOP GRADE

HSS & Cobalt 45° & 60° Dovetail Cutters

- For cutting dovetails and angles in fixtures, jigs and production parts.

45° Dovetail Cutters

CUT. DIA.	SHANK DIA.	OAL	CUT. W.	SHANK L	HSS PART NUMBER	PRICE EACH	COBALT PART NUMBER	PRICE EACH
3/8"	3/8"	2 1/8"	3/16"	1 15/16"	**43-138-7**	$27.90	**74-487-0**	$39.00
1/2"	3/8"	2 1/8"	1/4"	1 7/8"	**43-139-5**	29.00	**74-488-8**	40.55
3/4"	3/8"	2 1/8"	5/16"	1 13/16"	**43-140-3**	30.85	**74-489-6**	43.30
1 3/8"	5/8"	2 7/8"	9/16"	2 5/16"	**43-141-1**	53.30	**74-490-4**	74.95
1 7/8"	7/8"	3 1/4"	13/16"	2 7/16"	**43-142-9**	99.65	**74-491-2**	138.65
2 1/4"	1"	3 3/4"	1 1/16"	2 11/16"	**43-143-7**	139.45	**74-492-0**	192.60

60° Dovetail Cutters

CUT. DIA.	SHANK DIA.	OAL	CUT. W.	SHANK L	HSS PART NUMBER	PRICE EACH	COBALT PART NUMBER	PRICE EACH
3/8"	3/8"	2 1/8"	3/16"	1 15/16"	**43-144-5**	$27.90	**74-493-8**	$39.00
1/2"	3/8"	2 1/8"	7/32"	1 7/8"	–	–	**74-494-6**	40.55
1/2"	3/8"	2 1/8"	1/4"	1 7/8"	**43-145-2**	29.00	–	–
3/4"	3/8"	2 1/8"	5/16"	1 13/16"	**43-146-0**	30.85	**74-495-3**	43.30
1 3/8"	5/8"	2 7/8"	9/16"	2 5/16"	**43-147-8**	53.30	**74-496-1**	74.95
1 7/8"	7/8"	3 1/4"	13/16"	2 7/16"	**43-148-6**	99.65	**74-497-9**	138.65
2 1/4"	1"	3 3/4"	1 1/16"	2 11/16"	**43-149-4**	139.45	**74-498-7**	192.60



HSS & Cobalt T-Slot Milling Cutters

- Used primarily for milling T-slots in machine tables.
- Straight shank.
- Right hand cut.
- A vertical slot must be cut first, so shank and neck of cutter can enter the slot.

T-Slot Milling Cutters • HSS

BOLT SIZE	CUTTER DIA.	CUTTER W	NECK DIA.	SHANK	PART NUMBER	PRICE EACH
1/4"	9/16"	15/64"	17/64"	1/2"	**65-163-8**	$74.15
5/16"	21/32"	17/64"	21/64"	1/2"	**65-164-6**	80.10
3/8"	25/32"	21/64"	13/32"	3/4"	**65-165-3**	113.05
1/2"	31/32"	25/64"	17/32"	3/4"	**65-166-1**	128.40
5/8"	1 1/4"	31/64"	21/32"	1"	**65-167-9**	179.30
3/4"	1 15/32"	5/8"	25/32"	1"	**65-168-7**	201.55
1"	1 27/32"	53/64"	1 1/32"	1 1/4"	**65-169-5**	318.80
1 1/4"	2 7/32"	1 3/32"	1 7/32"	1 1/4"	**65-170-3**	434.85
1 1/2"	2 21/32"	1 11/32"	1 7/32"	1 1/4"	**65-171-1**	543.80

T-Slot Milling Cutters • Cobalt

BOLT SIZE	CUTTER DIA.	CUTTER W	NECK DIA.	SHANK	PART NUMBER	PRICE EACH
1/4"	9/16"	15/64"	17/64"	1/2"	**65-172-9**	$103.15
5/16"	21/32"	17/64"	21/64"	1/2"	**65-173-7**	111.45
3/8"	25/32"	21/64"	13/32"	3/4"	**65-174-5**	157.25
1/2"	31/32"	25/64"	17/32"	3/4"	**65-175-2**	178.60
5/8"	1 1/4"	31/64"	21/32"	1"	**65-176-0**	249.35
3/4"	1 15/32"	5/8"	25/32"	1"	**65-177-8**	280.35

HSS & Cobalt 45° & 60° Dovetail Cutters

- 45° or 60° angle.
- Recommended for use in place of arbor type cutters to reduce set-up time.
- Made from high speed steel.

Dovetail Milling Cutter • 45°

SIZE	SHANK	HSS PART NO.	PRICE	COBALT PART NO.	PRICE
3/8"	3/8"	**65-178-6**	$50.25	**65-195-0**	$62.50
1/2"	3/8"	**65-179-4**	53.55	**65-196-8**	68.40
3/4"	3/8"	**65-180-2**	63.30	**65-197-6**	79.05
1"	1/2"	**65-181-0**	70.25	**65-198-4**	81.30
1 3/8"	5/8"	**65-182-8**	98.55	**65-199-2**	123.15
1 7/8"	7/8"	**65-183-6**	211.35	**65-200-8**	264.20
2 1/4"	1"	**65-184-4**	251.95	–	–
2 1/2"	1"	**65-185-1**	298.05	–	–

Dovetail Milling Cutter • 60°

SIZE	SHANK	HSS PART NO.	PRICE	COBALT PART NO.	PRICE
3/8"	3/8"	**65-186-9**	$50.05	**65-201-6**	$62.60
1/2"	3/8"	**65-187-7**	53.55	**65-202-4**	68.40
3/4"	3/8"	**65-188-5**	63.30	**65-203-2**	79.05
1"	1/2"	–	–	**65-204-0**	81.30
1"	1/2"	**65-189-3**	70.25	–	–
1 3/8"	5/8"	**65-190-1**	98.55	**65-205-7**	123.15
1 7/8"	7/8"	**65-191-9**	211.35	**65-206-5**	264.20
2 1/4"	1"	**65-192-7**	251.95	–	–
2 1/2"	1"	**65-193-5**	298.05	–	–



CUTTING TOOLS

HSS & Cobalt 60° & 90° Double Angle Cutters

Shank Type



71-328-9

60° Double Angle Cutters

CUTTER DIA.	SHANK DIA.	CUTTER THICK.	OAL	HSS PART NO.	HSS PRICE	COBALT PART NO.	COBALT PRICE
3/4"	3/8"	3/16"	2 3/8"	71-317-2	$37.45	71-329-7	$64.10
1"	1/2"	5/16"	2 27/32"	71-318-0	59.80	71-330-5	104.30
1 3/8"	5/8"	7/16"	3 7/32"	71-319-8	79.60	71-331-3	136.20
1 1/2"	5/8"	1/2"	3 3/8"	71-320-6	104.40	71-332-1	178.20
1 7/8"	3/4"	5/8"	3 25/32"	71-321-4	120.85	71-333-9	205.00
2 1/4"	7/8"	3/4"	4 5/32"	71-322-2	177.25	71-334-7	306.20

90° Double Angle Cutters

CUTTER DIA.	SHANK DIA.	CUTTER THICK.	OAL	HSS PART NO.	HSS PRICE	COBALT PART NO.	COBALT PRICE
3/4"	3/8"	1/4"	2 7/16"	71-323-0	$37.45	71-335-4	$64.10
1	1/2"	3/8"	2 29/32"	71-324-8	59.80	71-336-2	104.30
1 3/8"	5/8"	1/2"	3 9/32"	71-325-5	79.60	71-337-0	136.20
1 1/2"	5/8"	9/16"	3 7/16"	71-326-3	104.40	71-338-8	178.20
1 7/8"	3/4"	5/8"	3 25/32"	71-327-1	120.85	71-339-6	205.00
2 1/4"	7/8"	3/4"	4 5/32"	71-328-9	177.25	71-340-4	306.20

HSS Straight Tooth Narrow Width Slotting Cutters

- Right handed cut.
- Made from M-4 high speed steel.
- For milling slots in steel, cast iron, non ferrous metals, plastic and non-metals.
- Face width tolerance -.0005".
- 1/2" shank.



HEAD DIA.	HEAD WIDTH	NO. OF TEETH	PART NO.	PRICE
1/2"	.020	8	65-141-4	$38.80
1/2"	1/32"	8	65-142-2	38.45
1/2"	3/64"	8	65-143-0	38.45
5/8"	.020	8	65-144-8	38.80
5/8"	1/32"	8	65-145-5	38.45
5/8"	3/64"	8	65-146-3	38.45
5/8"	1/16"	8	65-147-1	38.45
3/4"	1/32"	10	65-148-9	41.45
3/4"	1/16"	10	65-149-7	41.45
3/4"	3/32"	10	65-150-5	41.45
1"	1/16"	12	65-151-3	51.10
1"	3/32"	12	65-152-1	51.10
1"	1/8"	12	65-153-9	51.10
1 1/8"	1/16"	12	65-154-7	60.50
1 1/8"	3/32"	12	65-155-4	61.65
1 1/8"	1/8"	12	65-156-2	60.50
1 1/4"	1/16"	14	65-157-0	65.80
1 1/4"	3/32"	14	65-158-8	65.80
1 1/4"	1/8"	14	65-159-6	65.80
1 1/2"	1/16"	16	65-160-4	76.05
1 1/2"	3/32"	16	65-161-2	76.05
1 1/2"	3/16"	16	65-162-0	76.05

HSS Concave and Convex Radius Milling Cutters

The Alternative to Expensive Form Relief Cutters

- Precision ground.
- More teeth for faster cutting.
- Better finish possible in many materials with profile ground.



CONVEX



CONCAVE

TOLERANCE OD +.005/-.000
RADIUS 1/8" AND SMALLER +/-.001"
RADIUS 5/32" AND LARGER +/-.002"

Convex Radius Cutter • Shank Type • HSS

RADIUS	DIA.	WIDTH	OAL	TEETH	SHANK	PART NO.	PRICE EA.
1/32"	3/4"	1/16"	3"	8	1/2"	65-215-6	$88.70
1/16"	3/4"	1/8"	3"	8	1/2"	65-216-4	84.70
3/32"	7/8"	3/16"	3"	10	1/2"	65-217-2	90.00
1/8"	1 1/4"	1/4"	3 1/2"	10	3/4"	65-218-0	94.10
5/32"	1 5/16"	5/16"	3 1/2"	10	3/4"	65-219-8	103.60
3/16"	1 3/8"	3/8"	3 1/2"	10	3/4"	65-220-6	107.60
1/4"	1 1/2"	1/2"	4"	10	3/4"	65-221-4	121.00

Concave Radius Cutter • Shank Type • HSS

RADIUS	DIA.	WIDTH	OAL	TEETH	SHANK	PART NO.	PRICE EA.
1/32"	3/4"	3/8"	3"	8	1/2"	65-207-3	$79.00
1/16"	3/4"	3/8"	3"	8	1/2"	65-208-1	78.40
3/32"	7/8"	1/2"	3"	8	1/2"	65-209-9	81.30
1/8"	1 1/4"	9/16"	3 1/2"	8	3/4"	65-210-7	94.55
5/32"	1 5/16"	5/8"	3 1/2"	8	3/4"	65-211-5	100.50
3/16"	1 3/8"	3/4"	3 1/2"	8	3/4"	65-212-3	124.75
1/4"	1 1/2"	1"	4"	8	3/4"	65-213-1	128.65
5/16"	1 3/4"	1 7/8"	4"	8	3/4"	65-214-9	141.80

HSS & TiN Coated Single Angle Shank Type Chamfer Cutters

- New multi flute design features chatter free chamfering.
- Right hand cut with weldon shank.
- Available in 45° and 60°.



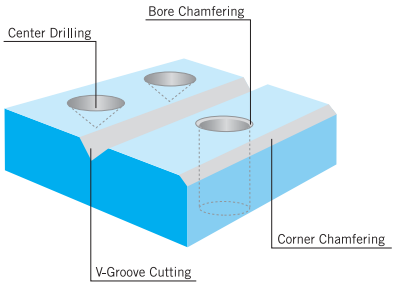
Chamfer Cutters• 45° • Single Angle • Shank Type

DIA.	SHANK	HSS PART NO.	HSS PRICE EA.	TIN COATED PART NO.	TIN COATED PRICE EA.
1/2"	3/8"	65-222-2	$51.95	65-230-5	$65.45
3/4"	3/8"	65-223-0	60.50	65-231-3	76.90
1"	1/2"	65-224-8	75.90	65-232-1	95.40
1 1/2"	3/4"	65-225-5	97.70	65-233-9	123.15

Chamfer Cutters• 60° • Single Angle • Shank Type

DIA.	SHANK	HSS PART NO.	HSS PRICE EA.	TIN COATED PART NO.	TIN COATED PRICE EA.
1/2"	3/8"	65-226-3	$51.95	65-234-7	$65.45
3/4"	3/8"	65-227-1	60.50	65-235-4	76.90
1"	1/2"	65-228-9	75.90	65-236-2	95.40
1 1/2"	3/4"	65-229-7	97.70	65-237-0	123.15





MOMIMEM Center Drills & Chamfering Tools

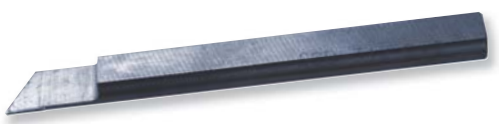
- Multi purpose indexable carbide tool designed for center drilling, bore and corner chamfering, and v-grooving with one tool.
- High accuracy and no cutting vibration is assured.
- Possible to make centering and chamfering at same center.
- Excellent for CNC machines.

Center Drills & Chamfering Tools

POINT ANGLE	OVERALL LENGTH	MAX. DIA.	SHANK DIA.	PART NUMBER	PRICE EACH
90°	4 1/2"	1/2"	5/8"	**82-544-8**	$202.60
118°	4 1/2"	5/8"	5/8"	**82-545-5**	202.60

Inserts (C32GUX) • Sold Individually

ITEM	APPLICATION	PART NO.	PRICE
NK1010	Aluminum/Cast Iron	**82-546-3**	$21.95
NK2020	Steel, Stainless	**82-547-1**	21.95
Screw for Insert		**06-052-5**	8.45



Solid Carbide Boring Bars

Micrograin Tipped Solid Carbide Shank

- Solid carbide is used for high performance applications. It is extremely heat resistant and used on cast iron, nonferrous metals and other tough to machine materials.
- Boring bars are used to enlarge or finish the inside diameter of a workpiece.

MIN. BORE DIA.	SHANK DIA.	OAL	PART NUMBER	PRICE EACH
0.09"	1/16"	2"	**55-535-9**	$34.00
0.12"	3/32"	2"	**55-536-7**	34.00
0.15"	1/8"	2"	**55-537-5**	34.00
0.18"	5/32"	2"	**55-538-3**	36.15
0.24"	3/16"	2"	**55-539-1**	36.90
0.30"	1/4"	2 1/2"	**55-540-9**	41.60

MADE IN USA

SHOP GRADE

Carbide Tipped Boring Bars and Sets

Grade C-2 and C-6

- C-2 Grade for cast and nonferrous material.
- C-6 Grade for steel and steel alloys.
- All boring bar sets are provided with stand.



43-732-7

3/8" Shank Diameter

WORKPIECE MIN BORE DIA.	BORE DEPTH	MAX. OAL	GRADE C-2 PART NUMBER	GRADE C-6 PART NUMBER	PRICE EACH
5/16"	3/4"	2"	**43-700-4**	**43-754-1**	$11.55
5/16"	1 1/8"	2 3/8"	**43-701-2**	**43-755-8**	12.10
5/16"	1 1/2"	2 3/4"	**43-702-0**	**43-756-6**	12.20
3/8"	15/16"	2 3/16"	**43-703-8**	**43-757-4**	12.70
3/8"	1 13/32"	2 21/32"	**43-704-6**	**43-758-2**	13.20
3/8"	1 7/8"	3 1/8"	**43-705-3**	**43-759-0**	13.50
7/16"	1 1/8"	2 3/8"	**43-706-1**	**43-760-8**	14.50
7/16"	1 11/16"	2 15/16"	**43-707-9**	**43-761-6**	14.95
7/16"	2 1/4"	3 1/2"	**43-708-7**	**43-762-4**	14.85
9 Piece Set of Above			**43-709-5**	**43-763-2**	$69.75

1/2" Shank Diameter

5/16"	3/4"	2 1/4"	**43-710-3**	**43-764-0**	$15.10
5/16"	1 1/8"	2 5/8"	**43-711-1**	**43-765-7**	15.45
5/16"	1 1/2"	3"	**43-712-9**	**43-766-5**	16.05
7/16"	1 1/8"	2 5/8"	**43-713-7**	**43-767-3**	16.70
7/16"	1 11/16"	3 3/16"	**43-714-5**	**43-768-1**	17.15
7/16"	2 1/4"	3 3/4"	**43-715-2**	**43-769-9**	17.45
9/16"	1 1/2"	3"	**43-716-0**	**43-770-7**	17.75
9/16"	2 1/4"	3 3/4"	**43-717-8**	**43-771-5**	18.05
9/16"	3"	4 1/2"	**43-718-6**	**43-772-3**	18.15
9 Piece Set of Above			**43-719-4**	**43-773-1**	$89.85



43-773-1

5/8" Shank Diameter

5/16"	3/4"	2 1/4"	**43-720-2**	**43-774-9**	$18.65
5/16"	1 1/8"	2 5/8"	**43-721-0**	**43-775-6**	19.25
5/16"	1 1/2"	3"	**43-722-8**	**43-776-4**	19.90
7/16"	1 1/8"	2 5/8"	**43-723-6**	**43-777-2**	21.65
7/16"	1 11/16"	3 3/16"	**43-724-4**	**43-778-0**	22.60
7/16"	2 1/4"	3 3/4"	**43-725-1**	**43-779-8**	22.95
9/16"	1 1/2"	3"	**43-726-9**	**43-780-6**	23.75
9/16"	2 1/4"	3 3/4"	**43-727-7**	**43-781-4**	24.45
9/16"	3"	4 1/2"	**43-728-5**	**43-782-2**	25.05
11/16"	1 7/8"	3 3/8"	**43-729-3**	**43-783-0**	27.20
11/16"	2 13/16"	4 5/16"	**43-730-1**	**43-784-8**	27.20
11/16"	3 3/4"	5 1/4"	**43-731-9**	**43-785-5**	27.95
12 Piece Set of Above			**43-732-7**	**43-786-3**	$154.70

3/4" Shank Diameter

7/16"	1 1/8"	3 1/8"	**43-733-5**	**43-787-1**	$22.00
7/16"	1 11/16"	3 11/16"	**43-734-3**	**43-788-9**	22.90
7/16"	2 1/4"	4 1/4"	**43-735-0**	**43-789-7**	23.80
9/16"	1 1/2"	3 1/2"	**43-736-8**	**43-790-5**	24.45
9/16"	2 1/4"	4 1/4"	**43-737-6**	**43-791-3**	25.55
9/16"	3"	5"	**43-738-4**	**43-792-1**	26.10
11/16"	1 7/8"	3 7/8"	**43-739-2**	**43-793-9**	27.30
11/16"	2 13/16"	4 13/16"	**43-740-0**	**43-794-7**	28.30
11/16"	3 3/4"	5 3/4"	**43-741-8**	**43-795-4**	28.95
13/16"	2 1/4"	4 1/4"	**43-742-6**	**43-796-2**	30.60
13/16"	3 3/8"	5 3/8"	**43-743-4**	**43-797-0**	32.15
13/16"	4 1/2"	6 1/2"	**43-744-2**	**43-798-8**	32.75
12 Piece Set of Above			**43-745-9**	**43-799-6**	$177.05

1" Shank Diameter

9/16"	3"	5"	**43-746-7**	**43-800-2**	$46.50
11/16"	3 3/4"	5 3/4"	**43-747-5**	**43-801-0**	49.35
7/8"	4 1/2"	6 1/2"	**43-748-3**	**43-802-8**	52.45
1 1/16"	4 1/2"	6 1/2"	**43-749-1**	**43-803-6**	55.80
1 1/4"	5 3/4"	7 3/4"	**43-750-9**	**43-804-4**	60.90
1 1/2"	6 1/4"	8 1/4"	**43-751-7**	**43-805-1**	65.30
1 5/8"	7 1/2"	9 1/2"	**43-752-5**	**43-806-9**	70.75
7 Piece Set of Above			**43-753-3**	**43-807-7**	$285.10



43-719-4

CUTTING TOOLS





VALCUT®

Trepanning Tools

Economy Version

- The proven "Drag-Cut" trepanning method for efficient use in BRIDGEPORT mills, drill presses, etc. is now available in a cost saving square shank toolholder and cutter design.
- Amazing cutting performance in all types of materials.
- The cutter is drawn behind center at a specific angle and performs without any vibration and without hooking.
- The geometry of the patented cutter produces a chip which is smaller than the width of the groove to be cut.
- Clean bores up to 5½" dia. are cut with hole type A cutters and clean discs are produced with type I cutters.
- Cobalt cutters for general trepanning applications, TiN coated cutters for hard to machine, exotic materials.
- Fast and easy set-ups for prototype work or production runs.
- Shank features 3 flats for positive holding and driving in ½" capacity drill chucks.
- Furnished complete with 1 hole type Cobalt cutter A **80-150-6**, center drill, rule for easy diameter setting and allen wrench.

SHANK	CAPACITY	CUTTER SIZE	CUTTING DEPTH	PART NUMBER	PRICE EACH
½"	¾" - 3"	5 mm	⅜"	**80-140-7**	$201.15

Optional:

DESCRIPTION	PART NO.	PRICE
Toolholder for 5½" dia. capacity	**80-145-6**	$75.30

Cutters

TYPE	CUTTER SIZE	CUTTING DEPTH	PART NUMBER	PRICE EACH
Hole A, Cobalt	5 mm	⅜"	**80-150-6**	$23.85
Hole A, TiN coated	5 mm	⅜"	**80-152-2**	35.35
Disc I, Cobalt	5 mm	⅜"	**80-154-8**	23.85
Disc I, TiN coated	5 mm	⅜"	**80-156-3**	34.55

Accessories

DESCRIPTION	PART NO.	PRICE
Center Drill	**80-033-4**	$16.90
Center Guide	**80-035-9**	17.25

VALCUT®

Major Breakthrough in Trepanning

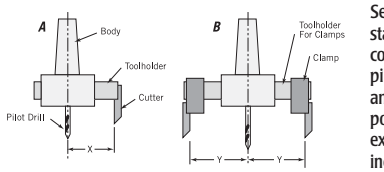
- Employing a totally new "Drag-Cut" principle, the cutter is drawn along the groove to be cut at a specific angle and perform without any vibration and without hooking.
- The cutting-edge of the patented trepanning cutter is axially parallel to the centerline of the tool, but set in back of it.
- Therefore, in the cutting process, the chips narrow down to a smaller size than the groove itself and perfect chip clearance is accomplished.
- The chips are free to leave the groove.
- Good lubrication further helps the very smooth and highly effective cutting action.



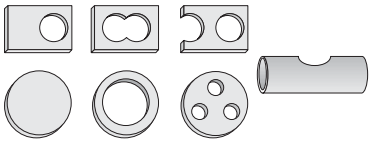
Lathe Application



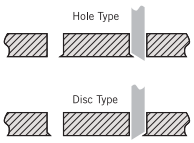
Milling Application



Sets come with body, standard tool holder, cobalt hole type cutter, pilot drill, allen wrench and special rule for quick positioning. Use optional extension toolholder to increase diameter.



Cut holes in material up to 1¾" thick. Cut smooth, clean overlapping holes. Cut holes across the edge of material. Machine custom diameter discs in materials up to ⅜" thick.



Hole type cutters are designed to make a clean hole with minimum burr.

Disc type cutters create discs with clean edges and minimum burring.

Trepanning Tools

For Mills, Drill Presses, Etc.

- Ideally adaptable for fixed set-ups on production runs or repeat orders.
- Furnished complete with one Cobalt cutter **80-101-9**, center drill, rule for easy diameter setting and allen wrench.

Type 2000

SHANK	CAPACITY	CUTTER SIZE	PART NUMBER	PRICE EACH
½"	¾ - 3"	5 mm	**80-001-1**	$244.35
½"*	¾ - 3"	5 mm	**80-002-9**	244.35
⅝"°	¾ - 3"	5 mm	**80-003-7**	262.75

*with 3 flats for use with Drill Chuck °) with Weldon flat.

Optional:

DESCRIPTION	PART NO.	PRICE
Toolholder for 5½" capacity 5 mm	**80-008-6**	$87.90

Accessories

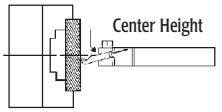
DESCRIPTION	PART NO.	PRICE
Centering Drill for ⅜" cutting depth	**80-033-4**	$16.90
Centering Drill for ½" cutting depth	**80-034-2**	17.25
Center Guide	**80-035-9**	17.25



For Lathes

- Employing the amazing "Drag-Cut" principle, the tool performs without any vibration and without hooking.
- Cutting edge is below center as illustrated.
- Chips narrow down to a smaller size than the groove itself and perfect chip clearance is provided.
- Highly effective cutting action.
- Cobalt cutter as shown is included.
- For greater cutting depth the trepanning cutters listed below can be utilized.





SHANK SIZE	CUTTER SIZE	CUTTING DEPTH	PART NUMBER	PRICE EACH
⅞" x ⅞" x 5"	5 mm	⅜"	**80-081-3**	$192.05
1" x ⅞" x 5"	8 mm	1½"	**80-083-9**	305.90



- Employing the amazing "Drag-Cut" principle, the tool performs without any vibration and without hooking.
- Ideally adaptable for fixed set-ups on production runs or repeat orders.
- Furnished complete with one Cobalt cutter **80-101-9**, center drill, rule for easy diameter setting and allen wrench.
- Cutter size in mm determines the type of toolholder to be used.

Trepanning Tools

Type 3000

SHANK	CAPACITY	CUTTER SIZE	PART NUMBER	PRICE EACH
3/4"°	3/4 - 4"	5mm	**80-014-4**	$431.00
1"°	3/4 - 4"	5mm	**80-019-3**	407.20

°with Weldon flat

Optional

DESCRIPTION	PART NO.	PRICE
Toolholder for 8" capacity 5 mm	**80-023-5**	$125.10
Toolholder for 12" capacity 5 mm	**80-025-0**	143.70
Toolholder for 4" capacity 6 mm	**80-027-6**	99.75
Toolholder for 7" capacity 6 mm	**80-029-2**	125.10

For Use with Cutter Clamps Only

DESCRIPTION	PART NO.	PRICE
Toolholder for 4" capacity	**80-024-3**	$59.20
Toolholder for 6" capacity	**80-026-8**	65.95
Toolholder for 8" capacity	**80-028-4**	82.85
Toolholder for 10" capacity	**80-030-0**	115.00

For applications with 2 cutters, 1 hole-type cutter plus 1 disc-type cutter of the same size are required. – Capacity decreases by 1".

Cutter clamp for 5 mm cutter	**80-031-8**	$155.55
Cutter clamp for 6 mm cutter	**80-032-6**	155.55

Accessories

DESCRIPTION	PART NO.	PRICE
Centering Drill for 3/8" Cutting Depth	**80-033-4**	$16.90
Centering Drill for 1/2" Cutting Depth	**80-034-2**	17.25
Center Guide	**80-035-9**	17.25



Trepanning Tools

- Cutter size in mm determines the type of toolholder to be used.

Hole Type A

Cobalt Cutters

TYPE A	CUTTER SIZE	CUTTER DEPTH	PART NUMBER	PRICE EACH
10	5 mm	3/8"	**80-101-9**	$28.45
15	5 mm	1/2"	**80-102-7**	30.00
15	6 mm	1/2"	**80-104-3**	36.10
25	6 mm	3/4"	**80-105-0**	37.65
35	6 mm	1"	**80-106-8**	41.50
40	8 mm	1"	**80-108-4**	51.50
50	8 mm	1 3/4"	**80-109-2**	57.65

For Sheet Metal .020 — .080" Thickness

10V	5 mm		**80-113-4**	$29.25

For Plexiglass & Synthetic Materials

10P	5 mm	3/8"	**80-116-7**	$29.25

Carbide Cutters

10H	5 mm	3/8"	**80-117-5**	$46.85

Disc Type I

Cobalt Cutters

TYPE 1	CUTTER SIZE	CUTTER DEPTH	PART NUMBER	PRICE EACH
10	5 mm	3/8"	**80-121-7**	$26.90
15	6 mm	1/2"	**80-123-3**	33.80
25	6 mm	3/4"	**80-124-1**	35.35
35	6 mm	1"	**80-125-8**	38.45
40	8 mm	1"	**80-127-4**	50.70
50	8 mm	1 3/4"	**80-128-2**	56.05

Carbide Cutters

TYPE 1	CUTTER SIZE	CUTTER DEPTH	PART NUMBER	PRICE EACH
10H	5 mm	3/8"	**80-129-0**	$43.80

Trepanning Tools

Type 6000

SHANK	CAPACITY	CUTTER SIZE	PART NUMBER	PRICE EACH
MT 3	1 9/16 - 6"	6 mm	**80-043-3**	$883.50
MT 4	1 9/16 - 6"	6 mm	**80-044-1**	921.95
MT 5	1 9/16 - 6"	6 mm	**80-045-8**	960.35

Optional

DESCRIPTION	PART NO.	PRICE
Toolholder for 10" capacity 6 mm	**80-053-2**	$163.95
Toolholder for 12" capacity 6 mm	**80-054-0**	202.85
Toolholder for 20" capacity 6 mm	**80-056-5**	241.70
Toolholder for 6" capacity 8 mm	**80-058-1**	165.60
Toolholder for 10" capacity 8 mm	**80-060-7**	163.95

For Use with Cutter Clamps Only

DESCRIPTION	PART NO.	PRICE
Toolholder for 6" capacity	**80-062-3**	$104.20
Toolholder for 8" capacity	**80-063-1**	122.85
Toolholder for 10" capacity	**80-064-9**	147.75
Toolholder for 12" capacity	**80-065-6**	171.05
Toolholder for 14" capacity	**80-066-4**	209.90

For applications with 2 cutters, 1 hole-type cutter plus 1 disc-type cutter of the same size are required. – Capacity decreases by 1".

Cutter clamp for 6 mm cutters	**80-068-0**	$152.35
Cutter clamp for 8 mm cutters	**80-069-8**	183.50

Accessories

DESCRIPTION	PART NO.	PRICE
Centering Drill for 1" cutting depth	**80-073-0**	$33.25
Centering Drill for 2" cutting depth	**80-074-8**	42.00
Center Guide	**80-075-5**	34.90



80-044-1



80-044-1 shown with 2 cutter clamps, sold separately

80-044-1 shown with optional Tool Holder 80-065-6 and cutter clamps 80-068-0.



Special scale furnished for convenient diameter setting.

- Employing the amazing "Drag-Cut" principle, the tool performs without vibration and without hooking.
- Ideally adaptable for fixed set-ups on production runs or repeat orders.
- Furnished complete with one Cobalt cutter **80-104-3**, center drill, rule for easy diameter setting and allen wrench.
- Cutter size in mm determines the type of toolholder to be used.

CUTTING TOOLS

Brazed Carbide Tool Bits

- Grade C2 for Cast Iron and Nonferrous materials.
- Grade C6 for Steel and Steel Alloys.
- Sold individually.



AR



AL

Styles AR & AL

- For general machining operations like turning, boring, and chamfering.
- Use for turning to a square shoulder.
- Left and right hand models available.

	RIGHT HAND - CUTS RIGHT TO LEFT				LEFT HAND - CUTS LEFT TO RIGHT			
SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/4"	AR-4	42-859-9	42-913-4	$4.95	AL-4	42-867-2	42-921-7	$4.95
5/16"	AR-5	42-860-7	42-914-2	4.95	AL-5	42-868-0	42-922-5	4.95
3/8"	AR-6	42-861-5	42-915-9	4.95	AL-6	42-869-8	42-923-3	4.95
7/16"	AR-7	42-862-3	42-916-7	5.10	AL-7	42-870-6	42-924-1	5.10
1/2"	AR-8	42-863-1	42-917-5	5.50	AL-8	42-871-4	42-925-8	5.50
5/8"	AR-10	42-864-9	42-918-3	7.10	AL-10	42-872-2	42-926-6	7.10
3/4"	AR-12	42-865-6	42-919-1	10.10	AL-12	42-873-0	42-927-4	10.10
1"	AR-16	42-866-4	42-920-9	19.85	AL-16	42-874-8	42-928-2	19.85



BR



BL

Styles BR & BL

- For general machining operations like turning, boring, and chamfering.
- 15° lead angle for turning when no square shoulder is needed.
- Left and right hand models available.

	RIGHT HAND - CUTS RIGHT TO LEFT				LEFT HAND - CUTS LEFT TO RIGHT			
SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/4"	BR-4	42-875-5	42-929-0	$4.95	BL-4	42-883-9	42-937-3	$4.95
5/16"	BR-5	42-876-3	42-930-8	4.95	BL-5	42-884-7	42-938-1	4.95
3/8"	BR-6	42-877-1	42-931-6	4.95	BL-6	42-885-4	42-939-9	4.95
7/16"	BR-7	42-878-9	42-932-4	5.10	BL-7	42-886-2	42-940-7	5.10
1/2"	BR-8	42-879-7	42-933-2	5.50	BL-8	42-887-0	42-941-5	5.50
5/8"	BR-10	42-880-5	42-934-0	7.10	BL-10	42-888-8	42-942-3	7.10
3/4"	BR-12	42-881-3	42-935-7	10.10	BL-12	42-889-6	42-943-1	10.10
1"	BR-16	42-882-1	42-936-5	19.85	BL-16	42-890-4	42-944-9	19.85



D

Styles D

- For Chamfering, Facing and Turning.
- Square nose For chamfering.
- Also for special form tools.

SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/4"	D-4	42-899-5	42-953-0	$4.95
5/16"	D-5	42-900-1	42-954-8	4.95
3/8"	D-6	42-901-9	42-955-5	4.95
7/16"	D-7	42-902-7	42-956-3	5.10
1/2"	D-8	42-903-5	42-957-1	5.50
5/8"	D-10	42-904-3	42-958-9	7.10
3/4"	D-12	42-905-0	42-959-7	10.10
1"	D-16	42-906-8	42-960-5	20.20



E

Styles E

- Threading Tool.
- Standard 60° included angle for threading.
- Use for V-grooving, chamfering, turning, boring, facing and undercutting.

SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/4"	E-4	42-907-6	42-961-3	$4.95
5/16"	E-5	42-908-4	42-962-1	4.95
3/8"	E-6	42-909-2	42-963-9	4.95
1/2"	E-8	42-910-0	42-964-7	5.10
5/8"	E-10	42-911-8	42-965-4	7.10
3/4"	E-12	42-912-6	42-966-2	10.10



C

Styles C

- For Chamfering, Facing and Turning.
- Square nose For chamfering.
- Also for special form tools.

SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/4"	C-4	42-891-2	42-945-6	$4.95
5/16"	C-5	42-892-0	42-946-4	4.95
3/8"	C-6	42-893-8	42-947-2	4.95
7/16"	C-7	42-894-6	42-948-0	5.10
1/2"	C-8	42-895-3	42-949-8	5.50
5/8"	C-10	42-896-1	42-950-6	7.10
3/4"	C-12	42-897-9	42-951-4	10.10
1"	C-16	42-898-7	42-952-2	20.20



ER



EL

Styles ER & EL

- 60° Offset threading tool.
- Carbide tipped bit is offset from the shank.
- Use for threading and V-grooving to a shoulder.
- Left and right hand models available.

	RIGHT HAND - CUTS RIGHT TO LEFT				LEFT HAND - CUTS LEFT TO RIGHT			
SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/4"	ER-4	81-823-7	81-849-2	$3.50	EL-4	81-828-6	81-854-2	$3.50
5/16"	ER-5	81-824-5	81-850-0	8.75	EL-5	81-829-4	81-855-9	8.75
3/8"	ER-6	81-825-2	81-851-8	8.75	EL-6	81-830-2	81-856-7	8.75
1/2"	ER-8	81-826-0	81-852-6	10.00	EL-8	81-831-0	81-857-5	10.00
5/8"	ER-10	81-827-8	81-853-4	13.00	EL-10	81-832-8	81-858-3	13.00

Brazed Carbide Tool Bits (cont.)

- Grade C2 for Cast Iron and Nonferrous materials.
- Grade C6 for Steel and Steel Alloys.
- Sold individually.



FR



FL

Styles FR & FL

- End cutting offset tools.
- Used together with left hand for straddle facing.
- Right hand for facing to a square shoulder.
- Left hand for turning to a square shoulder.

	RIGHT HAND - CUTS RIGHT TO LEFT				LEFT HAND - CUTS LEFT TO RIGHT			
SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/2"	FR-8	**81-833-6**	**81-859-1**	$12.65	FL-8	**81-837-7**	**81-863-3**	$12.65
5/8"	FR-10	**81-834-4**	**81-860-9**	15.45	FL-10	**81-838-5**	**81-864-1**	15.45
3/4"	FR-12	**81-835-1**	**81-861-7**	18.60	FL-12	**81-839-3**	**81-865-8**	18.60
1"	FR-16	**81-836-9**	**81-862-5**	34.05	FL-16	**81-840-1**	**81-866-6**	34.05



GR



GL

Styles GR & GL

- For facing to a square shoulder.
- Side cutting offset tool.
- Ideal for facing work close to chuck Jaws on lathes and boring mills.
- Left and right hand models available.

	RIGHT HAND - CUTS RIGHT TO LEFT				LEFT HAND - CUTS LEFT TO RIGHT			
SIZE	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH	IND. #	C2 PART NO.	C6 PART NO.	PRICE EACH
1/2"	GR-8	**81-841-9**	**81-867-4**	$12.65	GL-8	**81-845-0**	**81-871-6**	$12.65
5/8"	GR-10	**81-842-7**	**81-868-2**	15.45	GL-10	**81-846-8**	**81-872-4**	15.45
3/4"	GR-12	**81-843-5**	**81-869-0**	18.60	GL-12	**81-847-6**	**81-873-2**	18.60
1"	GR-16	**81-844-3**	**81-870-8**	34.05	GL-16	**81-848-4**	**71-874-0**	34.05



80-377-5

SHOP GRADE

M2 HSS Round Tool Bits

- M2 HSS provides good wear resistance and can be used in general purpose applications for both ferrous and nonferrous materials.

DIA.	OAL	PART NO.	PRICE
1/8"	2 3/4"	**80-373-4**	$2.05
3/16"	3 1/2"	**80-383-3**	2.40
1/4"	4"	**80-374-2**	4.10
1/4"	8"	**80-375-9**	5.40
5/16"	4 1/2"	**80-376-7**	5.40
3/8"	5"	**80-377-5**	7.90
7/16"	5 1/2"	**80-378-3**	10.95
1/2"	6"	**80-379-1**	12.25
9/16"	6"	**80-380-9**	24.65
5/8"	6"	**80-381-7**	26.35
3/4"	6"	**80-382-5**	34.75



80-532-5

Double End Boring Bars

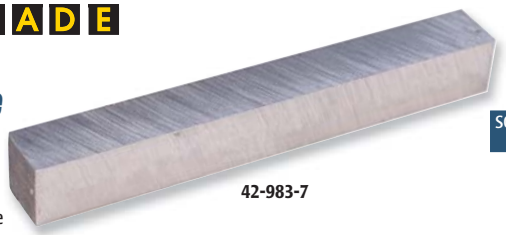
- Double end boring bars, 90° and 45°.
- Machined from selected steel for greater strength and rigidity.
- Broached holes to accept standard high speed steel, carbide or stellite tool bits, held in place with set screw.
- Black oxide finish.

SHANK DIA.	LENGTH	FOR BIT SIZE*	PART NUMBER	PRICE EACH
3/8"	6"	3/16" round	**80-531-7**	$33.15
1/2"	6"	3/16" square	**80-532-5**	42.80
5/8"	10"	1/4" square	**80-533-3**	49.75
3/4"	12"	1/4" square	**80-534-1**	49.35
1"	12"	5/16" square	**80-535-8**	57.60
1 1/4"	16"	1/2" square	**80-536-6**	94.25
1 1/2"	18"	1/2" square	**80-537-4**	127.90
Set of 5 Bars, 3/8, 1/2, 5/8, 3/4 & 1" dia.			**80-530-9**	135.55

*Bits not included

SHOP GRADE

HSS & Cobalt Ground Square Tool Bits



42-983-7

M-2 HSS

- Excellent for general purpose and finishing work.

5% Cobalt

- Excellent for heavy cuts on castings and forgings. Higher wear resistance than M-2.

8% & 10% Cobalt

- A superior type high speed steel which will work better where high heat is present.
- Used for heavy cuts in hard materials.

SQUARE SIZE	OAL	M-2 HSS PART NO.	PRICE	5% COBALT PART NO.	PRICE	8% COBALT PART NO.	PRICE	10% COBALT PART NO.	PRICE
1/8"	2 1/2"	**42-967-0**	$1.85	**42-978-7**	$3.40	**75-266-7**	$3.70	**75-274-1**	$4.35
3/16"	2 1/2"	**42-968-8**	1.85	**42-979-5**	3.40	–	–	**42-989-4**	4.95
1/4"	2 1/2"	**42-969-6**	2.25	**42-980-3**	4.05	**75-267-5**	4.45	**42-990-2**	5.20
5/16"	2 1/2"	**42-970-4**	2.70	**42-981-1**	4.85	**75-268-3**	5.45	**42-991-0**	6.65
3/8"	3"	**42-971-2**	4.00	**42-982-9**	6.60	**75-269-1**	7.55	**42-992-8**	9.45
7/16"	3 1/2"	**42-972-0**	7.35	**42-983-7**	11.65	**75-270-9**	13.20	**42-993-6**	20.50
1/2"	4"	**42-973-8**	7.75	**42-984-5**	13.30	**75-271-7**	15.15	**42-994-4**	20.55
5/8"	4 1/2"	**42-974-6**	14.55	**42-985-2**	23.90	**75-272-5**	27.00	**42-995-1**	40.05
3/4"	5"	**42-975-3**	21.40	**42-986-0**	35.65	–	–	**42-996-9**	60.25
7/8"	6"	**42-976-1**	40.95	**42-987-8**	64.75	–	–	–	–
1"	7"	**42-977-9**	48.65	**42-988-6**	77.00	–	–	–	–
1 1/4"	7"	**75-264-2**	77.30	**75-265-9**	110.65	**75-273-3**	90.60	–	–

CUTTING TOOLS



ACCUPRO® High Performance Milling

Retaining Ring Grooving Tools

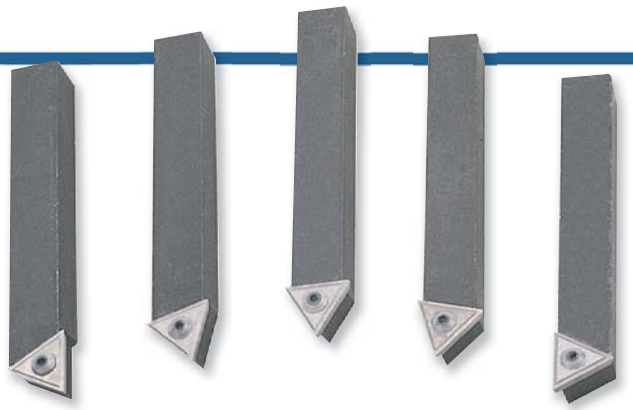
NEW

Submicron Carbide

- Retains lubricants to aid in wear resistance and chip flow.
- Retaining rings are used for cutting internal grooves with straight edges.
- Solid carbide provides better rigidity than high speed steel. It is extremely heat-resistant and used for high speed applications on cast iron, nonferrous materials, plastics, and other tough-to-machine materials.
- Bright provides a smooth, polished finish on the tool. It increases chip flow in softer materials such as aluminum, wood and plastic.
- Tolerances:

Shank Dia.: +.000/-.0005"
Min. Hole Dia.: +.000/-.005"
OAL: ±1/16"

GROOVE TOOL WIDTH	SHANK DIA.	MIN. HOLE DIA.	MAX HOLE DEPTH	PROJ-ECTION	FLUTE SHANK LENGTH	OAL	PART NUMBER	PRICE EACH
0.0175"	3/16"	0.187"	1/4"	0.05"	1 3/4"	2"	**37-365-4**	$34.55
0.0175"	3/16"	0.187"	5/8"	0.05"	1 3/8"	2"	**37-366-2**	34.55
0.0175"	1/4"	0.250"	1/4"	0.06"	2 1/4"	2 1/2"	**37-367-0**	34.55
0.0175"	1/4"	0.250"	5/8"	0.06"	1 7/8"	2 1/2"	**37-368-8**	34.55
0.0255"	3/16"	0.187"	1/2"	0.05"	2 1/4"	2"	**37-369-6**	34.55
0.0255"	1/4"	0.250"	1/4"	0.06"	2 1/4"	2 1/2"	**37-370-4**	34.55
0.0255"	1/4"	0.250"	1/2"	0.06"	2 1/4"	2 1/2"	**37-371-2**	34.55
0.0255"	1/4"	0.250"	5/8"	0.06"	1 7/8"	2 1/2"	**37-372-0**	34.55
0.0305"	3/16"	0.187"	1/4"	0.05"	1 3/4"	2"	**37-373-8**	34.55
0.0305"	3/16"	0.187"	3/8"	0.05"	1 5/8"	2"	**37-374-6**	34.55
0.0305"	3/16"	0.187"	1/2"	0.05"	1 1/2"	2"	**37-375-3**	34.55
0.0305"	3/16"	0.187"	5/8"	0.05"	1 3/8"	2"	**37-376-1**	34.55
0.0305"	1/4"	0.250"	1/4"	0.06"	2 1/4"	2 1/2"	**37-377-9**	37.30
0.0305"	1/4"	0.250"	3/8"	0.06"	2 1/8"	2 1/2"	**37-378-7**	37.30
0.0305"	1/4"	0.250"	1/2"	0.06"	2"	2 1/2"	**37-379-5**	37.30
0.0305"	1/4"	0.250"	5/8"	0.06"	1 7/8"	2 1/2"	**37-380-3**	34.55
0.0335"	5/16"	0.312"	1/2"	0.11"	2"	2 1/2"	**37-381-1**	43.10
0.0335"	5/16"	0.312"	3/4"	0.11"	1 3/4"	2 1/2"	**37-382-9**	43.10
0.0385"	5/16"	0.312"	1/2"	0.11"	2"	2 1/2"	**37-383-7**	43.10
0.0385"	5/16"	0.312"	3/4"	0.11"	1 3/4"	2 1/2"	**37-384-5**	43.10
0.0400"	3/8"	0.375"	1/2"	0.11"	2"	2 1/2"	**37-385-2**	56.20
0.0400"	3/8"	0.375"	3/4"	0.11"	1 3/4"	2 1/2"	**37-386-0**	56.20
0.0400"	3/8"	0.375"	1"	0.11"	1 1/5"	2 1/2"	**37-387-8**	56.20
0.0400"	3/8"	0.375"	1 1/4"	0.11"	1 1/4"	2 1/2"	**37-388-6**	56.20
0.0470"	3/8"	0.375"	1/2"	0.11"	2"	2 1/2"	**37-389-4**	56.20
0.0470"	3/8"	0.375"	3/4"	0.11"	1 3/4"	2 1/2"	**37-390-2**	56.20
0.0470"	3/8"	0.375"	1"	0.11"	1 1/5"	2 1/2"	**37-391-0**	56.20
0.0470"	3/8"	0.375"	1 1/4"	0.11"	1 1/4"	2 1/2"	**37-392-8**	56.20
0.0560"	3/8"	0.375"	3/4"	0.11"	1 3/4"	2 1/2"	**37-393-6**	56.20
0.0560"	3/8"	0.375"	1"	0.11"	1 1/5"	2 1/2"	**37-394-4**	56.20
0.0630"	3/8"	0.375"	1/2"	0.11"	2"	2 1/2"	**37-395-1**	56.20
0.0630"	3/8"	0.375"	3/4"	0.11"	1 3/4"	2 1/2"	**37-396-9**	56.20
0.0630"	3/8"	0.375"	1"	0.11"	1 1/5"	2 1/2"	**37-397-7**	56.20
0.0630"	3/8"	0.375"	1 1/4"	0.11"	1 1/4"	2 1/2"	**37-398-5**	56.20
0.0700"	3/8"	0.375"	3/4"	0.11"	1 3/4"	2 1/2"	**37-399-3**	56.20
0.0700"	3/8"	0.375"	1 1/4"	0.11"	1 1/4"	2 1/2"	**37-400-9**	56.20
0.0880"	3/8"	0.375"	1/2"	0.11"	2"	2 1/2"	**37-401-7**	56.20
0.0880"	3/8"	0.375"	3/4"	0.11"	1 3/4"	2 1/2"	**37-402-5**	56.20
0.0880"	3/8"	0.375"	1"	0.11"	1 1/5"	2 1/2"	**37-403-3**	56.20
0.0880"	3/8"	0.375"	1 1/4"	0.11"	1 1/4"	2 1/2"	**37-404-1**	56.20
0.0940"	1/2"	0.500"	1/2"	0.16"	2 1/2"	3"	**37-405-8**	87.20
0.0940"	1/2"	0.500"	3/4"	0.16"	2 1/4"	3"	**37-406-6**	87.20
0.0940"	1/2"	0.500"	1"	0.16"	2"	3"	**37-407-4**	87.20
0.0940"	1/2"	0.500"	1 1/4"	0.16"	1 3/4"	3"	**37-408-2**	87.20
0.0940"	1/2"	0.500"	1 1/2"	0.16"	1 1/2"	3"	**37-409-0**	87.20
0.1260"	1/2"	0.500"	1/2"	0.16"	2 1/2"	3"	**37-410-8**	87.20
0.1260"	1/2"	0.500"	3/4"	0.16"	2 1/4"	3"	**37-411-6**	87.20
0.1260"	1/2"	0.500"	1"	0.16"	1 3/4"	3"	**37-412-4**	87.20
0.1260"	1/2"	0.500"	1 1/4"	0.16"	2"	3"	**37-413-2**	87.20
0.1260"	1/2"	0.500"	1 1/2"	0.16"	1 1/2"	3"	**37-414-0**	87.20



SHOP GRADE

Indexable Carbide Turning Tools & Sets

Screw Down Type

- A versatile and economical method of turning with indexable inserts.
- Positive rake cutting with built-in chip breaker groove.
- Each toolholder is supplied with one C-2 carbide insert and mounting screw.
- 5 styles of toolholders to choose from:

Style AR
Right hand machining to a 90° square shoulder

Style AL
Left hand suitable for facing to a square shoulder

Style BR
Right hand turning with 15° lead angle

Style BL
Left hand turning with 15° lead angle

Style E
For threading, V-grooving and chamfering, 60° included angle.

SHANK	INSERT	SCREW	STYLE	PART NO.	PRICE EACH	PRICE PER SET
3/8 x 3/8"	TT-221	#6	AL -6	**82-261-9**	$37.95	
			AR -6	**82-262-7**	37.95	5 Pc. Set
			BL -6	**82-263-5**	37.95	**83-788-0**
			BR -6	**82-264-3**	37.95	$173.30
			E -6	**82-265-0**	37.95	
1/2 x 1/2"	TT-321	#8	AL -8	**82-266-8**	41.35	
			AR -8	**82-267-6**	41.35	5 Pc. Set
			BL -8	**82-268-4**	41.35	**83-789-8**
			BR -8	**82-269-2**	41.35	$183.50
			E -8	**82-270-0**	41.35	
5/8 x 5/8"	TT-321	#8	AL -10	**82-271-8**	46.50	
			AR -10	**82-272-6**	46.50	5 Pc. Set
			BL -10	**82-273-4**	46.50	**83-790-6**
			BR -10	**82-274-2**	46.50	$203.90
			E -10	**82-275-9**	46.50	
3/4 x 3/4"	TT-321	#8	AL -12	**82-276-7**	49.90	
			AR -12	**82-277-5**	49.90	5 Pc. Set
			BL -12	**82-278-3**	49.90	**83-791-4**
			BR -12	**82-279-1**	49.90	$224.30
			E -12	**82-280-9**	49.90	
1 x 1"	TT-431	#16	AL -16	**82-281-7**	60.65	
			AR -16	**82-282-5**	60.65	5 Pc. Set
			BL -16	**82-283-3**	60.65	**83-792-2**
			BR -16	**82-284-1**	60.65	$275.30
			E -16	**82-285-8**	60.65	

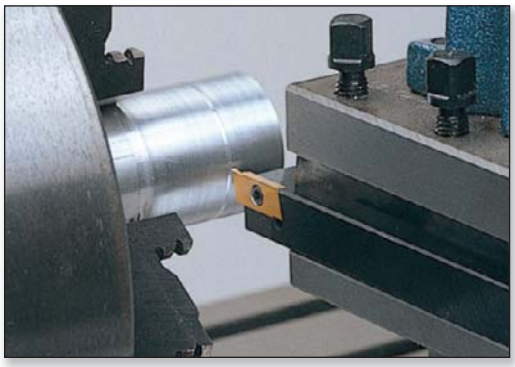
Carbide Inserts • Sold Individually

INSERT STYLE	INSCRIBED CIRCLE	CORNER RADIUS	GRADE I55 PART NO.	PRICE	GRADE TCN55 PART NO.	PRICE
TT 221	1/4"	0.0156"	**82-980-4**	$11.20	**82-292-4**	$12.65
TT 222	1/4"	0.0312"	**82-982-0**	11.20	**83-797-1**	13.25
TT 321	3/8"	0.0156"	**83-793-0**	12.90	**83-798-9**	15.60
TT 322	3/8"	0.0312"	**83-794-8**	12.90	**83-799-7**	15.60
TT 431	1/2"	0.0156"	**83-795-5**	18.25	**83-800-3**	20.35
TT432	1/2"	0.0312"	**83-796-3**	18.25	**83-801-1**	

20.35*Multi-Layer TiN

Replacement Screws

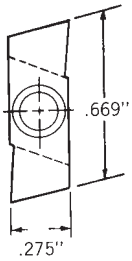
SCREW NUMBER	KEY SIZE	PART NUMBER	PRICE
6	.050"	**07-739-6**	$2.85
8	5/64"	**07-740-4**	3.05
16	1/8"	**07-741-2**	3.50



Grooving-Threading Cut-Off

- A unique method of narrow grooving, full radius grooving, threading and cutting off small workpieces in a wide variety of materials.
- Double-end inserts for double performance with precision machined toolholders.
- Right hand toolholders accept only right hand inserts. Left hand toolholders accept only left hand inserts.
- All inserts of either right hand or left hand design are compatible with their respective toolholders.
- Grooving inserts are for standard retaining ring grooves.





Toolholders

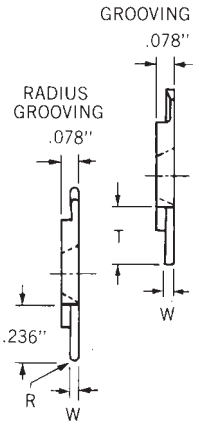
SHANK	LENGTH	RIGHT HAND PART NO.	LEFT HAND PART NO.	PRICE EACH
3/8 x 3/8"	4 1/2"	**80-160-5**	**80-260-3**	$81.10
1/2 x 1/2"	4 1/2"	**80-161-3***	**80-261-1**	81.10

For Swiss Automatics

8 x 8 mm	140 mm	**80-162-1**	**80-262-9**	$97.90
10 x 10 mm	150 mm	**80-163-9**	**80-263-7**	107.25

Grooving Inserts C6 TiN coated

W	T	RIGHT HAND PART NO.	LEFT HAND PART NO.	PRICE EACH
.019"	.100"	**80-165-4**	**80-265-2**	$25.25
.027"	.100"	**80-166-2**	**80-266-0**	25.25
.031"	.100"	**80-167-0**	**80-267-8**	25.25
.035"	.100"	**80-168-8***	**80-268-6**	25.25
.043"	.236"	**80-169-6***	**80-269-4**	25.25
.051"	.236"	**80-170-4***	**80-270-2**	25.25
.063"	.236"	**80-171-2***	**80-271-0**	25.25
.073"	.236"	**80-172-0***	**80-272-8**	**25.25**

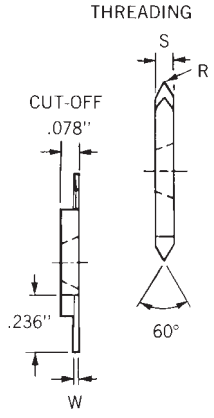


Full Radius Grooving Inserts C6 TiN coated

W	R	RIGHT HAND PART NO.	LEFT HAND PART NO.	PRICE EACH
.039"	.019"	**80-177-9**	**80-277-7**	$25.25
.059"	.029"	**80-178-7**	**80-278-5**	25.25
.078"	.039"	**80-179-5**	**80-279-3**	25.25

60° Threading Insert C6 TiN coated

S	R	RIGHT HAND PART NO.	LEFT HAND PART NO.	PRICE EACH
.078"	.004/.005"	**80-176-1**	**80-276-9**	$25.25



Cut-Off Inserts C6 TiN coated

W	LEAD ANGLE	RIGHT HAND PART NO.	LEFT HAND PART NO.	PRICE EACH
.039"	5° Right	**80-180-3**	**80-280-1**	$25.25
.039"	5° Left	**80-181-1**	**80-281-9**	25.25
.059"	5° Right	**80-182-9**	**80-282-7**	25.25
.059"	5° Left	**80-183-7**	**80-283-5**	25.25
.078"	5° Right	**80-185-2**	**80-285-0**	25.25
.078"	5° Left	**80-186-0**	**80-286-8**	25.25

06-067-3	Torx® Screw M3 x 0,8	4.10
06-068-1	Torx® Key T-8	3.40

Grooving Set (marked * above)

Includes 1/2" x 1/2" x 4 1/2" right hand toolholder, 5 grooving inserts marked*, 2 torx screws and 1 torx wrench in plastic case **80-175-3** $169.80

BONDHUS® Timesaving GorillaProof Tools.™

Ball End L-Wrenches & Sets

Inch & Metric

See Pg. 415

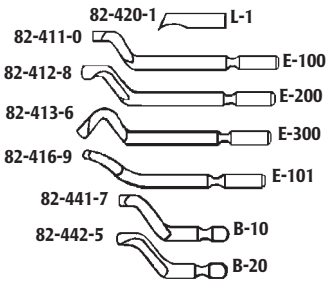
NEW



CUTTING TOOLS



82-536-4



NOGA SIMPLY SOPHISTICATED

Deburring Kit

- Engineered for greatest versatility.
- Internal and external rotary deburring.
- Universal plastic handle accepts round, hexagonal or triangular telescoping blade holders, countersink blades or scrapers to perform a multitude of deburring and chamfering jobs.
- Twist of the wrist motion for convenient deburring of holes and radii.

DESCRIPTION	PART NO.	PRICE
Super Burr Kit contains all of the following except, E-300 blade and B-20 blade	**82-536-4**	$198.80

QTY.	DESCRIPTION	PART NUMBER	PRICE EACH
1	Universal Plastic Handle	**82-438-3**	$8.25
1	C-Holder for Countersinks	**82-430-0**	8.55
1	C-Countersink 1/2" Diameter	**82-448-2**	17.60
1	C-Countersink 3/4" Diameter	**82-383-1**	25.55
1	C-Countersink 1 1/4" Diameter	**82-449-0**	39.10
1	Double-End Triangular Scraper	**82-393-0**	21.90
1	L-Chamfering Holder for L Blades	**82-433-4**	14.70
1	L-1 Blade for Steel & Aluminum	**82-420-1**	2.90
2	D-Holder for Mini-Scraper & Internal Scraper	**82-431-8**	8.20
1	D-Mini-Scraper HSS	**82-391-4**	12.00
1	D-Internal Scraper HSS	**82-392-2**	9.10
1	Double-End Holder for E & B Blades	**82-408-6**	8.65
1	E-100 Blade for holes in Steel & Aluminum	**82-411-0**	3.45
1	E-200 Blade for holes in Brass & Cast Iron	**82-412-8**	3.45
1	E-300 Blade for holes in Tubing Int./Ext.*	**82-413-6**	3.45
1	E-101 Blade for small holes in Steel & Aluminum	**82-416-9**	3.45
1	B-10 Blade for Steel & Aluminum	**82-441-7**	2.50
1	B-20 Blade for Brass & Cast Iron*	**82-442-5**	2.70
1	Double Burr w/guard, range 1/32 to 1/2" thick	**82-495-3**	26.85
2	HSS Blades for Double Burr	**82-404-5**	6.80
1	HSS Blade with 2 Flats 4.25 Keyway Burr	**82-407-8**	10.65
2	Disposable Burrs	**82-468-0**	5.95

* E-300 Blade and B-20 Blade are not included in kit, but are available as optional items.

NOGA SIMPLY SOPHISTICATED

Workhorse Deburring Tools

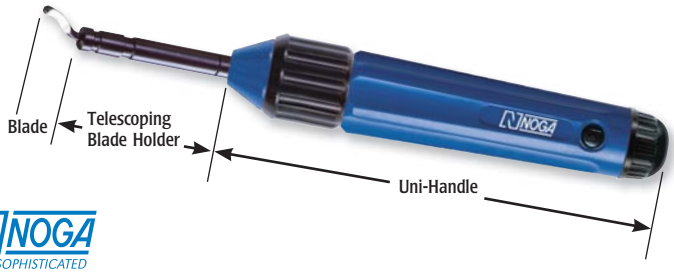


82-329-4

- Suitable for coarse to extra fine deburring operations.
- Capable of holding all "S" blades ("E" blades).
- Blades are mounted directly on handle.
- Quick change of blade by pressing safety button.
- Handle made of a lightweight, wear resistant acetal.
- Blades rotate inside glass-reinforced plastic, and are stored inside the handle.
- **82-329-4** includes NB Handle, S-10, S-20 & S-35 blades.
- **82-327-8** includes S-10, S-20, S-35, S-101 & S-202 blades and NB Handle.



DESCRIPTION	MODEL #	PART NO.	PRICE
NOGA Burr 3	NB3000	**82-329-4**	$15.40
NOGA Burr 5	NB5000	**82-327-8**	16.30



NOGA SIMPLY SOPHISTICATED

Standard Deburring Tools

Liza Burr Kit • 3 Pc. System



- Uses S-style or N-style blades.
- Blades store in handle.
- **Liza Burr Kit includes:** UNI-handle, dual end blade holder, N-1 and N-2 blades.
- UNI-handle can accept full line of blade holders.
- Telescoping blade holder allows deburring in hard to reach locations.

DESCRIPTION	MODEL #	PART NO.	PRICE
Liza Burr Kit	LB1000	**82-492-0**	$16.55
Dual Blade Holder (S & N Blades)	SN1000	**82-408-6**	8.65
UNI-Handle	UH1000	**82-438-3**	8.25



82-469-8

82-468-0

NOGA SIMPLY SOPHISTICATED

Economy Deburring

Economy Deburing

DESCRIPTION	MODEL #	PART NO.	PRICE
Edge-Off Disposable Deburring Tool Uses S-10 Blade	EO1000	**82-468-0**	$5.95
Teddy-Burr Blade Handle w/N-1 Blade	TB1000	**82-469-8**	8.90



N-Series Blades • Standard Duty - Use with Teddy-Burr

DESCRIPTION	MODEL #	PART NO.	PRICE
N-1 Swivel Blade for Steel, Aluminum and plastic	BN1010	**82-441-7**	$2.50
N-2 Swivel Blade for brass and cast iron	BN2010	**82-442-5**	2.70
N-3 Swivel Blade for removing internal and external burrs simultaneously from holes drilled into tubing and sheet metal	BN3010	**82-419-3**	2.85



NOGA SIMPLY SOPHISTICATED

Rapid Burr RB 1000

- Includes: S10 blade, 12 mm hexagonal aluminum handle.
- Accepts all "S" blades ("E" blades).
- Noga model #RB1000.

DESCRIPTION	PART NO.	PRICE
Rapid Burr RB 1000	**82-356-7**	$10.65



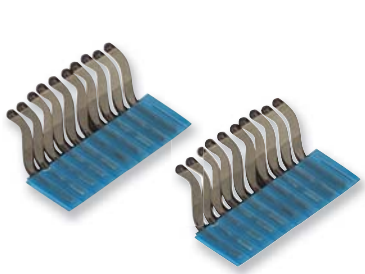


NOGA SIMPLY SOPHISTICATED

2 Pc. Deburring System

- The two piece deburring system is designed to be both economical and versatile.
- The holder is designed to hold any S-series blade. Blades can be stored in the handle.
- Uses S-series blades.

DESCRIPTION	MODEL #	PART NO.	PRICE
NOGA-Burr Kit with S-10 Blade	NB1100	**82-454-0**	$8.90
NOGA-Burr Handle (Blue)	NB1010	**82-437-5**	7.40





NOGA SIMPLY SOPHISTICATED

21 Pc. HSS Deburring Set

- Includes: 20 - B10 blades and soft grip holder.
- Model #SG6000.

DESCRIPTION	PART NO.	PRICE
20 Pc. HSS Deburring Set	**82-795-6**	$25.00

NOGA SIMPLY SOPHISTICATED

Specialty Deburring

- **Corner Cleaner Kit,** Wide range of applications. Effective corner relief. Kit includes UNI-Handle, LD-Holder, Blade.
- **Slot Cleaner Kit,** Relieves corners of narrow slots from 3.5 mm. Kit includes UNI-Handle, LD-Holder, Blade.
- **Mini Cut Kit,** Used for deburring small ridges in difficult to reach places. Kit includes UNI-Handle, LD-Holder, Blade.
- **"V-Cut" Kit,** Most economical tool for sheet metal range 1 - 8 mm.
- Kits includes UNI-Handle, LD-Holder, Blade.









Specialty Deburring Kits

DESCRIPTION	MODEL #	PART NO.	PRICE
Corner Cleaner Kit	NC4000	**82-487-0**	$20.90
Slot Cleaner Kit	NC3000	**82-488-8**	22.55
Mini Cut Kit	NC2000	**82-489-6**	21.20
"V" Cut Kit	NC1000	**82-490-4**	23.25

Specialty Deburring Blades & Holder

DESCRIPTION	MODEL #	PART NO.	PRICE
LD-Holder for L Series Blades	LD2000	**82-434-2**	$8.75
L-3 V-Shape Blade	BL3001	**82-421-9**	3.45
L-4 Mini V-Shape Blade	BL4001	**82-422-7**	4.60
L-5 Slot Cleaning Blade	BL5001	**82-423-5**	4.90
L-6 Corner Cleaning Blade	BL6001	**82-424-3**	3.90

NOGA SIMPLY SOPHISTICATED

Deburring System







The complete line of NOGA Deburring tools are exceptionally well engineered and crafted. Unique innovations, such as interchangeable tool holders, set the NOGA line apart from other deburring systems.

- Capable to meet the toughest production demands.
- Includes features that make them easy and comfortable to use.
- Blades stored in the handle are easily accessible and can be changed quickly.

NOGA Blades



- **S-10, N-1:** for steel, aluminum and plastic.
- **S-20, N-2:** for brass and cast iron.
- **S-30, N-3:** for removing internal and external burrs simultaneously from holes drilled into tubing and sheet metal.
- **S-100:** combination blade best for plastic and hard metals.

N-Series Blades 2 or 3 Piece System

BLADE	MODEL #	PART NO.	PRICE EA.
N-1	BN1010	**82-441-7***	$2.50
N-2	BN2010	**82-442-5***	2.70
N-3	BN3010	**82-419-3***	2.85

S-Series Blades • Heavy Duty 3 Piece System

BLADE	MODEL #	PART NO.	PRICE EA.
S-10	BS1010	**82-377-3***	$3.65
S-20	BS2010	**82-378-1***	3.55
S-30	BS3010	**82-379-9***	3.55
S-100	BS1018	**82-772-5**	3.75

* Sold in packages of 10

CUTTING TOOLS


82-355-9 N1 LH


82-325-2 S10 TiN


82-324-5 N1 TiN


82-328-6 S35 (E350)


82-360-9 N1 C (B10 C)


82-361-7 S60


82-373-2 N2 C (B20 C)


82-326-0 S150


82-363-3 N6


82-374-0 S101 LH


82-364-1 S101 TiN


82-357-5 S10 LH


82-354-2 S202

NOGA SIMPLY SOPHISTICATED

Blades

- All blades are made of HSS unless otherwise stated.

DESCRIPTION	MODEL #	PART NO.	PRICE
N1 for Left-Handed Users	BN1026	**82-355-9** *	$2.55
PVD Coated N1 for High Wear Materials	BN1012	**82-324-5** *	3.50
Solid Carbide N1	BN1029	**82-360-9**	8.60
Solid Carbide N2	BN2031	**82-373-2**	8.35
N6 for Deburring the Inside of Cross Hole	BN6001	**82-363-3**	4.25
S10 for Left-Handed Users	BS1011	**82-357-5** *	4.45
PVD Coated S10 for Hear Wear Materials	BS1012	**82-325-2** *	4.55
S35 for Straight Edges	BS3510	**82-328-6** *	3.70
S60 for Deburring the Inside Cross Holes & Back Side of Walls	BS6001	**82-361-7**	4.95
S150 Finest Deburring Blade Available	BK3010	**82-326-0** *	3.45
S101 Blade for Left-Handed Users	BK1011	**82-374-0**	4.50
S101TiN PVD Coated	BK1012	**82-364-1**	4.10
S202 Fine Point Blade with Heavy-Duty Shank for Brass & Cast Iron	BK2010	**82-354-2** *	3.45

*Sold in package of 10.


82-495-3

NOGA SIMPLY SOPHISTICATED

Sheetmetal Deburring


Double-Burr

- Ergonomic styling.
- Simultaneously removes burr from both sides of sheet metal.
- Full size guard protects hands.
- Easily re-configured with single blade for corner deburring.
- Range: 0 - ½"

DESCRIPTION	MODEL #	PART NO.	PRICE
Double-Burr (Sheetmetal Deburring)	DB1000	**82-495-3**	$26.85
N-80 Round Blade for Double-Burr	BN8010	**82-404-5** *	6.80

* 2 Pcs. Required

NOGA SIMPLY SOPHISTICATED

Keyway Burr

- **Keyway Burr Kit,** Effectively solves deburring problems of internal and external keyways. Kit includes UNI-Handle, K-Holder, Blade.
- **Heavy Duty Keyway Burr Kit,** Most useful for wide, deep or shallow keyways. Kit includes UNI-Handle, K-Holder, Blade.


82-482-1

82-483-9

Keyway Deburring Kits

DESCRIPTION	MODEL #	PART NO.	PRICE
Keyway Burr Kit	KW1000	**82-482-1**	$21.25
Heavy Duty Keyway Burr Kit	KW1300	**82-483-9**	23.20



Keyway Deburring Blades & Holder

DESCRIPTION	MODEL #	PART NO.	PRICE
K-Keyway Deburring Blade Holder	KH1000	**82-432-6**	$10.45
N-70K Keyway Deburring Blade	BN7001	**82-405-2**	9.48
N-80K Keyway Deburring Blade	BN8110	**82-406-0**	6.95
N-90K Keyway Deburring Blade	BN9009	**82-407-8**	10.65
Uni-Handle	UH1000	**82-438-3**	8.25

Adjustable Scraper and Burring Tool

- Adjustable blade for best suited working length.
- Reversible blade, finish ground on both sides.
- Hardened high speed steel blades, triangle profile, 3" long, for long wear.
- Bull-nosed collet face serving as a non-marring edge guide.
- Balanced, comfortable hand grip, 4½" long.

DESCRIPTION	PART NO.	PRICE
Adjustable Scraper including 82-401-1 Straight Blade	**82-400-3**	$39.90
Straight Blade	**82-401-1**	12.75
45° Angle Blade	**82-402-9**	12.75
90° Angle Blade	**82-403-7**	12.75


82-400-3

82-402-9

82-403-7


82-362-5


82-358-3


82-359-1

NOGA SIMPLY SOPHISTICATED

Adjustable Scraper SC 8000

- Set includes: medium size scraper, special aluminum handle. Uses T-80 blade.

DESCRIPTION	MODEL #	PART NO.	PRICE
Adjustable Scraper Set	SC8000	**82-362-5**	$24.90
D55 Mini-Scraper Carbide Blade	BD5501	**82-358-3**	17.20
T80 Med. Sized Double-Sided Scraper Blade	BT8001	**82-359-1**	12.60

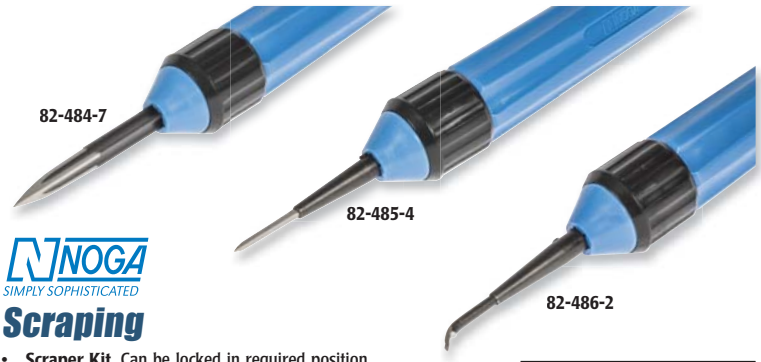


NOGA SIMPLY SOPHISTICATED

Cobalt Deburring Set

- Soft grip tool with 10 ea. B10 type and E100 type cobalt blades.
- Accepts both heavy and light-duty "S" and "N" blades.
- Comes equipped with two mounting holes.
- Inside tool storage for spare blades.
- B10 and E100 cobalt blades also sold separately.
- 21 piece set.
- Handle length: 5".

DESCRIPTION	MODEL #	PART NO.	PRICE
Cobalt Deburring Set	SG2001	**82-770-9**	$33.80
N1-Cobalt/B10 Style	BN1310	**82-771-7**	3.20
S10-Cobalt/E100 Style	BS1018	**82-772-5**	3.75



NOGA SIMPLY SOPHISTICATED

Scraping

- **Scraper Kit,** Can be locked in required position. Kit includes UNI-Handle, T-120 Blade, Double ended triangular blade for double tool life.
- **Mini Scraper Kit,** Ideal for tool & die makers. Kit includes UNI-Handle, D-Holder, D-50 Mini Blade. Very fine triangular hollow ground blade.
- **Internal Scraper Kit,** Especially used for the deburring of cross holes. Kit includes UNI-Handle, D-Holder, D-66 Blade.



Scraping Kits

DESCRIPTION	MODEL #	PART NO.	PRICE
Scraper Kit	SC1000	**82-484-7**	$26.15
Mini Scraper Kit	MS1000	**82-485-4**	22.80
Internal Scraper Kit	IS1000	**82-486-2**	21.45

Scraping Blades & Holder

DESCRIPTION	MODEL #	PART NO.	PRICE
T-120 Double End Scraper Blade†	BT1200	**82-393-0**	$21.90
D-Scraper Blade Holder	DH1000	**82-431-8**	8.20
D-50 Mini-Scraper Blade	BD5010	**82-391-4**	12.00
D-66 Internal Scriber Blade	BD6610	**82-392-2**	9.10
Uni-Handle	UH1000	**82-438-3**	8.25

† Blade Holder not required.



NOGA SIMPLY SOPHISTICATED

Chamfering Tool



- Ensures 45° chamfers.
- Used to put an even chamfer on straight or curved edges.
- Kit includes UNI-Handle, L Holder, Blade.

DESCRIPTION	MODEL #	PART NO.	PRICE
Leader Chamfering Tool Kit	LD1000	**82-491-2**	$25.00

Chamfering Blade & Holder

DESCRIPTION	MODEL #	PART NO.	PRICE
L-Chamfering Blade Holder	LH1000	**82-433-4**	$14.70
L-1 Chamfering Blade	BL1001	**82-420-1**	2.90





NOGA SIMPLY SOPHISTICATED

Fixed RotoDrive & External RotoDrive Kits

Kits Include:

- **Fixed RotoDrive** Includes NB-Handle and Countersink. High quality fixed type single flute countersink provides a smoother cut.
- **External RotoDrive** Includes NB-Handle and External Countersink. Chamfer the OD on bars and tubes. Cuts external chamfers on most materials.

DESCRIPTION	MODEL #	PART NO.	PRICE
Fixed RotoDrive Kit	RD1040	**82-493-8**	$33.85
External RotoDrive Kit	RD4000	**82-494-6**	27.65

Countersink & External Countersink Blades

DESCRIPTION	MODEL #	PART NO.	PRICE
Countersink Blade Size 1/8	BC1040	**82-436-7**	$11.20
Countersink Blade Size 1/4	BC6301	**82-384-9**	16.45
Countersink Blade Size 1/16	BC8301	**82-459-9**	18.00
Countersink Blade Size 3/8	BC1041	**82-394-8**	19.75
RDE External RotoDrive Blade	EX2001	**82-399-7**	19.45

CUTTING TOOLS



NOGA
SIMPLY SOPHISTICATED

Countersink Deburring & H.D. RotoDrive



- Each kit includes UNI-Handle, Blade Holder, and Countersink Blade.
- Countersink Kit - includes straight countersink holder and blade C-20.
- Heavy Duty RotoDrive Kit - includes offset blade holder (which allows continuous rotation of countersink and enables very fast chamfering) and blade C-20.
- Blade mounted via M7 thread, blades fit either holder.

Countersink Deburring Kits

DESCRIPTION	MODEL #	PART NO.	PRICE
Countersink Kit	CS1000	**82-479-7**	$39.85
Heavy Duty RotoDrive Kit	RD7000	**82-481-3**	42.85

Countersink Deburring Blades & Holders

DESCRIPTION	MODEL #	PART NO.	PRICE
C-Countersink Blade Holder	CH1000	**82-430-0**	$8.55
HD-RotoDrive Countersink Holder	RD9000	**82-435-9**	11.45
C-12 Countersink Blade	—	**82-448-2**	17.60
C-20 Countersink Blade	—	**82-472-2**	18.95
C-30 Countersink Blade	—	**82-449-0**	39.10

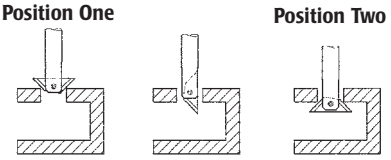




NOGA
SIMPLY SOPHISTICATED

Reversible Countersinks

- Available in two sizes.
- Great tool for deburring both back side and front side of holes.
- Mini-Reversible range $^{7}/_{64}$" - $^{1}/_{4}$".
- Reversable range $^{1}/_{4}$" - $^{7}/_{16}$".



DESCRIPTION	MODEL #	PART NO.	PRICE
Mini-Countersink w/ R-1 Blade	RC1000	**82-496-1**	$37.55
Countersink w/ R-2 Blade	RC2000	**82-497-9**	37.55
R-1 Blade for Mini-Countersink (sm.)	BR1001	**82-397-1**	14.00
R-2 Blade for Countersink (med.)	BR2001	**82-398-9**	15.30



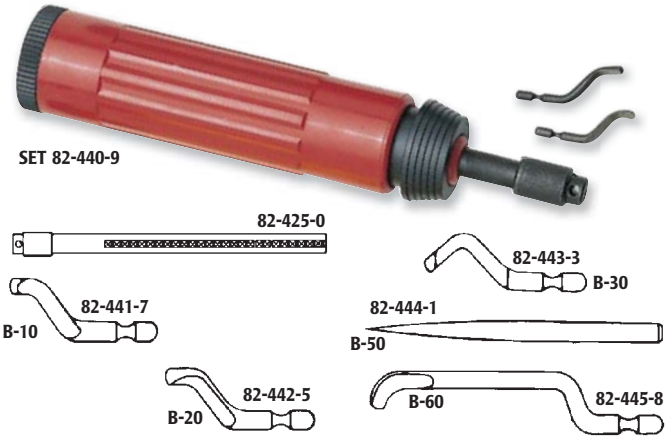
vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

ROUT-A-BURR

Non-Telescoping Blade Holder



DESCRIPTION	PART NO.	PRICE
SET comprising Plastic Handle plus Blades 82-411-0, 82-412-8 and 82-413-6	**82-409-4**	$13.00
Blade for holes in steel and aluminum	**82-411-0**	3.45
Blade for holes in brass and cast iron	**82-412-8**	3.45
Blade for removing external and internal burrs simultaneously from holes drilled into thin wall tubing and sheet metal	**82-413-6**	3.45
Blade for straight edges, keyways, etc.	**82-414-4**	3.45
Blade for internal deburring. Enables deburring in very difficult to reach areas	**82-415-1**	4.60



vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

ROUT-A-BURR

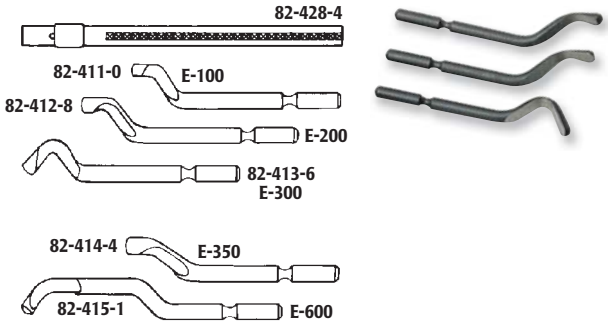
with Telescoping Blade Holder

- Internal & external rotary deburring tool.
- Twist of the wrist motion for convenient deburring of holes and radii.
- Comfortable plastic handle — also stores blades.
- Telescoping action blade holder — 1$^{1}/_{2}$" normal length to 5" reach in holes or recesses.
- Blades are made of high speed steel and are curved to follow all contours.

DESCRIPTION	PART NO.	PRICE
SET comprising Plastic Handle, Telescoping Blade Holder 82-425-0 plus Blades 82-441-7 & 82-442-5	**82-440-9**	$15.10
SET as above with Aluminum Handle	**82-439-1**	20.15
Telescoping Blade Holder	**82-425-0**	7.25
Blade for holes in steel and aluminum — blade can be inserted longitudinally or radially	**82-441-7**	2.50
Blade for holes in brass and cast iron — blade can be inserted longitudinally and radially	**82-442-5**	2.70
Blade for removing external and internal burrs simultaneously from holes drilled into thin walled tubing and sheet metal	**82-443-3**	2.60
Carbide tipped scriber, can be reground many times	**82-444-1**	6.45
Blade for internal deburring. Enables deburring in very difficult to reach areas	**82-445-8**	3.85
Blade, carbide tipped, for deburring of sheet metal up to $^{1}/_{8}$" thickness	**82-446-6**	7.45



SET 82-410-2



vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

ROUT-A-BURR
with Telescoping Blade Holder

- Internal & external rotary deburring tool.
- Twist of the wrist motion for convenient deburring of holes and radii.
- Comfortable plastic handle – also stores blades.
- Telescoping action of blade holder – 1½" normal length to 5" reach in holes or recesses.
- Blades are made of high speed steel and are curved to follow all contours.

DESCRIPTION	PART NO.	PRICE
SET comprising Plastic Handle, Telescoping Blade Holder 82-428-4 plus Blades 82-411-0, 82-412-8 and 82-413-6	**82-410-2**	$19.85
Telescoping Blade Holder	**82-428-4**	8.20
Blade for holes in steel and aluminum	**82-411-0**	3.45
Blade for holes in brass and cast iron	**82-412-8**	3.45
Blade for removing external and internal burrs simultaneously from holes drilled into thin walled tubing and sheet metal	**82-413-6**	3.45
Blade for straight edges, keyways, etc.	**82-414-4**	3.45
Blade for internal deburring. Enables deburring in very difficult to reach areas	**82-415-1**	4.60

All of these blades can also be used with the non-telescoping Type Rout-A-Burr Set 82-409-4.



82-480-5



SET 82-470-6

vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

ROUT-A-BURR
with Telescoping Holder

- Countersink set.
- Twist of the wrist motion for convenient deburring of holes and radii. – Comfortable plastic handle.
- Telescoping action of blade holder – 1½" normal length to 5" reach of holes or recesses.
- Countersinks are made of high speed steel.

DESCRIPTION	PART NO.	PRICE
SET includes Plastic Handle, Telescoping Holder 82-429-2 plus Countersink 82-472-2	**82-470-6**	$43.05
Telescoping Holder	**82-429-2**	8.30
90° Countersink ½" dia.	**82-471-4**	16.40
90° Countersink ¾" dia.	**82-472-2**	18.95
90° Countersink 1¼" dia.	**82-473-0**	38.30
Complete with basic plastic handle, 1 each: Blade Holder: B-C-D-E-F, 15 Deburring Blades: B10, B20, B30, B50, B60, B70, C40, C42, D80, E100, E200, E300, E350 , E600 and F20.	**82-480-5**	$164.55

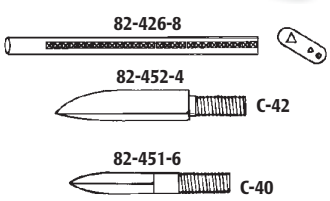
vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

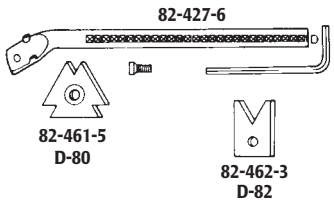
ROUT-A-BURR
with Telescoping Blade Holder



SET 82-460-7

SET 82-450-8





- Internal & external rotary deburring tool.
- Twist of the wrist motion for convenient deburring of holes and radii.
- Comfortable plastic handle – also stores blades.
- Telescoping action blade holder – 1½" normal length to 5" reach of holes or recesses.
- Blades are made of high speed steel and are so curved to follow all contours.

DESCRIPTION	PART NO.	PRICE
SET comprising Plastic Handle, Telescoping Blade Holder 82-426-8 plus Scraper Blade 82-452-4	**82-450-8**	$26.80
Telescoping Blade Holder	**82-426-8**	8.30
C-42 Scraper Blade, triangular HSS	**82-452-4**	16.35
C-40 Scraper Blade, triangular HSS. Excellent for delicate precision work	**82-451-6**	9.50
SET comprising Plastic Handle, Telescoping Blade Holder 82-427-6 Plus Blade 82-461-5	**82-460-7**	26.10
Telescoping Blade Holder	**82-427-6**	9.30
D-80 Blade with 6 cutting edges for deburring sheet metal up to ⅛" thickness, plus 6 cutting edges for flat scraping	**82-461-5**	10.10
D-82 Blade, heavy duty, double edged carbide insert for sheet metal deburring up to 5/16" thickness	**82-462-3**	15.20

CUTTING TOOLS



82-097-7



82-098-5



82-099-3



82-102-5

vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Traditional Erogonomic Handles

- Designed for easy use.
- For deburring metal and plastic.

TYPE	FOR USE WITH	PART NO.	PRICE
Aluminum Handle	All Shaviv Blade Holders	**82-097-7**	$11.80
Shaviv Handle	All Model E Blades	**82-098-5**	9.90
Mango II Handle	All Shaviv Blade Holders	**82-099-3**	9.85
Mango II Handle B	All Model B Blades	**82-100-9** *	9.85
Mango II Handle E	All Model E Blades	**82-101-7**	9.85
Plastic Classic Handle	All Shaviv Blade Holders	**82-102-5**	6.40

* with permanent adapters



82-193-4

vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Mango Click Deburring Tools

Click and Go Handle

- Works with E blades.
- One click to replace blade.
- Easy to use, comfortable and durable.
- For deburring metal and plastic.
- Best suited for larger hands.

Click Handle

DESCRIPTION	OAL	PART NO.	PRICE
Mango Click E Handle	5 1/4"	**82-193-4**	$13.30

13 Pc. Deburring Tool Set

DESCRIPTION	PART NO.	PRICE
Mango Click E Handle w/12 E100 Blades	**82-194-2**	$35.35

vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Mango II Ergonomic Deburring Sets

Set B: The Workhorse

- For deburring holes, slots and edges in metals & plastics.
- 4 Pc. Set includes:
  - (1) Mango II Handle
  - (1) B Blade Holder
  - (2) Blades: B10 & B20



82-183-5

DESCRIPTION	PART NO.	PRICE
Set B: The Workhorse	**82-183-5**	$17.00

Set C: The Scraper

- Triangular blade geometry provides 3 cutting edges to reach the most inaccessible locations.
- 4 Pc. Set includes:
  - (1) Mango II Handle
  - (1) C Blade Holder
  - (1) Blade: C42
  - (1) C Key



82-184-3

DESCRIPTION	PART NO.	PRICE
Set C: The Scraper	**82-184-3**	$36.35

Set D: The Sheet Cleaner

- Deburr sheet metal up to 3 mm (0.12") thick.
- 4 Pc. Set includes:
  - (1) Mango II Handle
  - (1) D Blade Holder
  - (1) Blade: D80C (3 cutting edges)
  - (1) D Key



82-185-0

DESCRIPTION	PART NO.	PRICE
Set D: The Sheet Cleaner	**82-185-0**	$33.75

Set E: Heavy DeBurr

- Set includes 3 most popular heavy-duty deburring blades.
- 5 Pc. Set includes:
  - (1) Mango II Handle
  - (1) E Blade Holder
  - (3) Blades: E-100, E-200 & E-300



82-186-8

DESCRIPTION	PART NO.	PRICE
Set E: Heavy-DeBurr	**82-186-8**	$17.75

Set F: The Countersink

- For holes up to 20 mm (0.79")
- 3 Pc. Set includes:
  - (1) Mango II Handle
  - (1) F Blade Holder
  - (1) Blade: F20



82-187-6

DESCRIPTION	PART NO.	PRICE
Set F: The Countersink	**82-187-6**	$39.20

Set FR: Ratchet-Burr for ID

- Ratchet mechanism makes countersinking fast.
- 3 Pc. Set includes:
  - (1) Mango II Handle
  - (1) FR Blade Holder
  - (1) Blade: F20



82-188-4

DESCRIPTION	PART NO.	PRICE
Set FR: Ratchet-Burr for ID	**82-188-4**	$68.10

Set G: Slot Edge Cleaner

- For deburring keyways & Slots
- Use for both internal & external slots
- 4 Pc. Set includes:
  - (1) Mango II Handle
  - (1) G Blade Holder
  - (1) Blades: G10
  - (1) Key



82-189-2

DESCRIPTION	PART NO.	PRICE
Set G: Slot Edge Cleaner	**82-189-2**	$27.45



82-227-0



82-228-8

Aeroburr Deburring Sets

For the Aviation, Aeorspace and Medical Industries

- Customized for the unique applications required by these industries.
- Designed to deburr curves and small holes as small as 1/16" (1.5 mm).
- TiN coated blades will work on various materials such as steel, aluminum, copper, stainless steel and plastic.
- TiN coated blades provide up to 5 times the life of standard non-coated blades.
- Great for other applications like electronics, dies, molds and automotive R&D.
- **7 Pc. Standard Duty Set Includes:** Mango II Handle, Holder B, 5- B11P coated blades.
- **7 Pc. Heavy Duty Set Includes:** Mango II Handle, Holder E, 5- E111P coated blades.

DESCRIPTION	BLADE TYPE	PART NO.	PRICE
Standard Duty	B	**82-227-0**	$27.70
Heavy Duty	E	**82-228-8**	30.40

Mango II Bonus Packs

Includes Bonus!! Mango II Handle

- Popular sets for deburring holes, slots, and edges on most types of materials.
- Ergonomic, comfortable, standard size handle.
- Includes safety lock to prevent losing blades while working.

"Extra Close" Bonus Packs

BLADE TYPE	NO. OF PCS.	SET CONTAINS	PART NUMBER	PRICE
B-10	11	Mango II B Handle 10 B-10 Blades	**82-172-8**	$23.10
B10-S	11	Mango II B Handle 10 BS-10S Cobalt Blades	**82-174-4**	30.60
E-100	11	Mango II E Handle 10 E-100 Blades	**82-176-9**	28.65
E-100-S	11	Mango II E Handle 10 E-100S- Cobalt Blades	**82-178-5**	31.90



82-172-8

"Long Reach" Bonus Packs

BLADE TYPE	NO. OF PCS.	SET CONTAINS	PART NUMBER	PRICE
B-10	12	Mango II B Handle B- Blade Holder 10 B-10 Blades	**82-173-6**	$36.70
B10-S	12	Mango II B Handle B- Blade Holder 10 B-10S Cobalt Blades	**82-175-1**	38.30
E-100	12	Mango II E Handle E- Blade Holder 10 E-100 Blades	**82-177-7**	42.35
E-100-S	12	Mango II E Handle E- Blade Holder 10 E-100S Cobalt Blades	**82-179-3**	43.80



82-173-6

Uni-Burr Deburring Tools

Popular, Slim Grip Deburring Tools

- **UB-1 DisposaBurr Disposable:** includes a heavy-duty E100 blade
- **UB-2 DisposaBurr Disposable:** includes a heavy-duty B10 blade



82-223-9

DESCRIPTION	PART NO.	PRICE
UB-1	**82-223-9**	$4.65
UB-2	**82-224-7**	5.00

Mini Deburring Tools & Sets

- Uniburr tool is strong yet lightweight.
- Deburrs steel, aluminum, copper and plastic.
- UB-3 Set includes two mini uniburrs for tool and die makers (1 each UB34 and UB38).



82-513-3



82-514-1

TYPE	PART NO.	PRICE
UB34	**82-513-3**	$10.90
UB38	**82-514-1**	11.70
UB-3 Set	**82-512-5**	19.40

CUTTING TOOLS



vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

Glo-Burr Handles & Sets

Use Standard B or E Replacement Blades

2 Pc. Glo-Burr Deburring Tool Handle & Blade Sets

BLADE TYPE	DESCRIPTION	SET CONTAINS	PART NUMBER	PRICE
B	Glo-Burr B	Glo-Burr Handle 1 B-10 Blade	**82-041-5**	$6.95
E	Glo-Burr E	Glo-Burr Handle 1 E-100 Blade	**82-042-3**	7.25

8 Pc. Glo-Burr Deburring Tool Handle & Blade Sets

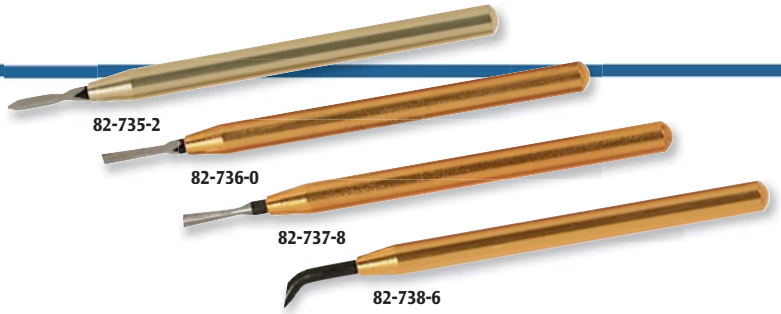
- Sets contain 4 handles each with a different blade.
- Sets complete with a pocket protector.

BLADE TYPE	DESCRIPTION	SET CONTAINS	PART NUMBER	PRICE
B	HandyKit B	4 Glo-Burr Handles 1 B-10 Blade 1 B-20 Blade 1 B-30 Blade 1 B-11 Blade	**82-043-1**	$18.05
E	HandyKit E	4 Glo-Burr Handles 1 B-100 Blade 1 B-200 Blade 1 B-300 Blade 1 B-111 Blade	**82-044-9**	17.00

HSS & Cobalt Deburring Sets

- Use HSS Blades for steel & aluminum.
- Use cobalt for tough jobs in steel, stainless steel, aluminum and plastic.
- Cobalt blades give excellent results when removing burrs and spiral chips from holes, slots and straight edges.

BLADE TYPE	DESCRIPTION	SET CONTAINS	PART NUMBER	PRICE
B	11 Piece B Set	1 Slim Grip Glo-Burr B Handle 10 HSS B-10 Blades	**82-045-6**	$26.15
E	11 Piece E Set	1 Slim Grip Glo-Burr E Handle 10 HSS E-100 Blades	**82-046-4**	27.80
B & E	22 Pieces B & E Set	1 Slim Grip Glo-Burr B Handle 1 Slim Grip Glo-Burr E Handle 10 HSS B-10 Blades 10 HSS E-100 Blades	**82-779-0**	32.40



vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

Diemaker's Deburring Tools & Kit

Miniature Fine Deburring Tools for Precision Work

- 6 Pc. kit contains:
  - **UF1-** Flat diamond coated file,
  - **US1-** Triangular scraper,
  - **US2-** Flat scraper,
  - **US3-** Round scraper,
  - **US4-** Hooked corner scraper,
  - **UB38-** Swivel blade tool.
- Packed in an attractive leather case.



DESCRIPTION	PART NO.	PRICE
Diemaker's Deburring Kit	**82-739-4**	$91.25

Individuals

TYPE	PART NO.	PRICE
US1	**82-735-2**	$16.35
US2	**82-736-0**	16.35
US3	**82-737-8**	16.35
US4	**82-738-6**	16.35

vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

Deburring Tools for Ultra Fine Finishing

Series of Scrapers for Use in Fine Finishing of Both Metals and Plastics

- Easy access to hard to reach areas
- Kit U contains:
  - 1 non-rotating U holder.
  - 1 rotating B holder.
  - 4 Interchangeable U scrapers (BUS1, BUS2, BUS31 & BUS4).
  - 4 blades for rotational deburring (B10, B11, B20 & B30).
  - 1 E500C Scriber
  - 1 Aluminum handle



DESCRIPTION	PART NO.	PRICE
Kit U	**82-886-3**	$102.10
Non rotating U Holder	**82-887-1**	8.30
Triangular Scraper	**82-888-9**	5.90
Flat Scraper Blade	**82-889-7**	5.90
Round Scraper Blade	**82-890-5**	5.90
Hooked Corner Scraper Blade	**82-891-3**	5.90

vargus SHAVIV
NEUMO Ehrenberg Group — Leading Deburring Solutions

Cera-Burr Ceramic Blade Tool

- Excellent for deflashing plastics and soft metals.
- High quality, long lasting ceramic blade.
- Blade permanently affixed on strong, lightweight Glo-Burr handle.
- Removes unwanted mold gate trim.
- Helps avoid accidents commonly occurring with utility blades.
- 6½" long.



DESCRIPTION	PART NO.	PRICE
Cera-Burr Ceramic Blade Tool	**82-828-5**	$26.95

NOGA
SIMPLY SOPHISTICATED

Ceramic Deburring Tool

- Ideal for deburring plastic materials and soft metals.
- For straight, curved and most other shaped surfaces.
- Approximately 10" (250 mm) radius on length of cutting portion with 90° cutting edge.
- Extremely long life.



82-773-3



82-774-1

Disposable Handle and Ceramic Blade

- Blade is permanently mounted in premium soft grip.
- Use and throw away.
- Noga model #CR1100.

DESCRIPTION	PART NO.	PRICE
Disposable Ceramic Deburring Tool	**82-773-3**	$50.95

Replaceable Handle and Blade

- Overall length: 6¾", blade length: 2 5/16"

DESCRIPTION	MODEL #	PART NO.	PRICE
Handle with Replaceable Blade	CR2000	**82-774-1**	$42.74
Handle Only	CR2100	**82-775-8**	14.35
Spare Blade	CR2200	**82-776-6**	26.75





82-197-5

82-198-3

82-199-1



82-200-7

vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Professional Scrapers & Kit

All Purpose Scrape-Burr 40 Scraper with Glo-Burr handle

- Useful and convenient all purpose standard scraper.

Fine Finish Scrape-Burr 400 Scraper with Glo-Burr handle

- Mini tool delivers a fine finish to precision work pieces.

Heavy Duty Scrape-Burr 42 Scraper with Glo-Burr handle

- Triangular blade with 3 cutting edges for high quality finishing and scraping.

Scrape-Burr Kit 3 + 1:

- All 3 Scrape-Burrs tools in one kit, plus free Glo-Burr handle with B-10 blade

TYPE	NO. OF PCS.	CONTENTS	PART NUMBER	PRICE
All Purpose Scraper 40	1	Glo-Burr Handle w/ C40 Blade	**82-197-5**	$17.00
Fine Finish Scraper 400	1	Glo-Burr Handle w/ E400 Blade	**82-198-3**	12.80
Heavy Duty Scraper 42	1	Glo-Burr Handle w/ C42 Blade	**82-199-1**	24.50
Scrape-Burr Kit 3 + 1	4	1 ea. Scrap-Burr 40, 400, and 42 & Glo-Burr handle with B-10 blade	**82-200-7**	53.30



82-365-8

Fine-Deburring Set

- Ideal for deburring delicate parts.
- Six double end tools with revolving, hardened steel discs.
- The 12 disc sizes range from 0.060" dia. to 0.208" dia.
- Knurled handle for comfortable grip.
- Set furnished in plastic pouch.

DESCRIPTION	PART NO.	PRICE
Fine-Deburring Set	**82-365-8**	$99.55

Individual Fine-Deburring Tools

SIZE	WHEEL DIAMETERS	PART NO.	PRICE EA.
1	0.060" & 0.070"	**07-709-9**	$23.50
2	0.082" & 0.092"	**07-710-7**	23.50
3	0.106" & 0.116"	**07-711-5**	23.50
4	0.134" & 0.150"	**07-712-3**	23.50
5	0.160" & 0.185"	**07-713-1**	23.50
6	0.198" & 0.208"	**07-714-9**	23.50



82-508-3

vargus SHAVIV
NEUMO Ehrenberg Group
Leading Deburring Solutions

Rotary Scrapers for High Precision Work

Bi-Directional Blade Orientation

- Triangular rotary scrapers specifically designed for high precision and accurate work.
- Blades are made of top quality HSS, strong yet flexible.
- Suitable for air tools with high RPM.
- Excellent for a variety of raw materials such as metals, ceramics, and plastics.
- Used in aviation, electronics, jewelry, molding and other industries.
- Holder comparability: C

DESCRIPTION	PART NO.	PRICE
C-80, 5°, 2.6mm Shank Scraper	**82-507-5**	$27.80
C-81-3, 5°, 3mm Shank Scraper	**82-508-3**	27.80
C-82-3, 10°, 3mm Shank Scraper	**82-509-1**	27.80

CUTTING TOOLS

Flexolaps®

- Instantly and accurately adjustable for fast cutting and polishing.
- The longer cylindrical lapping surface and easy adjustment insure greater precision and longer life.
- The brass cylinder, in either the barrel or blind-hole type, is made with a series of longitudinal slots milled "off-center" to permit sensitive expansion up to 15% by simply turning the adjusting screw.
- This construction will enable you to lap rounder, straighter holes plus save valuable time.



Barrel Laps

DIA.	BARREL LAPS PART NO.	PRICE EA.	CYLINDERS PART NO.	PRICE EA.
3/16"	**87-709-2**	$8.65	**87-745-6**	$3.25
7/32"	**87-711-8**	9.10	**87-747-2**	3.50
1/4"	**87-713-4**	9.45	**87-749-8**	3.75
9/32"	**87-715-9**	9.65	**87-751-4**	4.05
5/16"	**87-717-5**	10.25	**87-753-0**	4.15
11/32"	**87-719-1**	10.65	**87-755-5**	4.45
3/8"	**87-721-7**	11.00	**87-757-1**	4.70
13/32"	**87-723-3**	11.75	**87-759-7**	5.05
7/16"	**87-725-8**	12.10	**87-761-3**	5.35
15/32"	**87-727-4**	12.65	**87-763-9**	5.65
1/2"	**87-729-0**	13.40	**87-765-4**	6.25
9/16"	**87-731-6**	14.10	**87-767-0**	7.85
5/8"	**87-733-2**	19.35	**87-769-6**	8.00
11/16"	**87-735-7**	21.35	**87-771-2**	9.65
3/4"	**87-737-3**	22.80	**87-773-8**	10.80
7/8"	**87-739-9**	23.85	**87-775-3**	12.85
15/16"	**87-741-5**	23.85	**87-777-9**	15.10
1"	**87-743-1**	25.85	**87-779-5**	16.00



Blind Hole Laps

DIA.	BLIND HOLE LAPS PART NO.	PRICE EA.	CYLINDERS PART NO.	PRICE EA.
3/16"	**87-710-0**	$9.90	**87-746-4**	$3.25
7/32"	**87-712-6**	10.15	**87-748-0**	4.05
1/4"	**87-714-2**	10.85	**87-750-6**	3.90
9/32"	**87-716-7**	11.10	**87-752-2**	4.05
5/16"	**87-718-3**	11.55	**87-754-8**	4.05
11/32"	**87-720-9**	11.95	**87-756-3**	4.95
3/8"	**87-722-5**	12.20	**87-758-9**	4.65
13/32"	**87-724-1**	13.25	**87-760-5**	5.05
7/16"	**87-726-6**	13.40	**87-762-1**	5.35
15/32"	**87-728-2**	13.70	**87-764-7**	5.65
1/2"	**87-730-8**	14.25	**87-766-2**	6.20
9/16"	**87-732-4**	15.40	**87-768-8**	7.80
5/8"	**87-734-0**	19.85	**87-770-4**	8.00
11/16"	**87-736-5**	20.00	**87-772-0**	9.65
3/4"	**87-738-1**	23.85	**87-774-6**	10.80
7/8"	**87-740-7**	24.90	**87-776-1**	12.85
15/16"	**87-742-3**	25.00	**87-778-7**	15.10
1"	**87-744-9**	25.85	**87-780-3**	15.75



11 Pc. Blind Hole Lap Set
87-701-9



11 Pc. Barrel Lap Set
87-705-0

Barrel & Blind Hole Laps Sets

- All sets supplied with a sturdy wooden stand.

6 Pc. Set

- Includes 6 laps, one of each size 3/16", 1/4", 5/16", 3/8", 7/16" 1/2" and one additional Brass Lapping Cylinder of each size.

DESCRIPTION	PART NO.	PRICE
6 Pc. Barrel Lap Set	**87-708-4**	$87.85
6 Pc. Blind Hole Lap Set	**87-704-3**	85.75

11 Pc. Set

- Includes 11 laps, one of each size 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 13/32", 7/16", 15/32", 1/2".

DESCRIPTION	PART NO.	PRICE
11 Pc. Barrel Lap Set	**87-705-0**	$105.85
11 Pc. Blind Hole Lap Set	**87-701-9**	121.35

13 Pc. Set

- Includes 13 laps, one of each size 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 7/8", 15/16", 1".

DESCRIPTION	PART NO.	PRICE
13 Pc. Barrel Lap Set	**87-706-8**	$231.85
13 Pc. Blind Hole Lap Set	**87-702-7**	192.40

18 Pc. Set

- Includes 18 laps, one of each size 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 13/32", 7/16", 15/32", 1/2", 9/16", 5/8", 11/16", 3/4", 7/8", 15/16", 1".

DESCRIPTION	PART NO.	PRICE
18 Pc. Barrel Lap Set	**87-707-6**	$291.75
18 Pc. Blind Hole Lap Set	**87-703-5**	261.15



ABRASIVES


RUBBERIZED ABRASIVES
SPi
10500 88-483-3
RUBBERIZED ABRASIVES
SPi
7000


SPI "DIESTAR" 320
SPI "EDM" 120
SPI "SUPER" 320




MIGHTY MAG
MADE IN U.S.A.




60
60
60



ABRASIVES

INDUSTRIAL
PERFORMANCE GRADE

Sanding Belts - General Purpose Aluminum Oxide

Resin bonded sanding belts are used for general purpose metalworking. They have aluminum oxide grain and X-weighted cotton backing with break-resistant joints.

- Heavy-duty X-wt. tear-resistant polyester/cotton cloth backing.
- Resin on resin bond for extended belt life.
- P-graded premium A/O grain for fast cutting action on all types of materials.

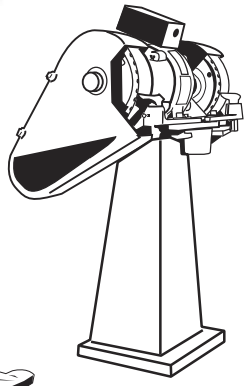
Coating Advantages: Aluminum Oxide

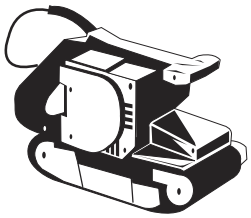
- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous metals.
- High cut rate and durability.



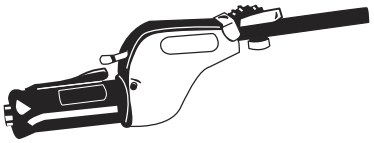
For Use with:

Small Electric & Pneumatic Power Tools, i.e., Band Files, Dyna-Files, etc. (1/8" x 12" through 1" x 30')

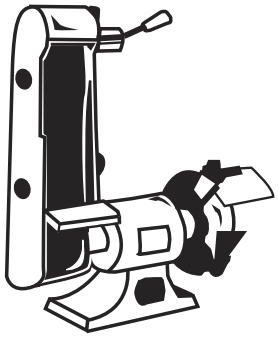




Portable Belt Sanders (Between 3" x 18" & 4" x 24")



Bench Stand Belt Grinders (1" x 42" through 6" x 60")



Back Stand Belt Grinders (2" x 132" through 10" x 70½") Also - Wide Belt Grinders & Custom Machinery (18" x 85" through 37" x 75")

W	L	GRIT	PART NO.	PRICE
1/8"	12"	60	63-645-6	$1.15
1/8"	12"	80	63-646-4	1.15
1/8"	12"	120	63-647-2	1.15
1/8"	24"	40	63-648-0	1.50
1/8"	24"	60	63-649-8	1.45
1/8"	24"	80	63-650-6	1.45
1/8"	24"	120	63-651-4	1.45
1/4"	12"	40	63-652-2	1.00
1/4"	12"	60	63-653-0	0.95
1/4"	12"	80	63-654-8	0.95
1/4"	12"	120	63-655-5	0.95
1/4"	18"	40	63-656-3	1.30
1/4"	18"	60	63-657-1	1.30
1/4"	18"	80	63-658-9	1.30
1/4"	18"	120	63-659-7	1.30
1/4"	24"	40	63-660-5	1.50
1/4"	24"	60	63-661-3	1.10
1/4"	24"	80	63-662-1	1.10
1/4"	24"	100	63-663-9	1.05
1/4"	24"	120	63-664-7	1.25
3/8"	13"	40	63-665-4	1.25
3/8"	13"	60	63-666-2	1.20
3/8"	13"	80	63-667-0	1.20
3/8"	13"	100	63-668-8	1.20
3/8"	13"	120	63-669-6	1.20
3/8"	24"	40	63-670-4	1.60
3/8"	24"	60	63-671-2	1.45
3/8"	24"	80	63-672-0	1.45
3/8"	24"	120	63-673-8	1.45
1/2"	12"	40	63-674-6	1.10
1/2"	12"	60	63-675-3	1.10
1/2"	12"	80	63-676-1	1.10
1/2"	12"	100	63-677-9	1.10
1/2"	12"	120	63-678-7	1.10
1/2"	18"	40	63-679-5	1.05
1/2"	18"	60	63-680-3	1.05
1/2"	18"	80	63-681-1	1.00
1/2"	18"	100	63-682-9	1.00
1/2"	18"	120	63-683-7	1.00
1/2"	24"	40	63-684-5	1.15
1/2"	24"	60	63-685-2	1.15
1/2"	24"	80	63-686-0	1.15
1/2"	24"	100	63-687-8	1.15
1/2"	24"	120	63-688-6	1.35
3/4"	18"	40	63-689-4	1.40
3/4"	18"	50	63-758-7	2.45
3/4"	18"	60	63-690-2	1.40
3/4"	18"	80	63-691-0	1.40
3/4"	18"	120	63-692-8	1.40
3/4"	20½"	40	63-693-6	1.75
3/4"	20½"	60	63-694-4	1.30
3/4"	20½"	80	63-695-1	1.30
3/4"	20½"	100	63-696-9	1.30
3/4"	20½"	120	63-697-7	1.30
1"	12"	40	63-698-5	1.50
1"	12"	60	63-699-3	1.45
1"	12"	80	63-700-9	1.45
1"	12"	120	63-701-7	1.45
1"	18"	40	63-702-5	1.65
1"	18"	60	63-703-3	1.55
1"	18"	80	63-704-1	1.55
1"	18"	120	63-705-8	1.55
1"	24"	80	63-706-6	1.05
1"	24"	120	63-707-4	1.05
1"	30"	36	63-708-2	1.60
1"	30"	40	63-709-0	1.80
1"	30"	60	63-710-8	1.80
1"	30"	80	63-711-6	1.80
1"	30"	100	63-712-4	1.65
1"	30"	120	63-713-2	1.65
1"	30"	180	63-714-0	1.65
1"	42"	36	63-715-7	1.90
1"	42"	40	63-716-5	$1.90
1"	42"	50	63-717-3	1.90
1"	42"	60	63-718-1	1.25
1"	42"	80	63-719-9	1.25
1"	42"	100	63-720-7	1.25
1"	42"	120	63-721-5	1.25
1"	42"	150	63-722-3	1.60
1"	42"	180	63-723-1	1.60
1"	42"	220	63-724-9	1.60
1"	42"	240	63-725-6	1.60
1"	42"	320	63-726-4	1.60
1"	72"	60	63-727-2	2.40
1"	72"	120	63-728-0	2.30
1½"	18 15/16"	40	63-729-8	2.15
1½"	18 15/16"	60	63-730-6	1.25
1½"	18 15/16"	80	63-731-4	1.25
1½"	18 15/16"	120	63-732-2	1.25
1½"	60"	40	63-733-0	2.80
1½"	60"	60	63-734-8	2.35
1½"	60"	80	63-735-5	2.20
1½"	60"	120	63-736-3	2.20
2"	30"	40	63-737-1	2.35
2"	30"	60	63-738-9	2.20
2"	30"	80	63-739-7	2.15
2"	30"	120	63-740-5	2.15
2"	48"	36	63-741-3	3.15
2"	48"	40	63-742-1	2.90
2"	48"	50	63-743-9	2.90
2"	48"	60	63-744-7	2.45
2"	48"	80	63-745-4	2.25
2"	48"	100	63-746-2	2.15
2"	48"	120	63-747-0	2.15
2"	48"	150	63-748-8	2.15
2"	48"	180	63-749-6	2.15
2"	48"	220	63-750-4	1.90
2"	48"	240	63-751-2	2.15
2"	60"	36	63-752-0	3.75
2"	60"	40	63-753-8	3.50
2"	60"	50	63-754-6	3.10
2"	60"	60	63-755-3	2.75
2"	60"	80	63-756-1	2.60
2"	60"	100	63-757-9	2.45
2"	60"	120	63-758-7	2.45
2"	60"	180	63-759-5	2.90
2"	60"	240	63-760-3	2.90
2"	60"	320	63-761-1	2.60
2"	72"	40	63-762-9	4.95
2"	72"	60	63-763-7	3.25
2"	72"	80	63-764-5	2.95
2"	72"	100	63-765-2	2.90
2"	72"	120	63-766-0	2.90
2"	72"	180	63-767-8	2.70
2"	72"	220	63-768-6	2.70
2"	72"	320	63-769-4	2.70
2"	132"	40	63-770-2	7.40
2"	132"	50	63-771-0	5.35
2"	132"	60	63-772-8	6.05
2"	132"	80	63-773-6	5.60
2"	132"	100	63-774-4	5.60
2"	132"	120	63-775-1	5.60
2"	132"	180	63-776-9	4.85
2"	132"	220	63-777-7	4.85
2½"	48"	40	63-778-5	3.55
2½"	48"	60	63-779-3	3.15
2½"	48"	80	63-780-1	2.90
2½"	48"	120	63-781-9	2.90
2½"	60"	40	63-782-7	3.95
2½"	60"	50	63-783-5	3.50
2½"	60"	60	63-784-3	3.75
2½"	60"	80	63-785-0	3.30
2½"	60"	100	63-786-8	3.30
2½"	60"	120	63-787-6	3.30

W	L	GRIT	PART NO.	PRICE
3"	18"	40	**63-788-4**	$1.90
3"	18"	60	**63-789-2**	1.90
3"	18"	80	**63-790-0**	1.70
3"	18"	120	**63-791-8**	1.70
3"	21"	36	**63-792-6**	2.10
3"	21"	40	**63-793-4**	2.30
3"	21"	60	**63-794-2**	1.95
3"	21"	80	**63-795-9**	1.90
3"	21"	100	**63-796-7**	1.75
3"	21"	120	**63-797-5**	1.75
3"	21"	180	**63-798-3**	1.55
3"	24"	36	**63-799-1**	2.30
3"	24"	40	**63-800-7**	2.40
3"	24"	60	**63-801-5**	1.95
3"	24"	80	**63-802-3**	1.95
3"	24"	100	**63-803-1**	1.75
3"	24"	120	**63-804-9**	1.75
3"	90"	40	**63-805-6**	9.65
3"	90"	60	**63-806-4**	8.85
3"	90"	80	**63-807-2**	8.40
3"	90"	100	**63-808-0**	8.10
3"	90"	120	**63-809-8**	8.10
3"	120"	80	**63-810-6**	8.25
3"	120"	120	**63-811-4**	8.25
3"	132"	40	**63-812-2**	10.80
3"	132"	60	**63-813-0**	9.05
3"	132"	80	**63-814-8**	9.05
3"	132"	100	**63-815-5**	8.40
3"	132"	120	**63-816-3**	8.40
3½"	15½"	40	**63-817-1**	3.05
3"	15½"	60	**63-818-9**	2.60
3½"	15½"	80	**63-819-7**	2.50
3½"	15½"	100	**63-820-5**	2.30
3½"	15½"	120	**63-821-3**	2.30
4"	24"	36	**63-822-1**	4.20
4"	24"	40	**63-823-9**	3.95
4"	24"	50	**63-824-7**	3.50
4"	24"	60	**63-825-4**	3.30
4"	24"	80	**63-826-2**	3.30
4"	24"	100	**63-827-0**	3.30
4"	24"	120	**63-828-8**	3.30
4"	36"	36	**63-829-6**	5.25
4"	36"	40	**63-830-4**	4.45
4"	36"	60	**63-831-2**	4.10
4"	36"	80	**63-832-0**	4.00
4"	36"	100	**63-833-8**	3.65
4"	36"	120	**63-834-6**	3.65
4"	36"	150	**63-835-3**	3.25
4"	36"	180	**63-836-1**	3.65
4"	36"	320	**63-837-9**	3.65
4"	48"	40	**63-838-7**	5.30
4"	48"	60	**63-839-5**	5.00
4"	48"	80	**63-840-3**	4.80
4"	48"	100	**63-841-1**	4.80
4"	48"	120	**63-842-9**	4.80
4"	54"	36	**63-843-7**	6.15
4"	54"	40	**63-844-5**	6.10
4"	54"	60	**63-845-2**	5.35
4"	54"	80	**63-846-0**	5.00
4"	54"	100	**63-847-8**	5.00
4"	54"	120	**63-848-6**	5.00

W	L	GRIT	PART NO.	PRICE
4"	60"	36	**63-849-4**	$7.20
4"	60"	60	**63-850-2**	6.35
4"	60"	80	**63-851-0**	6.05
4"	60"	120	**63-852-8**	6.05
4"	132"	40	**63-853-6**	15.20
4"	132"	60	**63-854-4**	12.10
4"	132"	80	**63-855-1**	11.50
4"	132"	100	**63-856-9**	11.50
4"	132"	120	**63-857-7**	11.50
6"	48"	36	**63-858-5**	9.25
6"	48"	40	**63-859-3**	8.60
6"	48"	50	**63-860-1**	8.40
6"	48"	60	**63-861-9**	7.25
6"	48"	80	**63-862-7**	6.60
6"	48"	100	**63-863-5**	6.35
6"	48"	120	**63-864-3**	6.35
6"	48"	150	**63-865-0**	6.35
6"	48"	180	**63-866-8**	6.35
6"	48"	220	**63-867-6**	6.35
6"	48"	320	**63-868-4**	6.20
6"	54"	40	**63-869-2**	12.90
6"	54"	60	**63-870-0**	12.40
6"	54"	120	**63-871-8**	12.40
6"	60"	40	**63-872-6**	9.95
6"	60"	60	**63-873-4**	8.60
6"	60"	80	**63-874-2**	7.85
6"	60"	120	**63-875-9**	7.35
6"	132"	60	**63-876-7**	20.05
6"	132"	80	**63-877-5**	20.05
6"	132"	100	**63-878-3**	20.05
6"	132"	120	**63-879-1**	20.05
8"	107"	36	**63-880-9**	21.05
8"	107"	40	**63-881-7**	22.45
8"	107"	50	**63-882-5**	18.85
8"	107"	60	**63-883-3**	20.50
8"	107"	80	**63-884-1**	20.50
8"	107"	100	**63-885-8**	20.50
8"	107"	120	**63-886-6**	20.50
10"	70½"	40	**63-887-4**	20.65
10"	70½"	60	**63-888-2**	16.00
10"	70½"	80	**63-889-0**	16.00
18"	85"	60	**63-890-8**	33.25
18"	85"	80	**63-891-6**	33.25
18"	85"	120	**63-892-4**	33.25
25"	48"	60	**63-893-2**	37.85
25"	48"	80	**63-895-7**	37.85
25"	48"	100	**63-897-3**	44.20
25"	48"	120	**63-899-9**	51.35
25"	60"	80	**63-901-3**	65.20
25"	60"	120	**63-903-9**	65.20
25"	75"	120	**63-905-4**	62.05
36"	75"	60	**63-894-0**	37.85
36"	75"	80	**63-896-5**	37.85
36"	75"	100	**63-898-1**	41.20
36"	75"	120	**63-900-5**	65.20
37"	60"	80	**63-902-1**	65.20
37"	60"	100	**63-904-7**	63.20
37"	60"	120	**63-906-2**	62.05
37"	75"	80	**63-907-0**	65.95
37"	75"	100	**63-908-8**	65.95
37"	75"	120	**63-909-6**	65.95

INDUSTRIAL
PERFORMANCE GRADE

Sanding Belts - General Purpose Aluminum Oxide

Resin bonded sanding belts are used for general purpose metalworking. They have aluminum oxide grain and X-weighted cotton backing with break-resistant joints.

- Heavy-duty X-wt. tear-resistant polyester/cotton cloth backing.
- Resin on resin bond for extended belt life.
- P-graded premium A/O grain for fast cutting action on all types of materials.

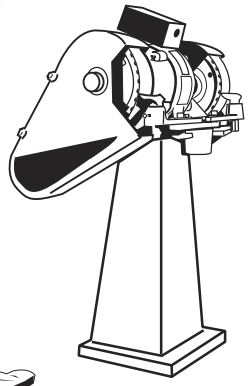
Coating Advantages: Aluminum Oxide

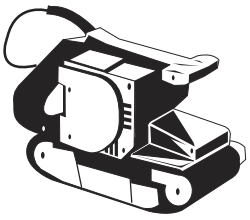
- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous metals.
- High cut rate and durability.



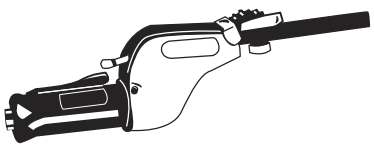
For Use with:

Small Electric & Pneumatic Power Tools, i.e., Band Files, Dyna-Files, etc. (⅛" x 12" through 1" x 30')

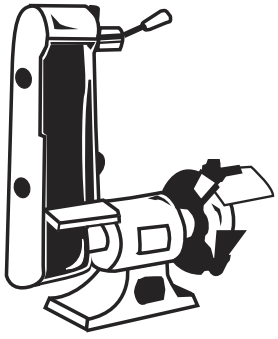




Portable Belt Sanders (Between 3" x 18" & 4" x 24")



Bench Stand Belt Grinders (1" x 42" through 6" x 60")



Back Stand Belt Grinders (2" x 132" through 10" x 70½") Also - Wide Belt Grinders & Custom Machinery (18" x 85" through 37" x 75")

ABRASIVES



PREMIUM
PRODUCTION QUALITY

Surface Conditioning Belts

Designed for cleaning, finishing and light deburring operations using standard abrasive belt equipment. Resist loading and reduce heat build-up, increasing life and improving performance. High performance belts feature a tougher, more aggressive nonwoven nylon abrasive-impregnated web construction.

- Specially designed belts with low stretch material that will not slacken during use, providing measured performance with decreased downtime.
- Flex grind materials offer optimum flexibility.
- Premium aluminum oxide.

Mfr's Code:

MATERIAL	GRADE
A = Aluminum Oxide	MED = Medium
S = Silicon Carbide	FIN = Fine

Example: Mfr's Code = AMED
Material = Alum. Oxide, Grade = Medium

COLOR:
Coarse = Brown
Medium = Maroon
Very Fine = Blue
Super Fine = Gray

FLEXIBILITY (BACKING)		
SC-BS	SC-LS	SC-FB
Most ⟷		Least

Belts for Small Hand-Held Machines

W	L	GRADE	BACKING	PART NO.	PRICE/EA.
1/4"	18"	AMED	SC-BS	**64-057-3**	$2.90
1/4"	24"	ACRS	SC-BS	**64-058-1**	3.05
1/4"	24"	AMED	SC-BS	**64-059-9**	3.05
1/4"	24"	AVFN	SC-BS	**64-060-7**	3.05
1/2"	12"	AMED	SC-BS	**64-061-5**	4.45
1/2"	12"	AVFN	SC-BS	**64-062-3**	4.45
1/2"	18"	ACRS	SC-BS	**64-063-1**	4.75
1/2"	18"	AMED	SC-BS	**64-064-9**	4.75
1/2"	18"	AVFN	SC-BS	**64-065-6**	4.75
1/2"	18"	SSFN	SC-BS	**64-066-4**	4.70
1/2"	24"	ACRS	SC-BS	**64-067-2**	5.00
1/2"	24"	AMED	SC-BS	**64-068-0**	5.00
1/2"	24"	AVFN	SC-BS	**64-069-8**	5.00
1/2"	24"	SSFN	SC-BS	**64-070-6**	5.20

W	L	GRADE	BACKING	PART NO.	PRICE/EA.
3/4"	18"	ACRS	SC-BS	**64-071-4**	$6.70
3/4"	18"	AMED	SC-BS	**64-072-2**	6.70
3/4"	18"	AVFN	SC-BS	**64-073-0**	6.70
3/4"	18"	SSFN	SC-BS	**64-074-8**	6.25
3/4"	20 1/2"	AMED	SC-BS	**64-075-5**	6.50
1"	18"	ACRS	SC-BS	**64-076-3**	8.55
1"	30"	ACRS	SC-BS	**64-077-1**	9.45
1"	30"	AMED	SC-BS	**64-078-9**	9.45
1"	30"	AVFN	SC-BS	**64-079-7**	10.10
1"	42"	AMED	SC-BS	**64-080-5**	11.65
1"	42"	AVFN	SC-BS	**64-081-3**	11.00
1 1/2"	60"	AMED	SC-LS	**64-082-1**	21.35
2"	18 15/16"	ACRS	SC-LS	**64-083-9**	13.00
2"	18 15/16"	AMED	SC-LS	**64-084-7**	13.55

Belts for Benchtop or Floor Standing Machines

W	L	GRADE	BACKING	PART NO.	PRICE/EA.
2"	48"	AMED	SC-BS	**64-085-4**	$19.05
2"	48"	AVFN	SC-BS	**64-086-2**	19.05
2"	60"	ACRS	SC-BS	**64-087-0**	23.15
2"	60"	AMED	SC-LS	**64-088-8**	25.05
2"	60"	AMED	SC-BS	**64-089-6**	22.35
2"	60"	AVFN	SC-LS	**64-090-4**	25.05
2"	60"	AVFN	SC-BS	**64-091-2**	20.80
2"	72"	ACRS	SC-LS	**64-092-0**	27.45
2"	72"	ACRS	SC-BS	**64-093-8**	22.35
2"	72"	AMED	SC-LS	**64-094-6**	25.05
2"	72"	AMED	SC-BS	**64-095-3**	22.90
2"	72"	AVFN	SC-BS	**64-096-1**	22.55
2"	132"	ACRS	SC-BS	**64-097-9**	34.45
2"	132"	AMED	SC-BS	**64-098-7**	34.45
2"	132"	AMED	SC-LS	**64-099-5**	41.95
2"	132"	AVFN	SC-BS	**64-100-1**	36.65
2"	132"	AVFN	SC-LS	**64-101-9**	41.95
2 1/2"	60"	AMED	SC-BS	**64-102-7**	29.55
3"	10 11/16"	ACRS	SC-BS	**64-103-5**	14.25
3"	10 11/16"	AMED	SC-BS	**64-104-3**	14.25
3"	10 11/16"	AVFN	SC-BS	**64-105-0**	14.25
3"	18"	ACRS	SC-BS	**64-106-8**	15.30
3"	18"	AMED	SC-BS	**64-107-6**	15.30

W	L	GRADE	BACKING	PART NO.	PRICE/EA.
3"	18"	AVFN	SC-BS	**64-108-4**	$15.30
3"	21"	AMED	SC-BS	**64-109-2**	16.15
3"	24"	ACRS	SC-BS	**64-110-0**	18.45
3"	24"	AMED	SC-BS	**64-111-8**	18.45
3"	24"	AVFN	SC-BS	**64-112-6**	19.80
3"	132"	ACRS	SC-BS	**64-113-4**	56.35
3"	132"	AMED	SC-BS	**64-114-2**	53.05
3"	132"	AMED	SC-LS	**64-115-9**	61.85
3"	132"	AVFN	SC-BS	**64-116-7**	50.85
3"	132"	SVFN	SC-BS	**64-117-5**	60.00
3 1/2"	15 1/2"	ACRS	SC-BS	**64-118-3**	26.45
3 1/2"	15 1/2"	AMED	SC-BS	**64-119-1**	27.20
3 1/2"	15 1/2"	AVFN	SC-BS	**64-120-9**	25.60
3 1/2"	15 1/2"	SMED	SC-LS	**64-121-7**	24.90
3 1/2"	15 1/2"	SSFN	SC-BS	**64-122-5**	24.90
4"	24"	AMED	SC-BS	**64-123-3**	24.90
4"	36"	AMED	SC-BS	**64-124-1**	32.50
4"	132"	AMED	SC-BS	**64-125-8**	69.45
6"	48"	ACRS	SC-BS	**64-126-6**	56.95
6"	48"	AMED	SC-BS	**64-127-4**	56.95
6"	48"	AMED	SC-LS	**64-128-2**	57.45
6"	48"	AVFN	SC-BS	**64-129-0**	56.95

Coating Advantages:

Aluminum Oxide

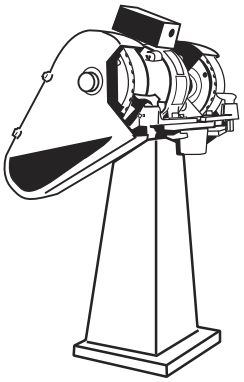
- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

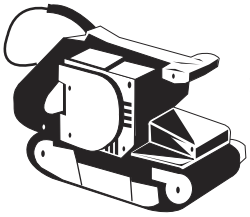
Silicon Oxide

- Sharp abrasive grain providing high initial cut rate and penetration for work on nonferrous materials.

For Use with:

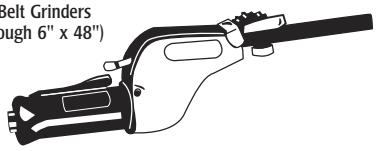
Small Electric & Pneumatic Power Tools, i.e., Band Files, Dyna-Files, etc.
(1/8" x 12" through 1" x 30')

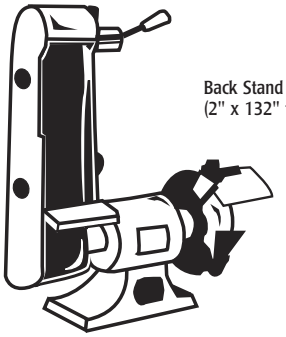




Portable Belt Sanders
(Between 3" x 18" & 4" x 24")

Bench Stand Belt Grinders
(1" x 42" through 6" x 48")





Back Stand Belt Grinders
(2" x 132" through 10" x 70 1/2")



54-599-6

Abrasive Belt Sticks

Gets Into Hard to Reach Areas

- Made of tough, impact resistant polypropylene that allows stick to be used dry or with solvents including acetone, kerosene, water or oil.
- Spring loaded tensioning device keeps the abrasive belt firmly in place and allows for quick belt change.
- Belt can be rotated a full 360 degrees for complete and economical use.

Color Coded for Ease of Use In:

• Metal Finishing • Auto body finishing • Dental device finishing
• Jewelry making • Woodworking • Pattern making • Ceramics
• Taxidermy • Welding cleanup • Auto body finishing • Mold finishing

- Includes: 1 sanding belt and 1 holder. Tools available in 3 sizes and 5 grit

Tool & Belt

WIDTH	LENGTH	GRIT	COLOR	PART NO.	PRICE
1/4"	6"	120	Red	**54-591-3**	$3.15
1/4"	6"	240	Blue	**54-592-1**	3.15
1/4"	6"	320	Green	**54-593-9**	3.15
1/4"	6"	400	Yellow	**54-594-7**	3.15
1/4"	6"	600	Black	**54-595-4**	3.15
1/2"	8"	120	Red	**54-596-2**	5.25
1/2"	8"	240	Blue	**54-597-0**	5.25
1/2"	8"	320	Green	**54-598-8**	5.25
1/2"	8"	400	Yellow	**54-599-6**	5.25
1/2"	8"	600	Black	**54-600-2**	5.25
3/4"	10"	120	Red	**54-601-0**	6.40
3/4"	10"	240	Blue	**54-602-8**	6.40
3/4"	10"	320	Green	**54-603-6**	6.40
3/4"	10"	400	Yellow	**54-604-4**	6.40
3/4"	10"	600	Black	**54-605-1**	6.40

Replacement Abrasive Belts

WIDTH	LENGTH	GRIT	PART NO.	PRICE
1/4"	6"	120	**54-606-9**	$0.90
1/4"	6"	240	**54-607-7**	0.90
1/4"	6"	320	**54-608-5**	0.90
1/4"	6"	400	**54-609-3**	0.90
1/4"	6"	600	**54-610-1**	0.90
1/2"	8"	120	**54-611-9**	1.80
1/2"	8"	240	**54-612-7**	1.80
1/2"	8"	320	**54-613-5**	1.80
1/2"	8"	400	**54-614-3**	1.80
1/2"	8"	600	**54-615-0**	1.80
3/4"	10"	120	**54-616-8**	2.30
3/4"	10"	240	**54-617-6**	2.30
3/4"	10"	320	**54-618-4**	2.30
3/4"	10"	400	**54-619-2**	2.30
3/4"	10"	600	**54-620-0**	2.30



58-066-2

Waterproof Aluminum Oxide Rolls

- Stands up to water, cutting oils, grease, chemicals and other solvents.
- Ideal for deburring, cleaning and polishing metal parts exposed to fluids.
- Resin bonded.
- J weight backing.
- 50 yard rolls.

W	L (YD.)	GRIT	PART NO.	PRICE EA.
1"	50	320	**58-066-2**	$27.75
1"	50	240	**58-067-0**	27.75
1"	50	180	**58-068-8**	27.75
1"	50	150	**58-069-6**	25.60
1"	50	120	**58-070-4**	27.75
1"	50	100	**58-071-2**	25.60
1"	50	80	**58-072-0**	25.60
1"	50	60	**58-073-8**	27.75
1 1/2"	50	320	**58-074-6**	34.80
1 1/2"	50	240	**58-075-3**	34.80
1 1/2"	50	180	**58-076-1**	34.80
1 1/2"	50	150	**58-077-9**	34.80
1 1/2"	50	120	**58-078-7**	34.80
1 1/2"	50	100	**58-079-5**	34.80
1 1/2"	50	80	**58-080-3**	37.40
1 1/2"	50	60	**58-081-1**	34.80
2"	50	320	**58-082-9**	44.20
2"	50	240	**58-083-7**	47.55
2"	50	180	**58-084-5**	44.20
2"	50	150	**58-085-2**	44.20
2"	50	120	**58-086-0**	47.55
2"	50	100	**58-087-8**	44.20
2"	50	80	**58-088-6**	47.55
2"	50	60	**58-089-4**	47.55



63-921-1

INDUSTRIAL
PERFORMANCE GRADE

Aluminum Oxide General Purpose Shop Rolls

Economically priced rolls for general sanding applications. Convenient 50 yd. rolls with a durable cloth back. Mount easily – just unroll and tear to desired length.

- Premium cloth backing for maximum durability.
- Sharp, fast, clean-cutting abrasive for metal finishing and polishing.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.



W	GRIT	PART NO.	PRICE
1"	50	**63-910-4**	$25.65
1"	60	**63-911-2**	24.00
1"	80	**63-912-0**	20.30
1"	100	**63-913-8**	19.65
1"	120	**63-914-6**	19.65
1"	150	**63-915-3**	19.65
1"	180	**63-916-1**	19.65
1"	220	**63-917-9**	19.65
1"	240	**63-918-7**	19.65
1"	320	**63-919-5**	19.65
1"	400	**63-920-3**	19.65
1"	500	**63-921-1**	19.65
1 1/2"	50	**63-922-9**	38.40
1 1/2"	60	**63-923-7**	33.55
1 1/2"	80	**63-924-5**	28.30
1 1/2"	100	**63-925-2**	27.40
1 1/2"	120	**63-926-0**	27.40
1 1/2"	150	**63-927-8**	27.40

W	GRIT	PART NO.	PRICE
1 1/2"	180	**63-928-6**	$27.40
1 1/2"	220	**63-929-4**	27.40
1 1/2"	240	**63-930-2**	27.40
1 1/2"	320	**63-931-0**	27.40
1 1/2"	400	**63-932-8**	27.40
1 1/2"	500	**63-933-6**	27.40
2"	50	**63-934-4**	44.30
2"	60	**63-935-1**	42.65
2"	80	**63-936-9**	36.00
2"	100	**63-937-7**	34.85
2"	120	**63-938-5**	34.85
2"	150	**63-939-3**	34.85
2"	180	**63-940-1**	34.85
2"	220	**63-941-9**	34.85
2"	240	**63-942-7**	34.85
2"	320	**63-943-5**	34.85
2"	400	**63-944-3**	34.85
2"	500	**63-945-0**	34.85

ABRASIVES



54-621-8



Mitchell's Abrasive Cords & Tapes

Flat Abrasive Tapes Won't Tear or Fray

- Debur, grind and polish hard to reach areas.
- Can be used on metal, plastic and wood.
- Ideal for narrow slots, grooves, small holes and curved surfaces.
- Impregnated with aluminum oxide, silicon carbide and crocus for ultra fine polishing.
- 50 ft. lengths (approximate).

Aluminum Oxide Cords & Tapes

WIDTH	WIDTH (MM)	GRIT	PART NUMBER	PRICE
0.070"	1.78	180	**54-621-8**	$29.27
0.055"	1.40	150	**54-622-6**	17.35
0.040"	1.02	180	**54-623-4**	17.35
0.030"	0.76	200	**54-624-2**	17.35
0.094"	2.38	180	**54-625-9**	17.90
3/16"	4.76	150	**54-626-7**	21.20

Crocus Cords & Tapes

WIDTH	WIDTH (MM)	GRIT	PART NUMBER	PRICE
.055"	1.40	150	**54-627-5**	$20.45
.030"	.76	200	**54-628-3**	20.45
3/32"	2.38	180	**54-629-1**	21.00

Silicon Carbide Tapes

WIDTH	WIDTH (MM)	GRIT	PART NUMBER	PRICE
3/32"	2.38	180	**54-630-9**	$27.75
3/16"	4.76	150	**54-631-7**	30.70



64-167-0

INDUSTRIAL PERFORMANCE GRADE

Shop Rolls - Assortment Packs

Three 25 Yd. Rolls in Each Pack

- 25 Yards of each popular grit.
- Convenient dispenser pack.
- Three popular widths, each with three grit combinations.

W	GRIT	PART NO.	PRICE
1"	80,120,180	**64-166-2**	$47.55
1"	120,180,240	**64-167-0**	47.55
1 1/2"	80,120,180	**64-168-8**	71.25
1 1/2"	120,180,240	**64-169-6**	71.25
2"	80,120,180	**64-170-4**	94.95
2"	120,180,240	**64-171-2**	94.95

Reinforced Cut-Off Wheels





- These general purpose cut-off wheels are made with premium aluminum oxide grain that provides durability and clean cutting action.
- The high temperature resin bond reduces heat build up and allows for timely release of dull grains.
- Reinforced wheels are recommended where workpiece is either hand clamped or side pressure is evident.
- USA Grade: Example "A60T"
  First letter - "A" represents Material (Aluminum Oxide)
  Second number - "60" represents Grit
  Third letter - "T" represents Hardness (the higher the letter, the harder the grade).
- Sold individually.

DIA.	THICK.	HOLE	MAX. RPM	GRADE	PART NUMBER	PRICE EACH
1 1/2"	1/32"	1/16"	40744	A60T	**58-000-1**	$1.85
1 1/2"	1/32"	1/8"	40744	A60T	**58-001-9**	1.80
2"	1/32"	1/8"	30558	A60T	**58-002-7**	1.95
2"	1/32"	1/4"	30558	A60T	**58-003-5**	1.80
2"	1/16"	1/8"	30558	A46T	**58-004-3**	1.80
2"	1/16"	1/4"	30558	A46T	**58-005-0**	1.95
2	1/8"	1/4"	30558	A36R	**58-006-8**	1.95
2 1/2"	1/16"	1/8"	24446	A46T	**58-009-2**	2.25
2 1/2"	1/16"	1/4"	30558	A46T	**58-010-0**	2.25
3"	1/32"	1/4"	25000	A60T	**58-011-8**	2.00
3"	1/32"	3/8"	25000	A60T	**58-012-6**	2.00
3"	1/16"	1/4"	25000	A46T	**58-013-4**	2.00
3"	1/16"	1/4"	25000	A60T	**58-014-2**	2.00
3"	1/16"	3/8"	25000	A46T	**58-015-9**	2.00
3"	1/16"	3/8"	25000	A60T	**58-016-7**	2.00
3"	1/8"	1/4"	25000	A36R	**58-017-5**	2.40
3"	1/8"	3/8"	25000	A36R	**58-018-3**	2.40
4"	1/32"	1/4"	19000	A60T	**58-019-1**	2.70
4"	1/32"	3/8"	19000	A60T	**58-020-9**	2.65
4"	0.045"	5/8"	19000	A60T	**58-021-7**	2.70
4"	1/16"	1/4"	19000	A46T	**58-022-5**	2.70
4"	1/16"	1/4"	19000	A60T	**58-023-3**	2.40
4"	1/16"	3/8"	19000	A46T	**58-024-1**	2.65
4"	1/16"	3/8"	19000	A60T	**58-025-8**	2.70
4"	1/8"	1/4"	19000	A36R	**58-026-6**	3.05
4"	1/8"	3/8"	19000	A36R	**58-027-4**	3.05
4 1/2"	0.045"	7/8"	13581	A60T	**58-028-2**	3.85
5"	0.045"	7/8"	12224	A60T	**58-029-0**	5.50
6"	1/32"	1/2"	10186	A60T	**58-030-8**	7.85
6"	1/32"	5/8"	10186	A60T	**58-031-6**	7.95
6"	0.045"	7/8"	10186	A60T	**58-032-4**	$7.95
6"	0.060"	1/2"	10186	A600	**58-033-2**	7.95
6"	1/16"	1/2"	10186	A46T	**58-034-0**	7.85
6"	1/16"	5/8"	10186	A46T	**58-035-7**	7.95
6"	1/8"	5/8"	10186	A36R	**58-036-5**	7.95
7"	1/32"	5/8"	8732	A60T	**58-037-3**	9.15
7"	1/32"	1 1/4"	8732	A60T	**58-038-1**	9.15
7"	0.060"	1 1/4"	8732	A600	**58-040-7**	9.50
7"	1/16"	5/8"	8732	A46T	**58-041-5**	9.15
7"	1/16"	1 1/4"	8732	A46T	**58-042-3**	9.15
7"	1/8"	5/8"	8732	A36R	**58-043-1**	9.15
8"	1/32"	5/8"	7640	A60T	**58-044-9**	11.45
8"	1/32"	1 1/4"	7640	A60T	**58-045-6**	11.55
8"	1/16"	5/8"	7640	A46T	**58-047-2**	11.55
8"	1/8"	5/8"	7640	A36R	**58-049-8**	11.35
9"	1/8"	7/8"	6792	A36R	**58-050-6**	12.75
10"	1/16"	5/8"	6112	A46T	**58-053-0**	12.95
10"	1/16"	1 1/4"	6112	A46T	**58-054-8**	12.95
10"	3/32"	5/8"	6112	A36R	**58-055-5**	12.75
10"	3/32"	1 1/4"	6112	A36R	**58-056-3**	12.95
10"	1/8"	5/8"	6112	A36R	**58-057-1**	12.75
12"	1/16"	1 1/4"	6112	A36R	**58-058-9**	17.30
12"	3/32"	1 1/4"	6112	A36R	**58-059-7**	17.30
12"	1/8"	1"	5092	A36R	**58-060-5**	16.95
14"	1/8"	1"	4365	A36R	**58-061-3**	19.35
16"	1/8"	1"	3820	A36R	**58-062-1**	28.55
16"	5/32"	1"	3820	A36R	**58-063-9**	28.55
18"	5/32"	1"	3013	A36R	**58-064-7**	44.45
20"	5/32"	1"	2710	A36R	**58-065-4**	47.10
–	–	–	–	–	–	–



64-172-0

INDUSTRIAL
PERFORMANCE GRADE

Toolroom Nonreinforced Cut-Off Wheels

Application - for Steel/Metal

- A mild acting resin bond for light cut-off applications.
- Versatile, free-cutting and ideal for burn-free wear resistance.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

DIA.	THICK.	HOLE SIZE	MAX RPM	SPECIF-ICATION	PART NUMBER	PRICE
4"	1/32"	1/2"	9070	A60-O	**64-172-0**	$5.95
4"	1/32"	3/4"	9070	A60-O	**64-173-8**	5.95
4"	1/16"	1/2"	9070	A60-O	**64-174-6**	5.95
4"	1/16"	3/4"	9070	A60-O	**64-175-3**	5.95
6"	1/32"	1/2"	6051	A60-N	**64-176-1**	9.00
6"	1/32"	1 1/4"	6051	A60-N	**64-177-9**	9.00
6"	1/16"	1/2"	6051	A60-N	**64-178-7**	9.00
6"	1/16"	5/8"	6051	A60-N	**64-179-5**	9.00
6"	1/16"	1 1/4"	6051	A60-N	**64-180-3**	9.00
7"	1/32"	1 1/4"	5187	A60-N	**64-181-1**	9.00
7"	1/32"	1 1/4"	5187	shellac	**64-182-9**	17.65
7"	1/16"	1/2"	5187	A60-O	**64-183-7**	9.30
7"	1/16"	1 1/4"	5187	A60-N	**64-184-5**	9.30
7"	3/32"	1 1/4"	5187	A60-V	**64-185-2**	9.30
8"	1/16"	1 1/4"	4538	A46-Q	**64-186-0**	11.10
8"	3/32"	1/2"	4538	A60-N	**64-187-8**	11.10
8"	3/32"	5/8"	4538	A46-Q	**64-188-6**	11.10
8"	1/8"	1/2"	4538	A46-Q	**64-189-4**	11.10
8"	1/8"	5/8"	4538	A46-Q	**64-190-2**	11.10
8"	1/8"	1 1/4"	4538	A46-Q	**64-191-0**	11.10
10"	1/16"	5/8"	3631	A60-O	**64-192-8**	14.25
10"	1/16"	1 1/4"	3631	A60-O	**64-193-6**	14.25
10"	3/32"	5/8"	6110	A46-Q	**64-194-4**	13.00
12"	3/32"	1"	3025	A46-Q	**64-195-1**	19.45
12"	3/32"	1 1/4"	5095	A46-Q	**64-196-9**	19.45
12"	1/8"	1"	3025	A46-Q	**64-197-7**	19.45
16"	1/8"	1"	2269	A46-Q	**64-198-5**	33.25

INDUSTRIAL
PERFORMANCE GRADE

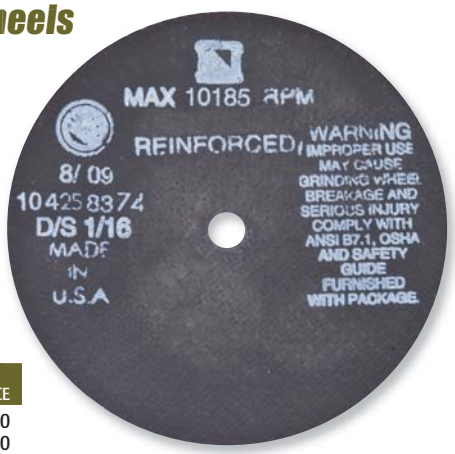
Toolroom Reinforced Cut-Off Wheels

Application - for Steel/Metal

- Versatile, ideal for all your general purpose jobs.
- Quality aluminum oxide, side-reinforced cut-off wheels provide free cutting action.
- Minimal burn and maximum cut rate.
- Use thinnest wheels for minimal kerf loss.
- Use thicker wheels for more aggressive jobs when greater stiffness is required.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.



64-199-3

DIA.	THICK.	HOLE SIZE	MAX RPM	SPECIFICATION	PART NUMBER	PRICE
6"	1/16"	1/2"	10190	A60-0	**64-199-3**	$8.50
7"	1/32"	5/8"	8730	A60-0	**64-200-9**	10.00
7"	1/32"	1 1/4"	5187	A60-0	**64-201-7**	10.00
7"	0.060"	1 1/4"	8730	A60-0	**64-202-5**	10.00
7"	1/16"	1 1/4"	8730	A46-T	**64-203-3**	10.00
8"	1/32"	1 1/4"	7640	A60-0	**64-204-1**	12.00
9"	1/8"	7/8"	6792	A36-R	**64-205-8**	18.40
10"	1/16"	5/8"	6110	A46-T	**64-206-6**	19.40
10"	1/16"	1 1/4"	6110	A46-T	**64-207-4**	19.40
10"	3/32"	5/8"	6110	A36-R	**64-208-2**	19.40
10"	3/32"	1 1/4"	6110	A36-R	**64-209-0**	19.40

PREMIUM
PRODUCTION QUALITY

Abrasive Hand Pads - 6 x 9

Hand pads are excellent products for hand finishing and cleaning of woods, metals and composite surfaces. The pads range from very aggressive (like steel wool or wire brushes) to non-abrasive (for cleaning glass, fine metals, etc.). Select pads based on application needs and characteristics of the individual pad.

- Manufactured from tough synthetic fibers bonded together with specially formulated resins and impregnated with mineral grain, creating a consistent, open 3-dimensional structure .
- Will not rust.
- Can be used dry for scuffing and finishing, or with water or chemical solvents for wet applications.



Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

Silicon Carbide

- Sharp abrasive grain providing high initial cut rate and penetration for work on nonferrous materials.

COARSE FINISH MORE AGGRESSIVE	COLOR	MAT.	GRADE	DESCRIPTION & APPLICATIONS	PKG. QTY.	PART NUMBER	PRICE EACH
↑	Tan	A/O	Coarse	Dense, durable and aggressive, quick cleaning and finish ing, Cuts fast to remove contaminants and oxides, weld cleaning, rust removal, deburring	10	**64-130-8**	$2.70
MEDIUM GRADE							
↓	Maroon	A/O	Very Fine	For general purpose cleaning, blending, finishing and deburring	20	**64-131-6**	1.00
↓	Green	A/O	Very Fine	Scouring pad for removal of stains, marks, rust and corrosion	20	**64-132-4**	1.10
↓	Light Gray	S/C	Ultra Fine	Highly conformable, ultra fine finish on metals, woods, composites, plastics, solid surface countertops, for cosmetic cleaning or creating consistant workpiece finishes	20	**64-133-2**	1.10
↓	White	Flint	Super Fine	Very light-duty w/very mild abrasive, for deflashing wax molds, frequently used with liquid detergents for gentle but thorough cleaning of porcelain, stainless steel, chrome, painted surfaces, glass and other substrates.	20	**64-134-0**	1.05
FINE FINISH LESS AGRESSIVE							

ABRASIVES



INDUSTRIAL
PERFORMANCE GRADE

Fibre Discs - Aluminum Oxide

Features quality aluminum oxide grain abrasive on heavy fibre backing. Economically priced, good for small job shops and general purpose applications.

- Vulcanized, curl resistant backing, electro statically coated with premium A/O abrasive for optimum grain orientation and maximum grinding performance.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

DIA.	HOLE SIZE	GRIT	PART NUMBER	PRICE
4"	5/8"	24	**64-211-6**	$0.80
4"	5/8"	36	**64-212-4**	0.80
4"	5/8"	50	**64-213-2**	0.75
4"	5/8"	60	**64-214-0**	0.70
4"	5/8"	80	**64-215-7**	0.70
4"	5/8"	100	**64-216-5**	0.70
4"	5/8"	120	**64-217-3**	0.70
4 1/2"	7/8"	16	**64-218-1**	0.95
4 1/2"	7/8"	24	**64-219-9**	0.95
4 1/2"	7/8"	36	**64-220-7**	0.90
4 1/2"	7/8"	50	**64-221-5**	0.85
4 1/2"	7/8"	60	**64-222-3**	0.85
4 1/2"	7/8"	80	**64-223-1**	0.85
4 1/2"	7/8"	100	**64-224-9**	0.85
4 1/2"	7/8"	120	**64-225-6**	0.85
5"	7/8"	16	**64-226-4**	1.20
5"	7/8"	24	**64-227-2**	1.05
5"	7/8"	36	**64-228-0**	1.00
5"	7/8"	50	**64-229-8**	0.95
5"	7/8"	60	**64-230-6**	$0.95
5"	7/8"	80	**64-231-4**	0.95
5"	7/8"	100	**64-232-2**	0.90
5"	7/8"	120	**64-233-0**	0.95
7"	7/8"	16	**64-234-8**	1.70
7"	7/8"	24	**64-235-5**	1.35
7"	7/8"	36	**64-236-3**	1.35
7"	7/8"	50	**64-237-1**	1.20
7"	7/8"	60	**64-238-9**	1.25
7"	7/8"	80	**64-239-7**	1.20
7"	7/8"	100	**64-240-5**	1.20
7"	7/8"	120	**64-241-3**	1.25
9 1/8"	7/8"	24	**64-242-1**	2.30
9 1/8"	7/8"	36	**64-243-9**	2.10
9 1/8"	7/8"	50	**64-244-7**	2.00
9 1/8"	7/8"	60	**64-245-4**	1.95
9 1/8"	7/8"	80	**64-246-2**	2.05
9 1/8"	7/8"	100	**64-247-0**	1.95
9 1/8"	7/8"	120	**64-248-8**	1.95

For use with pneumatic and electric power tools and grinders.





INDUSTRIAL
PERFORMANCE GRADE

Quick-Change Sanding Discs

Aluminum Oxide

Sanding discs provide a fast, efficient method for grinding, blending, leveling and finishing on all types of metals. These quick-change discs utilize a tool-free, twist-on and off fastening system that makes fast work of disc changes to maximize productivity and minimize downtime.

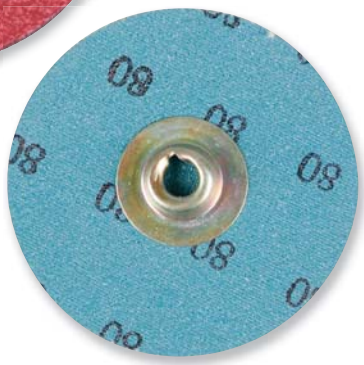
- Aluminum oxide on tough, X-wt. resin bond cloth backing.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.



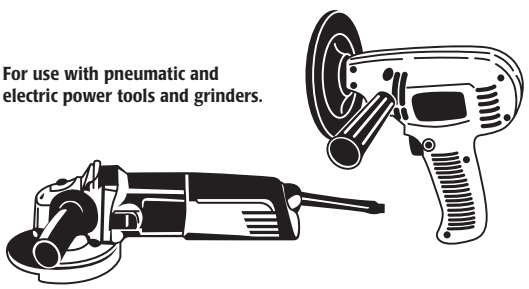
Type - R
Interchangeable with Roloc, Lockit, TR & Type III Styles



Type - S
Interchangeable with TS, Socatt, Speedlock & Type II Styles

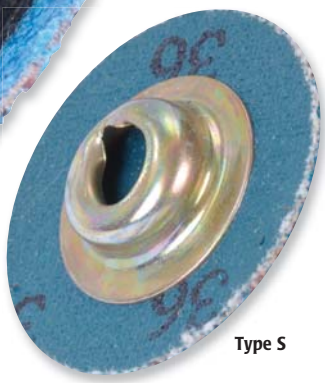
DIA.	GRIT	PKG. QTY.	TYPE R PART NO.	TYPE S PART NO.	PRICE PER 100
1"	24	100	**64-249-6**	**64-295-9**	$30.85
1"	36	100	**64-250-4**	**64-296-7**	28.35
1"	40	100	**64-251-2**	**64-297-5**	28.35
1"	50	100	**64-252-0**	**64-298-3**	27.95
1"	60	100	**64-253-8**	**64-299-1**	29.65
1"	80	100	**64-254-6**	**64-300-7**	27.95
1"	120	100	**64-255-3**	**64-301-5**	27.95
1"	150	100	**64-256-1**	**64-302-3**	30.90
1"	180	100	**64-257-9**	**64-303-1**	30.90
1"	240	100	**64-258-7**	**64-304-9**	30.90
1"	320	100	**64-259-5**	**64-305-6**	32.80
1 1/2"	24	100	**64-260-3**	**64-306-4**	36.00
1 1/2"	36	100	**64-261-1**	**64-307-2**	35.80
1 1/2"	40	100	**64-262-9**	**64-308-0**	38.00
1 1/2"	50	100	**64-263-7**	**64-309-8**	35.05
1 1/2"	60	100	**64-264-5**	**64-310-6**	37.20
1 1/2"	80	100	**64-265-2**	**64-311-4**	35.50
1 1/2"	100	100	**64-266-0**	**64-312-2**	35.50
1 1/2"	120	100	**64-267-8**	**64-313-0**	35.50
1 1/2"	150	100	**64-268-6**	**64-314-8**	39.00
1 1/2"	180	100	**64-269-4**	**64-315-5**	36.70
1 1/2"	240	100	**64-270-2**	**64-316-3**	36.70
1 1/2"	320	100	**64-271-0**	**64-317-1**	36.70
2"	24	100	**64-272-8**	**64-318-9**	62.25
2"	36	100	**64-273-6**	**64-319-7**	$59.45
2"	40	100	–	**64-320-5**	64.25
2"	50	100	**64-274-4**	**64-321-3**	56.00
2"	60	100	**64-275-1**	**64-322-1**	56.00
2"	80	100	**64-276-9**	**64-323-9**	50.95
2"	100	100	**64-277-7**	**64-324-7**	50.95
2"	120	100	**64-278-5**	**64-325-4**	50.95
2"	150	100	**64-279-3**	**64-326-2**	47.95
2"	180	100	**64-280-1**	**64-327-0**	50.95
2"	240	100	**64-281-9**	**64-328-8**	50.95
2"	320	100	**64-282-7**	**64-329-6**	50.95
3"	24	50	**64-283-5**	**64-330-4**	81.00
3"	36	50	**64-284-3**	**64-331-2**	75.85
3"	40	50	**64-285-0**	**64-332-0**	75.85
3"	50	50	**64-286-8**	**64-333-8**	70.50
3"	60	50	**64-287-6**	**64-334-6**	70.50
3"	80	50	**64-288-4**	**64-335-3**	67.30
3"	100	50	**64-289-2**	**64-336-1**	64.60
3"	120	50	**64-290-0**	**64-337-9**	64.60
3"	150	50	**64-291-8**	**64-338-7**	64.60
3"	180	50	**64-292-6**	**64-339-5**	64.60
3"	240	50	**64-293-4**	**64-340-3**	60.80
3"	320	50	**64-294-2**	**64-341-1**	60.80
–	–	–	–	–	–

For use with pneumatic and electric power tools and grinders.





Type R

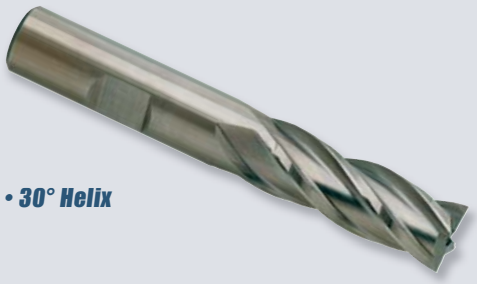


Type S

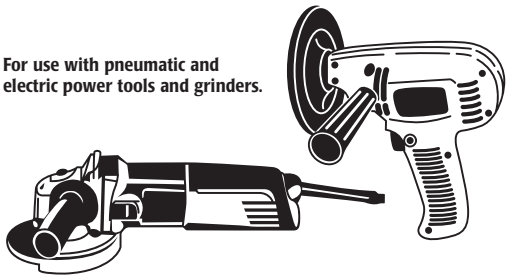
HERTEL
Production Grade Tooling Since 1947

Multiple Flute HSS Single End Mills

Regular, Long & Extra Long Lengths • 30° Helix



See Pg. 500



For use with pneumatic and electric power tools and grinders.

INDUSTRIAL
PERFORMANCE GRADE

Quick-Change Sanding Discs - Zirconia

Sanding discs coated with zirconia alumina provide longer life, cooler cutting and extended durability on all types of metals. These quick-change discs utilize a tool-free, twist on and off fastening system that makes fast work of disc changes to maximize productivity and minimize downtime.

Coating Advantages: Zirconia Alumina

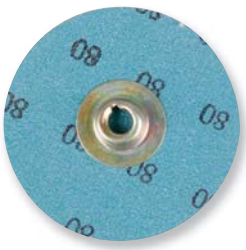
- A sharp, long-lasting material that works well on a wide variety of heavy grinding operations.
- High strength for tough jobs .
- Performs well on hard materials, such as stainless steel, Inconel and cobalt.
- Faster and higher cut rate than aluminum oxide.

DIA.	GRIT	PKG. QTY.	TYPE R PART NO.	TYPE S PART NO.	PRICE PER 100
1"	36	100	**64-342-9**	**64-366-8**	$37.85
1"	40	100	**64-343-7**	**64-367-6**	35.65
1"	50	100	**64-344-5**	**64-368-4**	35.65
1"	60	100	**64-345-2**	**64-369-2**	32.40
1"	80	100	**64-346-0**	**64-370-0**	32.40
1"	120	100	**64-347-8**	**64-371-8**	30.80
1½"	36	100	**64-348-6**	**64-372-6**	44.30
1½"	40	100	**64-349-4**	**64-373-4**	45.90
1½"	50	100	**64-350-2**	**64-374-2**	41.95
1½"	60	100	**64-351-0**	**64-375-9**	39.15
1½"	80	100	**64-352-8**	**64-376-7**	42.00
1½"	120	100	**64-353-6**	**64-377-5**	38.25
2"	36	100	**64-354-4**	**64-378-3**	68.60
2"	40	100	**64-355-1**	**64-379-1**	65.95
2"	50	100	**64-356-9**	**64-380-9**	64.80
2"	60	100	**64-357-7**	**64-381-7**	61.00
2"	80	100	**64-358-5**	**64-382-5**	61.00
2"	120	100	**64-359-3**	**64-383-3**	58.30
3"	36	50	**64-360-1**	**64-384-1**	85.80
3"	40	50	**64-361-9**	**64-385-8**	77.65
3"	50	50	**64-362-7**	**64-386-6**	81.65
3"	60	50	**64-363-5**	**64-387-4**	78.15
3"	80	50	**64-364-3**	**64-388-2**	78.15
3"	120	50	**64-365-0**	**64-389-0**	74.45





Type - R
Interchangeable with Roloc, Lockit, TR & Type III Styles



Type - S
Interchangeable with TS, Socatt, Speedlock & Type II Styles

For use with pneumatic and electric power tools and grinders.





PREMIUM
PRODUCTION QUALITY

General Purpose Quick-Change Surface Conditioning Discs

For use with a variety of electric and air powered tools for general purpose deburring, blending, cleaning and finishing.

- High initial and extended rate of cut.
- Maintains high cut rate with light pressure.
- Most efficient on ferrous metals for final finish.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

Silicon Oxide

- Sharp abrasive grain providing high initial cut rate and penetration for work on nonferrous materials.

Grit Code:

MATERIAL	GRADE
A = Aluminum Oxide	CRS = Coarse
S = Silicon Carbide	MED = Medium
	VFN = Very Fine

Example: Grit Code = ACRS
Material = Alum. Oxide, Grade = Coarse

DIA.	GRIT CODE	TYPE R PART NO.	TYPE S PART NO.	PRICE
1"	ACRS	**64-390-8**	**64-402-1**	$0.75
1"	AMED	**64-391-6**	**64-403-9**	0.75
1"	AVFN	**64-392-4**	**64-404-7**	0.75
1½"	ACRS	**64-393-2**	**64-405-4**	0.80
1½"	AMED	**64-394-0**	**64-406-2**	0.85
1½"	AVFN	**64-395-7**	**64-407-0**	0.85
2"	ACRS	**64-396-5**	**64-408-8**	1.05
2"	AMED	**64-397-3**	**64-409-6**	1.05
2"	AVFN	**64-398-1**	**64-410-4**	1.05
3"	ACRS	**64-399-9**	**64-411-2**	1.90
3"	AMED	**64-400-5**	**64-412-0**	1.90
3"	AVFN	**64-401-3**	**64-413-8**	1.90

"MAGIC" Abrasive Belt & Disc Cleaners

- A solid stick of a special blend of synthetic material removes particles from "loaded" abrasive belts and discs like magic.
- Increases the useful cutting life of belts & discs up to 500%.



88-150-8

88-149-0

CODE	LENGTH	WIDTH	HEIGHT	PART NO.	PRICE EA.
M-228	8"	2"	2"	**88-149-0**	$14.65
M-2212	12"	2"	2"	**88-150-8**	19.20

ABRASIVES



INDUSTRIAL
PERFORMANCE GRADE

Flap Discs - General Purpose

Types 27 & 29

Designed for 1-step grinding, blending and finishing of metal. The layered design allows for cooler grinding and up to 15x the life of normal resin fiber discs. Safe, quiet, easy to control for rapid stock removal, consistent finishes and longer disc life.

- Premium zirconia grain on extra wide abrasive flaps.
- Up to 30% wider than other brands for better surface coverage and more efficient grinding.

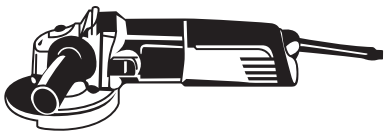
Coating Advantages: Zirconia Alumina

- A sharp, long-lasting material that works well on a wide variety of heavy grinding operations.
- High strength for tough jobs.
- Performs well on hard materials, such as stainless steel, Inconel and cobalt.

Type 27 - Less aggressive, flat design used primarily on flat surfaces. Best for smooth finishes.

Type 29 - Most aggressive angled flaps for use on both conical and flat surfaces.





For use with pneumatic and electric power tools and grinders.

4" Dia.

HOLE DIA.	GRIT	TYPE 27 ZIRCONIA PART NO.	TYPE 29 ZIRCONIA PART NO.	PRICE
5/8"	24	63-982-3	–	$6.35
5/8"	36	63-983-1	64-018-5	6.35
5/8"	40	63-984-9	64-019-3	6.35
5/8"	60	63-985-6	64-020-1	6.35
5/8"	80	63-986-4	64-021-9	6.35
5/8"	120	63-987-2	64-022-7	6.35

4 1/2" Dia.

HOLE DIA.	GRIT	TYPE 27 ZIRCONIA PART NO.	TYPE 29 ZIRCONIA PART NO.	PRICE
7/8"	24	63-988-0	64-023-5	$6.40
7/8"	36	63-989-8	64-024-3	6.40
7/8"	40	63-990-6	64-025-0	6.40
7/8"	60	63-991-4	64-026-8	6.40
7/8"	80	63-992-2	64-027-6	6.40
7/8"	120	63-993-0	64-028-4	6.40
5/8-11	24	63-994-8	64-029-2	8.95
5/8-11	36	63-995-5	64-030-0	8.95
5/8-11	40	63-996-3	64-031-8	8.95
5/8-11	60	63-997-1	64-032-6	8.95
5/8-11	80	63-998-9	64-033-4	8.95
5/8-11	120	63-999-7	64-034-2	8.95

5" Dia.

HOLE DIA.	GRIT	TYPE 27 ZIRCONIA PART NO.	TYPE 29 ZIRCONIA PART NO.	PRICE
7/8"	24	64-000-3	64-035-9	$7.05
7/8"	36	64-001-1	64-036-7	7.75
7/8"	40	64-002-9	64-037-5	7.75
7/8"	60	64-003-7	64-038-3	7.75
7/8"	80	64-004-5	64-039-1	7.75
7/8"	120	64-005-2	64-040-9	7.75
5/8-11	36	–	64-041-7	10.15
5/8-11	40	–	64-042-5	10.15
5/8-11	60	–	64-043-3	10.15
5/8-11	80	–	64-044-1	10.15

7" Dia.

HOLE DIA.	GRIT	TYPE 27 ZIRCONIA PART NO.	TYPE 29 ZIRCONIA PART NO.	PRICE
7/8"	24	64-006-0	64-045-8	$11.25
7/8"	36	64-007-8	64-046-6	12.25
7/8"	40	64-008-6	64-047-4	12.25
7/8"	60	64-009-4	64-048-2	12.25
7/8"	80	64-010-2	64-049-0	12.25
7/8"	120	64-011-0	64-050-8	12.25
5/8-11	24	64-012-8	64-051-6	13.60
5/8-11	36	64-013-6	64-052-4	14.90
5/8-11	40	64-014-4	64-053-2	14.90
5/8-11	60	64-015-1	64-054-0	14.90
5/8-11	80	64-016-9	64-055-7	14.90
5/8-11	120	64-017-7	64-056-5	14.90

1/4" - 20 Flap Wheel Adapters

- For 1" - 3" diameter flap wheels.



58-712-1

DIA.	SHANK LENGTH	LENGTH	HEX SIZE	PART NUMBER	PRICE EACH
1/4"	1/2"	1 1/4"	3/8"	58-712-1	$2.75
1/4"	5/8"	4"	5/8"	58-714-7	11.35



Mounted Flap Sanding Wheels

- Excellent for a quick final finish on any metal surface.
- 60 and 80 for middle range surface preparation, blending and finishing.
- 120 and 180 for light grinding, finishing and tight contours.
- 240 for mild grinding and precision finishes on flat or contoured surfaces.
- Longer flap lengths achieve finer finishes.
- 1/4" shank mounted.

DIA.	FACE W.	GRIT	PART NO.	PRICE EA.
1"	5/8"	60	87-846-2	$3.65
1"	5/8"	80	87-847-0	3.65
1"	5/8"	120	87-848-8	3.65
1"	1"	60	87-849-6	3.65
1"	1"	80	87-850-4	3.65
1"	1"	120	87-851-2	3.65
1"	1"	180	87-852-0	3.65
1 1/2"	1/2"	60	87-853-8	3.95
1 1/2"	1/2"	80	87-854-6	3.95
1 1/2"	1/2"	120	87-855-3	3.95
1 1/2"	1"	60	87-856-1	4.20
1 1/2"	1"	80	87-857-9	4.20
1 1/2"	1"	120	87-858-7	4.20
1 1/2"	1"	180	87-859-5	4.20
2"	1/2"	60	87-860-3	4.85
2"	1/2"	80	87-861-1	4.85
2"	1/2"	120	87-862-9	4.85
2"	3/4"	60	87-863-7	5.85
2"	3/4"	80	87-864-5	5.85
2"	3/4"	120	87-865-2	5.85
2"	1"	60	87-866-0	5.85
2"	1"	80	87-867-8	5.85
2"	1"	120	87-868-6	5.85

DIA.	FACE W.	GRIT	PART NO.	PRICE EA.
2"	1"	180	87-869-4	$5.85
2"	1"	240	87-870-2	5.85
2"	1 1/2"	60	87-871-0	6.55
2"	1 1/2"	80	87-872-8	6.55
2"	1 1/2"	120	87-873-6	6.55
2 1/2"	1"	60	87-874-4	6.55
2 1/2"	1"	80	87-875-1	6.55
2 1/2"	1"	120	87-876-9	6.55
2 1/2"	1"	180	87-877-7	6.55
2 1/2"	1 1/2"	60	87-878-5	7.20
2 1/2"	1 1/2"	80	87-879-3	7.20
3"	1/2"	60	87-880-1	6.90
3"	1/2"	80	87-881-9	6.55
3"	1/2"	120	87-882-7	6.90
3"	3/4"	120	87-885-0	6.85
3"	1"	60	87-886-8	7.10
3"	1"	80	87-887-6	7.10
3"	1"	120	87-888-4	7.10
3"	1"	180	87-889-2	7.10
3"	1"	240	87-890-0	7.10
3"	2"	60	87-891-8	11.40
3"	2"	80	87-892-6	11.40
3"	2"	120	87-893-4	11.40

INDUSTRIAL
PERFORMANCE GRADE

Flap Discs - High Performance

Types 27 & 29

- For use on stainless steel and other tough alloys. Made with premium zirconia or ceramic grains, and are designed to stay cool while providing rapid cut rate and extended life.
- High performance zirconia/aluminum oxide blend on heat treated polyester backing.
- Active grinding aid allows for aggressive grinding with only light pressure.
- Excels in heat sensitive applications by minimizing heat generation.

DIA.	ARBOR HOLE SIZE	ARBOR HOLE THD. SIZE	GRIT	TYPE 27 ZIRCONIA PART NO.	TYPE 29 ZIRCONIA PART NO.	PRICE
4 1/2"	7/8"	–	36	–	**63-958-3**	$7.40
4 1/2"	7/8"	–	40	**63-946-8**	**63-959-1**	7.40
4 1/2"	7/8"	–	60	**63-947-6**	**63-960-9**	7.40
4 1/2"	7/8"	–	80	**63-948-4**	**63-961-7**	7.40
4 1/2"	–	5/8-11	36	–	**63-962-5**	9.45
4 1/2"	–	5/8-11	40	**63-949-2**	**63-963-3**	9.45
4 1/2"	–	5/8-11	60	**63-950-0**	**63-964-1**	9.45
4 1/2"	–	5/8-11	80	**63-951-8**	**63-965-8**	9.45
5"	7/8"	–	36	–	**63-966-6**	8.50
5"	7/8"	–	40	–	**63-967-4**	8.50
5"	7/8"	–	60	–	**63-968-2**	8.50
5"	7/8"	–	80	–	**63-969-0**	8.50
5"	–	5/8-11	36	–	**63-970-8**	11.05
5"	–	5/8-11	40	–	**63-971-6**	11.05
5"	–	5/8-11	60	–	**63-972-4**	11.05
5"	–	5/8-11	80	–	**63-973-2**	11.05
7"	7/8"	–	36	–	**63-974-0**	13.90
7"	7/8"	–	40	**63-952-6**	**63-975-7**	13.90
7"	7/8"	–	60	**63-953-4**	**63-976-5**	13.90
7"	7/8"	–	80	**63-954-2**	**63-977-3**	13.90
7"	–	5/8-11	36	–	**63-978-1**	15.70
7"	–	5/8-11	40	**63-955-9**	**63-979-9**	15.70
7"	–	5/8-11	60	**63-956-7**	**63-980-7**	15.70
7"	–	5/8-11	80	**63-957-5**	**63-981-5**	15.70



For use with pneumatic and electric power tools and grinders.





INDUSTRIAL
PERFORMANCE GRADE

Flap Discs - High Density

Types 27 & 29

These extra thick flap discs are made with 49-60% more abrasive material (on average) and last 30-40% longer than general purpose flap discs.
The added flaps allow for increased comformability.

- Provides good overall performance on a wide variety of applications and finishes.

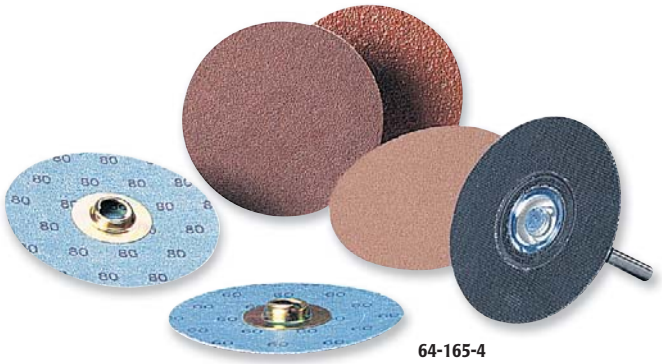
Coating Advantages: Zirconia Alumina

- A sharp, long-lasting material that works well on a wide variety of heavy grinding operations.
- High strength for tough jobs.
- Performs well on hard materials, such as stainless steel, Inconel and cobalt.

Type 27 - Less aggressive, flat design used primarily on flat surfaces. Best for smooth finishes.

Type 29 - Most aggressive angled flaps for use on both conical and flat surfaces.

DIA.	ARBOR HOLE SIZE	ARBOR HOLE THD. SIZE	GRIT	TYPE 27 ZIRCONIA PART NO.	TYPE 29 ZIRCONIA PART NO.	PRICE
4 1/2"	7/8"	–	40	**64-447-6**	**64-461-7**	$9.60
4 1/2"	7/8"	–	60	**64-448-4**	**64-462-5**	9.60
4 1/2"	7/8"	–	80	**64-449-2**	**64-463-3**	9.60
4 1/2"	7/8"	–	120	**64-450-0**	**64-464-1**	9.60
4 1/2"	–	5/8-11	40	**64-451-8**	**64-465-8**	12.20
4 1/2"	–	5/8-11	60	**64-452-6**	**64-466-6**	12.20
4 1/2"	–	5/8-11	80	**64-453-4**	**64-467-4**	12.20
4 1/2"	–	5/8-11	120	**64-454-2**	**64-468-2**	12.20
7"	–	5/8-11	80	**64-460-9**	–	21.91



64-165-4

INDUSTRIAL
PERFORMANCE GRADE

Type "S" Quick-Change Disc Trial Kit

Each Kit Contains:

- 2 Ea. - 36, 60 and 80 grit 2" Dia. aluminum oxide quick-change discs.
- 2 Ea. - 36, 60 and 80 grit 2" Dia. zirconia alumina quick-change discs.
- 1 Ea. - 2" Dia. quick-change back-up pad (1/4" shank).
- 1 Ea. - 6" x 9" Fine grit aluminum oxide hand pad (maroon).

DESCRIPTION	PART NO.	PRICE
Type "S" Quick-Change Disc Trial Kit	**64-165-4**	$15.45



64-494-8

PREMIUM
PRODUCTION QUALITY

Quick-Change Non-Woven Trial Kit

- 1/4" shank.

Kit Contains:

- 2 ea. - 2" dia. "S" type aluminum oxide discs in grades coarse, medium and very fine.
- 1 - Medium 2" dia. "S" back-up pad.
- 1 - 9" L x 6" W fine aluminum oxide hand pad (maroon).

DESCRIPTION	PART NO.	PRICE
Quick-Change Non-Woven Trial Kit	**64-494-8**	$14.40

ABRASIVES



PREMIUM
PRODUCTION QUALITY

Metal Finishing Wheels

Softest convolute wheels used for light cleaning and surface finishing. Open mesh construction prevents heat build-up and loading. Not recommended for deburring or use on sharp edges.

- A good, all purpose deburring wheel for the lightest finishing and polishing applications.
- The right wheel for metal prep before coating and final polishing.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

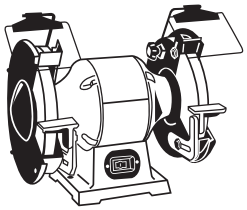
Grit Code:

MATERIAL	GRADE
A = Aluminum Oxide	MED = Medium CRS = Coarse

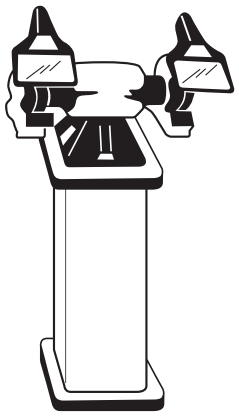
Example: Grit Code = AMED
Material = Alum. Oxide, Grade = Medium

DIA.	W	HOLE DIA.	GRIT CODE	DENSITY	PART NUMBER	PRICE
6"	1/2"	1"	5AMED	5	**64-135-7**	$45.05
6"	1/2"	1"	6ACRS	6	**64-136-5**	45.05
6"	1"	1"	4AMED	4	**64-137-3**	65.00
6"	1"	1"	5AMED	5	**64-138-1**	70.75
6"	1"	1"	5ACRS	5	**64-139-9**	66.60
6"	1"	1"	6AMED	6	**64-140-7**	66.60
6"	1"	1"	6ACRS	6	**64-141-5**	66.60
6"	1"	1 1/4"	5AMED	5	**64-142-3**	73.45
6"	2"	1"	4AMED	4	**64-143-1**	110.70
6"	2"	1"	4ACRS	4	**64-144-9**	110.70
6"	2"	1"	5AMED	5	**64-145-6**	110.70
6"	2"	1"	5ACRS	5	**64-146-4**	104.20
6"	2"	1"	6AMED	6	**64-147-2**	110.70
6"	3"	1"	4ACRS	4	**64-148-0**	106.35
8"	1"	3"	4AMED	4	**64-149-8**	78.60
8"	1"	3"	5AMED	5	**64-150-6**	80.60
8"	1"	3"	5ACRS	5	**64-151-4**	80.60
8"	1"	3"	6ACRS	6	**64-152-2**	80.60
8"	1"	3"	6AMED	6	**64-153-0**	80.60
8"	2"	3"	4ACRS	4	**64-155-5**	136.75
8"	2"	3"	5AMED	5	**64-156-3**	146.15
8"	2"	3"	5ACRS	5	**64-157-1**	146.15
8"	2"	3"	6ACRS	6	**64-158-9**	137.60
8"	3"	3"	5AMED	5	**64-159-7**	191.80
12"	1"	5"	5AMED	5	**64-160-5**	119.60
12"	2"	5"	5AMED	5	**64-161-3**	213.45

For Use with:



Bench Grinder



Pedestal Grinder



64-423-7

PREMIUM
PRODUCTION QUALITY

Deburring Wheels - General Purpose

Harder and more dense than light deburring and finishing wheels. Recommended for a variety of deburring, blending and finishing applications, including removal of medium to heavy burrs, edge redressing and deburring of punched holes on machined parts.

- Loaded with additional abrasive grain for higher cut rates with less pressure, leading to extended wheel life.
- Reduced heat generation avoids smearing problems.

Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

Silicon Oxide

- Sharp abrasive grain providing high initial cut rate and penetration for work on nonferrous materials.

Grit Code:

MATERIAL	GRADE
A = Aluminum Oxide S = Silicon Carbide	MED = Medium FIN = Fine

Example: Grit Code = AMED
Material = Alum. Oxide, Grade = Medium

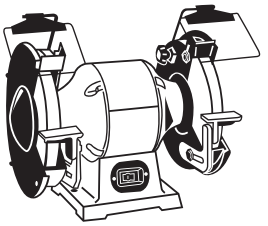
Aluminum Oxide

DIA.	WIDTH	HOLE DIA.	GRIT CODE	DENSITY	PART NUMBER	PRICE
6"	1/2"	1"	8AMED	8	**64-414-6**	$43.55
6"	1"	1"	8AMED	8	**64-415-3**	50.15
6"	1 1/2"	1"	8AMED	8	**64-416-1**	58.45
6"	2"	1"	8AMED	8	**64-417-9**	86.00
8"	1/2"	3"	8AMED	8	**64-418-7**	45.45
8"	1"	3"	8AMED	8	**64-419-5**	76.55
8"	2"	3"	8AMED	8	**64-420-3**	135.00
12"	1"	5"	8AMED	8	**64-421-1**	103.60

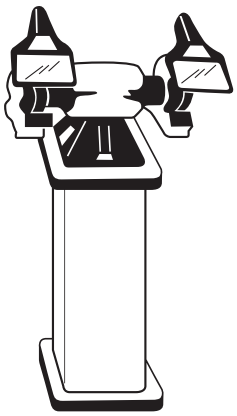
Silicon Carbide

DIA.	WIDTH	HOLE DIA.	GRADE	DENSITY	PART NUMBER	PRICE
6"	1/2"	1"	8SMED	8	**64-422-9**	$43.55
6"	1/2"	1"	8SFIN	8	**64-423-7**	43.55
6"	1/2"	1"	9SFIN	9	**64-424-5**	43.55
6"	1"	1"	8SMED	8	**64-425-2**	53.45
6"	1"	1"	8SFIN	8	**64-426-0**	53.45
6"	1"	1"	9SFIN	9	**64-427-8**	53.45
6"	2"	1"	8SMED	8	**64-428-6**	88.10
6"	2"	1"	9SFIN	9	**64-429-4**	88.10
8"	3/8"	3"	8SFIN	8	**64-430-2**	48.30
8"	1/2"	3"	8SFIN	8	**64-431-0**	48.30
8"	1"	3"	8SMED	8	**64-432-8**	76.55
8"	1"	3"	8SFIN	8	**64-433-6**	72.05
8"	1"	3"	9SFIN	9	**64-434-4**	76.55
8"	2"	3"	8SFIN	8	**64-435-1**	127.10
8"	2"	3"	9SFIN	9	**64-436-9**	127.10
10"	1"	5"	9SFIN	9	**64-437-7**	87.50
10"	2"	5"	9SFIN	9	**64-438-5**	160.80
12"	1/2"	5"	8SFIN	8	**64-439-3**	73.45
12"	1/2"	5"	9SFIN	9	**64-440-1**	69.15
12"	1"	5"	8SFIN	8	**64-441-9**	104.80
12"	1"	5"	8SMED	8	**64-442-7**	104.80
12"	1"	5"	9SFIN	9	**64-443-5**	104.80
12"	2"	5"	8SFIN	8	**64-444-3**	211.55
12"	2"	5"	8SMED	8	**64-445-0**	199.15
12"	2"	5"	9SFIN	9	**64-446-8**	199.15

For Use with:



Bench Grinder

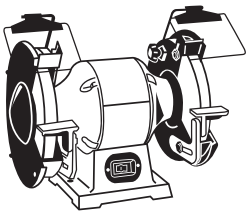


Pedestal Grinder

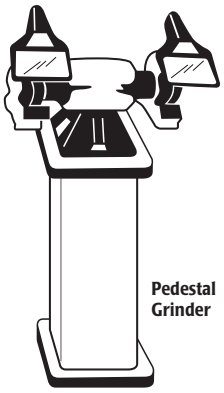


64-469-0

For Use with:



Bench Grinder



Pedestal Grinder

PREMIUM
PRODUCTION QUALITY

Light Deburring Wheels

Softer and lighter than regular deburring wheels. For light deburring and finishing of softer metals.
Removes feathered bands on aluminum, brass, etc. Blends mill marks on soft metal surfaces.

- A good, all purpose deburring wheel for light applications.
- For cleaning, finishing, blending, deburring and polishing in a variety of lighter applications.

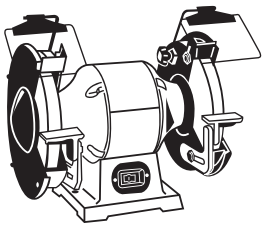
Coating Advantages: Silicon Oxide

- Sharp abrasive grain providing high initial cut rate and penetration for work on nonferrous materials.

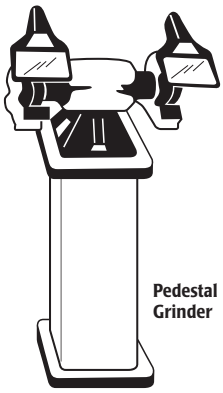
DIA.	WIDTH	HOLE DIA.	GRADE	DENSITY	PART NUMBER	PRICE
6"	1/2"	1"	6SFIN	6	**64-469-0**	$45.05
6"	1/2"	1"	7SFIN	7	**64-470-8**	45.05
6"	1/2"	1"	8SFIN	8	**64-471-6**	47.85
6"	1"	1"	6SFIN	6	**64-472-4**	59.05
6"	1"	1"	7SFIN	7	**64-473-2**	59.05
6"	1"	1"	8SFIN	8	**64-474-0**	59.05
6"	2"	1"	6SFIN	6	**64-475-7**	89.20
6"	2"	1"	7SFIN	7	**64-476-5**	89.20
6"	2"	1"	8SFIN	8	**64-477-3**	94.75
8"	1/2"	3"	7SFIN	7	**64-478-1**	52.25
8"	1/2"	3"	8SFIN	8	**64-479-9**	49.20
8"	1"	3"	6SFIN	6	**64-480-7**	75.10
8"	1"	3"	7SFIN	7	**64-481-5**	75.10
8"	1"	3"	8SFIN	8	**64-482-3**	$79.75
8"	2"	3"	6SFIN	6	**64-483-1**	125.85
8"	2"	3"	7SFIN	7	**64-484-9**	125.85
8"	2"	3"	8SFIN	8	**64-485-6**	125.85
10"	1/2"	5"	7SFIN	7	**64-486-4**	58.80
10"	1"	5"	7SFIN	7	**64-487-2**	84.55
10"	1"	5"	8SFIN	8	**64-488-0**	84.55
12"	1/2"	5"	7SFIN	7	**64-489-8**	73.35
12"	1"	5"	6SFIN	6	**64-490-6**	113.90
12"	1"	5"	7SFIN	7	**64-491-4**	111.60
12"	1"	5"	8SFIN	8	**64-492-2**	118.55
12"	2"	5"	7SFIN	7	**64-493-0**	213.65



For Use with:



Bench Grinder



Pedestal Grinder

INDUSTRIAL
PERFORMANCE GRADE

Fibre Discs - Zirconia

For material removal, weld grinding and blending and light deburring and finishing. Fibre discs feature resin bonding with heavy-duty fibre backing for increased strength, durability and tear resistance.

- Vulcanized fibre backing electrostatically coated with premium zirconia abrasive for optimum grain orientation resulting in maximum grinding performance.
- Sold in pkg. qty of 25.

Coating Advantages: Zirconia Alumina

- A sharp, long-lasting material that works well on a wide variety of heavy grinding operations.
- High strength for tough jobs.
- Performs well on hard materials, such as stainless steel, Inconel and cobalt.

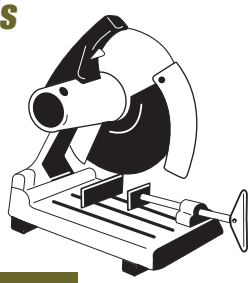
DIA.	ARBOR HOLE SIZE	GRIT	PART NUMBER	PRICE
4"	5/8"	24	**64-495-5**	$1.45
4"	5/8"	36	**64-496-3**	1.30
4"	5/8"	50	**64-497-1**	1.25
4"	5/8"	60	**64-498-9**	1.10
4"	5/8"	80	**64-499-7**	1.15
4 1/2"	7/8"	16	**64-500-2**	1.50
4 1/2"	7/8"	24	**64-501-0**	1.60
4 1/2"	7/8"	36	**64-502-8**	1.60
4 1/2"	7/8"	50	**64-503-6**	1.40
4 1/2"	7/8"	60	**64-504-4**	1.40
4 1/2"	7/8"	80	**64-505-1**	1.30
4 1/2"	7/8"	100	**64-506-9**	1.20
4 1/2"	7/8"	120	**64-507-7**	1.20
5"	7/8"	16	**64-508-5**	1.50
5"	7/8"	24	**64-509-3**	1.60
5"	7/8"	36	**64-510-1**	1.60
5"	7/8"	50	**64-511-9**	1.45

DIA.	ARBOR HOLE SIZE	GRIT	PART NUMBER	PRICE
5"	5/8"	60	**64-512-7**	$1.40
5"	5/8"	80	**64-513-5**	1.30
5"	5/8"	100	**64-514-3**	1.20
5"	5/8"	120	**64-515-0**	1.20
7"	5/8"	16	**64-516-8**	2.45
7"	7/8"	24	**64-517-6**	2.25
7"	7/8"	36	**64-518-4**	2.10
7"	7/8"	50	**64-519-2**	2.00
7"	7/8"	60	**64-520-0**	1.90
7"	7/8"	80	**64-521-8**	1.80
7"	7/8"	100	**64-522-6**	1.65
7"	7/8"	120	**64-523-4**	1.65
9 1/8"	7/8"	24	**64-524-2**	3.10
9 1/8"	7/8"	36	**64-525-9**	2.85
9 1/8"	7/8"	50	**64-526-7**	2.60
9 1/8"	7/8"	60	**64-527-5**	2.45
9 1/8"	7/8"	80	**64-528-3**	2.20

INDUSTRIAL
PERFORMANCE GRADE

Chop Saw Reinforced Cut-off Wheels

Application - for Steel/Metal



- Value-priced all purpose, aluminum oxide general-duty wheel.
- Assist breakage and provide straight cuts.
- 7/64" thickness.
- 1" Arbor hole.

DIA.	MAX. RPM	PART NUMBER	PRICE
12"	5095	**64-543-2**	$4.15
14"	4365	**64-544-0** *	6.00
16"	3820	**64-545-7**	9.00

* 3/32" thickness.



64-543-2

ABRASIVES



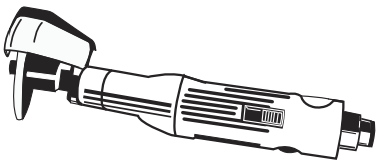
64-542-4

INDUSTRIAL PERFORMANCE GRADE

Small Diameter Portable Aluminum Oxide Reinforced Cut-Off Wheels

Application - for Steel/Metal

- Quality aluminum oxide, reinforced cut-off wheels.
- General purpose and MRO wheels, competitively priced.



Coating Advantages: Aluminum Oxide

- Best used for economical, general purpose grinding, deburring and blending ferrous and nonferrous materials.
- High cut rate and durability.

DIA.	THICK.	HOLE SIZE	MAX. RPM	SPEC.	PART NUMBER	PRICE
1 1/2"	1/32"	1/16"	40,775	A60-T	**64-557-2**	$1.75
1 1/2"	1/32"	1/8"	40,775	A60-T	**64-529-1**	1.90
3"	1/32"	3/8"	25,465	A60-T	**64-530-9**	1.85
3"	0.035"	1/4"	25,000	A60-T	**64-531-7**	1.85
3"	1/16"	1/4"	25,465	A60-T	**64-532-5**	1.85
3"	1/16"	3/8"	25,465	A60-T	**64-533-3**	1.85
3"	1/8"	1/4"	25,465	A36-R	**64-534-1**	2.30
3"	1/8"	3/8"	25,465	A36-R	**64-535-8**	2.30
4"	1/32"	1/4"	19,000	A60-T	**64-536-6**	2.45
4"	0.035"	3/8"	19,000	A60-T	**64-537-4**	2.45
4"	0.045"	5/8"	19,100	A60-T	**64-538-2**	2.45
4"	1/16"	1/4"	19,000	A46-T	**64-539-0**	2.45
4"	1/16"	1/4"	19,100	A60-T	**64-540-8**	2.45
4"	1/16"	3/8"	19,000	A60-T	**64-541-6**	2.45
4"	1/16"	3/8"	19,100	A46-T	**64-542-4**	2.45

INDUSTRIAL PERFORMANCE GRADE

Cut-Off Wheels for Right Angle Grinders

- Versatile, all purpose cut-off wheel, value priced for general purpose jobs.

Zirconia Alumina Right Cut - Metal

- Premium abrasive grain for a wide variety of heavy-duty applications.

DIA.	THICK.	HOLE	RPM	PART NO.	PRICE
4 1/2"	0.045"	7/8"	13,580	**64-162-1**	$1.90
5"	0.045"	7/8"	12,225	**64-163-9**	2.15
6"	0.045"	7/8"	10,185	**64-164-7**	2.25



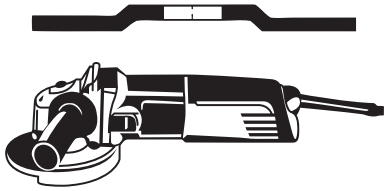
64-162-1



95-270-5



64-549-9



INDUSTRIAL PERFORMANCE GRADE

Type 27 Depressed Center Wheels

Application - for Grinding Steel/Metal & Stainless Steel

Industrial Grade

- Value priced aluminum oxide wheels; perfect for on-site and small unit jobs.

DIA.	THICK.	HOLE SIZE	MAX. RPM	PART NUMBER	PRICE
4"	1/4"	5/8"	15,280	**64-546-5**	$2.30
4"	1/4"	5/8-11	13,580	**64-547-3**	3.10
4 1/2"	1/4"	7/8"	13,580	**64-548-1**	2.15
7"	1/4"	5/8-11	8,600	**64-549-9**	5.15
7"	1/4"	7/8"	8,600	**64-550-7**	3.90
8"	1/4"	5/8-11	6,600	**64-551-5**	7.20

Stone Holders

Rectangular Double Ended

- Precision ground stainless steel construction.
- Inch-Metric conversion.
- Zero set anywhere in range.
- Auto power on/off.
- With thumb roller and slide lock.
- Holds stones measuring 1/8" x 1/4", 1/8" x 1/2" and 1/4" x 1/4".
- Removable collar design holds stones firmly and allows for quick stone changes.
- Lightweight resistant nylon eliminates accidental mold scratching.

DESCRIPTION	PART NO.	PRICE
Rectangular Double End Stone Holder	**95-270-5**	$10.65

Round Double Ended

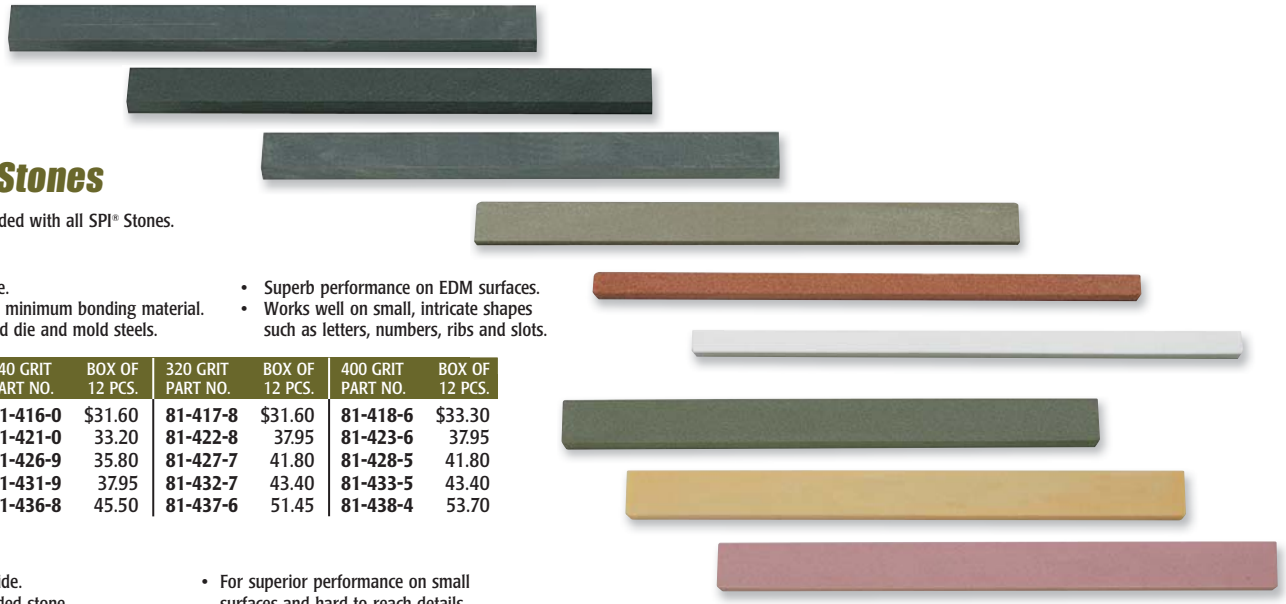
- Features screw on Aluminum collars.
- Will hold all square, rectangular, round and triangular stones to 1/4" in size.

DESCRIPTION	PART NO.	PRICE
Round Double End Stone Holder	**95-271-3**	$21.25

Pencil

- For 5/32" square stones.
- Push button release provides for quick change or adjustment.

DESCRIPTION	PART NO.	PRICE
Pencil Stone Holder	**95-272-1**	$21.25



Polishing Stones

Stoning Oil recommended with all SPI® Stones.

Moldmaster

- Hard silicon carbide.
- A tough stone with minimum bonding material.
- Use on all hardened die and mold steels.
- Superb performance on EDM surfaces.
- Works well on small, intricate shapes such as letters, numbers, ribs and slots.

SIZE	240 GRIT PART NO.	BOX OF 12 PCS.	320 GRIT PART NO.	BOX OF 12 PCS.	400 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-416-0**	$31.60	**81-417-8**	$31.60	**81-418-6**	$33.30
1/4" x 1/8" x 6"	**81-421-0**	33.20	**81-422-8**	37.95	**81-423-6**	37.95
1/4" x 1/4" x 6"	**81-426-9**	35.80	**81-427-7**	41.80	**81-428-5**	41.80
1/2" x 1/8" x 6"	**81-431-9**	37.95	**81-432-7**	43.40	**81-433-5**	43.40
1/2" x 1/4" x 6"	**81-436-8**	45.50	**81-437-6**	51.45	**81-438-4**	53.70

Flex

- Hard aluminum oxide.
- Resilient resin-bonded stone.
- For superior performance on small surfaces and hard to reach details.

SIZE	320 GRIT PART NO.	BOX OF 12 PCS.	400 GRIT PART NO.	BOX OF 12 PCS.	600 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-451-7**	$43.10	**81-452-5**	$43.10	**81-453-3**	$47.85
1/4" x 1/8" x 6"	**81-456-6**	52.55	**81-457-4**	52.55	**81-458-2**	64.65
1/4" x 1/4" x 6"	**81-461-6**	67.65	**81-462-4**	69.45	**81-463-2**	69.15
1/2" x 1/8" x 6"	**81-466-5**	63.90	**81-467-3**	63.90	**81-468-1**	73.20
1/2" x 1/4" x 6"	**81-471-5**	83.10	**81-472-3**	73.40	**81-473-1**	94.95

EDM

- Hard structured, brick-red aluminum oxide.
- Specially developed for the removal of EDM machined surfaces.

SIZE	120 GRIT PART NO.	BOX OF 12 PCS.	220 GRIT PART NO.	BOX OF 12 PCS.	320 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-476-4**	$29.90	**81-477-2**	$30.05	**81-478-0**	$30.05
1/4" x 1/8" x 6"	**81-481-4**	31.60	**81-482-2**	33.30	**81-483-0**	37.95
1/4" x 1/4" x 6"	**81-486-3**	34.90	**81-487-1**	35.10	**81-488-9**	41.05
1/2" x 1/8" x 6"	**81-491-3**	36.00	**81-492-1**	36.00	**81-493-9**	40.85
1/2" x 1/4" x 6"	**81-496-2**	46.40	**81-497-0**	46.40	**81-498-8**	54.65

Super

- Semi-hard, white aluminum oxide.
- Excellent for general mold and die polishing.

SIZE	220 GRIT PART NO.	BOX OF 12 PCS.	320 GRIT PART NO.	BOX OF 12 PCS.	600 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-501-9**	$28.50	**81-502-7**	$28.50	**81-503-5**	$33.20
1/4" x 1/8" x 6"	**81-506-8**	31.60	**81-507-6**	37.95	**81-508-4**	44.70
1/4" x 1/4" x 6"	**81-511-8**	35.10	**81-512-6**	41.05	**81-513-4**	52.65
1/2" x 1/8" x 6"	**81-516-7**	36.00	**81-517-5**	41.05	**81-518-3**	50.30
1/2" x 1/4" x 6"	**81-521-7**	46.65	**81-522-5**	52.65	**81-523-3**	60.05

Diestar

- Semi-hard, tan aluminum oxide.
- Load free and fast cutting.
- Excellent for mold & die industry.

SIZE	150 GRIT PART NO.	BOX OF 12 PCS.	220 GRIT PART NO.	BOX OF 12 PCS.	320 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-526-6**	$35.10	**81-527-4**	$35.10	**81-528-2**	$35.35
1/4" x 1/8" x 6"	**81-531-6**	45.40	**81-532-4**	45.40	**81-533-2**	53.30
1/4" x 1/4" x 6"	**81-536-5**	50.30	**81-537-3**	50.30	**81-538-1**	53.55
1/2" x 1/8" x 6"	**81-541-5**	54.35	**81-542-3**	54.35	**81-543-1**	55.30
1/2" x 1/4" x 6"	**81-546-4**	62.40	**81-547-2**	64.95	**81-548-0**	71.45

Regular

- Medium-soft silicon carbide.
- For general mold and die polishing.

SIZE	240 GRIT PART NO.	BOX OF 12 PCS.	320 GRIT PART NO.	BOX OF 12 PCS.	400 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-316-2**	$30.05	**81-317-0**	$30.05	**81-318-8**	$31.35
1/4" x 1/8" x 6"	**81-321-2**	34.85	**81-322-0**	37.95	**81-323-8**	37.95
1/4" x 1/4" x 6"	**81-326-1**	35.10	**81-327-9**	40.85	**81-328-7**	41.05
1/2" x 1/8" x 6"	**81-331-1**	35.80	**81-332-9**	41.80	**81-333-7**	42.85
1/2" x 1/4" x 6"	**81-336-0**	45.50	**81-337-8**	54.40	**81-338-6**	53.30

YL Oil

- Semi-hard aluminum oxide.
- Ideal for slots, ribs and letters
- Utility stone for EDM scale removal and for finishing heat-treated molds and dies.

SIZE	150 GRIT PART NO.	BOX OF 12 PCS.	220 GRIT PART NO.	BOX OF 12 PCS.	320 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-351-9**	$30.05	**81-352-7**	$30.05	**81-353-5**	$30.05
1/4" x 1/8" x 6"	**81-356-8**	34.90	**81-357-6**	35.10	**81-358-4**	39.50
1/4" x 1/4" x 6"	**81-361-8**	37.95	**81-362-6**	37.95	**81-363-4**	43.10
1/2" x 1/8" x 6"	**81-366-7**	37.75	**81-367-5**	39.80	**81-368-3**	46.30
1/2" x 1/4" x 6"	**81-371-7**	49.50	**81-372-5**	49.25	**81-373-3**	53.30

Ruby

- Extremely sharp grains in a medium soft bond.
- Used on all exotic metals, molybdenum alloys, stainless steels.
- The ideal abrasive for the most difficult polishing jobs.
- For better results and finishing on all hard tool steels.

SIZE	150 GRIT PART NO.	BOX OF 12 PCS.	220 GRIT PART NO.	BOX OF 12 PCS.
5/32" x 5/32" x 4"	**81-381-6**	$30.05	**81-382-4**	$30.05
1/4" x 1/8" x 6"	**81-386-5**	31.60	**81-387-3**	31.60
1/4" x 1/4" x 6"	**81-391-5**	37.95	**81-392-3**	35.80
1/2" x 1/8" x 6"	**81-396-4**	35.80	**81-397-2**	35.80
1/2" x 1/4" x 6"	**81-401-2**	46.40	**81-402-0**	46.65



Polishing Stone Assortments

DESCRIPTION	PART NO.	PRICE
30 Polishing Stones, 1/4" size, 2 each of stones listed below.	**81-300-6**	$97.85
45 Polishing Stones, 5/32" size, 3 each of stones listed below	**81-310-5**	$106.55

Moldmaster	240, 320, 400 grit
Flex	320, 400, 600 grit
Super	320 grit
Regular	240, 320, 400 grit
YL-Oil	150, 220, 320 grit
Ruby	150, 220 grit

ABRASIVES

Rubberized Abrasives Tapered Edge Wheels

For Use With Mandrels

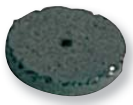
Maximum 20,000 RPM.

- When ordering, request a quantity of one, and you will receive one lot.



Sold in lots of 100 pcs.

CODE	DIA.	THICK.	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE PER LOT
10	3/8"	3/32"	1/16"	**88-057-5**	–	**88-457-7**	**88-657-2**	$48.90
20	5/8"	3/32"	1/16"	**88-058-3**	**88-258-9**	**88-458-5**	**88-658-0**	58.35
30	1"	1/8"	1/16"	**88-059-1**	**88-259-7**	**88-459-3**	**88-659-8**	101.50





Maximum RPM:
1/2 - 7/8" dia. - 24,000
1" dia. - 20,000
1 1/2" dia. - 15,000



Straight Wheels

For Use with Mandrels

- When ordering, request a quantity of one, and you will receive one lot.

Sold in lots of 100 pcs.

CODE	DIA.	THICK.	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE PER LOT
0801		1/16"	1/16"	**88-062-5**	**88-262-1**	**88-462-7**	**88-662-2**	$41.70
0802	1/2"	1/8"	1/16"	**88-063-3**	**88-263-9**	**88-463-5**	**88-663-0**	47.10
0804		1/4"	1/16"	**88-064-1**	**88-264-7**	**88-464-3**	**88-664-8**	55.35
1000		3/32"	1/16"	**88-065-8**	**88-265-4**	**88-465-0**	**88-665-5**	65.40
1002	5/8"	1/8"	1/16"	**88-066-6**	**88-266-2**	**88-466-8**	**88-666-3**	53.45
1004		1/4"	1/16"	**88-067-4**	**88-267-0**	**88-467-6**	**88-667-1**	59.45
1403	7/8"	3/16"	1/16"	**88-069-0**	**88-269-6**	**88-469-2**	**88-669-7**	79.15
1404		1/4"	1/16"	**88-070-8**	**88-270-4**	**88-470-0**	**88-670-5**	89.00
1600		1/16"	1/16"	**88-071-6**	**88-271-2**	**88-471-8**	**88-671-3**	74.45
1602	1"	1/8"	1/16"	**88-072-4**	**88-272-0**	**88-472-6**	**88-672-1**	76.30
1604		1/4"	1/8"	**88-073-2**	**88-273-8**	**88-473-4**	**88-673-9**	107.70

Sold Individually

CODE	DIA.	THICK.	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
150		1/16"	1/16"	**88-074-0**	**88-274-6**	**88-474-2**	**88-674-7**	$3.65
151		1/8"	1/8"	**88-075-7**	**88-275-3**	**88-475-9**	**88-675-4**	3.95
153	1 1/2"	1/4"	1/4"	**88-076-5**	**88-276-1**	**88-476-7**	**88-676-2**	7.55
155		3/8"	1/4"	**88-077-3**	**88-277-9**	**88-477-5**	**88-677-0**	16.90
156		1/2"	1/4"	**88-078-1**	**88-278-7**	**88-478-3**	**88-678-8**	14.20

Rubberized Abrasive Straight Wheels

For Direct Mounting



Maximum RPM:
6" dia. - 3,500
8" dia. - 2,600

Sold individually

CODE	DIA.	THICK.	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE PER WHEEL
601		1/8"	1/2"	**88-116-9**	**88-316-5**	**88-516-0**	**88-716-6**	$33.30
603		1/4"	1/2"	**88-117-7**	**88-317-3**	**88-517-8**	**88-717-4**	55.20
605		3/8"	1/2"	**88-118-5**	**88-318-1**	**88-518-6**	**88-718-2**	45.90
606	6"	1/2"	1/2"	**88-119-3**	**88-319-9**	**88-519-4**	**88-719-0**	79.15
608		3/4"	1/2"	**88-120-1**	**88-320-7**	**88-520-2**	**88-720-8**	92.60
609		1"	1/2"	**88-121-9**	**88-321-5**	**88-521-0**	**88-721-6**	101.70
803		1/4"	1/2"	**88-122-7**	**88-322-3**	**88-522-8**	**88-722-4**	56.35
805		3/8"	1/2"	**88-123-5**	**88-323-1**	**88-523-6**	**88-723-2**	66.40
806	8"	1/2"	1/2"	**88-124-3**	**88-324-9**	**88-524-4**	**88-724-0**	77.40
808		3/4"	1/2"	**88-125-0**	**88-325-6**	**88-525-1**	**88-725-7**	96.10
809		1"	1/2"	**88-126-8**	**88-326-4**	**88-526-9**	**88-726-5**	110.80





Maximum RPM:
2" dia. - 10,500
2½" dia. - 8,300
3" dia. - 7,000
4" dia. - 5,250
5" dia. - 4,250

Rubberized Abrasive Straight Wheels

For Use with Mandrels

Sold Individually

CODE	DIA.	THICK.	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
221		1/8"	1/4"	88-081-5	88-281-1	88-481-7	88-681-2	$6.25
222		3/16"	1/4"	88-082-3	88-282-9	88-482-5	88-682-0	6.40
223		1/4"	1/4"	88-083-1	88-283-7	88-483-3	88-683-8	7.65
225	2"	3/8"	1/4"	88-084-9	88-284-5	88-484-1	88-684-6	14.65
226		1/2"	1/4"	88-085-6	88-285-2	88-485-8	88-685-3	12.65
228		3/4"	1/4"	88-086-4	88-286-0	88-486-6	88-686-1	14.65
229		1"	1/4"	88-087-2	88-287-8	88-487-4	88-687-9	16.60
253		1/4"	1/4"	88-088-0	88-288-6	88-488-2	88-688-7	15.80
255	2 1/2"	3/8"	1/4"	88-089-8	88-289-4	88-489-0	88-689-5	14.65
256		1/2"	1/4"	88-090-6	88-290-2	88-490-8	88-690-3	15.90
258		3/4"	1/4"	88-091-4	88-291-0	88-491-6	88-691-1	17.65
301		1/8"	1/4"	88-094-8	88-294-4	88-494-0	88-694-5	11.15
303		1/4"	1/4"	88-095-5	88-295-1	88-495-7	88-695-2	19.95
305	3"	3/8"	1/4"	88-096-3	88-296-9	88-496-5	88-696-0	16.35
306		1/2"	1/4"	88-097-1	88-297-7	88-497-3	88-697-8	27.30

For Direct Mount • Sold Individually

CODE	DIA.	THICK.	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
308		3/4"	1/2"	88-100-3	88-300-9	88-500-4	88-700-0	$26.45
309	3"	1"	1/2"	88-101-1	88-301-7	88-501-2	88-701-8	34.00
401		1/8"	1/2"	88-102-9	88-302-5	88-502-0	88-702-6	16.35
403		1/4"	1/2"	88-103-7	88-303-3	88-503-8	88-703-4	20.70
405		3/8"	1/2"	88-104-5	88-304-1	88-504-6	88-704-2	24.15
406	4"	1/2"	1/2"	88-105-2	88-305-8	88-505-3	88-705-9	37.15
408		3/4"	1/2"	88-106-0	88-306-6	88-506-1	88-706-7	55.90
409		1"	1/2"	88-107-8	88-307-4	88-507-9	88-707-5	53.25
501		1/8"	1/2"	88-108-6	88-308-2	88-508-7	88-708-3	19.95
503		1/4"	1/2"	88-109-4	88-309-0	88-509-5	88-709-1	25.35
505		3/8"	1/2"	88-110-2	88-310-8	88-510-3	88-710-9	35.80
506	5"	1/2"	1/2"	88-111-0	88-311-6	88-511-1	88-711-7	41.30
508		3/4"	1/2"	88-112-8	88-312-4	88-512-9	88-712-5	48.25
509		1"	1/2"	88-113-6	88-313-2	88-513-7	88-713-3	58.45



GRIT FACTORS	
Coarse	46
Medium	80
Fine	120
Ex. Fine	240

Rubberized Abrasive Pencils, Sticks, and Blocks

- Sold individually.

Round Pencils

CODE	LENGTH	DIA. SIZE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
P-03		1/8"	88-000-5	88-200-1	88-400-7	88-600-2	$4.60
P-36		3/16"	88-001-3	88-201-9	88-401-5	88-601-0	7.00
P-04	6"	1/4"	88-002-1	88-202-7	88-402-3	88-602-8	7.85
P-56		5/16"	88-003-9	88-203-5	88-403-1	88-603-6	8.65
P-06		3/8"	88-004-7	88-204-3	88-404-9	88-604-4	8.90
P-08		1/2"	88-005-4	88-205-0	88-405-6	88-605-1	12.30
P-10		5/8"	88-006-2	88-206-8	88-406-4	88-606-9	18.65
P-12	6"	3/4"	88-007-0	88-207-6	88-407-2	88-607-7	23.10
P-16		1"	88-008-8	88-208-4	88-408-0	88-608-5	40.90

Rectangular Sticks

CODE	LENGTH	DIA. SIZE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
B1125	3"	1" x 1/4"	88-011-2	88-211-8	88-411-4	88-611-9	$8.65
B2375	4"	2" x 3/8"	88-012-0	88-212-6	88-412-2	88-612-7	14.20
R-04	6"	1" x 1/4"	88-013-8	88-213-4	88-413-0	88-613-5	14.75
R-06	6"	1" x 3/8"	88-014-6	88-214-2	88-414-8	88-614-3	16.95
R-08	6"	1" x 1/2"	88-015-3	88-215-9	88-415-5	88-615-0	13.20
08804	8"	1" x 1/2"	88-016-1	88-216-7	88-416-3	88-616-8	42.05

Square Sticks

CODE	LENGTH	DIA. SIZE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
S-04		1/4" x 1/4"	88-025-2	88-225-8	88-425-4	88-625-9	$8.65
S-08		1/2" x 1/2"	88-026-0	88-226-6	88-426-2	88-626-7	14.75
S-12	6"	3/4" x 3/4"	88-027-8	88-227-4	88-427-0	88-627-5	25.85
S-16		1" x 1"	88-028-6	88-228-2	88-428-8	88-628-3	34.95

Rubber Abrasive Mandrels

For Points, Cones & Small Wheels

Sold Individually

CODE	SHANK DIA.	ARBOR SIZE	USED FOR	PART NUMBER	PRICE EACH
M-1051	3/32"	1/16"	Points	88-137-5	$2.95
M-2501	3/32"	1/16"	Small Wheels	88-138-3	5.00
M- 310	1/8"	1/16"	Small Wheels	88-139-1	5.35
M- 410	1/8"	1/16"	Points	88-140-9	4.20
M- 511	1/8"	1/8"	Small Wheels	88-141-7	6.20
M- 611	1/8"	1/8"	Points	88-142-5	4.70
M- 831	1/4"	1/8"	Small Wheels	88-143-3	7.10
M- 931	1/4"	1/8"	Points	88-144-1	7.10
M-1033	1/4"	1/4"	Cones	88-145-8	6.75
M-1133	1/4"	1/4"	Small Wheels	88-146-6	13.50


M-1051


M-511

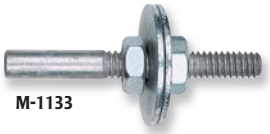

M-1033


M-2501


M-611


M-310


M-831


M-1133


M-410


M-931

ABRASIVES



Rubberized Abrasive Cylinder, Taper, Pointed and Bullet Shaped Points

For Use with Mandrels

Maximum 24,000 RPM • Sold in Lots of 100 pcs.

CODE	LENGTH	DIAMETER	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE PER LOT
40	1/2"	1/4"	1/16"	88-036-9	88-236-5	88-436-1	88-636-6	$47.85
60	7/8"	1/4"	1/16"	88-037-7	88-237-3	88-437-9	88-637-4	55.95
80	1"	9/32"	1/16"	88-038-5	88-238-1	88-438-7	88-638-2	58.40
100	5/8"	3/8"	1/16"	88-039-3	88-239-9	88-439-5	88-639-0	59.45
110	1"	3/8"	1/8"	88-040-1	88-240-7	88-440-3	88-640-8	110.75
120	7/8"	3/8" to 5/16"	1/8"	88-041-9	88-241-5	88-441-1	88-641-6	106.15
140	7/8"	5/8" to 1/8"	1/8"	88-042-7	88-242-3	88-442-9	88-642-4	118.85
160	7/8"	1/2"	1/8"	88-043-5	88-243-1	88-443-7	88-643-2	118.85

Maximum 20,000 RPM • Sold Individually

CODE	LENGTH	DIAMETER	ARBOR HOLE	COARSE DARK GREEN PART NO.	MEDIUM BROWN PART NO.	FINE RED PART NO.	EXTRA FINE BLUE PART NO.	PRICE EACH
125-T	1 1/4"	7/8" to 1/4"	1/4"	88-047-6	88-247-2	88-447-8	88-647-3	$9.15
125-C	1 1/4"	1" to 1/4"	1/4"	88-048-4	88-248-0	88-448-6	88-648-1	11.30
2-T	2"	1" to 1/2"	1/4"	88-049-2	88-249-8	88-449-4	88-649-9	14.55
1-S	1"	7/8"	1/4"	88-050-0	88-250-6	88-450-2	88-650-7	9.95
15-S	1 1/2"	1"	1/4"	88-051-8	88-251-4	88-451-0	88-651-5	12.05
125-S	1 1/4"	7/8"	1/4"	88-052-6	88-252-2	88-452-8	88-652-3	9.60
175-S	1 3/4"	1"	1/4"	88-053-4	88-253-0	88-453-6	88-653-1	14.10
175-S	1 3/4"	7/8"	1/4"	88-054-2	88-254-8	88-454-4	88-654-9	14.00


88-180-5


88-184-7

Rubberized Abrasive Kits

in Plastic Case


88-182-1


88-186-2

Mold Finishing Kit K-5 • 22 Pcs. **88-180-5** $215.30

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
P-08	4 Round Pencils	1	1	1	1
R-06	4 Rect. Sticks	1	1	1	1
125-T	4 Tapered Cones	1	1	1	1
1-S	4 Cylinder Cones	1	1	1	1
223	4 Straight Wheels	1	1	1	1
M-1033	1 Cone Mandrel				
M-1133	1 Wheel Mandrel				

Hand Finishing Kit K-6 • 16 pcs. **88-182-1** $155.25

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
P-06	4 Round Pencils	1	1	1	1
P-08	4 Round Pencils	1	1	1	1
R-06	4 Rect. Sticks	1	1	1	1
S-08	4 Square Sticks	1	1	1	1

Finishing Kit K-7 • 64 pcs. **88-184-7** $47.05

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
80	12 Bullet Points	3	3	3	3
20	12 Tapered Wheels	3	3	3	3
1000	12 Straight Wheels	3	3	3	3
1402	24 Straight Wheels	6	6	6	6
M-310	3 Wheel Mandrels				
M-410	1 Point Mandrel				

Point Kit K-11 • 102 pcs. **88-186-2** $69.35

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
80	100 Bullet Points	25	25	25	25
M- 410	1 Point Mandrel				
M-1051	1 Point Mandrel				

Electronic Polishing Kit K-1 • 68 pcs. **88-170-6** $92.20

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
40	8 Cylinder Points	2	2	2	2
60	8 Cylinder Points	2	2	2	2
80	8 Bullet Points	2	2	2	2
100	8 Bullet Points	2	2	2	2
110	8 Bullet Points	2	2	2	2
120	8 Tapered Points	2	2	2	2
140	8 Tapered Points	2	2	2	2
160	8 Bullet Points	2	2	2	2
M-410	2 Point Mandrels				
M-611	2 Point Mandrels				


88-170-6


56-177-9


56-179-5



PRO-SAFE™ THE PROFESSIONAL CHOICE

Mag Reader Bifocal Safety Glasses

Get a Closer Look

See Pg. 343


88-172-2


88-174-8

Rubberized Abrasive Kits

in Plastic Case


88-160-7


88-162-3


88-164-9

Cone Kit K-2 • 20 pcs. **88-172-2** $218.70

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
1-T	2 Tapered Cones				2
125-T	2 Tapered Cones				2
125-C	2 Tapered Cones			2	
2-T	2 Tapered Cones		2		
1-S	2 Cylinder Cones		2		
15-S	2 Cylinder Cones	2			
125-S	2 Pointed Cones			2	
175-S	2 Pointed Cones	2			
175-T	2 Bullet Cones		2		
M-1033	2 Cone Mandrels				

Tool Room Assort. Kit K-8 • 796 pcs. **88-174-8** $784.50

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
60	100 Cylinder Points	25	25	25	25
80	100 Bullet Points	25	25	25	25
20	200 Tapered Wheels	50	50	50	50
1000	200 Straight Wheels	50	50	50	50
1402	100 Straight Wheels	25	25	25	25
M-1051	24 Point Mandrels				
M-2501	24 Wheel Mandrels				
M- 310	24 Wheel Mandrels				
M- 410	24 Point Mandrels				

Utility Kit K-3 • 84 pcs. **88-160-7** $78.40

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
60	16 Cylinder Points	4	4	4	4
80	16 Bullet Points	4	4	4	4
100	8 Bullet Points	2	2	2	2
20	8 Tapered Wheels	2	2	2	2
0802	8 Straight Wheels	2	2	2	2
1402	16 Straight Wheels	4	4	4	4
1602	8 Straight Points	2	2	2	2
M-310	2 Wheel Mandrels				
M-410	2 Wheel Mandrels				

Mold Maker Kit K-4 • 44 pcs. **88-162-3** $72.90

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
80	8 Bullet Points	2	2	2	2
100	8 Bullet Points	2	2	2	2
110	8 Bullet Points	2	2	2	2
140	8 Bullet Points	2	2	2	2
160	8 Bullet Points	2	2	2	2
M-410	2 Point Mandrels				
M-611	2 Point Mandrels				

Small Wheel Kit K-10 • 127 pcs. **88-164-9** $199.45

CODE	DESCRIPTION	COARSE DARK GREEN	MEDIUM BROWN	FINE RED	EXTRA FINE BLUE
0801	16 Straight Wheels	4	4	4	4
0802	16 Straight Wheels	4	4	4	4
0804	16 Straight Wheels	4	4	4	4
1000	16 Straight Wheels	4	4	4	4
1002	16 Straight Wheels	4	4	4	4
1004	16 Straight Wheels	4	4	4	4
1600	8 Straight Wheels	2	2	2	2
1602	8 Straight Points	2	2	2	2
150	8 Straight Wheels	2	2	2	2
M-2501	2 Wheel Mandrels				
M-310	2 Wheel Mandrels				
M-511	2 Wheel Mandrels				
M-831	1 Wheel Mandrel				

ABRASIVES



94-931-3

Brass Coated Economy Shank End Brushes

- For hand drills.
- Multi-purpose brushing tools for cleaning jobs such as removing paint, rust, scale, incrustations and burrs.
- Good results on nearly all materials.
- Shank diameter: 1/4".
- Brush material: steel.
- Brush type: crimped.
- Grit: coarse.
- Wire size: 0.33 mm.
- 4500 RPM.

DIA.	TRIM L	PART NO.	PRICE EA.
1/2"	3/4"	**94-929-7**	$3.15
5/8"	1"	**94-930-5**	3.80
1"	1 1/4"	**94-931-3**	4.65
1 1/4"	1 1/2"	**94-932-1**	5.00



94-616-0

Stem-Mounted Wire Wheel Brushes

- 1/4" shank.
- Brush material: crimped steel.

DIA.	WIRE SIZE	PART NO.	PRICE EA.
1 1/2"	0.014"	**94-612-9**	$5.25
1 1/2"	0.008"	**94-613-7**	5.25
2"	0.014"	**94-614-5**	7.40
2"	0.008"	**94-615-2**	7.40
2 1/2"	0.014"	**94-616-0**	7.75
2 1/2"	0.008"	**94-617-8**	8.45
3"	0.014"	**94-618-6**	8.45
3"	0.008"	**94-619-4**	8.45
3 1/2"	0.014"	**94-620-2**	8.70
3 1/2"	0.008"	**94-621-0**	8.70

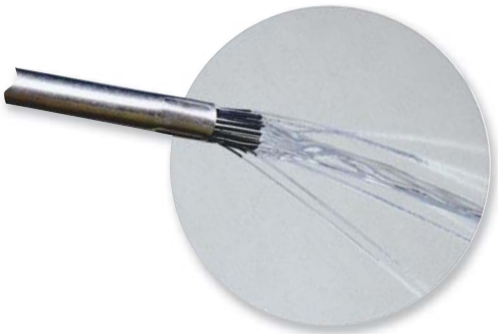
Industrial Wire Cup Brushes

- 1/4" shank; carbon or stainless steel wire.
- Maximum safe free speed: 13,000 RPM.
- Hollow center design allows large center amount of material to be removed without build-up.
- Easily mounted in electric or air power tools.
- Used for efficient cleaning, texturing or polishing of larger surfaces.

DIA.	WIRE SIZE	CARBON WIRE PART NUMBER	CARBON WIRE PRICE EACH	STAINLESS WIRE PART NUMBER	STAINLESS WIRE PRICE EACH
1 3/4"	0.0060"	**94-622-8**	$10.77	**94-636-8**	$14.30
1 3/4"	0.0080"	**94-623-6**	9.45	**94-637-6**	13.00
1 3/4"	0.0104"	**94-624-4**	8.30	**94-638-4**	12.40
1 3/4"	0.0118"	**94-625-1**	7.60	**94-639-2**	12.05
1 3/4"	0.0140"	**94-626-9**	7.60	**94-640-0**	11.85
2 1/4"	0.0060"	**94-627-7**	12.50	**94-641-8**	15.65
2 1/4"	0.0080"	**94-628-5**	10.95	–	–
2 1/4"	0.0104"	**94-629-3**	9.30	**94-642-6**	15.20
2 1/4"	0.0118"	**94-630-1**	8.95	**94-643-4**	15.00
2 1/4"	0.0140"	–	–	**94-644-2**	14.65
2 3/4"	0.0060"	**94-632-7**	14.95	–	–
2 3/4"	0.0080"	**94-633-5**	12.85	**94-645-9**	18.60
2 3/4"	0.0118"	**94-634-3**	10.50	**94-646-7**	17.00
2 3/4"	0.0140"	**94-635-0**	10.45	**94-647-5**	16.60



94-630-1





96-283-7 96-282-9 96-281-1

Abrasive Brushes

- Solvent resistant, micro-sized nylon tubes are mixed with nylon, brass or stainless steel, for light, moderate or aggressive cleaning.
- Fiber material is secured to the corrosion resistant stainless steel tube by 5 tons of pressure.
- The rugged nylon tubes are resistive to dilute alkalis, dilute acids, strong acids, alcohol, petroleum distillates, and hot water.
- The 3/8" diameter brush easily connects to a standard washer rubber hose.
- Stainless steel filled brush removes heavy to medium corrosion from steel, titanium, or other hard metal surfaces.
- Brass filled brush removes light to medium corrosion or dirt from soft metals such as gold, brass, aluminum, etc. Does not damage most metal finishes.
- Nylon brush, for all purpose cleaning. Great for small parts.

DESCRIPTION	PART NO.	PRICE
Nylon	**96-281-1**	$14.15
Brass/Nylon	**96-282-9**	14.15
Stainless Steel/Nylon	**96-283-7**	16.85



Miniature Brush Sets

- Each brush set is made with single stem/single spiral brushes for ultra-fine deburring and cleaning in manufacturing and labs.
- Available in stainless steel, brass and nylon.
- Packaged in individual sets with 1/8, 1/4, 3/8 and 1/2" brushes.
- Stainless steel brushes are all stainless steel construction.
- Brass and nylon brushes have galvanized stems.
- Brush length 1 1/2", 8" overall length.

BRISTLE	PART NO.	PRICE
4 pc. Stainless Steel Set	**96-284-5**	$16.45
4 Pc. Nylon Set	**96-285-2**	13.10
4 Pc. Brass Set	**96-286-0**	17.65

Radial and End Wire Brushes

- Oil tempered wires for highest performance.
- Suitable for any wire wheel application.

Stem Mounted - 1/4" Stem

TYPE & STYLE	WHEEL DIA.	WIRE DIA.	MAX RPM.	PART NUMBER	PRICE EACH
Crimp wire, solid end	1/2"	0.010"	20000	**96-349-6**	$5.05
Crimp wire, solid end	3/4"	0.014"	20000	**96-350-4**	5.75
Crimp wire, solid end	1"	0.014"	20000	**96-351-2**	7.30
Crimp wire, solid end	1"	0.006"	20000	**96-352-0**	9.20
Knot type, hollow end	3/4"	0.014"	20000	**96-355-3**	12.60
Knot type, hollow end	1 1/8"	0.020"	20000	**96-356-1**	12.55
Crimped wire, hollow end	1 3/4"	0.006"	4500	**96-358-7**	10.10
Crimped wire, hollow end	1 3/4"	0.0118"	4500	**96-359-5**	7.90
Crimped wire, hollow end	2 3/4"	0.0118"	4500	**96-360-3**	18.90
Circular, flared end	1 1/2"	0.008"	20000	**96-363-7**	8.65
Circular, flared end	1 1/2"	0.020"	20000	**96-364-5**	8.05
Circular, flared end	3"	0.008"	15000	**96-365-2**	18.15
Circular, flared end	3"	0.020"	15000	**96-366-0**	13.10
Crimped, stem mounted	1 1/2"	0.0118"	20000	**96-369-4**	7.65
Crimped, stem mounted	2"	0.0118"	20000	**96-370-2**	11.10
Crimped, stem mounted	2"	0.014"	20000	**96-371-0**	8.80
Crimped, stem mounted	2 1/2"	0.014"	20000	**96-372-8**	7.65
Crimped, stem mounted	3"	0.0118"	20000	**96-373-6**	9.40
Crimped, stem mounted	3"	0.014"	20000	**96-374-4**	9.60



Dico

1/4" Shank Nylon Brushes

- Use with all hand drills and flex shafts.
- Ten times the life of a wire brush.
- Nylon bristles are impregnated with aluminum oxide all the way through.
- Cleaning & polishing for all metal, wood, brick, cement, tiles and stones. Coarse for aggressive removal & cleaning or medium/fine for medium cleaning & polishing.
- Features:
  - Does not shed bristles.
  - Will not lose shape.
  - Does not prick hands.
  - Non-clogging - can be washed with water.
  - Unaffected by moisture.
  - Never loses abrasive power.
  - Cleans without scratches or damage.



87-985-8

Nylon Cup Brushes

- Use to clean large areas of metal surfaces, remove weld scale, rust, old paint and corrosion. Give metal an excellent surface for painting. Also good for light cleaning & polishing on large areas of metal.
- 1/4" shank, max. RPM - 2,500.

GRIT	COLOR	PART NO.	PRICE
Coarse	Grey	**87-985-8**	$11.40
Medium	Orange	**87-986-6**	11.40
Fine	Blue	**87-987-4**	11.40



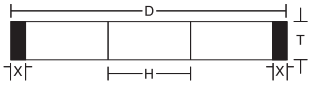
87-992-4

Nylon End Brushes

- Excellent for spot work and hard to reach areas.
- 1/4" shank, max. RPM - 12,000.

DIA.	GRIT	COLOR	PART NO.	PRICE
	Coarse	Grey	**87-991-6**	$9.35
3/4"	Medium	Orange	**87-992-4**	9.35
	Fine	Blue	**87-993-2**	9.35

Diamond Straight Wheels



- Type D1A1 - with diamonds in periphery.
- X = 1/8" depth.
- 100 diamond concentration.
- All wheels consist of the highest quality diamond content.
- Resin bonded, 100% concentration.



58-574-5

100% Concentration 1/16" Depth

D DIA.	H HOLE DIA.	T THICK	COARSE 100N-GRIT PART NO.	COARSE 100N-GRIT PRICE EA.	MEDIUM 150N-GRIT PART NO.	MEDIUM 150N-GRIT PRICE EA.	FINE 220N-GRIT PART NO.	FINE 220N-GRIT PRICE EA.
4"	1 1/4"	1/8"	**58-553-9**	$88.60	**58-554-7**	$88.60	**58-555-4**	$88.60
4"	1 1/4"	1/4"	**58-556-2**	99.40	**58-557-0**	99.40	**58-558-8**	99.40
5"	1 1/4"	1/8"	**58-559-6**	104.40	**58-560-4**	104.40	**58-561-2**	102.65
5"	1 1/4"	1/4"	**58-562-0**	142.90	**58-563-8**	142.90	**58-564-6**	142.90
5"	1 1/4"	1/2"	**58-565-3**	158.15	**58-566-1**	158.15	**58-567-9**	158.15
6"	1 1/4"	1/8"	**58-568-7**	104.95	**58-569-5**	104.95	**58-570-3**	104.95
6"	1 1/4"	1/4"	**58-571-1**	149.75	**58-572-9**	149.75	**58-573-7**	149.75
6"	1 1/4"	1/2"	**58-574-5**	176.35	**58-575-2**	173.90	**58-576-0**	176.35
7"	1 1/4"	1/4"	**58-577-8**	145.65	**58-578-6**	145.65	**58-579-4**	145.65
7"	1 1/4"	3/8"	**58-580-2**	167.10	**58-581-0**	167.10	**58-582-8**	167.10
7"	1 1/4"	1/2"	**58-583-6**	181.35	**58-584-4**	181.35	**58-585-1**	181.35

100% Concentration 1/8" Depth

D DIA.	H HOLE DIA.	T THICK	COARSE 100N-GRIT PART NO.	COARSE 100N-GRIT PRICE EA.	MEDIUM 150N-GRIT PART NO.	MEDIUM 150N-GRIT PRICE EA.	FINE 220N-GRIT PART NO.	FINE 220N-GRIT PRICE EA.
4"	1 1/4"	1/8"	**58-586-9**	$107.30	**58-587-7**	$107.30	**58-588-5**	$107.30
4"	1 1/4"	1/4"	**58-589-3**	153.55	**58-590-1**	153.55	**58-591-9**	153.55
5"	1 1/4"	1/8"	**58-592-7**	122.50	**58-593-5**	124.60	**58-594-3**	122.50
5"	1 1/4"	1/4"	**58-595-0**	164.35	**58-596-8**	164.35	**58-597-6**	172.00
5"	1 1/4"	1/2"	**58-598-4**	193.70	**58-599-2**	193.70	**58-600-8**	190.45
6"	1 1/4"	1/16"	**58-601-6**	133.35	**58-602-4**	133.35	**58-603-2**	133.35
6"	1 1/4"	1/8"	**58-604-0**	142.75	**58-605-7**	142.75	**58-606-5**	142.75
6"	1 1/4"	3/16"	**58-607-3**	154.35	**58-608-1**	154.35	**58-609-9**	154.35
6"	1 1/4"	1/4"	**58-610-7**	175.75	**58-611-5**	175.75	**58-612-3**	175.75
6"	1 1/4"	1/2"	**58-613-1**	210.25	**58-614-9**	210.25	**58-615-6**	210.25
7"	1 1/4"	1/8"	**58-616-4**	185.75	**58-617-2**	185.75	**58-618-0**	185.75
7"	1 1/4"	1/4"	**58-619-8**	181.60	**58-620-6**	181.60	**58-621-4**	181.60
7"	1 1/4"	3/8"	**58-622-2**	262.65	**58-623-0**	262.65	**58-624-8**	262.65
7"	1 1/4"	1/2"	**58-625-5**	284.45	**58-626-3**	284.45	**58-627-1**	284.45
10"	3"	1/4"	–	–	**58-628-9**	420.10	–	–
10"	3"	1/2"	–	–	**58-629-7**	589.65	–	–
12"	5"	1/2"	–	–	**58-630-5**	715.20		

ABRASIVES



95-310-9

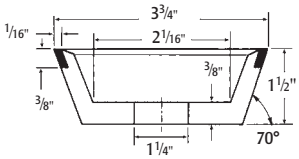
Economy 6" Diamond Wheel
Type 1A1

- Cost-effective for off-hand grinding of carbide tools.
- Superhard diamonds have faster cutting action and longer tool life; outlasts conventional grinding wheels 10 to 1.
- 1¼" diameter arbor hole, fits all standard shafts.
- Cooler grinding, cleaner cutting, produces less dust and uses less power.
- 6" wheel diameter.
- ¾" thickness.
- Maximum RPM: 3,600.

DESCRIPTION	PART NO.	PRICE
Economy Diamond Wheel, Coarse	**95-310-9**	$159.55

CRAFT-BOND Diamond Wheels
Type D11V9

- Ideally suited for precision grinding of solid carbide tools, carbide end mills, carbide reamers, carbide boring tools and carbide tipped tools.
- Cool cutting.
- Greater heat dissipation.
- Extended wheel life.
- Improved grinding efficiency.
- 75 Diamond concentration.
- 1¼" dia. arbor hole. Fits all standard shafts.
- Maximum RPM 9,675.
- 20 mm Bushing available on request.



DESCRIPTION	PART NO.	PRICE
120 Grit	**95-305-9**	$203.95
150 Grit	**95-306-7**	195.20



95-306-7



95-308-3

Economy Diamond Wheels

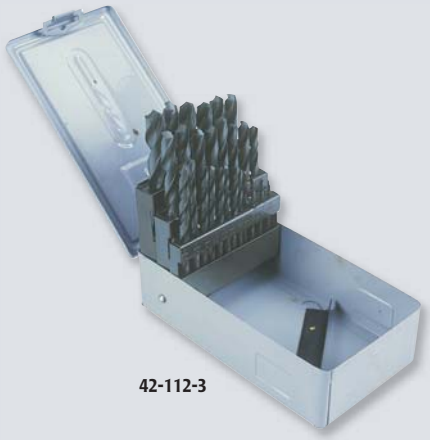
- Improved core strength for greater stability.
- Improved precision for smoother grinding.
- Increased bonding strength for longer life.
- These wheels put superabrasives into your shop for general purpose off-hand grinding at a low cost.
- Exceeds the life of a conventional grit wheel by 6 to 1.
- Standard hole pattern. Fits Baldor and all other popular carbide bench-grinders.
- 6" wheel diameter.
- 1¼" arbor hole diameter.
- Maximum RPM: 3,600.

DESCRIPTION	PART NO.	PRICE
Coarse 100 Grit	**95-307-5**	$153.95
Medium 180 Grit	**95-308-3**	153.95

SHOP GRADE

Jobber Length Drill Sets

See Pg. 450



42-112-3



49-147-2



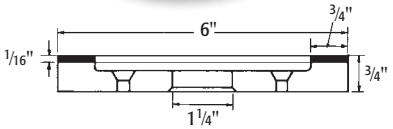
42-105-7



42-118-0



95-304-2



CRAFT-BOND Resin Matrix Diamond Wheel

Lustre-Finishing

- Dynamically balanced – high concentration diamond wheel.
- Produces exceptional finishes in the 8 to 10 micro inch finish range, yet delivers durability and speed.
- When used in conjunction with the Craft-Bond Roughing Diamond Wheel (**95-300-0**), efficiency and economy are greatly increased.
- Speed: Maximum 5,000 surface feet per minute.

DESCRIPTION	PART NO.	PRICE
Lustre-Finishing Diamond Wheel	**95-304-2**	$362.40



Diamond Hones

For Use on Carbide Only

- SPI craft-bonded to 140 diamond concentration by electrolytic process.
- Cuts faster, lasts longer and retains flat surface.
- Size: 1/4" x 3/16" x 6" overall length 1 1/2" diamond impregnation on end.

Single End

DESCRIPTION	PART NO.	PRICE
240 Grit	**95-245-7**	$47.60
320 Grit	**95-246-5**	47.60
400 Grit	**95-247-3**	47.60
600 Grit	**95-248-1**	49.15

Double End

DESCRIPTION	PART NO.	PRICE
240/320 Grit	**95-250-7**	$85.35
240/400 Grit	**95-251-5**	85.35
240/600 Grit	**95-252-3**	85.35
320/400 Grit	**95-253-1**	85.35
320/600 Grit	**95-254-9**	85.35
400/600 Grit	**95-255-6**	122.50

DMT®

Diamond Sharpening

- Quickly and easily sharpens all types of tools & blades. Highly durable monocrystalline diamond, resists loading, easy to clean.
- Red handle-fine grit, 600 mesh, 25 microns, efficiently hones precision hand tools, refines the edges of blades honed by coarse.

Diafold Models

- Features a carrying case that unfolds into a permanently attached handle. When folded, this carrying case protects the tool's surface.
- 4" Blade.

DESCRIPTION	PART NO.	PRICE
Fine (Red)	**81-001-0**	$45.30
Coarse (Blue)	**81-002-8**	45.30



Diafold
81-002-8

Whetstone

- 6" Diamond Whetstone in durable plastic case with mounting capability, non-skid rubber feet.

DESCRIPTION	PART NO.	PRICE
Fine	**81-009-3**	$82.30
Coarse	**81-010-1**	82.30



Whetstone
81-009-3

Hand Diamond Dressers with Handles

- 7/16" shank size with plastic handle.

CARAT	SHOP GRADE PART NO.	PRICE	INDUSTRAL QUALITY PART NO.	PRICE
1/4	**57-435-0**	$20.75	**58-672-7**	$27.20
1/3	**57-436-8**	26.75	**58-673-5**	34.70
1/2	**57-437-6**	34.00	**58-674-3**	44.55
3/4	**57-438-4**	58.60	**58-675-0**	74.85

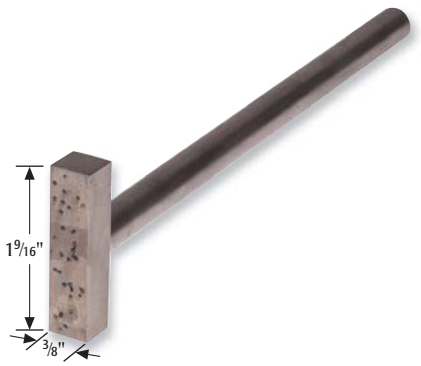


57-435-0

Diamond Impregnated Strip Dresser

- Strip Dresser with first quality diamonds, set with hard-set powdered metal.

DESCRIPTION	PART NO.	PRICE
1 Carat	**95-290-3**	$85.25



Diamond Grinding Pin Set

- 20 piece assortment of various shapes and grit sizes including fine grit (320), medium grit (180) and coarse grit (100).
- For grinding heat treated steel, carbide, ceramics, etc.
- Used in grinding in tight or precision areas on jigs, dies, molds and fixtures.
- Shank size: 1/8"
- Length: 1 3/4".
- Range is 1/16" to 1/8".



65-096-0

DESCRIPTION	PART NO.	PRICE
Diamond Grinding Pin Set	**65-096-0**	$39.10

ABRASIVES

Diamond Tools

Selection of Tools by Diamond Size

- Choosing a stone of the right size is an important factor in keeping diamond tool costs down while doing a perfect job. Use of too small a stone induces rapid wear. On the other hand, the use of too large a diamond may also be wasteful. Selection of the proper size stone is dependent, to a great extent upon the size wheel to be dressed.



Excello Series

EXCELLO Series

- Special octahedron diamonds, concentric for thread grinding.
- Standard shank size 3/8" x 1 5/8".

GRADE	PART NO.	PRICE
AAA	**95-191-3**	$24.80



LC Series

LC Series

- Lapped chisel points.
- Standard shank size 3/8" x 2".

CARAT	DEGREE	PART NO.	PRICE
1/4	60°	**95-201-0**	$112.60
1/2	60°	**95-202-8**	188.25



CP Series

CP Series

- Lapped cone points.
- Standard shank size 3/8" x 2".

CARAT	DEGREE	PART NO.	PRICE
1/4	60°	**95-208-5**	$112.60
1/2	60°	**95-209-3**	188.25



PH Series

PH Series

- Lapped phono points.
- Standard shank size 1/8" x 1".

GRADE	DEGREE	PART NO.	PRICE
AA	60°	**95-213-5**	$28.35
AAA	60°	**95-214-3**	39.70



Valve Seat Series

Valve Seat Grinder Series

- Fits Black & Decker, Sioux, Van Dorn, Van Norman and S & D.
- Standard shank length 2 1/4".

THREAD	CARAT	PART NO.	PRICE
3/8" - 24	1/4	95-275-4	$39.25
1/2" - 20	1/4	95-276-2	39.25



VM Series

VM Series

- Concentric radius tools. Special octahedron diamonds for fine radius work.
- Standard shank size: 3/8" x 2".

GRADE	PART NO.	PRICE
AAA	**95-128-5**	$24.80



404 Series

404 Series

- Premium quality diamonds. Five resets guaranteed.
- Standard shank size: 7/16" x 2". Up to 1/2 carat without head.

CARAT	PART NO.	PRICE
1/5	**95-135-0**	$46.50
1/4	**95-136-8**	60.05
1/3	**95-137-6**	70.30
1/2	**95-138-4**	122.00
3/4	**95-139-2**	140.75
1	**95-140-0**	205.65



NC Series

NC Series

- Chisel point radius tools. Natural chisel diamonds.
- Standard shank size: 3/8" x 3".

GRADE	PART NO.	PRICE
.10	**95-151-7**	$36.25
.20	**95-152-5**	41.20
.30	**95-153-3**	67.05



J & L and J & S Series

J & L and J & S Series

- Special octahedron diamonds concentric for thread grinding and for use in J & S radius dressers.
- Standard shank size: 1/4" x 1".

GRADE	PART NO.	PRICE
AAA	**95-161-6**	$24.80



GN Series

GN Series

- Special mackel diamonds for special radius work.
- Standard shank size: 3/8" x 3".

RADIUS	PART NO.	PRICE
0.010	**95-219-2**	$30.35
0.012	**95-220-0**	30.35
0.015	**95-221-8**	30.45
0.032	**95-223-4**	30.45
0.062	**95-226-7**	34.15
0.075	**95-227-5**	34.35
0.100	**95-228-3**	38.75
0.250	**95-229-1**	40.30

Full Ball Radius Tool (180°)

- For plunge forming an exact concave radius.
- Eliminates set-up problems encountered with the swing-formula technique.
- Standard shank size: 3/8" x 2 1/2".

RADIUS	PART NO.	PRICE
0.010	**95-260-6**	$122.65
0.015	**95-261-4**	132.55
0.020	**95-262-2**	169.35
0.025	**95-263-0**	165.35
0.0312	**95-264-8**	189.85
0.035	**95-265-5**	191.90
0.040	**95-266-3**	282.10
0.045	**95-267-1**	288.90
0.050	**95-268-9**	313.90



Full Ball Radius



101 Series

101 Series

- Shank size: 3/8" x 2"

CARAT	PART NO.	PRICE
0.20	**95-101-2**	$21.05
0.30	**95-105-3**	30.05

- Shank size: 7/16" x 2"

CARAT	PART NO.	PRICE
0.20	**95-103-8**	$21.05
0.30	**95-107-9**	30.05

202 Series

- High quality diamonds with three or more resets for all types of grinding.
- Standard shank size: 3/8" x 2".

CARAT	PART NO.	PRICE
1/5	**95-110-3**	$26.65
1/4	**95-112-9**	30.45
1/3	**95-114-5**	35.75
1/2	**95-116-0**	55.05
1	**95-120-2**	111.00



202 Series



58-707-1

Hand Diamond Dressers

- With plain round shank.
- Designed and engineered to give maximum life.
- Special matrix used to ensure firm setting of diamond.
- Preferred diamonds guaranteed resettable.
- Finest quality available at these prices.
- Fully guaranteed.
- Supplied 3" long in preferred grades, and 6" long in economy.

Economy Import

CARAT	3/8" SHANK PART NO.	7/16" SHANK PART NO.	1/2" SHANK PART NO.	PRICE EACH
1/4	**58-692-5**	**58-697-4**	**58-705-5**	$9.55
1/3	**58-693-3**	**58-698-2**	**58-706-3**	12.85
1/2	**58-694-1**	**58-699-0**	**58-707-1**	16.75
3/4	**58-695-8**	**58-700-6**	**58-708-9**	27.75
1	**58-696-6**	**58-701-4**	**58-709-7**	36.65
1 1/2	–	**58-702-2**	**58-710-5**	59.40
2	–	**58-703-0**	–	106.85
3	–	**58-704-8**	**58-711-3**	111.95

Preferred - Made in USA

CARAT	3/8" SHANK PART NO.	7/16" SHANK PART NO.	1/2" SHANK PART NO.	PRICE EACH
1/4	**58-676-8**	**58-681-8**	**58-686-7**	$26.45
1/3	**58-677-6**	**58-682-6**	**58-687-5**	32.05
1/2	**58-678-4**	**58-683-4**	**58-688-3**	49.65
3/4	**58-679-2**	**58-684-2**	**58-689-1**	63.30
1	**58-680-0**	**58-685-9**	**58-690-9**	84.85
2	–	–	**58-691-7**	189.30



95-280-4

95-285-3

Diamond Tools

Single Layer Cluster

- Particularly efficient and economical for roughing and semi-finishing.
- Standard Shank Size 7/16" x 1 5/8".

DESCRIPTION	PART NO.	PRICE
1 Carat	**95-280-4**	$114.30

Triple Layer Cluster

- Standard Shank Size 7/16" x 2".

DESCRIPTION	PART NO.	PRICE
3 Carat	**95-285-3**	$231.95



70-618-4

Adjustable Diamond Dresser Holder

Dress OD & Face Of Grinding Wheels Without Removing The Workpiece

- Diamond dresser is included.
- Use on chucks, vises, fixtures and angle plates.
- Fast hand knob height adjustment.
- Adjusts from 1 1/2"–5 3/4".

DIAMOND CARAT	SHANK SIZE	PART NUMBER	PRICE EACH
1/4	3/8"	**70-618-4**	$65.75
1/4 & 1/2	3/8"	**70-619-2**	69.45



MADE IN USA

55-252-1

Diamond Dresser & Magnetic Holder Set

Magnetic Diamond Dresser Holder

- Permanent magnets with instant lever release and quick positive hold.
- Use 3/8" shank diamond tools.

Diamond Dresser & Magnetic Holder Set

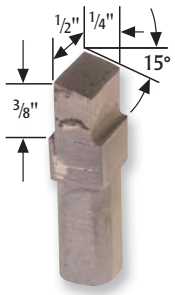
- Magnetic diamond dresser holder described above plus 1/4 carat single point Diamond Dresser with 3/8" shank.

DESCRIPTION	PART NO.	PRICE
Magnetic Diamond Dresser Holder	**55-251-3**	$40.15
Combination Diamond Dresser & Magnetic Holder Set	**55-252-1**	46.40

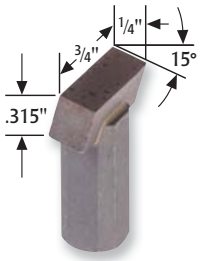
Economy Cluster Diamond Tools

- Diamond grit tools using SPI's unique craft-bond coating process.
- Priced economically for use in every machine shop.

For straight dressing on Cylindrical, Centerless and Surface Grinders with wheels 12" x 1 1/4" to 20" x 2 1/2", 46 thru 220 grit.

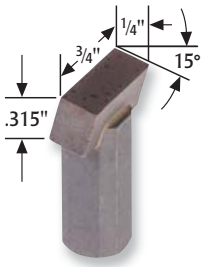


DESCRIPTION	PART NO.	PRICE
Shank 7/16" x 3/4"	**95-293-7**	$87.50



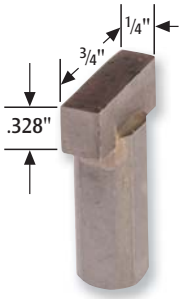
For straight dressing on Cylindrical, Centerless and Surface Grinders with wheels 20" x 3" and larger.

DESCRIPTION	PART NO.	PRICE
Shank 3/8" x 15/16"	**95-291-1**	$61.50



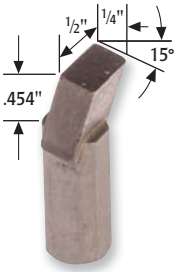
For straight dressing on Cylindrical, Centerless and Surface Grinders with wheels 20" x 3" and larger.

DESCRIPTION	PART NO.	PRICE
Shank 3/8" x 15/16"	**95-291-1**	$61.50



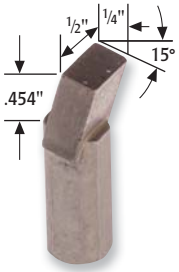
For straight dressing on Cylindrical, Centerless and Surface Grinders with wheels 20" x 3" and larger.

DESCRIPTION	PART NO.	PRICE
Shank 3/8" x .826"	**95-294-5**	$61.50



For straight dressing on Cylindrical, Centerless and Surface Grinders with wheels 20" x 1" to 20" x 2 1/2".

DESCRIPTION	PART NO.	PRICE
Shank 3/8" x .828"	**95-292-9**	$59.80



For straight dressing on Cylindrical, Centerless and Surface Grinders with wheels 20" x 1" to 20" x 2 1/2".

DESCRIPTION	PART NO.	PRICE
Shank 3/8" x .828"	**95-292-9**	$59.80

ABRASIVES



Steel Wool Pads

- Used for buff, clean, polish or remove surface debris.
- 16 pads per sleeve.

GRIT	GRADE	APPLICATION	PART NO.	PRICE
Finest	0000	Final finish on fine woodwork. Cleans delicate instruments, precision tools	**95-237-4**	$4.80
Extra Finest	000	Polishes aluminum, copper, brass and zinc. Buffs and removes old finishes, excess oils	**95-238-2**	4.80
Medium -Coarse	00	Cleans golf clubs, screens and frames. Buffs, cuts and removes old finishes, excess oils	**95-239-0**	4.25
Medium Fine	0	Removes rust from metal tools. Cleans aluminum, copper and other materials.	**95-240-8**	4.25
Medium	1	Prepares wood for first coat of paint and smooths raised grain.	**95-241-6**	4.25
Medium -Coarse	2	Removes rust and grime from machinery. Cleans rough metal or stone surfaces.	**95-242-4**	4.25
Coarse	3	Removes old paint and varnish from furniture. Gouges furrows in wood.	**95-243-2**	4.25
Extra Coarse	4	Removes tough rust, dirt, old paint and varnish	**95-244-0**	4.25



58-666-9

Performance Dresser

- Made with Boron Carbide, one of the hardest, most wear-resistant man-made materials known.
- The most efficient dressing stick available for vitrified bonded grinding wheels.
- Size: 3/16" x 1/2" x 3".

DESCRIPTION	PART NO.	PRICE
Performance Dresser	**58-666-9**	$38.95



58-653-7

Abrasive Dresser Stick

- Silicon carbide.
- For truing and dressing grinding wheels.

WIDTH	THICK.	OAL	PART NO.	PRICE EA.
1"	1"	6"	**58-653-7**	$3.60

Dico

Greaseless Compounds



87-632-6

- Produces a clean and grease free satin finish on all metals.
- Use with string or cotton buffs.
- Average weight per bar is 3 lbs.

CUT	PART NO.	PRICE
Heavy	**87-632-6**	$10.65
Medium	**87-630-0**	10.65
Fine	**87-633-4**	10.65

Dico

Buffing Compositions

Used with Buffs





- Cut compounds have more aggressive action.
- Color compounds produce higher luster.
  NOTE: Wear Eye Protection

Use with Copper, Brass and Aluminum

DESC.	TYPE	1/4 LB. SIZE PART NO.	PRICE	1/2 LB. SIZE PART NO.	PRICE	1 1/4 LB SIZE PART NO.	PRICE
Tripoli	Cut	**87-955-1**	$4.30	**87-962-7**	$8.50	**87-969-2**	$8.25

Use with Stainless Steel

Emery	Heavy cut	**87-956-9**	$4.80	**87-963-5**	$8.90	**87-970-0**	$8.65
Stainless	Cut/Color	**87-959-3**	6.60	**87-966-8**	13.10	**87-972-6**	12.80
Emerald	Hi-Color	–	–	–	–	**87-973-4**	20.40

Use with All Metals

Jewelers Rouge	Hi-Color	**87-958-5**	$7.45	**87-965-0**	$14.15	**87-975-9**	$13.80

Use with Ferrous & Non-Ferrous Metals

White Rouge	Color	**87-961-9**	$6.20	**87-968-4**	$11.30	**87-976-7**	$10.95

For Use with Hard Plastics/Acrylics

Plastic	Cut/Color	**87-960-1**	$5.50	**87-967-6**	$10.85	**87-977-5**	$10.40

AUTOSOL

Metal Polish

Metal Polish in Paste Form

- Cleans, protects and polishes all bright metal surfaces.
- Contains conservation ingredients to preserve finish and retard corrosion and tarnish.
- Abrasive properties are ideal for use on heavily weathered and corroded surfaces.

DESCRIPTION	PART NO.	PRICE
3.3 oz. Autosol Tube	**98-718-0**	$9.90
2.2 lbs. Autosol Can	**98-719-8**	68.05



98-719-8

98-718-0



30-252-1

30-251-3

30-249-7

Simichrome Polish

For Use With All Metals

- Produces an ultra-high finish.
- Removes the haze on a mold's surface after using a diamond compound.

SIZE	TYPE	PART NO.	PRICE
50 g	Tube	**30-249-7**	$16.65
50 g	Tube	**30-250-5** *	390.60
250 g	Tin	**30-251-3**	50.60
1000 g	Tin	**30-252-1**	149.20

*Pack of 24.



87-624-3

Buff Cleaning Rake & Handle

Removes Compound from Wheels

DESCRIPTION	PART NO.	PRICE
Buff Cleaning Rake & Handle	**87-624-3**	$28.80

Copper, Brass, Aluminum and Stainless Steel Buffing Kits

Buffing Kits Include:

- One cushion sewn wheel 1/2" thick
- 1/2" Arbor flanges
- One 1/4" Spiral sewn wheel 1/2" thick

Copper, Brass & Aluminum Kits also Include:

- 1 tube TC6 Tripoli Compound
- 1 tube WR-1 White Rouge Compound

Stainless Steel also Includes:

- 1/2 tube E5 Emery Compound
- 1/2 tube SCR Stainless Compound

BUFFING KIT TYPES	DIA.	PART NO.	PRICE
Copper, Brass & Alum	4"	**87-922-1**	$16.30
Copper, Brass & Alum	6"	**87-917-1**	23.10
Stainless Steel	4"	**87-920-5**	16.30
Stainless Steel	6"	**87-921-3**	26.40

Precious Metals Kits Include:

- 1/2 tube JR-1 Jewelers Rouge Compound.

BUFFING KIT TYPES	DIA.	PART NO.	PRICE
Precious Metals	4"	**87-918-9**	$8.65
Precious Metals	6"	**87-919-7**	11.50



87-922-1



87-916-3

Metal & Plastic Buffing Kit

Each kit includes:

Buffing Compounds

- One 4 oz. bar of each of the following: Red Rouge, White Rouge, Black Emery Cake and Brown Tripoli.

Buffing Wheels

- Each wheel includes it own telescoping, removable bushing that permits mounting on spindle shafts of 1", 3/4", 5/8" and 1/2" diameters.
- Wheels (one of each):
  - 6" Dia. x 1" x 1" Circle Sewed 80 Ply Muslin Buff.
  - 6" Dia. x 1" x 1" Loose Sewed 80 Ply Muslin Buff.
  - 6" Dia. x 1" x 1" x 1/2" Circle Sewed Interplied Sisal/Cloth Combo Buff.

DESCRIPTION	PART NO.	PRICE
Metal & Plastic Buffing Kit	**87-916-3**	$96.20



87-634-2

Canton Flanel Buffing Wheel

- 1/2" Face. Provides a high luster finish on all metal, especially precious metals.
- 1" arbor hole.

DESCRIPTION	PART NO.	PRICE
6 x 1/2"	**87-634-2**	$8.75
8 x 1/2"	**87-635-9**	11.60

Muslin General Purpose Buff Wheels

- 100% cotton - No compressed strings or scraps.
- Longer life and durability. For job shop and production applications. Individually boxed.
- Each buffing wheel has a 1" hole and includes a 1/2" adapter bushing.
- Cushion Sewn - Light cutting and color buffing on all metals and plastic.
- Loose Sewn - Contouring and color buffing on all metals and plastics.
- Spiral Sewn - For coarse buffing, removal of heavy scratches.



Cushion Sewn

DIA.	1/2" FACE PART NO.	PRICE	3/4" FACE PART NO.	PRICE
4"	–	–	**87-931-2**	$10.05
6"	**87-928-8**	$12.00	**87-932-0**	16.70
8"	**87-929-6**	16.85	**87-933-8**	23.35
10"	**87-930-4**	24.50	**87-934-6**	32.15

Loose Sewn

DIA.	1/4" FACE PART NO.	PRICE	1/2" FACE PART NO.	PRICE
4"	–	–	**87-923-9**	$8.65
6"	–	–	**87-924-7**	11.25
8"	–	–	**87-925-4**	14.90
10"	–	–	**87-926-2**	20.85

1/4" Spiral Sewn

DIA.	1/4" FACE PART NO.	PRICE	1/2" FACE PART NO.	PRICE
4"	**87-943-7**	$8.45	**87-939-5**	$9.70
6"	**87-944-5**	10.50	**87-940-3**	16.25
8"	**87-945-2**	14.25	**87-941-1**	23.55
10"	**87-946-0**	16.90	–	–

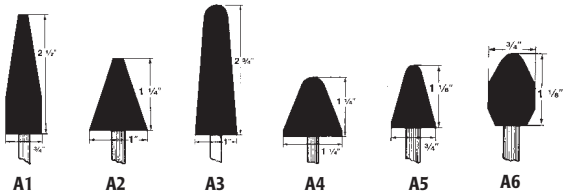
3/8" Spiral Sewn

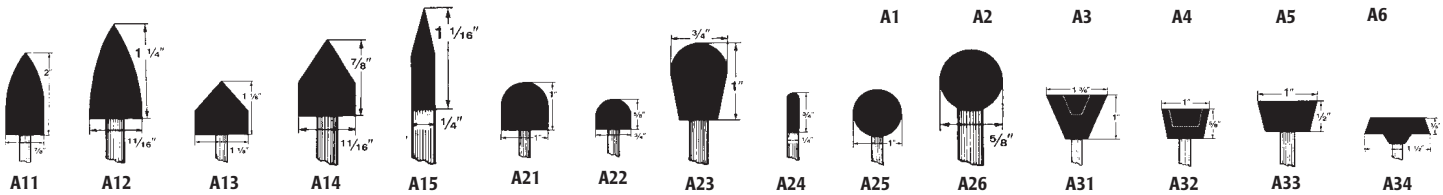
DIA.	1/4" FACE PART NO.	PRICE	1/2" FACE PART NO.	PRICE
10"	–	–	**87-954-4**	$32.15

ABRASIVES

Group A Mounted Stones

- 1/4" diameter shanks vitrified bond.
- Top quality and 100% final inspection for balance and runout.
- Aluminum oxide abrasive for all metal applications.
- Ideal for metal and removal finishing.
- Pink stones.
- Shanks are 1" long.

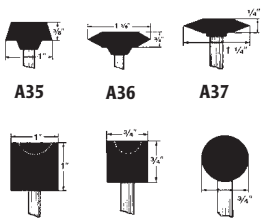




SHAPE	DIA.	LENGTH	PART NUMBER	PRICE EACH
A1	3/4"	2 1/2"	**57-595-1**	$3.50
A2	1"	1 1/4"	**57-596-9**	2.20
A3	1"	2 3/4"	**57-597-7**	2.95
A4	1 1/4"	1 1/4"	**57-598-5**	1.85
A5	3/4"	1 1/8"	**57-599-3**	1.80
A6	3/4"	1 1/8"	**57-600-9**	1.80
A11	7/8"	2"	**57-601-7**	2.55
A12	11/16"	1 1/4"	**57-602-5**	2.00
A13	1 1/8"	1 1/8"	**57-603-3**	2.30

SHAPE	DIA.	LENGTH	PART NUMBER	PRICE EACH
A14	11/16"	7/8"	**57-604-1**	$1.45
A15	1/4"	1 1/16"	**57-605-8**	1.95
A21	1"	1"	**57-606-6**	1.65
A22	3/4"	5/8"	**57-607-4**	1.45
A23	3/4"	1"	**57-608-2**	1.60
A24	1/4"	3/4"	**57-609-0**	1.35
A25	1"	1"	**57-610-8**	1.60
A26	5/8"	5/8"	**57-611-6**	1.45
A31	1 3/8"	1"	**57-612-4**	2.15

SHAPE	DIA.	LENGTH	PART NUMBER	PRICE EACH
A32	1"	5/8"	**57-613-2**	$1.60
A33	1"	1/2"	**57-614-0**	1.50
A34	1 1/2"	3/8"	**57-615-7**	1.70
A35	1"	3/8"	**57-616-5**	1.50
A36	1 5/8"	3/8"	**57-617-3**	1.95
A37	1 1/4"	1/4"	**57-618-1**	1.50
A38	1"	1"	**57-619-9**	1.45
A39	3/4"	3/4"	**57-620-7**	1.10
A40	3/4"	3/4"	**57-621-5**	1.45



DREMEL® Aluminum Oxide Grinding Stones

- High quality long lasting abrasive.
- Furnished with 1/8" diameter shanks.

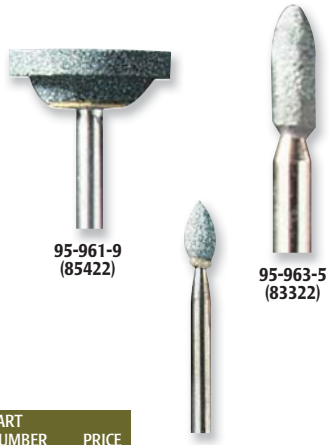


DIA.	HT.	DREMEL® MODEL#	PART NUMBER	PRICE
3/8"	3/4"	952	**95-951-0**	$4.45
3/8"	1/2"	932	**95-952-8**	4.50
3/32"	3/8"	997	**95-954-4**	4.45
3/16"	5/16"	945	**95-955-1**	4.45
5/8"	5/8"	941	**95-956-9**	4.45
5/8"	3/32"	971	**95-958-5**	4.45
7/16"	11/16"	911	**95-959-3**	4.45



DREMEL® Silicon Carbide Grinding Stones

- Made especially for grinding hard steel, ceramics, glass, and other hard materials.
- Furnished with 1/8" shanks.



TYPE	DIA.	HT.	DREMEL® MODEL #	PART NUMBER	PRICE
Wheel	25/32"	1/8"	85422	**95-961-9**	$4.25
Point	1/8"	11/32"	83322	**95-963-5**	4.25
Point	9/32"	11/32"	83142	**95-965-0**	4.25



DREMEL® Polishing Accessories

Tips and Wheels

DIA.	TYPE	DREMEL® MODEL#	PART NUMBER	PRICE
3/8"	Tip	422	**95-981-7**	$3.70
1"	Wheel	429	**95-983-3**	4.20
Screw Mandrel for Above		401	**95-984-1**	4.00

DREMEL® Cut-Off Accessories



Cut-Off Wheels

SIZE	THICKNESS	QTY/PK	DREMEL® MODEL #	PART NUMBER	PRICE
15/16"	.025"	36	409	**95-969-2**	$8.25
1 1/4"	.045"	5	426	**95-970-0**	11.95
15/16"	.040"	20	420	**95-971-8**	8.90

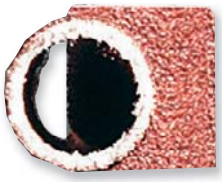
Mandrel

- Use with above cut-off wheels and sanding disks.
- Dremel® model #402.

DESCRIPTION	PART NO.	PRICE
Mandrel #402	**95-877-7**	$4.35

DREMEL®
Sanding Bands/Drums

- Great for rust removal and deburring.
- Use for rough shaping and smoothing of wood and fiberglass.
- Sanding bands are easily replaceable on drums.
- Aluminum oxide.
- Replacement bands, sold in package quantities of 6.



SIZE	GRIT	DREMEL® MODEL #	PART NUMBER	PRICE 6 PER PK.
1/2"	60	408	**95-975-9**	$4.10
1/2"	120	432	**95-976-7**	4.10
1/4"	60	431	**95-994-0**	3.90
1/4"	120	438	**95-995-7**	3.90



95-934-6 (9901) · 95-935-3 (9909) · 95-936-1 (9905) · 95-937-9 (9910) · 95-938-7 (9904) · 95-939-5 (9911) · 95-940-3 (9902) · 95-941-1 (9906)

DREMEL®
Tungsten Carbide Cutters

- Long lasting carbide.
- Featuring 1/8" shanks.

TYPE	DIA.	APPROX. LENGTH	DREMEL MODEL #	PART NUMBER	PRICE
Cylinder	1/8"	5/8"	9901	**95-934-6**	$14.85
Sharp Tip	1/8"	1/4"	9909	**95-935-3**	16.85
Ball	1/8"	1/8"	9905	**95-936-1**	16.85
Round Tip	1/8"	5/8"	9910	**95-937-9**	16.85
Ball End Cylinder	3/32	17/32	9904	**95-938-7**	16.55
Flame	1/8"	5/16"	9911	**95-939-5**	15.50
Cylinder	3/32"	17/32"	9902	**95-940-3**	15.50
Oval	1/8"	1/4"	9906	**95-941-1**	16.85



95-993-2

DREMEL®
Drum Sanders

- Includes one 60 Grit band.

SIZE	SHANK	DREMEL® MODEL #	PART NUMBER	PRICE
1/4"	1/8"	430	**95-993-2**	$5.10
1/2"	1/8"	407	**95-977-5**	5.45



80-114-2

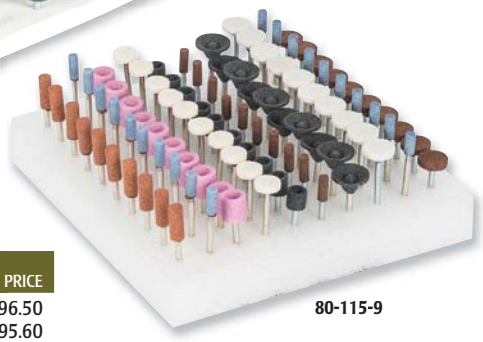
NEW

MADE IN USA

Abrasive Mounted Stone Sets

- Random shapes packaged in a handy storage cardboard box.

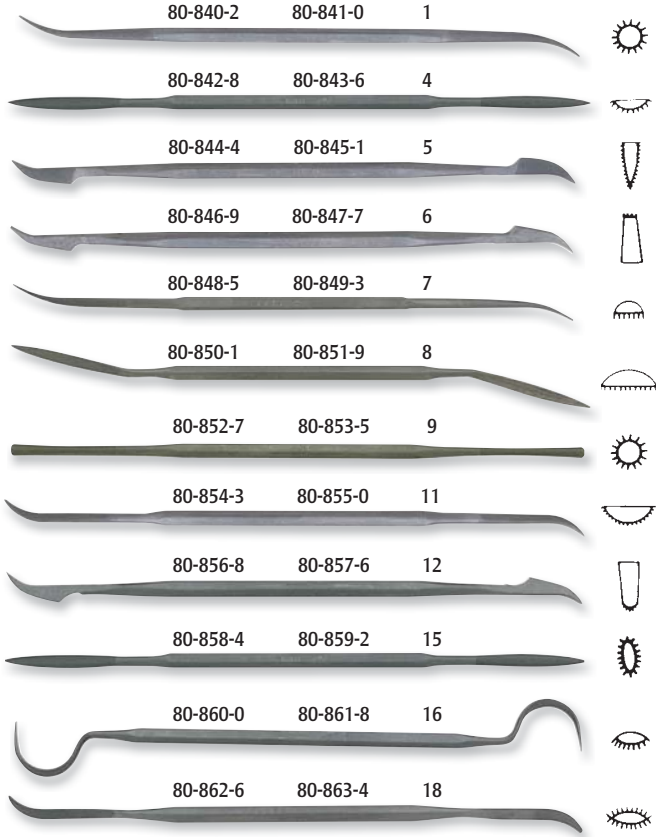
NO. OF PCS.	SHANK DIA.	PART NUMBER	PRICE
50	1/4"	**80-114-2**	$96.50
100	1/8"	**80-115-9**	95.60



80-115-9

Swiss Precision Files
Top Quality Die Sinker's Rifflers, 6" Length

CUT 0 PART NO.	CUT 2 PART NO.	STYLE
80-840-2	80-841-0	1
80-842-8	80-843-6	4
80-844-4	80-845-1	5
80-846-9	80-847-7	6
80-848-5	80-849-3	7
80-850-1	80-851-9	8
80-852-7	80-853-5	9
80-854-3	80-855-0	11
80-856-8	80-857-6	12
80-858-4	80-859-2	15
80-860-0	80-861-8	16
80-862-6	80-863-4	18



Price for any of the above styles	ea. **$29.75**

12 Pc. Riffler Sets

CUT	PART NO.	PRICE
0	**80-864-2**	$307.50
2	**80-865-9**	307.50

Sets include all 12 Rifflers Shown Above.



55-870-0

SHOP GRADE

12 Pc. Die Maker's Riffler File Set
Swiss Pattern

- Riffler files are used by tool and die makers to clean odd shapes and to work in difficult places.
- Overall length: 6 3/4"
- Cut: 0

DESCRIPTION	PART NO.	PRICE
12 Pc. Die Maker's Riffler File Set	**55-870-0**	$27.80

ABRASIVES

Swiss Needle Files, 6¼" Length



TYPE	CUT 0	CUT 2	CUT 4
Equaling	81-121-6	81-151-3	81-171-1
Warding	81-122-4	81-152-1	81-172-9
Half-Round	81-123-2	81-153-9	81-173-7
Three-Square	81-124-0	81-154-7	81-174-5
Square	81-125-7	81-155-4	81-175-2
Round	81-126-5	81-156-2	81-176-0
Knife	81-127-3	81-157-0	81-177-8
Crossing	81-128-1	81-158-8	81-178-6
Oval	–	81-160-4	81-180-2
Crochet	–	81-161-2	–
Barrette	81-132-3	81-162-0	81-182-8

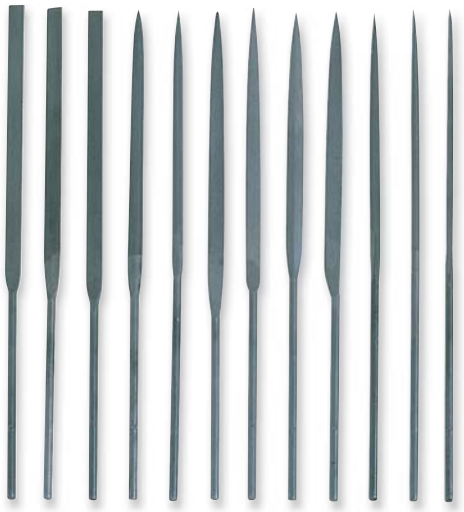
PRICE per File of any of above order numbers $14.55

Needle File Assortment Sets

CUT	LENGTH	PART NUMBER	PRICE PER SET OF 12 PCS.
0	5½"	**81-148-9**	$154.00
2	5½"	**81-168-7**	154.00
4	5½"	**81-188-5**	158.50
0	6¼"	**81-149-7**	161.20
2	6¼"	**81-169-5**	161.20
4	6¼"	**81-189-3**	171.15

12 Pc. Economy Assortment Set in Plastic Case

CUT	LENGTH	PART NUMBER	PRICE PER SET OF 12 PCS.
0	6"	**81-147-1**	$16.40
2	6"	**81-150-5**	21.50



81-150-5



95-249-9

EXCEL USA Our Edge Makes The Difference

File Handle with 6 Assorted Mini Needle Files

Aluminum Handle

- Hardened steel chuck permanently mounted to prevent files from slipping.
- 5½" anodized handle with Sure-grip knurled surface.
- Pocket clip and storage.

DESCRIPTION	PART NO.	PRICE
File Handle w/6 Assorted Mini Files	**95-249-9**	$17.80

Diamond Needle Files



95-559-1

95-555-9

- For use on any carbide, stainless steel, hardened steel, glass or ceramics.
- Unique bond to hardened steel shanks assures long life and exceptional cutting action.
- Length of cut 2¾". Overall length 5½".

TYPE	ALL PURPOSE PART NO.	PRICE	ROUGHING PART NO.	PRICE
Equaling	**95-555-9**	$45.90	**95-575-7**	$48.95
Half-round	**95-556-7**	45.90	**95-576-5**	42.40
3-Square	**95-557-5**	45.90	**95-577-3**	41.70
Square	**95-558-3**	38.25	**95-578-1**	41.70
Round	**95-559-1**	38.25	**95-579-9**	36.70



55-533-4





55-527-6



55-530-0

Micro Diamond File Sets

- Effective wear protection for tools that need to with stand severe abrasion.
- **5 pc. sets** contains: Round, Half Round, Square, Flat and Triangle
- **10 pc. sets** contains: assorted shapes

CUT	5 PC. SHOP GRADE 5½" X 1⅜" PART NO.	PRICE	5 PC. PRODUCTION GRADE 5½" X 2¾" PART NO.	PRICE	10 PC. UTILITY GRADE 6¼" X 3" PART NO.	PRICE
Coarse	**55-527-6**	$21.85	**55-530-0**	$44.40	–	–
Medium	**55-528-4**	21.00	**55-531-8**	47.00	**55-533-4**	$48.65
Fine	**55-529-2**	21.00	**55-532-6**	44.25	–	–



55-969-0

12 Pc. Standard Needle File Set

- An assortment of fast cutting popular styles and shapes in steel.

CUT	FORM	TYPE	STYLES	LENGTH	PART NO.	PRICE
2	Needle	Steel	12	5½"	**55-969-0**	$14.60



50-028-0

PFERD

Riffler File Holder

- Provides optimum safety and grip control for 6" rifflers.

FILE SIZE COMPATABILITY	PART NUMBER	PRICE
6"	**50-028-0**	$5.65



80-839-4

6 Pc. Utility File Set

- Set consists of six American pattern 6" utility files.
- Shapes include: square, half-round, triangular, round, warding and flat.
- Each file comes with its own smooth wooden handle.
- Smooth grit.

DESCRIPTION	PART NO.	PRICE
6 Pc. Utility File Set	**80-839-4**	$38.25



50-170-0

LUTZ

File Cleaner

Ideal for Machinists and Woodworkers

- Sharp steel bristles dig into and quickly remove filings collected with use.
- Restores file grooves to clean cutting capacity.
- Length: $8\frac{1}{4}$"
- For cleaning files.
- Model #10.

DESCRIPTION	PART NO.	PRICE
File Cleaner	**50-170-0**	$9.00

CRESCENT NICHOLSON

File Cleaners

For General Cleaning of File Teeth



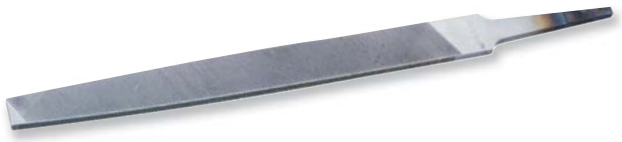
62-993-1

- Use for all file brands and all popular sizes.
- Wooden handle.

DESCRIPTION	OAL	PART NO.	PRICE
File Card	8"	**62-991-5**	$10.70
File Card	10"	**62-992-3**	17.90
File Card w/Brush	10"	**62-993-1**	24.75

CRESCENT NICHOLSON

Flat Files



- Flat files, which are of rectangular cross section and have double cut teeth.
- Used wherever metal must be removed rapidly and finish is of secondary importance.
- Flat files are slightly tapered toward the points in both width and thickness and are cut on both sides.
- American pattern.

L	W	TH.	BASTARD PART NO.	PRICE	SECOND CUT PART NO.	PRICE	SMOOTH PART NO.	PRICE
6"	$\frac{39}{64}$"	$\frac{5}{32}$"	**62-942-8**	$10.50	**62-945-1**	$11.00	**62-948-5**	$13.20
8"	$\frac{25}{32}$"	$\frac{13}{64}$"	**62-951-9**	13.00	**62-954-3**	14.30	**62-957-6**	15.35
10"	$\frac{31}{32}$"	$\frac{1}{4}$"	**62-924-6**	16.10	**62-927-9**	18.60	**62-930-3**	20.30
12"	$1\frac{5}{32}$"	$\frac{9}{32}$"	**62-933-7**	22.05	**62-936-0**	24.95	**62-939-4**	27.60

CRESCENT NICHOLSON

Mill Files



- Longer tooth life for production jobs and heavy metal removal.
- Intended for sharpening mill saws, circular saws, ice saws, machine knives, knives on lawn mowers, shears, axes, etc.
- Also used extensively for lathe work and polishing work where a smooth finish is desired.

L	W	TH.	BASTARD PART NO.	PRICE	SECOND CUT PART NO.	PRICE	SMOOTH PART NO.	PRICE
6"	$\frac{19}{32}$"	$\frac{7}{64}$"	**62-944-4**	$7.40	**62-947-7**	$10.25	**62-950-1**	$10.80
8"	$\frac{25}{32}$"	$\frac{9}{64}$"	**62-953-5**	8.35	**62-956-8**	11.55	**62-959-2**	12.80
10"	$\frac{31}{32}$"	$\frac{11}{64}$"	**62-926-1**	10.85	**62-929-5**	14.75	**62-932-9**	15.75
12"	$1\frac{5}{32}$"	$\frac{7}{32}$"	**62-935-2**	17.90	**62-938-6**	19.35	**62-941-0**	21.30

CRESCENT NICHOLSON

Half Round Files



- American Pattern.
- Used by engineers and machinists for rapid removal of metal.
- The cross section, which is rounded on one side and flat on the other, allows file to be used effectively on convex and concave surfaces.
- Tapered toward the points in width and thickness.

L.	APPROX. SIZE	BOX QTY.	BASTARD PART NO.	PRICE	SECOND CUT PART NO.	PRICE	SMOOTH PART NO.	PRICE
6"	$\frac{19}{32}$ x $\frac{11}{64}$"	12	**62-943-6**	$14.15	**62-946-9**	$16.15	**62-949-3**	$16.65
8"	$\frac{3}{4}$ x $\frac{7}{32}$"	12	**62-952-7**	17.10	**62-955-0**	18.95	**62-958-4**	20.30
10"	$\frac{7}{8}$ x $\frac{9}{32}$"	6	**62-925-3**	21.30	**62-928-7**	23.10	**62-931-1**	24.15
12"	$1\frac{1}{8}$ x $\frac{11}{32}$"	6	**62-934-5**	27.30	**62-937-8**	29.70	**62-940-2**	31.25

ABRASIVES

CRESCENT NICHOLSON

Handy Man's Sets

3 Pc. Set

- 6"/150 mm: Slim taper file.
- 6"/150 mm: Round file.
- 6"/150 mm: Bastard file.
- Supplied in plastic pouch.

4 Pc. Set

- 6"/150 mm: Slim taper file.
- 6"/150 mm: Round bastard file.
- 8"/200 mm: Mill bastard file.
- 8"/200 mm: 4-in-Hand file (half file/half rasp).
- Supplied in plastic pouch.

DESCRIPTION	PART NO.	PRICE
3 Pc. Handy Man Set	**62-994-9**	$19.25
4 Pc. Handy Man Set	**62-995-6**	33.65



62-995-6



62-988-1

CRESCENT NICHOLSON

Maintenance & Machinist File Kits

9 Pc. Maintenance Kit

- 12"/300 mm: Mill bastard.
- 10"/250 mm: Flat bastard, Mill bastard, Half-round bastard, Round bastard.
- 8"/200 mm: Flat bastard, Half-round bastard.
- 6"/150 mm: XX Slim taper, Slim taper.
- Rubber-coated ergonomic handles for better and comfort grip.

8 Pc. Machinist File Kit

- 10"/250 mm: Flat bastard, Flat smooth, Half-round bastard, Mill bastard, Round bastard, Square bastard.
- 7"/175 mm: Slim taper.
- File cleaner card.

7 Pc. Machinist File Kit

- Same as 8 pc. Machinist kit without file cleaner.

DESCRIPTION	PART NO.	PRICE
9 Pc. Maintenance File Kit	**62-987-3**	$117.10
8 Pc. Machinist File Kit	**62-988-1**	106.65
7 Pc. Machinist File Kit	**62-989-9**	96.05



Fix Thread Restorer

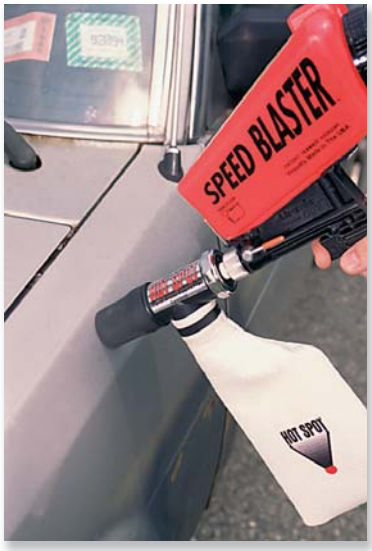
- For repairing damaged threads.
- Used like a file. Pass over and restore face of thread instantly.
- $^{7}/_{16}$" square files x $8^{3}/_{8}$" long.

DESCRIPTION	FOR USE WITH	PART NO.	PRICE
11, 12, 13, 14, 16, 18, 20 & 24	Bolts	**95-569-0**	$13.95
9, 10, 12, 16, 20, 27, 28 & 32	Bolts	**95-570-8**	14.50
.80, 1.00, 1.25, 1.50, 1.75, 2.00, 2.50 3.00 MM	Metric	**95-571-6**	14.50
8, 10, $11^{1}/_{2}$, 14, 16, 18, 24, 27	Pipe	**95-553-4**	15.55
Black Plastic Handle for all $^{7}/_{16}$" Square Files		**95-574-0**	1.30



32-579-5

MADE IN USA



32-580-3

SpeedBlaster™ Gravity Feed Sand Blaster

Remove Rust, Scale and Corrosion

High Efficiency 26 oz. Gravity Feed Handheld Media Blaster

- Easy to use design allows gravity to force particles into a hardened steel mixing chamber where they are accelerated through a ceramic nozzle.
- Blasting high-speed media particles at the work piece gets into all the small niches in the metal and ensures complete removal.
- Blaster runs continuously and virtually clog free.
- Fully adjustable media control valve to precisely meter flow.
- Provides fast and consistent flow.

Spot Blast Recovery System

- Converts your media blaster into a spot blaster in seconds and without tools.
- Recovers blast media, saving time, money and clean up.
- Eliminates blast overspray.
- Includes 4 blast cones.

DESCRIPTION	PART NO.	PRICE
Gravity Feed Sand Blaster	**32-579-5**	$81.30
Spot Blaster Recovery System	**32-580-3**	58.05

MATERIAL HANDLING



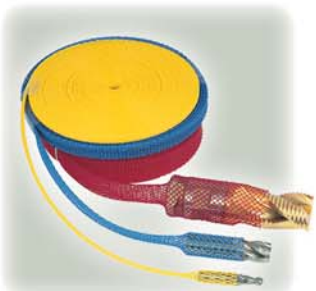














MATERIAL HANDLING



Rubbermaid

Triple® Trolley

Standard Duty with User-Friendly Handle

- Efficiently transports large bulky loads and then folds flat for easy storage.
- Sturdy structural foam deck won't rust, dent, chip or peel.
- Non-skid platform surface helps prevent load shifting.
- Tough plastic construction is easy on walls and doors.
- Three-position user-friendly handle lets users push, pull or fold flat for use as a dolly.
- 5" x 7/8" non-marking casters.
- Overall dimensions: 32½" L x 20½" W
- 500 lb. capacity.
- Weight: 25 lbs.
- Model #440100

DESCRIPTION	PART NO.	PRICE
Triple® Trolley	**90-083-7**	$196.80



Value Priced

Folding Platform Hand Truck

- Capacity: 300 lbs.
- Tubular steel handle - 1" diameter. 16 gauge thickness.
- 19" x 29" steel platform with vinyl covering.
- 4" x 7/8" swivel ball bearing and fixed casters.
- Wt.: 30 Lbs.

DESCRIPTION	PART NO.	PRICE
Folding Platform Hand Truck	**90-077-9**	$71.00



SUNEX™ TOOLS

Economy Service Cart

350 Lb. Capacity

- Large, easy to maneuver 4" wheels: (2) locking and (2) standard.
- Durable powder coated finish.
- (2) 3" deep trays .
- Color: Red.

W	L	HT.	WT. (LBS.)	PART NO.	PRICE
17"	34"	33"	34	**91-701-3**	$84.90





Value Priced

Steel Platform Trucks

All steel plaform truck for convenient handling of loads up to 3000 Lbs. A choice of 4 different types of casters to suit any terrain.

- Epoxy powder coated.
- Casters: (2) swivel and (2) rigid.
- 8" x 2" trucks: Handle can be used on either end of the truck.

5" x 1½" Polyurethane Casters

W	L	LOAD CAP. (LBS.)	WT. (LBS.)	PART NUMBER	PRICE
24"	36"	1200	110	**91-742-7**	$256.90
24"	48"	1200	122	**91-743-5**	278.69

6" x 2" Phenolic Casters

W	L	LOAD CAP. (LBS.)	WT. (LBS.)	PART NUMBER	PRICE
24"	36"	3000	134	**91-744-3**	$381.50
24"	48"	3000	150	**91-745-0***	418.15
30"	60"	3000	182	**91-746-8***	514.75
36"	72"	3000	214	**91-747-6***	580.15

8" x 2" Mold-On Rubber Casters

W	L	LOAD CAP. (LBS.)	WT. (LBS.)	PART NUMBER	PRICE
24"	48"	2000	107	**91-748-4**	$321.85
30"	60"	2000	132	**91-749-2***	381.80

8" x 3" Full Pneumatic Casters

W	L	LOAD CAP. (LBS.)	WT. (LBS.)	PART NUMBER	PRICE
24"	36"	1200	130	**91-750-0**	$440.60
24"	48"	1200	142	**91-751-8**	456.05
30"	60"	1200	162	**91-752-6***	552.20
36"	72"	1200	188	**91-753-4***	680.20

*Truck collect



edsal

Commercial 2 Tray Carts

- Rugged 20 gauge steel supports up to 500 Lbs. Capacity based on equally distributed load.
- Easy assembly.
- Tubular push handle.
- Four heavy-duty 5" casters: (2) rigid and (2) swivel.
- Trays are 3½" deep.
- Top tray can be reversed to give you a smooth work surface.
- A middle shelf can be added at any time for even better flexibility of use.
- Color: Gray.

Commercial Carts

W	L	HT.	WT. (LBS.)	PART NO.	PRICE
16"	30"	32"	32	**91-758-3**	$146.50
24"	36"	32"	44	**91-759-1**	179.55

Cart Trays

W	L	HT.	WT. (LBS.)	PART NO.	PRICE
16"	30"	3½"	9	**91-760-9**	$40.00
24"	36"	3½"	15	**91-761-7**	52.25

Mobile Carts for Polyethylene Totes

Carts Shown with Optional Totes

Transport up to six plastic totes easily and conveniently. Rustproof aluminum extrusions are welded to form strong unitized frames. 5" swivel casters.



91-897-9



Polyethylene Totes

Carts

TOTE CAP	DIMENSIONS L.	W.	HT.	PART NUMBER	PRICE
1	24"	16"	19"	**91-897-9**	$226.15
3	27"	19"	41"	**91-899-5**	371.60
6	27"	19"	71"	**91-900-1**	450.90

Polyethylene

OUTSIDE L.	W.	HT.	COLOR	TUBS PART NO.	PRICE	LIDS PART NO.	PRICE
25 1/8"	16"	8 1/2"	Blue	**91-901-9**	$21.05	**91-904-3**	$15.60
25 1/8"	16"	8 1/2"	Gray	**91-902-7**	21.05	**91-905-0**	15.60
25 1/8"	16"	8 1/2"	White	**91-903-5**	21.05	**91-906-8**	15.60



63-242-2



63-123-4

Rubbermaid

Xtra™ Utility Carts

- Easily assembled with mallet, no other tools required.
- Smooth, easy to clean surfaces.
- Large 4" non-marking casters.
- Three large shelves, 19" x 29 1/2".
- 300 lbs. total load capacity: 3 shelves = 100 lbs. per shelf
  4 shelves = 75 lbs. per shelf.
- Overall dimensions 40 5/8" x 20" x 37 13/16".

DESCRIPTION	COLOR	WT. (LBS.)	MFR' S #	PART NO.	PRICE
Open Cart - 3 Shelves	Gray	43.40	4091	**63-242-2**	$351.95
Open Cart - 3 Shelves	Black	43.40	4091	**63-120-0**	348.55
Open Cart - 3 Shelves	White	43.40	4091	**63-121-8**	348.55
Open Cart - 4 Shelves	Black	52.00	4096	**63-122-6** *	417.75
Enclosed - 2 Sides	White	45.77	4092	**63-123-4**	425.75
Enclosed - 3 Sides	White	51.63	4093	**63-124-2**	548.20
Enclosed - 3 Sides	Black	51.63	4093	**63-125-9**	548.20

* Height: 51"

edsal

4 Tray Stock Carts

800 lb. Capacity

- All trays, with the exception of bottom tray, can be inverted for a flat working surface.
- Lock nuts and bolts to secure all parts from vibration.
- Each cart is 5' high.
- 18 gauge 3" deep steel trays with mitered edges for extra rigidity.
- 16 gauge ribbed-steel angle posts for added strength.
- Casters: 5" x 1 1/4" polypropylene, (2) swivel, (2) rigid



90-629-7

DESCRIPTION	LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
4 Tray Stock Cart	30"	16"	60"	**90-629-7**	$304.20
4 Tray Stock Cart	36"	24"	60"	**90-630-5**	369.10
Extra Tray	30"	16"	3"	**90-631-3**	47.35
Extra Tray	36"	24"	3"	**90-632-1**	73.15

edsal

Extra Heavy-Duty Industrial Service Carts

1000 lb. Capacity

- Standard cart comes with 2 trays; add 1 or 2 more trays to make a 3 or 4 level cart.
- Upper trays may be reversed.
- Each cart is 3' high.
- 2" deep hemmed flange trays.
- Rugged 16 gauge construction throughout.
- Casters: 5" x 1 1/4" polypropylene, (2) swivel, (2) rigid
- Comfortable formed steel handle.



90-633-9

DESCRIPTION	LENGTH	WIDTH	HEIGHT	PART NO.	PRICE
2 Tray Stock Cart	30"	18"	36"	**90-633-9**	$222.85
2 Tray Stock Cart	36"	24"	36	**90-634-7**	262.80
Extra Tray	30"	18"	2"	**90-635-4**	48.90
Extra Tray	36"	24"	2"	**90-636-2**	62.20

MATERIAL HANDLING



Standard



Low Profile

DURHAM MFG® Est. 1922

Service Carts

- Steel construction; 1200 Lb. capacity.
- All welded completely assembled unit ready to use.
- Tubular handle: Standard, raised offset (10" above top shelf),or ergonomic.
- 14 gage shelves.
- Casters: 5" x 1¼" polyurethane, (2) swivel (2) rigid
- Shelf lips up for retention: 1½" (except top shelf low profile flush).

Standard - 37" H

W	L	WT. (LBS.)	PART NO.	PRICE
24"	48"	160	**91-764-1***	$366.75
30"	60"	204	**91-765-8***	433.80

Low Profile - 27" H

W	L	WT. (LBS.)	PART NO.	PRICE
18"	30"	118	**91-766-6**	$291.20

*Truck collect

Rubbermaid

X-TRA™ Instrument Cart

- Lockable doors secure contents.
- Sliding top tray under top shelf holds paper, pens and small instruments.
- 300 lbs. total load capacity, 100 lbs. per shelf.
- 3 large shelves, 19" X 29½".
- Overall dimensions 40⅝" x 20" x 37 13/16".
- All surfaces are smooth for easy cleaning.
- Large 4" non-marking casters.
- Color: Gray.
- Ships via UPS. 52 lbs.
- Rubbermaid® model #4094.



63-241-4

DESCRIPTION	PART NO.	PRICE
Rubbermaid® X-TRA™ Instrument Cart	**63-241-4**	$429.85



63-032-7

Rubbermaid

5-Drawer Mobile Work Center

Heavy-Duty Work Surface Supports up to 250 lbs.

- Built-in cord wrap provides neat, convenient storage of power tools and work lights.
- Casters allow easy maneuverability and are lockable for safety.
- Locking bar provides security and keeps drawers from sliding open during transport.
- Pegboard side panel provide convenient tool organization.
- Dimensions: 32⅝" L x 19.9" W x 33½" H
- Shipping weight: 69 lbs.
- Rubbermaid® model #7734-88.

DESCRIPTION	PART NO.	PRICE
5-Drawer Mobile Work Center	**63-032-7**	$414.35

AKRO-MILS A Myers Industries Company

ProCart™ Quick-Change Utility Carts

Versatile All Purpose Carts for the Assembly Line or Wherever You Need Portable Storage

- Hinged side gates on both shelves flip up or down to convert the ProCart™ to a flat-top or box-top cart.
- "I-Beam" post makes loading and unloading oversized boxes on the lower shelf easy.
- High density structural foam construction is dent resistant, rust-proof and never needs painting.
- Spaces to hold parts and a beverage holder are molded into the handle.
- Rail Kits* (Optional) allow the user to hang Akro-Bins (sold separately) under the top shelf.
- 5" dual locking casters (all casters non-marking).
- 400 lb. weight capacity (200 lb. per shelf).
- Light assembly is required.



90-445-8

DESCRIPTION	WIDTH	LENGTH	HEIGHT	WT. (LBS.)	PART NO.	PRICE
Large Box/Flat Cart	24½"	45"	32"	57	**90-445-8**	$362.65
Small Box/Flat Cart	19½"	40"	32"	47	**90-536-4**	320.65
Rail Kit* For 90-445-8	1¾"	35¾"	1"	23	**90-446-6**	102.60
Rail Kit* For 90-536-4	1¾"	30¾"	1"	20	**90-537-2**	87.97

* - Rail Kits can be installed either during or after initial assembly.



Huot

Toolscoot

- Quality & mobility at an affordable price.
- For BT, CAT V-Flange & NMTB Holders.
- Heavy gage all steel construction for strength and durability.
- Heavy duty 5" x 1¼" casters load rated at 1,000 lbs.
- Dimensions: 18" wide, 35¼" long, 35" high. Weight 75 lbs.

TAPER	NO. OF HOLES	PART NO.	PRICE
30	48	**90-056-3**	$677.90
50	36	**90-059-7**	677.90
40	48	**90-000-1**	677.90

Value Priced

Hydraulic Elevating Scissor Carts



- Manual two-speed foot pump is used to raise platform.
- Portable with two rigid and two swivel casters and push handle.
- Heavy-Duty welded steel construction for durability.
- Truck collect.

LOAD CAP. LBS.	HEIGHT MIN.	HEIGHT MAX.	PLATFORM SIZE L	PLATFORM SIZE W	WEIGHT LBS.	PART NUMBER	PRICE
400	8¾"	29"	27½"	17⅝"	108	**91-624-7**	$428.20
800	15½"	50¾"	35½"	20"	310	**91-625-4**	931.70
1000	15½"	35"	32½"	19¾"	287	**91-627-0**	771.30
1750	16"	39"	39½"	20"	288	**91-628-8**	1,203.15
2000	15"	39"	40"	20"	288	**91-629-6**	1,678.25

Value Priced

Steel Hand Trucks

Light Duty

- Ideal for mild shock loads and appropriate for intermittent use.
- Epoxy powder coated for a longer lasting finish.
- Color: Blue.
- Back lip on nose plate adds strength, while holding small loads in place.
- Curved crossbars hold load in place.

Medium-Duty

- Pneumatic wheel construction allows wheels to withstand medium shock over a wide range of surfaces.
- Horizontal and vertical cross bars adds stability and rigidity.
- Stair climbers provide added frame strength and ease loads over stairs and curbs.

Heavy-Duty

- Wheel construction has superior strength, and makes wheels suitable for prolonged use over uneven surfaces and for withstanding severe shock.
- Strong rubber mold-on wheels with roller bearing, longer lasting.
- Horizontal and Vertical cross bars add stability and rigidity.
- Stair climbers provided added frame strength and ease loads over stairs and curbs.









Light-Duty

LOAD CAP. (LBS.)	HANDLE TYPE	WHEEL SIZE DIA. x W	WHEEL TYPE	CORE MATERIAL	BEARING TYPE	OAH	OAW	BASE PLATE SIZE	WT. (LBS.)	PART NUMBER	PRICE
500	Loop	8" x 1¾"	Solid Rubber	Steel	Self-Lube	46"	14"	8" x 14"	21	**91-729-4**	$93.50
500	Continuous Swept Back	8" x 1¾"	Solid Rubber	Steel	Self-Lube	45"	14"	8" x 14"	20	**91-730-2**	93.50
500	Dual Grip	8" x 1¾"	Solid Rubber	Steel	Self-Lube	47"	14"	8" x 14"	20	**91-731-0**	93.50

Medium-Duty

LOAD CAP. (LBS.)	HANDLE TYPE	WHEEL SIZE DIA. x W	WHEEL TYPE	CORE MATERIAL	BEARING TYPE	OAH	OAW	BASE PLATE SIZE	WT. (LBS.)	PART NUMBER	PRICE
600	Loop	10" x 3½"	Full Pneumatic	Steel	Ball Bearing	50"	14"	8" x 14"	33	**91-732-8**	$145.35
600	Continuous Swept Back	10" x 3½"	Full Pneumatic	Steel	Ball Bearing	52"	14"	8" x 14"	32	**91-733-6**	145.35
600	High Back Dual Grip	10" x 3½"	Full Pneumatic	Steel	Ball Bearing	53"	14"	8" x 14"	32	**91-734-4**	145.35
600	Dual Grip	10" x 3½"	Full Pneumatic	Steel	Ball Bearing	47"	14"	8" x 14"	30	**91-735-1**	145.35
800	Loop	10" x 2¾"	Semi-Pneumatic	Steel	Ball Bearing	50"	14"	8" x 14"	35	**91-736-9**	134.50
800	High Back Dual Grip	10" x 2¾"	Semi-Pneumatic	Steel	Ball Bearing	53"	14"	8" x 14"	34	**91-737-7**	134.50

Heavy-Duty

LOAD CAP. (LBS.)	HANDLE TYPE	WHEEL SIZE DIA. x W	WHEEL TYPE	CORE MATERIAL	BEARING TYPE	OAH	OAW	BASE PLATE SIZE	WT. (LBS.)	PART NUMBER	PRICE
800	Loop	8" x 2"	Mold-On Rubber	Cast Iron	Roller Bearing	50"	14"	8" x 14"	42	**91-738-5**	$201.40
800	Continuous Swept Back	8" x 2"	Mold-On Rubber	Cast Iron	Roller Bearing	52"	14"	8" x 14"	38	**91-739-3**	201.40
800	High Back Dual Grip	8" x 2"	Mold-On Rubber	Cast Iron	Roller Bearing	53"	14"	8" x 14"	43	**91-740-1**	201.40
800	Dual Grip	8" x 2"	Mold-On Rubber	Cast Iron	Roller Bearing	47"	14"	8" x 14"	40	**91-741-9**	201.40

MATERIAL HANDLING



Rubbermaid

Oil Drum Dolly

- Universal Drum Dolly supports loads up to 500 lbs., making it ideal for 40 and 55 gallon drums. Rugged, seamless construction contains leaks better than metal dollies and is easier to clean.

DESCRIPTION	PART NO.	PRICE
Oil Drum Dolly	**90-019-1**	$167.40

Value Priced

5-Gallon Can/Pail Tipper

- Cumbersome tipping operations are easier
- Adjustable latch mechanism is used to lock the container in place.
- Dumping height is 10".
- All steel angle-iron construction.
- Wt.: 10 Lbs.

DESCRIPTION	PART NO.	PRICE
5-Gallon Can/Pail Tipper	**91-754-2**	$77.25





Value Priced

1500 Lb. Capacity Worktables

For Evenly Distributed Workloads

- Multi-purpose steel work stands.
- Provide added work space and storage area around production machines.
- Also ideally suited for use as machine stands.
- All steel construction with smooth, maintenance-free top of 16 gauge steel and 16 gauge angle steel posts with adjustable feet.
- Gray powder coat finish.

TOP SIZE W	TOP SIZE L	ADJUSTABLE HT. RANGE	WEIGHT LBS.	PART NUMBER	PRICE
18"	24"	18" - 24"	23	**91-542-1**	$103.00
18"	24"	26" - 36"	26	**91-543-9**	119.50
24"	36"	29" - 34"	46	**91-544-7**	154.50

edsal

Warehouse Desks





- All warehouse desks come with a sloping writing surface: 34 1/8" W x 30" D
- 18 Gauge desk plate and 14 gauge post.
- Large 24" W x 28" D x 3 1/2" H drawer with lock and key.
- Includes three compartments above desktop to store papers.
- Gray enamel finish.
- Shipped knocked down to save on freight.

Foreman's Desk

- Same top as wall desk.
- 43" Writing height and comes with under shelf.

Locking Cabinet Desk

- Large double door cabinet with lock and 43" writing height.

Wall Desk

- Desk mounts on wall.
- Does not include wall mount fasters.



DESCRIPTION	D	W	HT.	WT. (LBS.)	PART NO.	PRICE
Foreman's Desk	30"	34 1/2"	53"	94	**91-755-9***	$381.35
Locking Cabinet Desk	30"	34 1/2"	53"	147	**91-756-7***	638.05
Wall Desk	30"	34 1/2"	53"	72	**91-757-5**	296.20

*Truck collect



Aerosols not included



DURHAM MFG® Est. 1922

Aerosol/Utility Lockable Storage Cabinets

- All-welded prime cold rolled steel with durable gray powder coating.
- Two adjustable shelves and door with lock attachment (padlock not included).
- Keyhole slots in back allows wall hanging.
- Large model with holder for literature and MSDS inside the door.

DESC.	W	D	HT.	WT. (LBS.)	PART NO.	PRICE
Small	13 3/4"	12 3/4"	30"	31	**91-595-9**	$112.75
Large	19 7/8"	14 1/4"	32 3/4"	41	**91-596-7**	160.50



91-597-5

edsal

Combination Cabinets

Store Clothing & Supplies Securely in a Single Cabinet

- Includes an 18" coat rod, full width top shelf and four storage shelves that adjust on 2" centers.
- Durable powder coat finish.
- Weight: 110 lbs.
- Rugged all steel construction.
- Three point locking mechanism with 2 keys ensures content's security.
- Easily assembled with simple hand tools (assembly required).
- Truck collect.

W	D	HT.	COLOR	PART NO.	PRICE
36"	18"	72"	Gray	**91-597-5**	$391.40
36"	18"	72"	Tan	**91-598-3**	391.40
36"	18"	72"	Black	**91-599-1**	391.40

SUNEX™ TOOLS

Pneumatic Professional Shop Seat

- Five 2½" casters for ease of mobility.
- Large 15½" diameter reinforced tool tray - 1" deep.
- Air cylinder for easy height adjustment.
- Cushioned black vinyl cover.
- 12½" diameter seat.
- Highest adjusted height: 20½".
- Lowest adjusted height 15½"

DESCRIPTION	PART NO.	PRICE
Professional Shop Seat	**91-039-8**	$74.75



91-039-8



84-346-6



84-347-4

LOUISVILLE™
LADDERS TRUSTED BY THE PROS FOR OVER 60 YEARS

Multi-Purpose Industrial Step Stands

Type 1A • 300 lb. Duty Rating

- Made from heavy duty, lightweight aluminum.
- Folds for easy transport and storage.
- Includes a large molded top and double rivet construction.
- User can stand and work from molded top.
- 6" step size.
- Type IA, 300 lb. duty rating.
- AY8000 series.

HEIGHT (FT.)	BOTTOM WIDTH	APPROX. SPREAD	WEIGHT (LBS.)	PART NUMBER	PRICE
1	15"	14 11/16"	8	**84-346-6**	$178.30
2	17 3/4"	20 9/16"	14	**84-347-4**	214.05
3	19 3/4"	26½"	19	**84-348-2**	255.10



91-589-2



91-590-0



91-593-4



91-594-2

DURHAM MFG®
Est. 1922

Small Steel Storage Drawers

- Prime cold rolled steel with durable gray powder coat finish.
- High impact polystyrene inserts.
- All drawers are 13 3/8" long x 9 1/4" deep x 2" high.
- Positive pull-down catch keeps cover tightly closed to keep parts separate.
- Full piano hinges.

NO. OF COMPARTMENTS	COMPARTMENT SIZE (W X D)	PART NUMBER	PRICE
12	4 9/32" x 2 7/32"	**91-589-2**	$21.90
16	3 3/16" x 2 7/32"	**91-590-0**	21.90
20	2 17/32" x 2 7/32"	**91-591-8**	21.90
21	(20) 2" x 2 7/32" (1) 3 3/4" x 11 5/8"	**91-592-6**	21.90
24	(20) 2 25/32" x 2 7/32" (4) 1 31/32" x 2 7/32"	**91-593-4**	23.05
4 Fix Vertical	9 Dividers included	**91-594-2**	21.90

MATERIAL HANDLING


90-299-9


90-300-5


90-301-3


90-302-1


90-303-9


90-304-7


90-305-4

Flambeau Commercial Markets Group

Clear Polystyrene Small Compartment Boxes

Hundreds of Uses

- Easy-view crystal clear boxes.
- Heat staked hinges for durability.
- Use for all small parts storage.

NO. OF COMPARTMENTS	COMPARTMENT SIZE(S) (QTY.) L x W	OVERALL SIZE W x D x H	PART NUMBER	PRICE
1	(1) 7" x 3 3/8"	7" x 3 3/8" x 1 1/8"	**90-302-1**	$4.90
2	(2) 3 5/16" x 3 1/4"	6 3/4" x 3 3/16" x 1 3/16"	**90-300-5**	4.90
5	(5) 1 5/16" x 3 3/16"	6 3/4" x 3 3/16" x 1 3/16"	**90-299-9**	4.90
5	(4) 2 1/2" x 1 5/8" (1) 1 5/8" x 3 1/4"	6 3/4" x 3 3/16" x 1 3/16"	**90-303-9**	4.90
9	(4) 1 3/8" x 1 5/8" (4) 1 5/16" x 1 5/8" (1) 1 5/16" x 3 5/16"	7" x 3 3/8" x 1 1/8"	**90-304-7**	4.90
10	(10) 1 5/16" x 1 5/8"	7" x 3 3/8" x 1 1/8"	**90-301-3**	4.90
12	(12) 1 3/4" x 1 1/16"	7" x 3 3/8" x 1 1/8"	**90-305-4**	4.90


93-419-0


93-429-9


93-430-7


93-431-5

DURHAM MFG® Est. 1922

Clear Oil Resistant Polypropylene Compartment Boxes & Racks

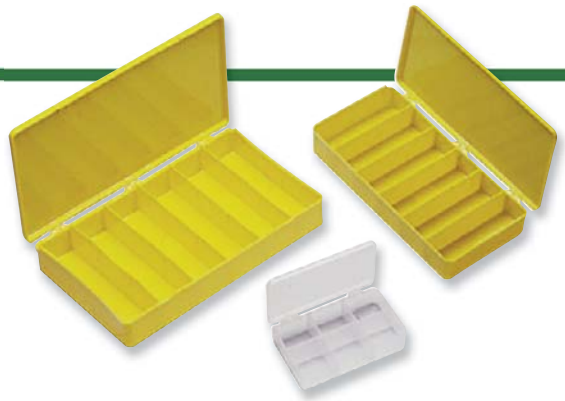
- Heavy reinforced hinges keep the cover in an upright position.
- Cover is designed to overlap on all sides of the box. Keeps out dust and dirt.
- Snap latches for secure closure and prevent parts from shifting between compartments.

NO. OF COMPARTMENTS	COMPARTMENT SIZE(S) (QTY.) L x D x H	OVERALL SIZE L x D x H	PART NUMBER	PRICE
6	(6) 1 3/4" x 6 1/4" x 1 9/16"	11 x 6 3/4" x 1 3/4"	**93-419-0**	$8.10
12	(12) 1 3/4" x 3 1/8"x 1 9/16"	11 x 6 3/4" x 1 3/4"	**93-420-8**	7.95
12	(6) 1 3/4" x 2" x 1 9/16" (6) 1 3/4" x 4 1/8" x 1 9/16"	11 x 6 3/4" x 1 3/4"	**93-421-6**	7.95
13	(6) 1 3/4" x 1 11/16" x 1 9/16" (6) 1 13/16" x 1 11/16" 1 9/16" (1) 2 5/8" x 10 1/2" x 1 9/16"	11 x 6 3/4" x 1 3/4"	**93-422-4**	7.95
18	(12) 1 3/4" x 2" x 1 9/16" (6) 1 3/4" x 2" x 4 1/4"	11 x 6 3/4" x 1 3/4"	**93-423-2**	13.15
Variable	(2) 1 3/4" x 2" x 1 9/16" plus 15 adjustable dividers	11 x 6 3/4" x 1 3/4"	**93-424-0**	10.40
6	(6) 2 1/16" x 8 1/2" x 2"	13 1/8" x 9" x 2 5/8"	**93-425-7**	10.20
12	(12) 2 1/16" x 4" x 2"	13 1/8" x 9" x 2 5/8"	**93-426-5**	10.20
16	(16) 3 1/8" x 2 1/16" x 2 1/32"	13 1/8" x 9" x 2 5/8"	**93-427-3**	15.75
18	(12) 2 1/16" x 2 1/16" x 2 1/32" (6) 2" x 4 1/4" x 2 1/32"	13 1/8" x 9" x 2 5/8"	**93-428-1**	10.20
24	(24) 2 1/16" x 2 1/16" x 2 1/32"	13 1/8" x 9" x 2 5/8"	**93-429-9**	10.40
Variable	(3) 2 1/16" x 2 1/16" plus 15 adjustable dividers	13 1/8" x 9" x 2 5/8"	**93-430-7**	14.90

All Steel Racks for Compartment Boxes

- Made of cold rolled steel and finished in durable gray powdered coated backed enamel.
- Offset handle keeps boxes from falling out when rack is carried.

DESCRIPTION (W x D x H)	PART NO.	PRICE
Holds 5 Small Compartment Boxes (11 1/4" x 6 3/4 x 10 3/4")	**93-431-5**	$66.25
Holds 5 Large Compartment Boxes (13 1/2 x 9 1/8 x 13 1/4")	**93-432-3**	79.30



Flambeau Commercial Markets Group

Polypropylene Boxes

- Durable polypropylene boxes are lightweight, shatterproof and resistant to solvents and most common chemicals.
- Heat sealed hinges assure long life.
- An excellent box for organizing and transporting small items.
- Boxes have 6 bins.

COLOR*	OUTSIDE DIM L	W	H	BIN DIM(I.D.) L	W	H	FLAMBEAU® MODEL #	PART NUMBER	PRICE
T	4 5/8"	3"	1 1/8"	1 7/16"	1 1/4"	1"	T220	**90-316-1**	$2.60
Y	8 1/4"	4 1/2"	1 3/8"	1 1/4"	4"	1 3/16"	M203	**90-317-9**	4.95
Y	11	6 3/4"	1 3/4"	1 5/8"	6 9/16"	1 1/2"	M806	**90-318-7**	9.35
Y	13 1/8"	9"	2 5/16"	2"	8 3/8"	2 1/16"	M806	**90-319-5**	15.90

*T = Translucent, Y = Yellow



90-264-3

Flambeau Commercial Markets Group

Plastic Storage Boxes



- Translucent lid keeps contents of bins separated and protected.
- Rugged copolymer.
- For small parts, tools or samples.
- Rustproof, dent-proof and lightweight.
- Two draw latches for secure closure.
- Comfortable handle for easy portability.
- Boxes with dividers are designed to allow user to configure size and number of bins.
- Three box sizes:

Standard:	15 1/2" L	11 3/4" W	2 1/2" D
Double Size:	15 1/2" L	11 3/4" W	5" D*
Large:	18 1/2" L	13" W	3" D

*Bins are 2 1/2" deep, double sided.

BOX SIZE	QTY. OF DIVIDERS	FIXED BINS	MAX. BINS	PART NUMBER	PRICE
Standard	0	1	1	**90-285-8**	$25.90
Standard	15	9	24	**90-286-6**	28.40
Double	30	18	48	**90-287-4**	53.10
Large	0	24	24	**90-288-2**	41.35
Large	24	8	32	**90-289-0**	41.35

Flambeau Commercial Markets Group

Heavy-Duty Tool Boxes with Tote Trays

- Rustproof, chemical resistant and non-conductive construction.
- Features include positive action latches, solid brass hinge pins and latch pins, padlock tabs and recessed, heavy-duty handles.
- Trays have a comfortable full grip handle and plenty of carrying space for hardware and tools.
- Color: charcoal grey with black latches and handles.

O.A.L. DIMENSIONS L	W	D	TRAY ID L	W	D	PART NUMBER	PRICE
14 1/2"	7 1/2"	5 1/4"	12 1/4"	4 3/4"	1 1/2"	**90-264-3**	$17.35
16 5/8"	8 3/4"	7 1/8"	13 3/4"	5 5/8"	1 7/8"	**90-265-0**	31.75
20 1/4"	8 7/8"	8 3/8"	17 5/8"	6 3/8"	2 3/16"	**90-266-8**	38.30
23"	10 1/2"	11 3/8"	20 5/8"	7 1/2"	2"	**90-267-6**	57.95



Tools sold separately

Flambeau Commercial Markets Group

Utility Boxes

- High quality gray copolymer boxes are lightweight, dentproof, rustproof and resistant to scratches, oil and most common chemicals.
- Ideal for repair kits, sample cases, power tools, cameras and other small items.
- Positive latches, tough recessing handles and seamless construction.

NOMINAL SIZE	OUTSIDE DIMENSIONS L	W	H	INSIDE DIMENSIONS L	W	H	PART NUMBER	PRICE
12"	12 1/8"	7 1/4"	4 1/2"	11 1/8"	5 3/4"	4"	**90-273-4**	$15.65
14"	14 3/8"	8"	7"	13"	6"	6 1/4"	**90-274-2**	27.60
16"	16 3/8"	8 5/8"	7"	15"	6 7/8"	6 1/2"	**90-275-9**	33.80
18"	17 1/2"	10 1/4"	8 1/2"	15 5/8"	7 3/4"	7 3/4"	**90-276-7**	42.75
19"	19"	11 1/2"	10 1/2"	17 1/8"	8 5/8"	9 1/4"	**90-277-5**	62.10
28"/Tray	27 1/2"	13 3/4"	14"	23"	12 1/2"	12"	**90-278-3** *	85.35

*Includes lift tray.



Tools sold separately

90-269-2

Tote Tray with Drawer

- Two deep end pockets. Drawer opens easily from either side. 12 compartments.
- Rustproof, chemical resistant and non-conductive construction.
- Color: charcoal grey with light grey drawers.
- Overall Dimensions: 16 5/8" L x 10 1/4" W x 6 7/8" D.
- Drawer Sizes: 13 5/8" L x 9 3/16" W x 1 7/16" D.

DESCRIPTION	PART NO.	PRICE
Tool Tray with Drawer	**90-269-2**	$20.30

MATERIAL HANDLING

Polypropylene Multi-Purpose Tool Boxes & Tool Storage Step Stool

Tool Box with Tote Tray

- 7 compartment tote tray.
- Riveted nickel plated catch.
- Fully lockable.

Low Profile Tool Box

- 4½" height allows tool to fit into tight places.
- Lockable.

Deluxe Professional Tool Box

- Nickel plated steel drawbolts.
- Galvanized steel hinge pins.
- One compartment with tote tray.
- Padlock eye.
- Has removable small parts storage boxes built into lids that can be configured into 13 different compartments, accessible while positioned in the lid.
- Recessed luggage type carrying handle.

Tool Storage Step Stool

- Integrated leg design provides superior strength and stability.
- Large, slip-resistant, textured cover and sure-grip foot pads help prevent slippage.
- Removable tote tray plus deep bottom storage area for supplies, hand and power tools.
- Supports up to 325 Lbs.
- Gray finish.



91-689-0



Tools not Included

91-691-6



91-690-8



91-692-4

DESCRIPTION	W	D	HT.	COLOR	WT. (LBS.)	PART NO.	PRICE
Tool Box w/Tote Tray	13"	6 7/8	6 1/8	Red	1.57	**91-689-0**	$12.00
Low Profile Tool Box	19"	11"	4½"	Black	2.70	**91-690-8**	17.90
Deluxe Tool Box w/Small Parts Bins	26"	10½"	10"	Yellow/Black	9.30	**91-691-6**	57.20
Tool Storage Step Stool	20"	14"	12½"	Gray	9.00	**91-692-4**	74.70

PELICAN™
You break it, we replace it... forever.

Equipment Cases

- These watertight and crushproof equipment cases are the toughest in the world.
- Ideal for transporting and storing valuable and delicate items.
- Constructed of light weight space age structural resin with neoprene "O" Ring seal and exclusivepurge valve.
- Air tight and watertight to 30 feet depth for maximum protection.
- Features locking flanges, massive multiple latches for top security and comfortable fold-down handle.
- Black color finish.



97-100-2

97-106-9

97-103-6



97-100-2
Shown with 3-D Indicator (not included)

OUTSIDE DIMENSIONS LENGTH	WIDTH	HEIGHT	INSIDE DIMENSIONS LENGTH	WIDTH	HEIGHT	WEIGHT LBS.	PART NUMBER	PRICE
8 1/4"	6 9/16"	3 9/16"	7 3/8"	4 7/8"	3 1/16"	1.2	**97-100-2**	$49.85
10 5/8"	9 11/16"	4 7/8"	9 3/8"	7 1/4"	4 1/16"	3.0	**97-103-6**	85.65
13 3/8"	11 5/8"	6"	12"	9 1/16"	5 3/16"	5.5	**97-106-9**	150.20
19 1/8"	15 7/16"	7 9/16"	17 7/8"	12 3/4"	6 3/4"	10.5	**97-109-3**	238.85
32 1/2"	20 1/2"	11 5/16"	29"	17 7/8"	10 1/2"	17.5	**60-161-7**	504.20
53"	17 7/16"	6 1/16"	50 1/2"	13 7/16"	5 1/4"	29.0	**97-097-0**	456.50

Replacement Foam Inserts and O-Rings

TO FIT CASE NO.	REPLACEMENT FOAM INSERT PART NO.	PRICE	REPLACEMENT O-RING PART NO.	PRICE
97-100-2	**97-101-0**	$16.00	**97-102-8**	$3.20
97-103-6	**97-104-4**	21.55	**97-105-1**	5.30
97-106-9	**97-107-7**	37.35	**97-108-5**	6.15
97-109-3	**97-110-1**	67.55	**97-096-2**	6.70
97-097-0	**97-098-8**	112.15	**97-099-6**	9.15

STANLEY

Mobile Tool Chest

- 50 gallon storage capacity.
- Wide work surface on lid.
- Includes two 2 x 4" saw grooves.
- 3 locking points.
- Lock and key included.
- Wide heavy-duty rubber coated wheels.



91-694-0

DIMENSION L	W	HT.	WT. (LBS.)	PART NUMBER	PRICE
37"	22 13/16"	23 1/8"	32	**91-694-0**	$173.55



Remove adhesive backing



Align foam layers to adhere adhesive backing.



When finished you will have an organized drawer (Tools NOT included)



Kit is available in 2 color variations. Blue on Yellow, Black on Red.

2-Color Foam Drawer Liner Insert Kits

"Shadow Box" Liner Inserts Provide Visual Aid to Immediately Identify Missing Tools

Simply arrange and lay out your tools on layout sheet supplied, trace tool profiles, position sheet on to foam and cut. Polyethylene fine closed cell foam layers are moisture resistant, UV stable and are nonabrasive. Additionally, they are chemical resistant to cutting fluids, industrial solvents, diesel fuel, jet fuel, skydrol, gasoline and many other chemicals. Hand cuts easily and machines well with a router, has a high tear strength and is durable to stand up to constant use.

- **Increased productivity:** Organized tool drawers allow for fast location and identification of tools.
- **Stop wasting time looking for tools;** you will know instantly when a tool is not where it is suppose to be.
- **Reduce tool damage** caused by improper storage of your valuable tools.
- **Enables you to create task specific work kits:** Minimize tool kit size based on the specific task at hand and only take the tools required for that task.
- **Prevents Foreign Object Damage (FOD):** A requirement at airports, military bases and large plants throughout the world. Helps prevent inadvertently leaving objects in or around critically sensitive locations and equipment that might have minor to a catastrophic impact.

Do-It-Yourself (DIY) Kits Include the Following:

- Each foam piece measures 26 1/4" x 39".
- Easy to follow detailed instruction sheet.
- 1 piece 1/2" thick top foam sheet with permanent adhesive backing to be cut for specific tools.
- 1 piece 1/4" thick bottom foam sheet.
- 2 pieces of tracing paper with temporary adhesive measuring 20" x 26".

Use the following to make your foam liner layout designs take on a professional appearance: utility knife, fine point marker, straight edge, die punches or sharpened tubing of various diameters, a heat gun and a hot Exacto™ knife.

DESCRIPTION	PART NO.	PRICE
Blue on Yellow	**91-695-7**	$95.05
Black on Red	**91-696-5**	95.05

White Corrugated Shelf Bin Boxes



- Economical white finish corrugated shelf bins.
- Store and organize parts and tools.
- Shipped flat for easy storage, boxes are ready for use in seconds.
- The convenient hanging feature allows bin to be suspended from shelf lip.
- All bins are 4" high.

WIDTH	12" DEEP BIN BOXES PART NO.	PRICE EA.	18" DEEP BIN BOXES PART NO.	PRICE EA.
2"	**90-362-5**	$1.05	–	–
3"	**90-365-8**	1.25	–	–
4"	**90-361-7**	1.30	**90-364-1**	$1.70
6"	**90-363-3**	1.55	**90-366-6**	1.90
8"	**90-367-4**	1.75	**90-368-2**	2.10
10"	**90-378-1**	2.20	–	–
12"	**90-373-2**	2.30	–	–

AKRO-MILS
A Myers Industries Company

Shelf Bins

- The economical way to store and display parts and components.
- Durable 4" high polypropylene bins are designed for use on 12", 18" and 24" deep shelving, or vertical retrieval units.
- Seamless and waterproof, one-piece molded construction.
- Special tilt-lock feature allows each bin to be tilted out for complete access.
- Label holder molded into hopper front handle area.



Shelf Bins

Bin Cups

- Bin cups (Sm or LG) and dividers to separate items within a bin, sold separately.

Notes: Not for louvered panel applications. Sold in case quantity only.



Bin Cups

Bin Cups*

W	D	H	CASE QTY.	PART NUMBER	CASE PRICE
3 1/4"	2"	3"	48	**90-482-1**	$32.25
5"	2 3/4"	3"	24	**90-492-0**	31.40

Dividers for Bin

SIZE	CASE QTY.	(UP TO 7 PER BIN)	PRICE
4 1/8"	24	**90-478-9**	$11.45
6 5/8"	24	**90-479-7**	12.75
8 3/8"	24	**90-480-5**	29.15



Shelf Bins

W	D	CASE QTY.	CASE WT. (LBS.)	*BIN CUP CAPACITY PER BIN SMALL	LARGE	RED PART NO.	YELLOW PART NO.	BLUE PART NO.	PRICE
4 1/8"	11 5/8"	24	9	5	2	**90-484-7**	**90-485-4**	**90-483-9**	$57.25
6 5/8"	11 5/8"	12	7	9	4	**90-494-6**	**90-495-3**	**90-493-8**	45.30
8 3/8"	11 5/8"	12	8	11	4	**90-503-4**	**90-504-2**	**90-502-6**	49.30
4 1/8"	17 7/8"	12	7	8	3	**90-487-0**	**90-488-8**	**90-486-2**	39.20
6 5/8"	17 5/8"	12	9	15	6	**90-497-9**	**90-498-7**	**90-496-1**	55.10
8 3/8"	17 7/8"	12	12	18	6	**90-506-7**	**90-507-5**	**90-505-9**	76.10
4 1/8"	23 5/8"	12	11	11	4	**90-490-4**	**90-491-2**	**90-489-6**	76.35
6 5/8"	23 5/8"	6	8	21	8	**90-500-0**	**90-501-8**	**90-499-5**	55.25
8 3/8"	23 5/8"	6	9	25	8	**90-509-1**	**90-510-9**	**90-508-3**	67.25

MATERIAL HANDLING

QUANTUM™ STORAGE SYSTEMS

Shelf Bins

For Storage of Parts & Components. Designed for 12", 18" and 24" Deep Shelving Units & Pick Racks

- Available in 2 heights: 4" and 6". The 6" provides 50% greater capacity than 4" equivalent.
- Durable polypropylene construction allows shelf bins to be fully loaded without bulging or cracking.
- Bins will work with vertical storage and retrieval units.
- All shelf bins have a molded-in label holder.
- Bins nest when empty to conserve space.
- Wide hopper front for easy access to contents.
- Optional dividers and bin cups keep small parts separated and organized.
- All bins can use up to 7 dividers. See chart for bin cup usage.



Available in 4" & 6" heights.



Built-in hang lock allows shelf bins to tilt out for complete access.

4" H Bins

BINS									DIVIDERS (UP TO 7/BIN)			CUPS/ SHELF BIN	
W	HT.	D	CASE QTY.	WT. (LBS.)	RED PART NO.	YELLOW PART NO.	BLUE PART NO.	PRICE/ CASE	PKG. QTY.	PART NO.	PRICE/ PKG.	SMALL	LARGE
2 3/4"	4"	11 5/8"	36	13	**92-061-1**	**92-086-8**	**92-111-4**	$67.65				3	0
4 1/8"	4"	11 5/8"	36	17	**92-062-9**	**92-087-6**	**92-112-2**	75.25	50	**92-136-1**	$30.70	6	2
6 5/8"	4"	11 5/8"	30	18	**92-063-7**	**92-088-4**	**92-113-0**	98.35	50	**92-137-9**	34.55	9	4
8 3/8"	4"	11 5/8"	20	15	**92-064-5**	**92-089-2**	**92-114-8**	71.40	50	**92-138-7**	66.90	12	4
11 1/8"	4"	11 5/8"	8	7	**92-065-2**	**92-090-0**	**92-115-5**	42.25	50	**92-139-5**	85.95	18	6
4 1/8"	4"	17 7/8"	20	13	**92-066-0**	**92-091-8**	**92-116-3**	56.70	50	**92-136-1**	30.70	9	3
6 5/8"	4"	17 7/8"	20	16	**92-067-8**	**92-092-6**	**92-117-1**	79.75	50	**92-137-9**	34.55	15	6
8 3/8"	4"	17 7/8"	10	11	**92-068-6**	**92-093-4**	**92-118-9**	55.10	50	**92-138-7**	66.90	19	6
11 1/8"	4"	17 7/8"	8	11	**92-069-4**	**92-094-2**	**92-119-7**	65.90	50	**92-139-5**	85.95	29	8
4 1/8	4"	23 5/8"	16	13	**92-070-2**	**92-095-9**	**92-120-5**	88.45	50	**92-136-1**	30.70	13	4
6 5/8"	4"	23 5/8"	8	9	**92-071-0**	**92-096-7**	**92-121-3**	64.60	50	**92-137-9**	34.55	21	8
8 3/8"	4"	23 5/8"	6	9	**92-072-8**	**92-097-5**	**92-122-1**	58.45	50	**92-138-7**	66.90	24	8
11 1/8"	4"	23 5/8"	6	10	**92-073-6**	**92-098-3**	**92-123-9**	71.90	50	**92-139-5**	85.95	35	16

6" H Bins

BINS									DIVIDERS (UP TO 7/BIN)			CUPS/ SHELF BIN	
W	HT.	D	CASE QTY.	WT. (LBS.)	RED PART NO.	YELLOW PART NO.	BLUE PART NO.	PRICE/ CASE	PKG. QTY.	PART NO.	PRICE/ PKG.	SMALL	LARGE
4 1/8"	6"	11 5/8"	36	19	**92-074-4**	**92-099-1**	**92-124-7**	$160.95	50	**92-140-3**	$66.75	6	2
6 5/8"	6"	11 5/8"	30	20	**92-075-1**	**92-100-7**	**92-125-4**	172.90	50	**92-141-1**	71.75	9	4
8 3/8"	6"	11 5/8"	20	17	**92-076-9**	**92-101-5**	**92-126-2**	142.05	50	**92-142-9**	167.40	12	4
11 1/8"	6"	11 5/8"	8	9	**92-077-7**	**92-102-3**	**92-127-0**	94.90	50	**92-143-7**	195.40	18	6
4 1/8"	6"	17 7/8"	20	15	**92-078-5**	**92-103-1**	**92-128-8**	120.90	50	**92-140-3**	66.75	9	3
6 5/8"	6"	17 7/8"	20	18	**92-079-3**	**92-104-9**	**92-129-6**	140.30	50	**92-141-1**	71.75	15	6
8 3/8"	6"	17 7/8"	10	13	**92-080-1**	**92-105-6**	**92-130-4**	106.55	50	**92-142-9**	167.40	19	6
11 1/8"	6"	17 7/8"	8	13	**92-081-9**	**92-106-4**	**92-131-2**	154.00	50	**92-143-7**	195.40	29	8
4 1/8"	6"	23 5/8"	16	15	**92-082-7**	**92-107-2**	**92-132-0**	168.40	50	**92-140-3**	66.75	13	4
6 5/8"	6"	23 5/8"	8	11	**92-083-5**	**92-108-0**	**92-133-8**	155.35	50	**92-141-1**	71.75	21	8
8 3/8"	6"	23 5/8"	6	11	**92-084-3**	**92-109-8**	**92-134-6**	132.45	50	**92-142-9**	167.40	24	8
11 1/8"	6"	23 5/8"	6	12	**92-085-0**	**92-110-6**	**92-135-3**	155.75	50	**92-143-7**	195.40	35	16

Not for louvered panel applications. Sold in case quantity only.

Bin Cups

- Have a raised, slotted label holder for easy identification, and are removable for easy part retrieval.
- All cups are 3" high.
- Color: Yellow.

SIZE	W	D	HT.	CASE QTY.	PART #	PRICE
Small	3 1/4"	1 3/4"	3"	48	**92-144-5**	$32.80
Large	5 1/8"	2 3/4"	3"	48	**92-145-2**	62.55

Extended Label Holders

- 10° or 45° optional extended label holder provides a larger surface area (2 1/2" W x 4" H) ideal for bar code scanning.
- Color: Black.

DESCRIPTION	CASE QTY.	PART NO.	PRICE
10° Angle Holder	24	**92-146-0**	$67.35
45° Angle Holder	24	**92-147-8**	67.35



Bins are shown with cups in place (left) or dividers in place (right).



Label holders are shown attached to shelf bin.

QUANTUM™ STORAGE SYSTEMS

Heavy-Duty Plastic Shelf Drawers

- Drawers are completely waterproof, oil and chemical resistant.
- Smooth front curved pull handle has ample room for pressure sensitive identification labels or bar code.
- Front handle has 3/4" opening for convenient easy gripping.
- Load capacity: 28 Lbs.
- Full width back ledge ensures spill free use.
- Material: polystyrene.



Shelf Drawer Shown with optional dividers

			DRAWERS					DIVIDERS (BLACK)		
W	D	HT.	BLUE PART NO.	GRAY PART NO.	RED PART NO.	YELLOW PART NO.	PRICE	PKG. QTY.	PART NO.	PRICE
3 3/4"	11 5/8"	4 5/8"	**92-019-9**	**92-028-0**	**92-037-1**	**92-046-2**	$8.65	4	**92-055-3**	$7.50
5 9/16"	11 5/8"	2 5/8"	**92-020-7**	**92-029-8**	**92-038-9**	**92-047-0**	7.90	4	**92-056-1**	6.75
5 9/16	11 5/8"	4 5/8"	**92-021-5**	**92-030-6**	**92-039-7**	**92-048-8**	8.40	1	**92-057-9**	1.70
8 3/8"	11 5/8"	4 5/8"	**92-022-3**	**92-031-4**	**92-040-5**	**92-049-6**	10.35	4	**92-058-7**	5.70
11 1/8"	11 5/8"	4 5/8"	**92-023-1**	**92-032-2**	**92-041-3**	**92-050-4**	11.55	4	**92-059-5**	6.45
3 3/4"	17 5/8"	4 5/8"	**92-024-9**	**92-033-0**	**92-042-1**	**92-051-2**	9.95	4	**92-060-3**	1.75
5 9/16"	17 5/8"	2 5/8"	**92-025-6**	**92-034-8**	**92-043-9**	**92-052-0**	10.75	4	**92-057-9**	1.70
8 3/8"	17 5/8"	4 5/8"	**92-026-4**	**92-035-5**	**92-044-7**	**92-053-8**	11.80	4	**92-058-7**	5.70
5 9/16"	23 7/8	4 5/8"	**92-027-2**	**92-036-3**	**92-045-4**	**92-054-6**	13.70	1	**92-057-9**	1.70



Hanging Bins Not Included

91-622-1

QUANTUM™ STORAGE SYSTEMS

Steel Louvered Bench Stands

- Ideal for assembly work or small parts storage.
- Bins hang on a gray powder coat finish step rack with 16 gauge louvered panel back.
- 120 Lb. capacity.

DIMENSIONS D	HT.	W	WT. LBS.	PART NUMBER	PRICE
27"	21"	8"	16	**91-622-1**	$85.00
36"	19"	8"	19	**91-623-9**	96.10

QUANTUM™ STORAGE SYSTEMS

Jumbo Stacking Bins

Organize and store your large and bulky items with these strong injection molded plastic, stackable bins. **Dividers** - Optional dividers maximize flexibility and keep contents organized.

- These extra large stacking containers offer a generous 2 to 3' in depth to store your larger items.
- These huge stack bins are ideal for back to back use on 48" pallet rack or heavy-duty, extra deep shelving.
- Heavy-duty front, back and side grips allow for easy handling.
- Wide stacking ledge and anti-slide lock keep stack bins steady and prevent forward shifting.
- Waterproof bins resist rust and corrosion.
- Autoclavable up to 250° F.
- Manufactured of FDA approved materials.
- Sold in case quantities only.



BINS										DIVIDERS			
W	OUTSIDE DIM. DEPTH	HT.	STACK LOAD CAP. (LBS.)	WT. (LBS.)	CASE QTY.	YELLOW PART NO.	RED PART NO.	BLUE PART NO.	PRICE	FOR BIN SIZE (IN.)	CASE QTY.	PART NO.	PRICE
8 1/4"	23 7/8"	7"	100	19	6	**91-849-0**	**91-863-1**	**91-877-1**	$277.90	8 1/4 x 23 7/8 x 7	6	**91-891-2**	$69.60
8 1/4"	23 7/8"	9"	100	22	6	**91-850-8**	**91-864-9**	**91-878-9**	297.25	8 1/4 x 23 7/8 x 9	6	**91-892-0**	71.50
11"	23 7/8"	7"	100	15	4	**91-851-6**	**91-865-6**	**91-879-7**	205.95	11 x 23 7/8 x 7	6	**91-893-8**	74.65
11"	23 7/8"	10"	100	19	4	**91-852-4**	**91-866-4**	**91-880-5**	233.70	11 x 23 7/8 x 10	6	**91-894-6**	82.10
16 1/2"	23 7/8"	11"	100	7	1	**91-853-2**	**91-867-2**	**91-881-3**	63.35	16 1/2 x 23 7/8 x 11	6	**91-895-3**	88.65
18 1/4"	23 7/8"	12"	100	8	1	**91-854-0**	**91-868-0**	**91-882-1**	67.40	18 1/4 x 23 7/8 x 12	6	**91-896-1**	93.50
8 1/4"	29 7/8"	7"	100	24	6	**91-855-7**	**91-869-8**	**91-883-9**	290.55	–	–	–	–
11"	29 7/8"	10"	100	24	4	**91-856-5**	**91-870-6**	**91-884-7**	244.75	–	–	–	–
16 1/2"	29 7/8"	11"	100	9	1	**91-857-3**	**91-871-4**	**91-885-4**	66.30	–	–	–	–
18 1/4"	29 7/8"	12"	100	10	1	**91-858-1**	**91-872-2**	**91-886-2**	70.65	–	–	–	–
16 1/2"	29 7/8"	15"	100	11	1	**91-859-9**	**91-873-0**	**91-887-0**	74.85	–	–	–	–
16 1/2"	35 7/8"	17 1/2"	100	15	1	**91-860-7**	**91-874-8**	**91-888-8**	149.00	–	–	–	–
19 7/8"	35 7/8"	17 1/2"	100	16	1	**91-861-5**	**91-875-5**	**91-889-6**	163.40	–	–	–	–
23 7/8"	35 7/8"	17 1/2"	100	18	1	**91-862-3**	**91-876-3**	**91-890-4**	178.10	–	–	–	–

Plastic Dolly

- 30" D x 18" W (Interior Dimensions 24" D x 16 3/4" W) with padded rubber ledges on all 4 sides.
- Four 4" x 1 1/4" polyurethane casters included.
- 1,000 Lb. load capacity.
- Dolly can also be used with Attached Lid, Dividable Grid, Nest and Stack, and Straight Wall Stacking containers.
- Color: Blue.

OUTSIDE DIM. W	DEPTH	HT.	LOAD CAP. (LBS.)	WT. (LBS.)	CASE QTY.	PART NO.	PRICE
18"	30"	7"	1,000	16	1	**93-404-2**	$142.75



93-404-2

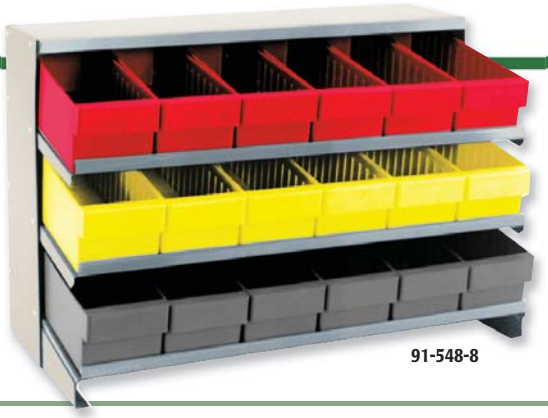
MATERIAL HANDLING

Steel Pick Racks Complete with Plastic Shelf Drawers

Choice of 3 Colors & Rainbow Combination

- Rainbow combination: Equal number of gray, red and yellow drawers.
- Drawer size: 5 5/16" W x 11 3/4" D x 4 5/8" H.
- Number of drawers: 18

DESCRIPTION	RACK SIZE W	D	HT.	WT. LBS.	GRAY PART NO.	RED PART NO.	YELLOW PART NO.	RAINBOW PART NO.	PRICE
Bench Top	36"	12"	21 1/2"	43	**91-545-4**	**91-546-2**	**91-547-0**	**91-548-8**	$209.05



91-548-8



Hanging Bins Not Included

QUANTUM™ STORAGE SYSTEMS

Steel Rails

For Use with Popular Brands of Hanging Bins

- Steel rail with wall mount will mount to any surface or to workbenches.
- Fastens securely to assure adequate load bearing.

DESCRIPTION	WT. (LBS.)	PART NO.	PRICE EA.
Steel Rail	6	**92-018-1**	$31.25

RAIL DIMENSIONS W	HT.	QTY. OF BINS TO FIT STEEL RAIL AKRO-MILS AKROBINS & QUANTUM'S ULTRA HANG & STACK SERIES 30-210 & QUS210	30-220 & QUS220	30-230 & QUS230	30-235 & QUS235	30-239 & QUS239	30-240 & QUS240	30-250 & QUS250
48"	3"	11	11	8	4	4	4	-

QUANTUM™ STORAGE SYSTEMS

Ultra Series Hanging/Stacking Bins

Strong and versatile containers will stack on one another, hang from louvered panels, rails, racks and carts, forming efficient storing and moving systems. Can also be used on standard shelving.

- Bins are made of high-density polypropylene and are unaffected by weak acids and alkalis.
- Fully interchangeable with all popular brands of hanging/stacking bins.
- Fits Quantum, Akro-Mils, Gould and Linvar louvered panels, bench stands, racks and rails.
- Large front labels slot allows larger bar code scanning.
- Extra-wide stacking ledge saves space and prevents spilling.
- Reinforced side ribs add strength and prevent spreading when stacked.
- Curved-bottom hopper front makes it easier to retrieve small parts.
- Full-width lip on back of bin supports bin on hanging systems.
- Autoclavable up to 250° F.
- Manufactured of FDA approved materials.
- Sold in Case Quantities Only.



Ultra Bins Shown with Dividers

Dividers

- Fit snugly from front to rear to keep contents organized and maximize storage capacity.
- Sold in package of 6.

BINS											DIVIDERS		
OUTSIDE DIM. W	DEPTH	HT.	BIN LOAD CAP. (LBS.)	WT. (LBS.)	CASE QTY.	MFR'S NUMBER	YELLOW PART NO.	RED PART NO.	BLUE PART NO.	IVORY PART NO.	PRICE	FOR BIN SIZE (IN.)	PART NO.	PRICE
4 1/8"	5 3/8"	3"	10	6	24	QUS210	**91-955-5**	**91-968-8**	**91-981-1**	**91-994-4**	$34.50	4 1/8 x 5 3/8 x 3	**92-007-4**	$6.50
4 1/8"	7 3/8"	3"	10	8	24	QUS220	**91-956-3**	**91-969-6**	**91-982-9**	**91-995-1**	60.60	4 1/8 x 7 3/8 x 3	**92-008-2**	9.20
4 1/8"	10 7/8"	4"	10	8	12	QUS224	**91-957-1**	**91-970-4**	**91-983-7**	**91-996-9**	47.75	4 1/8 x 10 7/8 x 4	**92-009-0**	7.00
5 1/2"	10 7/8"	5"	30	10	12	QUS230	**91-958-9**	**91-971-2**	**91-984-5**	**91-997-7**	76.75	5 1/2 x 10 7/8 x 5 and 11 x 10 7/8 x 5	**92-010-8**	10.95
11"	10 7/8"	5"	60	10	6	QUS235	**91-959-7**	**91-972-0**	**91-985-2**	**91-998-5**	57.95	5 1/2 x 10 7/8 x 5 and 11 x 10 7/8 x 5	**92-010-8**	10.95
8 1/4"	10 3/4"	7"	50	10	6	QUS239	**91-960-5**	**91-973-8**	**91-986-0**	**91-999-3**	61.55	8 1/4 x 10 3/4 x 7	**92-011-6**	14.15
16 1/2"	10 3/4"	5"	75	13	6	QUS245	**91-961-3**	**91-974-6**	**91-987-8**	**92-000-9**	76.45	16 1/2 x 10 3/4 x 5	**92-012-4**	10.95
5 1/2"	14 3/4"	5"	75	14	12	QUS234	**91-962-1**	**91-975-3**	**91-988-6**	**92-001-7**	135.85	5 1/2 x 14 3/4 x 5	**92-013-2**	13.90
8 1/4"	14 3/4"	7"	60	24	12	QUS240	**91-963-9**	**91-976-1**	**91-989-4**	**92-002-5**	151.05	8 1/4 x 14 3/4 x 7 and 16 1/2 x 14 3/4 x 7	**92-014-0**	16.00
16 1/2"	14 3/4"	7"	75	21	6	QUS250	**91-964-7**	**91-977-9**	**91-990-2**	**92-003-3**	108.00	8 1/4 x 14 3/4 x 7 and 16 1/2 x 14 3/4 x 7	**92-014-0**	16.00
8 1/4"	18"	9"	75	17	6	QUS265	**91-965-4**	**91-978-7**	**91-991-0**	**92-004-1**	141.10	8 1/4 x 18 x 9	**92-015-7**	29.00
11"	18"	10"	75	17	4	QUS260	**91-966-2**	**91-979-5**	**91-992-8**	**92-005-8**	121.90	11 x 18 x 10	**92-016-5**	40.90
16 1/2"	18"	11"	75	16	3	QUS270	**91-967-0**	**91-980-3**	**91-993-6**	**92-006-6**	101.40	16 1/2 x 18 x 11	**92-017-3**	53.90

Bin Mounting Information

QUANTITY OF BINS TO FIT STEEL LOUVERED PANELS - QUANTUM'S ULTRA HANG AND STACK SERIES												
PANEL SIZE	QUS210	QUS220	QUS224	QUS230	QUS235	QUS239 & QUS240	QUS245	QUS234	QUS250	QUS265	QUS260	QUS270
18" x 19"	16	16	12	9	3	4	3	9	2	4	1	1
18" x 61"	60	60	30	30	15	14	10	30	7	12	5	5
27" x 21"	30	30	12	12	6	6	3	12	2	6	4	1
36" x 12"	18	18	12	12	6	4	4	12	2	8	3	2
36" x 19"	32	32	24	18	9	8	6	18	4	8	3	2
36" x 61"	120	120	80	60	30	28	20	60	14	24	15	10
48" x 19"	40	40	24	24	12	10	6	24	4	10	8	2
48" x 61"	165	165	80	80	40	35	20	80	14	30	20	10



SPI®
6" Wireless Data Transmitting IP67 Digital Caliper
See Pg. 99
11-544-4
Ground Ship ONLY

QUANTUM™ STORAGE SYSTEMS

Stack-Nest-Totes

- Totes stack with one another or "nest" when turned 250° to occupy minimum space.
- Injection molded from high density polyethylene.
- Ideal for shipping, transfer and storge applications.
- Strong, industrial strength totes.
- Tote materials are FDA approved.
- Ridges under the lip prevent jamming when nested.
- Textured bottoms facilitate movement on conveyor belts.
- Optional lids protect contents of container and protect contents from dust and damage.
- SNT's stack with or without lids.
- Sold in Case Quantities Only.

OUTSIDE DIM. L	W	HT.	CASE WT. (LBS.)	CASE QTY.	RED PART NO.	BLUE PART NO.	GRAY PART NO.	PRICE
18"	11"	6"	12	6	**92-148-6** *	**92-163-5** *	**92-178-3** *	$80.85
18"	11"	9"	15	6	**92-149-4**	**92-164-3**	**92-179-1**	87.65
Lid for Above			7	6	**92-150-2**	**92-165-0**	**92-180-9**	40.00
19½"	15½"	10"	23	6	**92-151-0**	**92-166-8**	**92-181-7**	135.90
19½"	15½"	13"	26	6	**92-152-8**	**92-167-6**	**92-182-5**	140.90
Lid for Above			10	6	**92-153-6**	**92-168-4**	**92-183-3**	53.70
19½"	13½"	8"	19	6	**92-154-4**	**92-169-2**	**92-184-1**	119.60
Lid for Above			10	6	**92-155-1**	**92-170-0**	**92-185-8**	59.70
23½"	19½"	10"	20	3	**92-156-9**	**92-171-8**	**92-186-6**	85.65
23½"	19½"	13"	22	3	**92-157-7**	**92-172-6**	**92-187-4**	101.95
Lid for Above			10	3	**92-158-5**	**92-173-4**	**92-188-2**	40.60
23½"	15½"	12"	18	3	**92-159-3**	**92-174-2**	**92-189-0**	92.70
Lid for Above			8	3	**92-160-1**	**92-175-9**	**92-190-8**	42.40
29½"	19½"	15"	29	3	**92-161-9**	**92-176-7**	**92-191-6**	175.00
Lid for Above			12	3	**92-162-7**	**92-177-5**	**92-192-4**	66.70

* Manufactured of high density polypropylene.

Card Holder

- Fits all size totes with or without lid in place.

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
3" x 5" Card Holder	6	**92-193-2**	$13.90



91-535-5



Welded Wire Containers

- Constructed of 2 gauge cold-drawn steel rod electro-welded at each intersection to form a 2" x 2" pattern.
- The sturdy steel base gives 9 point suspension and distributes loads evenly over the entire understructure.
- See-thru to view inventory.
- Half drop gate.
- The unit folds flat on its own base perimeter to reduce shipping costs.
- Finished with a zinc electroplated finish.
- Add 6" to usable height for overall height.

W	L	USABLE HEIGHT	GATE LOCATION	CAP. (LBS.)	WT. (LBS.)	PART NUMBER	PRICE
20"	32"	16"	32" Side	1000	43	**91-535-5** *	$173.95
20"	32"	16"	32" Side	1000	55	**91-536-3** †	214.60
32"	40"	28"	40" Side	4000	146	**91-537-1** ‡	336.00
40"	48"	24"	48" Side	4000	176	**91-538-9** ‡	299.45
40"	48"	30"	48" Side	4000	194	**91-539-7** ‡	405.75
40"	48"	30"	40" Side	4000	194	**91-540-5** ‡	418.95

* 1" x 1" wire mesh † ½" x ½" wire mesh ‡ Truck collect

AKRO-MILS
A Myers Industries Company

Bin Hanging/ Stacking Bins



- AkroBins are the components you need to develop your own storage system to help reduce and control inventories.
- Made of virtually unbreakable heavy duty polypropylene with permanent, molded-in color.
- Rust and corrosion proof, autoclavable under 250° F.
- Reinforced ribs prevent bins from spreading under load.
- Sold in case quantities only. Order of one equals one case.
- Dividers fit lengthwise (6/pkg.).

Dividers for AkroBins

DESCRIPTION	PART NO.	PRICE/PKG.
Divider for 90-422-7	**90-428-4**	$7.45
Divider for 90-419-3	**90-427-6**	7.75
Divider for 90-418-5 & 90-434-2	**90-420-1**	11.85

CABINET SIZE W.	D.	HT.	LOAD CAP. (LBS.)	CASE WT. (LBS.)	CASE QTY.	YELLOW PART NO.	RED PART NO.	BLUE PART NO.	CASE PRICE
4⅛"	5⅜"	3"	10	7	24	**90-422-7**	**90-429-2**	**90-421-9**	$39.65
4⅛"	7⅜"	3"	10	8	24	**90-419-3**	**90-430-0**	**90-417-7**	69.75
5½"	10⅞"	5"	30	12	12	**90-418-5**	**90-425-0**	**90-416-9**	88.35
11"	10⅞"	5"	60	9	6	**90-434-2**	**90-436-7**	**90-424-3**	66.70
8¼"	14¾"	7"	60	22	12	**90-431-8**	**90-435-9**	**90-423-5**	173.90
16½"	14¾"	7"	75	18	6	**90-432-6**	**90-433-4**	**90-426-8**	124.30

MATERIAL HANDLING

QUANTUM™ STORAGE SYSTEMS

Dividable Totes

With easy-to-add length and width dividers, these containers can be customized for any product size and quantity to maximize container capacity. These rigid dividers increase part protection and prevent part migration. Containers are ideal for use in commercial, industrial, electronics and health care applications.

- Multi-purpose divider containers protect and organize your parts.
- Molded-in stacking ridge for secure stackability, with or without covers.
- Holds up to 60 Lbs. of product.
- Heavy-duty clear cover attaches easily and securely to protect your product from impact and dust.
- Optional label holder attaches quickly for easy identification.



Totes & Dividers

Holds up to 5 Short & 7 Long Dividers

TOTES									DIVIDERS - GRAY ONLY - (6 PER PKG.)			
OUTSIDE DIM. L	W	HT.	CASE QTY.	WT. (LBS.)	RED PART NO.	BLUE PART NO.	GRAY PART NO.	PRICE	SHORT PART NO.	PRICE	LONG PART NO.	PRICE
$10^{13}/_{16}$"	$8^{5}/_{16}$"	$3^{1}/_{2}$"	20	1.2	**91-907-6**	**91-916-7**	**91-925-8**	$7.30	**91-934-0**	$6.45	**91-936-5**	$7.75
$10^{13}/_{16}$"	$8^{5}/_{16}$"	5"	20	1.6	**91-908-4**	**91-917-5**	**91-926-6**	7.40	**91-935-7**	6.95	**91-943-1**	8.00

Holds up to 15 Short & 7 Long Dividers

TOTES									DIVIDERS - GRAY ONLY - (6 PER PKG.)			
OUTSIDE DIM. L	W	HT.	CASE QTY.	WT. (LBS.)	RED PART NO.	BLUE PART NO.	GRAY PART NO.	PRICE	SHORT PART NO.	PRICE	LONG PART NO.	PRICE
$16^{1}/_{2}$"	$10^{15}/_{16}$"	$3^{1}/_{2}$"	12	1.9	**91-909-2**	**91-918-3**	**91-927-4**	$10.30	**91-936-5**	$7.75	**91-944-9**	$10.25
$16^{1}/_{2}$"	$10^{15}/_{16}$"	6"	8	2.5	**91-910-0**	**91-919-1**	**91-928-2**	12.00	**91-937-3**	12.15	**91-945-6**	12.80
$16^{1}/_{2}$"	$10^{15}/_{16}$"	8"	8	3.4	**91-911-8**	**91-920-9**	**91-929-0**	15.25	**91-938-1**	12.95	**91-946-4**	15.15

Holds up to 15 Short & 11 Long Dividers

TOTES									DIVIDERS - GRAY ONLY - (6 PER PKG.)			
OUTSIDE DIM. L	W	HT.	CASE QTY.	WT. (LBS.)	RED PART NO.	BLUE PART NO.	GRAY PART NO.	PRICE	SHORT SIZE (IN.)	QTY.	LONG PART NO.	PRICE
$22^{7}/_{16}$"	$17^{7}/_{16}$"	3"	6	4.3	**91-912-6**	**91-921-7**	**91-930-8**	$14.55	**91-939-9**	$15.00	**91-947-2**	$16.85
$22^{7}/_{16}$"	$17^{7}/_{16}$"	6"	3	5.4	**91-913-4**	**91-922-5**	**91-931-6**	18.45	**91-940-7**	16.60	**91-948-0**	17.65
$22^{7}/_{16}$"	$17^{7}/_{16}$"	8"	3	6.4	**91-914-2**	**91-923-3**	**91-932-4**	23.35	**91-941-5**	19.30	**91-949-8**	20.70
$22^{7}/_{16}$"	$17^{7}/_{16}$"	12"	3	7.7	**91-915-9**	**91-924-1**	**91-933-2**	27.55	**91-942-3**	35.25	**91-950-6**	39.85

Accessories

DESCRIPTION	WT. (LBS.)	PART NO.	PRICE
Cover for $10^{13}/_{16}$" x $8^{5}/_{16}$" Tote	2	**91-951-4**	$6.25
Cover for $16^{1}/_{2}$" x $10^{15}/_{16}$" Tote	4	**91-952-2**	9.10
Cover for $22^{7}/_{16}$" x $17^{7}/_{16}$" Tote	5	**91-953-0**	16.95
Clear Snap Label Holders 8" x 5", (6/Pkg.)	1	**91-954-8**	18.80



Dispensing Bottles

- Made of low density polyethylene.
- These dispensing bottles have a threaded nozzle with snap on sealer caps.
- Spout openings are initially 0.030", enlarge the opening to suit your need.
- Package quantity: 12.

CAP. (ML)	CAP. (APP. OZ.)	CAP. SIZE (MM)	PART NUMBER	PRICE
30	1	18	**63-349-5**	$17.50
60	2	25	**63-350-3**	21.60
125	4	24	**63-351-1**	29.20
250	8	24	**63-352-9**	47.35
500	16	28	**63-353-7** †	4.20

†= Package quantity: 1.

Blank Label Solvent Venting Wash Bottles

- Unique Valve System Allows For Drip Free Dispensing.
- Wide Mouth For Easy Filling.
- These high quality Low Density Polyethylene (LDPE) bottles feature a unique valve system which automatically vents solvent vapor, thus eliminating the irritating and potentially hazardous problem of solvent drip after use.



63-348-7

CAP (ML)	CAP (APP. OZ)	PART NUMBER	PRICE
250	8	**63-347-9**	$9.80
500	16	**63-348-7**	10.00



90-642-0 90-643-8 90-644-6 90-645-3

Safety Labeled Wash Bottles

Imprinted Design with Diamond Alert Symbols

- Eye catching imprinted design for safe and positive identification of common solutions.
- Translucent bottles are supplied with color coded 43 mm caps and spray tips.
- Made of low density polyethyline.
- 16 oz. (500 ml) capacity.

LABEL DISC.	CAP COLOR	PART NO.	PRICE
Machine Oil	Clear	**90-642-0**	$8.25
Methal-Ethyl Ketone (MEK)	Green	**90-643-8**	8.25
Acetone	Red	**90-644-6**	8.25
Isopropanol	Yellow	**90-645-3**	8.25


91-525-6

Aluminum Scoops

- One piece cast aluminum construction.
- Scoops are non-tarnishing, stain resistant and have a smooth clean appearance.
- Rounded handles for comfortable grip.

CAP OZ.	BOWL W	BOWL L	PART NUMBER	PRICE
5	2 3/8"	4 3/4"	**91-524-9**	$8.10
12	3 1/4"	6 1/4"	**91-525-6**	12.60
24	4"	8"	**91-526-4**	18.15
38	4 3/4"	9"	**91-527-2**	23.15
57	5 1/2"	10 1/2"	**91-528-0**	33.70
84	6 1/4"	12"	**91-529-8**	35.95

Disposable Containers with Lids

Perfect for Storing from Powders and Liquids to Nut and Bolts

- Versatile containers have many uses including in the laboratory, storing lubricants, paint and parts.
- Lightweight with a tight filling lid.
- Color: Opaque white.
- **Sold in package quantities only.** When ordering a quantity of 1, you will receive the package quantity listed.

CAP. (ML)	OD	HT.	PKG. QTY.	PART NUMBER	PRICE
120	3.2"	1.8"	50	**90-639-6**	$30.10
240	3.1"	3.5"	50	**90-640-4**	34.20
480	3.6"	4.0"	25	**90-641-2**	25.30


90-641-2

90-640-4

90-639-6


90-454-0

Wide Mouth Polyethylene Round Bottles

- Round, easy to fill, leak proof translucent, low density polyethylene bottles with heavy threaded leak proof caps.
- Made of FDA approved resins, these bottles are suitable for everything from food use to chemical storage.
- Bottles have greater flexibility and impact resistance than high density polyethylene bottles.

CAP. (ML)	CAP. (APP. OZ.)	CAP. SIZE (MM)	PKG. QTY.	PART NUMBER	PRICE
60	2	28	12	**63-354-5**	$27.80
125	4	38	12	**90-452-4**	32.95
250	8	45	12	**90-453-2**	34.75
500	16	55	12	**90-454-0**	51.65
1000	32	55	6	**90-455-7**	44.05


63-355-2

High Density Polyethylene Utility Jugs

- Perfect for dispensing and storing liquids.
- These lightweight natural colored high density polyethylene bottles are molded with a convenient handle for carrying and dispensing of liquids.
- Thin wall bottles are inexpensive and suited for many industrial and laboratory uses.
- Supplied with threaded cap for tight seal. Note: Sold in packs of 4.

DESCRIPTION	PART NO.	PRICE
1 Gallon Utility Jugs	**63-355-2**	$17.85



65-024-2

Spray-Bottles

- 3-Pack, 1 qt. spray bottles.
- Use in recreation and sports.
- See-thru Spray-bottle for around the shop, house and garage.
- 3 built in measuring scales for dilution and printed safety information.

DESCRIPTION	PART NO.	PRICE
3 Pk. Spray Bottle	**65-024-2**	$12.15


Trigger Sprayer

HDPE Translucent Bottles


916B

922B

932B

924B

Trigger Sprayers & Bottles

Trigger Sprayers

- Clog and leak proof nozzle.
- Compatible with most chemicals.

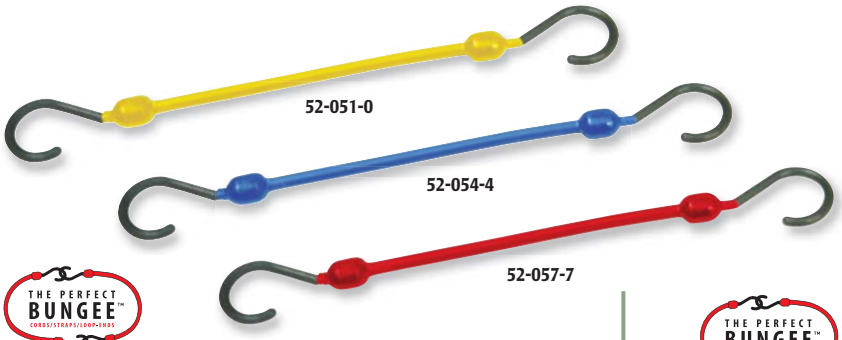
DESCRIPTION	PART NO.	PRICE
Trigger with 8" Dip Tube	**65-657-9**	$1.75
Trigger with 9 3/4" Dip Tube	**65-656-1**	1.95

HDPE Bottles

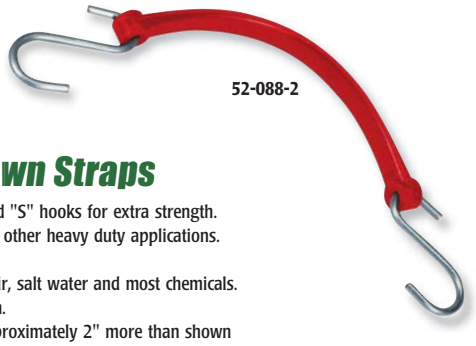
- The translucent HDPE material makes it easy to see fill level and color of liquid.

DESCRIPTION	PART NO.	PRICE
916B - 16 oz. Translucent Plastic Bottle	**65-661-1**	$1.35
922B - 22 oz. Translucent Plastic Bottle	**65-659-5**	1.35
924B - 24 oz. Translucent Plastic Bottle	**65-660-3**	1.35
932B - 32 oz. Translucent Plastic Bottle	**65-658-7**	1.50

MATERIAL HANDLING







THE PERFECT BUNGEE™ CORDS/STRAPS/LOOP-ENDS

Light-Duty Tie Down Cords

- Hooks have a minimum strength of 50 Lbs. and are molded into the cord for a firm one piece construction.
- Hooks are made of a combination of nylon and fiberglass.
- Use for tensioning in "light-duty" applications.
- Won't dry rot, crack or fray.
- Unaffected by UV, oil, ozone, salt air, salt water and most chemicals.
- Maximum stretch 2x original length.
- Overall unstretched lengths are approximately 2" more that shown because of "S" hooks on both ends.

LENGTH	BLACK PART NO.	YELLOW PART NO.	BLUE PART NO.	RED PART NO.	PRICE
12"	**52-048-6**	**52-051-0**	**52-054-4**	**52-057-7**	$5.45
18"	**52-049-4**	**52-052-8**	**52-055-1**	**52-058-5**	5.70
24"	**52-050-2**	**52-053-6**	**52-056-9**	**52-059-3**	6.30

THE PERFECT BUNGEE™ CORDS/STRAPS/LOOP-ENDS

Heavy-Duty Tie Down Straps

- Straps include two .188" galvanized "S" hooks for extra strength.
- Used for securing canvas tarps and other heavy duty applications.
- Won't dry rot, crack or fray.
- Unaffected by UV, oil, ozone, salt air, salt water and most chemicals.
- Maximum stretch 2x original length.
- Overall unstretched lengths are approximately 2" more than shown because of "S" hooks on both ends.

LENGTH	BLACK PART NO.	YELLOW PART NO.	BLUE PART NO.	RED PART NO.	PRICE
12"	**52-076-7**	**52-080-9**	**52-084-1**	**52-088-2**	$5.95
18"	**52-077-5**	**52-081-7**	**52-085-8**	**52-089-0**	7.30
24"	**52-078-3**	**52-082-5**	**52-086-6**	**52-090-8**	8.05
36"	**52-079-1**	**52-083-3**	**52-087-4**	**52-091-6**	11.20



LiftAll® PRODUCTS FOR BETTER LIFTING

Logistic Straps

- Spring loaded E-Track fittings provide quick one-handed connection to anchor point.
- Color of webbing indicates assembly length for easy identification.
- Adjustable end is sewn to prevent removal - keeps assembly ready for use at all times.
- 4 ft. long fixed end places Ratchet/Cam Buckle at optimum location for easy operation.
- Tightens securely around cargo to help prevent damage because of load shifting.
- 2" wide polyester webbing conforms to load to avoid restraining marks.
- Both Ratchet and Cam Buckle models tighten and release quickly.

W	L (FT.)	W	COLOR	WT. (LBS.)	PART NO.	PRICE
Ratchet	12	2"	Yellow	2.5	**91-606-4**	$27.65
Ratchet	16	2"	Gray	2.6	**91-607-2**	30.00
Ratchet	20	2"	Blue	2.9	**91-608-0**	33.60
Cam	12	2"	Yellow	1.8	**91-609-8**	17.80
Cam	16	2"	Gray	2.0	**91-610-6**	20.40
Cam	20	2"	Blue	2.1	**91-611-4**	22.80

LiftAll® PRODUCTS FOR BETTER LIFTING

Load Hugger Ratchet Tie Downs

Safely Secures Cargo

- Designed to meet or exceed current industry and government requirements.
- Ratchet buckle quickly tightens webbing around loads to avoid transit load shift.
- Polyester webbing material.

DESCRIPTION	VERT. CAP. (LBS.)	LENGTH (FT.)	WIDTH	BREAKING STR. (LBS.)	COLOR	PART NUMBER	PRICE
S-Hook	700	10	1"	2,100	Black	**32-325-3**	$22.30
Hook & Keeper	700	10	1"	2,100	Black	**32-326-1**	21.50
Flat Hook	1,600	27	2"	5,000	Yellow	**32-327-9**	44.35
Snap Hook	1,600	27	2"	5,000	Yellow	**32-328-7**	47.60
Flat Hook	3,300	27	2"	10,000	Yellow	**32-329-5**	50.65



52-060-1

THE PERFECT BUNGEE™

Stretch-N-Flex Tie Down Web

For Unwieldy Tie-Down Needs

- Has Arms to simplify securing problems.
- Arms can easily be detached for single application or added for greater security.
- Molded fiberglass and nylon hooks are open at one end and have a plastic safety clasp on the opposite end.
- For light duty applications.

LENGTH	NO. OF ARMS	BLACK PART NO.	YELLOW PART NO.	BLUE PART NO.	RED PART NO.	PRICE
18"	4	**52-060-1**	**52-064-3**	**52-068-4**	**52-072-6**	$21.60
18"	6	**52-061-9**	**52-065-0**	**52-069-2**	**52-073-4**	33.10
24"	4	**52-062-7**	**52-066-8**	**52-070-0**	**52-074-2**	23.50
24"	6	**52-063-5**	**52-067-6**	**52-071-8**	**52-075-9**	36.20

Master Lock

Tie Downs

Safely Secures Cargo



74-937-4

Ratchet Tie Downs

- Over-molded grips protect and aid in operation.
- S-Hook with retention clips keep hooks in place.
- Loose polyester strap is kept in place with a bungee cord and toggle trap.
- Material: Polyester
- Supplied in a package of 2.



74-938-2

Premium Spring Clamp Tie Down

- Monster Weave™ strapping for extra strength.
- S-Hook with retention clips keep hooks in place.
- Bungee cord and toggle help keep loose straps in place.
- Spring clamp style.
- Material: Polyester
- Supplied in a package of 2.



74-939-0

DESCRIPTION	VERT. CAP. (LBS.)	LENGTH (FT.)	WIDTH	BREAKING STR. (LBS.)	COLOR	PART NUMBER	PRICE
Ratchet Strap	600	6	1"	1,800	Black	**74-937-4**	$25.25
Ratchet Strap	1,100	10	1"	3,300	Yellow	**74-938-2**	32.45
Spring Clamp	400	6	1"	1,200	Silver	**74-939-0**	24.75

CM HOISTS

Universal Wide Flange Ball Bearing Trolleys

Versatile All-Purpose Trolley for Use with Any Hook Suspended Hoist



91-560-3

- Rugged trolley designed for trouble-free service and ease of operation across a wide range of beam applications.
- Capacities: ½ ton to 5 tons.
- Rugged steel side plates formed to include bumpers and trolley guards.
- Frames connected by steel equalizer pin, secured by two nuts on each side.
- Universal tread flanged trackwheels equipped with shielded ball bearing.
- Easy rolling on American standard shapes, wide flange shapes or patented rail.
- Hardened wheels and axles for added strength and durability.
- To be used with hook suspended hoist.
- Bearing prepacked with lifetime lubricant.
- Spacer washers can be shifted inside or outside for easy adjustment to wide range of beams.

CAP. TONS	MIN. RADIUS	ADJUSTABLE DEPTH OF BEAM	FLANGE	WHEEL THREAD	WEIGHT LBS.	PART NUMBER	PRICE
0.50	35"	3" - 15"	$2^{43}/_{64}$" - $4^{31}/_{32}$"	$2^{1}/_{4}$"	12.10	**91-557-9** *	$124.85
0.50	35"	3" - 15"	$2^{1}/_{2}$" - $5^{5}/_{8}$"	$2^{9}/_{32}$"	17.00	**91-558-7**	197.60
1.00	35"	5" - 24"	$3^{5}/_{32}$" - $5^{3}/_{4}$"	$2^{19}/_{32}$"	20.11	**91-559-5** *	133.15
1.00	35"	5" - 24"	3" - 8"	$3^{15}/_{32}$"	35.00	**91-560-3**	233.65
2.00	59"	6" - 24"	$3^{5}/_{32}$" - $6^{39}/_{64}$"	3"	30.80	**91-561-1** *	227.55
2.00	59"	6" - 24"	$3^{5}/_{8}$" - 8"	$3^{15}/_{16}$"	53.00	**91-562-9**	439.15
3.00	71"	8" - 24"	4" - 8"	$5^{1}/_{8}$"	101.00	**91-563-7**	744.95

* Import brand.

CM HOISTS

Lever Operated Hoists

The Series 653 Lever Operated Hoist is a High Quality, Rugged Steel Tool for Close Quarter Pulling, Stretching and Hoisting Applications



91-573-6

- Capacities: 1500 Lbs. to 6000 Lbs.
- Lift range: 5' to 20'.
- Short handle, along with minimal lever pull effort, makes this tool ideal for a broad range of applications.
- Impact resistant, stamped steel frame, gear case and cover for durability.
- Powder coated finish for added corrosion protection.
- Double pawl arrangement for assured load control.
- Weston type braking system for positive load control and positioning.
- Hardened steel chain for strength and long wear life.
- Minimal maintenance with no special tools required.
- Meets ASME/ASNSI B30.21 and European CE standards.
- Metric rated.

CAP. LBS.	STD. LIFT FT.	AVG. HANDLE EFFORT LBS.	MIN. DISTANCE BETWEEN HOOKS	WEIGHT LBS.	PART NUMBER	PRICE
1500	5	45	$11^{3}/_{8}$"	18.0	**91-573-6**	$377.75
1500	10	45	$11^{3}/_{8}$"	22.0	**91-574-4**	453.05
1500	20	33	$12^{5}/_{8}$"	17.3	**91-575-1**	522.45
2000	5	44	$12^{5}/_{8}$"	15.0	**91-576-9**	443.80
2000	10	44	$12^{5}/_{8}$"	21.0	**91-577-7**	488.70
3000	5	48	$13^{5}/_{8}$"	27.0	**91-578-5**	485.55
3000	10	48	$13^{5}/_{8}$"	32.0	**91-579-3**	603.90
3000	20	51	$14^{3}/_{16}$"	40.2	**91-580-1**	636.55
6000	5	73	$19^{1}/_{8}$"	44.0	**91-581-9**	819.65
6000	10	73	$19^{1}/_{8}$"	52.0	**91-582-7**	954.80
6000	20	77	$19^{1}/_{8}$"	68.0	**91-583-5**	1,043.90

MATERIAL HANDLING

Mini-Ratchet Lever Hoists

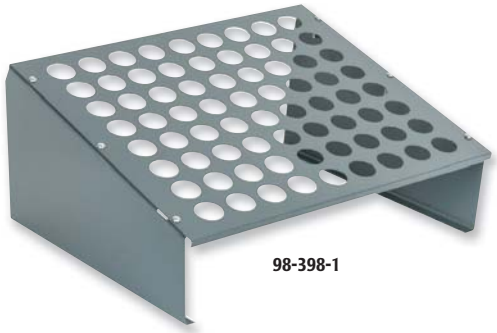
- Compact and fit conveniently within your tool chest and roller cabinets.
- Excellent for do-it-yourself projects as well as light-duty commercial jobs.
- Capacities: 550 Lbs. to 1100 Lbs.
- Lift range: 5' to 10'.
- Hardened link-type steel load chain.
- Rubber handgrip for better comfort and security.
- Forged upper and lower hooks with latches standard.
- Impact resistant, all-steel frame, gear case and cover.
- Impact resistant, all-steel frame, gear case and cover.
- Meet or exceed ASME/ANSI B30.2.

CAP. LBS.	LIFT FT.	STRANS OF CHAIN	MIN. DIST. BTWN. HOOKS	AVG. HANDLE EFFORT LBS.	WEIGHT LBS.	PART NUMBER	PRICE
550	5	1	8 1/16"	49	5	**91-565-2**	$104.35
1100	5	1	10 1/4"	49	10	**91-569-4**	146.90
1100	10	1	10 1/4"	49	12	**91-571-0**	178.45


91-565-2


98-212-4

Collets sold separately


98-398-1

COFFING® HOISTS

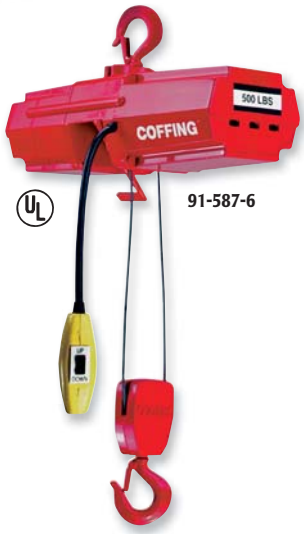
Light-Duty Electronic Chain & Rope Hoists

H2 Light-Duty Service Class

- Compact chain and wire rope hoists designed for a variety of light-duty applications. These models feature thermally protected motors. Ideal for machine shops, general maintenance and automotive.
- Capacities: 300 Lbs. to 500 Lbs.
- Standard lift: 10'.
- 6' Push button cord.
- Power cord: provided with grounded 3-prong plug for easy installation in any standard 115V outlet, single phase motors only.
- Aluminum housing: lightweight and compact to provide strength and portability. Weighs less than 25 Lbs.
- Accessories: LCC-05 chain container (shown) available for chain models; must order chain container separately.
- Meet or exceed ASME/ANSI B30.21.



91-585-0



91-587-6

CAP. LBS.	LIFT FT.	MOTOR HP	LIFT SPEED (FPM)	NO. OF LOAD CHAIN	MIN. HEAD ROOM	HT.	W	L	WEIGHT LBS.	PART NUMBER	PRICE
300	10	1/6	16	1	14 1/2"	4 3/8"	6 3/8"	14 1/4"	22	**91-585-0**	$1,332.75
500	10	1/6	8	2	16"	4 3/8"	6 3/8"	14 1/4"	17	**91-586-8**	1,488.00
500	10	1/6	10	2- Part Wire Rope	13 3/4"	4 3/8"	6 3/8"	14 1/4"	21	**91-587-6**	1,567.90
Chain Container (Chain Hoist)									2	**91-588-4**	67.50

SHOP GRADE 5C Collet Racks

NO. OF HOLES	MATERIAL	DIMENSIONS L x W x H	PART NUMBER	PRICE
18	Wood	11 3/4" x 6" x 3 3/8"	**98-396-5**	$60.85
30	Metal	12" x 9 1/2" x 5 1/2"	**98-212-4**	20.25
72	Metal	15 1/2" x 8" x 12 1/2"	**98-398-1**	50.40



Hydraulic Toe Jacks


91-630-4

- The 6 ton model has a minimum toe height clearance of 7/8" and a maximum toe height of 5 9/16".
- The 10 ton model has a minimum toe height of 1 1/8" and a maximum toe height of 6 13/16".
- A convenient 200° swivel socket assures ease of operation in any direction.
- Rigidly comply with both ANSI & JIS standards.
- Not affected by extremes in temperature.
- Made of heat treated special steel to resist rust and assure maximum strength.
- Dual heavy-duty springs.
- Built-in safety valve guard.

LOAD CAP. (TONS.)	TOE LIFT	WT. (LBS.)	PART NUMBER	PRICE
6	4.75"	53	**91-630-4**	$662.80
10	5.75"	84	**91-631-2**	883.70

Huot

Webbing

- Protect new and re-sharpened tools & bits.
- Cut to desired length.
- Woven of tough, flexible and stretchable polyethylene.
- Great end mill protection. Protect delicate edges of cutting tools.
- Reusable. Slips on and off easily. Snug fit and non-slip grip.
- 50 ft. roll.

DESCRIPTION	PART NO.	PRICE
Fits Sizes 1/4" to 1/2" & 1/2" to 1"	**82-587-7** *	$55.50
Fits Sizes 1" to 1 1/2" dia.	**82-588-5** †	55.50

*Yellow 50' and Blue 50'. † Red only 50'.

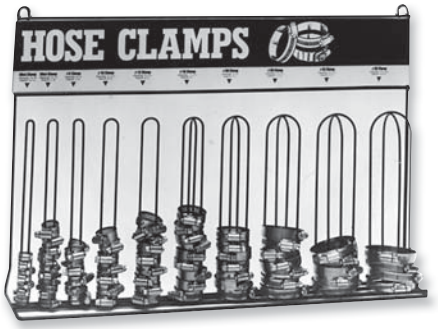


Threaded rod not included

91-530-6



91-531-4



91-532-2 Clamps not included

DURHAM MFG® Est. 1922

Speciality Storage Units

- These heavy-duty steel units are finished rust and acid resistant baked enamel.

Threaded Rod Cabinet

- Separates and protects threaded rods in 18 sections, each 2 1/8" diameter.

Key Stack Rack

- 10 compartments for easy selection of 12" long key stock, from 1/8" up to 3/4" square.

Hose Clamp Rack

- Can be countertop or wall mounted.
- Sign panel lists clamp diameters.
- 10 post rack - allows easy access to adjustable hose clamps from the smallest mini-clamp up to 2 1/2" dia. #36 clamp.
- Dimensions: 23 1/4" W x 15" H x 5 1/4" D.

4 Tube Wire Spool Rack

- Utilizes sturdy plated steel tubes and provides secure and convenient storage for reels as large as 10" in diameter.

DESCRIPTION	WT. (LBS.)	PART NO.	PRICE
Threaded Rod Cabinet	16	**91-530-6**	$98.00
Key Stock Rack	8	**91-531-4**	64.50
10 Post Hose Clamp Rack	5	**91-532-2**	46.10
5-Loop Hose Clamp Rack	8	**91-533-0**	49.70
4 Tube Wire Spool Rack	25	**91-534-8**	133.85



91-534-8 Wire spools not included

International Pictorial Labels

- Vivid eye-catching, pressure sensitive orange labels.
- Protect shipments from damage and speeds up the delivery time.
- Great for pallet integrity and shipment efficiency.
- 3" x 10" crack and peel paper labels.
- Package quantity: 100.

DESCRIPTION	PART NO.	PRICE/PKG.
PALLETIZED SHIPMENT	**91-522-3**	$18.15
DO NOT TOP LOAD	**91-523-1**	18.15



91-522-3



91-523-1



91-514-0



91-515-7



91-516-5



91-517-3

Shipping & Mail Handling Labels

- Pressure sensitive paper labels are easy to read, red and blue on a white background.
- Label size: 1" x 3"
- Package quantity: 500.

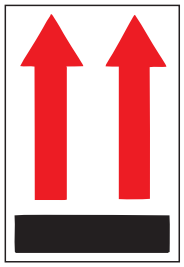
COLOR	PART NO.	PRICE/PKG.
Fragile	**91-514-0**	$22.05
Rush	**91-515-7**	22.05
Handle with Care	**91-516-5**	22.05
Do Not Bend	**91-517-3**	22.05



91-518-1



91-519-9



91-520-7



91-521-5

International Pictorial Labels

- Draw attention to special instructions and package markings with eye-catching paper labels.
- Protect valuable shipments from damage and speed up the delivery time.
- Red and black on a white background.
- Label size: 3" x 4".
- Packed in rolls of 500.

DESCRIPTION	PART NO.	PRICE/ROLL
Fragile	**91-518-1**	$23.20
Handle With Care	**91-519-9**	23.20
Arrows	**91-520-7**	23.20
Do Not Stack	**91-521-5**	23.20

NOTES

ELECTRICAL

















ELECTRICAL



63-086-3

BAYCO
Life Depends on Light™

3 in 1 Cordless LED Task Light
with Adjustable Hanger

- 3 lighting modes: spotlight, floodlight and combination.
- 1W LED top light (65 lumens) and 60 LED floodlight (120 lumens).
- Heavy duty switch.
- Impact resistant case and polycarbonate lens.
- Moisture and chemical resistant.
- Rechargeable NiMH batteries with up to 4 hours run time.
- Includes AC/DC power supply.
- Ergonomic shape makes it comfortable to hold.
- Flat bottom so it can stand on its own.
- Hook/prop stand can also be used when laying light on its side and to hand the light up.
- D.O.T. Regulated. Shipped via ground freight only.

VOLTAGE	LAMP LENGTH	BAYCO MODEL #	PART NUMBER	PRICE
120VAC/12V DC	11.5"	NSR-2492	**63-086-3**	$60.25



60-506-3

Cordless 72 LED Magnetic Light Bar
Multi-Purpose Light

- Great for use during emergency roadside repairs, electronic repair during power outages, or for use around the home, garage or workshop.
- 72 LED bulbs provide energy efficient bright white light.
- Magnetic back attaches to any ferrous surface.
- Built in hook allows use at any angle.
- On/Off switch.
- Uses 4 AA batteries, sold separately.
- $8\frac{5}{8}$" L x $2\frac{1}{2}$" W
- Color: Red

DESCRIPTION	PART NO.	PRICE
Cordless 72 LED Magnetic Light Bar	**60-506-3**	$25.80



60-726-7

Southwire™
TOOLS & EQUIPMENT

Clamp Light w/Swivel Head

- Heavy-duty spring clamp with vinyl coated handy hook allows user to position wherever light is needed and will not damage where it is hung.
- Push button On/Off switch.
- Cast aluminum head with steel body.
- Uses 250 W Halogen bulb (included).

DESCRIPTION	PART NO.	PRICE
Clamp Light w/Swivel Head	**60-726-7**	$26.55



60-511-3

Tubular Fluorescent Work Light

- Uses brighter, longer lasting 14W T5 lamp (included).
- On/Off switch and electronic ballast built into handle.
- Dual 360° swivel hanging hooks.
- Shatterproof lens with non-glare reflector.
- Finger grips.
- 15' 18/2 SJT cord.
- 1,350 Lumens.

VOLTS	LAMP LENGTH	PART NUMBER	PRICE
120	31.5"	**60-511-3**	$35.10



66-431-8

SAF-LITE

Industrial-Duty Fluorescent Work Lights with Tool Tap
Spreads Light Over A Large Area and is Cool Operating

- Cool operating – will not burn you.
- Lamps are rated at 20,000 hours.
- Produces 870 Lumens (15 watt) and 2125 Lumens (25 watt).
- Tool tap is located safely away from the light head and hands.
- Tool tap max amps: 10, Convenient 100 watt power source.
- Exclusive drip guard for added safety.
- Wire type SJTOW-A.

TUBE LENGTH	CORD LENGTH	WATTS	PART NUMBER	PRICE
22"	25"	15	**66-431-8**	$73.60
22"	50"	15	**66-432-6**	91.85
45"	25"	25	**66-433-4**	131.10
45"	50"	25	**66-434-2**	147.50
22"	25"	13	**66-435-9**	73.85
22"	50"	13	**66-436-7**	94.05



66-246-0

SAF/LITE SWOBBY II

Fluorescent Work Lights

Break-Resistant

- Patented 13 W fluorescent rough service lamp (equivalent to 75 W incandescent) makes it 10X more impact resistant.
- Extremely durable polycarbonate out tube and lens.
- Magnified clear end gets light into tight spaces.
- Bumpers and soft handle provide impact protection.
- Virtually unbreakable steel spring hooks
- Oil resistant, watertight 18/2 gauge cord.
- Wire type: SJTOW-A.
- UL and C-UL approved.

CORD LENGTH	SWITCH	SAFTLIGHT MODEL#	PART NUMBER	PRICE
25"	Yes	1113-2500	**66-246-0**	$62.25
25"	No	1113-2501	**66-247-8**	57.70
50"	Yes	1113-5000	**66-248-6**	79.00
40"	Yes	3613-4001	**66-249-4** *	158.25

* Reel model with Tool Tap in line outlet.

Fluorescent Task/Work Lights

Fluorescent Hand Lamp

- 13 W lamp.
- On/Off switch built into handle.
- Polycarbonate lens with 270° arc of light.
- No tools required for lamp replacement.
- Shatter-resistant housing with rotating swivel hook.
- 15' 18/2 SJT cord.


60-539-4

MAX. VOLTAGE	INITAL LIMENS	AMPERAGE RATING	LAMP LENGTH	PART NUMBER	PRICE
125	825	0.350A	12"	**60-539-4**	$21.30

Switchless Fluorescent Hand Lamp

- 13 W lamp.
- Without switch.
- Polycarbonate lens with 270° arc of light.
- No tools required for lamp replacement.
- Shatter-resistant housing with rotating swivel hook.
- 25' 18/2 SJT cord.
- Meets NEC 511 (1) for use in commercial garages.

MAX. VOLTAGE	INITAL LIMENS	AMPERAGE RATING	LAMP LENGTH	PART NUMBER	PRICE
125	825	0.350A	12"	**60-540-2**	$24.70

Fluorescent Hand Lamp w/Grounded Outlet & Magnet

- 13 W lamp.
- On/Off switch built into handle.
- NEMA 5-15R grounded outlet built into handle.
- 360° swivel hook and rotating magnetic clip.
- No tools required for lamp replacement.
- Shatter-resistant housing with rotating swivel hook.
- 25' 13/3 SJT cord.


60-541-0

MAX. VOLTAGE	INITAL LIMENS	AMPERAGE RATING	LAMP LENGTH	PART NUMBER	PRICE
125	825	13A	13"	**60-541-0**	$33.45


63-025-1


63-026-9


63-027-7


63-028-5


63-029-3


63-030-1


63-031-9

BAYCO
Life Depends on Light™

Professional Fluorescent Work Lights

- High impact lens.
- 120 Volts.
- Flame retardant handle.
- Hanging hooks.
- Include lamp & switch.

TYPE	COLOR	WATTS	INITAL LUMENS	WIRE GAGE/ CONDUCTORS	LAMP LENGTH	CORD LENGTH	PART NUMBER	PRICE
Angled Work Light	Black	13	900	18/2	15.0"	25'	**63-025-1**	$35.40
Fluorescent Hand Lamp	Black	13	900	18/2	13.5"	25'	**63-026-9**	30.65
Fluorescent Hand Lamp	Black	13	900	16/3	16.5"	25'	**63-027-7**	43.35
Fluorescent Hand Lamp	Black	13	900	16/3	16.5"	50'	**63-028-5**	63.05
Fluorescent Hand Lamp	Yellow	15	900	18/2	24.0"	25'	**63-029-3**	58.20
Fluorescent Hand Lamp	Black	26	1,800	16/3	16.5"	25'	**63-030-1**	70.05
OSHA Work Light	Yellow	13	900	18/2	10.5"	25'	**63-031-9**	64.70

ELECTRICAL



60-525-3

Southwire™ TOOLS & EQUIPMENT

Work Lights

Luma-Site® Work Lights

- Three conductor, grounded metal guard with side outlet and switch.
- UL/CUL listed.
- 75 watt bulb maximum, not included.
- Wire Type: SJT
- Color: Orange

WIRE GA./COND.	LENGTH	125V RATING	COLEMAN MODEL #	PART NUMBER	PRICE
16/3	25'	12A	05427	**60-525-3**	$25.85
16/3	50'	12A	05428	**60-526-1**	37.60

Polar/Solar®

Heavy-duty work lights featuring Coleman's exclusive T*Prene® insulated Polar/Solar® Cord. Stays flexible under all temperature extremes to -67° F.

- Exclusive one-piece injection molded handle.
- Grounded, vinyl coated metal guard with switch and side outlet.
- 75 watt bulb maximum, not included.
- Oil and chemical resistant.
- Wire Type: SJEO
- Color: Yellow

WIRE GA./COND.	LENGTH	125V RATING	COLEMAN MODEL #	PART NUMBER	PRICE
16/3	25'	13A	05857	**60-528-7**	$33.70
16/3	50'	13A	05858	**60-529-5**	47.95



60-528-7



60-730-9



60-305-0

Southwire™ TOOLS & EQUIPMENT

Halogen Worklights

Lightweight, Bright and Portable

- Provides plenty of light where needed.
- Cast aluminum housing with Shadow Fighter™ grill.
- Tempered glass lens.
- Steel support stands.
- Padded comfort grip handle.
- Durable for long life.
- Halogen bulb included.

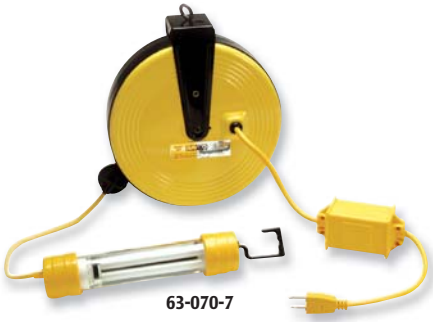
DESCRIPTION	WATT	PART NO.	PRICE
Portable Work Light	250	**60-305-0**	$22.20
Portable Work Light w/Switch	500	**60-730-9**	30.15



63-068-1



63-069-9



63-070-7



63-067-3

BAYCO Life Depends on Light™

Fluorescent Work Lights

- Cool running 13W fluorescent bulb rated at 10,000 hours of use.
- Similar amount of light to a 75W incandescent bulb but with a daylight color (7000 Kelvin).
- Includes mounting brackets for attaching the reel to the wall or ceiling.

Work Light with Single Outlet & Dual Swivel Hooks on 40 Ft. Metal Reel

- Angled ergonomic handle shape.
- Dual integrated swivel hooks for hands-free use.
- Single body rocker switch.
- Attached to a 40 ft. retractable cord inside of a metal reel.

WIRE GA./COND.	LENGTH	WIRE TYPE	BAYCO MODEL #	PART NUMBER	PRICE
16/3	40'	SJT	SL-821	**63-067-3**	$94.95

Spotlight w/Single Outlet on 40 Ft. Metal Reel

- Floodlight and a spotlight.
- Built-in single grounded outlet (10 amp).
- Electronic ballast provides instant no flicker cold weather starts.
- Nylon tip double hooks for hands-free use.
- Single body rocker switch.
- Attached to a 40 ft. retractable cord inside a metal reel.

WIRE GA./COND.	LENGTH	WIRE TYPE	BAYCO MODEL #	PART NUMBER	PRICE
16/3	40'	SJT	SL-825	**63-068-1**	$94.45

Spotlight on 50 Ft. Metal Reel

- Electronic ballast provides instant no flicker cold weather starts.
- Nylon tip double hooks for hands-free use.
- Single body rocker switch.
- Attached to a 50 ft. retractable cord inside a metal reel.

WIRE GA./COND.	LENGTH	WIRE TYPE	BAYCO MODEL #	PART NUMBER	PRICE
18/2	50'	SVT	SL-826	**63-069-9**	$93.15

Work Light on 50 Ft. Metal Reel

- Ballast enclosed near end of plug.
- Nylon tip double hooks for hands-free use.
- Single sealed push button on bottom.
- Attached to a 50 ft. retractable cord inside a metal reel.

WIRE GA./COND.	LENGTH	WIRE TYPE	BAYCO MODEL #	PART NUMBER	PRICE
18/2	50'	SVT	SL-827	**63-070-7**	$126.45

• TASK LIGHTING • BY electrix

Waterproof Fluorescent 13 Watt Machine Light

Meets OSHA Requirements



60-969-3

- Shatter resistant.
- Lexan; perfect for most machine and industrial environments.
- 4100K white heavy-duty rough service lamp, rated for approximately 10,000 hours.
- 10' oil and weather resistant 16 gage, 3 wire cord with grounded plug.
- Remote ballast.
- Includes mounting hardware.

VOLTAGE	WATTS	LENGTH	PART NO.	PRICE
24	13	14"	**60-968-5**	$187.10
120	13	11"	**60-969-3**	187.10
2 Pc. Magnetic Mount with Nylon Grip			**60-970-1**	36.75



60-964-4



60-966-9

• TASK LIGHTING • BY electrix

Waterproof Fluorescent Machine Tube Lights

- Use where chemical coolants, metal chips, cutting oils and running coolants are in constant use.
- NEMA 13 Certification - oil, water, coolant spray & dust environment.
- 9' SVT-0/0 oil and water resistant cord and plug with liquid tight fittings to power outlet.
- Supplied with heavy duty adjustable steel mounting brackets.
- Compact 2¾" diameter tubular housing.

TUBE TYPE	BALLAST TYPE	WATTS	LENGTH	PART NUMBER	PRICE
Borosilicate Glass	Intergrated	18	17"	**60-964-4**	$315.95
Acrylic Glass	Intergrated	18	17"	**60-965-1**	263.15
Borosilicate Glass	Remote	36	20"	**60-966-9**	368.75
Acrylic Glass	Remote	36	20"	**60-967-7**	330.00

52 Watt Fluorescent Stand Lamp



60-509-7

- Four energy-saving 13 watt PL style lamps for a total of 52 watts.
- Two On/Off switched; each switches controls 2 lamps (26 watts).
- Can be used with the free-standing 360° tilt base or mounted on the wall or ceiling with included hardware.
- Rugged shatter resistant thermoplastic housing.
- Measures: 10¼" x 8½" x 4⅝"
- 8 ft. 18/2 SPT cord.

DESCRIPTION	PART NO.	PRICE
52 Watt Fluorescent Stand Lamp	**60-509-7**	$56.50



60-955-2

• TASK LIGHTING • BY electrix

Moisture-Resistant 50 Watt Halogen Work Light

Clamp Mount & Swing Arm with 38" Reach

- Powerful 120 volt and 50 watt halogen bulb combined with an aluminum reflector provides a bright white evenly spread light over an entire work surface.
- 5" x 5" compact shade sealed to protect against moisture, dust, dirt and grease.
- On/Off switch enclosed by a moisture resistant seal.
- Clamp-on mounts to surfaces up to 2¾" thick.
- Complete with bulb and 7' cord with plug.
- Color: Silver

DESCRIPTION	PART NO.	PRICE
50 Watt Halogen Work Light	**60-955-2**	$188.30



60-320-9

• TASK LIGHTING • BY electrix

Waterproof Halogen Machine Light

- Ideal for CNC and EDM wet location machinery, standard and large size lathes, milling machinery, metal working equipment and tool manufacturing.
- Waterproof.
- 32" reach and vibration resistant joints.
- 55 watt halogen lamp (included) provides bright, white light over wide surface.
- 4½" extruded head has no heat build up.
- 12 volt transformer is integrated in the base.
- Lamp delivers intensified bright white light where quality, productivity and zero defects are a must.
- Switch is protected by durable rubber boot - sealing it from any liquid coolants.
- 9' SJTO ground cord.
- NEMA type 4 certification.
- Rugged, all metal construction.
- Color: Gray.

DESCRIPTION	PART NO.	PRICE
Waterproof Halogen Machine Light	**60-320-9**	$364.70
55W 12V Repl. Bulb	**60-359-7**	16.50

ELECTRICAL



• TASK LIGHTING • BY electrix™

Waterproof Halogen 50/70 Watt Machine Lights

Meets NEMA-4 Certification

- Waterproof - 4½" shade with 2 tempered glass lenses.
- Heavy gauge aluminum shade eliminates heat build-up.
- Positive locking zinc cast swivel.
- Rubber boot switch on shade.
- Must be hard wired.
- 5' grounded SJTO power supply cord.
- Direct mounting base.
- Instant focusing.
- Color: Gray.
- Includes: 55W/12V or 70W/24V bulb.

VOLTAGE	WATTS	PART NUMBER	PRICE
12	55	**60-971-9**	$192.30
24	70	**60-972-7**	218.60
55W/12V Repl. Bulb		**60-359-7**	16.50
70W/24V Repl. Bulb		**60-974-3**	27.10

• TASK LIGHTING • BY electrix™

Waterproof Halogen Machinist Light

- Waterproof lamp mounts directly to grinders, lathes, and other machines.
- 4½" diameter extruded head has no heat build-up.
- Powerful 55 watt halogen bulb (included) provides excellent illumination.
- Complete with remote waterproof transformer that can be mounted 54" from the head and has 9' SVT-O/O cord plug.
- Meets NEMA-4 certification.
- Color: Gray.



DESCRIPTION	PART NO.	PRICE
55W Halogen Light	**60-323-3**	$321.55
Optional Magnetic Base	**60-364-7** *	36.65
Wall/Machine Mount Bracket	**60-366-2**	26.45
55W 12V Repl. Bulb	**60-359-7**	16.50

* D.O.T. Regulated. Shipped via ground freight only.

Halogen Telescoping Work Lights

- Allows light to be adjusted and elevated from 40" to 67" to suit the task.
- Folding legs for easy storage, quick lock adjusting nuts.
- Cast aluminum light head.
- Insulated handle on light head.
- Weather proof on/off switch.
- Individual light switches allows for individual light control.
- Safety grill protects lens and lamp.
- 500 watt halogen lamps included.
- UL + CUL approved.



DESCRIPTION	TOTAL WATTAGE	REPL. BULB	PART NUMBER	PRICE
Twin Head - 2 X 250 W	500	2 ea. L-96	**60-299-5**	$69.75
Single Head - 1 x 500 W	500	1 ea. - L-16 or L-716	**60-300-1**	69.25
Twin Head - 2 x 500 W	1000	2 ea. - L-16 or L-716	**60-306-8**	87.15

Replacement Bulbs

DESCRIPTION	PART NO.	PRICE
L-96 (T3) 250 W	**60-298-7**	$8.45
L-16 (T3) 500 W	**60-308-4**	6.65
L-716 (T3) 500 W	**60-309-2** *	9.55

* Rough service

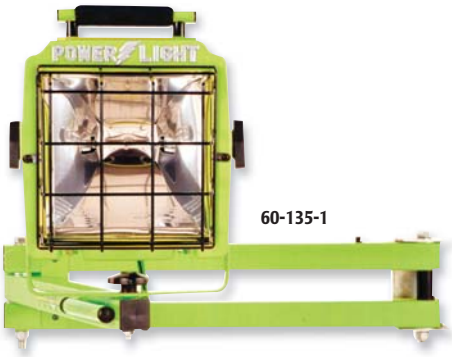


• TASK LIGHTING • BY electrix™

Flexible, Waterproof Halogen Lamp

- 27" Industrial grade steel gooseneck will flex and maintain any position.
- Rubber booted on/off switch on the back of the housing.
- Waterproof.
- Lamp mounts directly to any work surface.
- 4½" diameter extruded head has no heat build-up.
- Powerful 55 watt halogen bulb (included) provides excellent illumination.
- 12 volt transformer is integrated into base. Includes 9' ground SJTO cord.
- Meets NEMA-4 certification.
- Color: Black.

DESCRIPTION	PART NO.	PRICE
Electrix 27" Flexible Waterproof Halogen Lamp	**60-349-8**	$291.30
Optional Vise Clamp	**60-358-9**	30.20
Repl. 55W Halogen Bulb	**60-359-7**	16.50



Southwire™ TOOLS & EQUIPMENT

500 Watt Halogen Wall Mounted Arm Power Light

- Professional grade construction.
- Adjustable arm extends from wall 40".
- Extra bulb storage tube.
- Weatherproof On/Off switch.
- 10' 18/3 grounded striped power cord.
- Complete with two 500 watt halogen bulbs (one spare).
- 8,000 Lumen output.
- UL & CUL listed.
- Repl. Bulb: L-16 or L-716

DESCRIPTION	WATTS	PART NO.	PRICE
Wall Mounted Arm Power Light	500	**60-135-1**	$127.40
L-16 (T3) 500 W Repl. Bulb		**60-308-4**	6.65
L-716 (T3) 500 W Repl. Bulb		**60-309-2** *	9.55

* Rough service







fostoria®

Modular Loading Dock Lights

Heavy-Duty Mounting Arms

The outer arm on 40" and 60" arms will swing 300° in horizontal plane and 210° in vertical plane.

- 1½" square, 14 gauge steel tubing.
- 3" x 5" x 3/16" mounting plate attached with (4) 3/8" bolts.
- 5' long, 18/3 SJTW cord with NEMA 5-15 grounded plug.

ARM LENGTH	NO. OF ARMS	FOSTORIA® MODEL#	PART NUMBER	PRICE
24"	1	24-LDA	**90-546-3**	$62.40
40"	3	40-LDA	**90-547-1**	108.55
60"	3	60-LDA	**90-548-9**	133.70

Modular Fan

- 18" high velocity circulator with 3 speed (3200/4200/4600 CFM), 1/8 HP, 115V, 1 phase permanently lubricated, totally enclosed PSC motor.
- Modular fan plugs into electrical outlet on arm.
- Coated steel guards and aluminum blades.

DESCRIPTION	FOSTORIA® MODEL#	PART NUMBER	PRICE
Modular Fan	LDF-18-TE	**90-549-7**	$148.65

Modular Light Heads

- 14" long, 18/3 cord plugs into electrical junction box on arm.
- On/Off switch with wire guard included with each light head.

BULB TYPE	LAMP INCLUDED	FOSTORIA® MODEL#	PART NUMBER	PRICE
Incandescent	No	DKL-INC	**90-550-5**	$54.00
Quartz Halogen	Yes	DKL-QH	**90-552-1**	79.50

Mounting Arms with Modular Plug Receptacle

The outer arm on 60" arms will swing 300° in horizontal plane and 210° in vertical plane.

- 1½" square, 14 gauge steel tubing.
- 3" x 5" x 3/16" mounting plate attached with (4) 3/8" bolts.
- 5' long, 18/3 SJTW cord with NEMA 5-15 grounded plug.

ARM LENGTH	NO. OF ARMS	FOSTORIA® MODEL#	PART NUMBER	PRICE
24"	1	DKL-24-ARM	**90-553-9**	$62.29
60"	2	DKL-60VA-ARM	**90-555-4**	107.50

Mounting Arms with Modular Light - Assembled

24" Single Arm

BULB TYPE	WATTS	FOSTORIA® MODEL#	PART NUMBER	PRICE
Incandescent	300	DKL-24-A	**90-556-2**	$128.40
Quartz Halogen	500	DKL-24-QH-A	**90-558-8**	152.75

40" Dual Arm

BULB TYPE	WATTS	FOSTORIA® MODEL#	PART NUMBER	PRICE
Incandescent	300	DKL-40VA-A	**90-560-4**	$144.60
Quartz Halogen	500	DKL-40VA-QH-A	**90-562-0**	171.05

60" Dual Arm

BULB TYPE	WATTS	FOSTORIA® MODEL#	PART NUMBER	PRICE
Incandescent	300	DKL-60VA-A	**90-563-8**	$173.05
Quartz Halogen	500	DKL-60VA-QH-A	**90-565-3**	198.50

25" Ceiling Mounted Flexible Arm

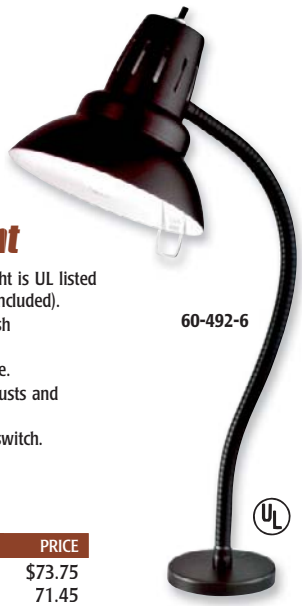
BULB TYPE	WATTS	FOSTORIA® MODEL#	PART NUMBER	PRICE
Incandescent	300	DKL-25-FLX	**90-559-6**	$127.30

Light Head Accessories

DESCRIPTION	FOSTORIA® MODEL#	PART NUMBER	PRICE
Incandescent Lamp Guard	LG-1	**90-566-1**	$26.55

• TASK LIGHTING • BY electrix™

100 Watt Magnetic Base Light



- Rugged all metal construction worklight is UL listed for 100 watt incandescent lamp (not included).
- 6.5" dia. shade interior has white finish that provides optimum light output.
- Can be mounted to any ferrous surface.
- 18" reach flexible steel gooseneck adjusts and maintains any position.
- Includes porcelain socket with on/off switch.
- 8' grounded cord and plug.
- Color: Black.
- Operates on 120 VAC.

DESCRIPTION	PART NO.	PRICE
100W Magnetic Mount	**60-492-6**	$73.75
100W Direct Mount	**60-497-5**	71.45

• TASK LIGHTING • BY electrix™

15 Watt 12" Flourescent Gooseneck Lamp

Dual Tube



- Utilizes cool-running, energy-efficient fluorescent bulbs.
- Compact 12" flexible gooseneck is ideal for positioning the lamp in confined work spaces.
- 18½" wide Lexan shade with inner reflector offers generous amount of light distribution over work surface.
- Supplied with bulbs.
- On/Off switch.
- 9' cord with plug.
- Color: Black

DESCRIPTION	PART NO.	PRICE
12" Flourescent Gooseneck Lamp	**60-953-7**	$119.60

ELECTRICAL



Magnetic Base Work Light

Flexible Gooseneck Arm

50-276-5

- Portable – Easy to move.
- Uses a standard 60 watt bulb (not included).

DESCRIPTION	PART NO.	PRICE
Magnetic Base Work Light	**50-276-5**	$29.25



• TASK LIGHTING • BY electrix

Incandescent Gooseneck Machine Lights

- Can be mounted with optional Magnetic or Clamp Mounting Base.
- 6½" diameter aluminum shade.
- 9' grounded cord and plug.
- Uses 100W bulb (not included).
- Operates on 120 VAC.

Horizontal Mount Base

DESCRIPTION	PART NO.	PRICE
22" Gooseneck	**60-324-1**	$61.35

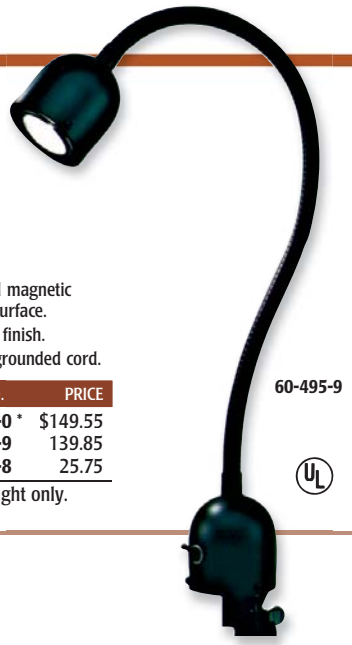
Vertical Mount Base

DESCRIPTION	PART NO.	PRICE
22" Gooseneck	**60-328-2**	$62.15

Mounting Options

DESCRIPTION	PART NO.	PRICE
Magnetic Mounting Base	**60-368-8** *	$26.45
Clamp Mounting Base	**60-369-6**	16.05

*D.O.T Regulated. Shipped via ground freight only.



• TASK LIGHTING • BY electrix

20 Watt Halogen Worklights

60-495-9

- 25" reach.
- Choice of clamp mount base or a powerful magnetic base for instant attachment to any metal surface.
- All metal construction with powder coated finish.
- Complete with on/off switch, bulb and 9' grounded cord.

DESCRIPTION	PART NO.	PRICE
Magnetic Mount Worklight	**60-490-0** *	$149.55
Clamp Mount Worklight	**60-495-9**	139.85
20W Halogen Bulb w/Reflector	**60-491-8**	25.75

* D.O.T. Regulated. Shipped via ground freight only.



60-494-2

• TASK LIGHTING • BY electrix

Incandescent Gooseneck Light

- Right angle bracket base, 22" gooseneck.
- 6½" diameter precision crafted, corrosion resistant aluminum shade for wide, even distribution of light.
- Wear resistant, vinyl covered gooseneck repels dirt and grease.
- 9' grounded cord and plug.
- Porcelain, high heat resistant socket with rotary on/off switch.
- Uses up to a 100 watt bulb (not included).
- Operates on 120 VAC.

DESCRIPTION	PART NO.	PRICE
22" Gooseneck Light	**60-494-2**	$61.45



60-316-7

• TASK LIGHTING • BY electrix

Incandescent Gooseneck Light

- 6½" diameter precision crafted, corrosion resistant aluminum shade for wide, even distribution of light.
- 22" Gooseneck.
- Wear resistant vinyl covered gooseneck repels dirt and grease.
- Zinc cast base.
- 9' grounded cord and plug.
- Porcelain, high heat resistant socket with rotary on/off switch.
- Uses up to a 100 watt bulb (not included).
- Operates on 120 VAC.

DESCRIPTION	PART NO.	PRICE
Clamp Mount Base	**60-316-7**	$81.00



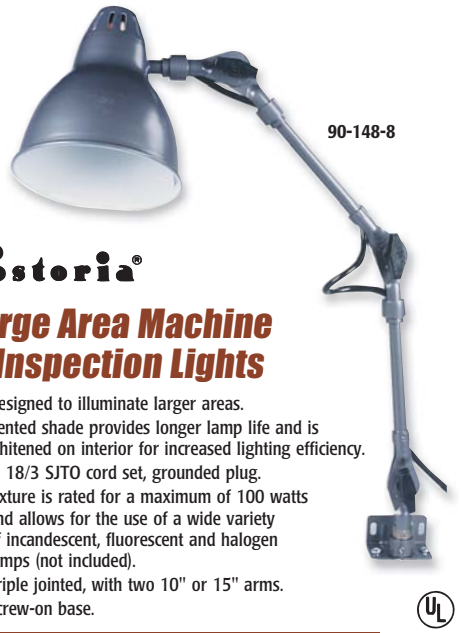
• TASK LIGHTING • by electrix™

30" & 45" Reach Clamp-On Task Lights

Ergonomic

- 6" diameter ventilated shade to dissipate heat away from lamp and boasts a cool-touch handle to position light without touching the shade.
- Baked-on white enamel internal reflector optimizes light output while evenly diffusing it over your entire work surface.
- Long-lasting porcelain socket accepts PAR halogen bulb or any standard incandescent bulb up to 100 watts. (bulb not included).
- On/Off slide switch built into the handle.
- 9' grounded plug.
- Color: Black

DESCRIPTION	PART NO.	PRICE
30" Reach Clamp-On Task Light	**60-460-3**	$125.25
45" Reach Clamp-On Task Light	**60-461-1**	141.05



fostoria®

Large Area Machine & Inspection Lights

- Designed to illuminate larger areas.
- Vented shade provides longer lamp life and is whitened on interior for increased lighting efficiency.
- 8' 18/3 SJTO cord set, grounded plug.
- Fixture is rated for a maximum of 100 watts and allows for the use of a wide variety of incandescent, fluorescent and halogen lamps (not included).
- Triple jointed, with two 10" or 15" arms.
- Screw-on base.

REACH	ARMS (2)	FOSTORIA® MODEL#	PART NUMBER	PRICE
29"	10"	55-VCX-701B	**90-148-8**	$143.50
38"	15"	66-VCX-701B	**90-149-6**	153.75



• TASK LIGHTING • by electrix™

100 Watt Industrial Task Lights

- Industrial grade, all steel worklight for general illumination.
- Spreads up to 100 watts of light on a large surface area.
- 6" diameter shade with white inner reflector.
- Ruggedly built spring suspension arm will maintain any desired position.
- Adjustable zinc-cast clamp.
- 8' polarized cord and plug.
- UL approved for use with 100 watt incandescent lamp (not included).
- Heavy-gage hand-spun shade.
- Light multiplying and vented inter-reflector keeps shade cool.
- Color: Black.

DESCRIPTION	PART NO.	PRICE
100W Task Light w/45" Arm	**60-315-9**	$115.05
100W Task Light w/30" Arm	**60-327-4**	117.35



• TASK LIGHTING • by electrix™

Two Tube Fluorescent Task Lamp

- Provides wide distribution of light over entire work surface.
- 9' grounded cord.
- 45" reach with "feather-touch" arm will easily adjust and maintain position.
- Polycarbonate shade is dent and scratch resistant.
- Two high output 15W energy efficient bulbs are included.
- Zinc cast clamp attaches to flat or slanted surfaces.
- Color: Black

DESCRIPTION	PART NO.	PRICE
45" Reach, Two Tube Task Lamp	**60-345-6**	$187.30



• TASK LIGHTING • by electrix™

Moisture Resistant Machine Lights

- Powerful 50 watt halogen lamp combined with anodized reflector for bright, evenly spread white light.
- Compact 3" x 4" metal shade sealed to protect against dust and moisture.
- On/off switch enclosed by moisture resistant seal.
- Flexible steel gooseneck with 32" overall reach.
- Choice of 90 lb. pull magnetic base or 2" opening steel clamp-on base.
- Includes bulb and 8' grounded cord, with plug-in transformer.
- Color: Black.

DESCRIPTION	PART NO.	PRICE
Magnetic Mount Worklight	**60-499-1** *	$159.40
Clamp Mount Worklight	**60-500-6**	150.10

* D.O.T. Regulated. Shipped via ground freight only.

ELECTRICAL



Incandescent/Halogen 100 Watt Task Lights

Use 100 Watt Incandescent or 100 Watt Halogen Bulb

- Gooseneck flexible arm style.
- Flex arm covered in heavy duty vinyl for long life.
- Totally adjustable with swivels at both shade and base.
- Finned aluminum heat sink keeps switch cool.
- Double wall shade stays cool to the touch.
- 4½" head diameter.
- 120V with 6' cord.
- Color: Black

BASE	REACH	PART NO.	PRICE
Magnetic	18"	**65-744-5**	$81.65
Magnetic	24"	**65-745-2**	85.35
C-Clamp	18"	**65-746-0**	81.65
C-Clamp	24"	**65-747-8**	85.35
Coupler Base w/Mounting Kit	18"	**65-748-6**	72.95
Coupler Base w/Mounting Kit	24"	**65-749-4**	79.90
Direct Mount/Fixed Base	18"	**65-750-2**	74.35
Direct Mount/Fixed Base	24"	**65-751-0**	78.35

Shade Mount Magnifiers - Fits All Models

MAGNIFICATION	PART NO.	PRICE
2.00X	**65-752-8**	$36.80
4.00X	**65-753-6**	45.80



Mounting Kit



• TASK LIGHTING • BY electrix™

100 Watt Halogen Task Light

- Powerful 100 Watt Halogen bulb produces 2x more light output than a 100 watt incandescent bulb.
- Provides cleaner, crisper light output than fluorescent or incandescent lights.
- Suspension spring balanced with 45" reach is equipped with locking control knobs at arm joints.
- Complete with on/off switch, bulb and 8' cord.
- UVB enclosure.
- Adjustable zinc cast clamp.
- Color: Black.

DESCRIPTION	PART NO.	PRICE
Halogen Task Light	**60-326-6**	$199.00
100W Repl. Halogen Bulb	**60-352-2**	38.85

• TASK LIGHTING • BY electrix™

100W Halogen Flexible Gooseneck Lamp

- Adjustable zinc cast clamp.
- 27" reach flexible steel gooseneck delivers light exactly where needed.
- Powerful 100 watt halogen bulb produces nearly 3 times more light output than a 22 watt fluorescent and 2 times more than a 100 watt incandescent bulb.
- Provides cleaner, crisper light output than fluorescent or incandescent lights.
- UVB enclosure.
- Complete with On/Off switch, bulb, 9' cord + 3 prong plug.
- Color: Black.

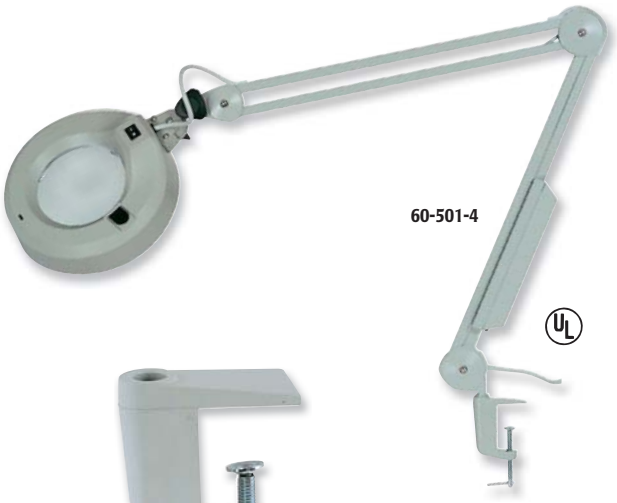
DESCRIPTION	PART NO.	PRICE
Electrix® 100W Gooseneck Lamp	**60-344-9**	$169.10
Repl. Bulb	**60-352-2**	38.85

• TASK LIGHTING • BY electrix™

100W Halogen Magnifier Lamp

- Powerful 100 watt halogen lamp (included) produces 3½ times more light output than a 22 watt fluorescent bulb.
- Comes with standard 3 Diopter Lens, 5" diameter.
- Spring balanced lamp has 45" reach with locking control knobs at joints.
- 9' grounded cord and plug.
- For use in quality control and inspection or throughout the shop.
- Shadow free light.
- Color: Black.
- Optional 3-diopter or 10-diopter swing-away lens (1½" dia.).

DESCRIPTION	PART NO.	PRICE
100W Magnifier Lamp	**60-346-4**	$312.40
100W Repl. Bulb	**60-352-2**	38.85
3 Diopter Swing-Away Lens	**60-353-0**	23.45
10 Diopter Swing-Away Lens	**60-354-8**	33.80











EXTECH INSTRUMENTS

Electrical Test Kit

Plant Maintenance, HVAC, Large Appliances & Electrical Technician's Kit

- Kit includes:
  - Autoranging True RMS MultiMeter with 11 functions including Capacitance, Frequency and Temperature.
  - 400 A Clamp Meter with basic AC Current and 1mA resolution.
  - Non-Contact Voltage Detector detects AC Voltage from 100VAC to 600VAC without touching the source.
  - Set of CAT III-1000V test leads.
  - Type K thermocouple bead probe.
  - Type K to Banana Input Adaptor.
  - Supplied in a storage case that provides protection and organization .

DESCRIPTION	PART NO.	PRICE
Electrical Test Kit	**51-534-6**	$131.90

LUXO

Lamps

- Series 60-500 Models are fluorescent, illuminated magnifiers with standard 3 diopter lens.
- For other degrees of magnification, 5 and 10 diopter lenses are available.
- For higher magnification auxiliary lenses can be furnished.
- Top quality ballast assures quiet operation.
- 22W T9 circline fluorescent tube included.
- 60-501-4 - 60-502-2 provided w/clamp 60-920-6
- Color: Light gray.
- 3 conductor SVT cord set.

DESCRIPTION	PART NO.	PRICE
2 extension arms – 45" reach	**60-501-4**	$401.45
2 extension arms – 30" reach	**60-502-2**	378.50
22W T9 circline tube	**60-947-9**	8.60

Lenses for LUXO Magnifiers

DESCRIPTION	DIA.	PART NO.	PRICE
3 diopter (1.75X)	5"	**60-895-0**	$51.00
5 diopter (2.25X)	5"	**60-896-8**	101.40

Mounting

DESCRIPTION	PART NO.	PRICE
Clamps to level surface edge of table or desk	**60-920-6**	$20.60
Screws to vertical surface, wall cabinet or partition	**60-921-4**	25.70
Screw to level surface, counter, work bench or table	**60-922-2**	21.45

Bulbs & Tubes

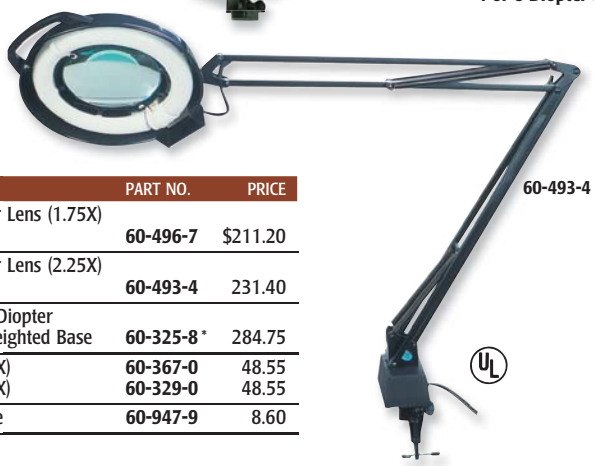
DESCRIPTION	PART NO.	PRICE
Quad compact 13 watt fluorescent light	**60-949-5**	$35.85
22W T9 circline tube	**60-947-9**	8.60

• TASK LIGHTING • by electrix™

Industrial Fluorescent Magnifier Worklights

- Improve your quality control and reduce operator eye fatigue.
- 22 watt fluorescent bulb (included) provides shadow free illumination.
- 30" and 45" reach feather touch arms are adjustable and maintain desired position.
- Comes with an industrial strength cast clamp or weighted base and 9' grounded cord and plug.
- Color: Black.





DESCRIPTION	PART NO.	PRICE
45" Arm w/3 Diopter Lens (1.75X) with Clamp Base	**60-496-7**	$211.20
45" Arm w/5 Diopter Lens (2.25X) with Clamp Base	**60-493-4**	231.40
30" Reach Arm w/3 Diopter Lens (1.75X) with Weighted Base	**60-325-8** *	284.75
4 Diopter Lens (2.00X) 8 Diopter Lens (3.00X)	**60-367-0** **60-329-0**	48.55 48.55
22W T9 Circline Tube	**60-947-9**	8.60

*Not Shown.

ELECTRICAL



51-488-5



51-489-3

EXTECH INSTRUMENTS

Multi-Function Voltage Testers

Voltage, Continuity & Phase Tester with Flashlight

- LED indication of AC/DC voltage.
- Polarity detection with LED's for positive and negative DC.
- Continuity test with audible tone.
- Two handed operation for low impedance testing.
- Rubberized double molded housing.
- Phase rotation test for motors.
- IP64 housing.
- Dimensions: 9.4" x 3" x 1.6"
- Complete with 2 AAA batteries, protective cap and pouch case.

Multi-Function Tester

- AC Voltage: 24, 48, 120, 208, 240, 277, 480, 600
- DC Voltage: 6, 12, 24, 36, 48, 110, 220, 400

Digital Voltage Tester

- Digital bargraph.
- Large LCD display.
- AC Voltage (0 to 480V) and DC Voltage (0 to 690V)

DESCRIPTION	EXTECH MODEL #	PART NUMBER	PRICE
Multi-Function Voltage Tester	VT10	**51-488-5**	$74.85
Digital Voltage Tester	VT30	**51-489-3**	89.80

FLUKE

VoltAlert™ Voltage Detector

Touching the Tip to a Terminal Strip, Outlet or Cord Causes the Tip to Glow "Red" when There is a Voltage in the Line.

- Range: 90 V AC to 1000 V AC.
- All outer surfaces are nonconductive for safety.
- Detects voltage without metallic contact.
- Made of injection molded high-impact, nonflammable PVC and ABS.



61-458-6

DESCRIPTION	PART NO.	PRICE
VoltAlert™ Voltage Detector	**61-458-6**	$35.65



97-831-2

IDEAL

Voltage Tester

Extremely Rugged and Reliable

- Solenoid indicator and neon test lamp for double protection.
- Tests 80V to 600V AC/DC – 25 to 60 Hz.
- Replaceable leads with shielded probe tips.
- Neon bulb lights from 100-600 V AC/DC.
- Long, slim prod tips permit probing of all types of receptacles.
- Spring loaded "Safety-Shields" guard prod tips and lock back for open area testing.
- 30" vinyl leads are extra flexible and oil-resistant.
- Includes test leads.

Specifications

VAC Ranges:	120 V, 240 V, 480 V, 600 V, AC
VAC Accuracy:	Relative indication only
VDC Ranges:	120 V, 240 V, 600 V, DC
VDC Accuracy:	Relative indication only
Operating Frequency:	25-60 Hz
Input Impedance:	Low
Overload Protection:	1000 VDC/750 VAC rms

DESCRIPTION	PART NO.	PRICE
Voltage Tester	**97-831-2**	$59.95
Repl. Leads	**97-838-7**	35.25
Leather Carrying Case	**97-837-9**	24.35

FLUKE

Voltage/Continuity/Current Tester

Select Volts, Ohms or Current and the Tester Does the Rest!

- OpenJaw™ current lets you check up to 100A – without breaking the circuit.
- Automatically measures volts AC and volts DC with precise digital resolution
- Displays resistance to 1000.
- Continuity beeper.
- Auto off mode conserves battery.
- Detachable SlimReach™ probe tips are customized for national electrical standards.
- Test Leads: Heavy-Duty Flexible Leads Rated for 1000V.
- Batteries: 2AA – zinc chloride 200 hour life and alkaline 400 hour life.

FUNCTIONS	600 VOLT	1000 VOLT
Measure AC/DC Voltage	600 V	1000V
Measure AC Current (Average)	100 A	100 A
Measure Continuity	< 25 Ω	< 25 Ω
Measure Resistance	1000 Ω	1000 Ω
DC Polarity Indicator	YES	YES
Detachable Probe Tips with Optional Probe Tip Styles	YES	YES
Digital Display	YES	YES
Overage	600V ac/dc CAT III	1000V ac/dc CAT III



61-455-2

DESCRIPTION	PART NO.	PRICE
600V Tester	**61-455-2**	$145.25
1000V Tester	**61-456-0**	197.90
Electrical Tester Holder	**61-457-8**	45.40

EXTECH INSTRUMENTS

Pocket Foot Candle Light Meter

Measures up to 2,000Fc for Basic Light Applications



51-504-9

- Easy to operate.
- 2 ranges.
- Over-range indication.
- Complete with 9V battery, light sensor with protective cover and 47". (1.2m) cable and build-in stand.
- Range: 200 – 2000Fc
- Max. Resolution: 0.1Fc
- Accuracy: ±5% FS
- Convenient pocket size design.
- Cosine and color corrected.
- Dimensions: 5.2" x 2.8" x 1"
- Model #401027

DESCRIPTION	PART NO.	PRICE
Pocket Foot Candle Light Meter	**51-504-9**	$103.50



51-573-4

EXTECH INSTRUMENTS

Large Display Digital Light Meter

Measures Light Intensity Up To 20,000 Foot Candles or 200,000 Lux

- Large LCD display with analog bargraph.
- Backlight for readings in low light levels.
- Relative mode indicates change in light levels.
- Peak mode capture highest reading.
- Remote light sensor on 12" (305 mm) coiled cable – expandable to 24" (609 mm).
- Utilizes precision photo diode and color correction filter.
- Cosine and color corrected measurements.
- High accuracy of ±(5% reading + 0.5% FS)
- MIN/MAX feature stores maximum and minimum readings.
- Data Hold freezes reading in the display.
- Dimensions: 5.9 x 2.95 x 1.57" (150 x 75 x 40 mm); Weight: 7 oz (200g).
- Complete with 9V battery, light sensor with protective cover, protective holster, and pouch case.

MEAS. RANGE MIN.	MEAS. RANGE MAX.	RESOLUTION FOOT CANDLES/LUX	MODEL #	PART NUMBER	PRICE
40	20,000	0.01	LT300	**51-573-4**	$206.60

EXTECH INSTRUMENTS

Digital Light Meters

Foot Candle/Lux Meter



51-327-5

- Accurately displays light level in terms of Fc or Lux over three ranges:
  - Fc (0 - 200, 0 - 2000 and 0 - 5000Fc)
  - Lux (0 - 2000, 0 - 20000, 0 - 50000Lux)
- Resolution of 0.1Fc or 1Lux with 5% accuracy.
- Select fast (1 second) or slow (2 seconds) response.
- Monitor light levels using outputs; 1mV per count analog output for capturing readings to a recorder.
- Utilizes precision photo diode and color correction filter; Cosine/color corrected.
- Dimensions: 6.4" x 2.8" x 1.2" (163 x 70 x 30 mm).
- Weight: 7.8 oz. (220g).
- Complete with 9V battery.

DESCRIPTION	MODEL #	PART NO.	PRICE
Foot Candle/Lux Meter	401025	**51-327-5**	$181.00
Belt Clip Vinyl Case	409996	**51-331-7**	22.55

Heavy Duty Light Meter with PC Interface



51-328-3

- Microprocessor assures maximum accuracy plus special functions.
- Fc range: 200, 2000 and 5000Fc
  Lux range: 2000, 20000 and 50000Lux)
- Basic accuracy of ±4% FS.
- Super large 1.4" (1999 count) LCD display.
- % displays differential from reference point.
- "Zero" re-calibration.'
- Utilizes precision photo diode and color correction filter; Cosine/color corrected.
- 4% accuracy is enhanced by selecting lighting type (Tungsten/Daylight, Fluorescent, Sodium, Mercury).
- Record/Recall MIN, MAX and AVG readings.
- Data hold plus auto shut off.
- Built-in RS232 serial interface, optional software.
- Dimensions: 7" x 2.9" x 1.3" (178 x 74 x 33 mm).
- Weight: 1.6 lbs. (726g).
- Complete with 9V battery and protective holster.
- **Interface options:**
  - Optional Windows™ Data Acquisition Software and serial cable enable user to display and capture readings on a PC and set time intervals and alarms.

DESCRIPTION	MODEL #	PART NO.	PRICE
Heavy Duty Light Meter with PC Interface	407026	**51-328-3**	$257.30
Data Acquisition Software & Serial Cable	147001	**51-738-3**	80.05



51-057-8

Digital AC-DC Multimeter

- Advanced design Digital Volt, Ampere and Ohm Meter.
- Automatic polarity and overload indication, displaying the "–" sign.
- Includes test leads, 9V battery and carrying case.
- Size: 5.6" x 2.9" x 1.5".
- Specifications:
  - DC Voltage: 200 mV; 2; 20; 200; 1000V
  - AC Volts: 200mV; 2; 20; 200; 750V
  - DC Amps: 200 µA; 2mA; 20mA; 200mA; 20A
  - AC Amps: 200 µA; 2mA; 20mA; 200mA; 20A
  - Resistance Ω: 200; 2K; 200K; 200M; 20M
  - Diode Test: Res. 1 mV
  - Continuity Test: Resolution 1 Ω
  - hFe Test: NPN; PNP; Resolution 0-1000
  - Battery Test: 1.5V; 9V
  - Logic TTL Test: Impedance 120K Ω
  - Capacitance Test: 4nF; 40nF; 400nF; 4µF; 40µF

DESCRIPTION	PART NO.	PRICE
Digital AC-DC Multimeter	**51-057-8**	$78.45

ELECTRICAL

EXTECH INSTRUMENTS

Multimeters

- Large backlit LCD display with easy-to-read 1" digits.
- Complete with CAT III test leads, multi-position tilt stand and velcro strap for hanging, protective holster with test lead holder, general purpose Type K bead wire temperature probe and 9V battery.

Manual Ranging MultiMeter

- Specifications:
  - Basic Accuracy (VDC): ±0.5%
  - AC Volts: 1mV to 750V
  - DC Voltage: 0.1mV to 1000V
  - AC Current: 0.1mA to 20A
  - DC Current: 0.1µA to 20A
  - Resistance: 0.1Ω to 20MΩ
  - Temperature (Type K): -4 to 1382° F (-20 to 750°C)
  - Continuity
  - Diode
  - Rating: UL/CE/CAT III-600V, CAT II-1000V
  - Size: 7.4" x 3.2" x 2"
- Model #EX410

DESCRIPTION	PART NO.	PRICE
Manual Ranging Multimeter	**51-562-7**	$61.10

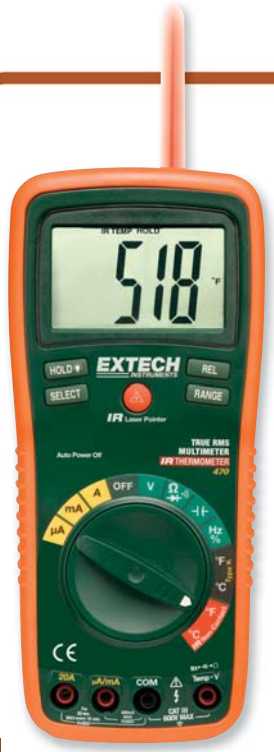


51-562-7

True RMS Autoranging MultiMeter + IR Thermometer

- Specifications:
  - Basic Accuracy (VDC): ±0.3%
  - AC Volts: 1mV to 750V
  - DC Voltage: 0.1mV to 1000V
  - AC Current: 0.1µA to 20A
  - DC Current: 0.1µA to 20A
  - Resistance: 0.1Ω to 40MΩ
  - Capacitance: 0.1nF to 100µF
  - Frequency: 0.001Hz to 10MHz
  - Temperature (IR): -58 to 518° F (-50 to 270°C)
  - Temperature (Type K): -4 to 1382° F (-20 to 750°C)
  - Duty Cycle: 0.1% to 99.9%
  - Continuity
  - Diode
  - Rating: UL/CE/CAT III-600V, CAT II-1000V
  - Size: 7.4" x 3.2" x 2"
- Model #EX470

DESCRIPTION	PART NO.	PRICE
True RMS Autoranging Multimeter + IR Thermometer	**51-564-3**	$156.25



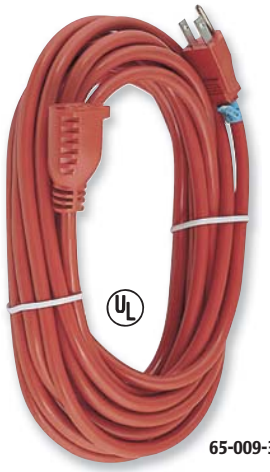
51-564-3



3 Speed 20" Pedestal Fan
Great for Home, Office, Reception Area and Store
See Pg. 300
90-525-7



Industrial Floor Fans
See Pg. 300
90-517-4


65-009-3

Southwire™ TOOLS & EQUIPMENT

Vinyl Extension Cords

- These vinyl insulated cords resist moisture, abrasion and prolonged exposure to sunlight.
- Includes heavy-duty molded-on plugs and connectors.
- Meets OSHA requirements for outdoor use.
- UL listed.
- Type: SJTW-A
- Three-conductor round cord, large cap and connector – 300 volts.

WIRE GA./COND.	LENGTH	125V RATING	COLEMAN MODEL #	PART NUMBER	PRICE
16/3	25'	13A	02307	**65-009-3**	$20.55
14/3	25'	15A	02407	**65-010-1**	33.45
12/3	25'	15A	02587	**65-011-9**	48.00

Southwire™ TOOLS & EQUIPMENT

Polar/Solar® Extension Cords

- Polar/Solar® cord is designed for outdoor use in all types of conditions. It will not crack, peel, flake or bake out and can withstand -67°F.
- Resists oil, grease, acids, solvents, abrasives, ozone and other on-the-job hazards.
- T-Prene insulated.
- Polar/Solar® cord weighs 1/3 less than ordinary cord.
- Meets OSHA requirements. UL approved.
- 300 volt cords feature a power indicator light in female plug.
- Three Conductor plug.
- Wire Type: SJEOW-A.
- Color: Yellow.

WIRE GAGE # OF CONDUCTORS	L	125V RATING	COLEMAN® MODEL #	PART NUMBER	PRICE
16/3	25'	13A	01287	**60-333-2**	$33.05
16/3	50'	13A	01288	**60-334-0**	55.30
14/3	25'	15A	01487	**60-335-7**	35.95
12/3	25'	15A	01687	**60-336-5**	50.75
12/3	50'	15A	01688	**60-337-3**	87.75



60-333-2



Extension Cord Winder

Mounts Securely in the Garage, Shop or Outbuildings

- Heavy-duty construction.
- Left or right hand operation.
- Stores 150' of cord (up to 16/3).
- Cord not included.

DESCRIPTION	PART NO.	PRICE
Extension Cord Winder	**11-064-3**	$39.75



Industrial Quality
Heavy-Duty Cord Reel w/Triple Outlet

- Tangle-free encased 16/3 gauge SJT/SJTOW cord for easy winding & protection during storage.
- Spring retractable with latch.
- High quality impact resistant polypropylene case.
- Adjustable cord stopper, 2-roller non-snag cord guide.
- Wall or ceiling mount with 180° swivel for easy handling.
- 60" lead-in cord.
- Cable length: 50'
- Amperage rating: 10A

DESCRIPTION	PART NO.	PRICE
Heavy-Duty Cord Reel w/Triple Outlet	**11-596-4**	$104.55

Thomas&Betts
Catamount® Cable Ties - Industrial Jars

Fits the Needs of General-Purpose Fastening and Wire Terminations

- Natural nylon for indoor use.
- Black weather-resistant nylon for outdoor use.
- Re-useable jar.
- Multi-colored assortment: 7.5" length (100 ea.): blue, orange, green
  4" length (100 ea.): pink, yellow.



60-521-2

MATERIAL	JAR QTY.	LENGTH	WIDTH	SIZE QTY.	MAX. BUNDLE	TENSILE STRENGTH	PART NUMBER	PRICE EACH
Natural	650	4" 7.5" 11.1"	.100" .187" .187"	300 300 50	5/8" (.625) 1 3/4" (1.75) 3"	18# 50# 50#	**60-519-6**	$16.70
Black	650	4" 7.5" 11.1"	.100" .187" .187"	300 300 50	5/8" (.625) 1 3/4" (1.75) 3"	18# 50# 50#	**60-520-4**	19.00
Multi-Colored	500	4" 7.5"	.100" .187"	300 200	5/8" (.625) 1 3/4" (1.75)	18# 50#	**60-521-2**	15.70



40-025-9

PVC Electrical Tape

- For electrical insulation and bundling.
- UL listed.
- Size: 3/4" W x 60' L
- Color: Black
- Sold in packs of 10.

DESCRIPTION	PART NO.	PRICE
10 Pack PVC Electrical Tape	**40-025-9**	$11.55

PRO-SAFE™ THE PROFESSIONAL CHOICE

Hi-Visibility Vests

See Pgs. 350 - 351



NOTES



HOSE, TUBES & FITTING















HOSE, TUBES & FITTING



Extended Element

1/4" Snap-Together Coolant Hose Systems

1/4" Male NPT and BSPT Hose Kit Includes:

13" length with fittings

- Two 5 1/2" segments.
- One each: 1/16", 1/8" and 1/4" nozzles.
- One each: 1/4", 1/8" male NPT or BSPT connectors.

1/4" Extended Element Kit Includes:

- Four each:
  - 3 3/4" extended elements
  - Element clamps

DESCRIPTION	PART NO.	PRICE
Male NPT Hose Kit (7 Pc.)	**93-000-8**	$11.85
Male BSPT Hose Kit (7 Pc.)	**93-001-6**	11.85
11" Segment Pack (Two 5 1/2" Pc.)	**93-002-4**	8.80
50' Coil	**93-003-2**	384.65
82' Coil	**93-004-0**	571.10
Extended Elements & Clamps (8 Pc.)	**93-005-7**	22.75

1/4" NPT Valve & Hose Kits

Includes:

- Valve.
- 13" (20 element segments) hose.
- 1/4" round nozzle

DESCRIPTION	PART NO.	PRICE
Male NPT Valve Kit	**93-006-5** *	$19.10
Male NPT Valve Kit	**93-007-3**	16.70
Female NPT Valve Kit	**93-008-1** *	17.20
Female NPT Valve Kit	**93-009-9**	16.70

* Acid resistant



1/4" Heavy-Duty Hose Assembly Pliers

DESCRIPTION	PART NO.	PRICE
1/4" Heavy-Duty Hose Assembly Pliers	**93-081-8**	$44.15



Round Nozzle



90° Nozzle



90° Spray Bar Nozzle



Flat Nozzle



Flare Nozzle



Side Flow Nozzle



Swivel Nozzle

1/4" Individual Nozzles

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
1/16" Round Nozzle	4	**93-012-3**	$5.85
1/8" Round Nozzle	4	**93-013-1**	5.85
1/4" Round Nozzle	4	**93-014-9**	5.85
1/16" 90° Nozzle	4	**93-015-6**	8.20
1/8" 90° Nozzle	4	**93-016-4**	8.20
1/4" 90° Nozzle	4	**93-017-2**	8.20
1/4" 90° Spray Bar	2	**93-018-0**	8.85
3/8" Flat Nozzle	2	**93-019-8**	4.60
1" Flare Nozzle	2	**93-020-6**	8.85
1/4" Side Flow Nozzle	4	**93-021-4**	9.85
1/4" 40° Swivel Nozzle	2	**93-022-2**	13.15
1/4" 60° Swivel Nozzle	2	**93-023-0**	13.15

1/4" Nozzle Kits

Circle Flow Nozzle Kit

Includes:

- Assembled with 15 side flow 1/4" nozzles.
- One 1/4" end cap.

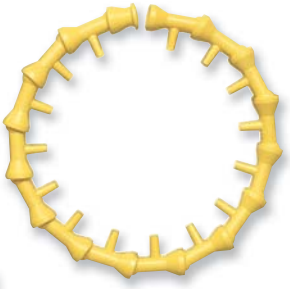
DESCRIPTION	PART NO.	PRICE
Circle Flow Nozzle Kit	**93-010-7**	$26.30

90° Nozzle Kit

Includes:

- One each: 1/16", 1/8" and 1/4" nozzles.
- One spray bar nozzle.

DESCRIPTION	PART NO.	PRICE
90° Nozzle Kit	**93-011-5**	$8.20



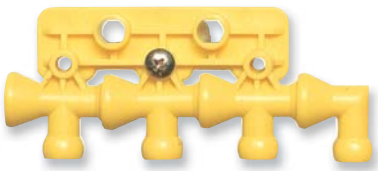


Spray Bar Nozzle

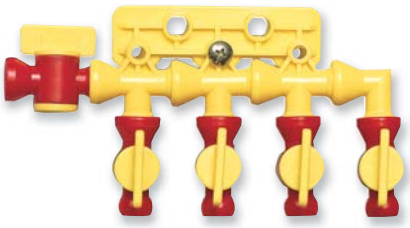
1/16" Nozzle

1/8" Nozzle

1/4" Nozzle



Modular Manifold



Main Flow Control



Manifold Bracket

1/4" Manifolds

1/4" Modular Manifold System

- One each: 1/4" Elbow Fitting, 1/4" Manifold Brackets.
- Three each: 1/4" T Fittings, 1/4" Mounting Screws.

1/4" Main Flow Control Manifold System

- One each: 1/4" Modular Manifold.
- Five each: 1/4" Connection Valves.

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
Modular Manifold System	8	**93-078-4**	$47.65
Main Flow Control	6	**93-079-2**	35.70
Manifold Brackets	2	**93-080-0**	18.05


Extended Element


Clamp


Connector


Y Fitting


Double Socket


Socket to Female


Elbow Fitting

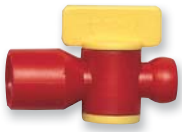

T Fitting


End Cap


Male Nipple Valve


Connection Valve


Male NPT Valve


Female NPT Valve


Connection Check Valve

¼" Valves, Fittings and Connectors

- Multi-position flexibility for instant positioning in any machine tool application.
- Not affected by machine vibration or coolant pressure.
- Jointed and vibration lengths provide steady and even flow of coolant.
- Can be branched off from a single connection to numerous jet outlets from ¼", ½" or ¾" hose system, as well as reduced from ¾" to ¼" for added versatility.
- Special developed pliers (93-081-8) available for easy assembly (highly recommended).

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
Extended Elements (3¾")	4	**93-036-2**	$14.30
Element Clamps	4	**93-037-0**	10.60
⅛" NPT Connectors	4	**93-038-8**	5.90
⅛" BSPT Connector	4	**93-039-6**	5.90
¼" NPT Connectors	4	**93-040-4**	5.90
¼" BSPT Connector	4	**93-041-2**	5.90
Y Fittings	2	**93-042-0**	8.05
Double Sockets	4	**93-043-8**	7.45
Sockets to ⅛" Female NPT	4	**93-044-6**	7.45
Elbow Fittings	2	**93-045-3**	8.20
T Fittings	2	**93-046-1**	9.80
End Caps	4	**93-047-9**	5.85
¼" NPT Male Hose Nipple Valves	2	**93-048-7**	14.85
Acid Resistant ¼" NPT Male Hose Nipple Valves	2	**93-049-5**	16.30
Connection Valves	2	**93-050-3**	13.80
Acid Resistant Connection Valves	2	**93-051-1**	14.10
¼" Male NPT Valves	2	**93-052-9**	14.85
Acid Resistant ¼" Male NPT Valves	2	**93-053-7**	16.30
¼" Female NPT Valves	2	**93-054-5**	13.80
Acid Resistant ¼" Female NPT Valves	2	**93-055-2**	14.10
Connection Check Valves	2	**93-056-0**	13.80

½" Snap-Together Coolant Hose Systems

½" Male NPT and BSPT Hose Kit

13" length with fittings

- Two 5½" segments.
- One each: ¼", ⅜" and ½" nozzles.
- One each: ⅜", ½" male NPT or BSPT connectors.

½" Extended Element Kit

- Four each: extended elements, four each element clamps.

DESCRIPTION	PART NO.	PRICE
Male NPT Hose Kit (7 Pc.)	**93-082-6**	$13.50
Male BSPT Hose Kit (7 Pc.)	**93-083-4**	13.50
11" Segment Pack (Two 5½" Pc.)	**93-084-2**	10.05
50' Coil	**93-085-9**	395.80
82' Coil	**93-086-7**	611.20
Extended Elements & Clamps (8 Pc.)	**93-087-5**	28.15

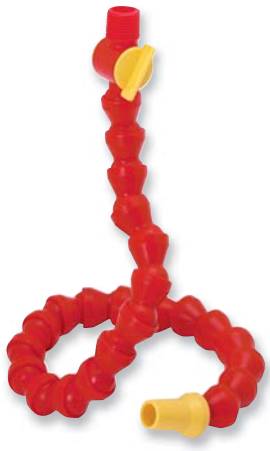
½" NPT Valve & Hose Kits

Includes:

- Valve.
- 13" (12 element segments) hose.
- ½" round nozzle

DESCRIPTION	PART NO.	PRICE
Male NPT Valve Kit	**93-088-3** *	$26.05
Male NPT Valve Kit	**93-089-1**	24.85
Female NPT Valve Kit	**93-090-9** *	26.05
Female NPT Valve Kit	**93-091-7**	24.85

* Acid resistant valves




Extended Element


Round Nozzle


90° Nozzle


90° Spray Bar Nozzle


Flare Nozzle


Side Flow Nozzle

½" Individual Nozzles

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
¼" Round Nozzle	4	**93-094-1**	$6.65
⅜" Round Nozzle	4	**93-095-8**	6.65
½" Round Nozzle	4	**93-096-6**	6.65
¼" 90° Nozzle	4	**93-097-4**	10.10
⅜" 90° Nozzle	4	**93-098-2**	10.10
½" 90° Nozzle	4	**93-099-0**	10.10
½" 90° Spray Bar	2	**93-100-6**	6.65
1¼" Flare Nozzle	2	**93-101-4**	2.65
1¾" Flare Nozzle	2	**93-102-2**	4.20
2½" Flare Nozzle	2	**93-103-0**	5.50
½" Side Flow Nozzle	4	**93-104-8**	7.20

½" Nozzle Kits

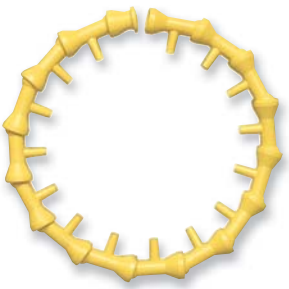
Circle Flow Nozzle Kit

Includes:

- Assembled with 15 side flow ½" nozzles.
- One ½" end cap.



Spray Bar Nozzle



DESCRIPTION	PART NO.	PRICE
Circle Flow Nozzle Kit	**93-092-5**	$31.50

90° Nozzle Kit

Includes:

- One each: ¼", ⅜" and ½" nozzles.
- One spray bar nozzle.

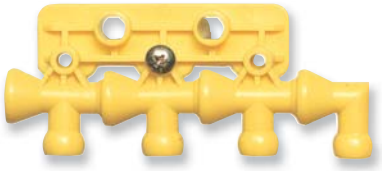
DESCRIPTION	PART NO.	PRICE
90° Nozzle Kit	**93-093-3**	$6.70


¼" Nozzle

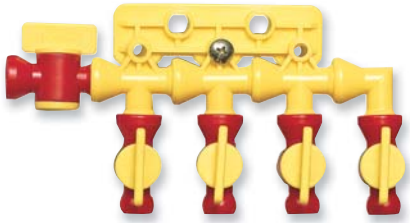

⅜" Nozzle


½" Nozzle

HOSE, TUBES & FITTING



Modular Manifold



Main Flow Control

½" Manifolds

½" Modular Manifold System

- One each: ½" Elbow Fitting, ½" Manifold Bracket.
- Three each: ½" T Fittings, ½" Mounting Screws.

½" Main Flow Control Manifold System

- One each: ½" Modular Manifold.
- Five each: ½" Connection Valves.



Manifold Bracket

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
½" Modular Manifold	8	**93-158-4**	$13.45
½" Main Flow Control Manifold	6	**93-159-2**	50.15
½" Manifold Brackets	2	**93-160-0**	4.20



Extended Element



Y Fitting



½" - ¼" Adapter



Threaded Connector



Clamp



Double Socket

½" Valves, Fittings and Connectors

- Multi-position flexibility for instant positioning in any machine tool application.
- Not affected by machine vibration or coolant pressure.
- Jointed and vibration lengths provide steady and even flow of coolant.
- Can be branched off from a single connection to numerous jet outlets from ¼", ½" or ¾" hose system, as well as reduced from ¾" to ¼" for added versatility.
- Special developed pliers (93-161-8) available for easy assembly (highly recommended).



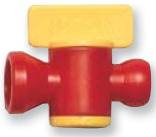
Elbow Fitting



T Fitting



End Cap



Connection Valve



Male NPT Valve



Female NPT Valve



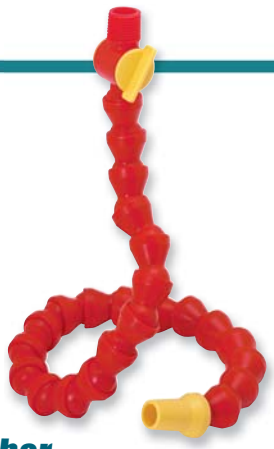
Connection Check Valve

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
½" Extended Elements (3¾")	4	**93-116-2**	$15.60
½" Extended Clamps	4	**93-117-0**	12.55
⅜" NPT Connectors	4	**93-118-8**	6.70
⅜" BSPT Connector	4	**93-119-6**	6.70
½" NPT Connectors	4	**93-120-4**	8.40
½" BSPT Connector	4	**93-121-2**	8.40
½" Y Fittings	2	**93-122-0**	9.20
½" - ¼" Y Reducers	2	**93-123-8**	8.40
½" - ¼" Adapters	2	**93-124-6**	8.40
½" Double Sockets	4	**93-125-3**	9.05
⅜" SAE Flare Nut Adapters	4	**93-126-1**	10.60
½" Elbow Fittings	2	**93-127-9**	8.40
½" T Fittings	2	**93-128-7**	9.80
½" End Caps	4	**93-129-5**	6.45
½" Connection Valves	2	**93-130-3**	12.55
½" Connection Valves Acid Resistant	2	**93-131-1**	14.75
½" Male NPT Valves	2	**93-132-9**	12.55
½" Male NPT Valves, Acid Resistant	2	**93-133-7**	14.75
½" Female NPT Valves	2	**93-134-5**	11.05
½" Female NPT Valves, Acid Resistant	2	**93-135-2**	14.75
½" Connection Check Valves	2	**93-136-0**	14.75

½" Heavy-Duty Hose Assembly Pliers



DESCRIPTION	PART NO.	PRICE
½" Heavy-Duty Hose Assembly Pliers	**93-161-8**	$48.30



⅜" & ¾" Snap-Together Coolant Hose Systems

⅜" Male NPT Hose Kit

13" length with fittings

- Two each: 5¾" segments.
- One each: ¼, ⅜ and ½" nozzles.
- One each: ⅜, ½" male NPT connectors.

⅜" Male BSPT Hose Kit

13" length with fittings

- Two each: 5¾" segments.
- One each: ⅜" nozzle.
- One each: ⅜" male BSPT connector.

¾" Male NPT and BSPT Hose Kits

14" length with fittings

- Two each: 5¾" segments.
- One each: ⅝ and ¾" nozzles.
- One each: ¾" male NPT or BSPT connectors.

DESCRIPTION	PART NO.	PRICE
⅜" Male NPT Hose Kit (7 Pc.)	**93-162-6**	$24.10
⅜" Male BSPT Hose Kit (4 Pc.)	**93-163-4**	12.70
⅜" x 13" Segment Pack (2 Pc.)	**93-164-2**	9.45
⅜" x 25' Coil	**93-165-9**	197.75
⅜" x 50' Coil	**93-166-7**	409.55
¾" Male NPT Hose Kit (5 Pc.)	**93-167-5**	16.90
¾" Male BSPT Hose Kit (5 Pc.)	**93-168-3**	16.90
¾" x 11.4" Segment Pack (2 Pc.)	**93-169-1**	12.55
¾" x 50' Coil	**93-170-9**	688.60
¾" x 82' Coil	**93-171-7**	756.50

⅜" NPT Valve & Hose Kits

Includes:

- Valve.
- 14" (16 element segments) hose.
- ⅜" round nozzle.

DESCRIPTION	PART NO.	PRICE
Male NPT Valve Kit	**93-172-5** *	$18.75
Male NPT Valve Kit	**93-173-3**	18.55
Female NPT Valve Kit	**93-174-1** *	19.50
Female NPT Valve Kit	**93-175-8**	18.55

* Acid resistant valves



⅜" & ¾" Heavy-Duty Hose Assembly Pliers

DESCRIPTION	PART NO.	PRICE
⅜" Heavy-Duty Hose Assembly Pliers	**93-219-4**	$43.65
¾" Heavy-Duty Hose Assembly Pliers	**93-220-2**	51.80

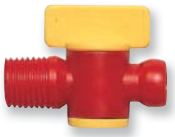

BSPT Connector


Y Fitting


Double Socket


Elbow Fitting


3/4" - 1/2" Adapter


Male BSPT Valve


Female BSPT Valve


Y reducer

3/8" & 3/4" Valves, Fittings and Connectors

3/8" Individual Nozzles

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
3/8" BSPT Connectors	4	**93-190-7**	$6.25
1/2" BSPT Connectors	4	**93-191-5**	6.25
3/8" Male BSPT Valves	2	**93-192-3**	12.80
3/8" Male BSPT Valve Acid Resistant Connectors	2	**93-193-1**	11.35
3/8" Female BSPT Valves	2	**93-194-9**	12.25
3/8" Female BSPT Valve Acid Resistant Connectors	2	**93-195-6**	11.35

3/4" Individual Nozzles

DESCRIPTION	PKG. QTY.	PART NO.	PRICE
3/4" NPT Connectors	4	**93-196-4**	$10.40
3/4" BSPT Connectors	4	**93-197-2**	10.40
3/4" - 1/2" Y Reducers	2	**93-198-0**	8.35
3/4" - 1/2" Y Adapters	2	**93-199-8**	14.70
3/4" Y Fittings	2	**93-200-4**	14.70
3/4" Double Sockets	4	**93-201-2**	15.95
3/4" Shield Mounting Elbows	2	**93-202-0**	14.70
3/4" Fixed Mounts	2	**93-203-8**	13.20


Round Nozzle


Flare Nozzle

3/8" & 3/4" Individual Nozzles

3/8" Individual Nozzles

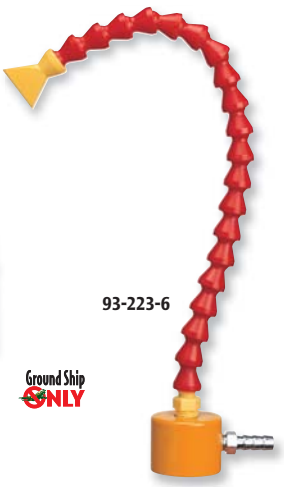
DESCRIPTION	PKG. QTY.	PART NO.	PRICE
1/4" Round Nozzle	4	**93-176-6**	$6.25
3/8" Round Nozzle	4	**93-177-4**	6.25
1/2" Round Nozzle	4	**93-178-2**	6.25
1 1/4" with Flare Nozzle	2	**93-179-0**	9.45

3/4" Individual Nozzles

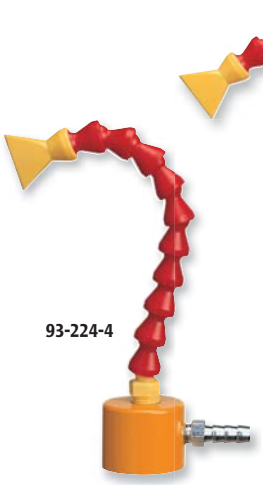
DESCRIPTION	PKG. QTY.	PART NO.	PRICE
5/8" Round Nozzle	4	**93-180-8**	$8.35
3/4" Round Nozzle	4	**93-181-6**	8.35
3" with Flare Nozzle	2	**93-182-4**	14.75

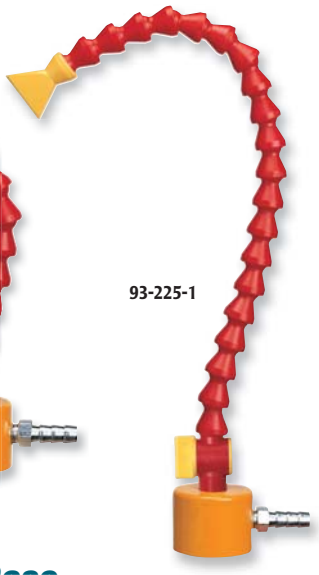

93-221-0

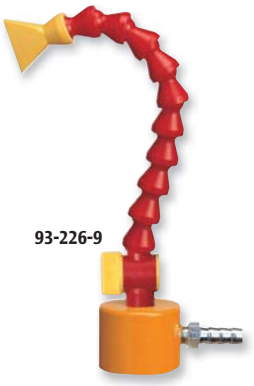

93-222-8


93-223-6

Ground Ship ONLY


93-224-4


93-225-1


93-226-9

Magnetic Base & Coolant Hose Sets

Magnetic Bases with On/Off Switch

93-221-0
- Three 1/4" x 13" hose section with plastic nozzles.
- Three acid resistant 1/4" male NPT valves. $156.55

93-222-8
- Two 1/4" x 13" hose section with plastic nozzles.
- Two acid resistant 1/4" male NPT valves. $137.85

Permanent Magnetic Bases

93-223-6
- One 1/4" x 13" hose section with plastic nozzle. $38.75

93-224-4
- One 1/4" x 9" hose section with plastic nozzle. $36.45

93-225-1
- One 1/4" x 13" hose section with plastic nozzle.
- One acid resistant 1/4" male NPT valve. $42.15

93-226-9
- One 1/4" x 9" hose section with plastic nozzle.
- One acid resistant 1/4" male NPT valve. $39.75

- D.O.T. Regulated. Shipped via ground freight only.

HOSE, TUBES & FITTING



51-757-3



51-763-1



51-769-8

COILHOSE® PNEUMATICS

Self-Storing Nylon Recoil Air Hose

- Versatile hose for air and fluid handling applications.
- Brass compression fittings, swivel on one end and fixed on the other.
- Highly flexible nylon.
- Lightweight.
- Rated up to 200 PSI.
- Temperature range: -20° F to 180° F.
- Color: Yellow.

HOSE ID	THREAD SIZE	L (FT.)	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4"	1/4"	12	NE14-12A53	**51-757-3**	$14.55
1/4"	1/4"	25	NE14-25A53	**51-758-1**	21.15

COILHOSE® PNEUMATICS

Heavy-Duty Self-Storing Nylon Recoil Air Hoses

- Highly flexible nylon.
- Able to handle heavy tools and abusive environments.
- Swivel brass compression fittings at each end.
- Spring guard is only on 1/4" hose.
- Rated up to 280 psi.
- Temperature range: -20° F to 180°F.
- Color: Blue.

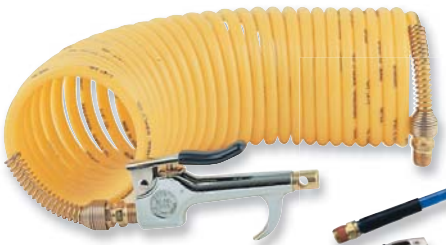
HOSE ID	THREAD SIZE	L (FT.)	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4"	1/4"	12	S14-12B53	**51-763-1**	$27.95
1/4"	1/4"	25	S14-25B53	**51-764-9**	41.95
1/4"	1/4"	50	S14-50B53	**51-765-6**	75.20
3/8"	3/8"	12	S38-12B53	**51-766-4**	43.75
3/8"	3/8"	25	S38-25B53	**51-767-2**	65.15
3/8"	3/8"	50	S38-50B53	**51-768-0**	116.15

COILHOSE® PNEUMATICS

Self-Storing Polyurethane Air Hoses

- Soft polyurethane will not mar finishes.
- Abrasion-resistant.
- Extremely flexible.
- Swivel brass compression fittings at each end.
- Max. Temperature: 100° F.
- Rated up to 125 PSI.
- Color: Blue.

HOSE ID	THREAD SIZE	L (FT.)	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4"	1/4"	10	PR14-10B-B53	**51-769-8**	$35.20
1/4"	1/4"	20	PR14-20B-B53	**51-770-6**	35.95
1/4"	1/4"	25	PR14-25B-B53	**51-771-4**	36.25
1/4"	1/4"	30	PR14-30B-B53	**51-772-2**	32.40
3/8"	3/8"	10	PR38-10B-B53	**51-773-0**	41.65
3/8"	3/8"	20	PR38-20B-B53	**51-774-8**	56.10
3/8"	3/8"	25	PR38-25B-B53	**51-775-5**	65.65
3/8"	3/8"	30	PR38-30B-B53	**51-776-3**	77.30



61-322-4



62-513-7

COILHOSE® PNEUMATICS

Safety Blow Gun & 25' Self-Storing Nylon Air Hose Set

- 1/4" NPT rigid male fittings.
- Meets OSHA specifications.
- Space saving, eliminates bulky & expensive reels or other take-up devices.
- Rugged construction assures maximum life.
- Resistant to oil, gasoline, grease & abrasion.
- Safer. Eliminates hazard of hoses sprawled across work area. Minimizes dangers of tripping, falling.
- Furnished with blowgun model 600S (61-317-4).
- 1/4" inside diameter.
- Rated up to 200 PSI.

FITTINGS	MODEL #	PART NO.	PRICE
Rigid x Swivel	600-N25A	**61-322-4**	$28.55

COILHOSE® PNEUMATICS

Polyurethane Self-Storing Hose & Blow Gun Sets

- Furnished with blow gun model 600S (**61-317-4**).
- Blow guns meet OSHA requirements.
- Extremely flexible, resists kinking and can be bent into a tight coil radius as small as 2".
- Pre-applied thread sealant eliminates the need for Teflon tape or additional sealant.
- 25% lighter than rubber.
- Low tension provides for less user fatigue.
- 16" working end pigtail and 8" supply end pigtail eliminate the need for whip hose extensions.
- Rated up to 125 PSI.

I.D.	LENGTH (FT.)	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4"	15	600-PU15B-B	**62-513-7**	$51.15
1/4"	25	600-PU25B-B	**62-514-5**	62.55



93-281-4

Jupiter Pneumatics universal air solutions

Nylon Self-Storing Hose & Blow Gun Sets

- Blow gun that meets OSHA requirements.
- Spring guards reinforce and protect hose/fittings.
- 1/4" ID.
- Rated up to 200 PSI.
- Color: Yellow.

DESCRIPTION	NPT	L (FT.)	PART NO.	PRICE
Thumb Lever/Rigid Fittings	1/4"	25	**93-281-4**	$21.15
Thumb Lever/Swivel Fittings	1/4"	25	**93-282-2**	21.15
Pistol Grip/Rigid Fittings	1/4"	25	**93-283-0**	37.10



62-587-1

COILHOSE® PNEUMATICS

COILFLOW ™ Automatic Universal Couplers

- One hand push to connect design allows quick and easy connection.
- Eliminates having an airtool that can only be used in one location.
- Brass construction with stainless steel springs.
- Accepts the three most popular 1/4" series connectors, (Aro, Industrial and Truflate) interchanges with Coilhose 140, 150 and 160 series couplers. Accepts all 1400, 1500 and 1600 series connectors.

THREAD SIZE	THREAD	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4 FPT	Female	150U	**62-587-1**	$11.30
1/4 MPT	Male	152U	**62-588-9**	11.30



62-557-4



62-568-1

COILHOSE® PNEUMATICS

Acme Interchange Couplers & Connectors

- Six locking balls provides a secure and balanced connection.
- Radius design connector gives more surface contact reducing vibrations.
- For use in industrial applications
- 1/4" body size.
- Acme Interchange type.

Couplers

THREAD SIZE	THREAD TYPE	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4"	FPT	A900B4F	**62-557-4**	$7.50
3/8"	FPT	A900B6F	**62-558-2**	9.55
1/4"	MPT	A900B4M	**62-560-8**	7.50
3/8"	MPT	A900B6M	**62-561-6**	9.80
1/4"	Hose Barb	A900B4H	**62-562-4**	9.70
3/8"	Hose Barb	A900B6H	**62-564-0**	11.05

Connectors

THREAD SIZE	THREAD TYPE	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4"	FPT	A900N4F	**62-566-5**	$1.65
3/8"	FPT	A900N6F	**62-567-3**	3.30
1/4"	MPT	A900N4M	**62-568-1**	1.60
3/8"	MPT	A900N6M	**62-569-9**	3.00
1/4"	Hose Barb	A900N4H	**62-570-7**	3.25
3/8"	Hose Barb	A900N6H	**62-571-5**	3.40

Jupiter Pneumatics universal air solutions

Polypropylene Economy Hose Reel

- Housing made from high quality impact resistant polypropylene.
- Easily wraps, stores and protects hose.
- Launching mechanism automatically locks hose at desired length.
- Integral wall/overhead swivel mounting bracket.
- Includes 36" lead hose.
- Housing/Reel color: Blue
- Hose color: Black
- Max. PSI: 180.
- Hose material: PVC.

NPT	HOSE ID	LENGTH	PART NO.	PRICE
1/4"	1/4"	33'	**93-392-9**	$113.50



93-392-9

Jupiter Pneumatics universal air solutions

Portable Hose Reels

Plastic & Steel Housing Portable Hose Reels to Meet All Needs & Uses

- Max. working pressure: 300 psi.
- Hose color: Blue
- Steel housing.

HOSE L	NPT	ID	L	W	H	WT. (LBS.)	PART NUMBER	PRICE
33'	1/4"	1/4"	13.78"	5.91"	14.57"	11.01	**67-355-8**	$113.35
40'	1/4"	3/8"	15.38"	5.91"	16.14"	13.95	**67-356-6**	201.70



67-355-8

Jupiter Pneumatics universal air solutions

Enclosed Spring Driven Hose Reel

- Easily wraps, stores and protects hose.
- Automatically locks hose at desired length.
- Designed for ceiling or wall mount.
- Bracket allows for 180° of rotation.
- PVC hose resists oil and abrasion.
- Polypropylene housing.
- 36" lead-in supply hose.
- Max. Pressure: 300 PSI.
- Approx. Weight: 24 lbs.
- Dimensions: 25 1/2" L x 8 1/2" W x 17" H.

NPT	HOSE ID	LENGTH	PART NO.	PRICE
3/8"	3/8"	50'	**93-395-2**	$157.55



93-395-2



10-195-6

SPI®

Sine Bar Riser Kit

See Pg. 52

HOSE, TUBES & FITTING

Jupiter Pneumatics universal air solutions

Heavy-Duty Retractable Industrial Reels

Designed for the Most Demanding Jobs & Environments



67-346-7

- Max. working pressure: 300 psi.
- Heavy-duty industrial spring and steel gauge.
- Brushed metallic silver powder coated finish.
- Bend restrictor to protect hose output end.
- Heavy-duty oil resistant rubber hose.
- Solid rubber bumpers.

ID	HOSE L	NPT	L	W	H	WT. (LBS.)	PART NUMBER	PRICE
1/4"	20'	1/4"	15 3/8"	7"	17"	26.43	**67-340-0**	$215.55
1/4"	35'	1/4"	15 3/8"	7"	17"	30.84	**67-341-8**	244.05
1/4"	50'	1/4"	19"	8 5/8"	19 3/4"	37.44	**67-342-6**	274.65
1/4"	75'	1/4"	20 1/2"	8 5/8"	22 1/2"	41.85	**67-343-4**	277.80
3/8"	25'	1/4"	15 3/8"	17"	17"	30.84	**67-344-2**	234.55
3/8"	35'	1/4"	19"	8 5/8"	19 3/4"	39.65	**67-345-9**	266.50
3/8"	50'	1/4"	20 1/2"	8 5/8"	22 1/2"	41.85	**67-346-7**	287.25
3/8"	75'	1/4"	32 1/4"	14"	36 1/4"	92.50	**67-347-5**	432.75
1/2"	35'	1/2"	19"	8 5/8"	19 3/4"	44.05	**67-348-3**	281.35
1/2"	50'	1/2"	20 1/2"	8 5/8"	22 1/2"	48.46	**67-349-1**	362.50
1/2"	75'	1/2"	32 1/4"	14"	36 1/4"	96.91	**67-350-9**	493.70
3/4"	50'	3/4"	32 1/4"	14"	36 1/4"	96.90	**67-351-7**	447.15
3/4"	75'	3/4"	32 1/4"	14"	36 1/4"	99.10	**67-352-5**	521.20
1"	50'	1"	32 1/4"	14"	36 1/4"	99.10	**67-353-3**	527.75

Jupiter Pneumatics universal air solutions

General-Duty Spring Retractable Hose Reels



93-386-1

- Easily wraps, stores and protects hose.
- Steel construction.
- Corrosion resistant powder coating.
- Solid 1" steel center support shaft.
- Multi position release ratchet.
- Spring is fully enclosed and lubricated.
- Four direction non-snag rollers.
- Wall, ceiling or floor mounted.
- Max Pressure: 300 PSI.
- Complete with hose.

NPT	HOSE ID	LENGTH	PART NO.	PRICE
3/8"	3/8"	25'	**93-386-1**	$87.35
3/8"	3/8"	50'	**93-387-9**	137.75
3/8"	3/8"	75'	**93-388-7**	185.60
1/2"	1/2"	33'	**93-389-5**	130.15
1/2"	1/2"	50'	**93-390-3**	173.65
1/2"	1/2"	75'	**93-391-1**	206.35



93-389-5



Parker

Parflex® Flexible Nylon Tubing

- Made from high grade, abrasion resistant, heat and light stabilized nylon.
- Exhibits extremely low level water absorption.
- Better flexibility, lighter weight and better resistance to flexural fatigue.
- Black tubing recommended for use outdoors and in sunlit areas.
- Temperature range: -65°F to 200°F.
- Sold in standard coil lengths only.

Black

ID	OD	WALL THICK.	MAX. PSI	STD. COIL L	PART NUMBER	PRICE
1/16"	1/8"	1/32"	500	100'	**67-490-3**	$63.25
1/16"	1/8"	1/32"	500	250'	**67-491-1**	158.15
3/32"	1/8"	1/64"	250	250'	**67-492-9**	114.40
0.096"	3/16"	3/64"	500	250'	**67-493-7**	245.65
0.106"	5/32"	0.025"	250	100'	**67-494-5**	48.85
1/8"	1/4"	1/16"	500	100'	**67-495-2**	126.55
1/8"	1/4"	1/16"	500	250'	**67-496-0**	315.75
9/64"	3/16"	0.025"	250	250'	**67-497-8**	182.35
11/64"	1/4"	0.040"	310	100'	**67-498-6**	94.50
11/64"	1/4"	0.040"	310	250'	**67-499-4**	236.00
0.180"	1/4"	1/32"	250	100'	**67-500-9**	94.50
0.180"	1/4"	1/32"	250	250'	**67-501-7**	236.00
3/16"	3/8"	3/64"	500	250'	**67-502-5**	624.20
15/64"	5/16"	0.040"	250	100'	**67-503-3**	135.10
15/64"	5/16"	0.040"	250	250'	**67-504-1**	338.00
1/4"	1/2"	1/8"	500	250'	**67-505-8**	1,029.60
0.275"	3/8"	3/64"	250	100'	**67-506-6**	180.90
0.275"	3/8"	3/64"	250	250'	**67-507-4**	452.15
3/8"	1/2"	3/64"	250	100'	**67-508-2**	283.10
3/8"	1/2"	3/64"	250	250'	**67-509-0**	706.60

Blue

ID	OD	WALL THICK.	MAX. PSI	STD. COIL L	PART NUMBER	PRICE
0.180"	1/4"	1/32"	250	250'	**67-510-8**	$236.00
0.275"	3/8"	3/64"	250	250'	**67-511-6**	417.85
3/8"	1/2"	1/16"	250	250'	**67-512-4**	706.60

Green

ID	OD	WALL THICK.	MAX. PSI	STD. COIL L	PART NUMBER	PRICE
0.106"	5/32"	0.025"	250	250'	**67-513-2**	$160.35
0.180"	1/4"	1/32"	250	250'	**67-514-0**	236.00
0.275"	3/8"	3/64"	250	250'	**67-515-7**	452.15

Natural

ID	OD	WALL THICK.	MAX. PSI	STD. COIL L	PART NUMBER	PRICE
1/16"	1/8"	1/32"	500	100'	**67-516-5**	$63.25
1/16"	1/8"	1/32"	500	250'	**67-517-3**	158.15
0.096"	3/16"	3/64"	500	250'	**67-519-9**	245.65
0.106"	5/32"	0.025"	250	100'	**67-520-7**	42.95
0.106"	5/32"	0.025"	250	250'	**67-521-5**	102.30
1/8"	1/4"	1/16"	500	100'	**67-522-3**	126.55
1/8"	1/4"	1/16"	500	250'	**67-523-1**	315.75
9/64"	3/16"	0.025"	250	100'	**67-524-9**	73.05
9/64"	3/16"	0.025"	250	250'	**67-525-6**	182.35
11/64"	1/4"	0.040"	310	100'	**67-526-4**	94.50
11/64"	1/4"	0.040"	310	250'	**67-527-2**	236.00
0.180"	1/4"	1/32"	250	100'	**67-528-0**	94.50
0.180"	1/4"	1/32"	250	250'	**67-529-8**	236.00
3/16"	3/8"	3/64"	500	250'	**67-530-6**	624.20
15/64"	5/16"	0.040"	250	100'	**67-531-4**	135.10
15/64"	5/16"	0.040"	250	250'	**67-532-2**	338.00
1/4"	1/2"	1/8"	500	250'	**67-533-0**	1,029.60
0.275"	3/8"	3/64"	250	100'	**67-534-8**	180.90
0.275"	3/8"	3/64"	250	250'	**67-535-5**	452.15
3/8"	1/2"	3/64"	500	250'	**67-536-3**	283.10
3/8"	1/2"	3/64"	250	250'	**67-537-1**	706.60

Red

ID	OD	WALL THICK.	MAX. PSI	STD. COIL L	PART NUMBER	PRICE
1/16"	1/8"	1/32"	500	250'	**67-538-9**	$158.15

Yellow

ID	OD	WALL THICK.	MAX. PSI	STD. COIL L	PART NUMBER	PRICE
0.180"	1/4"	1/32"	250	250'	**67-539-7**	$236.00

Shielded Worm Drive Clamps



- Designed for soft silicone hose where a flat inner band surface prevents extrusion of the hose through notches in the band.
- One piece stainless steel housing design.
- Designed with stainless steel shield.
- Liner provides full seal while preventing damage to soft hoses.

SERIES	BAND 1/2" WIDE	HOUSING	LINER
A	201 SS	201 SS	301 SS
B	301 SS	301 SS	301 SS

SAE SIZE	MIN. DIA.	MAX. DIA.	SERIES A PART NO.	PRICE	SERIES B PART NO.	PRICE
6	5/8"	3/4"	**67-586-8**	$1.30	**67-604-9**	$1.85
8	5/8"	13/16"	**67-587-6**	1.30	**67-605-6**	1.85
10	3/4"	15/16"	**67-588-4**	1.30	**67-606-4**	1.85
12	3/4"	1 1/8"	**67-589-2**	1.30	**67-607-2**	1.85
16	13/16"	1 3/8"	**67-590-0**	1.30	**67-608-0**	1.85
20	1 1/8"	1 5/8"	**67-591-8**	1.45	**67-609-8**	2.00
24	1 3/16"	1 15/16"	**67-592-6**	1.45	**67-610-6**	2.00
28	1 5/16"	2 1/4"	**67-593-4**	1.45	**67-611-4**	2.00
32	1 9/16"	2 1/2"	**67-594-2**	1.45	**67-612-2**	2.00
36	1 13/16"	2 3/4"	**67-595-9**	1.55	**67-613-0**	2.15
40	2 1/16"	3"	**67-596-7**	1.75	**67-614-8**	2.35
44	2 5/16"	3 1/4"	**67-597-5**	2.00	**67-615-5**	2.55
48	2 9/16"	3 1/2"	**67-598-3**	2.00	**67-616-3**	2.55
52	2 13/16"	3 3/4"	**67-599-1**	2.10	**67-617-1**	2.90
56	3 1/16"	4"	**67-600-7**	2.10	**67-618-9**	2.80
60	3 5/16"	4 1/4"	**67-601-5**	2.25	**67-619-7**	2.95
64	3 9/16"	4 1/2"	**67-602-3**	2.35	**67-620-5**	3.05
72	4 1/16"	5"	**67-603-1**	2.45	**67-621-3**	3.15

Preformed Center Punch Type Clamps



- Clamps are double coiled and set to a specific diameter.
- Bands are manufactured from either galvanized carbon steel or 201 stainless steel.
- All buckles are stainless steel.

Band Width: 3/8", Band Thick.: 0.025"

CLAMP ID	PKG. QTY.	GALVANIZED STEEL PART NO.	PRICE	201 STAINLESS STEEL PART NO.	PRICE
13/16"	100	**67-794-8**	$0.55	**67-812-8**	$1.15
1 3/8"	100	**67-795-5**	0.65	**67-813-6**	1.30

Band Width: 5/8", Band Thick.: 0.025"

CLAMP ID	PKG. QTY.	GALVANIZED STEEL PART NO.	PRICE	201 STAINLESS STEEL PART NO.	PRICE
1"	100	**67-796-3**	$0.70	**67-814-4**	$1.85
1 1/4"	100	**67-797-1**	0.85	**67-815-1**	1.90
1 1/2"	100	**67-798-9**	0.96	**67-816-9**	1.95
1 3/4"	100	**67-799-7**	1.05	**67-817-7**	2.20
2"	100	**67-800-3**	1.05	**67-818-5**	2.25
2 1/4"	100	**67-801-1**	1.15	**67-819-3**	2.50

Band Width: 5/8", Band Thick.: Galv. Steel 0.030", Stainless 0.025"

CLAMP ID	PKG. QTY.	GALVANIZED STEEL PART NO.	PRICE	201 STAINLESS STEEL PART NO.	PRICE
2 1/2"	50	**67-802-9**	$1.30	**67-820-1**	$2.65
2 3/4"	50	**67-803-7**	1.35	**67-821-9**	2.85
3"	50	**67-804-5**	1.45	**67-822-7**	2.95
3 1/4"	50	**67-805-2**	1.50	**67-823-5**	3.20
4"	25	**67-806-0**	1.75	**67-824-3**	3.70
4 1/2"	25	**67-807-8**	1.90	**67-825-0**	4.05
5"	25	**67-808-6**	2.05	**67-826-8**	4.25
6"	25	**67-809-4**	1.15	**67-827-6**	4.95
7"	25	**67-810-2**	2.50	**67-828-4**	5.60
8"	20	**67-811-0**	2.65	**67-829-2**	6.20

Miniature Worm Drive Clamps



- Ideal for tight applications requiring compact, narrow clamps.
- One piece housing design.
- For use with small diameter tubing.
- Corrosion and chemical-resistant.

SERIES	BAND 5/16" WIDE	HOUSING	SCREW 1/4" HEX HEAD
A	301 SS	Carbon Steel	Carbon Steel
B	301 SS	301 SS	Carbon Steel
C	301 SS	301 SS	410 SS

SAE SIZE	MIN. DIA.	MAX. DIA.	SERIES A PART NO.	PRICE	SERIES B PART NO.	PRICE	SERIES C PART NO.	PRICE
4	7/32"	5/8"	**67-732-8**	$0.75	**67-740-1**	$0.90	**67-748-4**	$0.95
5	7/16"	11/16"	**67-733-6**	0.75	**67-741-9**	0.90	**67-749-2**	0.95
6	5/16"	7/8"	**67-734-4**	0.90	**67-742-7**	0.95	**67-750-0**	0.95
8	7/16"	1"	**67-735-1**	0.90	**67-743-5**	0.95	**67-751-8**	1.05
10	1/2"	1 1/16"	**67-736-9**	0.90	**67-744-3**	0.95	**67-752-6**	1.05
12	9/16"	1 1/4"	**67-737-7**	0.99	**67-745-0**	1.10	**67-753-4**	1.15
16	11/16"	1 1/2"	**67-738-5**	0.99	**67-746-8**	1.10	**67-754-2**	1.15
20	7/8"	1 3/4"	–	–	**67-747-6**	1.20	**67-755-9**	1.15

Worm Drive Clamps



- One piece housing design.
- Provides uniform and high strength clamping force.
- Clamp seals hose 360° to prevent leakage.
- Corrosion and chemical-resistant.

SERIES	BAND 1/2" WIDE	HOUSING	SCREW 5/16" HEX HEAD
603	410 SS	Carbon Steel	Carbon Steel
611	201/301 SS	301 SS	Carbon Steel
620	301 SS	301 SS	305 SS

SAE SIZE	MIN. DIA.	MAX. DIA.	603 SERIES PART NO.	PRICE	611 SERIES PART NO.	PRICE	620 SERIES PART NO.	PRICE
6	3/8"	7/8"	**67-638-7**	$1.15	**67-660-1**	$1.20	**67-696-5**	$1.50
8	7/16"	1"	**67-639-5**	1.10	**67-661-9**	1.20	**67-697-3**	1.50
10	9/16"	1 1/16"	**67-640-3**	1.15	**67-662-7**	1.20	**67-698-1**	1.50
12	9/16"	1 1/4"	**67-641-1**	1.15	**67-663-5**	1.20	**67-699-9**	1.50
16	11/16"	1 1/2"	**67-642-9**	1.15	**67-664-3**	1.20	**67-700-5**	1.50
20	3/4"	1 3/4"	**67-643-7**	1.15	**67-665-0**	1.20	**67-701-3**	1.50
24	1 1/16"	2"	**67-644-5**	1.15	**67-666-8**	1.20	**67-702-1**	1.50
28	1 5/16"	2 1/4"	**67-645-2**	1.15	**67-667-6**	1.20	**67-703-9**	1.50
32	1 9/16"	2 1/2"	**67-646-0**	1.15	**67-668-4**	1.20	**67-704-7**	1.50
36	1 13/16"	2 3/4"	**67-647-8**	1.15	**67-669-2**	1.30	**67-705-4**	1.55
40	2 1/16"	3"	**67-648-6**	1.30	**67-670-0**	1.60	**67-706-2**	1.65
44	2 5/16"	3 1/4"	**67-649-4**	1.50	**67-671-8**	1.75	**67-707-0**	2.00
48	2 9/16"	3 1/2"	**67-650-2**	1.50	**67-672-6**	1.65	**67-708-8**	1.85
52	2 13/16"	3 3/4"	**67-651-0**	1.60	**67-673-4**	1.75	**67-709-6**	2.00
56	3 1/16"	4"	**67-652-8**	1.60	**67-674-2**	1.76	**67-710-4**	2.00
60	3 5/16"	4 1/4"	**67-653-6**	1.65	**67-675-9**	1.85	**67-711-2**	2.10
64	2 1/2"	4 1/2"	**67-654-4**	1.60	**67-676-7**	1.85	**67-712-0**	2.05
72	3"	5"	**67-655-1**	1.65	**67-677-5**	2.00	**67-713-8**	2.25
80	3 1/2"	5 1/2"	**67-656-9**	1.85	**67-678-3**	2.00	**67-714-6**	2.40
88	4"	6"	**67-657-7**	1.85	**67-679-1**	2.05	**67-715-3**	2.70
96	4 1/2"	6 1/2"	**67-658-5**	1.85	**67-680-9**	2.25	**67-716-1**	2.85
104	5"	7"	**67-659-3**	1.85	**67-681-7**	2.25	**67-717-9**	2.85
116	5 3/4"	7 3/4"	–	–	**67-682-5**	2.95	**67-718-7**	2.85
128	6 1/2"	8 1/2"	–	–	**67-683-3**	2.50	**67-719-5**	2.70
152	2"	10"	–	–	**67-684-1**	2.95	**67-720-3**	2.95
164	1 3/4"	10 3/4"	–	–	**67-685-8**	3.00	**67-721-1**	4.55
176	9 1/2"	11 1/2"	–	–	**67-686-6**	3.00	**67-722-9**	4.55
188	2 1/16"	12 1/4"	–	–	**67-687-4**	3.10	**67-723-7**	4.55
200	11"	13"	–	–	**67-688-2**	3.35	**67-724-5**	2.35
212	11 3/4"	13 3/4"	–	–	**67-689-0**	3.40	**67-725-2**	2.35
224	12 1/2"	14 1/2"	–	–	**67-690-8**	3.55	**67-726-0**	2.35
248	1 3/4"	12 1/4"	–	–	**67-691-6**	3.65	**67-727-8**	2.35
270	15 3/8"	17 3/8"	–	–	**67-692-4**	3.75	**67-728-6**	6.20
312	18"	20"	–	–	**67-693-2**	3.75	**67-729-4**	6.20
332	19 1/8"	21 1/4"	–	–	**67-694-0**	4.10	**67-730-2**	6.20
390	22 7/8"	24 7/8"	–	–	**67-695-7**	4.10	**67-731-0**	6.20

HOSE, TUBES & FITTING

GOODYEAR ENGINEERED PRODUCTS

Rubber Air & Multipurpose Hose - Horizon®



An economical air and water hose designed for a wide range of industrial, construction and agricultural applications. A 4:1 safety factor applies to all published working pressures.

- Construction: 3/16" - 1" spiral - over 1' braided.
- Temp. range: -20° F (-29°C) to 190° F (88°C).
- Tube: Versigard synthetic rubber (Medium Oil Resistance – RMA designation: Class C).
- Reinforcement: Synthetic cord.
- Cover: Red or Black Versigard synthetic rubber (Smooth Finish).
- Thread type: M x M NPT.

Coupled Lengths - Red and Black

HOSE ID	FITTING SIZE	COUPLED L	BLACK WORK PRESS. 200 PSI PART NO.	PRICE	RED WORK PRESS. 250 PSI PART NO.	PRICE
1/4"	1/4"	25'	**67-756-7**	$24.45	**67-762-5**	$32.05
1/4"	1/4"	50'	**67-757-5**	42.40	**67-763-3**	52.30
3/8"	1/4"	25'	**67-758-3**	30.35	**67-764-1**	39.30
3/8"	1/4"	50'	**67-759-1**	55.70	**67-765-8**	61.15
1/2"	1/2"	25'	**67-760-9**	38.70	**67-766-6**	43.85
1/2"	1/2"	50'	–	–	**67-767-4**	79.80
3/4"	3/4"	25'	–	–	**67-768-2**	68.95
3/4"	3/4"	50'	**67-761-7**	124.10	**67-769-0**	122.75

Banding Strap Rolls



- 100' rolls.
- Manufactured from utility grade stainless steel, with rounded edge finish.
- Use double wrap for maximum clamping force.

Premium Grade

BAND WIDTH	BAND THICK.	PART NUMBER	PRICE/ ROLL
3/8"	0.025"	**67-786-4**	$80.10
1/2"	0.030"	**67-787-2**	111.90
5/8"	0.030"	**67-788-0**	132.30
3/4"	0.030"	**67-789-8**	171.50

Utility Grade

BAND WIDTH	BAND THICK.	PART NUMBER	PRICE/ ROLL
3/8"	0.015"	**67-790-6**	$60.45
1/2"	0.015"	**67-791-4**	77.10
5/8"	0.015"	**67-792-2**	83.70
3/4"	0.015"	**67-793-0**	112.00

Tire Pressure Gage

Pencil Type



- Calibrated and tested at two pressure points.
- Permanently lubricated.
- Four sided nylon indicator bar.
- Aluminum body, delrin gage head.
- 5 to 50 PSI range.

DESCRIPTION	PART NO.	PRICE
Tire Pressure Gage	**51-009-9**	$6.90

Air Chucks





Ball Foot

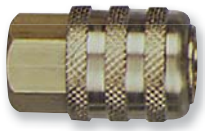
- Machined from solid brass.
- Ball foot chucks are general purpose inflating/gauging tools which can be used on most applications.
- 74° offset angle for convenient inflating positions.

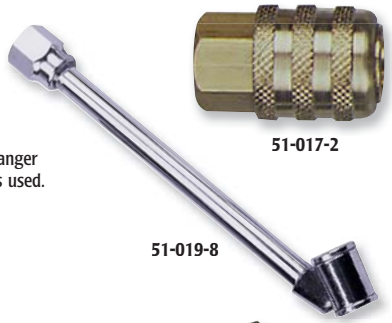


THREAD TYPE	CHUCK TYPE	PART NO.	PRICE
1/4" Barbed	Closed	**51-010-7**	$5.00
1/4" Barbed	Open	**51-011-5**	5.15
1/4" MPT	Closed	**51-012-3**	5.35
1/4" FPT	Closed	**51-016-4**	3.75

Straight "Push-On"

- Machined from solid brass.
- Designed for applications such as inflating/gauging passanger car tires where a single and easily accessible tire valve is used.





THREAD TYPE	CHUCK TYPE	PART NO.	PRICE
1/4" FPT	Closed	**51-014-9**	$7.70
1/4" Barbed	Closed	**51-015-6**	6.90

Lock-On

- Single hand operated Lock-On Air Chuck is an industry standard for quality and performance.
- For use when remote filling of the tire is a must for safety and where long inflation times are needed to fill the tires.
- High quality hardened locking pawls and stainless steel spring encased in an all brass body.



THREAD TYPE	CHUCK TYPE	PART NO.	PRICE
1/4" FPT	Open	**51-017-2**	$11.50
1/4" FPT	Closed	**51-018-0**	11.35

Dual Foot Extension Chucks

- Acme series are angled for "hard to get to" tire valves.
- Constructed of brass tube, zinc and chrome plated for maximum corrosion protection.



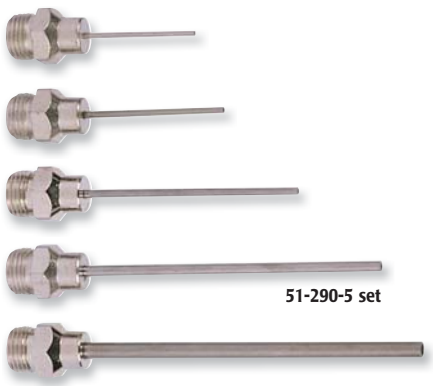
DESCRIPTION	THREAD TYPE	CHUCK TYPE	PART NO.	PRICE
Dual Foot	1/4" FPT	Closed	**51-019-8**	$15.25
Dual Foot	1/4" FPT	Closed	**51-020-6**	11.35
Dual Foot	1/4" FPT	Open	**51-021-4**	11.60
Tiltlock	1/4" FPT	Closed	**51-022-2**	16.75

Chuck Clips, Chuck and Chip Assemblies

- Constructed from precision components with double leaf spring.
- Used for similar purposes as the Lock-On Air Chucks.



DESCRIPTION	THREAD TYPE	MATERIAL	CHUCK TYPE	PART NO.	PRICE
A806 w/Clip	1/4" Barbed	Brass/Steel	Closed	**51-023-0**	$14.40
Chuck Clip	–	Steel	–	**51-024-8**	8.60
A815 w/Clip	1/4" FPT	Brass/Steel	Closed	**51-025-5**	12.70
Open Ball w/Clip	1/4" FPT	Brass/Steel	Open	**51-026-3**	12.90



COILHOSE® PNEUMATICS

Air Nozzles

- Great for blowing out otherwise inaccessible holes.
- Made of hard stainless tubing.
- 1/8" NPT thread.

DIAMETER	LENGTH	PART NO.	PRICE
.042"	15/16"	**51-291-3**	$9.40
.050"	1 3/16"	**51-292-1**	9.40
.072"	1 3/4"	**51-293-9**	9.40
.095"	2 15/32"	**51-294-7**	9.40
.134"	2 3/4"	**51-295-4**	9.40
Set of Above 5 Pcs.		**51-290-5**	37.75


93-293-9


93-294-7


93-297-0


93-296-2


93-315-0

Jupiter Pneumatics universal air solutions

Blow Guns

Extended Safety Nozzle w/Thumb Lever

- Nozzle length: 3 1/2"
- High volume safety tip.
- 1/4" NPT inlet.

Compact Safety Nozzle w/Thumb Lever

- Chrome plated die cast aluminum.
- 1/4" NPT inlet.

Compact Safety Booster Nozzle w/Thumb Lever

- Chrome plated die cast zinc.
- 1/4" NPT inlet.

Pocket Type Adjustable Blow Gun

- 4" Aluminum Body.
- Integral Industrial coupler plug – 1/4" body.
- Rotating adjustable tip.

Flexible Rubber Blow Gun

- Bending rubber tip controls airflow.
- 1/4" NPT brass inlet.

DESCRIPTION	PART NO.	PRICE
Extended Safety Nozzle	**93-293-9**	$14.00
Compact Safety Nozzle	**93-294-7**	8.85
Compact Safety Booster	**93-295-4**	9.90
Pocket Type Adjustable Blow Gun	**93-296-2**	7.00
Flexible Rubber Blow Gun	**93-297-0**	9.35

Blow Gun Tips & Set

- Made from stainless steel with nickel plated brass base.
- Corrosion resistant.
- 1/8" MPT thread will fit most blow guns.

DESCRIPTION	PART NO.	PRICE
0.042 x 15/16" Needle Tip	**93-310-1**	$5.45
0.050 x 1 3/16" Needle Tip	**93-311-9**	5.45
0.072 x 1 3/4" Needle Tip	**93-312-7**	5.45
0.095 x 2 15/32" Needle Tip	**93-313-5**	5.45
0.134 x 2 3/4" Needle Tip	**93-314-3**	5.45
5 Pc. Needle Tips Set	**93-315-0**	21.75


51-006-5

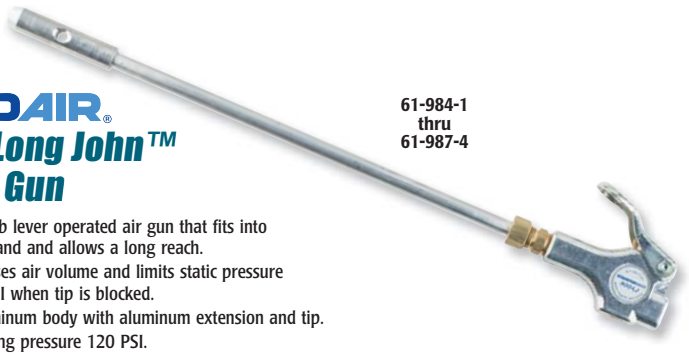

51-007-3

Automotive Acme

Pocket Blowguns

- 1/4" connector. Two standard coupler styles.
- Lightweight aluminum body.
- Rotating tip adjusts air volume from full flow to a trickle.
- Knurled tip assures a positive grip, even with oily, greasy or gloved hands.
- Pocket clip for convenient storage.

DESCRIPTION	PART NO.	PRICE
1/4" Industrial Coupler	**51-006-5**	$7.75
1/4" Automotive Coupler	**51-007-3**	7.75

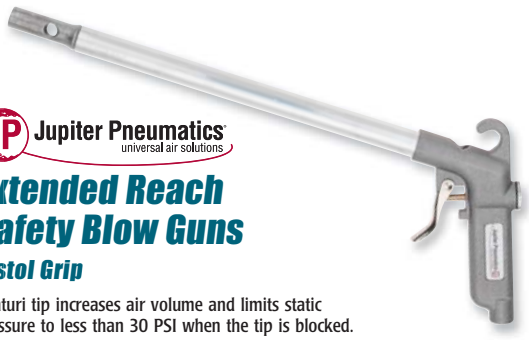

61-984-1 thru 61-987-4

GUARDAIR®

Bio-Hard Long John™ Safety Air Gun

- Lightweight, thumb lever operated air gun that fits into the palm of the hand and allows a long reach.
- Venturi tip increases air volume and limits static pressure to less then 30 PSI when tip is blocked.
- Rugged, cast aluminum body with aluminum extension and tip.
- Maximum operating pressure 120 PSI.
- 1/4" NPT inlet.
- Meets OSHA requirements.

LENGTH	MFG. NO.	PART NO.	PRICE
12"	900LJ012AA	**61-984-1**	$31.25
24"	900LJ024AA	**61-985-8**	31.85
36"	900LJ036AA	**61-986-6**	35.60
48"	900LJ048AA	**61-987-4**	45.30


93-288-9

Jupiter Pneumatics universal air solutions

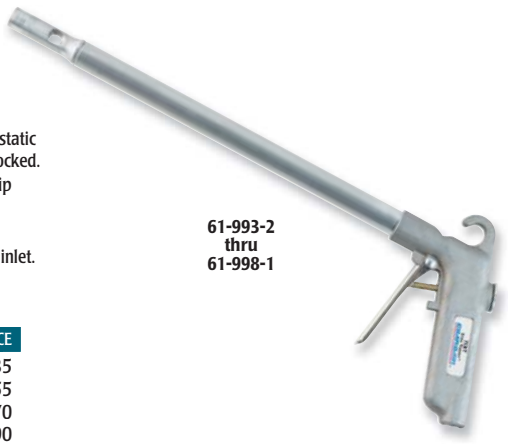
Extended Reach Safety Blow Guns

Pistol Grip

Venturi tip increases air volume and limits static pressure to less than 30 PSI when the tip is blocked.

- Rugged cast aluminum body.
- 1/4" NPT inlet.
- Meets OSHA requirements.

LENGTH	PART NO.	PRICE
12"	**93-288-9**	$35.15
18"	**93-289-7**	38.50
24"	**93-290-5**	40.40
36"	**93-291-3**	42.30
48"	**93-292-1**	45.60


61-993-2 thru 61-998-1

GUARDAIR®

Xtrathrust™ Safety Extension Air Gun

- Designed to move large volumes of debris.
- Venturi tip increases air volume and limits static pressure to less than 30 PSI when tip is blocked.
- Rugged, cast aluminum body with pistol grip handle and full length trigger.
- Aluminum extension and tip.
- Max. operating pressure 150 PSI; 1/4" NPT inlet.
- Most powerful safety air gun available.
- Meets OSHA requirements.

LENGTH	MFG. NO.	PART NO.	PRICE
12"	75XT012AA	**61-993-2**	$45.35
24"	75XT024AA	**61-994-0**	48.55
36"	75XT036AA	**61-995-7**	51.70
48"	75XT048AA	**61-996-5**	54.90
60"	75XT060AA	**61-997-3**	58.05
72"	75XT072AA	**61-998-1**	61.15

HOSE, TUBES & FITTING

GUARDAIR® Long John™ Extension Air Gun



61-972-6 thru 61-976-7

- Versatile tool for cleaning inaccessible locations.
- Venturi tip increases air volume and limits static pressure to less than 30 PSI when tip is blocked.
- Maximum operating pressure 150 PSI.
- Lightweight pistol style grip with aluminum extension and tip.
- 1/4" NPT inlet.
- Meets OSHA requirements.

Long John™ Extension Air Guns

LENGTH	PART NO.	PRICE
12"	**61-972-6**	$43.35
24"	**61-973-4**	46.20
36"	**61-974-2**	49.55
48"	**61-975-9**	51.35
60"	**61-976-7**	54.60

Replacement Extensions & Nozzle

LENGTH	PART NO.	PRICE
12"	**61-977-5**	$20.10
24"	**61-978-3**	25.00
36"	**61-979-1**	25.45
48"	**61-980-9**	29.20
60"	**61-981-7**	33.45
72"	**61-982-5**	35.05
Nozzle Only	**61-983-3**	6.15

GUARDAIR® Wisper Jet™ Air Gun



61-969-2

- Meets OSHA requirements.
- Unique nozzle design provides high thrust for noise sensitive applications.
- Operates at noise levels 6 to 20 decibels below conventional air guns.
- Rugged cast aluminum construction.
- Ergonomic pistol grip and trigger reduce fatigue.
- Solid tip construction prevents nozzle blockage.
- 1/4" NPT inlet.
- Max. PSI: 150.
- Model 80WJ.

DESCRIPTION	PART NO.	PRICE
Whisper Jet™ Air Gun	**61-969-2**	$30.40

COILHOSE® PNEUMATICS Safety Air Blow Guns

- 1/8" NPT female outlet thread.
- "S" suffix conform to OSHA standards for noise level and less than 30 PSI dead end pressure.

Model 600-S-DL 1/4" Female NPT Connection



61-317-4

- Tamper resistant nozzle designed for maximum efficiency.
- Safety and economical cost.
- Heavy-walled, non-corrosive, leak proof and lightweight.

DESCRIPTION	PART NO.	PRICE
Model 600 S	**61-317-4**	$12.90

Model 600-ST-DL 1/4" Female NPT Connection



61-318-2

- Meets OSHA specifications.
- Permanently attached nozzle assures user safety, defeats tampering.
- Internal valve & tip combine to keep outlet pressure below 30 PSI, while allowing maximum air flow, resulting in a safe, efficient and economical blow gun.

DESCRIPTION	PART NO.	PRICE
Model 600 ST	**61-318-2**	$13.95

Model 600 SB Safety Booster Blow Gun



61-319-0

- Made of chrome plated die cast zinc.
- 1/4" female NPT Connection.
- Provides greater CFM air volume via side venturi holes yet maintains outlet pressure under 30 PSI.
- Heavy walled, non-corrosive, leak proof and lightweight.
- Equipped with special tip when greater air volume is required.

DESCRIPTION	PART NO.	PRICE
Model 600 SB	**61-319-0**	$16.55

Model 605 Brass Tip Blow Gun



61-320-8

- Made of chrome-plated die-cast zinc.
- 1/4" female NPT connection.
- High pressure output for blowing out molds.

DESCRIPTION	PART NO.	PRICE
Model 605	**61-320-8**	$11.30

Model 601 Rubber Tip Blow Gun



61-321-6

- Made of chrome-plated die cast zinc.
- Leak proof connection between fluid lines.
- 1/4" female NPT connection.
- Blow out molds, won't mark or scratch delicate finishes or surfaces.

DESCRIPTION	PART NO.	PRICE
Model 601	**61-321-6**	$18.90



93-316-8

Jupiter Pneumatics universal air solutions 14 Pc. Economy Blow Gun Kit

- Max. Pressure: 150 PSI.

Kit includes:

- 1- Pistol grip blow gun with variable flow control and 1/4" NPT brass inlet thread.
- 1- Safety booster tip nozzle- for higher volume.
- 1- Standard safety tip nozzle-OSHA compliant
- 1- Non safety brass tip nozzle-for a concentrated air stream
- 1- Rubber tipped nozzle
- 1- high volume non-safety brass tip nozzle-increase flow while reducing air consumption.
- 1- Needle adapter-transfers the needle tip thread to the blow gun.
- 1- 10" safety extension tip for deep reach- OSHA compliant
- 5- Needle tips for precise delivery- .075 x 1 1/4", .075 x 1 3/4", .105 x 2 1/2", .115 x 2 3/4", .180 x 3 1/8".
- Furnished in fitted case.

DESCRIPTION	PART NO.	PRICE
14 Pc. Economy Blow Gun Kit	**93-316-8**	$39.95



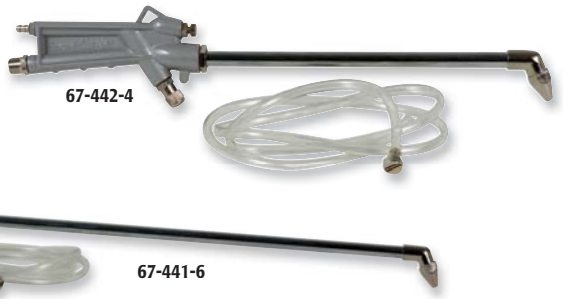
Jupiter Pneumatics universal air solutions

Regular Safety Pistol Blow Guns

Fixed Angle Nozzle with Side Hole

- 1/4" NPT Female brass thread connection.
- Temperature range: -40°F to 176°F.
- Max. working pressure: 160 psi.
- Tube material: aluminum
- Blow gun body material: POM Resin.
- Regular-duty gun extension tube: lightweight, thin walled aluminum tubing.
- These blow guns will meet OSHA 1910.242, if the following procedures are observed: inlet pressure does not exceed 100 psi and personal protection is used by operator.

TUBE LENGTH	TIP DIA.	PART NUMBER	PRICE
4"	1/4"	**93-298-8**	$16.10
14"	1/4"	**93-299-6**	24.35



Jupiter Pneumatics universal air solutions

Engine Cleaning Guns

- All guns are 1/4" NPT and a maximum psi of 120.

67-441-6

- Push-button lightweight aluminum 10" extension cleaning gun, perfect for engine cleaning.
- Package includes 4' suction hose.

67-442-4

- Lightweight aluminum 2' extension cleaning gun gets into hard to reach areas to remove grease, grime and dirt.
- Package includes 4' suction hose.

67-443-2

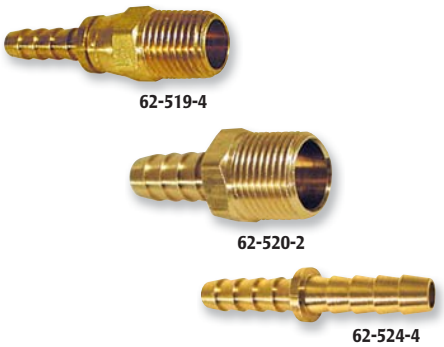
- Pistol grip aluminum spray gun with 3' suction hose is ideal for spraying solvents, insecticides and other fluid products.

67-444-0

- Pistol grip aluminum spray gun is perfect for lubrication needs.
- Package includes 700 cc spray canister and 8" extension tube.



FOR USE WITH	PART NO.	PRICE
10" Extension Lever Blow Gun w/4' Suction Hose	**67-441-6**	$16.75
2' Extension Lever Blow Gun w/4' Suction Hose	**67-442-4**	20.10
Pistol Grip Spray Gun w/3' Suction Hose	**67-443-2**	16.35
Pistol Grip Spray Gun w/700 cc Canister	**67-444-0**	34.80

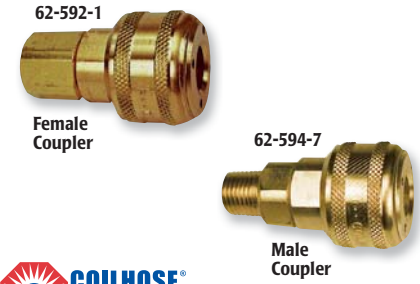


Brass Barb Hose Fittings

- Economical and long lasting product for many applications including those requiring corrosion resistance.
- All standard hose fittings are intended for use with hose clamps or crimped ferrules.

DESCRIPTION	ID	NPTF* THREAD	PART NUMBER	PRICE
Male/Barb	1/4"	1/4"	**62-518-6**	$1.55
Male/Barb	3/8"	1/4"	**62-520-2**	1.85
Swivel-Male/Barb	1/4"	1/4"	**62-519-4**	5.60
Swivel-Male/Barb	3/8"	3/8"	**62-522-8**	9.15
Splice-Barb/Barb	1/4"	(2"OAL)	**62-524-4**	1.85
Splice-Barb/Barb	3/8"	(2"OAL)	**62-525-1**	2.05

*NPT-Fine Thread.



COILHOSE® PNEUMATICS

Automatic "One Handed" Coupler

- There is no need to retract the coupler sleeve in order to insert the connector, providing a simple "one-handed" push-to-connect connection.
- All brass construction. Interchangeable with other manufacturers' similar makes.
- All 1/4" body couplers will accept all 1/4" body connectors.

THREAD SIZE	THREAD	COILHOSE® MODEL #	PART NUMBER	PRICE
1/4 FPT	Female	150A	**62-592-1**	$11.95
3/8 FPT	Female	151A	**62-593-9**	13.25
1/4 MPT	Male	152A	**62-594-7**	11.95
3/8 MPT	Male	155A	**62-595-4**	13.25



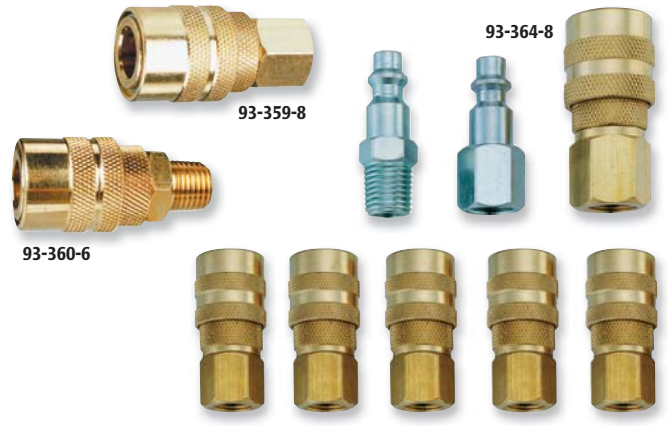
Jupiter Pneumatics universal air solutions

Universal Brass Couplers

- Interchangeable with Milton, Tru-Flate, Automotive, Industrial and ARO.
- Quickly change and connect pneumatic air tools.
- Helps to prevent kinking or twisting of hose.
- 1/4" body size.

DESCRIPTION	PART NO.	PRICE
1/4" Female NPT	**93-383-8**	$10.70
1/4" Male NPT	**93-384-6**	10.70
3/8" Hose Barb	**93-385-3**	11.70

HOSE, TUBES & FITTING



Jupiter Pneumatics universal air solutions

Brass Quick-Connect Couplers

- Industrial and ARO interchange series.
- Quickly change and connect pneumatic air tools.
- Helps to prevent kinking or twisting of hose.
- 1/4" body size.
- Made of solid brass.

Industrial/Milton 1/4" Body

DESCRIPTION	BRASS COUPLERS PART NO.	PRICE	3 PC. SET BRASS COUPLER W/2 PLUGS† PART NO.	PRICE	5 PC. SET BRASS COUPLER NPT PART NO.	PRICE
1/4" Female NPT	**93-359-8**	$7.90	**93-364-8**	$9.25	**93-369-7**	$26.40
1/4" Male NPT	**93-360-6**	7.90	**93-365-5**	9.25	**93-370-5**	26.40
3/8" Female NPT	**93-361-4** *	19.10	**93-366-3**	10.25	**93-371-3** *	66.40

ARO 1/4" Body

DESCRIPTION	BRASS COUPLERS PART NO.	PRICE	3 PC. SET BRASS COUPLER W/2 PLUGS† PART NO.	PRICE	5 PC. SET BRASS COUPLER NPT PART NO.	PRICE
1/4" Female NPT	**93-362-2**	$9.95	**93-367-1**	$14.15	**93-372-1**	$35.05
1/4" Male NPT	**93-363-0**	9.95	**93-368-9**	14.15	**93-373-9**	35.05

*3/8" body. † Includes one female and 1 male NPT plug.



Jupiter Pneumatics universal air solutions

Quick-Connect Plugs

- Industrial and ARO interchange series.
- Quickly change and connect pneumatic air tools.
- Helps to prevent kinking or twisting of hose.
- 1/4" body size.
- All plugs are heat treated steel.



Industrial/Milton 1/4" Body

DESCRIPTION	HEAT TREATED STEEL PLUGS PART NO.	PRICE	10 PC. SET HEAT TREATED STEEL PLUGS PART NO.	PRICE
1/4" Female NPT	**93-374-7**	$2.60	**93-379-6**	$16.55
1/4" Male NPT	**93-375-4**	2.80	**93-380-4**	16.55
3/8" Female NPT	**93-376-2** *	2.95	–	–

ARO 1/4" Body

DESCRIPTION	HEAT TREATED STEEL PLUGS PART NO.	PRICE	10 PC. SET HEAT TREATED STEEL PLUGS PART NO.	PRICE
1/4" Female NPT	**93-377-0**	$3.00	**93-381-2**	$18.40
1/4" Male NPT	**93-378-8**	3.00	**93-382-0**	18.40

* 3/8" body.

LEGEND VALVE

PVC Full Port - Schedule 80 True Union Ball Valves



- Manufactured with corrosion-resistant PVC, Teflon® seats and EPDM O-rings.
- The true union design can be disassembled for maintenance.
- Each valve comes with threaded and solvent end connections.
- Fits both schedule 80 and 40 PVC pipes.
- Pressure rating: 150 WOG @ 73°F.
- Max. Temp.: 140°F.
- Manufactured in an ISO-9002 facility.

SIZE	PART NO.	PRICE
1/2"	**67-544-7**	$26.60
3/4"	**67-545-4**	32.50
1"	**67-546-2**	43.55
1 1/4"	**67-547-0**	56.60
1 1/2"	**67-548-8**	78.45
2"	**67-549-6**	110.50
2 1/2"	**67-550-4**	171.00
3"	**67-551-2**	266.60
4"	**67-552-0**	529.70

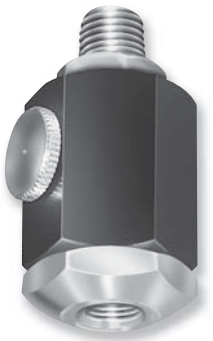
Parker

Air Tool Lubricators

The 02L lubricator is recommended to be directly attached to the air tool inlet or air appliance. These lubricators allow air tools to operate at full efficiency by preventing sticking, extending service life and reducing equipment down time.

- Small/lightweight.
- Corrosion resistant.
- Max. psi: 250
- Adjustable oil flow.
- Full swivel port.
- Max. Temperature: 120°F
- Automatic lubrication with air tool operation.

PIPE SIZE	HEIGHT	OIL CAP (CC)	CFM	MFR'S #	PART NUMBER	PRICE
1/4"	2.66"	9	32	02L1B	**67-540-5**	$53.45
3/8"	2.66"	9	32	02L2B	**67-541-3**	53.45





Parker

Drip Leg Condensate Drain Valves

- Allows for removal of collected liquids in automatic systems.
- Liquid expelled automatically when preset level is reached.
- Unwanted water piped away with 1/8" NPT drain port.
- 1/4" or 1/2" NPT.
- Lightweight aluminum construction.
- For 10-250 psi, 32° F to 175° F.

INLET SIZE NPT	OUTLET SIZE NPT	MAX. (PSI)	MFR'S #	PART NUMBER	PRICE
1/4"	1/8"	250	M06D1NA	**67-542-1**	$79.10
1/2"	1/8"	250	M06D3NA	**67-543-9**	79.10

Jupiter Pneumatics universal air solutions

Air Line Filters

Removes all foreign matter and allows clean, dry air to flow freely. Protecting valves and other parts of downstream equipment.

- Aluminum body.
- Polycarbonate bowl.
- 5-micron filter element.
- Max pressure: 150 PSI.
- Max temp: 125°F.
- Manual drain valve.
- Miniatures not modular.

DESCRIPTION	PORT NPT	BOWL GUARD	AIR FLOW SCFM	BOWL CAPACITY	HEIGHT	WIDTH	PART NUMBER	PRICE
Miniature	1/8"	No	22	1 oz.	4.22"	1.69"	**93-227-7**	$26.05
Miniature	1/4"	No	24	1 oz.	4.22"	1.69"	**93-228-5**	26.05
Compact	1/4"	No	30	1 oz.	4.64"	1.50"	**93-229-3**	35.40
Intermediate	1/4"	Yes	85	4 oz.	6.77"	2.56"	**93-230-1**	52.95
Intermediate	3/8"	Yes	85	4 oz.	6.77"	2.56"	**93-231-9**	55.25
Standard	1/2"	Yes	120	7 oz.	7.48"	3.15"	**93-232-7** *	66.15

* Port reducers included 1/2 to 3/8", and 1/2 to 1/4" NPT.


Miniature


Compact


Intermediate


Standard


Miniature


Intermediate


Compact


Standard

Jupiter Pneumatics universal air solutions

Regulators

A regulator provides a constant flow of set air pressure. Providing optimum operation and life of downstream equipment.

- Relief valve allows instant reduction of downstream pressure.
- Solid control piston with lip seal.
- Aluminum body.
- Pressure Range: 0 - 125 PSI.
- Max temp: 125°F.
- Gauges sold separately.
- Miniatures and compact not modular.

DESCRIPTION	PORT NPT	GUAGE NPT	AIR FLOW SCFM	MAX. PSI	HEIGHT	WIDTH	PART NUMBER	PRICE
Miniature	1/8"	1/8"	13	300	2.91"	1.63"	**93-233-5**	$19.50
Miniature	1/4"	1/8"	15	300	2.91"	1.63"	**93-234-3**	24.70
Compact	1/4"	1/4"	21	250	3.30"	2.12"	**93-235-0**	28.70
Intermediate	1/4"	1/8"	105	250	5.18"	2.56"	**93-236-8**	69.90
Intermediate	3/8"	1/4"	105	250	5.18"	2.56"	**93-237-6**	66.85
Standard	1/2"	1/4"	105	250	5.70"	3.15"	**93-238-4***	71.55

* Port reducers included 1/2 to 3/8", and 1/2 to 1/4" NPT.

Jupiter Pneumatics universal air solutions

Lubricators

Injects an oil mist into the airflow of downstream equipment. Protecting moving parts from costly premature failure.

- Precision needle valve for precise oil injection and rate adjustment.
- Sight glass dome for 360° visibility.
- Aluminum body.
- Polycarbonate bowl.
- Max Pressure: 150 PSI.
- Max temp: 125°F.
- Miniatures not modular.

DESCRIPTION	PORT NPT	AIR FLOW SCFM	BOWL CAPACITY	BOWL GUARD	HEIGHT	WIDTH	PART NUMBER	PRICE
Miniature	1/8"	20	1 oz.	No	5.80"	1.69"	**93-239-2**	$39.30
Miniature	1/4"	20	1 oz.	No	5.80"	1.69"	**93-240-0**	39.30
Compact	1/4"	20	1 oz.	No	5.45"	1.49"	**93-241-8**	42.90
Intermediate	1/4"	105	4 oz.	Yes	7.79"	2.56"	**93-242-6**	67.65
Intermediate	3/8"	105	4 oz.	Yes	7.79"	2.56"	**93-243-4**	67.65
Standard	1/2"	211	7 oz.	Yes	8.50"	3.15"	**93-244-2** *	75.45

* Port reducers included 1/2 to 3/8", and 1/2 to 1/4" NPT.


Miniature


Compact


Intermediate


Standard

HOSE, TUBES & FITTING


Miniature


Compact


Intermediate, Standard

Jupiter Pneumatics
universal air solutions

Filter/Regulator Combo Units

Provides clean air with a regulated set pressure.
For optimum operation and life of downstream equipment.

- Polycarbonate bowl.
- 5-micron filter element.
- Gauge included.
- Pressure range: 0 - 125 PSI.
- Max Pressure: 150 PSI.
- Max temp: 125°F.
- Miniatures and compact not modular.

DESCRIPTION	PORT NPT	AIR FLOW SCFM	BOWL CAPACITY	BOWL GUARD	HEIGHT	WIDTH	PART NUMBER	PRICE
Miniature	1/8"	20	1 oz.	No	6.21"	1.69"	**93-245-9**	$46.55
Miniature	1/4"	20	1 oz.	No	6.21"	1.69"	**93-246-7**	46.55
Compact	1/4"	24	1 oz.	No	6.88"	1.50"	**93-247-5**	58.95
Intermediate	1/4"	150	4 oz.	Yes	9.68"	2.56"	**93-248-3**	87.85
Intermediate	3/8"	150	4 oz.	Yes	9.68"	2.56"	**93-249-1**	87.85
Standard	1/2"	141	7 oz.	Yes	10.98"	3.15"	**93-250-9** *	101.45

* Port reducers included 1/2 to 3/8", and 1/2 to 1/4" NPT.

Jupiter Pneumatics
universal air solutions

Filter/Regulator/Lubricator 2 Piece Combination Units

Provides clean air with a regulated set pressure.
For optimum operation and life of downstream equipment.

- Aluminum body.
- Polycarbonate bowl.
- 5-micron filter element.
- Precision needle valve for precise oil injection and rate adjustment.
- Sight glass dome for 360° visibility.
- Gauge Included.
- Pressure range: 0 - 125 PSI.
- Max pressure: 150 PSI.
- Max temp: 125°F.
- Manual drain valve.
- Mounting bracket included.
- Miniatures not modular.
- Heavy duty models:
  - Metal bowl with sight glass.
  - Max pressure 250 PSI.


Miniature


Standard


Compact


Heavy-Duty

DESCRIPTION	PORT NPT	GAUGE NPT	AIR FLOW SCFM	BOWL CAPACITY	HEIGHT	WIDTH	PART NUMBER	PRICE
Miniature	1/8"	1/8"	22	1 oz.	6.21"	3.75"	**93-251-7**	$124.55
Miniature	1/4"	1/8"	24	1 oz.	6.21"	3.75"	**93-252-5**	124.55
Compact	1/4"	1/4"	30	1 oz.	6.88"	2.91"	**93-253-3**	136.45
Intermediate	1/4"	1/4"	85	4 oz.	9.68"	5.20"	**93-254-1**	214.15
Intermediate	3/8"	1/4"	85	4 oz.	9.68"	5.20"	**93-255-8**	214.15
Standard	1/2"	1/4"	120	7 oz.	10.98"	6.38"	**93-256-6***	232.25
Heavy Duty	1.0"	1/4"	300	16 oz.	15.95"	7.24"	**93-257-4**	531.55

* Port reducers included 1/2 to 3/8", and 1/2 to 1/4" NPT.

Jupiter Pneumatics
universal air solutions

Filter/Regulator/Lubricator 3 Piece Combination Units

Provides clean air with a regulated set pressure.
For optimum operation and life of downstream equipment.

- Aluminum body.
- Polycarbonate bowl.
- 5-micron filter element.
- Precision needle valve for precise oil injection and rate adjustment.
- Sight glass dome for 360° visibility.
- Gauge Included.
- Pressure range: 0 - 125 PSI.
- Max pressure: 150 PSI.
- Max temp: 125°F.
- Manual drain valve.
- Mounting bracket included.


Miniature


Intermediate


Heavy-Duty


Compact


Standard

DESCRIPTION	PORT NPT	GAUGE NPT	AIR FLOW SCFM	BOWL GUARD	BOWL CAPACITY	HEIGHT	WIDTH	PART NUMBER	PRICE
Miniature	1/4"	1/8"	24	No	1 oz.	5.98"	5.77"	**93-258-2**	$132.65
Compact	1/4"	1/4"	30	No	1 oz.	5.45"	4.48"	**93-259-0**	128.15
Intermediate	1/4"	1/4"	85	Yes	4 oz.	8.11"	7.67"	**93-260-8**	216.45
Intermediate	3/8"	1/4"	85	Yes	4 oz.	8.11"	7.67"	**93-261-6**	216.45
Standard	1/2"	1/4"	120	Yes	7 oz.	8.81"	9.44"	**93-262-4** *	229.90
Heavy Duty	3/4"	1/4"	270	No	16 oz.	15.95"	10.87"	**93-263-2**	558.75
Heavy Duty	1.0"	1/4"	300	No	16 oz.	15.95"	10.87"	**93-264-0**	558.75

* Port reducers included 1/2 to 3/8", and 1/2 to 1/4" NPT.

Jupiter Pneumatics universal air solutions

Plug & Coupler Accessories

3-Outlet Air Manifold

- 1/4" NPT inlet, with three 1/4" NPT outlets.
- Body made of aluminum.

Mini Air Tool Lubricator

- 1/4" NPT male x 1/4" NPT female threads.
- Body made of aluminum.
- Max pressure: 150 PSI.
- Diameter: 15/16", Height: 2 7/16".

DESCRIPTION	PART NO.	PRICE
3-Outlet Air Manifold	**93-268-1**	$17.75
Mini Air Tool Lubricator	**93-269-9**	17.90



93-268-1



93-269-9



67-367-3

Jupiter Pneumatics universal air solutions

360° Aluminum Swivel Fitting

- Free range of motion at any angle.
- Made of lightweight aluminum.
- Thread size: 1/4".
- Thread type: MPT and FPT.

DESCRIPTION	PART NO.	PRICE
360° Aluminum Swivel Fitting	**67-367-3**	$13.25

Jupiter Pneumatics universal air solutions

Industrial Interchange Manifolds

Tri-Pod Manifold

- Rugged three-port aluminum manifold.
- Three 1/4" body quick-connect couplers.
- One 1/4" body x 1/4" male NPT coupler plug.

Hex Manifold

- Three 1/4" body quick-connect couplers.
- One 1/4" body x 1/4" male NPT coupler plug.

Tee Manifold

- Two 1/4" body quick-connect couplers.
- One 1/4" body x 1/4" male NPT coupler plug.

DESCRIPTION	PART NO.	PRICE
Tri-Pod Manifold	**93-271-5**	$17.20
Hex Manifold	**93-272-3**	38.25
Tee Manifold	**93-273-1**	22.15



93-271-5



93-272-3



93-273-1

Jupiter Pneumatics universal air solutions

Auto-Electric Drains & Accessories

Auto-Electric Drain:

- 2/2 Way acting valve with manual test switch.
- Viton seals.
- Max. pressure: 230 psi.
- Operating temp.: -40° F to 140° F.
- Grade H coils.
- Standard 115V.
- Large 3/16" orifice.
- Two-year warranty.
- Included: By-pass valve/strainer – for use with compressed air systems.
- UL approved timer and cord.



Auto-Electric Drain

Self-cleaning Strainer Valve:

- Includes strainer and hose kit.
- Reduces installation/maintenance time.
- Allows for cleaning without shutting system down.



Self-cleaning Strainer Valve & Hose Kit

Auto-Electric Drains

INLET SIZE	HEIGHT	PART NO.	PRICE
1/4"	4.41"	**67-363-2**	$117.20
1/2"	4.41"	**67-364-0**	122.70

Self-Cleaning Strainer Valves

INLET SIZE	OUTLET SIZE	PART NUMBER	PRICE
1/4"	1/2"	**67-365-7**	$26.50
1/2"	1/2"	**67-366-5**	30.55



61-326-5

Oil Filled Air Pressure Gages

- 1/4" NPT side mount.
- 2 1/2" white face.

PSI MAX.	PART NO.	PRICE
0 - 30	**61-324-0**	$31.25
0 - 60	**61-325-7**	28.55
0 - 100	**61-326-5**	31.55
0 - 200	**61-327-3**	31.25

Jupiter Pneumatics universal air solutions

Air Regulators w/Pressure Gauge

Brass & Zinc Plated Air Regulators, Ideal for Compressors

- Min. Temp.: 32°F; Max. Temp.: 122°F.
- Min. psi: 10; Max. psi: 120.
- 1/4" NPT connection.
- Use to measure cylinder of tank pressure.

MATERIAL	PART NO.	PRICE
Brass	**67-368-1**	$11.30
Zinc	**67-369-9**	13.30



67-368-1



67-369-9

HOSE, TUBES & FITTING



Female x Female



Male x Female



Solder x Solder w/Drain

Jupiter Pneumatics
universal air solutions

Brass Ball Valves - Full Port

- 600 WOG • 150 WSP
- Maximum temperature: 400°F.
- Working temperature: -40°F to 365°F.
- Forged brass body.
- PTFE seats.
- Nickel plated.
- Chrome plated brass ball.

Female x Female

PIPE SIZE	PART NO.	PRICE
1/4"	67-410-1	$9.05
3/8"	67-411-9	9.05
1/2"	67-412-7	11.55
3/4"	67-413-5	13.75
1"	67-414-3	27.00
1 1/4"	67-415-0	32.85
1 1/2"	67-416-8	41.55
2"	67-417-6	68.45
2 1/2"	67-418-4	175.10
3"	67-419-2	241.00
4"	67-420-0	385.35

Male x Female

PIPE SIZE	PART NO.	PRICE
1/4"	67-421-8	$11.95
3/8"	67-422-6	11.95
1/2"	67-423-4	11.95
3/4"	67-424-2	18.70
1"	67-425-9	34.30

Solder x Solder w/Drain

PIPE SIZE	PART NO.	PRICE
1/2"	67-426-7 *	$13.25
3/4"	67-427-5 *	17.10
1"	67-428-3 *	26.05

* Valve has drain that allows water to be drained from line preventing freeze up.

Jupiter Pneumatics
universal air solutions

Filter-Regulator-Lubricator Accessories

- Replacement bowls, filter elements and mounting brackets.

5 Micron Elements

FOR USE WITH	PART NO.	PRICE
Miniature Filter	67-370-7	$7.25
Compact Filter	67-371-5	2.25
Intermediate Filter	67-372-3	3.95
Standard Filter	67-373-1	5.10
Heavy-Duty Filter	67-374-9	10.10

40 Micron Elements

FOR USE WITH	PART NO.	PRICE
Miniature Filter	67-375-6	$6.45
Compact Filter	67-376-4	2.25
Intermediate Filter	67-377-2	3.90
Standard Filter	67-378-0	5.15
Heavy-Duty Filter	67-379-8	19.45

Auto Drains

FOR USE WITH	PART NO.	PRICE
Miniature Filter	67-380-6	$9.10
Compact Filter	67-381-4	6.10
Intermediate Filter	67-382-2	28.25
Standard Filter	67-383-0	28.25
Heavy-Duty Filter	67-384-8	28.35

"C" Mounting Brackets

FOR USE WITH	PART NO.	PRICE
Intermediate Integral Filter/Regulator	67-385-5	$8.55
Standard Integral Filter/Regulator	67-386-3	8.55

"L" Mounting Brackets

FOR USE WITH	PART NO.	PRICE
Miniature Reg., F/R, F/R-L, F-R-L	67-387-1	$5.15
Compact Reg., F/R, F/R-L, F-R-L	67-388-9	2.35
Intermediate Reg., F/R, F/R-L, F-R-L	67-389-7	6.10
Standard Reg., F/R, F/R-L, F-R-L	67-390-5	8.15
Heavy-Duty Reg., F/R, F/R-L, F-R-L	67-391-3	13.75

Manual Drains

FOR USE WITH	PART NO.	PRICE
Miniature Filter	67-392-1	$7.95
Compact Filter	67-393-9	5.85
Intermediate Filter	67-394-7	7.85
Standard Filter	67-395-4	7.85
Heavy-Duty Filter	67-396-2	7.85

Metal Bowl w/Sight Glass

FOR USE WITH	PART NO.	PRICE
Heavy-Duty Filter	67-397-0	$44.90
Heavy-Duty Regulator	67-398-8	44.75

Modular Mounting Brackets

FOR USE WITH	PART NO.	PRICE
Intermediate Reg., F/R-L, F-R-L	67-399-6	$21.75
Standard Reg., F/R-L, F-R-L	67-400-2	21.75
Heavy-Duty Reg., F/R-L, F-R-L	67-401-0	28.85

Polycarbonate Bowls

FOR USE WITH	PART NO.	PRICE
Miniature Filter	67-402-8	$7.90
Miniature Lubricator	67-403-6	7.90
Compact Filter	67-404-4	7.90
Compact Lubricator	67-405-1	7.90
Intermediate Filter	67-406-9	28.10
Intermediate Lubricator	67-407-7	23.70
Standard Filter	67-408-5	36.75
Standard Lubricator	67-409-3	34.25



5 Micron Element



40 Micron Element



Auto Drain



"C" Mounting Bracket



"L" Mounting Bracket Intermediate



"L" Mounting Bracket Compact



Modular Mounting Bracket



Polycarbonate Bowl Compact Filter



Polycarbonate Bowl Compact Lubricator



Polycarbonate Bowl w/Guard Filter Intermediate & Standard

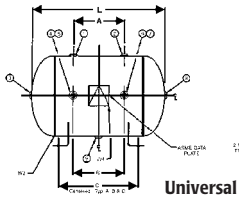


Polycarbonate Bowl w/Guard Lubricator Intermediate & Standard

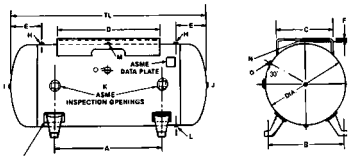
Compressed Air Tanks & Receivers

Air receivers are built to ASME code, National Board registered.

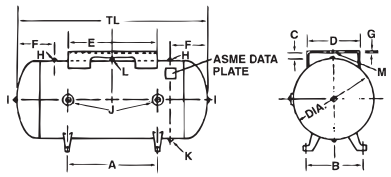
- Standard design temperature is -20° F to + 450° F. All openings are NPT threaded.
- Slotting and drilling of tank attachments and accurately positioned vessel openings.
- Leak proof. Vibration resistant. Accurately positioned openings.
- Standard outside finish is primer coating.
- Wide selection of standard configurations from 6" to 12" diameters.



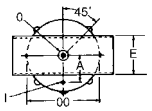
Universal Tank

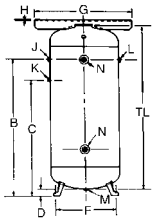


Horizontal Tank - Small

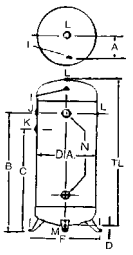


Horizontal Tank - Large

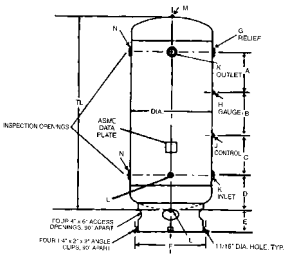




Vertical w/Platform



Vertical Tank



Vertical Tank - Industrial

Universal Tank - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	1	2	3	4	5	6	WT. (LBS.)	PART NUMBER	PRICE
2.0	8"	11"	2.00"	2.00"	7"	0.75"	0.5"	0.75"	0.75"	0.75"	1"	17	**67-553-8**	$315.10
4.7	10"	16"	5.25"	5.25"	10"	0.75"	0.5"	0.75"	0.75"	0.75"	1"	24	**67-554-6**	369.15
7.0	12"	17"	5.00"	5.00"	10"	0.75"	0.5"	0.75"	0.75"	0.75"	1"	26	**67-555-3**	371.25
9.8	12"	23"	11.00"	11.00"	10"	0.75"	0.5"	0.75"	0.75"	0.75"	1"	32	**67-556-1**	392.60
13.3	14"	23"	10.25"	6.25"	15"	0.75"	0.5"	0.75"	1.50"	1.50"	1"	43	**67-557-9**	437.10
19.0	16"	25"	11.00"	11.00"	16"	0.75"	0.5"	0.75"	1.50"	1.50"	2"	65	**67-558-7**	487.80
24.3	16"	31"	17.00"	17.00"	16"	0.75"	0.5"	0.75"	1.50"	1.50"	2"	76	**67-559-5**	776.95
30.2	18"	31"	16.00"	14.00"	16"	0.75"	0.5"	0.75"	1.50"	1.50"	2"	97	**67-560-3** *	670.80

Horizontal Tank w/Top Plate - Large - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	WT. (LBS.)	PART NUMBER	PRICE
30.0	16"	38"	22.00"	14.25"	12"	24.00"	6.00"	0.19"	1.63"	0.50"	0.50"	0.75"	1.50"	0.25"	0.75"	3.0"	0.25"	107	**67-561-1** *	$648.40
60.0	20"	48"	26.00"	18.50"	14"	30.00"	7.88"	0.19"	1.63"	0.75"	0.50"	1.00"	2.00"	0.50"	1.00"	3.0"	0.25"	197	**67-562-9** *	1,004.85
80.0	20"	63"	36.00"	18.50"	14"	40.00"	9.00"	0.19"	1.63"	1.00"	0.75"	1.25"	2.00"	0.75"	1.50"	3.0"	0.25"	251	**67-563-7** *	1,152.65
120.0	24"	69"	42.00"	18.25"	16"	44.00"	10.00"	0.25"	1.63"	1.50"	1.00"	1.50"	2.00"	0.75"	1.50"	3.0"	0.25"	375	**67-564-5** *	1,610.10

Horizontal Tank w/o Top Plate - Large - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	WT. (LBS.)	PART NUMBER	PRICE
30.0	16"	38"	22.00"	14.25"	–	–	6.00"	–	–	0.50"	0.50"	0.75"	1.50"	0.25"	0.75"	–	0.25"	107	**67-567-8** *	$567.05
60.0	20"	48"	26.00"	18.50"	–	–	7.88"	–	–	0.75"	0.50"	1.00"	2.00"	0.50"	1.00"	–	0.25"	197	**67-568-6** *	854.00

Horizontal Tank w/Top Plate - Small - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	WT. (LBS.)	PART NUMBER	PRICE
10.0	10"	30"	18.00"	9.25"	1.5"	9.00"	16.00"	5.50"	0.117"	0.50"	0.75"	–	0.25"	0.50"	2"	45	**67-569-4**	$491.15
15.0	12"	33"	20.00"	11.00"	1.5"	9.00"	18.00"	5.50"	0.117"	0.50"	0.75"	–	0.25"	0.50"	2"	56	**67-570-2**	474.15
20.0	14"	33"	18.00"	14.00"	1.5"	10.00"	19.00"	5.88"	0.117"	0.50"	0.75"	1.50"	0.25"	0.50"	2"	71	**67-571-0**	579.20
30.0	14"	48"	33.00"	14.00"	1.5"	10.00"	32.00"	5.88"	0.117"	0.50"	0.75"	1.50"	0.25"	0.75"	3"	97	**67-572-8** *	860.25

Horizontal Tank w/o Top Plate - Small - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	WT. (LBS.)	PART NUMBER	PRICE
10.0	10"	30"	18.00"	9.25"	1.5"	–	–	5.50"	–	0.50"	0.75"	–	0.25"	0.50"	–	45	**67-573-6**	$390.55
15.0	12"	33"	20.00"	11.00"	1.5"	–	–	5.50"	–	0.50"	0.75"	–	0.25"	0.50"	–	56	**67-574-4**	453.35
20.0	14"	33"	18.00"	14.00"	1.5"	–	–	5.88"	–	0.50"	0.75"	1.50"	0.25"	0.50"	–	71	**67-575-1**	576.95

* Truck collect

Vertical Tank w/Platform - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	WT. (LBS.)	PART NUMBER	PRICE
30.0	16"	38"	6.50"	30.25"	24.25"	1.75"	9.00"	18.00"	23.00"	0.19"	0.25"	0.75"	0.75"	0.75"	0.50"	1.5"	0.75"	103	**67-576-9** *	$668.65
60.0	20"	48"	8.50"	40.00"	34.00"	2.50"	13.00"	23.00"	30.00"	0.19"	0.25"	0.75"	0.75"	0.75"	0.50"	2.0"	0.75"	191	**67-577-7** *	958.00
80.0	24"	48"	10.00"	39.88"	33.88"	3.25"	13.00"	26.00"	30.00"	0.25"	0.25"	1.25"	1.25"	1.25"	0.50"	2.0"	1.25"	259	**67-578-5** *	1,220.75
120.0	30"	46"	10.00"	41.00"	35.00"	8.00"	15.00"	26.00"	39.00"	0.25"	0.25"	2.00"	2.00"	2.00"	0.50"	2.0"	2.00"	467	**67-579-3** †*	2,140.20

† Has saddles instead of feet.

Vertical Tank - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	F	I	J	K	L	M	N	WT. (LBS.)	PART NUMBER	PRICE
30.0	16"	38"	6.50"	30.25"	24.50"	1.75"	18.00"	0.25"	0.75"	0.75"	0.75"	0.50"	1.50"	82	**67-580-1** *	$533.80
60.0	20"	48"	8.50"	40.00"	34.00"	2.50"	23.00"	0.25"	0.75"	0.75"	0.75"	0.50"	2.00"	158	**67-581-9** *	798.50
80.0	24"	48"	10.00"	39.88"	33.88"	3.25"	26.00"	0.25"	1.25"	1.25"	1.25"	0.50"	2.00"	211	**67-582-7** *	1,080.25

Vertical Tank Industrial - (Design Pressure = 200 psi)

CAP. (GAL.)	TANK DIA.	TANK LENGTH	DIMENSIONS A	B	C	D	E	F	G	H	J	K	L	M	N	WT. (LBS.)	PART NUMBER	PRICE
120.0	24"	69"	13.00"	14.00"	13"	13.00"	12.00"	20.00"	1.50"	0.25"	0.50"	2.00"	1.00"	0.50"	2.0"	327	**67-583-5** *	$1,503.70
200.0	30"	72"	15.00"	16.00"	15"	13.00"	12.00"	26.00"	2.00"	0.25"	0.50"	2.00"	1.00"	0.50"	2.0"	540	**67-584-3** *	2,130.15
240.0	30"	84"	19.00"	20.00"	19"	13.00"	12.00"	26.00"	2.00"	0.25"	0.50"	2.00"	1.00"	0.50"	2.0"	617	**67-585-0** *	2,469.80

* Truck collect

HOSE, TUBES & FITTING

37° Flare Tube Fittings - Fractional

Compact design, ease of assembly, reliability (single seal), wide availability and acceptance. It is especially suited for low and medium wall tubing. Generally considered to be a 3000 psi fitting. Used in virtually every application that uses fluid power for motion control.

- **Single Seal Point** - Fittings have only one seal (between the fitting nose and flare ID). This makes a highly reliable joint that is easily maintained • Material: Steel.
- **Metal to Metal Seal** - Allows wide operating temperature range for many applications.
- **No Minimum Tube Wall Limitation** - Fittings are suitable for very thin to medium wall tubing. This allows use of optimum wall thickness tubing, reducing overall system cost.
- **Short Tube Entry** - Minimum tube prying is necessary when maintenance is required on the system. It is easy and quick.
- **Forged Shapes** - Fittings have no braze joints to leak. Forgings provide higher dependability and longer life compared to multiple component brazed constructions.



Female Elbow

Female Elbows

OD	NPTF THREAD	PART NUMBER	PRICE
1/4"	1/4"	67-984-5	$10.70
1/4"	1/8"	67-985-2	8.55
5/16"	1/4"	67-986-0	19.70
5/16"	1/8"	67-987-8	21.15
3/8"	1/8"	67-988-6	16.15
3/8"	3/8"	67-989-4	15.05
3/8"	1/4"	67-990-2	10.55
1/2"	1/4"	67-991-0	15.95
1/2"	1/2"	67-992-8	22.15
1/2"	3/8"	67-993-6	15.65
5/8"	1/2"	67-994-4	22.55
3/4"	1/2"	67-995-1	29.25
3/4"	3/4"	67-996-9	35.75



Male 45° Elbow

Male 45° Elbows

OD	NPTF THREAD	PART NUMBER	PRICE
1/8"	1/8"	67-997-7	$19.95
3/16"	1/8"	67-998-5	17.15
1/4"	1/8"	67-999-3	7.80
1/4"	1/4"	68-000-9	10.45
5/16"	1/4"	68-001-7	11.30
5/16"	1/8"	68-002-5	9.35
3/8"	1/4"	68-003-3	9.65
3/8"	1/8"	68-004-1	14.30
3/8"	3/8"	68-005-8	12.20
3/8"	1/2"	68-006-6	17.50
1/2"	3/4"	68-007-4	24.10
1/2"	1/4"	68-008-2	17.00
1/2"	1/2"	68-009-0	13.15
1/2"	3/8"	68-010-8	12.00



Female Branch Tee

Female Branch Tees

OD	NPT THREAD	PART NUMBER	PRICE
1/4"	1/8"	68-011-6	$14.75
5/16"	1/8"	68-012-4	17.00
3/8"	1/4"	68-013-2	14.30
1/2"	3/8"	68-014-0	21.70
5/8"	1/2"	68-015-7	36.55
3/4"	3/4"	68-016-5	50.30



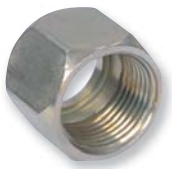
Union Elbow

Union Elbows

OD	PART NUMBER	PRICE
1/8"	68-017-3	$25.45
1/4"	68-018-1	7.10
5/16"	68-019-9	9.20
3/8"	68-020-7	8.10
1/2"	68-021-5	9.85
5/8"	68-022-3	12.85
3/4"	68-023-1	18.40



Male Run Tee



Nuts & Ferrules



Straight Thread Connectors



Union Tee



Male Connectors



Male Elbows

Male Branch Tees & Male Run Tees

OD	NPTF THREAD	MALE BRANCH TEES PART NO.	MALE BRANCH TEES PRICE	MALE RUN TEES PART NO.	MALE RUN TEES PRICE
3/16"	1/8"	68-024-9	$17.65	68-034-8	$45.35
1/4"	1/4"	68-025-6	17.85	68-035-5	12.65
1/4"	1/8"	68-026-4	9.70	68-036-3	9.50
5/16"	1/8"	68-027-2	12.55	68-037-1	25.80
3/8"	1/4"	68-028-0	12.10	68-038-9	12.10
3/8"	3/8"	68-029-8	14.30	68-039-7	13.90
1/2"	1/2"	68-030-6	22.40	68-040-5	17.75
1/2"	3/8"	68-031-4	17.70	68-041-3	17.70
5/8"	1/2"	68-032-2	22.40	68-042-1	22.85
3/4"	3/4"	68-033-0	34.00	68-043-9	35.15

Nuts & Ferrules

TUBE OD	NUTS PART NO.	NUTS PRICE	FERRULES PART NO.	FERRULES PRICE
1/4"	68-044-7	$1.40	68-048-8	$1.05
3/8"	68-045-4	1.45	68-049-6	1.40
1/2"	68-046-2	2.05	68-050-4	1.55
3/4"	68-047-0	3.65	68-051-2	2.95

Straight Thread Connectors & Straight Thread Elbows

OD	UNF THREAD	CONNECTORS PART NO.	CONNECTORS PRICE	ELBOWS PART NO.	ELBOWS PRICE
1/4"	7/16"	68-052-0	$3.20	68-060-3	$10.05
1/4"	9/16"	68-053-8	5.70	68-061-1	12.75
3/8"	9/16"	68-054-6	3.20	68-062-9	12.00
3/8"	3/4"	68-055-3	4.85	68-063-7	13.75
1/2"	3/4"	68-056-1	4.80	68-064-5	14.45
1/2"	9/16"	68-057-9	5.95	68-065-2	16.80
3/4"	1 1/16"	68-058-7	9.20	68-066-0	25.50
3/4"	3/4"	68-059-5	10.65	–	–

Union Tees

OD	PART NUMBER	PRICE
1/8"	68-067-8	$31.75
3/16"	68-068-6	27.05
1/4"	68-069-4	10.20
5/16"	68-070-2	12.50
3/8"	68-071-0	12.55
1/2"	68-072-8	16.15
5/8"	68-073-6	22.75
3/4"	68-074-4	25.85

Male Connectors

TUBE OD	NPTF THREAD	PART NUMBER	PRICE
1/4"	1/8"	68-075-1	$2.20
1/4"	1/4"	68-076-9	2.55
3/8"	1/4"	68-077-7	2.05
3/8"	3/8"	68-078-5	2.85
3/8"	1/2"	68-079-3	4.95
1/2"	3/8"	68-080-1	2.95
1/2"	1/2"	68-081-9	4.80
3/4"	3/4"	68-082-7	6.00

Male Elbows

TUBE OD	NPTF THREAD	PART NUMBER	PRICE
1/4"	1/8"	68-083-5	$6.25
1/4"	1/4"	68-084-3	7.35
3/8"	1/4"	68-085-0	7.95
3/8"	3/8"	68-086-8	9.65
3/8"	1/2"	68-087-6	14.20
1/2"	3/8"	68-088-4	9.90
1/2"	1/2"	68-089-2	14.45
3/4"	3/4"	68-090-0	17.95

Type 304 & 316 150 Lb. Stainless Steel Threaded Fittings

- Meets ASTM-A-351 and B1.20.1 specification.
- Resistant to rust and corrosion.
- Use Type 316 for greater degree of rust and corrosion resistance.
- IPS: Iron Pipe Size (NPT).



90° Elbow



90° Street Elbow



45° Elbow



Tees

SIZE (IPS)	90° ELBOWS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	90° STREET ELBOWS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	45° ELBOWS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	TEES TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE
1/8"	68-091-8	$5.20	68-103-1	$6.80	68-115-5	$7.35	68-127-0	$9.25	68-139-5	$6.70	68-151-0	$8.10	68-163-5	$7.00	68-175-9	$8.40
1/4"	68-092-6	5.20	68-104-9	6.70	68-116-3	7.30	68-128-8	9.05	68-140-3	6.60	68-152-8	7.95	68-164-3	7.30	68-176-7	8.25
3/8"	68-093-4	6.45	68-105-6	8.10	68-117-1	8.95	68-129-6	11.35	68-141-1	7.80	68-153-6	9.80	68-165-0	8.90	68-177-5	11.00
1/2"	68-094-2	6.60	68-106-4	9.10	68-118-9	10.05	68-130-4	13.15	68-142-9	8.45	68-154-4	10.85	68-166-8	9.45	68-178-3	11.75
3/4"	68-095-9	9.25	68-107-2	13.15	68-119-7	14.45	68-131-2	17.25	68-143-7	12.25	68-155-1	14.15	68-167-6	14.95	68-179-1	17.25
1"	68-096-7	13.05	68-108-0	16.45	68-120-5	24.95	68-132-0	27.35	68-144-5	15.30	68-156-9	17.65	68-168-4	19.10	68-180-9	21.65
1 1/4"	68-097-5	24.75	68-109-8	28.15	68-121-3	36.25	68-133-8	41.65	68-145-2	24.45	68-157-7	27.70	68-169-2	37.80	68-181-7	43.00
1 1/2"	68-098-3	32.90	68-110-6	37.45	68-122-1	42.90	68-134-6	46.40	68-146-0	29.05	68-158-5	33.00	68-170-0	47.00	68-182-5	52.15
2"	68-099-1	41.75	68-111-4	47.35	68-123-9	58.05	68-135-3	66.25	68-147-8	40.80	68-159-3	46.10	68-171-8	60.40	68-183-3	67.15
2 1/2"	68-100-7	69.30	68-112-2	103.90	68-124-7	91.15	68-136-1	178.00	68-148-6	81.95	68-160-1	120.65	68-172-6	92.70	68-184-1	156.80
3"	68-101-5	86.55	68-113-0	142.90	68-125-4	118.50	68-137-9	230.70	68-149-4	112.80	68-161-9	174.10	68-173-4	133.55	68-185-8	223.80
4"	68-102-3	172.05	68-114-8	262.55	68-126-2	235.20	68-138-7	97.95	68-150-2	200.75	68-162-7	327.70	68-174-2	245.80	–	–



Cross



Union



Coupling



Half Coupling

SIZE (IPS)	CROSSES TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	UNIONS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	COUPLINGS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	HALF COUPLINGS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE
1/8"	68-187-4	$14.15	68-199-9	$15.15	68-211-2	$13.55	68-223-7	$16.45	68-235-1	$3.40	68-247-6	$3.50	68-259-1	$2.45	68-271-6	$2.35
1/4"	68-188-2	14.15	68-200-5	15.15	68-212-0	13.30	68-224-5	16.15	68-236-9	3.25	68-248-4	3.80	68-260-9	2.80	68-272-4	2.40
3/8"	68-189-0	16.85	68-201-3	17.80	68-213-8	16.00	68-225-2	19.80	68-237-7	4.65	68-249-2	4.40	68-261-7	3.00	68-273-2	2.75
1/2"	68-190-8	20.75	68-202-1	21.70	68-214-6	16.20	68-226-0	22.00	68-238-5	5.30	68-250-0	6.60	68-262-5	4.00	68-274-0	3.75
3/4"	68-191-6	35.40	68-203-9	37.75	68-215-3	20.25	68-227-8	30.85	68-239-3	7.60	68-251-8	9.15	68-263-3	5.40	68-275-7	5.45
1"	68-192-4	52.40	68-204-7	46.45	68-216-1	30.55	68-228-6	44.55	68-240-1	12.35	68-252-6	13.40	68-264-1	6.85	68-276-5	7.95
1 1/4"	68-193-2	62.15	68-205-4	67.15	68-217-9	65.05	68-229-4	79.40	68-241-9	19.75	68-253-4	22.45	68-265-8	11.15	68-277-3	11.90
1 1/2"	68-194-0	77.05	68-206-2	83.75	68-218-7	61.70	68-230-2	94.95	68-242-7	26.05	68-254-2	25.80	68-266-6	14.20	68-278-1	15.90
2"	68-195-7	110.20	68-207-0	115.40	68-219-5	117.60	68-231-0	127.40	68-243-5	37.65	68-255-9	36.85	68-267-4	19.45	68-279-9	20.65
2 1/2"	68-196-5	200.20	68-208-8	375.35	68-220-3	86.30	68-232-8	249.30	68-244-3	51.20	68-256-7	108.35	68-268-2	29.85	68-280-7	57.25
3"	68-197-3	216.35	68-209-6	408.80	68-221-1	100.00	68-233-6	87.75	68-245-0	67.50	68-257-5	123.90	68-269-0	40.95	68-281-5	78.00
4"	68-198-1	351.35	–	–	68-222-9	148.95	68-234-4	149.60	68-246-8	104.95	68-258-3	208.45	68-270-8	65.50	68-282-3	128.35



Cap



Square Head Plug



Hex Head Plug



Locknut

SIZE (IPS)	CAPS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	SQUARE HEAD PLUGS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	HEX HEAD PLUGS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	LOCKNUTS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE
1/8"	68-283-1	$3.30	68-295-5	$3.45	68-307-8	$2.35	68-319-3	$3.30	68-331-8	$3.05	68-343-3	$2.50	68-355-7	$12.45	68-367-2	$13.65
1/4"	68-284-9	3.30	68-296-3	3.70	68-308-6	2.55	68-320-1	3.30	68-332-6	3.05	68-344-1	2.55	68-356-5	12.45	68-368-0	13.65
3/8"	68-285-6	4.25	68-297-1	4.95	68-309-4	3.35	68-321-9	4.25	68-333-4	3.70	68-345-8	3.40	68-357-3	12.45	68-369-8	13.65
1/2"	68-286-4	4.65	68-298-9	5.45	68-310-2	3.90	68-322-7	4.55	68-334-2	5.70	68-346-6	4.15	68-358-1	12.45	68-370-6	13.65
3/4"	68-287-2	7.85	68-299-7	7.05	68-311-0	5.75	68-323-5	6.85	68-335-9	7.15	68-347-4	6.30	68-359-9	15.20	68-371-4	17.00
1"	68-288-0	11.55	68-300-3	10.90	68-312-8	8.25	68-324-3	9.85	68-336-7	12.25	68-348-2	9.85	68-360-7	17.20	68-372-2	19.15
1 1/4"	68-289-8	23.65	68-301-1	31.40	68-313-6	20.00	68-325-0	23.25	68-337-5	19.70	68-349-0	22.70	68-361-5	35.50	68-373-0	38.70
1 1/2"	68-290-6	31.10	68-302-9	34.50	68-314-4	23.95	68-326-8	25.65	68-338-3	21.55	68-350-8	26.90	68-362-3	35.55	68-374-8	38.70
2"	68-291-4	39.65	68-303-7	40.95	68-315-1	28.25	68-327-6	35.40	68-339-1	29.65	68-351-6	38.75	68-363-1	39.15	68-375-5	42.40
2 1/2"	68-292-2	46.50	68-304-5	75.15	68-316-9	53.80	68-328-4	59.00	68-340-9	53.10	68-352-4	64.55	68-364-9	49.40	68-376-3	54.40
3"	68-293-0	54.55	68-305-2	104.05	68-317-7	69.55	68-329-2	71.75	68-341-7	72.80	68-353-2	82.75	68-365-6	62.70	68-377-1	66.85
4"	68-294-8	86.05	68-306-0	172.45	68-318-5	132.25	68-330-0	157.10	68-342-5	152.25	68-354-0	184.90	68-366-4	89.90	68-378-9	107.55

HOSE, TUBES & FITTING

NEW **HAND TOOLS**



93-451-3

STANLEY

11 Pc. Combination Wrench Sets

See Pg. 402



93-449-7

CRESCENT

7 Pc. Universal Quick Convert T-Handle Dual Material Nutdriver Set

See Pg. 404



93-455-4

APEX
ASSEMBLY & FABRICATION TOOLS

45 Pc. Screwdriver Bit Set

See Pg. 405

Type 304 & 316 150 Lb. Stainless Steel Threaded Fittings

- Meets ASTM-A-351 and B1.20.1 specification.
- Resistant to rust and corrosion.
- Use Type 316 for greater degree of rust and corrosion resistance.
- IPS: Iron Pipe Size (NPT).



Hex Bushing



Reducer

THD. SIZE IPS	INT. THD. SIZE	HEX BUSHINGS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE	REDUCERS TYPE 304 PART NO.	PRICE	TYPE 316 PART NO.	PRICE
1/4"	1/8"	68-379-7	$3.45	68-418-3	$3.75	68-457-1	$4.70	68-492-8	$5.80
3/8"	1/8"	68-380-5	4.25	68-419-1	5.10	68-458-9	7.10	68-493-6	8.10
3/8"	1/4"	68-381-3	4.60	68-420-9	4.25	68-459-7	5.90	68-494-4	6.85
1/2"	1/8"	68-382-1	5.45	68-421-7	6.05	68-460-5	6.80	68-495-1	9.65
1/2"	1/4"	68-383-9	4.65	68-422-5	5.00	68-461-3	7.30	68-496-9	8.25
1/2"	3/8"	68-384-7	4.65	68-423-3	5.00	68-462-1	7.30	68-497-7	8.25
3/4"	1/8"	68-385-4	8.05	68-424-1	8.95	68-463-9	10.10	68-914-1	12.30
3/4"	1/4"	68-386-2	7.95	68-425-8	8.95	68-464-7	10.10	68-915-8	12.30
3/4"	3/8"	68-387-0	6.35	68-426-6	7.00	68-465-4	9.45	68-916-6	10.65
3/4"	1/2"	68-388-8	4.80	68-427-4	7.00	68-466-2	9.45	68-917-4	10.65
1"	1/8"	68-389-6	11.20	68-428-2	12.65	68-467-0	13.85	68-918-2	20.30
1"	1/4"	68-390-4	11.20	68-429-0	12.65	68-468-8	13.85	68-919-0	20.30
1"	3/8"	68-391-2	11.20	68-430-8	12.65	68-469-6	13.85	68-920-8	20.30
1"	1/2"	68-392-0	9.80	68-431-6	10.90	68-470-4	15.25	68-921-6	17.60
1"	3/4"	68-393-8	9.80	68-432-4	10.70	68-471-2	15.25	68-922-4	17.60
1 1/4"	1/8"	68-394-6	19.85	68-433-2	24.75	–	–	–	–
1 1/4"	1/4"	68-395-3	19.85	68-434-0	24.75	–	–	–	–
1 1/4"	3/8"	68-396-1	19.85	68-435-7	24.75	68-472-0	22.70	68-923-2	26.50
1 1/4"	1/2"	68-397-9	19.85	68-436-5	24.75	68-473-8	22.70	68-924-0	26.50
1 1/4"	3/4"	68-398-7	19.85	68-437-3	24.75	68-474-6	22.70	68-925-7	26.50
1 1/4"	1"	68-399-5	24.45	68-438-1	28.75	68-475-3	22.20	68-926-5	29.30
1 1/2"	1/4"	68-400-1	23.80	–	–	–	–	–	–
1 1/2"	3/8"	68-401-9	23.80	–	–	68-476-1	29.00	68-927-3	35.35
1 1/2"	1/2"	68-402-7	23.80	–	–	68-477-9	29.00	68-928-1	35.35
1 1/2"	3/4"	68-403-5	23.80	68-442-3	29.25	68-478-7	29.00	68-929-9	35.35
1 1/2"	1"	68-404-3	23.25	68-443-1	28.75	68-479-5	29.00	68-930-7	35.35
1 1/2"	1 1/4"	68-405-0	29.95	68-444-9	34.55	68-480-3	27.15	68-931-5	33.15
2"	3/8"	68-406-8	36.10	68-445-6	41.50	–	–	–	–
2"	1/2"	68-407-6	36.10	68-446-4	41.50	68-481-1	48.30	68-932-3	59.50
2"	3/4"	68-408-4	36.10	68-447-2	41.50	68-482-9	48.30	68-933-1	59.50
2"	1"	68-409-2	35.45	68-448-0	41.50	68-483-7	48.30	68-934-9	59.50
2"	1 1/4"	68-410-0	42.20	68-449-8	48.65	68-484-5	43.90	68-935-6	53.80
2"	1 1/2"	68-411-8	42.20	68-450-6	47.75	68-485-2	52.45	68-936-4	66.15
2 1/2"	2"	68-412-6	61.85	68-451-4	66.45	68-486-0	103.55	68-937-2	140.95
3"	1"	68-413-4	94.80	68-452-2	108.20	68-487-8	147.40	68-938-0	175.55
3"	2"	68-414-2	92.95	68-453-0	100.20	68-488-6	147.40	68-939-8	203.40
3"	2 1/2"	68-415-9	94.80	68-454-8	102.60	68-489-4	147.40	68-940-6	184.45
4"	2"	68-416-7	172.40	68-455-5	194.55	68-490-2	244.10	68-941-4	291.05
4"	3"	68-417-5	172.40	68-456-3	231.25	68-491-0	244.10	68-942-2	290.70



52-243-3

Teflon™ Tape

- Premium Teflon™ tape.
- Sold individually. Ideal for thread sealing.
- Use in plumbing, air hose connections, shop, office & home.

DESCRIPTION	PART NO.	PRICE
1/2" x 520"	52-243-3	$2.10

Class 125 Brass Pipe Threaded Fittings - NPT

- Meets ASTM B-584, ANSI B-16.15, 1.20.1.


90° Elbow


90° Street Elbow


45° Elbow


45° Street Elbow


Tee


Cross


Coupling

SIZE (IPS)	90° ELBOWS PART NO.	PRICE	90° STREET ELBOWS PART NO.	PRICE	45° ELBOWS PART NO.	PRICE	45° STREET ELBOWS PART NO.	PRICE	TEES PART NO.	PRICE	CROSSES PART NO.	PRICE	COUPLINGS PART NO.	PRICE
1/8"	**67-837-5**	$5.35	**67-846-6**	$6.55	**67-855-7**	$4.85	**67-864-9**	$8.50	**67-873-0**	$5.80	**67-890-4**	$13.15	**67-899-5**	$4.65
1/4"	**67-838-3**	5.35	**67-847-4**	6.55	**67-856-5**	4.85	**67-865-6**	8.50	**67-874-8**	5.80	**67-891-2**	13.15	**67-900-1**	4.65
3/8"	**67-839-1**	5.35	**67-848-2**	6.55	**67-857-3**	4.85	**67-866-4**	8.50	**67-875-5**	5.80	**67-892-0**	13.15	**67-901-9**	4.65
1/2"	**67-840-9**	7.20	**67-849-0**	9.60	**67-858-1**	6.15	**67-867-2**	8.50	**67-876-3**	8.05	**67-893-8**	13.20	**67-902-7**	5.90
3/4"	**67-841-7**	9.75	**67-850-8**	13.35	**67-859-9**	8.50	**67-868-0**	12.10	**67-877-1**	12.00	**67-894-6**	17.95	**67-903-5**	8.35
1"	**67-842-5**	16.00	**67-851-6**	21.85	**67-860-7**	14.45	**67-869-8**	20.75	**67-878-9**	21.95	**67-895-3**	33.80	**67-904-3**	11.10
1 1/4"	**67-843-3**	25.25	**67-852-4**	31.45	**67-861-5**	23.40	**67-870-6**	31.50	**67-879-7**	29.35	**67-896-1**	45.65	**67-905-0**	16.25
1 1/2"	**67-844-1**	31.90	**67-853-2**	45.20	**67-862-3**	29.15	**67-871-4**	37.75	**67-880-5**	42.05	**67-897-9**	53.00	**67-906-8**	24.70
2"	**67-845-8**	50.45	**67-854-0**	74.55	**67-863-1**	46.55	**67-872-2**	64.50	**67-881-3**	67.75	**67-898-7**	124.70	**67-907-6**	39.00


Union


Cap


Square Head Plug


Countersunk Plug


Locknut


Flange

SIZE (IPS)	UNIONS PART NO.	PRICE	CAPS PART NO.	PRICE	SQUARE HEAD PLUGS PART NO.	PRICE	COUNTERSUNK PLUGS PART NO.	PRICE	LOCKNUTS PART NO.	PRICE	COMPANION FLANGES 150 OD	PART NO.	PRICE
1/8"	**67-908-4**	$16.40	**67-917-5**	$3.30	**67-926-6**	$1.05	**67-935-7**	$1.20	**67-943-1**	$2.15	–	–	–
1/4"	**67-909-2**	16.40	**67-918-3**	3.30	**67-927-4**	1.30	**67-936-5**	1.45	**67-944-9**	2.15	–	–	–
3/8"	**67-910-0**	16.40	**67-919-1**	3.30	**67-928-2**	3.15	**67-937-3**	2.40	**67-945-6**	2.15	–	–	–
1/2"	**67-911-8**	18.20	**67-920-9**	4.80	**67-929-0**	4.90	**67-938-1**	3.90	**67-946-4**	3.35	3 1/2"	**67-952-2**	$43.85
3/4"	**67-912-6**	24.60	**67-921-7**	6.15	**67-930-8**	5.65	–	–	**67-947-2**	4.05	3 7/8"	**67-953-0**	58.60
1"	**67-913-4**	32.65	**67-922-5**	9.50	**67-931-6**	7.30	–	–	**67-948-0**	6.35	4 1/4"	**67-954-8**	75.40
1 1/4"	**67-914-2**	48.40	**67-923-3**	13.80	**67-932-4**	10.45	**67-940-7**	16.65	**67-949-8**	9.40	4 3/8"	**67-955-5**	109.25
1 1/2"	**67-915-9**	63.40	**67-924-1**	19.80	**67-933-2**	13.55	**67-941-5**	18.95	**67-950-6**	12.55	5"	**67-956-3**	126.00
2"	**67-916-7**	87.50	**67-925-8**	33.00	**67-934-0**	20.50	**67-942-3**	33.50	**67-951-4**	22.20	6"	**67-957-1**	202.60


Hex Bushing


Face Bushing


Reducer

SIZE (IPS) OD x ID	HEX BUSHINGS PART NO.	PRICE	FACE BUSHINGS PART NO.	PRICE	REDUCERS PART NO.	PRICE
1/4" x 1/8"	**67-958-9***	$1.65	**67-969-6***	$2.75	**67-973-8**	$4.75
3/8" x 1/4"	**67-959-7***	2.25	**67-970-4***	2.85	**67-974-6**	4.75
1/2" x 1/4"	**67-960-5**	3.60	–	–	**67-975-3**	6.95
1/2" x 3/8"	**67-961-3**	3.60	**67-971-2***	3.85	**67-976-1**	6.95
3/4" x 3/8"	**67-962-1**	5.50	–	–	**67-977-9**	9.75
3/4" x 1/2"	**67-963-9**	5.50	**67-972-0***	4.85	**67-978-7**	9.75
1" x 1/2"	**67-964-7**	8.55	–	–	**67-979-5**	15.95
1" x 3/4"	**67-965-4**	8.55	–	–	**67-980-3**	15.95
1 1/4" x 1"	**67-966-2**	14.05	–	–	**67-981-1**	22.50
1 1/2" x 1 1/4"	**67-967-0**	15.85	–	–	**67-982-9**	30.60
2" x 1 1/2"	**67-968-8**	20.00	–	–	**67-983-7**	40.65

NOTES

1 - 2 - 3 Blocks 121, 126
2 - 3 - 4 Blocks, SPI 126
2 - 4 - 6 Blocks, SPI 126
4 - Way V - Blocks, SPI 127
5 Gallon Pail/Can Tipper 586
5C Chuck 254, 255
5C Collets ..... 218 - 221
Accessories ..... 213, 218 - 222, 224
Chuck 213
Detachable, Kits 220
Emergency 219
Expanding 220, 221
Fixtures 213
Holders 219
Lyndex 218
Precision 220
Racks 224
Stops 221, 222
Vise 213
5C Fixtures ..... 212 - 215, 220
Mounts 220
Grinding 215
Index 214, 215
5C Spin Indexes, SPI 214
6 Pocket Rules 140
60th Anniversary Calipers 97

A

AAAA Alkaline Batteries, Duracell 363
Abbott, Aluminum Hammers 391
Abrasives ..... see below
Belt Cleaner 557
Belt Sticks 553
Belts 382, 550, 551
Cords & Tapes 554
Discs 273
Dremel 576, 577
Dressing Tools 571, 573, 574
Mounted Stones 576
Rolls 553
Rubberized ..... 564 - 566
Rubberized, Kits 566, 567
Stones 563
Wheels 554, 558, 569
Wire Wheels 568
Absolute ..... see below
Digital Bore Gages, SPI 89
Digital Calipers 97, 98
Digital Height Gages, SPI 171
Digital Indicators, SPI 12, 171
Digital Micrometers 59
Electronic Calipers 98
Electronic Micrometers 59
Fractional Digital Caliper 97
Fractional Electronic Caliper 97
Accessories For Flexbar Drill Guards 340
Accupro 517, 519, 520, 525, 536
Carbide Chamfer Mills 525
Carbide Endmills 517, 519
Carbide Extended Reach End Mills 517
Carbide Grooving Tool 536
Carbide Roughing Endmills 520
Acme Screw Pitch Gages, SPI 150
Adapters 229, 239, 558
Wheel 558
Adhesive Backed Rules, Mylar 141
Adhesive Tape Measures 140
Adhesives ..... 312 - 316
Devcon 315, 316
Epoxy 315, 316
Loctite ..... 312 - 314
Silicon 313, 316
Zipgrip 316
Adjustable 124, 130, 139, 143, 216, 401
Ratcheting Socket Wrench, Crescent 401
Ratcheting Wrench, Crescent 401
Double Angle Squares 143
Hook Rules, SPI 139
Parallels 124
Tailstock 216
V - Blocks, SPI 130
Wrench 401
Aersol Storage Cabinets 586
Air ..... see below
Angle Drills 383
Angle Grinders 385, 386
Belt Sander 382
Belt Sanders 381, 382
Blow Guns 629, 630
Chucks 628
Cut - Off Tools 385
Die Grinders 374, 375
Drills 383, 384
Drills, Pistol Grip 383
Drills, Reversible 384
Files 385
Filters 633, 634
Florida Pneumatic 385
Grinders 374
Guns 624, 629, 630, 631
Hammer Kit 382, 383
Hammers, Sioux 382
Hose Clamps 627
Hose Connectors 631, 632
Hose Reels 625, 626
Hoses ..... 624 - 626, 628, 631
Impact Wrenches 379, 380
Lubricators 633
Marking Pens 376
Mini Drills 383
Nibblers 384
Nozzles 628
Orbital Sanders 380
Pencil Die Grinders 376
Portable Vacuum Cleaner 374
Pressure Gages 628, 635
Ratchet Wrench 378
Reciprocating Saws 384
Regulators 633, 635
Sanders 380
Screwdriver, Pistol Grip 382
Screwdrivers 382
Sheet Metal Shears 384
Tanks 637
Tools ..... 374 - 386, 629, 630
Tools Accessories 308, 624, 625, 628, 629, 631
Tools Lubricators 632
Vacuum Cleaners 374
Wrenches 377, 378
Akro - Mills 584, 591, 595
Service Carts 584
Containers 591, 595
Albrecht Drill Chucks 230, 237, 238
Aligning & Pry Bars Sets, Proto 428
Aligning & Rolling Head Pry Bars Sets 428, 429
Alignment & Positioning Laser Tools, Laseraim 182
Alignment Punch Sets, Mayhew 434
Alkaline Batteries , AAAA, Duracell 363
Allen Wrenches 417
Aluminum Scoops 597
Analog Comparators, SPI 178
Anchorlube Lubricant 304
Angle ..... see below
Blocks 124, 125
Depth Gage, Combination 146
Die Grinders 375
Dressers 258
Duplicator, Universal Sliding Bevel 153
Finders, Smart Tool Digital 175
Gage Sets 146
Gage, Countersink 146
Gages, SPI 146
Grinder 386
Grinder, Mini 385
Grinders, Air 385, 386
Irons 266
Locator & Rulers 154
Meters , Magnetic, Empire 156
Plate & Vee Blocks Set 125
Plate Accessories 270
Plates ..... 125, 265 - 267, 270
Plates, Solid 125, 270
Plates, SPI 265, 266, 270
Plates, Stepped 270
Plates, Granite SPI 47
Plates, Sets 125
Plates, Swivel 267
Tables 216
Vises ..... 201 - 203, 206, 207
Vises, Wilton 203, 206
Ansell Disposable Nitrile Gloves 356
Anti - Backlash Ring Sets 255
Anti - Fatigue Kneeling Matting 355
Anvil Kits, Micrometers SPI 75
Apex 393, 404, 405
Mechanics Tool Sets 404
Screwdriver Bit Sets 405
Wire Stripper 393
Aprons 359
Arbor Accessories 236
Arbor Presses 272, 273
Ratchet 272

Arbors 223, 232, 235
Circular Saw 235
Milling 235
Parle 232
Taper, Parlec 232
Arrow 447
T50 Staples 447
Tacker Gun 447
Audible Edge Finders 49
Autosol, Metal Polish 574
Aven, Tweezers 411

B

Back Plunger Dial Indicators 10, 11
SPI & Sets 11
Starrett 10
Back Supports 358
Balancers, Static 258
Balances, Mechanical, Ohaus 183
Balancing Stands 298
Ball Attachments, Micrometer 74, 75
Ball Bearing ..... see below
Drill Chucks 237
Parallels, TeCo 120
V - Block, SPI 130
Ball Driver Sets 418
Ball End Hex & Torx Key Sets, Bondhus 417
Ball End Hex Key Sets, Bondhus GorillaGrip 419
Ball End Hex Key Sets, Bondhus, Fold Up 419
Ball End L - Wrench & Sets, Bondhus 415
Ball End L - Wrenches w/Color Guard, Bondhus 417
Ball Micrometers, SPI 63
Ball Penetrator Hardness Testers 168
Ball Valves 632, 636
Balancers, Tool 386
Bandanas, MiraCool 341
Bar Pullers 298
Base Indicator Holders 37
Base Indicator Stands 37
Batteries 365
Energizer 108, 109, 161, 162, 165, 167, 192, 365
12 Pack 9 Volt Energizer 165, 365
Energizer 365
Energizer AA 167, 363, 365
Energizer AAA 108, 109, 161, 162, 365
Bausch & Lomb 193, 194, 196, 198
Double Lens Magnifiers 193
Folding Loupes 194
Lighted Magnifier 196
Loupes 193, 194
Magnified Ruler 196
Lens Cleaning Stations 198
Bayco ..... 604 - 606
Task Lights 604
Work Lights 605, 606
Belt Sanders 381, 382
Belts 382, 550, 551
Sanding 382, 550, 551
Surface Conditioning 552
Bench Centers, Mitutoyo 173
Bench Centers, SPI 173
Bench Vises 209, 210
Bessey 278, 292
Clamps 278, 292
Machine Clamps 292
BesTest 20, 28
Bestyet 41
Magnetic Base Indicator Holders, SPI 41
Vacuum Base Indicator Holders, SPI 41
Bevel Protractors w/Beveled Straight Edges, SPI 137
Bevels, Universal Starrett 153
Bilz ..... 241 - 243
Tap Adapters 242, 243
Tapping Attachments 242
Tapping Chucks 241
Binoculars, Bushnell 198
Bins ..... 583, 592 - 596
Bit Sets, Insert 405
Bit Sets, Screwdriver, Apex 405
Bits Sets, Wiha 421
Blackhawk ..... 401, 405, 430 - 432
Adjustable Wrenches 401
Bit Sets, Insert 405
Cold Chisels 430
Insert Bit Sets 405
Magnetic Nutsetter Sets 405
Nutsetter Sets 405
Punches & Chisels 431
Screw Extractor Set 432
Blade Micrometers 62, 63
Digital 63
Electronic 63
Mitutoyo 63
SPI 62
Starrett 62
Blake, Co-Ax Centering Indicator 32
Blanks, Rod End 287
Blind Hole Spotters & Sets 433
Blocks ..... see below
1 - 2 - 3 126
1 - 2 - 3 Blocks 121, 126
2 - 3 - 4 Blocks 126
2 - 4 - 6 Blocks 126
4 - Way V - Blocks 127
Adjustable Angle 131
Adjustable V - Blocks 130
Angle Blocks 124, 125
Angle, Adjustable 131
Ball Bearing V - Block 130
Gage 116, 117
Gage Accessories, SPI 117
Gage, Rectangular 116, 117
Matched V - Blocks 128
Rockwell Calibration Sets, Mitutoyo 169
Space, SPI 115
Suburban 126
Test For Hardness Tester 168
V - Block 130
V - Blocks ..... 125, 127 - 132, 272
V - Blocks Adjustable 130
V - Blocks Matched 128, 132
Wee - Blocks 127
Blow Guns 624, 629, 630
Blueprint Holders 297
Body Warmers 348
Bolt Cutters 394
Bolt Extractors 438
Bondhus ..... 415 - 422
Ball Drivers 415
Ball End Hex & Torx Key Sets 417
Ball End Hex Key Sets, Fold Up 419
Ball End L - Wrench & Sets 415
Ball End L - Wrenches w/ Color Guard 417
Fold Up Hex Key Sets 419
GorillaGrip Fold Up Ball End Key Sets 419
GorillaGrip Fold Up Torx Key Sets 420
Hex Key Sets 416, 418, 422
Hex Keys 417, 419
Hex Pro Pivot Head Wrench 422
Inch & Metric Gorilla Fold - Up 419
Torx Key Sets Fold Up 420
Torx L - Wrenches & Sets 420
Torx T - Handles & Sets 421
T - Star Key Sets 420
Books ..... 324 - 329
Borax Hand Soap 335
Bore Gages ..... 88 - 90
Dial, SPI 89
Dial 88
Electronic, SPI 89
Setting Masters 90
Borescopes 186, 187
90° Adapters, Hawkeye 187
Flexbar Inspecto - Scope 196
Hawkeye 186
Rigid with Krypton Light, Hawkeye 186
Rigid, Hawkeye 186
Boring Bars ..... 531, 535 - 537
Carbide 537
Carbide Tipped 531
Sets 535
Inserts 536, 537
Boring Heads & Accessories 240, 241
Bottles 596, 597
Dispensing 596, 597
Spray 597
Box Cutters ..... 442 - 444
Box Parallels 266
Box Wrenches 403
Boxes 588, 589, 591, 595
Corrugated 591
Durham 588
Plastic Storage 589, 591, 595
Utility 589
Brass Pin Punch Sets, SPI 434
Brass Thickness Gage Sets 159
Bridge Cam Welding Gages 153
Bridgeport Accessories 217, 223, 244, 245, 311, 600
Bridgeport Mills, Right Angle Attachment 245

Brinell Portable Hardness Testers.....168
Broom Handles.....330, 331
Broom Heads.....331
Indoor.....331
Safety.....331
Brooms.....329, 330, 331, 332
Brown & Sharpe.....see below
1 - 2 - 3 Blocks.....126
Calipers, Dial.....95
Calipers, Electronic IP67.....102
Combination Square Sets.....142
Combination Squares.....142
Convertible Thimble Outside Micrometers.....56
Dial Calipers & Accessories.....95
Dial Indicators.....9
Dial Test Indicator Accessories, BesTest.....20, 28
Dial Test Indicators, BesTest.....20
Drop Indicators.....9
Edge Finders.....49
Electronic IP67 Caliper.....102
Hite - Check Jr., Transfer/Squareness.....46
Hole Gage Sets, Telescoping.....111
Indicator Holders; Magnetic Base.....37
Indicators.....9
Intrimik Hole Micrometers.....86
IP54 Micrometers.....58
Magnetic Base & Best Test Indicator Sets.....43
Magnetic Blocks.....131
Micrometers, IP54.....58
Miti - Mite Base & Best Test Indicator Sets.....43
Parallels.....121
Sine Bars.....52
Square Sets, Workshop.....136
Telescoping Hole Gage Sets.....111
Test Indicator Accessories , BesTest.....20, 28
Test Indicators , BesTest.....20
Travel Indicators.....9
V - Blocks & Clamps.....129
V - Blocks, Magnetic.....131
Value - Line Outside Micrometers.....56
Vises.....207
Workshop Square Sets.....136
Brushes.....329, 330, 568, 569
Abrasive.....568
Chip.....329
Dico.....569
Utility.....568
Wire Wheel.....569
Buffing Compounds, Dico.....574
Buffing Kits, Dico.....575
Buffing Kits, Metal & Plastic.....575
Buffing Wheels, Dico.....575
Burr Sets, Carbide.....527
Burrs, Dremel.....527, 577
Bushings Tool Holders, CNC.....222
Bushnell Binoculars.....198
Butterfly Impact Wrench.....380

C

C Clamps.....288, 289
C Scale Penetrator.....168
Cabinets.....586, 587
Cable Ties.....617
Cables, 40 & 80 SPC.....78, 99 - 102
Calculator, Measure Master Pro.....324
Calibration Kits, Caliper/Micrometer.....172
Calibration Masses, Ohaus.....183
Calibration Sets, Rockwell Test Block, Mitutoyo.....169
Calipers.....see below
Accessories.....103
Attachments , Groovemaster.....110
Dial.....94
Dial, Brown & Sharpe.....95
Dial, Etalon.....95
Dial, Mitutoyo.....96
Dial, SPI.....94, 95
Dial, Starrett.....96
Dial, with Extra - Smooth Movement.....95
Digimatic Carbon Fiber, Mitutoyo.....101
Digimatic IP67, Mitutoyo.....101
Digimatic, Mitutoyo.....100
Digital.....96 - 101
Digital & Centerline Accessory Kit, SPI.....103
Digital IP54.....98
Digital IP55.....98
Digital Solar Powered, Mitutoyo Digimatic.....100
Digital Solar Powered, Mitutoyo IP67.....99
Digital, Mitutoyo.....100, 101
Digital, SPI.....97
Electronic.....96, 99 - 101
Electronic, Mitutoyo.....99 - 101
Electronic, SPI.....97
Fractional Digital.....97
& Micrometer Calibration Kits.....172
Micrometers, SPI.....61
Mitutoyo, Digital.....96
Offset Jaw Digital.....99
Range Extenders.....103
Solar Powered, Mitutoyo IP67.....99
SPI.....97 - 99
Spring, Quick - Nut Inside.....157
Spring, Quick - Nut Outside.....157
Type Inside Micrometers.....81, 82
Vernier Mitutoyo Inch/Inch.....93
Vernier Mitutoyo Inch/Metric.....93
Vernier SPI.....91, 92
Vernier Inch/Metric.....92
Vernier Master.....91
Vernier Master, Starrett.....92
Vernier, Inch/Metric.....91
Vernier, Mitutoyo.....93
Zero - Set Digital.....98
Cam Action Vises, Wilton.....206
Can/Pail Tipper.....586
Cap & Half Round Chisels, Mayhew.....430
Carbide.....see below
Boring Bars & inserts.....536, 537
Chamfer Mills, Accupro.....525
Endmills, Accupro.....517, 519, 520
Extended Reach End Mills, Accupro.....517
Grooving Tool, Accupro.....536
Roughing Endmills, Accupro.....520
Spotting Drills.....524
End Mills.....515 - 521
Carbon Scraper Sets, Mayhew.....427
Carton Opener.....444
Carts.....582 - 585
Arko - Mills.....584
Edsal.....583
Huot.....585
Mobile Work Centers.....584
Rubbermaid.....584
Service, Akro - Mills.....584
Carvers.....447
Cases, Equipment.....590
Cedarburg.....244
Table Guard.....244
Opti - Arm With Magnetic Base.....386
Centaur, Collets.....225
Centers.....see below
& Edge Finder Combinations.....49
Drills.....477, 524, 531
Finder, Round Bar.....151
Finders, SPI.....49
Gages, Starrett.....151
Punches.....432, 433
Scopes, SPI.....187
Squares, SPI.....154
Centers, Live.....252, 253
Centers, Bench.....173
Centering Indicators, Co - Ax.....32
Chamfer Cutters.....530
Chamfer Gages, SPI.....90
Chamfer Mills, Carbide, Accupro.....525
Chamfering Bits.....524
Chamfering Tools.....531
Channellock.....392, 393, 395, 397, 401
Adjustable Wrench.....401
Long - Nose Pliers.....397
Pliers.....392, 393, 395, 397
Retaining Ring Pliers.....395
Snap Ring Pliers.....395
Wrench Adjustable.....401
China Markers.....320
Chip Brushes.....329
Chip Guards.....338 - 340
Chip Hooks.....387
Chisel & Punch Holders, Proto.....432
Chisel, Handguarded Cold, Mayhew.....430
Chisels & Punches.....429 - 431
Blackhawk.....431
Mayhew.....430
Proto.....431
Stanley.....431
Chuck Guards.....**340**
Chuck Keys.....**255**
Chucks.....see below
Adapters.....254
Drill.....237
Hand.....413
Keyless.....237
Lathe.....254, 255
Magnetic.....130, 264, 268

Pin 412
Self Centering 254, 255
SPI 130, 264, 268, 270
Vacuum 270
Cimcool Waterproof Grease 306
Circular Clear Cover Calibration Labels, SPI 184
Clamping Kits 276, 277
Clamping Kits, Steel 276, 277
Clamping Screws 279, 280
Clamps ....see below
Bessey 278, 292
Bessey Machine 292
Chain Clamp 400
De - Sta - Co ....291 - 293
De - Sta - Co Toggle Action 291
Double Action 279
Hold Down ....291 - 293
Kant - Twist 289, 290
Mitee - Bite 288
Scissor 413
Setup 278
SPI 292
Step 277
Strap 277
Toggle 278
Vise Grip 399, 400
Vise Grip 399, 400
Clauss Shears/Scissors 441
Claw Hammers, Vaughan 388
Cleaners 308, 309, 575
Granite Surface Plate, SPI 48
Sprayon 308
Wheel Cleaning Rakes 575
Clear Cover Calibration Labels, SPI 184
Clevland 437
Screw Extractors 437
Screw Extractors & Sets 437
Clocks 321, 322
Clothing, Safety 359, 360
CNC Bar Pullers 298
CNC Knurling Tools 250
CNC Tool Holder Bushing 222
Coating Pots 323
Coatings 309, 310, 323
Coil Hose Air Guns 624, 630
Coilhose Air Tool Accessories 308, 624, 625, 631
Cold Air Guns 273
Cold Chisels ....see below
Blackhawk 430
Mayhew 431
Proto 429, 430
Stanley 430
Cold Weather Work Gloves 352
Coleman Cable Work Lights 606
Collant Spray Units 311
Collet Accessories 212, 221, 222, 224, 227, 228
Collet Block Chucks 213
Collet Chuck Extensions 227, 228
Collet Chucks 227, 228, 231, 233
5C 213
Collis 231
Double Angle 233
ER 227
ETM 227
Extensions 228
V - Flange 231
Collet Fixtures ....212 - 214
Collet Nuts, ETM 228
Collet Racks 224, 226
5C 217, 223, 600
Double Angle 226
R8 ....223, 224, 600
Collets ....218 - 222, 224 - 227
16C 220, 221
16C Expanding 220
3J 220
3J Expanding 220
5C 218, 219, 220, 221
5C Expanding 220
5C Expanding 221
5C Holders 219
5C Step Collet 220
Centaur 225
Double Angle 225, 226
ER 224, 225
ETM 222, 224, 227
Hex 218
Lyndex 218, 222
R8 ....218, 222, 223
Single Angle 225
Square 218
Stops 222
Vise 213
Wrenches, 5C 219
Collis ....229 - 231, 233, 242
Collet Chucks 231
Morse Taper End Mill Holders 229
NMTB End Mill Holders 230
Tap Adapters 242
Tool Holders 233
Color Guard Ball End L - Wrenches, Bondhus 417
Combination ....see below
Depth & Angle Gage 146
Rule & Gage 146
Square Accessories, SPI 142, 143, 155
Squares 142
Squares, Brown & Sharp 142
Squares, SPI 142
Squares, Stanley 143
Squares, Starrett 143
Wrench Sets, Stanley 402
Comparator Overlay Charts 191
Comparator Plates, Finish SPI 163
Comparator Stand & Dial Indicator Sets 43
Comparator Stands, SPI 44, 45
Comparator Stands, Granite Base 43, 44
Comparators ....162 - 164, 190 - 192
Accessories ....191 - 192
Analog SPI 178
Microfinish 163
Pocket 191, 192
SPI ....190 - 192
Surface Finish 162, 164
Compound Milling Tables 216
Compound Sine Plates 267, 269
Compressed Air Tanks 637
Concave Radius Cutters 530
Condensate Drain Valves 632
Contact Cleaner 309, 310
Contact Points ....6, 15 - 17, 26
Indicator 6, 15, 16
Dial Indicator 15, 17
For Interapid Test Indicators, SPI Brand 26
For Mitutoyo Test Indicators, SPI Brand 26
For Starrett Test Indicators, SPI Brand 26
For Teclock & Peacock Test Indicators, SPI Brand 26
For Tesa Test Indicators, SPI Brand 26
SPI 26
Containers ....583, 591 - 597
Disposable 597
Wire 595
Contour Gages 151
Convex Radius Cutters 530
Cook Hammers 391
Cool Tool II Cutting Fluids 303
Coolant Dispensers, SpillMaster 318
Coolant Hose System, Snap Flow ....338, 620 - 623
Coolant Testers 303
Coolers, Gatorade 341
Coordinate Measuring Machine Probes, Renishaw 34
Copper Jaws, Vise 210
Cords 598, 599, 616
Bungee 598
Correx, Tension/Compression Gages 164
Corrugated Boxes 591
Cotter Pin Pullers 387
Counterbores 523
Solid 523
SPI 523
Countersinks ....90, 146, 524 - 526
Angle Gages 146
Gages, SPI 90
Multi - Flute 525, 526
Single Flute 525
Couplers, Air Hose 631, 632, 635
Coupling Nuts 281
Covers, Way 244
Craft - Bond Diamond Cup Wheels 570
Crescent 401, 402, 404
Adj Ratcheting Wrench 401
Adjustable Wrenches 402
Nutdriver Sets 404
RapidRench 401
Standard & Deep Socket Sets 404
Wrenches 402
Crews ....343 - 345
Blackjack Safety Glasses 344
Frostbite 2 Safety Glasses 343
Headgear 345
Rattler 2 Safety Glasses 343
Safety Glasses 344

Safety Goggles 344
Crimp Height Micrometers, SPI 65
Crow Bars & Sets 429
Crown ....302, 307 - 310
All Purpose Spray 307, 308
Portable Spray Tool 302
Cubes, SPI 266
Cut - Off 554, 555, 561, 562
Grinders 385
Tools 385, 537
Tools, Air 385
Wheels 554, 555, 561, 562
Cutters 241, 393, 394, 506, 528, 529
Bolt 394
Dovetail 529
Fly 241
Knipex 393, 394
Roughing 506
Tube 387
Wire 393
Woodruff 528
Cutting Fluid Testers 303
Cutting Fluids 303, 304, 305, 306
Cutting Oil, Sprayon 307
Cutting Pliers 394
Cutting Tools ....see below
Boring Bars 531
Counterbores 523
Countersinks 525, 526
Cutters 528, 529
Dies 483, 484
Drills ....450 - 478
End Mills 493, 508, 510, 522
Reamers ....488 - 492
Taps 480, 481, 482, 483

D

Dead Blow Hammers, Handles 388
Dead Blow Mallets 390
Deburring Tools ....538 - 543, 544 - 547, 560, 561
Individual 547
Noga ....538 - 543, 547
Noga Kits 540, 541
Sets 546, 547
Vargus ....544 - 546
Wheels 560, 561
Deep & Standard Socket Sets, Crescent 404
Deep Throat Micrometers, SPI 66, 67
Deepol 245
DeFelsko, DFT Coating Thickness Gages 162
Defoaming Liquid 303
Demagnetize / Magnetizer 29
Demagnetizers 297, 298
Dremel 373
Depth & Angle Gage, Combination 146
Depth Gages ....17, 77 - 81, 155
& Protractor Combination, SPI 155
& Protractor Combination, Starrett 155
Mitutoyo 78, 80
Mitutoyo Accessories 17
Mitutoyo Digimatic IP67 78
PAV 79
SPI 77, 78
Starrett 81
Starrett Micrometer & Accessories 76
Depth Micrometers ....76 , 77
Digital Counter SPI 77
IP65, SPI 77
Mitutoyo 76
Mitutoyo Digimatic 77
SPI 76, 77
Desk Mats 321
Desk, Warehouse/Shop 586
De - Sta - Co ....291 - 293
Hold Down Clamps ....291 - 293
Toggle Action Clamps 291
Devcon 315, 316
Adhesives 315
Adhesives, Epoxy 315, 316
Adhesives, Silicon 316
Adhesives, Zipgrip 316
DFT Coating Thickness Gages, DeFelsko 162
Dial Bore Gages 88, 89
Mitutoyo 89
SPI 88, 89
Starrett 88
Dial Caliper Gages, Internal SPI 107
Dial Calipers ....94 - 96
Brown & Sharpe 95
Etalon 95
Extra - Smooth Movement, SPI 95
Mitutoyo 96
SPI 94, 95
Starrett 96
Dial Depth Gages ....79 - 81
Mitutoyo 80
SPI & Accessories 79, 80
Starrett 81
Dial Gage Stand, Mitutoyo 45
Dial Indicators 6, 10
Accessories 17
Alignment & Positioning, SPI 3D 31
Back Plunger 10
Back Plunger, SPI 11
Backs, Magnetic 17
Brown & Sharpe 9
Contact Points ....6, 15 - 17
Holder, Mitutoyo 45
Mitutoyo 9, 10
Peacock 8
SPI 6, 7, 15
Starrett 10
Teclock 8
Dial Reading Beviel Protractors 155
Dial Test Indicators ....19, 20, 22 - 25, 28
Accessories 19, 20, 22, 28
Mahr Federal 21
Mitutoyo 23, 25
SPI 18
Starrett 24
Dial Thickness Gages 106, 107
Mitutoyo 107
SPI 106
Starrett 106
Diamond Dressers, SPI ....571 - 573
Diamond Files 578
Diamond Grinding Pins 571
Diamond Grinding Wheels 570, 571
Diamond Hones, SPI 571
Diamond Needle Files 578
Diamond Sharpeners 571
Diamond Wheels ....569 - 571
Dico 239, 569, 574, 575
Brushes 569
Buffing Compounds 574
Buffing Kits 575
Buffing Wheels 575
Flexible Shafts 239
Die Grinders ....374 - 377
Air 374, 375
Air, Pencil 376
Angle 375
Mini 374, 377
Sioux 376
Straight 374
Die Stocks 485, 486
Diemaker's Square Sets 137
Dies 483, 484
Hex 483
Round 484
Digimatic ....see below
Blade Micrometers Mitutoyo 63
Calipers, Mitutoyo 100
Carbon Fiber Calipers, Mitutoyo 101
Indicators, Mitutoyo 14, 15
IP65 Micrometers Mitutoyo 64
IP67 Calipers, Mitutoyo 101
Micrometers Mitutoyo 58, 61
Micrometers Mitutoyo IP65 ....60, 64
Micrometers SPI 59
V - Anvil Micrometers, Mitutoyo IP65 71
Digit Counter Dial Height Gages, Mitutoyo 171
Digit Micrometer Heads, Mitutoyo 74
Digital ....See below
Angle Finders, Smart Tool 175
Angle Locator & Rulers 154
Ball Micrometers, SPI IP65 63
Blade Micrometers 63
Blade Micrometers, Mitutoyo 63
Blade Micrometers, SPI 62
Bore Gages, SPI 89
Caliper & Centerline Accessory Kit, SPI 103
Caliper Type Inside Micrometers, SPI 82
Calipers ....97 - 101
Calipers, Absolute 98
Calipers, Mitutoyo 96
Calipers, SPI 98
Calipers, SPI ....97 - 99
Coating Thickness Gages, SPI 161
Crimp Height Micrometers, SPI 65
Deep Throat Micrometers, SPI 67
Depth Gages, Mitutoyo 78
Depth Gages, PAV 79

Depth Gages, SPI 77, 78
Depth Micrometers, SPI IP65 77
Disc Micrometers, SPI 66
Durometers, SPI 169
External Caliper Gages 107
External Caliper Gages, SPI 107
Force Gages, Extech 182
Gages ..... 77 - 79, 87, 89, 102
Hardness Testers, Portable SPI 167
Hardness Testers, SPI 169
Height Gage, SPI 171
Height Gages, Mitutoyo ..... 171 - 173
Height Gages, SPI 172
Hygro - Thermometers 179
Inclinometers, SPI 176, 177
Indicators 11, 12, 14, 15, 87
Indicators Accessories 12
Indicators, Alignment & Positioning SPI 31
Indicators, SPI 12
Indicators, SPI 11, 12, 87
Indicators, SPI 12, 171
Interchangeable Anvil Micrometers, SPI IP 65 72
Internal Bore Gages, SPI 87, 89
Internal Bore Micrometers, SPI 85
Internal Caliper Gages 107
Internal Caliper Gages, SPI 107
Intertest Caliper Gages 109
Intertest Caliper Gages, SPI 109
Levels, Smart Tool 175
Levels, SPI 176, 177
Brown & Sharpe IP54 Micrometers 58
Calipers 96, 102
Calipers, Brown & Sharpe 102
Calipers, Mitutoyo 102
Calipers, Mitutoyo 96
Calipers, Mitutoyo Digimatic 100
Calipers, Solar Powered Mitutoyo Digimatic 100
Calipers, Solar Powered Mitutoyo IP67 99
Depth Gages, Mitutoyo Digimatic IP67 78
Depth Micrometers, Mitutoyo Digimatic 77
DFT Coating Thickness Gages, Defelsko 162
Disc Micrometers, Mitutoyo IP65 66
Indicating Micrometer, Mitutoyo IP54 68
Inside Micrometer Calipers, Mitutoyo 82
Interchangeable Anvil Micrometers, Mitutoyo 73
Intrimik Hole Micrometers, Brown & Sharpe 86
Mitutoyo Quickmike IP54 Absolute Digimatic Micrometers 59
Mitutoyo; Digital Indicators, Digimatic 14
Outside Disc Micrometers, Mitutoyo IP65 66
Outside Micrometers, Mitutoyo 58
Point Micrometers, Mitutoyo Digimatic IP65 64
Protractors, Mitutoyo 156
Push/Pull Force Gage, Imada.Com 181
Screw Thread Micrometer, Mitutoyo IP65 69
Spherical Face Micrometers, Mitutoyo IP65 67
Spline Micrometers, Mitutoyo Digimatic IP65 62
Tachometers, Mitutoyo 181
Thickness Gages, Mitutoyo 106
Tube Micrometers, Mitutoyo Digimatic IP65 65
Universal Protractors, Mitutoyo 156
V - Anvil Micrometers, Mitutoyo Digimatic IP65 71
Micrometer Heads SPI 74
Micrometer Sets 57, 59, 60
Micrometer Sets Mitutoyo Digimatic IP65 60
Micrometer Sets SPI 57
Micrometer Sets SPI IP 65 59
Micrometers ..... 57 - 67, 69, 70, 71, 77, 82, 85
Micrometers 53, 57
Micrometers Mitutoyo QuantuMike IP65 61
Micrometers Mitutoyo Digimatic 58
Micrometers Mitutoyo Digimatic IP65 60
Micrometers SPI 57
Micrometers SPI IP 65 59
Micrometers SPI IP54 58
Micrometers, Absolute 59
Mini Protractor SPI 176
Mini Protractor SPI 176
Multi - Anvil Micrometers IP54, SPI 70
Multi - Anvil Micrometers Mitutoyo, Uni - Mike IP65 70
Oditest Caliper Gages 108
Oditest Caliper Gages, SPI 108
Panel Tachometers, Extech 179
Point Micrometers SPI 64
Protractors, SPI 176, 177
Push/Pull Force Gages, Imada.Com 181
Screw Thread Micrometers SPI 69
Sound Level Meter, Extech 179
Spline Micrometers SPI IP65 61
Tachometer/Stroboscope Combination, Extech 180
Tachometers, Extech 180
Tachometers, Mitutoyo 181
Thermometer Infrared, Extech 179
Thermometers 179
Thickness Gages 107
Thickness Gages, SPI 107
Timers 322
Tube Micrometers SPI 65
Ultrasonic Thickness Gages, SPI 162
Universal Protractors 156
V - Anvil Micrometers SPI 71
Disc Micrometers 65, 66
Mitutoyo 66
SPI 65, 66
Starrett 66
Discs, PSA 273
Disks, Surface Conditioning 557
Dispensers 346, 348, 349, 357, 360
Dust Mask 349
Earplug 348
Glasses 346
Glove 357
Protective Equipment 360
Disposable Glove Dispensers 357
Disposable Nitrile Gloves 356
Dividers, Spring, Quick - Nut 157
Dividing Heads 217
Dock Lights, Fostoria 609
Dolan Jenner, Fiber - Ligt Illuminators 189
Double Action Clamps 279
Double Angle Collet Chucks 233
Double Angle Collets 225, 226
Double Angle Squares, Adjustable 143
Double Direction Machine Vise 200
Double Lens Magnifiers, Bausch & Lomb 193
Dovetail Adapters 20, 28
Dovetail Cutters 529
Dovetail Holders For Test Indicators 28
Drain Valves 632
Drains 635
Draw Bars 245
Drawbar Hammer 245
Drawers 587
Drawers, Storage 587
Dremel 373, 448, 527, 576, 577
Abrasives 576, 577
Burrs 527, 577
Engravers 373
Flex Shaft Attatchments 373
Soldering Tools 448
Tool Kit 373
Tool System 373
Versatip Tool 448
Dressers 258
Angle 258
Mini Angle 258
Dressing Tools, Diamond 571, 573
Drift Pins 239
Drills ..... see below
Adapters 239
Air, Pistol Grip 383
Air, Reversible 384
Air, Angle Drills 383
Air, Mini Drills 383
Aircraft Extensions, Sets 453, 454
Carbide Tipped 459, 469
Center 523
Chuck Accessories 237
Chuck Keys 236, 237
Chuck Shanks 238, 241
Chucks 230, 237, 238
Chucks, Keyless ..... 236 - 238
Drifts 239
Extended Length 476
Guard Accessories, Flexbar 340
Guards, Flexbar 340
Hertel ..... 458, 460, 464, 465, 468 - 472
Index Boxes 456
Jobber, Sets 459
Jobbers ..... 450, 458 - 460, 464, 469 - 472
Jobbers, Sets 450, 451
Long Boy, Sets 454
Micro ..... 476 - 478
Micro Center 477
Mills 267
Point Gages, SPI 152
Press Vises ..... 203 - 206
Press Vises, Wilton 203, 206
Reduced Shank, Sets 454
Reduced Straight Shank, Sets 453
Screw Machine, Sets 452
Sets ..... 450 - 455, 459

Sets Hertel....451, 452, 454, 455, 459
Silver & Deming....455
SPI....524
Split Point....469, 470
Taper Length, Sets....453, 454
Taper Shank....474, 475
Drive Dogs....258
Driver Sets....404, 405
Drop Indicator Contact Points....6, 15 - 17
Drop Indicators....6 - 10, 15
Drum Dolly....331, 586
Dual Action Sander....381
Duct Tape....335
Dunham, Expanding Mandrels....220
Duracell, AAAA Alkaline Batteries....363
Durham....584, 588
Carts....584
Storage Boxes....588
Storage Racks....588
Durometers....169, 170
Stand, SPI....169
Imada, Analog....169
Rex, Analog....170
Rex, Pocket....170
Dust Masks....349
Dust Pans....331
Dusters....329
Dykem....318, 319, 334
Cross Check....319
Hi - Spot Blue....318
Layout Material....318
Markers....319
Torque Mark, Cross Check....319
Towels, Hand....334

E

Eagle Rock, Anti - Backlash Ring Set....255
Eagle....366
Oily Waste Cans....366
Plunger Cans....366
Plunger Cans, Safety....366
Safety Plunger Cans....366
Waste Cans, Oily....366
Ear Protection....349
Earmuffs....350
Earplug Dispensers....348
Earplugs, Howard Leight, Laser Lite....349
Earplugs, Moldex, Meteors Foam....348
Earplugs, Moldex, Spark Plugs....349
Edge Finders....49, 50
& Center Combinations....49
Electronic....50
Brown & Sharpe....49
Audible SPI....49
Electronic SPI....50
SPI....49, 50
Starrett....49
Edsal....583
Carts....582
Elbow Sleeves....358
Elbow Supports....358
Electric Drains....635
Electrical Cords....616, 617
Electrical Tape....617
Electrical Test Kit, Extech....613
Electrician Pliers, Irwin....**393**
Electrician Pliers, Knipex....**393**
Electrix....607 - 613
Fluorescent Gooseneck Lamps....609
Fluorescent Machine Lights....607
Gooseneck Lamps....609
Halogen Machine Lights....608
Halogen Work Lights....607
Lamps....607, 608
Lamps....611
Machine Lights....607, 608
Moisture - Resistant Work Lights....607
Task Lights....611
Waterproof Machine Lights....607, 608
Work Lights....607
Electro Spark Engraving Pens....372
Electronic....see below
Ball Micrometers SPI IP65....63
Blade Micrometers....63
Blade Micrometers Mitutoyo Digimatic....63
Blade Micrometers SPI....62
Bore Gages SPI....89
Caliper & Centerline Accessory Kit, SPI....103
Caliper Fractional, Absolute....97
Caliper SPI....97
Caliper Type Inside Micrometers SPI....82
Caliper, SPI....98
Calipers....96 - 101
Calipers SPI....97 - 99
Calipers, Absolute....98
Calipers, Brown & Sharpe....102
Calipers, Mitutoyo....102
Calipers, SPI....99
Calipers, SPI....98
Center, Edge & Depth Finder Combinations....50
Coating Thickness Gages, SPI....161
Crimp Height Micrometers SPI....65
Deep Throat Micrometers SPI....67
Depth Gages, Mitutoyo Digimatic IP68....78
Depth Micrometers Mitutoyo....78
Depth Micrometers PAV....79
Depth Micrometers SPI....77, 78
Depth Micrometers IP65, SPI....77
Depth Micrometers, Mitutoyo Digimatic....77
DFT Coating Thickness Gages, DeFelsko....162
Digital Outside Micrometers, Mitutoyo....58
Disc Micrometers SPI....66
Durometers, SPI....169
Edge Finders....50
Edge Finders....50
Edge, Center & Depth Finder Combinations....50
External Caliper Gages....107
External Caliper Gages, SPI....107
Force Gages, Extech....182
Gages....77 - 79, 87, 89, 102
Hardness Testers....169
Hardness Testers, Portable SPI....167
Height Gages SPI....171
Height Gages, Mitutoyo....171 - 173
Height Gages, SPI....172
Height Offset Gage....50
Hygro - Thermometers....179
Inclinometers, SPI....176, 177
Indicating Micrometer, Mitutoyo IP54....68
Indicator Accessories....12
Indicators SPI....12, 171
Indicators....11, 12, 14, 15, 87
Indicators, Alignment & Positioning SPI....31
Indicators, SPI....11
Indicators, SPI....11, 12, 87
Inside Micrometer Calipers, Mitutoyo....82
Interchangeable Anvil Micrometers SPI IP65....72
Interchangeable Anvil Micrometers;
Mitutoyo Digimatic....73
Internal Bore Gages SPI....87, 89
Internal Bore Micrometers SPI....85
Internal Caliper Gages....107
Internal Caliper Gages, SPI....107
Intertest Caliper Gages....109
Intertest Caliper Gages, SPI....109
Intrimik Hole Micrometers, Brown & Sharpe....86
Levels, SPI....176, 177
Locating Gages....50
Micrometer Heads IP54, SPI....74
Micrometer Heads SPI....74
Micrometer Sets....59, 60
Micrometer Sets Mitutoyo Digimatic IP65....60
Micrometer Sets SPI IP 65....59
Micrometers....58 - 67, 69 - 72, 82, 85
Micrometers, Absolute....59
Micrometers Mitutoyo QuantuMike IP65....61
Micrometers Mitutoyo Digimatic....58
Micrometers Mitutoyo Digimatic IP65....60
Micrometers SPI IP 65....59
Micrometers SPI IP54....58
Micrometers, Brown & Sharpe IP54....58
Micrometers, Mitutoyo Digimatic Quickmike IP54....59
Multi - Anvil Micrometers,
Uni - Mike IP65, Mitutoyo....70
Multi - Anvil Micrometers IP54, SPI....70
Oditest Caliper Gages, SPI....108
Outside Disc Micrometers, Mitutoyo IP65....66
Panel Tachometers, Extech....179
Point Micrometers SPI....64
Point Micrometers, Mitutoyo Digimatic IP65....64
Protractors, Mitutoyo....156
Protractors, SPI....176, 177
Push/Pull Force Gage, Imada.Com....181
Screw Thread Micrometer, Mitutoyo IP65....69
Screw Thread Micrometers SPI....69
Solar Powered Calipers....99, 100
Sound Level Meter, Extech....179
Spherical Face Micrometers, Mitutoyo IP65....67
Spline Micrometers SPI IP65....61
Spline Micrometers SPI IP65....61
Spline Micrometers, Mitutoyo Digimatic IP66....62
Tachometer/Stroboscope Combination, Extech....180
Tachometers, Extech....180

Tachometers, Mitutoyo....181
Thermometer, Infrared Extech....179
Thermometers....179
Thickness Gages....107
Thickness Gages, Mitutoyo....106
Thickness Gages, SPI....107
Tool Setters....51
Tube Micrometers SPI....65
Tube Micrometers, Mitutoyo Digimatic IP66....65
Ultrasonic Thickness Gages, SPI....162
Universal Protractors....156
V - Anvil Micrometers SPI....71
V - Anvil Micrometers, Mitutoyo Digimatic IP65....71
Emergency....348, 370, 446
Blankets....348
Glass Breaker....446
Seat Belt Cutter....446
Triangle Kit....370
Empire....154, 156, 174
Magnetic Angle Meters....156
Magnetic Protractors....156
Polycast Torpedo Level....174
Rafter Squares....154
Torpedo Levels, Magnetic....174
End Mill Holders....223, 228 - 230, 232, 233
Collis....229, 230, 233
Morse taper....228, 229
NMTB....229, 230
Parlec....232
R8....223
R8....223
V - Flange....232, 233
End Mills....see below
Ball....512 - 515
Carbide....515 - 521
Cobalt....508
Corner Rounding....522
Double End....493 - 496, 513, 519, 520, 521
Finishing....493 - 503, 505, 513
Hertel....493 - 506, 509, 510, 511
HSS....508
Roughing....494, 504 - 515
Single End....494 - 508, 510, 511, 512
SPI....495, 503
TiN....501, 502
Carbide, Accupro....517, 519
Rough, Carbide....520
Energizer....165, 192,364, 365
Batteries AAA....108, 109, 161, 162, 365
9 Volt Batteries....165, 365
LED Lanterns....364
Engine Cleaning Guns....631
Engravers, Dremel....373
Engraving Pens, Electro - Spark....372
Equipment Cases....590
Equipment Dispensers....360
ER Collets....224, 227, 228
Chuck....227, 228
Sets....224
Erem, Precision Tweezers....411
Ergodyne, Knee Pads Proflex....356
Etalon....68, 87, 95, 110
Calipers, Dial....95
Dial Caliper Accessories....95
Dial Calipers....95
Grove Checking Gages....110
Indicating Micrometer Accessory....68
Indicating Micrometers....68
Internal Bore Micrometers....87
Etching Pens, SPI....372
Etch - O - Matic, Marking Kit....372
ETM....224, 227, 228, 229
Collet Chucks....227
Collet Nuts....228
Collets....224, 227
Holders....227 - 229
Excel....412, 413
Hemostats....413
Pin Vise & Sets....412
Expanding Collets, 5C....220, 221
Expanding Mandrels....220, 258
Expanding Transfer Punch....432
Extech....179, 180, 182, 321, 322, 613 - 616
Digital Force Gages....182
Digital Light Meter....615
Digital Panel Tachometers 1/8 DIN....179
Digital Sound Level Meter....179
Digital Tachometer/Stroboscope Combination....180
Digital Tachometers....180
Electrical Test Kit....613
Foot Candle Light Meter....615
Force Gages, Digital....182
Infrared Thermometers....179
Light Meter....615
Light Meters....615
Multimeters....616
Panel Tachometers Accessories....179
Panel Tachometers, 1/8 DIN....179
Stop Watches....322
Thermometers....321
Voltage Testers....614
Extended Reach End Mills, Carbide Accupro....517
Extension Cords....616, 617
Extension Pipe Type Micrometer Sets, Mitutoyo....83
Extensions, Collet Chucks....228
External Caliper Gages, Digital....107
Extra Thick Steel Finished Flat Washers....284
Extractors....432, 437, 438
Screw Sets, Blackhawk....432
Salvage Tool....438
Screw, Cleveland....437
Screw, Proto....437
Extra - Thick Washers....282
Eye Bolt Shoulder....284, 286
Eye Bolts Forged Screw, Gibraltar....285
Eye Bolts SST....286
Eye Bolts, Partially Threaded....286
Eye Bolts, Plain & Shoulder....284, 285
Eye Loupes, Bausch & Lomb....193
Eye Nuts Heavy - Duty....287
Eye Nuts SST....287
Eyeglass, Clip Ons....195
Eyewash Stations, Sperian....347

F

Facsimile....317
Fan Forced Portable Heater/Fan....301
Fans, Pedestal....300
FatMax Tape Measures, Stanley....145
Feeler Gages....157 - 161
Assortments, Steel....159
Holders, Double End SPI....161
Holders, Single End SPI....161
Sets, Steel Metric....159
Sets, Brass....159
Sets SST....158
Stock Rolls....161
SPI....157
Feeler Stock - Thickness Gage, SPI....160
Fiberglase Long Tape Rules, Stanley....145
Fiberglass Hammers, Vaughan....388
Fiber - Lite Illuminators, Dolan Jenner....189
File Cleaners....579
Files....385, 571, 577, 578, 579
Air, Florida Pneumatic....385
Flat....579
Half Round....579
Mill....579
Sets....579
Fillet Gages, Starrett....148
Fillet Weld Gages, SPI....152
Filter Regulator Accessories....636
Filters, Air....633
Finish Comparator Plates, SPI....163
First Aid Kits....347
Fiskars....438, 441
Hardware Snips....438
Shears....441
Shears/Scissors....438, 441
Fixture Mounts, 5C....220
Flambeau....589
Boxes....589
Toolboxes....589
Flanged Nuts....281
Flap Disks....558, 559
Flap Wheels....**558**
Flashlights....see below
LED, Streamlight....363
Magnifiers....193
Headlamps....362
Mag - Lite....364, 365
Pelican, LED....362
Streamlight....363, 364
Flat Washers....282, 283
Flexbar....41, 196, 339, 340
Drill Guards....340
Guard. Visor....339
Guards, Drill....340
Indicator Holders; Magnetic Base, Tom Thumb....41
Inspecto - Scope....196
Inspecto - Scope Replacement Bulb....196
Visor Guard....339

Flexible Magnetic Pick - Up Tools 408, 410
Flexible Shafts 239
Flexible Steel Rules 138, 139
SPI 138
Starrett 139
Flexiguards 338
Floor Mats, Wearwell 370
Florida Pneumatic 374, 385
Fluids ..... 303 - 311
All Purpose Spray ..... 307 - 309
Anti - Spatter 310
Cleaners 309, 310
Crown 307, 308
Cutting ..... 303 - 306
Dispensers 311
LPS 309, 310
Starrett 307
Fluke Voltage Detectors 614
Fly Cutters 241
Flynn Measuring Wire Set 115
Fold Up Hex Key Sets, Bondhus 419
Fold Up Torx Key Sets, Bondhus GorillaGrip 420
Folding Loupes 194
Folding Pocket Magnifiers, 3X 194
Folding Wood Rules, Lufkin 145
Foot Candle Light Meter, Extech 615
Foot Warmers 348
Force Gages, Digital Extech 182
Forged Screw Eye Bolts 285
Form Cutters 529, 530
Form Tools 537
Formula 1 Cutting Fluids 305
Fostoria, Dock Light 609
Fractional Digital Calipers 97
Fractional Electronic Caliper, Absolute 97

G

Gages ..... see below
2 Point Internal Bore , SPI 89
3 Point Internal Bore With Pistol Grips, SPI 87
Angle & Depth Combination 146
Angle Sets 146
Angle, SPI 146
Ball Sets, SPI 120
Balls 120
Bore ..... 87 - 89
Bore & Groove, Indical 110
Brown & Sharpe Telescoping Sets 111
Center Starrett 151
Centerline, SPI 103
Chamfer, SPI 90
CNC Toolsetting 125
Contour 151
Countersink Angle 146
Countersink, SPI 90
Depth and Protractor Combinations, SPI 155
Depth and Protractor Combinations, Starrett 155
Depth Bases, Mitutoyo 17
Depth, Mitutoyo Digimatic IP67 78
Depth, Starrett Dial 81
Depth, Starrett Micrometer 76
DFT Coating Thickness, Defelsko 162
Dial Bore 88
Dial Bore, Mitutoyo 89
Dial Bore, SPI 88
Dial Bore, Starrett 88
Dial Depth Accessories, SPI 80
Dial Depth, Mitutoyo 80
Dial Depth, SPI 79
Dial Depth, Starrett 81
Dial Groove, Starrett 111
Dial Thickness, Mitutoyo 107
Dial Thickness, SPI 106
Dial Thickness, Starrett 106
Digit Counter Dial Height 170
Digit Counter Dial Height, Mitutoyo 171
Digital 102
Digital Depth, Mitutoyo 78
Digital Depth, PAV 79
Digital Depth, SPI 77, 78
Digital External Caliper, SPI 107
Digital Internal Bore , SPI 89
Digital Internal Bore with Pistol Grips, SPI 87
Digital Internal Caliper, SPI 107
Digital Intertest Caliper, SPI 109
Digital Oditest Caliper, SPI 108
Digital Snap, SPI 102
Digital Thickness, SPI 107
Digital Thickness; Mitutoyo 106
Drill Point 152
Electronic 102
Electronic External Caliper, SPI 107
Electronic Internal Caliper, SPI 107
Electronic Intertest Caliper, SPI 109
Electronic Locating 50
Electronic Oditest Caliper, SPI 108
Electronic Snap, SPI 102
Electronic Thickness 106
Electronic Thickness, SPI 107
External Caliper, Digital 107
Feeler Stock Rolls 161
Fillet Weld 152
Fillet/Radius, Starrett 148
Force, Push/Pull 181
Gear Tooth 154
Go & No/Go Handles 118
Groove, Starrett 111
Handle Sets, Pin, SPI 118
Handles Go & No/Go 118
Height 170, 171
Height Offset 50
Height, Mitutoyo ..... 171 - 173
Height, SPI 172
Holders, Feeler SPI 161
Hole Location 135
Internal Caliper, Digital 107
Internal Dial Caliper, SPI 107
Intertest Caliper, Digital 109
Intertest Caliper, SPI 109
Locating, Electronic 50
Oditest Caliper, Digital 108
Oditest Caliper, SPI 108
Outside Micrometer, Mahr Federal 106
Pin Sets 119
Pin Sets, SPI 119
Pin Sets, Vermont Gage 119
Pitch, Mitutoyo 150
Plug SPI Taperlock Double End 132
Plug SPI Taperlock Handles 133, 134
Plug SPI Taperlock Single End 133
Plug Taper Pipe Thread 134
Pocket Dial Indicator Thickness, Starrett 106
Pocket Thickness, SPI 106
Radius Sets, SPI 147, 148
Radius Sets, Starrett 148
Ring 84, 135
Ring Metric SPI 134
Ring Taper Pipe Thread 134
Rule Combination 146
Screw Checker 150
Screw Pitch, Acme SPI 150
Screw Pitch, Mitutoyo, Metric 148
Screw Pitch, SPI 149
Screw Pitch, Starrett 149
Setting Tool 125
Shallow - Test SPI 91
Small Hole Mitutoyo 112
Small Hole Sets, SPI 112
Small Hole Starrett 113
Small, SPI 112
Surface SPI 45, 46
Taper 152
Tapered Leaf Thickness Mitutoyo 160
Tapered Leaf Thickness SPI 157
Tapered Leaf Thickness Starrett 158, 159
Telescoping 111
Telescoping Hole, Mitutoyo 112
Telescoping Hole, Starrett 112
Telescoping, Brown & Sharpe 111
Telescoping, Mitutoyo 112
Telescoping, SPI 111
Telescoping, Starrett 112
Tension/Compression, Correx 164
Thickness - Feeler Stock 160
Thickness - Feeler Stock Sets 160
Thickness Feeler SPI 157
Thickness Sets, SPI 158
Thickness Starrett 158, 159
Thickness, Magnetic Coating 161
Thickness, Mitutoyo Digimatic 106
Thickness, Starrett 160
Thickness/Outside Micrometer, Mahr Federal 106
Thread Ring Gages, Vermont 134
Toolsetting 125
Transfer/Squareness, Brown & Sharpe 46
Vernier Height 170, 171
Welding 153
Welding , Bridge Cam 153
Wire 151
GAR ..... 162 - 164
Microfinish Comparators 163
Reference Calibration Standards 163
Surface Finish Comparators 162, 164

Surface Roughness Standards 163
Garland 391, 392
Plastic Mallets 391
Rawhide Mallets 392
Wooden Mallets 391
Gatorade 341
Coolers 341
Ice Chests 341
Dispenser Pump 341
Instant Powder Mixes 341
Large Mouth Bottles 341
Liquid Concentrates 341
Powder Sticks 341
Ready To Drink Cans 341
Wide Mouth Bottles 341
Gear Tooth Gages, SPI 154
Gem 19, 27
Gem, Swivel Clamp 27
Gem, Test Indicators 19
General ..... see below
Glass Cutter 446, 447
Calipers, Pocket Slide 91
Cotter Pin Pullers 387
Magnetic Pick - Up Tools 410
Magnifiers, Pocket 194, 195
Nut Splitters 438
Pin Pullers, Cotter 387
Pin Vise & Sets 412
Precision Oiler 387
Tweezers 410
Gerber Multi - Tools 442
GF Gage 75, 91
Micrometer Master 75
Vernier Caliper Masters 91
Glass Breaker 446
Glass Cutter 446, 447
Glasses, Safety ..... 342 - 346
Gloves ..... 352 - 354 - 356, 357
Cotton Canvas 354
Disposable Nitrile 356
Driving Gloves 354
Fleece 354
Inspection 357
Knit 352
Leather Palm 353
Touchscreen 352
Vinyl 354
Work, Mechanix Wear 352
Glue, Rocksett 313
Goggles, Safety 344, 345
Gojo Hand Cleaners 332, 334
Gooseneck Bars & Sets 429
Gorilla Inch & Metric Fold - Up, Bondhus 419
GorillaGrip Fold Up Ball End Key Sets, Bondhus 419
GorillaGrip Fold Up Torx Key Sets, Bondhus 42
Granite 43, 44, 47, 48
Angle Plates 47
Base Comparator Stands 43, 44
Comparator Stands 43, 44
Comparator Stands, SPI 43, 44
Indicator Holder and Dial Indicator Sets, SPI 43
Indicator Holder and Dial Indicator Sets, Starrett 44
Indicator Stands 43, 44
Indicator Stands, SPI 43, 44
Parallels, SPI 47
Surface Plate Cleaner, Starrett 48
Surface Plate Cleaners 48
Surface Plates 47
V - Blocks 47
Grease 306
Grinder Brushes 569
Grinders 374, 376, 385, 386
Air 374
Air Die 374
Angle 386
Angle, Mini 385
Angle, Air 385, 386
Die, Angle 375
Die, Mini 374, 377
Die, Straight 374
Die, Air 375
Mini - Die 374
Mini Angle 385
Pencil Die, Air 376
Grinding Disks 556, 557, 559, 561, 562
Grinding Fixtures, 5C 215
Grinding Fixtures, SPI 215
Grinding Pins, Diamond 571
Grinding Wheels, Rubberized 564, 565
Groove Checking Gages, Etalon 110
Groove Gages, Starrett 111
Groove Micrometers 82, 91
Internal, Starrett 82
Mitutoyo 91
Starrett Groove Master 91
Groovemaster 110
Caliper Accessories 110
Grooving Tools 536, 537
Carbide, Accupro 536
Grooving Inserts 537
Retaining Ring Grooving Tools 536
Guard, Visor 339
GuardAir 629, 630
Guards, Lathe 339, 340
Guards, Mill 339

H

Half Base, Depth Micrometers 77
Half Round & Cap Chisels, Mayhew 430
Hammers ..... 245, 382, 388 - 392
Abbott 391
Air 382, 383
Air, Sioux 382
Aluminum, Abbott 391
Ball Peen 388
Brass 390, 391
Cook 391
Copper 391
Dead Blow 388, 389, 391
Dead Blow Mallets 390
Drawbar 245
Fiberglass, Vaughan 388
Handles Dead Blow, Nupla 388
Lead 390
No Mar ..... 389 - 391
Nylon 389, 390
Plastic ..... 389 - 391
Plastic Mallets 391
Pneumatic 382, 383
Rawhide Mallets 392
Stanley 388, 389
Vaughan 388
Vaughan Machinist's 392
Wooden Mallets 391
Hand Chucks 413
Hand Cleaners ..... 332 - 335
Gojo 332, 334
Stockhausen 333
Borax 335
Hand Tool Set 427
Hand Trucks 585
Hand Vises 412
Hand Warmers 348
Handbooks ..... 324 - 329
Handguarded Cold Chisel, Mayhew 430
Handles 212
Handles Dead Blow Hammers, Nupla 388
Handles, Vise 212
Hanging/Stacking Bins 593, 594
Hardened Steel Squares 136
Hardness Testers 164, 167-169
Ball Penetrator 168
Brinell, Portable 168
Digital 169
Electronic 169
File Set, SPI 164
Penetrator HRC 168
Portable 167
Portable Steel 167
Rockwell Type 168
Test Blocks 168
Test Block Brinell, Portable 168
Test Blocks 169
Hardware Snips, Fiskars 438
Hats, MiraCool Tie 341
Hawkeye 186, 187
Borescopes 186
Borescopes, Precision Rigid 186
Borescopes, Rigid with Krypton Light 186
Compact, Video 186
Side Way 90° Adapters For Borescopes 187
Head And Face Coverings 360
Headbands, MiraCool 341
Headlamps, LED 362
Headlamps, Streamlight 362
Heater 301
Heater/Fan, Portable, TPI 301
Heaters, Electrix 301
Heavy - Duty Eye Nuts 287
Height Gages 170, 171
Digit Counter Dial, Mitutoyo 171
Vernier 170, 171

Height Offset Gage, SPI 50
Helicoil 296
Installing Tools 296
Thread Inserts 296
Thread Repair Kits 296
Hemostats 413
Heritage Cutlery, Shears/Scissors 441
Hertel ..... see below
Drill Sets 451, 452, 454, 455, 459
Drills ..... 458, 460, 464, 465, 468 - 472
End Mills ..... 493 - 506, 509 - 511
Hex & Torx Key Sets, Bondhus Ball End 417
Hex Collets 218
Hex Drivers, Ball Point 415
Hex Key Sets, Bondhus 416, 418, 422
Hex Key Sets, Bondhus Fold Up 419
Hex Keys ..... 92, 135, 417 - 419
Hex Pro Pivot Head Wrench, Bondhus 422
High Speed Sander 381
Highway Triangle Kit 370
Hi - Visibility Vests 350, 351
Hoist 599, 600
Chain 600
Electronic 600
Lever 599, 600
Rope 600
Trolley 599
Hold Down Clamps, De - Sta - Co ..... 291 - 293
Holders 161, 297, 412, 562
Feeler Gage, Double End 161
Feeler Gage, Single End 161
Magnetic 297
Pin 412
SPI 297
Stone 562
Hole Cutters 532, 533
Hole Gages & Sets 111, 112
Hole Gage Telescoping, Brown & Sharpe 111
Mitutoyo 112
Small SPI 112
SPI 111, 112
Starrett 113
Telescoping 111
Telescoping, Mitutoyo 112
Telescoping, SPI 111
Telescoping, Starrett 112
Hole Location Gages 135
Hole Micrometers ..... 84 - 86
Intrimike, Brown & Sharpe 86
SPI 84, 85
Hole Mikes, SPI 84, 85
Hole Punches 435, 436
Hole Spotters & Sets, Blind 433
Holster, Micrometer & Caliper SPI 74
Hones 571
Hook Rules, Adjustable SPI 139
Horizontal & Vertical 5C Collet Chuck 213
Hose 628
Hose Clamps 627, 628
Hoses ..... 338, 620 - 623
Hoses Coolant ..... 338, 620 - 623
Howard Leight, Laser Lite Earplugs 349
Hub Micrometers, SPI 69
Huot 456, 585, 600
Drill Index 456
Tool Dispensers 456
Tool Scoots 585
Webbing 600
Hydraulic Carts 585
Hydraulic Toe Jacks 600
Hygrometers/Thermometers 321, 322
Hygro - Thermometers 179

I

Ice Chests, Gatorade 341
Ideal Voltage Testers 614
Illuminators, Fiber lite, Dolan Jenner 189
Imada.Com 169, 181
Digital Push/Pull Force Gages 181
Durometers, Analog 169
Impact Wrenches ..... 378 - 380
Air 379, 380
Butterfly 380
Inch & Metric Gorilla Fold - Up, Bondhus 419
Inclinometers, Electronic, SPI 176, 177
Indexable Boring Bars 537
Indexable Turning Tool & Inserts 536
Indexes, 5C Spin 214
Indexing Fixtures ..... 214 - 217
Indical 110
Bore & Groove Gage Accessories 110
Bore & Groove Gages 110
Indicating Micrometers 68
Economy 68
Etalon & Accessories 68
Mitutoyo IP54 68
SPI 68
Indicator Accessories, Probe Holder 17
Indicator Accessory 26
Indicator Backs, Magnetic 17
Indicator Holders ..... see below
Brown & Sharpe Magnetic Base & Indicator Sets 43
Double Jointed 28
Granite Base 43, 44
Granite Base, SPI 43, 44
Holders 35, 37
Indicator Mounting Attachments 27
Indicol 29
Indicol Adjustol 29
Magnetic Base ..... 36 - 41, 43
Magnetic Base 35
Magnetic Base, Bestyet 41
Magnetic Base, SPI 41
Mighty Mag 35
Minindicol 29
Noga 28, 40
Precision SPI 30
Probes 17
Quill Clamp 29
Sweep - It SPI 30
Tree 28
Vacuum Base, Bestyet 41
Vacuum Base, Noga 35
Vacuum Base, SPI 35, 41
Zero - Set, SPI 30
Indicators ..... see below
Alignment & Positioning, SPI 3D 31
Back Plunger & Sets 11
Brown & Sharpe 9
Centering SPI 31
Co - Ax 32
Co - Ax, SPI 31
Contact Points, SPI 26
Dial ..... 6 - 10, 15
Dial Test ..... 18 - 25
Dial Test, Mahr Federal 21
Dial Test, Mitutoyo 23, 25
Dial Test, Starrett 24
Digimatic, Mitutoyo 14, 15
Digital 11, 12, 14, 15, 87
Digital IP54, SPI 12
Digital, Mitutoyo 14, 15
Drop ..... 6 - 10, 15
Electronic 11, 12, 14, 15, 87
Electronic, Mitutoyo 14, 15
Mitutoyo 9, 10
Peacock 8
SPI 12, 171
SPI 6, 7, 11, 15
Stands 37
Starrett 10
Swivel for Test Indicator 27
Teclock 8
Test ..... 18 - 25
Test holder, Noga 28
Travel ..... 6 - 10, 15
Trees 28
Indicol 29
Minindicol Universal Indicator Holders 29
Universal Indicator Holders 29
Industrial Fans 300
Industrial Sorbents 367
Ink Markers, Sharpie 321
Ink Removers, Toolmaker's 319
Inks, Toolmakers 319
Insert Bit Sets 405
Inserts 536, 537
Carbide Boring Bar 536, 537
Turning Tool 536
Inside Micrometers ..... 81 - 83
Caliper Type, Mitutoyo 82
Caliper Type, Starrett 81
Digimatic Mitutoyo 82
Tubular, Starrett 83
Tubular, Starrett 83
Inspection Gage Ball & Sets, SPI 120
Inspection Gage Balls 120
Inspecto - Scope, Flexbare 196
Integra 18
Dial Test Indicators & Sets, SPI 18
Test Indicators & Sets, SPI 18

Interapid 20, 22, 28
Dial Test Indicator Accessories 20, 22, 28
Dial Test Indicators 22
Test Indicator Accessories 20, 22, 28
Test Indicator Contact Points, SPI Brand 26
Test Indicators 22
Interchangeable Anvil Micrometers 72, 73
Mitutoyo 73
SPI IP65 72
Interchangeable Rod Type Inside Micrometers 81
Internal ..... see below
Bore Gages SPI 87, 89
Bore Micrometers Etalon 87
Bore Micrometers SPI 85
Caliper Gages Digital 107
Caliper Gages Electronic 107
Micrometers Mitutoyo Holtest 86
International Pictorial labels 601
Intertest Caliper Gages, Electronic 109
Intrimik Hole Micrometers, Brown & Sharpe .. 86
IPD Gage & Software 114
Irwin 393, 440
Aviation Snips 440
Electrician Pliers 393
Tinner Snips 440
ITW Rustlik Bactericide & Fungicide 303
ITW Vortex 273

J

Jack Screw Sets 257
SPI 257
Starrett 257
Jacks 600
Jacobs 237
Jacobs Drill Chucks ..... 236 - 238
Jaws 211, 256
Hard Master 256
Magnetic 211
Soft 211
Top 256
Vise 211
Vises 211
Jewelers Screwdriver & Sets ..... 422 - 424
Justrite 366
Oily Waste Cans 366
Waste Cans, Oily 366

K

Kant - Twist Clamps 289, 290
Key Caddy 323
Key Seat Cutters 529
Kimtech, Wipers 334
Kleen Slot Trays 244
Klein Tools, Wire Strippers 393
Knee Pads 355, 356
Knee Pads, Proflex 356
Knee Supports 358
Kneeling Matting, Anti - Fatigue 355
Knife & Tool Sharpener 442
Knife Sharpeners 571
Knipex ..... 393 - 396, 398
Electrician Pliers 393
Retaining Ring Pliers 395
Snap Ring Pliers 395
Knives ..... 442 - 446
Hobby 446
Leatherman Pocket Tool 442
Utility ..... 443 - 446
Knobs, Shear - Loc Thumb Screw 294
Knurling Cutters 249, 252
Knurling Tools 249, 250
Krylon Paint 311

L

Labels 601
Circular Clear Cover Calibration SPI 184
Clear Cover Calibration SPI 184
International Pictorial 601
Miniture Clear Cover Calibration SPI 184
Pallet 601
Removeable Adhesive Calibration SPI 184
Security Seals SPI 184
Shipping 601
Wrap Up Calibration SPI 184
Lamps ..... 606 - 613
Accessories 607, 608, 612
Electrix ..... 607 - 613
Fluorescent Machine Lights, Electrix 607
Fluorescent Task 611
Gooseneck Halogen 612
Gooseneck, Electrix 609
Halogen Machine Lights, Electrix 608
Halogen Work Lights, Electrix 607
Machine 611
Machine Lights, Electrix 607, 608
Magnifier 612, 613
Moisture - Resistant Work Lights, Electrix 607
Task 612
Task Lights, Electrix 611
Waterproof Machine Lights, Electrix 607, 608
Work ..... 606 - 612
Work Lights, Electrix 607
Lano Lube 306
Lanterns, LED Energizer 364
Lapping, Hole 548
Laser Alignment & Positioning Tools 182
Laser Pointers 320
Laseraim, Alignment & Positioning Laser Tools .. 182
Lathe 125, 252, 255, 258, 339, 340, 537
Chucks 254, 255
Dogs 258
Guards 339, 340
Tool Holders 247
Tools 125, 252, 537
Layout Dye, Starrett Kleenscribe 317
Layout Material 318
Dykem 318
Sprayon 318
Leatherman 442, 446
Glass Beaker & Strap Cutter 446
Pocket Tools 442
LED Flashlight, Streamlight 363
LED Headlamps 362
Lens Cleaning 198, 347
Stations 198
Towels 198, 347
Letter/Number Stamps 392
Levels ..... 174 - 176
Cross Test, Starrett 174
Digital, Smart Tool 175
Digital, SPI 176, 177
Electronic, SPI 176, 177
Machinist's, Starrett 175
Master 174
Master, Starrett 175
Spirit 174, 176
Spirit SPI 176
Stanley, Pocket 174
Torpedo, Empire 174
Torpedo, Stanley 174
Lever Head, Multi Angle Tesa 178
Lever Hoist 599, 600
Lewis Bins, Containers, Stack and Nest 595
Light Meter 615
Digital 615
Extech 615
Light - Duty Ponchos, MCR 348
Lighted Loupe 196
Lighted Magnifier, Bausch & Lomb 196
Linen Tester Folding Magnifiers 194
Liquid Defoamer 303
Live Centers 252, 253
Lixie, Dead Blow Mallets 390
Locating Gages 50
Locking Multi - Pliers, Vise - Grip 400
Lockout Padlocks 360
Loc - Line, Shields 338
Loctite ..... 312 - 314
Adhesives ..... 312 - 315
Adhesives, Silicon 313
Form - A - Thread 314
Sealants, Pipe 312
Thread Locker 312
Long Tape Rules, Stanley 145
Louisville Ladder, Step Stand 587
Loupes ..... 193 - 198
Bausch & Lomb 193, 194
Eye 193
Eye, Bausch & Lomb 193
Folding, Bausch & Lomb 194
SPI 195, 198
LPS ..... 304 - 306, 309, 310
Anti - Spatter 310
Cleaners 309, 310
Contact Cleaner 310
Lubricant Rust Inhibitors 310
Tapmatic Cutting Fluids ..... 304 - 306

Lubricants ..... 306 - 310
Rust Inhibitors 310
Lubricating Sticks 306
Sprayon ..... 307 - 309
Tri - Flow 309
Lubricators, Air 633, 634
Air Tool 632
Lufkin 144, 145
Folding Wood Rules 145
Mezurall Power Tapes 144
P1000 Power Tapes 144
P2000 Power Tapes 144
Pee Wee Pocket Power Tapes 144
Luxo 613
Lamp Bulbs & Tubes 613
Lamp Magnifiers 613
Lamp Mounts 613
L - Wrench & Ball End Sets, Bondhus 415
L - Wrenches Torx & Sets, Bondhus 420
Lyndex Collets ..... 218, 220 - 222

M

Machine Lights, Electrix 607, 608
Machine Mounts ..... 259 - 263
Machine Vises ..... 200 - 203, 206, 207
Machine Vise, Parlec 200
Machinery, Belt & Disc Sanders 273
Machinist ..... see below
Jack Set SPI 257
Tool Kits 104, 105
Tool Kits Mitutoyo 104, 105
Levels 175
Square Sets 135, 136
Squares 136
Levels Starrett 175
Mag - Lite 364, 365
Aircraft Aluminum Flashlights 365
Flashlights 364, 365
Mini Mag - Lite® Flashlights 364
Magmate 288, 297
Mag - Mate 197, 409
Inspection Mirrors 197
Magnetic Pocket Tools 409
Magna - Lights 196
Magna - Specs, Eyeglasss Clip ons 195
Magnetic Base ..... see below
Indicator Holders, Mighty Mag 35
Stands, SPI 41
Base Stands, Bestyet 41
Dial Indicator Backs 17
Holder & Dial Indicator Sets 41
Holder & Test Indicator Sets 36, 41, 43
Indicator Holders ..... 36 - 41, 43
Indicator Holders, Bestyet 41
Indicator Holders, Mighty Mag 35
Indicator Holders, SPI 41
Indicator Holders Brown & Sharpe 37
Indicator Holders Flexbar, Tom Thumb 41
Indicator Holders Mitutoyo 38
Indicator Stands ..... 36 - 41, 43
Indicator Stands, Bestyet 41
Indicator Stands, SPI 41
Indicator Stands Brown & Sharpe 37
Indicator Stands Flexbar 41
Indicator Stands Mitutoyo 38
Magnetic ..... see below
Angle Meters, Empire 156
Base Angle Meters 156
Base Dial Indicaor Backs 17
Base Opti - Arms 386
Base Protractors 156
Base, Indicator Holders 35
Base, Vee 38
Blocks, Brown & Sharpe 131
Chuck V - Blocks & Parallels 131
Chucks 130, 264, 268
Dial Indicaor Backs 17
Indicator Holders ..... 36 - 41, 43
Indicator Holders, Bestyet 41
Indicator Holders, Brown & Sharpe 37
Indicator Holders, Flexbar 41
Indicator Holders, Mitutoyo 38
Indicator Holders, SPI 41
Indicator Stands 36
Indicator Stands 36
Jaws 211
Opti - Arm With Base, Cedarberg 386
Pick - Up Tools ..... 197, 408 - 410
Pick - Up Tools General 410
Pocket Tools Mag - Mate 409
Protractors, Empire 156
Sine Plates 268, 269
Sine Plates Compound 269
Sine Plates Fine Pole 268
Surface Gage & Test Indicatgor Set 46
Surface Gages 46
Trays 408
V - Blocks 131, 132
V - Blocks 132
V - Blocks, Brown & Sharpe 131
Magnetizer / Demagnetize 297
Magnets 197, 288, 297, 408, 409
Magnifiers ..... 194 - 198
Double Lens, Bausch & Lomb 193
Flashlight 193
Folding 196
Folding Linen Testers 194
Folding Pocket, 3X 194
Magnified Ruler, Bausch & Lomb 196
Magni - Focusers 197
Pocket, General 194, 195
SPI 197
SPI 198
Stereoptic 193
Magni - Focusers 197
Magnifying Lamps 613
Magnifying Loupes 195
Magni - Visors 198
Mahr Federal 21, 106, 166, 167
Dial Test Indicators 21
Outside Micrometer/Thickness Gages 106
Pocket Surf III Kit 166, 167
Portable Surface Roughness Tester, Pocket Surf 166, 167
Test Indicators 21
Thickness Gages/Outside Micrometers 106
Mallets ..... 390 - 392
Mandrels 258
Mandrels for Abrasives 565
Mandrels, Expanding 220
Manifolds, Air 635
Mannix, Timers 322
Markal 320
Markers 319, 320
Ball Paint Markers 320
Round Fine Line Metal Markers 320
Welders Pencils 320
Markers 319, 320, 372
Ball Paint; Markal 320
China 320
Dykem 319
Markal 319, 320
Metal 372
Metal Fine Line 320
Permanent Ink, Sharpie 321
Marking Kits, Etch - O - Matic 372
Marking Pens 372, 376
Electro - Spark 372
Master Chemical Cutting Fluids 303
Master Grind Fixtures 215
Master Levels 174, 175
Starrett 175
Master Lock 360
Master Setting Ring Gages 84, 135
Master Vernier Calipers, Starrett 92
Matched V - Blocks, SPI 128
Mats ..... 321, 368 - 370
Anti - Fatigue, Kneeling 355
Desk 321
Kneeling, Anti - Fatigue 355
Wearwell 369, 370
Mayhew 410, 427, 428, 430, 431, 434
Carbon Scraper Sets "The dominator" 427
Utility Sets "The Dominato" 427
Alignment Punch Sets 434
Carbon Scraper Sets 427
Chisel, Handguarded Cold 430
Chisels 430
Cold Chisels 431
Handguarded Cold Chisel 430
Pick - Up Tools 410
Pin Punch Sets 434
Pry Bars 428
Punch Sets, Pin 434
Punches & Chisels 430
Scraper Sets, Carbon 427
Utility Sets 427
MCR, Light - Duty Ponchos 348
Measure Master Pro Calculator 324
Measuring Tool Sets ..... see below
Mitutoyo 104
SPI 104

Starrett....104
Measuring Wire Set, Flynn....115
Mechanical Balances, Ohaus....183
Mechanics Tool Sets, Apex....404
Mechanix Wear....352
Cold Weather Work Gloves....352
Work Gloves....352
Work Gloves, Cold Weather....352
Mesh Protective Sleeving....386
Metal Finishing Wheels....560
Metal Markers, Fine Line, Markal....320
Metal Polish....574
Meters, Light....615
Metric Steel Feeler Gage Sets....159
Metric Thread Plug Gages, SPI....133
Mezurall Power Tapes, Lufkin....144
Micro Center Drills....477
Micro Drills....476 - 478
Micro Surface Finish Comparator Plates, SPI....163
Micro Tap Guides....244
Microfinish Comparators....163
Micrometers....see below
0 - 2 Interchangeable Anvil, Mitutoyo....73
2 Point Internal Bore, Etalon....87
3 Point Internal Bore, Etalon....87
3 Point Internal Bore, SPI....85
Anvil Attachments....74
Anvil Kits....75
Ball Attachments, SPI....74, 75
Ball, SPI....63
Blade....62
Blade, Mitutoyo....63
Blade, Starrett....62
Brown & Sharpe IP54....58
Caliper, SPI....61
Calipers Inside, Mitutoyo Digimatic....82
Convertible Thimble Outside, Brown & Sharpe....56
Deep Throat, SPI....66
Depth Gages Starrett....76
Depth SPI....77
Depth, Mitutoyo....76
Depth, Mitutoyo Digimatic....77
Depth, SPI....76, 77
Digimatic IP65, Mitutoyo....64
Digimatic, Mitutoyo....58
Digital....53, 57
Digital Blade....63
Digital Caliper Type Inside, SPI....82
Digital Crimp Height, SPI....65
Digital Deep Throat, SPI....67
Digital Depth, IP65 SPI....77
Digital Interchangeable Anvil, SPI IP65....72
Digital Internal Bore, SPI....85
Digital IP54, SPI....58
Digital Multi - Anvil, , Uni - Mike IP65 Mitutoyo 70
Digital Multi - Anvil, IP54 SPI....70
Digital Outside, Mitutoyo....58
Digital Screw Thread, SPI....69
Digital V - Anvil, SPI....71
Disc, SPI....65
Disc, Starrett....66
Electronic Blade....63
Electronic, Brown & Sharpe....58
Electronic, Mitutoyo....59
Groove, Mitutoyo....91
Groove, SPI....90
Groove, Starrett Master....91
Heads Mitutoyo Digit....74
Heads, Digital....74
Heads, SPI....74
Heads, Vernier Type....74
Hole Mikes....84, 85
Hub, SPI....69
Indicating Accessory, Etalon....68
Indicating, Economy....68
Indicating, Etalon....68
Indicating, Mitutoyo....68
Indicating, Mitutoyo IP54....68
Indicating, SPI....68
Inside Caliper Type, Mitutoyo....82
Inside Caliper Type, SPI....81
Inside Caliper Type, Starrett....81
Inside Interchangeable Rod Type, SPI....81
Inside Tubular, Starrett....83
Inside, SPI....81, 83
Inside Tubular, SPI....83
Interchangeable Anvil, Mitutoyo Digimatic....73
Interchangeable Anvil, SPI....72
Internal Bore, Etalon....87
Internal Groove, Starrett....82
Internal, Mitutoyo Holtest....86
Intrimik, Brown & Sharpe....86
IP65 Outside Disc, Mitutoyo....66
IP65 Spherical Face, Mitutoyo....67
Master....75
Mechanical Digit Outside, Starrett....57
Micrometer, Ball Attachments, Mitutoyo....75
Mitutoyo....72
Mitutoyo Quickmike IP54 Digimatic....59
Multi - Anvil, Mitutoyo Uni - Mike....70
Multi - Anvil, SPI....70
Multi - Anvil, Starrett....70
Outside....52, 53, 57
Outside Digital IP 65....59
Outside Digital IP 65, Mitutoyo....60
Outside Digital, Mitutoyo....58
Outside Disc, Mitutoyo....66
Outside Mechanical Digit, Starrett....57
Outside Sets, Mitutoyo....54
Outside Sets, SPI....53
Outside, Brown & Sharpe Value - Line....56
Outside, Digital SPI....57
Outside, Mitutoyo....53, 54, 72
Outside, SPI....53
Outside, Starrett....55, 56
Outside, Tesa....57
Point, Mitutoyo....64
Point, SPI....64
QuantuMike IP65, Mitutoyo....61
Quick - Action, SPI....60
Screw Thread, SPI....69
Sets Extension Pipe Type, Mitutoyo....83
Spherical Face, Mitutoyo....67
Spline, Mitutoyo....61
Spline, Mitutoyo Digimatic IP65....62
Spline, SPI....61
Stand, Folding SPI....73
Standards, SPI....73
Stands, Folding....73
Tube, Mitutoyo....65
Tube, Mitutoyo Digimatic IP65....65
Tube, SPI....64
Tubular Frame Outside Micrometers, Starrett....72
V - Anvil, Mitutoyo....71
V - Anvil, Mitutoyo Digimatic IP65....71
V - Anvil, SPI....71
V - Anvil, Starrett....71
Vernier Point, Mitutoyo....64
Microscopes....187 - 189
Accessories....187
Boom Stand....188
SPI....187 - 189
Stereo....189
Tool Makers....189
Widestand....187
Zoom....188
Mighty Mag Indicator Holders....35
Mill Guards....339, 340
Milling Arbors....235
Milling Machine Accessories....244, 267
Milling Machine Arbor Accessories....236
Milling Machine Work Stop....211
Milling Tools....267
Milling Vises....201
Mini Angle Grinder....385
Mini Protractor, SPI....176
Mini Ratchet Wrench....377
Mini - Die Grinder....374
Miniflat Surface Plates, SPI....46
Minindicol Universal Indicator Holders....29
Miniture Clear Cover Calibration Labels, SPI....184
MiraCool....341
Bandanas....341
Headbands....341
Tie Hats....341
Mirrors, Inspection, Mag - Mate....197
Mitee - Bite Clamps....288
Miti - Mite Base & Best Test Indicator Sets, Brown & Sharpe....43
Mitutoyo....see below
Absolute Digimatic Calipers....100
Absolute Digimatic Depth Gages....80
Bench Centers....173
Blade Digital Micrometers, Digimatic....63
Blade Micrometers....63
Calipers....96
Calipers, Dial....96
Calipers, Vernier....93
Calipers, Vernier Inch/Inch....93
Calipers, Vernier Inch/Metric....93
Depth Gage Bases....17
Depth Gages....78, 80
Depth Gages, Dial....80

Depth Gages, Digimatic IP67 78
Depth Micrometers 76
Dial Bore Gage Accessories 89
Dial Bore Gage Sets 89
Dial Calipers 96
Dial Depth Gages 80
Dial Gage Stand 45
Dial Indicators 9, 10
Dial Test Indicators 23, 25
Dial Thickness Gages 107
Digimatic Calipers, Absolute 100
Digimatic Depth Gages 80
Digimatic Depth Micrometers 77
Digimatic Height Gage Accessories 172, 173
Digimatic Height Gages 171, 172
Digimatic Inside Micrometer Calipers 82
Digimatic Interchangeable Anvil Micrometers 73
Digimatic IP65 Micrometers 64
Digimatic IP65 Tube Micrometers 65
Digimatic IP67 Blade Caliper 102
Digimatic IP67 Offset Caliper 102
Digimatic Quickmike Micrometers, Absolute IP54 .. 59
Digimatic Solar Powered Calipers 100
Digimatic Spline Micrometers IP65 62
Digimatic Thickness Gages 106
Digimatic V - Anvil Micrometers 71
Digit Counter Dial Height Gages 171
Digit Micrometer Heads 74
Digital Calipers 96, 102
Digital Calipers, Digimatic 100
Digital Calipers, Digimatic Carbon Fiber 101
Digital Calipers, Digimatic IP67 101
Digital Depth Gage Accessories 59, 78, 100
Digital Depth Gages 78
Digital Digimatic Caliper Accessories 100
Digital Height Gages, Digimatic 171, 172
Digital Height Gages, HDS Digimatic with SPC Output 173
Digital Indicator Accessories ..... 14, 15, 106, 156, 171 - 173
Digital Indicators, Digimatic 14, 15
Digital Micrometer Sets, Digimatic IP65 60
Digital Micrometers, Digimatic 58
Digital Micrometers, Digimatic IP65 60
Digital Micrometers, QuantuMike IP65 61
Digital Multi - Anvil Micrometers, Uni - Mike IP65 70
Digital Outside Micrometers 58
Digital Screw Thread Micrometer, IP65 69
Digital Tachometers 181
Digital Universal Protractors 156
Drop Indicators 9, 10
Electronic Blade Micrometers, Digimatic 63
Electronic Calipers, Digimatic 100
Electronic Calipers, Digimatic Carbon Fiber 101
Electronic Calipers, Digimatic IP67 101
Electronic Depth Gages, ... 78
Electronic Height Gages, Digimatic 171, 172
Electronic Height Gages, HDS Digimatic with SPC Output 173
Electronic Indicators, Digimatic 14, 15
Electronic Micrometer Sets, Digimatic IP65 60
Electronic Micrometers, QuantuMike IP65 61
Electronic Micrometers, Digimatic 58
Electronic Micrometers, Digimatic IP65 60
Electronic Multi - Anvil Micrometers, Uni - Mike IP65 .. 70
Electronic Tachometers 181
Electronic Universal Protractors 156
Electronics crew Thread Micrometer, IP65 69
Extension Pipe Type Micrometer Sets 83
Gage Block Sets, Rectangular 117
Gages, Thickness 160
Groove Micrometers 91
HDS Digimatic Height Gage Accessories . 171, 173
HDS Digimatic Height Gages with SPC Output 173
Height Gages, Digimatic 171, 172
Height Gages, Digit Counter Dial 171
Height Gages, HDS Digimatic with SPC Output 173
Hole Gage Sets, Telescoping 112
Hole Gages, Small 112
Holtest Internal Micrometers 86
Indicating Micrometers IP54 68
Indicator Holders; Magnetic Base 38
Indicator Stand 45
Indicators 9, 10
Inside Micrometers, Caliper Type 82
Interchangeable Anvil Micrometers, 0 - 2 73
Internal Micrometers, Holtest 86
IP65 Digimatic Outside Disc Micrometers 66
IP65 Digimatic Spherical Face Micrometers 67
IP67 Digimatic Depth Gages 78
IP67 Solar Powered Calipers 99
Measuring Tool Sets 104
Metric Screw Pitch Gages 148
Micrometers 68, 72
Micrometers, Outside 53, 54, 72
Micrometers, Outside Digital 58
Micrometers, Outside Sets 54
Micrometers, Quickmike Digimatic Absolute IP54 .. 59
Multi - Anvil Micrometers, Uni - Mike 70
Outside Disc Micrometers 66
Outside Micrometer Sets 54
Outside Micrometers 53, 54, 72
Outside Mircrometers, Digital 58
Pitch Gages 150
Portable SPC & SQC Digimatic Mini Processors ... 101
Portable Surface Roughness Tester 165
Protractors, Digital 156
Protractors, Electronic 156
Quickmike IP54 Abosolute Digimatic Micrometers 59
Rectangular Gage Block Sets 117
Rockwell Test Block Calibration Sets 169
Rods For Depth Micrometers 76
Screw Pitch Gages, Metric 148
Screw Thread Micrometer 69
Small Hole Gages 112
Solar Powered Calipers, Digimatic 100
Solar Powered Calipers, IP67 99
SPC Cables, 40 ..... 78, 99 - 102
SPC Cables, 80 ..... 78, 99 - 103
SPC Processors, DP - 1VR 101
Spherical Face Micrometers 67
Spline Micrometers 61
Surface Roughness Tester, Portable 165
Telescoping Hole Gage Sets 112
Telescoping Hole Gages 112
Test Indicator Contact Points, SPI Brand 26
Test Indicators 23, 25
Thickness Gages, Dial 107
Thickness Gages, Digimatic 106
Thickness Gages, Tapered Leaf 160
Thread Wire Measuring Sets 115
Tool Lite Kit 104, 105
Travel Indicators 9, 10
Tube Micrometers 65
Uni - Mike Accessories 70
Uni - Mike IP65 Multi - Anvil Micrometer 70
Uni - Mike, Multi - Anvil Micrometers 70
V - Anvil Micrometers 71
Vernier Calipers 93
Vernier Calipers, Inch/Inch 93
Vernier Calipers, Inch/Metric 93
Vernier Point Micrometers 64
Mobile Carts 583
Moisture - Resistant Work Lights, Elextrix 607
Moldex 348, 349
Meteors Foam Earplugs 348
Spark Plugs Earplugs 349
Monarch Optical Tachometers 180
Mop Handles 332
Mops 332
Morse Taper End Mill Holders 228, 229
Morse Taper Sleeves 239
Mounted Stones 576, 577
Mounts ..... 259 - 263
Multi - Anvil Micrometers 70
Uni - Mike IP65, Mitutoyo 70
IP54, SPI 70
SPI 70
Starrett 70
Uni - Mike, Mitutoyo 70
Multimeters 615, 616
Extech 616
Multi - Pliers, Locking , Vise - Grip 400
Multiquick Tool Holders & Accessories 248
Multi - tools, Gerber 442
Mylar Adhesive Backed Rules 141

N

NC Tool Scoots 585
Needle Files 577, 578
Needle Files Handle 578
Needle Scalers 384
Nibblers, Air 384
Nicholson Files 579
NMC, Baricade Warning Tapes 370
NMTB End Mill Holders 229, 230
NMTB Morse Taper Adapters 229
Noga ..... see below
Vacuum Base Indicator Holder, Noga 35
Chip Hooks 387

Deburring Tools ..... 538 - 543, 547
Deburring Tools, Kits ..... 539 - 541
Indicator Holder 40
Magnetic Base Indicator Holders ..... 38 - 40
Magnetic Indicator Stands ..... 38 - 40
Scraping Tools 541
Test Indicator Holder 28
Test Indicator Holders 28
Vacuum Bases 35
NoTrax 355
Notrax, Kneeling Mats 355
Nozzles, Air 628, 629
Number/Letter Stamps 392
Nupla 388
Dead Blow Hammers, Handles 388
Hammers; Handles Dead Blow 388
Handles Dead Blow Hammer 388
Nut Splitters, General 438
Nutdriver Sets, Crescent 404
Nutdriver/T - Handle Set, Crescent 404
Nuts 281

O

Oditest Caliper Gages, Electronic 108
Offset Jaw Digital Calipers 99
Offset Jaw Electronic Calipers 99
Ohaus 182, 183
Calibration Masses 183
Mechanical Balance Accessories 183
Mechanical Balances 183
Scales, Weight 182
Weight Scales 182
Oil Cans 335, 387
Oil Skimmer 273
Oiler, Precision 387
Oily Waste Cans 366
Opticaids, Eyeglass Clip Ons 195
Optical Comparators 190
Optical Tachometers, Monarch 180
Optivisors 198
Orbital Sander, Palm 381
Orbital Sanders, Mini 380
Outside Disc Micrometers, Mitutoyo 66
Overlay Charts 191

P

P1000 Power Tapes, Lufkin 144
P2000 Power Tapes, Lufkin 144
Pad Eyes 287
Padlocks, Lockout 360
Paint Markers, Markal Ball 320
Paint Pens 320
Paint, Krylon 311
Pallet Labels 601
Palm Orbital Sander 381
Panapresses 273
Panavises 210
Parallel & V - Block, Magnetic Chucks 131
Parallel Clamps 292
Parallel Separators 212
Parallel Set, Wavy 121
Parallels ..... 121 - 124, 126, 266
Adjustable 124
Ball Bearing, TECO 120
Box 266
Granite SPI 47
Matched Pairs 121, 123, 126
Sets ..... 121 - 124
SPI ..... 121 - 123, 266
Starrett Sets 124
Steel 123
Thin Sets 121, 122
Wavy 121
Parlec 232, 243
Arbors 232
End Mill Holders 232
Machine Vise 200
Tap Adapters 243
Taper Arbors 232
Partially Threaded Eye Bolts 286
PAV 79
Depth Gages 79
Digital Depth Gages 79
Electronic Depth Gages 79
Peacock 8, 19
Dial Indicator Accessories 8
Dial Indicators 8
Dial Test Indicator Accessories 19
Dial Test Indicators 19
Drop Indicators 8
Indicators 8
Test Indicator Accessories 19
Test Indicator Contact Points, SPI Brand 26
Test Indicators 19
Travel Indicators 8
Pedestal Fans 300
Pee Wee Pocket Power Tapes, Lufkin 144
Pelican 362, 590
Equipment Cases 590
LED Flashlights 362
Pencil Die Grinders 376, 377
Pencils, Welders, Markal 320
Penetrator C Scale 168
Penlight LED, Stylus , Streamlight 363
Phase II, Quick Change Tool Posts 246
PI Tapes 138
Pick - Up Tools ..... 408 - 410
Magnetic ..... 408 - 410
Mayhew 410
Pin Bushings, Plain Gage Reversible Wire Type 120
Pin Chuck Sets 412
Pin Gages 118, 119
Handles 118
Individuals 118
Sets, SPI 119
Sets, Vermont 119
Pin Pullers, Cotter, General 387
Pin Punches 433, 434
Brass, SPI 434
Mayhew 434
Starrett 433, 434
Pin Vises 412, 413
Excel 412
General 412
SPI 412
Starrett 413
Pipe Taps 483
Pipe Wrench, Quick Adj Vise - Grip 400
Pistel Grip Air Drill 383
Pistol Grip Air Screwdriver 382
Pitch Gages, Mitutoyo 150
Pitchmaster 113
I.D. Insert Pairs For Thread Checking 113
Micrometer Attachments For Thread Checking 113
O.D. Insert Pairs For Thread Checking 113
Thread Checkers 113
Pivot Head Wrench, Bondhus Hex Pro 422
Plain & Shoulder Eye Bolts 284, 285
Platform Truck 582
Plier & Tacker Staplers 446, 447
Pliers ..... 392, 393, 395 - 399
Adjustable 399
Alligator 397, 398
Channellock 392, 393, 395, 397
Channellock Long - Nose 397
Cutting 394
Cutting 396
Cutting Pliers 396
Electrician 393
End Cutting 397
Knipex 395, 396, 398
Needle Nose 396
Ratcheting Jaw 398
Retaining 395
Retaining Ring 395
Slip Joint 398
Snap Ring 394
Vise Grip 399
Water Pump 397, 398
Plug Gages ..... 132 - 134
SPI Taper Pipe Thread 134
SPI Taperlock Double End 132
SPI Taperlock Handles 133, 134
SPI Taperlock Single End 133
Plugs 635
Plunger Cans, Safety 366
Pneumatic Hammer Kit 382, 383
Pneumatic Shop Seat 587
Pocket 106, 140, 166, 194, 196, 409, 442
Magnifier 196
Magnifiers, Folding 3X 194
Microscope 196
Rules, 6 140
Surf, Mahr 166
Thickness Gages, Starrett 106
Tools Leatherman 442
Tools Magnetic 409
Point Micrometers, Mitutoyo 64
Point Micrometers, SPI 64
Pointers, Laser 320
Polishing 563, 574, 575
Compound 574

Metal, Autosol 574
Stones SPI 563
Wheels 575
Polycast Torpedo Level, Empire 174
Ponchos, Light - Duty, MCR 348
Portable Electric Heater 301
Portable Heater/Fan, TPI 301
Portable Hose Reels 625
Portable Steel Hardness Testers 167
Portable Surface Roughness Tester ....165 - 167
Mitutoyo 165
Pocket Surf 166, 167
SPI 165
Positive Tap Adapters 242, 243
Bilz 242
Parlec 243
Quick - Change, Bilz 243
Power Tapes 144
Lufkin 144
Mezurall 144
P1000 144
P2000 144
Pee Wee Pocket 144
Powerlock Tape Rules, Stanley 145
Precision Brand, Shim Stock 118
Precision Diameter Tapes 138
Precision Oiler General 387
Precision Tweezers, Erem 411
Precision Vises ....200 - 202, 204, 206 - 209, 271
Presses 272
Presses, Arbor 272
Pressure Gages 635
Pretec 178
Electronic Measuring Probes 178
Electronic Measuring Probe Accessories 178
Pro 360 Digital Level 177
Pro 3600 Digital Levels 177
Probe Holders, Indicator 17
Probe Modules, Renishaw TP20 33
Probes 34, 165, 178
Coordinate Measuring Machine, Renishaw 34
Pretec Electronic Measuring 178
SPI Portable Roughness Testers 165
Profile Projectors, SPI 190
Proflex Knee Pads 356
ProGauge II, Magnetic Coating Thickness Gages 161
ProLube, Oil Cans 335
Protective Clothing 359
Protective Mesh Sleeving 386
Proto ....402, 428 - 432, 437
Adjustable Wrenches 402
Aligning & Pry Bars Sets 428
Aligning & Rolling Head Pry Bars Sets 428
Chisel & Punch Holders 432
Cold Chisels 429, 430
Pry Bars 428
Punch & Chisel Holders 432
Punches & Chisels 431
Screw Extractors & Sets 437
Protractors ....155 - 156, 176, 177
& Depth Gage Combination, SPI 155
& Depth Gage Combination, Starrett 155
Bevel, SPI 155
Depth Gage Combination, SPI 155
Depth Gage Combination, Starrett 155
Digital, Mitutoyo 156
Digital, SPI 176, 177
Electronic, Mitutoyo 156
Electronic, SPI 176, 177
Magnetic, Empire 156
SPI 154
Starrett 155
Pry & Aligning Bars 428, 429
Proto 428
Sets 429
Rolling Head & Aligning 429
Die Set 428
Mayhew 428
Proto 428
PSA Discs 273
Pumps 302
Punch & Chisel Holders, Proto 432
Punch & Die Sets 435
Punch Formers 215
Punch Grinders 256
Punch Sets, Alignment, Mayhew 434
Punch Sets, Pin Brass, SPI 434
Punch Sets, Pin Mayhew 434
Punches & Chisels ....430 - 436
Blackhawk 431
Mayhew 430
Proto 431
Stanley 431
Center 433
Hole 435, 436
Individual 432
Pin 433, 434
Roll Pin 434, 435
Transfer 432
Push/Pull Force Gages, Imada.Com 181

Q

Quantum ....see below
Bins 593
Dividable Totes 596
Hanging/Stacking Bins 594
Plastic Shelf Drawers 592, 593
Stacking Bins 593
Steel Rails For Hanging/Stacking Bins 593, 594
Quick Adj Pipe Wrench, Vise - Grip 400
Quick Adjusting Nut 244
Quick Change Lathe Tool Holders 246, 247
Quick Change System 247
Quick Change Tool Holders 246, 248
Quick Knurling Cutters 252
Quick Knurling Tools 250
Quick - Action Micrometers, SPI 60
Quick - Nut Spring Calipers, Inside 157
Quick - Nut Spring Calipers, Outside 157
Quick - Nut Spring Dividers 157
Quill Handles 245
Quill Clamps & Indicator Set, SPI 29
Quill Mates 245

R

R8 ....218, 222 - 224
Collet Racks 224
Collets 218, 222, 223
End mill Holders 223
Precision Collets 222
Stub Arbors 223
Rachet Type Arbor Press 272
Racks 588, 594
Durham 588
Pick 594
Radius & Angle Dressers 258
Radius Cutters 530
Concave 530
Convex 530
Radius Gages 147, 148
Sets 147
Sets, SPI 147
Sets, Starrett 148
SPI 147, 148
Starrett 148
Individual 147
Rafter Squares, Empire 154
Range Extenders 103
RapidRench, Crescent 401
RapidTap Cutting Fluids 304
Rapz Safety Glasses 355
Ratchet Wrench 377, 378, 385
Ratcheting Jaw Pliers 398
Ratcheting Wrench, Crescent 401
Rawhide Mallets 392
Reamers ....488 - 492
Adjustable 490
Bridge 491
Expansion 490
Hand 488, 490
Machine 489
Shell 492
Taper Pin 488
Reciprocating Saws, Air 384
Rectangular Gage Blocks 116, 117
Accessories, SPI 117
Sets, SPI 116, 117
Mitutoyo 117
SPI 116
Reference Books ....324 - 329
Reference Calibration Standards 163
Refractometers 303
Regulators 633, 634
Air 633
Removeable Adhesive Calibration Labels, SPI 184
Renishaw 33, 34
Coordinate Measuring Machine Probes 34
TP20 Probe Modules 33
Reprorubber 317
Retaining Ring Pliers 394, 395
Channellock 395
Knipex 395

Retention Knobs 234
Retrieval Tools 197, 409
Retrieving Tools 408, 410
Reversible Air Drill 384
Reversible Tapping Heads 241
Rex 170, 171
Durometers, Analog 170, 171
Durometers, Digital 170, 171
Durometers, Pocket 170, 171
Riffler Files 577, 579
Holders 579
Right Angle Attachment for Brideport Mills 245
Rigid Steel Rules, SPI 139
Rigid Steel Rules, Starrett 140
Rigid Steel Scales 139, 140
Ring Gages, Master Setting 84, 135
Ring Gages, Metric SPI 134
Ring Gages, SPI Taper Pipe Thread 134
Rocksett 313
Rockwell Type Hardness Testers 168
Rod End Blanks 287
Rods For Mitutoyo Depth Micrometers 76
Roll Pin Punches 434, 435
Rolling Head & Aligning Pry Bars Sets 429
Rolling Head & Aligning Pry Bars Sets, Proto 428
Rolls 553, 554
Roughing Cutters 506
Roughing Endmills, Carbide Accupro 520
Roughness Testers, Portable, SPI 165
Round Bar Center Finder, SPI 151
Rout - A - Burr 538, 542, 543
Rubberized Abrasives ..... 564 - 567
Kits 566, 567
Rubbermaid ..... 330 - 332, 583, 584, 586
Brooms 330, 332
Brushes 330
Carts 583, 584
Drum Dolly 331, 586
Mobile Work Centers 584
Mopping Products 332
Mops 332
Trash Cans 331
Rule & Gage, Combination 146
Rules, Wood Folding Lufkin 145
Rules ..... 138 - 141, 145
6 with Decimal Equivalents 140
6 with Reference Table 140
Adjustable Hook, SPI 139
Flexible Steel, SPI 138
Flexible Steel, Starrett 139
Mylar Adhesive Backed 141
Pocket 6 SPI 140
Powerlock Tape, Stanley 145
Rigid Steel, SPI 139
Rigid Steel, Starrett 140
Straight Edges, SPI 137
Tape, Stanley 145
Rust Inhibitors 310

S

Safety 338, 596
Air Guns 630
Ball Paint Markers 320
Bandanas, MiraCool 341
Cans 366
Coolers, Gatorade 341
Dispenser Pump, Gatorade 341
Drill Guards, Flexbar 340
Earplugs, Howard Leight 349
Earplugs, Moldex 348, 349
Equipment 349
Eyewash Stations 347
Flashlights ..... 363 - 365
Flashlights, Pelican LED 362
Glasses ..... 342 - 346, 355
Glasses 345
Glasses Crews 344, 345
Glasses Crews, Blackjack 344
Glasses Crews, Frostbite 2 343
Glasses Crews, Rattler 2 343
Glasses Dispensers 346
Glasses Rapz 355
Glasses Uvex 345
Glasses, Crews, Blackjack 344
Glasses, Crews, Frostbite 2 343
Glasses, Crews, Rattler 2 343
Goggles 344, 345
Goggles Crews 344
Goggles Uvex 345
Goggles, Crews 344
Goggles, Uvex 345
Guards, Drill 340
Headbands, MiraCool 341
Headlamps, Streamlight 362
Ice Chests, Gatorade 341
Ink Markers, Sharpie 321
Instant Powder Mixes, Gatorade 341
Lanterns, Energizer LED 364
Large Mouth Bottles, Gatorade 341
Liquid Concentrates, Gatorade 341
Lockout Padlocks 360
Mats, Kneeling 355
Mats, Wearwell 370
MiraCool Bandanas 341
MiraCool Headbands 341
MiraCool Tie Hats 341
Notrax Kneeling Mats 355
Oily Waste Cans 366
Plunger Cans 366
Plunger Cans 366
Powder Sticks, Gatorade 341
Protective Mesh Sleeving 386
Ready To Drink Cans, Gatorade 341
Shields 338
Streamlight Headlamps 362
Tapes, Warning 370
Tie Hats, MiraCool 341
Triangles 370
Vests, Hi - Visibility 350, 351
Warming Packs 348
Warning Tapes 370
Wash Bottles, Labeled 596
Waste Cans, Oily 366
Welders Pencils, Makal 320
Wide Mouth Bottles, Gatorade 341
Work Gloves 352
Saf - T - Lite, Worklights 604, 605
Sanders ..... 273, 380 - 382
Air 380
Belt 382
Belt 273
Belt, Air 381, 382
Dual Action 381
High Speed 381
Obital, Air 380
Orbital, Palm 381
Sanding Disks ..... 556 - 559, 561, 562
Sanding Pads 555
Sanding, Belts 382, 550, 551
Saw Arbors 235
Scalers, Needle 384
Scales ..... see below
Flexible Steel SPI 138
Flexible Steel Starrett 139
Rigid Steel SPI 139
Rigid Steel Starrett 140
Weight, Ohaus 182
Scissor Lifts 585
Scissors 438, 441
Scissors, Fiskars 441
Scoops, Aluminum 597
Scraper Sets, Carbon Mayhew 427
Scrapers 540, 547
Scraping Tools 540, 541, 543, 547
Vargus 547
Noga 541
Screw Checker Gages 150
Screw Extractor Sets, Blackhawk 432
Screw Extractors 437, 438
Cleveland 437
Proto 437
Cleveland 437
Screw Jacks 257
Screw Knobs 294
Screw Pitch Gages ..... 148 - 150
Acme, SPI 150
Mitutoyo, Metric 148
SPI 149
Starrett 149
Screw Thread Micrometers 69
Mitutoyo 69
Mitutoyo Digital IP65 69
Mitutoyo, Electronic IP65 69
SPI 69
Screwdriver 426
Screwdriver Bit Sets 426
Screwdriver Bit Sets, Apex 405

Screwdrivers, Air....382
Air, Pistol Grip....382, 407, 421 - 426
Bit Sets....426
Jewelers....422, 423
Jewelers Sets....424
Sets....423 - 426
T - Star Sets....421
Torque....407, 426
Screws....279, 280, 293, 295
Scribers....414
Scroll Chucks & Accessories....217
Scrubs, Hand Towels....334
Sealants, Pipe....31
Security Seals, SPI....184
Self Centering Vise....202
Serrated Tip Tongs....413
Service Carts....582 - 584
Setting Gage....125
Setting Masters, Bore Gage....90
Setting Rings For SPI Hole Mikes....84, 135
Setup Clamps....278
Shallow - Test Gages SPI....91
Shanks, Drill Chuck....238, 241
Sharpener, Tool & Knife....442
Sharpeners....571
Sharpie....320, 321
Permanent Mean, Streak....320
Mean Streak....320
Mean, Streak....320
Permanent Ink Markers....321
Shear Loc Thumb Screw Knobs....293, 294, 295
Kits....293, 295
Shears....439, 441
Shears, Fiskers....441
Sheet Metal Cutters....439
Sheet Metal Shear....384
Shell Mill Arbors....223
Shields....338 - 340
Loc - Line....338
Shim Punch & Die Sets....435
Shim Stock, Precision Brand....118
Shipping Labels....601
Shop Mats....368 - 370
Shop Rolls....553, 554
Shop Seat....587
Shop Vac Vacuums....331
Shop Wipers....334
Shop Rolls....553
Shoulder Eye Bolt....284, 286
Sine Bar & Riser Kits....52
Sine Bars....52
Bars....52
Brown & Sharpe....52
SPI....52
Suburban....52
Sine Plates....267 - 269
Compound....267, 269
Magnetic....268
Magnetic Compound....269
Magnetic Fine Pole....268
SPI....268, 269
Sine Systems, Plates & Accessories....269
Sine Vises....209, 271
Single Angle Collets....225
Sioux....376, 382
Hammers, Air....382
Pencil Die Grinder, Air....376
Sleeves, Morse Taper....239
Sleeving, Protective Mesh....386
Sliding Bevel, Universal Angle Duplicator....13
Slip Joint Pliers....398
Slitting Saw Arbors....223
Slotting Cutters....530
Slotting Saw Arbors....223
Small Hole Gages....112, 113
SPI....112
Mitutoyo....112
Starrett....113
Smart Tool....175
Digital Angle Finders....175
Digital Levels....175
Snap Flow Coolant Hose System....338, 620 - 623
Snap Ring Pliers....394
Channellock....395
Knipex....395
Snips....225, 438 - 440
Sock It Out....438
Socket Holders....407
Socket Sets....404, 405
Software, Pro 3600 Data Logger....177
Solar Powered Calipers....99, 100
Mitutoyo, IP67....99
Calipers, Mitutoyo Digimatic....100
Calipers, Mitutoyo IP67....99
Soldering Tools, Dremel....448
Solid Squares, Precision Grade....137
Solid Squares, Workshop Grade....137
Sorbents, Industrial....367
Sound Level Meters, Digital, Extech....179
Space Block Sets....115
Spacers....216
24 Position....216
Spanner Wrenches....406, 407
Spatulas....447
SPC Cables, 40" & 80" Mitutoyo....78, 99 - 102
SPC Processor, Mitutoyo SPC & SQC....101
SPC/USB for Calipers, Interface & Cable....59, 62, 78, 97, 98
SPC/USB for Indicators, Interface & Cable....11, 87
for Calipers....59, 62, 78, 97, 98
for Indicators....11, 87
SPI....12, 13, 60, 78, 89, 97, 105, 171
Specialty Storage Units, Durham....601
Speed - Dex....215
Sperian, Eyewash Stations....347
Spherical Face Micrometers, Mitutoyo....67
Sphinx....476 - 478
Micro Center Drills....477
Micro Drill Bits....476 - 478
SPI....see below
1 - 2 - 3 Blocks....126
2 - 3 - 4 Blocks....126
2 - 4 - 6 Blocks....126
2 Point Bore Gages....89
3D Alignment & Positioning Indicators....31
4 - Way V - Blocks....127
5C Spin Indexes....214
6 Rules with Decimal Equivalents....140
6 Rules with Reference Table....140
Abrasives, Rubberized....557, 564 - 567
Absolute Digital Bore Gages....8
Absolute Digital Caliper....97
Absolute Digital Calipers....98
Absolute Digital Height Gage....171
Absolute Digital Indicators....12, 171
Absolute Digital Micrometers....59
Absolute Electronic Calipers....98
Absolute Electronic Micrometers....59
Absolute Fractional Digital Caliper....97
Absolute Fractional Electronic Caliper....97
Acme Screw Pitch Gages....150
Adjustable Angle Blocks....131
Adjustable Double Angle Squares....143
Adjustable Hook Rules....139
Adjustable Parallels....124
Adjustable V - Blocks....130
Alignment & Positioning Indicators....31
Analog Comparators....178
Angle & Depth Gage, Combination....146
Angle Blocks....124, 125
Angle Blocks, Adjustable....131
Angle Duplicator, Universal Sliding Bevel....153
Angle Gage Set....146
Angle Gage Sets....146
Angle Gage, Countersink....146
Angle Plate Accessories....270
Angle Plates....125, 265, 266, 270
Angle Plates, Granite....47
Back Plunger Indicators & Sets....11
Ball Bearing V - Block....130
Ball Micrometers....63
Bench Centers, Heavy Duty....173
Bevel Protractors....155
Bevel Protractors With Dial Reading....155
Beveled Straight Edges....137
Blocks - V....127
Blocks, Adjustable Angle....131
Bore Gage Setting Masters....90
Bore Gages, Dial....89
Brass Pin Punch Sets....434
Bridge Cam Welding Gages....153
Bridgeport Accessories....311
Calibration Kits, Caliper/Micrometer....172
Caliper & Micrometer Holsters....74
Caliper Accessories....103
Caliper IP54....98
Caliper Micrometers....61
Caliper Range Extenders....103
Caliper Type Inside Micrometer....82
Caliper/Micrometer Calibration Kits....172
Calipers, Dial....94
Calipers, Dial with Extra - Smooth Movement....95
Calipers, Quick - Nut Spring Inside....157

Calipers, Quick - Nut Spring Outside 157
Calipers, Vernier 91, 92
Center & Edge Finder Combinations 49
Center Finder, Round Bar 151
Center Finders 49
Center Punches 433
Center Scopes 187
Center Squares 154
Center, Edge & Depth Finder Combinations, Electronic 50
Centering Indicators, Co - Ac 31
Centerline Gages 103
Centers, Bench 173
Chamfer Gages 90
Chucks 130, 264, 268, 270
Circular Clear Cover Calibration Labels 184
Clamps 292
Cleaners, Granite Surface Plates 48
Clear Cover Calibration Labels 184
CNC Tool Setting Gage 125
Co - Ax Indicators 31
Coating Thickness Gage 161
Combination Depth & Angle Gage 146
Combination Rule & Gage 146
Combination Square Accessories 142, 143, 155
Combination Square Sets 142
Comparator Plates, Finish 163
Comparator Stand & Dial Indicator Sets 43, 44
Comparator Stands 44, 45
Comparator Stands, Granite Base 43, 44
Comparators ..... 190 - 192
Comparators, Analog 178
Contact Points 26
Counterbores 523
Countersink Angle Gage 146
Countersink Gages 90
Cubes 266
Deep Throat Micrometers 66
Depth & Angle Gage, Combination 146
Depth Gage & Protractor Combination 155
Depth Gages 77, 78
Depth Gages, Dial 79
Depth Gages, Dial Accessories 80
Depth Micrometer, IP65 77
Depth Micrometers 76
Depth Micrometers Half Base 77
Depth Micrometers, Digital Counter 77
Depth, Edge & Center Finder Combinations, Electronic 50
Dial Alignment & Positioning Indicators 31
Dial Bore Gage Sets 88
Dial Bore Gages 89
Dial Caliper 95
Dial Caliper Gages, Internal SPI 107
Dial Calipers 94
Dial Calipers, Extra - Smooth Movement 95
Dial Depth Gage Accessories 79, 80
Dial Depth Gages 79
Dial Indicator Contact Point 15, 16
Dial Indicator Contact Point Ring 15
Dial Indicator Points 6, 15, 17
Dial Indicators 6, 7, 15
Dial Test Indicators & Sets 18
Dial Thickness Gages 106
Diamond Dressers ..... 571 - 573
Diamond Grinding Wheels 570
Diamond Hones 571
Diamond Wheels 570, 571
Diemaker's Square Sets 137
Digital Alignment & Positioning Indicator 31
Digital Ball Micrometers, IP65 63
Digital Blade Micrometers 62
Digital Bore Gages 89
Digital Caliper 97
Digital Caliper & Centerline Accessory Kit 103
Digital Caliper Type Inside Micrometers 82
Digital Calipers 97, 98, 99
Digital Counter Depth Micrometers 77
Digital Crimp Height Micrometers 65
Digital Deep Throat Micrometers 67
Digital Depth Gages 77, 78
Digital Depth Micrometers, IP65 77
Digital Disc Micrometers 66
Digital Durometer Test Block Kit 169
Digital Durometers 169
Digital External Caliper Gages 107
Digital Hardness Testers, Portable 167
Digital Height Gages 171
Digital Height Gages, ... 172
Digital Inclinometers 176, 177
Digital Indicators 31
Digital Indicator 12
Digital Indicator Accessories 12
Digital Indicators 11, 12, 87, 171
Digital Interchangeable Anvil Micrometers, IP65 72
Digital Internal Bore Gages 89
Digital Internal Bore Gages with Pistol Grips 87
Digital Internal Bore Micrometers 85
Digital Internal Caliper Gages 107
Digital Intertest Caliper Gages 109
Digital Levels 176, 177
Digital Micrometer Heads 74
Digital Micrometer Heads, IP54 74
Digital Micrometer Sets 57
Digital Micrometer Sets, IP65 59
Digital Micrometers 57
Digital Micrometers, IP 65 59
Digital Micrometers, IP54 58
Digital Mini Protractor 176
Digital Multi - Anvil Micrometers, IP54 70
Digital Oditest Caliper Gages 108
Digital Point Micrometers 64
Digital Protractors 176, 177
Digital Screw Thread Micrometers 69
Digital Snap Gages 102
Digital Spline Micrometers, IP65 61
Digital Thickness Gages 107
Digital Tube Micrometers 65
Digital Universal Protractors 156
Digital V - Anvil Micrometers 71
Disc Micrometers 65
Dividers, Quick - Nut Spring 157
Double Angle Squares, Adjustable 143
Dovetail Holders For Test Indicators 28
Drill Point Gages 152
Drills 524
Drop Indicator Contact Point 15, 16
Drop Indicator Contact Point Ring 15
Drop Indicator Points 6, 15, 17
Drop Indicators 6, 7, 15
Durometer Stand 169
Edge & Center Finder Combination Sets 49
Edge & Center Finder Combinations 49
Edge Finders 49
Edge Finders, Audible 49
Edge Finders, Electronic 50
Edge, Center & Depth Finder Combinations, Electronic 50
Electronic Alignment & Positioning Indicator 31
Electronic Ball Micrometers, IP65 63
Electronic Blade Micrometers 62
Electronic Bore Gages 89
Electronic Caliper 97, 98
Electronic Caliper & Centerline Accessory Kit 103
Electronic Caliper Type Inside Micrometers 82
Electronic Calipers ..... 97 - 99
Electronic Crimp Height Micrometers 65
Electronic Deep Throat Micrometers 67
Electronic Depth Gages, ... 77, 78
Electronic Depth Micrometers, IP65 77
Electronic Disc Micrometers 66
Electronic Durometers 169
Electronic External Caliper Gages 107
Electronic Gages, Snap 102
Electronic Height Gages 171
Electronic Height Gages, ... 172
Electronic Inclinometers 176, 177
Electronic Indicators 12, 171
Electronic Indicators 11, 12, 31, 87
Electronic Interchangeable Anvil Micrometers, IP65 72
Electronic Internal Bore Gages 89
Electronic Internal Bore Gages with Pistol Grips 87
Electronic Internal Bore Micrometers 85
Electronic Internal Caliper Gages 107
Electronic Intertest Caliper Gages 109
Electronic Levels 176, 177
Electronic Micrometer Heads 74
Electronic Micrometer Heads, IP54 74
Electronic Micrometer Sets, IP65 59
Electronic Micrometers IP54 58
Electronic Micrometers, IP65 59
Electronic Multi-Anvil Micrometers, IP54 70
Electronic Oditest Caliper Gages 108
Electronic Point Micrometers 64
Electronic Protractors 176, 177
Electronic Screw Thread Micrometers 69
Electronic Spline Micrometers, IP65 61
Electronic Thickness Gages 107
Electronic Tool Setter 51
Electronic Tube Micrometers 65
Electronic Universal Protractors 156
Electronic V-Anvil Micrometers 71

External Caliper Gages 107
Feeler Gage Holders, Double End 161
Feeler Gage Holders, Single End 161
Feeler Gage Stock Rolls 161
Feeler Gages 157
Feeler Stock-Thickness Gage 160
Fillet Weld Gages 152
Finish Comparator Plates 163
Flexible Steel Rules 138
Flexible Steel Scales 138
Gage Ball Sets 120
Gage Balls 120
Gage Block Sets, Rectangular 116, 117
Gage Blocks, Rectangular 116
Gages, Acme Screw Pitch 150
Gages, Angle 146
Gages, Angle & Depth Combination 146
Gages, Angle Set 146
Gages, Angle Sets 146
Gages, Bridge Cam Welding 153
Gages, Countersink Angle 146
Gages, Drill Point 152
Gages, Fillet Weld 152
Gages, Gear Tooth 154
Gages, Radius 147, 148
Gages, Radius Sets 147
Gages, Rule Combination 146
Gages, Screw Pitch 149
Gages, Shallow-Test 91
Gages, Taper 152
Gages, Thickness 157, 158
Gages, Thickness-Feeler Stock 160
Gages, Welding 153
Gages, Wire 151
Gear Tooth Gages 154
Granite Angle Plates 47
Granite Base Comparator Stands 43, 44
Granite Parallels 47
Granite Surface Plate Cleaners 48
Granite V-Blocks 47
Grinding Fixtures 215
Groove Micrometers 90
Half Base Depth Micrometers 77
Hardened Steel Squares 136
Hardness Tester Test Blocks 168
Hardness Testers, Digital 169
Hardness Testers, Portable 167
Hardness Testing Files 164
Height Gages, Digital 172
Height Gages, Electronic 172
Height Offset Gage 50
Hole Gage Sets, Telescoping 111
Hole Gages, Small 112
Hole Gages, Telescoping 111
Hole Micrometers 84, 85
Hole Mikes 85
Hole Mikes 84
Hub Micrometers 69
Inclinometers, Digital 176, 177
Inclinometers, Electronic 176, 177
Indical Bore & Groove Gage Accessories 110
Indicating Micrometers 68
Indicator Accessories 27, 28
Indicator Holders 27, 35
Indicator Holders, Vacuum Base, SPI 35, 41
Indicator Mounting Attachment 27
Indicator Probe Holders 17
Indicator Swivels For Test Indicators 27
Indicators 6, 7, 15
Inside Micrometers, Caliper Type 81
Inside Micrometers, Interchangeable Rod Type 81
Inside Micrometers, Tubular 83
Inspection Gage Balls 120
Interchangeable Anvil Micrometers 72
Internal Caliper Gages 107
Internal Dial Caliper Gages 107
Intertest Caliper Gages 109
IPD Gage & Software 114
IPD Internal Pitch Diameter Measuring Systems 114
Jack Screws 257
Labels, Circular Clear Cover Calibration 184
Labels, Clear Cover Calibration 184
Labels, Miniture Clear Cover Calibrations 184
Labels, Removeable Adhesive Calibration 184
Labels, Security Seal 184
Labels, Security Seals 184
Labels, Wrap Up Calibrations 184
Lathe Guards 339
Levels, Digital 176, 177
Levels, Electronic 176, 177
Levels, Spirit 176
Live Centers 253
Loupes 195, 197, 198
Machinist Jack Set 257
Machinist's Square Sets 135, 136
Machinist's Squares 136
Magnetic Base Holder & Test Indicator Sets 43
Magnetic Base Indicator Holders ..... 36 - 39, 41, 43
Magnetic Base Indicator Holders, Bestyet 41
Magnetic Base Indicator Holders, Mighty Mag 35
Magnetic Indicator Stands ..... 37 - 39, 41, 43
Magnetic Indicator Stands, Bestyet 41
Magnetic Stands 36
Magnetic Surface Gage & Test Indicator Set 46
Magnetic Surface Gages 46
Magnifiers 197, 198
Magni-Visors 198
Master Setting Ring Gages 84, 135
Matched V-Blocks 128
Measuring Tool Sets 104
Metal Etching Pens 372
Metric Thread Plug Gages 133
Micro Surface Finish Comparator Plates 163
Micrometer & Caliper Holsters 74
Micrometer Anvil Kit 75
Micrometer Ball Attachments 74, 75
Micrometer Heads, Vernier Type 74
Micrometer Stand, Folding 73
Micrometers Quick-Action 60
Micrometers, Caliper 61
Micrometers, Groove 90
Micrometers, Hole 84, 85
Micrometers, Inside 81, 83
Micrometers, Outside 53
Microscope on a Boom Stand 188
Microscopes ..... 187 - 189
Mighty Mag Indicator Holders 35
Mini Comparators 190, 192
Mini Protractor 176
Miniflat Surface Plates 46
Miniture Clear Cover Calibration Labels 184
Multi-Anvil Micrometer, IP54 70
Multi-Anvil Micrometers 70
Oditest Caliper Gage Accessories 108, 109
Oditest Caliper Gages 108
Optical Center Punch 433
Optical Comparators 190
Outside Micrometers 53
Parallels ..... 121 - 123, 266
Parallels, Granite 47
Pee Dee Thread Wire Measuring Set 115
Pin Gage Handle Sets 118
Pin Gage Sets 119
Pin Punch Sets, Brass 434
Pin Vises 412
Pistol Grip 3 Point Bore Gages 87
Plug Gage Handles 133, 134
Plug Gages, Taper Pipe Thread 134
Plug Gages, Taperlock Double End 132
Plug Gages, Taperlock Single End 133
Pocket 6 Scales 140
Pocket 6 Rules 140
Pocket Comparators 191, 192
Pocket Magnifiers 196
Pocket Microscopes 196
Pocket Thickness Gages 106
Point Micrometers 64
Polishing Stones 563
Portable Surface Roughness Testers 165
Precision Indicator Holders 30
Pro 3600 Data Logger Software 177
Pro 3600 Digital Level 177
Pro 3600 Digital Level Accessories 177
Probes For Portable Surface Roughness Testers 165
Profile Projectors 190
Protractor & Depth Gage Combination 155
Protractor Digital Mini 176
Protractor, Digital 176, 177
Protractors 154
Protractors, Bevel 155
Protractors, Digital 156
Protractors, Electronic 156, 176, 177
Punch Sets, Pin Brass 434
Quick-Nut Spring Calipers, Inside 157
Quick-Nut Spring Calipers, Outside 157
Quick-Nut Spring Dividers 157
Quill Clamp & Indicator Sets 29
Quill Clamps 29
Radius Gages 147, 148
Rectangular Gage Block Accessories 117
Rectangular Gage Block Sets 116, 117
Rectangular Gage Blocks 116
Removeable Adhesive Calibration Labels 184

Rigid Steel Rules 139
Rigid Steel Scales 139
Ring Gages, Master Setting 84, 135
Ring Gages, Metric 134
Ring Gages, Taper Pipe Thread 134
Roughness Testers, Portable 165
Roughness Testers, Probes 165
Roughness Testers, Stands 165
Round Bar Center Finder 151
Rule & Gage, Combination 146
Rules With Decimal Equivalents, 6 140
Rules With Reference Table, 6 140
Rules, 6 Pocket 140
Rules, Adjustable Hook 139
Rules, Flexible Steel 138
Rules, Rigid Steel 139
Scales, Flexible Steel 138
Scales, Rigid Steel 139
Scrapers 540
Screw Pitch Gages 149
Screw Pitch Gages, Acme 150
Screw Thread Micrometers 69
Security Seal Labels 184
Setting Masters, Bore Gage 90
Shallow-Test Gages 91
Sine Bar & Riser Kit 52
Sine Bars 52
Sine Plates 268, 269
Sliding Bevel, Universal Angle Duplicator 153
Small Hole Gages 112
Solid Squares, Precision Grade 137
Solid Squares, Workshop Grade 137
Space Block Sets 115
SPC/USB for Calipers, Interface & Cable 59, 62, 78, 97, 98
SPC/USB for Indicators, Interface & Cable 11, 87
SPC/USB Interface & Cable 12, 13, 60, 78, 89, 97, 105, 171
Spindle Squares 30
Spirit Level Accessories 176
Spirit Levels 176
Spline Micrometers 61
Spring Calipers, Quick-Nut Inside 157
Spring Calipers, Quick-Nut Outside 157
Spring Dividers, Quick-Nut 157
Square Sets, Diemaker's 137
Square Sets, Hardened Steel 136
Square Sets, Machinist's 135, 136
Square Straight Edges 137
Squares, Center 154
Squares, Double Angle Adjustable 143
Squares, Hardened Steel 136
Squares, Machinist's 136
Squares, Solid Precision Grade 137
Squares, Solid Workshop Grade 137
Standard Test Blocks 168
Stands For Portable Surface Roughness Testers 165
Stands, Comparator 44, 45
Stands, Transfer 46
Steel Parallels 122, 123
Steel Rules, Flexible 138
Steel Rules, Rigid 139
Steel Scales, Flexible 138
Steel Scales, Rigid 139
Steel Straight Edges, Beveled 137
Steel Straight Edges, Square 137
Stepped Angle Plate 270
Stereo Zoom Microscopes 188
Styli For CMM Touch Trigger Probes 33
Surface Gage & Test Indicator Set 46
Surface Gages 45, 46
Surface Gages, Magnetic 46
Surface Gages, Toolmaker's 46
Surface Plates, Miniflat 46
Sweep-It Test Indicator Holders 30
Swivel Joint Clamps For Test Indicators 27
Taper Gages 152
Taper Pipe Thread Plug Gages 134
Taper Pipe Thread Ring Gages 134
Taperlock Thread Plug Gage Handles 133, 134
Taperlock Thread Plug Gages, Double End 132
Taperlock Thread Plug Gages, Single End 133
Telescoping Hole Gage Sets 111
Telescoping Hole Gages 111
Test Indicators & Sets 18
Thickness Feeler Gages 157
Thickness Gage Sets 158
Thickness Gage-Feeler Stock 160
Thickness Gages, Dial 106
Thickness Gages, Tapered Leaf 157
Thread Plug Gages, Metric 133
Thread Triangles 114
Thread Wire Measuring Set, Pee Dee 115
Thumb Screw Knobs ..... 293 - 295
Tool Makers Microscope 189
Tool Setters 51
Tool Setting Gages 125
Toolmaker's Surface Gage 46
Trammel Heads 157
Transfer Stands 46
Travel Indicator Contact Point 15, 16
Travel Indicator Point 6, 15, 17
Travel Indicators 6, 7, 15
Trepanning Tools 532, 533
Tube Micrometers 64
Ultrasonic Thickness Gage 162
Universal Sliding Bevel, Angle Duplicator 153
Vacuum Base Indicator Holders, Bestyet 41
Vacuum Bases 35, 41
Vacuum Stands, Bestyet 41
V-Anvil Micrometers 71
V-Blocks ..... 125, 127, 128, 130 - 132, 272
V-Blocks, Granite 47
Vernier Calipers 91, 92
Vibration Meters 162
Vise Stops 212
Vises 271
Wavy Parallel Sets 121
Wee - Vee Block Sets 127
Welding Gages 153
Welding Gages, Bridge Cam 153
Wide Stand Microscopes 187
Wire Gages 151
Work Positioner 298
Work Stops 212
Wrap Up Calibration Labels 184
Zero-Set Holder For Test Indicators 30
Zero-Setter 51
Spider Handles 245
Spill Kits 367
Spin Indexes 214, 215
Spin Indexes, 5C 214
Spindle Squares, SPI 30
Spindle Stop, Milling Machine 32
Spindle Taper Wipers 231
Spirit Levels, SPI 176
SPI-TRONIC 177, 178, 190
360 Digital Levels 177
3600 Digital Levels 177
Analog Comparators 178
Comparators 190
Spline Micrometers 61, 62
Mitutoyo 61
Mitutoyo Digimatic IP65 62
SPI 61
SPI IP65 61
Splitters, Nut General 438
Spotters & Sets, Blind Hole 433
Spotting Drills 524
Spray Bottles 597
Spray Guns 631
Sprayers 302, 307
Sprayers, Trigger Pump 307, 597
Sprayon ..... 307 - 310, 318
Cleaners 308
Coatings 309, 310
Cutting Oil 307
Layout Material 318
Lubricants ..... 307 - 309
Spring Calipers 157
Quick-Nut Inside 157
Quick-Nut Outside 157
Spring Dividers, Quick-Nut 157
Spring Winder 387
Square Collets 218
Square Sets, Diemakers 137
Square Sets, Hardened Steels 136
Square Sets, Machinist's 135, 136
Square Straight Edges, SPI 137
Squares ..... 135 - 137, 142, 143, 154
Checking Devices, Squarol 137
Squares 142
Double Angle Adjustable 143
Hardened Steel 136
Machinist's 136
Rafter 154
Solid Precision Grade 137
Solid Workshop Grade 137
Beveled Edge, Hardened 136
Center 154
Combination Brown & Sharpe 142
Combination SPI 142
Combination Stanley 143

Combination Starrett 143
Combination, Brown & Sharpe 142
Cylindrical, Magnetic Suburban 137
Diemakers Sets SPI 137
Hardened Steel SPI 136
Hardened Steels Sets SPI 136
Machinist's Sets SPI 135, 136
Machinist's, SPI 136
Magnetic Cylindrical 137
Steel, Hardened 136
Straight Edge, Hardened 136
Workshop Sets, Brown & Sharpe 136
Squarol 137
Squeegees 332
SST Eye Bolts 286
SST Eye Nuts 287
SST Thickness Gage Sets 158
Stacking Bins 583, 593
Stamps, Letter & Number Sets 392
Stand, Durometer, SPI 169
Standard & Deep Socket Sets, Crescent 404
Standard Test Blocks 168
Stands ..... 44 - 47, 73, 165
Comparator 44, 45
Folding Micrometer 73
SPI Portable Roughness Testers 165
Surface Plate 47
Transfer, SPI 46
Stanley ..... see below
Adjustable Wrenches 401
Aviation Snips 438
Ball Peen Hammers 388
Blade Disposal Container 444
Cold Chisels 430
Combination Square Sets 143
Combination Wrench Sets 402
Dead Blow Hammers 388, 389
FatMax Tape Measures 145
Levels 174
Long Tape Rules, ... 145
Mobile Tool Chest 590
Powerlock Tape Rules 145
Punches & Chisels 431
Rules, Powerlock Tape 145
Rules, Tape 145
Tape Rules 145
Torpedo Leves, Lighted Magnetic 174
Utility Knives 443, 445
Staplers, Tacker & Plier 446, 447
Staples T50, Arrow 447
Starrett ..... see below
Back Plunger Indicators 10
Blade Micrometers 62
Calipers, Dial 96
Calipers, Master Vernier 92
Center Gages 151
Center Punches 433
Combination Square Sets 143
Comparator Stands, Granite Base 44
Cross Test Levels 174
Depth Gage & Protractor Combination 155
Depth Gages 76
Depth Gages 81
Depth Gages, Dial 81
Dial Bore Gages 88
Dial Calipers 96
Dial Depth Gages 81
Dial Indicator Accessories 10
Dial Indicator Groove Gages 111
Dial Indicator Pocket Gages 106
Dial Indicators 10
Dial Test Indicators 24
Dial Thickness Gages 106
Disc Micrometers 66
Drop Indicators 10
Edge Finders 49
Fillet/Radius Gages 148
Flexible Steel Rules 139
Flexible Steel Scales 139
Fluids 307
Gages, Center 151
Gages, Radius Sets 148
Gages, Screw Pitch 149
Gages, Thickness 158, 159
Granite Base Comparator Stands 44
Granite Surface Plate Cleaner 48
Groove Gages 111
Groove Master Groove Micrometers 91
Hole Gage Sets, Telescoping 112
Hole Gages, Small 113
Indicators 10
Inside Micrometer Caliper 81
Inside Tubular Micrometers 83
Internal Groove Micrometers 82
Jack Screw Sets 257
Jack Screws 257
Key Caddy 323
Kleenscribe Layout Dye 317
Levels, Machinist's 175
Levels, Master 175
Machinist's Level Accessories 175
Machinist's Levels 175
Magnetic Base Indicator Holders 40
Magnetic Indicator Stands 40
Master Levels 175
Measuring Tool Sets 104
Mechanical Digit Outside Micrometers 57
Micrometer Ball Attachments 75
Micrometer Depth Gages 76
Micrometers, Outside Mechanical Digit 57
Multi-Anvil Micrometers 70
Outside Micrometers 55, 56
Outside Mircrometers, Mechanical Digit 57
Parallel Sets 124
Parallels, Adjustable 124
Pin Punches 433, 434
Pin Vise Sets 413
Pocket Thickness Gages 106
Protractor & Depth Gage Combination 155
Protractors 155
Radius Gage Sets 148
Radius/Fillet Gages 148
Rigid Steel Rules 140
Rigid Steel Scales 140
Rules, Flexible Steel 139
Rules, Rigid Steel 140
Scales, Flexible Steel 139
Scales, Rigid Steel 140
Screw Pitch Gages 149
Small Hole Gages 113
Steel Rule Accessories 139
Steel Rules, Flexible 139
Steel Rules, Rigid 140
Steel Scales, Flexible 139
Steel Scales, Rigid 140
Telescoping Hole Gage Sets 112
Telescoping Hole Gages 112
Test Indicator Contact Points, SPI Brand 26
Test Indicators 24
Thickness Gages 160
Thickness Gages 158, 159
Thickness Gages, Dial 106
Thickness Gages, Tapered Leaf 158, 159
Travel Indicators 10
Tubular Frame Outside Micrometers 72
Tubular Inside Micrometers 83
Universal Bevels 153
V-Anvil Micrometers 71
V-blocks 129
Vernier Calipers, Master 92
Steel Clamping Kits 276, 277
Steel Clamps 282
Steel Feeler Gage Assortments 159
Steel Parallels ..... 121 - 123, 126
Steel Parallels, SPI 122, 123
Steel Pick Racks 594
Steel Rules ..... 138 - 140
Flexible, SPI 138
Flexible, Starrett 139
Rigid, SPI 139
Rigid, Starrett 140
Steel Scales, Flexible 138, 139
Steel Scales, Rigid 139, 140
Steel Snips ..... 438 - 440
Steel Step Blocks 278
Steel Storage Drawers 587
Steel Straight Edges, Beveled & Square 137
Steel Thickness Gages 159
Assortments 159
Metric 159
Steel Wool 574
Steinheil Loupes 195
Step Blocks 278
Step Clamps 277
Step Stands, Louisville Ladder 587
Step Stool 590
Stepped Angle Plate, SPI 270
Stereoptic, Magnifiers 193
Stockhausen Hand Cleaners 333
Stone Holders 562

Stones 442, 563, 576, 577
Mounted 576, 577
Polishing 563
Sharening 442
Stop Watches 322
Stops, Work 212
Stopwatch/Clock, Digital 322
Storage ..... 583, 586 - 589, 592 - 596, 601
Bins 593
Boxes 589
Cabinets 586, 587
Cabinets 586
Containers ..... 583, 592 - 596
Drawers 587
Units 601
Boxes, Durham 588
Racks, Durham 588
Straight Die Grinders 374
Straight Edges, Beveled & Square Steel 137
Strap Cutter 446
Strapping 598
Straps 598, 599
Streamlight ..... 362 - 364
Jr LED Flashlight 363
Flashlights 363, 364
Headlamps 362
Knucklehead® Flashlights 363, 364
LED Flashlight 363
Scorpion® Flashlights 363
Streamlight Jr LED Flashlight 363
Stylus LED Penlight 363
Strippers, Wire 393
Stub Arbors 223
Studs 276, 277, 279, 280
Sturtevant Richmont, Torque Screwdrivers 407
Styli For CMM Touch Trigger Probes, SPI 33
Stylus LED Penlight, Streamlight 363
Suburban 52, 126, 137, 266, 271, 272
1-2-3 Block Sets 126
2-3-4 Block Sets 126
2-4-6 Block Sets 126
Box Parallels 266
Magentic Cylindrical Squares 137
Sine Bars 52
Sine System V-Blocks 272
Vises 271
Sump Deodorizing Tablets 303
Sunex, Carts 582
Super Lube 307
Super Spacers 216
Super Spindle Stop, Milling Machine 32
Support Jacks 257
Sure Shot Sprayers 302
Surface Conditioning Belts 552
Surface Conditioning Disks 557
Surface Finish Comparators 162, 164
Surface Gages, SPI 45, 45
Magnetic 46
Magnetic & Test Indicator Set 46
SPI 45, 46
Toolmaker's 46
Surface Plate Cleaners 48
SPI 48
Starrett 48
Surface Plates 46, 47
Granite, Inspection Grade A 47
Granite, Laboratory Grade AA 47
Granite, Toolroom Grade B 47
Miniflat, SPI 46
Stands 47
Steel 46
Surface Roughness ..... 165 - 167
Standards 163, 164
Tester 166
Portable, SPI 165
Testers, Mitutoyo 165
Testers, Pocket Surf 166, 167
Sweep-It Test Indicator Holders, SPI 30
Swivel Clamp, Gem 27
Swivel Fitting 635
Swivel Joint Clamps For Test Indicators 27

T

T50 Staples Arrow 447
Table Guard 244
Tables 586
Tachometers 179, 180
Accessories 180
Digital Extech 180
Optical, Monarch 180
Panel, Digital Extech 179
Stroboscope Combination, Extech 180
Tack Claw 387
Tacker & Plier Staplers 446, 447
Tacker Gun, Arrow 447
Tailstock, Adjustable 216
Tamper Proof Torque Mark, Dykem 319
Tap Adapters 242, 243
Bilz 242, 243
Collis 242
Parlec 243
Quick-Change, Bilz 243
Tap Extensions 243
Tap Guides 244
Tap Magic 305
Cutting Fluid 305
Tap Wrenches 486
Tape 335, 617, 640
Tape Measures 140, 145
Adhesive 140
FatMax 145
Stanley 145
Tape Rules, Stanley 145
Tape, PVC Electrical 617
Taper Gages, SPI 152
Taper Reducing Adapters 229
Taper Wipers 231
Tapes 138, 370
Warning 370
PI 138
Precision Diameter 138
Tapfree, Cutting Fluids 305
Tapmatic Cutting Fluids ..... 304 - 306
Tapped Hole Location Gages 135
Tapping Attachments, Quick-Change, Bilz 242
Tapping Chucks, Bilz 241
Tapping Heads, Reversable 241
Tapping Tools 486
Taps ..... 480 - 483
Hand Taps 480, 481
Machine Taps 481, 482
Pipe Taps 483
Task Lights 604, 612
Bayco 604
Electrix 611
LED 604
Teclock 6, 8, 28
Dial Indicator Accessories 6, 8
Dial Indicators 8
Drop Indicators 8
Indicators 8
Test Indicator Contact Points, SPI Brand 26
Travel Indicators 8
TeCo 120, 276, 277
Ball Bearing Parallels 120
Clamping Kits 276, 277
T-Nut & Stud Sets 276, 277
Teflon Tape 640
Telescoping Hole Gages 111, 112
Brown & Sharpe 111
Mitutoyo 112
SPI 111
Starrett 112
Tension Compression Gages 164
Tesa 21, 26, 57, 178
Direct Reading Outside, Micrometers 57
Lever Head, Multi-Angle 178
Micrometers, Tesamaster Outside 57
Outside Micrometers, Direct Reading 57
Tesamaster Outside Micrometers 57
Test Indicator Contact Points, SPI Brand 26
TesaTast 21
Test Blocks 168, 169
Brinell Portable Hardness Tester 168
Rockwell Calibration Sets, Mitutoyo 169
Test Indicators ..... 19, 20, 22 - 28
Accessories 26
Contact Points 26
Dial 21
Dial 19
Gem 19
Mahr Federal 21
Mitutoyo 23, 25
Noga 28
Sets ..... 18 - 20
Starrett 24
Testers 167, 168
Brinell, Portable Hardness 168
Portable Hardness 167
Rockwell Type Hardness 168
T-Handles, Torx & Sets, Bondhus 421

The Dominator, Utility Sets, Mayhew 427
Thermometers 179, 321, 322
Digital 179
Extech 321
Hygro 179
Infrared Digital Extech 179
Thermometers/Hygrometers 321, 322
Thickness Feeler Gages, SPI 157
Thickness Gages ..... 106, 107, 157 - 162
Assortments, Steel 159
Brass 159
Coating, SPI 161
DFT Coating, DeFelsko 162
Dial 106, 107
Digital 107
Digital Coating, SPI 161
Digital Ultrasonic, SPI 162
Digital, Mitutoyo 106
Electronic 107
Electronic Coating, SPI 161
Electronic Ultrasonic, SPI 162
Electronic, Mitutoyo 106
Feeler Stock SPI 160
Magnetic Coating, ProGauge II 161
Mahr Federal 106
Metric Steel 159
Mitutoyo 160
Mitutoyo, Digimatic 106
SPI 157, 158
SST 158
Starrett ..... 158 - 160
Ultrasonic, SPI 162
Thread Checkers, Pitchmaster 113
Thread Detective 150
Thread forming Compounds 314
Thread Inserts 296
Thread Locker 312
Thread Plug Gages 133
Thread Repair Kits 296
Thread Restoring Tool 580
Thread Ring Gages, Vermont 134
Thread Triangles, SPI 114
Thread Wire Measuring Set 114, 115
SPI Pee, Dee 115
Mitutoyo 115
Threading Tools 537
Thumb Screw Knobs ..... 293 - 295
Thumb Screws, Assembled 295
Tie Down Straps 598, 599
Tie Hats, MiraCool 341
Tilting Angle Tables 216
Tilting Tables 267
Timers 322
Tin Snips 439, 440
Tire Pressure Gages 628
T-Nuts 276, 277, 281
Toe Jacks 600
Toe Warmers 348
Toggle Action Clamps, De-Sta-Co 291
Tongs, Serrated Tip 413
Tool & Instrument Oil 307, 308
Tool & Knife Sharpener 442
Tool Balancers 386
Tool Bits 531, 534, 535
Carbide Tipped 531, 534
HSS 535
Tool Box Liners 591
Tool Boxes 590, 591
Tool Chests 590, 591
Tool Dispensers 456
Tool Holder Bushings, CNC 222
Tool Holders 248
Tool Holding Fixtures 230
Tool Kit, Dremel 373
Tool Makers Microscopes 189
Tool Posts 246, 247
Tool Racks 233
Tool Scoots, Huot 585
Tool Sets 427
Apex 404
Mitutoyo 104
SPI 104
Starrett 104
Tool Setters 51, 125
Electronic 51
Electronic SPI 51
Gages 125
SPI 125
Zero-Setter SPI 51
Tool Storage Step Stool 590
Tool System, Dremel 373
Toolboxes 589
Toolmakers Ink 319
Toolmakers Ink Remover 319
Toolmaker's Vise ..... 207 - 209
Toolmaker's Surface Gage 46
Torpedo Levels 174
Polycast, Empire 174
Empire Magnetic 174
Stanley 174
Torque Mark, Cross Check 319
Torque Screwdrivers 407, 426
Torque Wrenches 421
Torx Key Sets, Bondhus Fold Up 420
Torx L-Wrenches & Sets, Bondhus 420
Torx T-Handles & Sets, Bondhus 421
Totes 583, 596
Touchscreen Gloves 352
Towels 334
Hand 334
Kimtech, Wipers 334
Shop Wipers 334
TP20 Probe Modules, Renishaw 33
TPI Portable Heater / Fan 301
Trammel Heads 157
Transfer Center Punch 432
Transfer Punches 432
Transfer Stands, SPI 46
Transfer/Squareness Gage, Brown & Sharpe Hite-Check Jr. 46
Trash Cans 331
Travel Guards 340
Travel Indicator Contact Point ..... 6, 15 - 17
Travel Indicators ..... 6 - 10, 15
Trays 244, 408
Kleen Slot 244
Magnetic 408
Trepanning Tools & Accessories 532, 533
Triangle Reflector Kit 370
Tri-Flow Lubricants 309
Trolley Hoist 599
Trorx Keys, Wera 421
T-Slot Cutters 529
T-Star Bits 421
T-Star Key Sets 420, 421
Tube Cutters 387
Tube Micrometers ..... 64 ,65
Mitutoyo 65
Mitutoyo Digimatic IP65 65
SPI 64, 65
Tubing 626
Tubular Frame Outside Micrometers, Starrett 72
Tubular Inside Micrometers, SPI 83
Tubular Inside Micrometers, Starrett 83
Turning Tool Inserts 536
Turning Tools 536
Tweezer Sets 410, 411
Tweezers, Precision Erem 411

U

Unibit 527, 528
Universal Grinding Fixtures 215
Universal Machine Mounts 259
Universal Sliding Bevel, Angle Duplicator 153
Utility Bench Vises 204, 209, 210
Utility Knives ..... 442 - 446
Utility Sets, Mayhew 427
Utility Storage Cabinets 586
Uvex 345, 346
Fog Eliminator Cloths 346
Safety Glasses 345, 346
Safety Goggles 345

V

Vacuum Base Indicator Holders 35, 41
Vacuum Base Indicator Holders, Bestyet 41
Vacuum Base Indicator Holders, SPI 41
Vacuum Base Stands, Bestyet 41
Vacuum Base Stands, SPI 41
Vacuum Chucks 270
Vacuum Pumps 270
Vacuums 331, 374
Vacuums 331, 374
Air Powered, Portable 374
Shop Vac 331
Val Cut Trepanning Tools & Accessories 532, 533
Value-Line Outside Micrometers, Brown & Sharpe 56
V-Anvil Micrometers 71
Mitutoyo Digimatic IP65 71
SPI 71
Starrett 71

Vargus Deburring Tools ..... 544 - 546
Vaughan 388, 391, 392, 428
Machinist's Hammers 392
Fiberglass Hammers 388
Hammers 388
Pry Bars 428
Plastic Mallets 391
V-Blocks ..... 47, 125, 127 - 132, 272
& Angle Plates 125
& Parallel, Magnetic, Chucks 131
Adjustable 130
Brown & Sharpe 129, 131
Granite SPI 47
Magnetic 131, 132
Matched 128, 130, 132
SPI ..... 125, 127, 128, 130 - 132, 272
Starrett 129
Suburban 272
w/Clamps 128
with Clamps ..... 128 - 130
Vermont 119, 134
Gages 119
Pin Gage Sets 119
Thread Ring Gages 134
Vernier Calipers ..... 91 - 93
Inch/Metric Mitutoyo 93
Inch/Inch Mitutoyo 93
Inch/Metric 91, 92
Master 91
Mitutoyo 93
SPI 91, 92
Starrett 92
Vernier Height Gages 170, 171
Vernier Point Micrometers, Mitutoyo 64
Vertical & Horizontal 5C Collet Chuck 213
Vests, Hi-Visibility 350, 351
V-Flange, Collet Chuck 231
Vibration Meter, SPI 162
Vibration Pads 263
Vise Accessories ..... 210 - 212
Vise Grip ..... see below
Adjustable Wrenches 401
C-Clamp 399
Chain Clamp 400
Clamps 399, 400
Locking Multi-Pliers 400
Pliers 399
Grips 394, 399, 400
Jaws 211
Work Stop 211
Quick Adj Pipe Wrench 400
Vises ..... see below
Angle 201, 202, 206, 207
Bench 209, 210
Brown & Sharp Toolmaker's Vise 207
Cam Action 206
Cross Slide 204, 205
Drill Press ..... 203 - 206
Handles, Speed 212
Jaws 211
Low Profile 203
Machine 200, 201, 202, 203, 206, 207
Machining 200
Milling 201
Mini 208
Pin 412, 413
Precision ..... 200 - 202, 204, 206 - 209, 271
Quick Release 205
Self Centering 202
Sine 209, 271
SPI 271
Suburban 271
Toolmakers ..... 207 - 209, 271
Wilton 201, 203, 204, 206, 209, 210
Wilton Angle 203, 206
Wilton Cam Action 206
Wilton Drill Press ..... 203 - 206
Visor Guard, Flexbar 339
Voltage Detectors, Fluke 614
Voltage Testers 614
Fluke 614
Extech 614
Ideal 614

W

Warehouse/Shop Desk 586
Warmers 348
Body 348
Foot 348
Hand 348
Toe 348
Packs 348
Warning Tapes 370
Wash Bottles, Safety 596
Washers ..... 282 - 284
C 282
Soft Steel 283
Case Hardened Steel 283
Extra Thick 284
Extra-Thick Gibraltar 282
Finished 282
Flat 283
High Strength Alloy 283
Self-Aligning Spherical 282
SST Extra Thick 284
Unfinished 283
Waste Cans, Oily 366
Watchmaker's Loupes 194
Waterproof Machine Lights, Electrix 607, 608
Wavy Parallels 121
Way Covers 244
Wearwell Mats 369, 370
Wedges 427
Wee - Vee Block Set, SPI 127
Wee-Blocks 127
Weight Scales, Ohaus 182
Welders Magnets 297
Welding Gages, SPI 153
Welding Gloves 355
Wera 421
Torque Screwdrivers 426
Wheel Balancers 258
Wheel Dressers ..... 215, 571 - 574
Wheels ..... see below
Adapters 558
Cleaning Rake 575
Cut-Off 554, 555, 561, 562
Deburring 560, 561
Diamond 569
Flap 558
Metal Finishing 560
Whetstones 571
Wiggler Sets 48
Wiha 418, 421, 423, 426
Ball Driver Sets 418
Bits Sets 421
Screwdriver Sets 423, 426
T-Star Sets 421
Wilton ..... 201, 203 - 206, 209, 210, 288
Clamps 288
Vises ..... 201, 203 - 206, 209, 210
Wire Containers 595
Wire Cutter 393
Xcelite 393
Wire Gages, SPI 151
Wire Measuring Set 114, 115
SPI Pee Dee 115
Wire Strippers 393
Apex 393
Klein Tools 393
Strippers 393
Xcelite 393
Wire Wheels 568, 569
Brushes 568
Cup 568
Mounted 568
Wiss 439, 440
Aviation Snips 439
Tinner Snips 440
Wood Rules, Lufkin Folding 145
Woodruff Key Cutters 528, 529
Work Gloves, Cold Weather 352
Work Lights ..... 604 - 608
Bayco 605, 606
Clamp Lights 604
Coleman Cable 606
Electrix 607
Fluorescent 604, 605, 607
Portable 606
Saf-T-Lite 604, 605
Telescoping 608
Wall Mounted, Halogen 608
Work Positioner, SPI 298
Work Stops 211, 112
Stops 212
SPI 212
Workshop Square Sets 136
Worktables 586
Wrap Up Calibration Labels, SPI 184

Wrecking Bars.....428
Wrench Sets Combination, Stanley.....402
Wrenches.....see below
Adjustable.....401, 402
Allen.....417
Box.....403
Crescent.....402
Impact.....378, 379
Impact, Butterfly.....380
Impact, Air.....379, 380
Ratchet, Air.....377, 378
Ratchet.....377, 378, 385
Ratchet, Mini.....377
Spanner.....406, 407
Tap.....486
Wrist Supports.....357
Wrist Wrap.....357

X

Xcelite.....393
Wire Cutter.....393
Wire Stripper.....393

Y

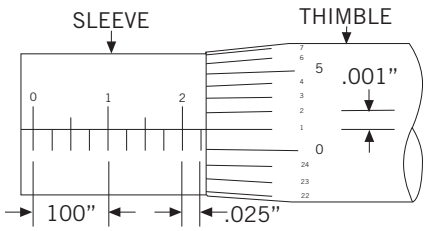
Youngstown.....352
Gloves, Touchscreen.....352
Touchscreen Gloves.....352

Z

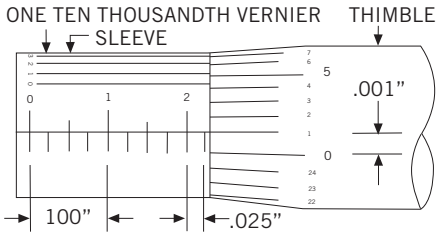
Zero-Set.....30, 98
Digital Calipers.....98
Electronic Calipers.....98
Indicator Holders.....30
Zero-Setter, Tool Setters.....51
Zoom Comparator.....190
Zoom Microscopes.....188

How to Read Inch Micrometers

To thousandths of an inch



To ten-thousandths of an inch



The micrometer consists of a ground-screw spindle which is rotated in a fixed nut, covering a range of one inch. The micrometer screw has forty threads per inch so that, in one complete revolution, it moves one fortieth of an inch or 0.025.

SLEEVE: The micrometer sleeve is divided into forth equal parts. Each part or division is indicated by a vertical line. Each vertical line represents one-fortieth of an inch or 0.025, and, each fourth line is marked by a longer line and a number which designates one-hundred-thousandths.

More simply, the line marked 1 represents 0.100, the line marked 2 represents 0.200 and so forth.

THIMBLE: The thimble is divided into twenty-five equal parts, and, one complete rotation of the thimble coincides with the smallest division on the sleeve. Thus, the division on the thimble is one-twenty-fifth of 0.025 or 0.001.

READING EXAMPLE:

1. Note that the thimble has stopped at a point beyond 2 on the sleeve indicating 0.200 (see illustration above).
2. Note that one additional line is visible between the graduation numbered 2 and the edge of the thimble, indicating 0.025.
3. Line numbered 1 on the thimble coincides with the center line of the sleeve. It means additional one-thousandth of inch.

(1) Reading on the Sleeve.....0.200
(2) No. of lines between 2 and edge of thimble.....0.025
(3) Thimble line corresponding to the center line of the Sleeve.....0.001
TOTAL READING.....0.226

To read to one ten-thousandth requires an additional scale called the Vernier scale, named after the inventer, pierre Vernier.

In the case if a regular micrometer,the vernier consists of ten division, marked on the sleeve, which are spaced withing nine divisions on the thimble scale.

Each division on the vernier, therefore, is one-tenth shorter than that of the thimble's, thus representing 0.0001.

READING EXAMPLE:

1. Read to the thousandth of an inch in the same manner as shown on the left. When the center line of the sleeve falls between the lines of the thimble, or when the line of the thimble does not correspond to the center line of the sleeve, the unknown amount is read by using the vernier scale provided on the sleeve.
2. The vernier on the sleeve reads to one-tenth of a thousandth of an inch or .0001.
3. To read the vernier, find which line on the vernier scale coincides with the line on the thimble and read the number off the vernier scale, It is important to note that when finding the vernier (ten-thousandth) reading, the correct figure is ALWAYS taken from the number at the vernier scale and NEVER from the thimble.
4. Note that the vernier line numbered 2 coincides exactly with a thimble line indicating 0.0002.

(1) Reading on the Sleeve.....0.200
(2) No. of lines between 2 and the edge of thimble.....0.025
(3) Thimble has passed .001 line on the Sleeve.....0.001
(4) Vernier line corresponding exactly with thimble line.....0.0002
TOTAL READING.....0.2262

Drill # Letter	Inch	mm	Drill # Letter	Inch	mm	Drill # Letter	Inch	mm	Drill # Letter	Inch	mm	Drill # Letter	Inch	mm	Drill # Letter	Inch	mm
	0.001	0.0254		0.068	1.7272	29	0.136	3.4544	6	0.204	5.1816	J	0.277	7.0358		0.351	8.9154		0.424	10.7696
	0.002	0.0508		0.069	1.7526		0.137	3.4798		0.205	5.2070		0.278	7.0612		0.352	8.9408		0.425	10.7950
	0.003	0.0762	50	0.070	1.7780		0.138	3.5052	5	0.2055	5.2197		0.279	7.0866		0.353	8.9662		0.426	10.8204
	0.004	0.1016		0.071	1.8034		0.139	3.5306		0.206	5.2324		0.280	7.1120		0.354	8.9916		0.427	10.8458
	0.005	0.1270		0.072	1.8288		0.140	3.5560		0.207	5.2578	K	0.281	7.1374		0.3543	**9.0000**		0.428	10.8712
	0.006	0.1524	49	0.073	1.8542	28	0.1405	3.5687		0.208	5.2832	9/32	0.2812	7.1425		0.355	9.0170		0.429	10.8966
	0.007	0.1778		0.074	1.8796	9/64	0.1406	3.5712	4	0.209	5.3086		0.282	7.1628		0.356	9.0424		0.430	10.9220
	0.008	0.2032		0.075	1.9050		0.141	3.5814		0.210	5.3340		0.283	7.1882		0.357	9.0678		0.431	10.9474
	0.009	0.2286	48	0.076	1.9304		0.142	3.6068		0.211	5.3594		0.284	7.2136	T	0.358	9.0932		0.432	10.9728
	0.010	0.2540		0.077	1.9558		0.143	3.6322		0.212	5.3848		0.285	7.2390		0.359	9.1186		0.433	10.9982
	0.011	0.2794		0.078	1.9812	27	0.144	3.6576	3	0.213	5.4102		0.286	7.2644	23/64	0.3594	9.1288		0.4331	**11.0000**
	0.012	0.3048	5/64	0.078	1.9837		0.145	3.6830		0.214	5.4356		0.287	7.2898		0.360	9.1440		0.434	11.0236
	0.013	0.3302	47	0.0785	1.9939		0.146	3.7084		0.215	5.4610		0.288	7.3152		0.361	9.1694		0.435	11.0490
80	0.0135	0.3429		0.0787	**2.0000**	26	0.147	3.7338		0.216	5.4864		0.289	7.3406		0.362	9.1948		0.436	11.0744
	0.014	0.3556		0.079	2.0066		0.148	3.7592		0.217	5.5118	L	0.290	7.3660		0.363	9.2202		0.437	11.0998
79	0.0145	0.3683		0.080	2.0320		0.149	3.7846		0.218	5.5372		0.291	7.3914		0.364	9.2456	7/16	**0.4375**	11.1125
	0.015	0.3810	46	0.081	2.0574	25	0.1495	3.7973	7/32	0.2187	5.5550		0.292	7.4168		0.365	9.2710		0.438	11.1252
1/64	0.0156	0.3962	45	0.082	2.0828		0.150	3.8100		0.219	5.5626		0.293	7.4422		0.366	9.2964		0.439	11.1506
78	0.016	0.4064		0.083	2.1082		0.151	3.8354		0.220	5.5880		0.294	7.4676		0.367	9.3218		0.440	11.1760
	0.017	0.4318		0.084	2.1336	24	0.152	3.8608	2	0.221	5.6134	M	0.295	7.4930	U	0.368	9.3472		0.441	11.2014
77	0.018	0.4572		0.085	2.1590		0.153	3.8862		0.222	5.6388		0.296	7.5184		0.369	9.3726		0.442	11.2268
	0.019	0.4826	44	0.086	2.1844	23	0.154	3.9116		0.223	5.6642	19/64	0.2969	7.5413		0.370	9.3980		0.443	11.2522
76	0.020	0.5080		0.087	2.2098		0.155	3.9370		0.224	5.6896		0.297	7.5438		0.371	9.4234		0.444	11.2776
75	0.021	0.5334		0.088	2.2352		0.156	3.9624		0.225	5.7150		0.298	7.5692		0.372	9.4488		0.445	11.3030
	0.022	0.5588	43	0.089	2.2606	5/32	0.1562	3.9675		0.226	5.7404		0.299	7.5946		0.373	9.4742		0.446	11.3284
74	0.0225	0.5715		0.090	2.2860	22	0.157	3.9878		0.227	5.7658		0.300	7.6200		0.374	9.4996		0.447	11.3538
	0.023	0.5842		0.091	2.3114		0.1575	**4.0000**	1	0.228	5.7912		0.301	7.6454	3/8	**0.3750**	9.5250		0.448	11.3792
73	0.024	0.6096		0.092	2.3368		0.158	4.0132		0.229	5.8166	N	0.302	7.6708		0.376	9.5504		0.449	11.4046
72	0.025	0.6350		0.093	2.3622	21	0.159	4.0386		0.230	5.8420		0.303	7.6962	V	0.377	9.5758		0.450	11.4300
71	0.026	0.6604	42	0.0935	2.3749		0.160	4.0640		0.231	5.8674		0.304	7.7216		0.378	9.6012		0.451	11.4554
	0.027	0.6858	3/32	0.0937	2.3800	20	0.161	4.0894		0.232	5.8928		0.305	7.7470		0.379	9.6266		0.452	11.4808
70	0.028	0.7112		0.094	2.3876		0.162	4.1148		0.233	5.9182		0.306	7.7724		0.380	9.6520		0.453	11.5062
	0.0292	0.7417		0.095	2.4130		0.163	4.1402	A	0.234	5.9436		0.307	7.7978		0.381	9.6774	29/64	0.4531	11.5087
	0.029	0.7366	41	0.096	2.4384		0.164	4.1656	15/64	0.2344	5.9538		0.308	7.8232		0.382	9.7028		0.454	11.5316
	0.030	0.7620		0.097	2.4638		0.165	4.1910		0.235	5.9690		0.309	7.8486		0.383	9.7282		0.455	11.5570
68	0.031	0.7874	40	0.098	2.4892	19	0.166	4.2164		0.236	5.9944		0.310	7.8740		0.384	9.7536		0.456	11.5824
1/32	0.0312	0.7925		0.099	2.5146		0.167	4.2418		0.2362	**6.0000**		0.311	7.8994		0.385	9.7790		0.457	11.6078
67	0.032	0.8128	39	0.0995	2.5273		0.168	4.2672		0.237	6.0198		0.312	7.9248	W	0.386	9.8044		0.458	11.6332
66	0.033	0.8382		0.100	2.5400		0.169	4.2926	B	0.238	6.0452	5/16	**0.3125**	7.9375		0.387	9.8298		0.459	11.6586
	0.034	0.8636		0.101	2.5654	18	0.1695	4.3053		0.239	6.0706		0.313	7.9502		0.388	9.8552		0.460	11.6840
65	0.035	0.8890	38	0.1015	2.5781		0.170	4.3180		0.240	6.0960		0.314	7.9756		0.389	9.8806		0.461	11.7094
64	0.036	0.9144		0.102	2.5908		0.171	4.3434		0.241	6.1214		0.3150	**8.0000**		0.390	9.9060		0.462	11.7348
63	0.037	0.9398		0.103	2.6162	11/64	0.1719	4.3663	C	0.242	6.1468	O	0.316	8.0264	25/64	0.3906	9.9212		0.463	11.7602
62	0.038	0.9652	37	0.104	2.6416		0.172	4.3688		0.243	6.1722		0.317	8.0518		0.391	9.9314		0.464	11.7856
61	0.039	0.9906		0.105	2.6670	17	0.173	4.3942		0.244	6.1976		0.318	8.0772		0.392	9.9568		0.465	11.8110
	0.0394	**1.0000**		0.106	2.6924		0.174	4.4196		0.245	6.2230		0.319	8.1026		0.393	9.9822		0.466	11.8364
60	0.040	1.0160	36	0.1065	2.7051		0.175	4.4450	D	0.246	6.2484		0.320	8.1280		0.3937	**10.0000**		0.467	11.8618
59	0.041	1.0414		0.107	2.7178		0.176	4.4704		0.247	6.2738		0.321	8.1534		0.394	10.0076		0.468	11.8872
58	0.042	1.0668		0.108	2.7432	16	0.177	4.4958		0.248	6.2992		0.322	8.1788		0.395	10.0330	15/32	0.4687	11.9050
57	0.043	1.0922		0.109	2.7686		0.178	4.5212		0.249	6.3246	P	0.323	8.2042		0.396	10.0584		0.469	11.9126
	0.044	1.1176	7/64	0.1094	2.7788		0.179	4.5466	E 1/4	**0.2500**	6.3500		0.324	8.2296	X	0.397	10.0838		0.470	11.9380
	0.045	1.1430	35	0.110	2.7940	15	0.180	4.5720		0.251	6.3754		0.325	8.2550		0.398	10.1092		0.471	11.9634
	0.046	1.1684	34	0.111	2.8194		0.181	4.5974		0.252	6.4008		0.326	8.2804		0.399	10.1346		0.472	11.9888
56	0.0465	1.1811		0.112	2.8448	14	0.182	4.6228		0.253	6.4262		0.327	8.3058		0.400	10.1600		0.4724	12.0000
3/64	0.0469	1.1913	33	0.113	2.8702		0.183	4.6482		0.254	6.4516		0.328	8.3312		0.401	10.1854		0.473	12.0142
	0.047	1.1938		0.114	2.8956		0.184	4.6736		0.255	6.4770	21/64	0.3281	8.3337		0.402	10.2108		0.474	12.0396
	0.048	1.2192		0.115	2.9210	13	0.185	4.6990		0.256	6.5024		0.329	8.3566		0.403	10.2362		0.475	12.0650
	0.049	1.2446	32	0.116	2.9464		0.186	4.7244	F	0.257	6.5278		0.330	8.3820	Y	0.404	10.2616		0.476	12.0904
	0.050	1.2700		0.117	2.9718		0.187	4.7498		0.258	6.5532		0.331	8.4074		0.405	10.2870		0.477	12.1158
	0.051	1.2954		0.118	2.9972	3/16	**0.1875**	4.7625		0.259	6.5786	Q	0.332	8.4328		0.406	10.3124		0.478	12.1412
55	0.052	1.3208		0.1181	**3.0000**		0.188	4.7752		0.260	6.6040		0.333	8.4582	13/32	0.4062	10.3175		0.479	12.1666
	0.053	1.3462		0.119	3.0226	12	0.189	4.8006	G	0.261	6.6294		0.334	8.4836		0.407	10.3378		0.480	12.1920
	0.054	1.3716	31	0.120	3.0480		0.190	4.8260		0.262	6.6548		0.335	8.5090		0.408	10.3632		0.481	12.2174
54	0.055	1.3970		0.121	3.0734	11	0.191	4.8514		0.263	6.6802		0.336	8.5344		0.409	10.3886		0.482	12.2428
	0.056	1.4224		0.122	3.0988		0.192	4.8768		0.264	6.7056		0.337	8.5598		0.410	10.4140		0.483	12.2682
	0.057	1.4478		0.123	3.1242		0.193	4.9022		0.265	6.7310		0.338	8.5852		0.411	10.4394		0.484	12.2936
	0.058	1.4732		0.124	3.1496	10	0.194	4.9149	17/64	0.2656	6.7462	R	0.339	8.6106		0.412	10.4648	31/64	0.4844	12.3038
	0.059	1.4986	1/8	**0.125**	3.1750		0.194	4.9276	H	0.266	6.7564		0.340	8.6360	Z	0.413	10.4902		0.485	12.3190
53	0.0595	1.5113		0.126	3.2004		0.195	4.9530		0.267	6.7818		0.341	8.6614		0.414	10.5156		0.486	12.3444
	0.060	1.5240		0.127	3.2258	9	0.196	4.9784		0.268	6.8072		0.342	8.6868		0.415	10.5410		0.487	12.3698
	0.061	1.5494		0.128	3.2512		0.1969	**5.0000**		0.269	6.8326		0.343	8.7122		0.416	10.5664		0.488	12.3952
	0.062	1.5748	30	0.1285	3.2639		0.197	5.0038		0.270	6.8580	11/32	0.3437	8.7300		0.417	10.5918		0.489	12.4206
1/16	**0.0625**	1.5875		0.129	3.2766		0.198	5.0292		0.271	6.8834		0.344	8.7376		0.418	10.6172		0.490	12.4460
	0.063	1.6002		0.130	3.3020		0.199	5.0546	I	0.272	6.9088		0.345	8.7630		0.419	10.6426		0.491	12.4714
52	0.0635	1.6129		0.131	3.3274	8	0.200	5.0800		0.273	6.9342		0.346	8.7884		0.420	10.6680		0.492	12.4968
	0.064	1.6256		0.132	3.3528	7	0.201	5.1054		0.274	6.9596		0.347	8.8138		0.421	10.6934		0.493	12.5222
	0.065	1.6510		0.133	3.3782		0.202	5.1308		0.275	6.9850	S	0.348	8.8392	27/64	0.4219	10.7163		0.494	12.5476
	0.066	1.6764		0.134	3.4036		0.203	5.1562		0.2756	**7.0000**		0.349	8.8646		0.422	10.7188		0.495	12.5730
51	0.067	1.7018		0.135	3.4290	13/64	0.2031	5.1587		0.276	7.0104		0.350	8.8900		0.423	10.7442		0.496	12.5984

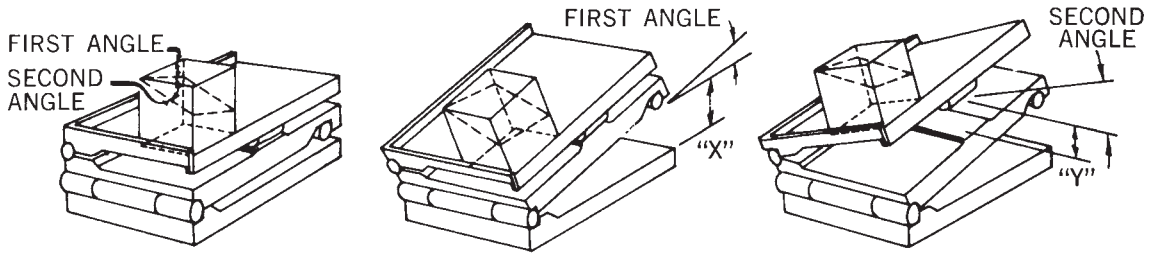
Drill # Letter	Inch	mm
	0.497	12.6238
	0.498	12.6492
	0.499	12.6746
1/2	**0.5000**	12.7000
	0.501	12.7254
	0.502	12.7508
	0.503	12.7762
	0.504	12.8016
	0.505	12.8270
	0.506	12.8524
	0.507	12.8778
	0.508	12.9032
	0.509	12.9286
	0.510	12.9540
	0.511	12.9794
	0.5118	**13.0000**
	0.512	13.0048
	0.513	13.0302
	0.514	13.0556
	0.515	13.0810
33/64	0.5156	13.0962
	0.516	13.1064
	0.517	13.1318
	0.518	13.1572
	0.519	13.1826
	0.520	13.2080
	0.521	13.2334
	0.522	13.2588
	0.523	13.2842
	0.524	13.3096
	0.525	13.3350
	0.526	13.3604
	0.527	13.3858
	0.528	13.4112
	0.529	13.4366
	0.530	13.4620
	0.531	13.4874
17/32	0.5312	13.4925
	0.532	13.5128
	0.533	13.5382
	0.534	13.5636
	0.535	13.5890
	0.536	13.6144
	0.537	13.6398
	0.538	13.6652
	0.539	13.6906
	0.540	13.7160
	0.541	13.7414
	0.542	13.7668
	0.543	13.7922
	0.544	13.8176
	0.545	13.8430
	0.546	13.8684
35/64	0.5469	13.8913
	0.547	13.8938
	0.548	13.9192
	0.549	13.9446
	0.550	13.9700
	0.551	13.9954
	0.5512	**14.0000**
	0.552	14.0208
	0.553	14.0462
	0.554	14.0716
	0.555	14.0970
	0.556	14.1224
	0.557	14.1478
	0.558	14.1732
	0.559	14.1986
	0.560	14.2240
	0.561	14.2494
	0.562	14.2748
9/16	**0.5625**	14.2875
	0.563	14.3002
	0.564	14.3256
	0.565	14.3510
	0.566	14.3764
	0.567	14.4018
	0.568	14.4272
	0.569	14.4526
	0.570	14.4780
	0.571	14.5034
	0.572	14.5288
	0.573	14.5542
	0.574	14.5796
	0.575	14.6050
	0.576	14.6304
	0.577	14.6558
	0.578	14.6812
37/64	0.5781	14.6837
	0.579	14.7066
	0.580	14.7320
	0.581	14.7574
	0.582	14.7828
	0.583	14.8082
	0.584	14.8336
	0.585	14.8590
	0.586	14.8844
	0.587	14.9098
	0.588	14.9352
	0.589	14.9606
	0.590	14.9860
	0.5906	**15.0000**
	0.591	15.0114
	0.592	15.0368
	0.593	15.0622
19/32	0.5937	15.0800
	0.594	15.0876
	0.595	15.1130
	0.596	15.1384
	0.597	15.1638
	0.598	15.1892
	0.599	15.2146
	0.600	15.2400
	0.601	15.2654
	0.602	15.2908
	0.603	15.3162
	0.604	15.3416
	0.605	15.3670
	0.606	15.3924
	0.607	15.4178
	0.608	15.4432
	0.609	15.4686
39/64	0.6094	15.4788
	0.610	15.4940
	0.611	15.5194
	0.612	15.5448
	0.613	15.5702
	0.614	15.5956
	0.615	15.6210
	0.616	15.6464
	0.617	15.6718
	0.618	15.6972
	0.619	15.7226
	0.620	15.7480
	0.621	15.7734
	0.622	15.7988
	0.623	15.8242
	0.624	15.8496
5/8	0.6250	15.8750
	0.626	15.9004
	0.627	15.9258
	0.628	15.9512
	0.629	15.9766
	0.6299	**16.0000**
	0.630	16.0020
	0.631	16.0274
	0.632	16.0528
	0.633	16.0782
	0.634	16.1036
	0.635	16.1290
	0.636	16.1544
	0.637	16.1798
	0.638	16.2052
	0.639	16.2306
	0.640	16.2560
41/64	0.6406	16.2712
	0.641	16.2814
	0.642	16.3068
	0.643	16.3322
	0.644	16.3576
	0.645	16.3830
	0.646	16.4084
	0.647	16.4338
	0.648	16.4592
	0.649	16.4846
	0.650	16.5100
	0.651	16.5354
	0.652	16.5608
	0.653	16.5862
	0.654	16.6116
	0.655	16.6370
	0.656	16.6624
21/32	0.6562	16.6675
	0.657	16.6878
	0.658	16.7132
	0.659	16.7386
	0.660	16.7640
	0.661	16.7894
	0.662	16.8148
	0.663	16.8402
	0.664	16.8656
	0.665	16.8910
	0.666	16.9164
	0.667	16.9418
	0.668	16.9672
	0.669	16.9926
	0.6693	**17.0000**
	0.670	17.0180
	0.671	17.0434
43/64	0.6719	17.0663
	0.672	17.0688
	0.673	17.0942
	0.674	17.1196
	0.675	17.1450
	0.676	17.1704
	0.677	17.1958
	0.678	17.2212
	0.679	17.2466
	0.680	17.2720
	0.681	17.2974
	0.682	17.3228
	0.683	17.3482
	0.684	17.3736
	0.685	17.3990
	0.686	17.4244
	0.687	17.4498
11/16	**0.6875**	17.4625
	0.688	17.4752
	0.689	17.5006
	0.690	17.5260
	0.691	17.5514
	0.692	17.5768
	0.693	17.6022
	0.694	17.6276
	0.695	17.6530
	0.696	17.6784
	0.697	17.7038
	0.698	17.7292
	0.699	17.7546
	0.700	17.7800
	0.701	17.8054
	0.702	17.8308
	0.703	17.8562
45/64	0.703	17.8587
	0.704	17.8816
	0.705	17.9070
	0.706	17.9324
	0.707	17.9578
	0.708	17.9832
	0.7087	**18.0000**
	0.709	18.0086
	0.710	18.0340
	0.711	18.0594
	0.712	18.0848
	0.713	18.1102
	0.714	18.1356
	0.715	18.1610
	0.716	18.1864
	0.717	18.2118
	0.718	18.2372
23/32	0.7187	18.2550
	0.719	18.2626
	0.720	18.2880
	0.721	18.3134
	0.722	18.3388
	0.723	18.3642
	0.724	18.3896
	0.725	18.4150
	0.726	18.4404
	0.727	18.4658
	0.728	18.4912
	0.729	18.5166
	0.730	18.5420
	0.731	18.5674
	0.732	18.5928
	0.733	18.6182
	0.734	18.6436
47/64	0.7344	18.6538
	0.735	18.6690
	0.736	18.6944
	0.737	18.7198
	0.738	18.7452
	0.739	18.7706
	0.740	18.7960
	0.741	18.8214
	0.742	18.8468
	0.743	18.8722
	0.744	18.8976
	0.745	18.9230
	0.746	18.9484
	0.747	18.9738
	0.7480	**19.0000**
	0.749	19.0246
3/4	**0.7500**	19.0500
	0.751	19.0754
	0.752	19.1008
	0.753	19.1262
	0.754	19.1516
	0.755	19.1770
	0.756	19.2024
	0.757	19.2278
	0.758	19.2532
	0.759	19.2786
	0.760	19.3040
	0.761	19.3294
	0.762	19.3548
	0.763	19.3802
	0.764	19.4056
	0.765	19.4310
49/64	0.7656	19.4462
	0.766	19.4564
	0.767	19.4818
	0.768	19.5072
	0.769	19.5326
	0.770	19.5580
	0.771	19.5834
	0.772	19.6088
	0.773	19.6342
	0.774	19.6596
	0.775	19.6850
	0.776	19.7104
	0.777	19.7358
	0.778	19.7612
	0.779	19.7866
	0.780	19.8120
	0.781	19.8374
25/32	0.7812	19.8425
	0.782	19.8628
	0.783	19.8882
	0.784	19.9136
	0.785	19.9390
	0.786	19.9644
	0.787	19.9898
	0.7874	**20.0000**
	0.788	20.0152
	0.789	20.0406
	0.790	20.0660
	0.791	20.0914
	0.792	20.1168
	0.793	20.1422
	0.794	20.1676
	0.795	20.1930
	0.796	20.2184
51/64	0.7969	20.2413
	0.797	20.2438
	0.798	20.2692
	0.799	20.2946
	0.800	20.3200
	0.801	20.3454
	0.802	20.3708
13/16	**0.8125**	20.6375
	0.813	20.6502
	0.814	20.6756
	0.815	20.7010
	0.816	20.7264
	0.817	20.7518
	0.818	20.7772
	0.819	20.8026
	0.820	20.8280
	0.821	20.8534
	0.822	20.8788
	0.823	20.9042
	0.824	20.9296
	0.825	20.9550
	0.826	20.9804
	0.8268	**21.0000**
	0.827	21.0058
	0.828	21.0312
53/64	0.8281	21.0337
	0.829	21.0566
	0.830	21.0820
	0.831	21.1074
	0.832	21.1328
	0.833	21.1582
	0.834	21.1836
	0.835	21.2090
	0.836	21.2344
	0.837	21.2598
	0.838	21.2852
	0.839	21.3106
	0.840	21.3360
	0.841	21.3614
	0.842	21.3868
	0.843	21.4122
27/32	0.8437	21.4300
	0.844	21.4376
	0.845	21.4630
	0.846	21.4884
	0.847	21.5138
	0.848	21.5392
	0.849	21.5646
	0.850	21.5900
	0.851	21.6154
	0.852	21.6408
	0.853	21.6662
	0.854	21.6916
	0.855	21.7170
	0.856	21.7424
	0.857	21.7678
	0.858	21.7932
	0.859	21.8186
55/64	0.8594	21.8288
	0.860	21.8440
	0.861	21.8694
	0.862	21.8948
	0.863	21.9202
	0.864	21.9456
	0.865	21.9710
	0.866	21.9964
	0.8661	**22.0000**
	0.867	22.0218
	0.868	22.0472
	0.869	22.0726
	0.870	22.0980
	0.871	22.1234
	0.872	22.1488
	0.873	22.1742
	0.874	22.1996
7/8	**0.8750**	22.2250
	0.876	22.2504
	0.877	22.2758
	0.878	22.3012
	0.879	22.3266
	0.880	22.3520
	0.881	22.3774
	0.882	22.4028
	0.883	22.4282
	0.884	22.4536
	0.885	22.4790
	0.886	22.5044
	0.887	22.5298
	0.888	22.5552
	0.889	22.5806
	0.890	22.6060
57/64	0.8906	22.6212
	0.891	22.6314
	0.892	22.6568
	0.893	22.6822
	0.894	22.7076
	0.895	22.7330
	0.896	22.7584
	0.897	22.7838
	0.898	22.8092
	0.899	22.8346
	0.900	22.8600
	0.901	22.8854
	0.902	22.9108
	0.903	22.9362
	0.904	22.9616
	0.905	22.9870
	0.9055	**23.0000**
	0.906	23.0124
29/32	0.9062	23.0175
	0.907	23.0378
	0.908	23.0632
	0.909	23.0886
	0.910	23.1140
	0.911	23.1394
	0.912	23.1648
	0.913	23.1902
	0.914	23.2156
	0.915	23.2410
	0.916	23.2664
	0.917	23.2918
	0.918	23.3172
	0.919	23.3426
	0.920	23.3680
	0.921	23.3934
59/64	0.9219	23.4163
	0.922	23.4188
	0.923	23.4442
	0.924	23.4696
	0.925	23.4950
	0.926	23.5204
	0.927	23.5458
	0.928	23.5712
	0.929	23.5966
	0.930	23.6220
	0.931	23.6474
	0.932	23.6728
	0.933	23.6982
	0.934	23.7236
	0.935	23.7490
	0.936	23.7744
	0.937	23.7998
15/16	**0.9375**	23.8125
	0.938	23.8252
	0.939	23.8506
	0.940	23.8760
	0.941	23.9014
	0.942	23.9268
	0.943	23.9522
	0.944	23.9776
	0.9449	**24.0000**
	0.945	24.0030
	0.946	24.0284
	0.947	24.0538
	0.948	24.0792
	0.949	24.1046
	0.950	24.1300
	0.951	24.1554
	0.952	24.1808
	0.953	24.2062
61/64	0.9531	24.2087
	0.954	24.2316
	0.955	24.2570
	0.956	24.2824
	0.957	24.3078
	0.958	24.3332
	0.959	24.3586
	0.960	24.3840
	0.961	24.4094
	0.962	24.4348
	0.963	24.4602
	0.964	24.4856
	0.965	24.5110
	0.966	24.5364
	0.967	24.5618
	0.968	24.5872
31/32	0.9687	24.6050
	0.969	24.6126
	0.970	24.6380
	0.971	24.6634
	0.972	24.6888
	0.973	24.7142
	0.974	24.7396
	0.975	24.7650
	0.976	24.7904
	0.977	24.8158
	0.978	24.8412
	0.979	24.8666
	0.980	24.8920
	0.981	24.9174
	0.982	24.9428
	0.983	24.9682
	0.984	24.9936
	0.9843	**25.0000**
63/64	0.984	25.0038
	0.985	25.0190
	0.986	25.0444
	0.987	25.0698
	0.988	25.0952
	0.989	25.1206
	0.990	25.1460
	0.991	25.1714
	0.992	25.1968
	0.993	25.2222
	0.994	25.2476
	0.995	25.2730
	0.996	25.2984
	0.997	25.3238
	0.998	25.3492
	0.999	25.3746
1	**1.0000**	25.4000

How to Set Sine Tools

Setting Simple Sine Bars or Sine Plates

For measuring an angle or for locating work to a given angle, refer to Tables of Constants to determine the corresponding distance which one end of the Sine Tool must be raised vertically from the true surface of measurements to obtain a desired angle, — or, use Trig. Function Tables to find the Sine of desired angle and multiply by 5 when using a 5 Sine Tool, or by 10 for a 10 Sine Tool.

Setting Compound Sine Plates



For Setting Two Known Angles at 90° to One Another

Example: First Angle = 20° Second Angle = 30°

To Find:
Amount intermediate plate must be raised from base plate (distance X in dwg.) to obtain desired First Angle.

1. Look up (in Trig. Function Tables) Cosine of Second Angle (30°) and Tangent of First Angle (20°) and multiply one by the other.
2. Look up product derived from step one under Tangents (in Trig. Function Tables) and note Sine of equal degrees.
3. This Sine is then multiplied by 5 (for a 5 Sine Plate) or by 10 (for a 10 Sine Plate) and is the distance X which intermediate plate must be raised.
4. Wring Jo-Blocks together to equal dimension X and set in position between base plate and intermediate plate.

Example:

COS. 30° = 0.86603
TAN. 20° = 0.36397
0.86603 x 0.36397 = 0.3152089391 (TAN.)
(TAN.) 0.3152089391 = 0.3006278538 (Sine)
0.3006278538 x 10 (10 Sine Plate) = 3.006
3.006 is distance X to raise intermediate plate

To Find:
Amount top plate must be raised (distance Y in dwg.) to obtain desired Second Angle.

1. Look up Sine of Second Angle (30°) and multiply by 5 (for a 5 Sine Plate) or by 10 (10 Sine Plate), which is the distance Y that top plate must be raised.
2. Wring Jo-Blocks together to equal dimension Y and set in position for a between intermediate plate and top plate.

Example:

Sine of 30° = 0.5000
0.5000 x 10 (10 Sine Plate) = 5.000
5.000 is distance Y to raise top plate


30-236-4
See Page 99
GIVING DREAMS the
EXACT MEASURE
30-220-8
See Page 79
MODE
SET
IP 67
electronic
REVERSE PRESET ON/OFF
ZERO











- Abrasives
- Cutting Tools
- Electrical
- Hand Tools
- Hose, Tubes & Fittings
- Machine Accessories
- Material Handling
- Measuring
- Optics
- Safety
- Shop Accessories
- Tooling Components