



Ball Valve Products and Custom Solutions

Catalog 3590 | July 2021



ENGINEERING YOUR SUCCESS.



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⚠ WARNING – USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated on the separate page of this document entitled "Offer of Sale".

Safe Drinking Water Act

In accordance with 42 USC § 300g-6, parts in this catalog are to be used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption. The only exceptions are parts described explicitly as "low lead" or suitable for potable water.

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Parker Hannifin Corporation
Fluid Connectors Group
Otsego, Michigan

Directives and Regulations

Parker complies with the directives and regulations listed below and goes beyond its statutory obligations for the ranges in question.



D.O.T. FMVSS 571.106
Fittings comply with the performance requirements



European RoHS directives: 2015/863
Relating to the limitation of the use of 10 hazardous substances in electrical and electronic equipment (Lead, Mercury, Cadmium, Hexavalent Chromium, PBB, PBDE, Bis Phthalate, BBP, DBP, DIBP).



Fittings meet the requirements of the specific SAE standard called out in the product sections



CFR 21: Code of Federal Regulation Title 21: Food and Drugs
This code consists of lists of prohibited substances for materials intended to come into contact with foodstuffs.



DIN 74324
Fittings comply with the performance requirements



Regulation 1935/2004
This framework regulation relates to materials and objects designed to come into contact with foodstuffs. It describes specific measures per product group (Art. 5).



Fittings are listed under 1 of 3 categories depending on the application. Fittings meet dimensional and testing requirements as specified by Underwriter Laboratories and carry the UL symbol.



NSF 51: NSF / ANSI-51
Fittings and tubes complying with this standard are tested and approved by NSF for contact with drinks and foodstuffs.



ISO 6149-3
Fittings meet the dimensional requirements



NSF 61: NSF / ANSI-61
Fittings and tubes complying with this standard are tested and approved by NSF for contact with drinking water.



Gold Seal Program
Fittings comply with the ANSI standards and approved by WQA for contact with drinks and foodstuffs.



NSF 42 and 58: NSF/ANSI-42/58
Tubes complying with this standard are tested and approved by NSF for drinking water treatment systems.



REACH regulation: no. 1907/2006
As product manufacturer, we are subject to article 33 of the regulation which defines a duty to inform when a candidate substance is present at more than 0.1% weight for weight.



WRAS: Water Regulations Advisory Scheme
(UK) Fittings approved by this programme are declared compliant for water supply by WRc - NSF.



WHAT DOWNTIME?



THE QUALITY OF YOUR CONNECTORS MAKES A DIFFERENCE

When a line or machine stops due to a defective part, the cost of the downtime is greater than the cost of all the connectors. That's why we guarantee the quality and traceability of every connector we sell. And why our products meet or exceed both national and international standards.

It's what keeps your employees safe, your lines and machines running, and your productivity high.

REACH ✓

FDA



RoHS
2002/95/EC ✓

CE

NSF

DIN



ISO

SAE



UL

WRAS
APPROVED
PRODUCT

WHY PARKER FOR FLUID SYSTEM CONNECTORS



EDI Transmission

Computerized data exchange to increase productivity and speed communication.



Improved Stock Management

Packaging, barcodes, and customized labels according to your needs.



E-Catalog

Integration of our product data into your information systems (e-procurement, e-commerce site, etc.)

Communication Tools

We can provide you with any promotional sales material you might need, from brochures and flash animations to sample kits.



PRODUCTS FOR NEWLY MANDATED POTABLE WATER SYSTEMS

Effective on January 4, 2014, amendments to the Safe Drinking Water Act (42 USC § 300g-6) now limit the lead content of components installed in potable water systems to 0.25% weighted average. Potable water systems are systems that provide water suitable for human ingestion i.e., drinking, food preparation, dishwashing, and maintaining oral hygiene.

The good news? Our LIQUIfit™ and TrueSeal™ fittings, valves, angle stops, and cartridges are already NSF and FDA approved and conform to the new “lead free” standard. In addition, we offer pipe and compression products in “lead free” brass and can quote “lead free” fittings as a special.



WARNING These products can expose you to chemicals including NICKEL, CARBON BLACK, TITANIUM DIOXIDE, or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

ParkerStores

Around the corner and around the world, ParkerStores meet customer needs to stay productive by providing the broadest range of products and service choices. Whether for individual parts or entire system solutions, the professionals at the ParkerStore are here to help. Visit us online at www.parkerstore.com.



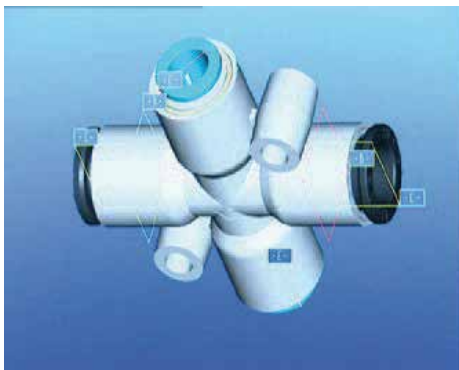
PTAC

Through education and technical training on FCG products and safe practices, the Parker Training and Certification (P-TAC) program is designed to improve the professionalism and technical skills of participating distributors and Parker employees.



Kitting

Multiple components in a customized kit with a single part number for easier order processing and assembly.



CAD Library

Available online at www.parker.com. Dimensional drawings of every product in various industry formats to help in the design process.

Product	Type	Body Material	Temperature		Maximum Pressure		Tubing Size	
			MIN.	MAX.	PSI	BAR	IN.	MM

Industrial Ball Valves

500 Series	Female/Female	Brass	0° F (-18° C)	+350° F (+176° C)	600	41		
501 Series	Female/Male	Brass	0° F (-18° C)	+350° F (+176° C)	600	41		
502 Series	Panel Mounted	Brass	0° F (-18° C)	+350° F (+176° C)	600	41		
506 Series	Straight Thread	Brass	0° F (-18° C)	+350° F (+176° C)	600	41		
509 Series	Solder Ends	Brass						
510 Series	Male/Female Straight Thread	Brass	0° F (-18° C)	+350° F (+176° C)	600	41		
520 Series	Female/Female	Brass	0° F (-18° C)	+350° F (+176° C)	600	41		
525 Series	Female/Female	Brass	-40° F (-40° C)	+350° F (+176° C)	600	41		
533 Series	3-Way Diversion	Brass	-20° F (-29° C)	+350° F (+176° C)	400	27		
540 Series	4-Way	Brass	-20° F (-29° C)	+350° F (+176° C)	400	27		
590/591 Series	Right Angle	Brass	-50° F (-45° C)	+350° F (+176° C)	250	17		
500HB Series	Hose Barb	Brass	0° F (-18° C)	+350° F (+176° C)	150	10		
600 Series	Six Port Diversion	Brass	0° F (-18° C)	+250° F (+121° C)	150	10		
500CS/502CS Series	Female/Female	Carbon Steel	-20° F (-29° C)	+425° F (+218° C)	2,000 (1/4 - 1) 1,500 (1 1/4 - 2)	137 (1/4 - 1) 103 (1 1/4 - 2)		
506CS Series	Straight Thread	Carbon Steel	-20° F (-29° C)	+425° F (+218° C)	3,000	206		
500HP/506HP Series	High Pressure	Carbon Steel	-10° F (-23° C)	+210° F (+99° C)	6,000	413		
501SS	Male/ Female	Stainless Steel	0° F (-18° C)	+400° F (+204° C)	2,000	137		
502SS	Female/Female	Stainless Steel	0° F (-18° C)	+400° F (+204° C)	2,000 (1/4 - 1) 1,500 (1 1/4 - 2)	137 (1/4 - 1) 103 (1 1/4 - 2)		
708 Series	Male/Female	Brass	-35° F (-37° C)	+300° F (+148° C)	500	34		
709 Series	Female/Female	Brass	-35° F (-37° C)	+300° F (+148° C)	500	34		
200 Series	Female/Female	Chrome Plated Brass	0° F (-18° C)	+200° F (+93° C)	200	13		
608 Series	Male/Female	Brass	0° F (-18° C)	+200° F (+93° C)	450	31		
609 Series	Female/Female	Brass	0° F (-18° C)	+200° F (+93° C)	450	31		
Mini Ball Valves		Nylon	-4° F (-20° C)	+175° F (+79° C)	145	10		

Plug Valves

607 Series	Male/Male	Brass	-40° F (-40° C)	+175° F (+79° C)	250	17		
608 Series	Male/Female	Brass	-40° F (-40° C)	+175° F (+79° C)	250	17		
609 Series	Female/Female	Brass	-40° F (-40° C)	+175° F (+79° C)	250	17		

Needle Valves/Drain Cocks/ Ground Plug Shutoff

Needle Valves	Shutoff	Brass	-45° F (-42° C)	+250° F (+121° C)	150	10		
Drain Cocks	External/Internal	Brass	-65° F (-54° C)	+250° F (+121° C)	150	10		
Ground Plug Shutoff	Shutoff	Brass	+32° F (0° C)	+125° F (+51° C)	30	2		

NOTE: DO NOT ALLOW MEDIA TO FREEZE OR PRODUCT DAMAGE MAY OCCUR. REFER TO USER RESPONSIBILITY ON PAGE 0.

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Parker
W35PLP-4-4
MALE ELBOW

Parker
W35PLP-4-4
MALE CONNECTOR

Parker
215PML-2-25
LONG NIPPLE

Parker
215PML-2-25
LONG NIPPLE

Parker
W35PW-4-4
MALE CONNECTOR

Parker
W35PW-4-2
MALE CONNECTOR

Parker
164PLP-4
UNION TEE

Parker
W172PW-4-2
MALE BRANCH TEE

Parker
517P-4
NUT/STRET

Parker
517P-4
UNION

Parker
517PW-4
UNION BULKHEAD

Parker
08-4
DUST BOOT

Parker
64C-4-4
MALE CONNECTOR

Parker
64C-4-4
MALE CONNECTOR

Parker
64C-4-2
MALE CONNECTOR



Industrial Valves

Standard Ball Valves

Carbon Steel Ball Valves

Mini Ball Valves

Polypropylene Ball Valves:
LIQUIfit, TrueSeal, and
Par-Barb

Axial Valves

Replacement Componentry

Ball Valve Stem Extensions
Series STX

Needle Valves

Drain Cocks/
Ground Plug Shutoff





Female Ports

V500P

Female-Female
p. K8



V502P

Panel Mount
p. K14



V520P

Economy Series
p. K21



V525P

Female-Female
p. K22



V533P

3 Way Diversion
p. K24



V540P

4 Way
p. K24



V600P

6 Port Diversion
p. K29



V633P

6 Port Diversion
p. K29



V500CS

Carbon Steel
p. K31



V502CS

Panel Mount
Carbon Steel
p. K31



V502SS

Panel Mount
Stainless
p. K39



MV709

Micro Valve
p. K40



MV200

Mini Valve
p. K42



MV609

Mini Valve
p. K42



PV609

Plug Valve
p. K49



4203

Axial Valve-NPT
p. K59



4202

Axial Valve-BSPP
p. K59



Male - Male Ports

V591P

90° Valve
p. K26



V591P-X-04

90° Valve
p. K26



PV607

Plug Valve
p. K49



Male - Female Compact High Pressure

XV501PCHP

p. K12



Male-Female Ports

V501P

Male-Female
p. K11



V590P

90° Valve
p. K26



V590P-X-04

90° Valve
p. K26



V501SS

Stainless Steel
p. K37



MV708

Micro Valve
p. K40



MV608

Mini Valve
p. K42



PV608

Plug Valve
p. K49



Barb to Female Port

V500P-HB

Barb to Female Port
p. K27



Solder Ports

V509P

Solder - Solder
p. K17



Straight Thread Ports

V506P

Female - Female
p. K16



V510P

Male - Female
p. K19



V506CS

Carbon Steel
p. K33



Female Ports - High Pressure

V500HP

Female Ports
p. K35



VP500HP

Female Ports-
Padlocking
p. K35



Straight Thread Ports - High Pressure

V506HP

Female Ports
p. K36



VP506HP

Female Ports-
Padlocking
p. K36



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■ Padlocking

VP500P

Female Ports
p. K8



VP501P

Male - Female
p. K12



VP502P

Panel Mount
p. K14



VP510P

Straight Thread
p. K19



VP520P

p. K21



VP500CS

Carbon Steel
p. K31



VP502CS

Panel Mount
p. K31



VP502SS

Stainless Steel
p. K39



■ Tee Handle

V500P-X-04

Female Ports
p. K9



V501P-X-04

Male - Female
p. K12



V502P-X-04

Panel Mount
p. K14



V510P-X-04

Straight Thread
p. K19



V500CS-X-04

Carbon Steel
p. K31



■ Oval Handle

V500P-X-21

Female Ports
p. K9



V501P-X-21

Male - Female
p. K12



V502P-X-21

Panel Mount
p. K14



V510P-X-21

Straight Thread
p. K19



V500CS-X-21

Carbon Steel
p. K32



V502CS-X-21

Panel Mount -
Carbon Steel
p. K32



V502SS-X-21

Oval Handle
p. K39



■ Short Handle

V502SS-X-20

Panel Mount
p. K39



■ Metric Female Ports

BVGL

Female Ports Long
p. K54



BVGTL

Female Ports Long
p. K54



■ Metric Padlocking

BVG4PLOCK

Female Ports
p. K56



■ Vented

VV500P

Female Ports
p. K8



VV501P

Male-Female
p. K12



VV502P

Panel Mount
p. K14



■ Vented – Padlocking

VVP500P

Female Ports
p. K8



VVP501P

Male-Female
p. K12



VVP502P

Panel Mount
p. K14



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■ Polypropylene Ball Valves

VME
Male Elbow
p. K44



VFE
Female Elbow
p. K44



VUC
Union Connector
p. K44



VEU
Elbow Union
p. K44



VMC
Male Connector
p. K45



VFC
Female Connector
p. K45



VUCPB
Union Connector
p. K45



VAS
Angle Stop
p. K45



VME
Male Elbow
p. K45



VFE
Female Elbow
p. K45



VUC
Union Connector
p. K46



VEU
Elbow Union
p. K46



VMC
Male Connector
p. K46



VFC
Female Connector
p. K46



VTEU
Tube Elbow Union
p. K46



VFC
Barbed Female Connector
p. K46



VFE
Barbed Female Elbow
p. K47



VMC
Barbed Male Connector
p. K47



VME
Barbed Male Elbow
p. K47



VUC
Barbed Union Connector
p. K47



VUCPB
Union Connector Barbed x Tube
p. K47



BVC
Ball Valve Clip
p. K47



■ Needle Valves

NV101F
Female - Male
p. K64



NV102F
Flare
p. K64



NV103F
Flare - Male Pipe
p. K64



HV104C
Humidifier Valve
p. K64



NV107P
Pipe
p. K65



NV108P
Female - Male
p. K65



NV109P
Female
p. K65



NV311P
Poly-Tite
p. K65



NV312P
Poly-Tite
p. K65



NV104C-NV104CA
Compression - Pipe
p. K64



NV105C-NV105CA
Compression
p. K64



NV106C-NV106CA
Compression - Pipe
p. K65



■ Shutoff Valves

V203F
Flare
p. K67



V204F
Flare - Pipe
p. K67



V401P
Pipe
p. K67



V402P
Female - Pipe
p. K67



V403P
Female
p. K67



V406P
3 Way
p. K67



V407P
4 Way
p. K67



V303C-V303CA
Compression
p. K67



V304C-V304CA
Compression - Pipe
p. K67



DC601
Pipe
p. K67



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■ Drain Cocks

DCR601

Internal Seal
p. K68



DC602

Internal Seal
p. K68



DC603

Internal Seal
p. K68



DC604

External Seal
p. K68



DC606

External Seal
p. K68



DC607

Bib Drain
p. K68



■ Auxiliary

PVMB-001

Mounting Bracket
p. K49



V502P-X-ACT

Actuator
p. K51



V502SS-X-ACT

Actuator
p. K51



V502P-X-SUB

Sub-Assembly
p. K52



V502SS-X-SUB

Sub-Assembly
p. K52



ACT-P-X-KIT

Brass Actuator Kit
p. K52



ACT-SS-X-KIT

Stainless Actuator Kit
p. K52



STX-P

Stem Extension
p. K62



HV104C-KIT

Humidifier Valve Kit
p. K64



SPV104C-KIT

Self Piercing Kit
p. K64



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Ball Valves

Brass Series 500



Parker's industrial ball valves are intended for general purpose use. Ball valves are intended for use in the fully open or closed positions. Throttling of the valve may result in premature seal failure and/or inability to turn the valve handle.

Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle
- VV-Valve, vented
- VVP-Valve, vented, padlocking handle

Type:

- 500-Female/Female PTF ports

Material:

- P-Brass
- PN-Nickel plated

Options:

- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

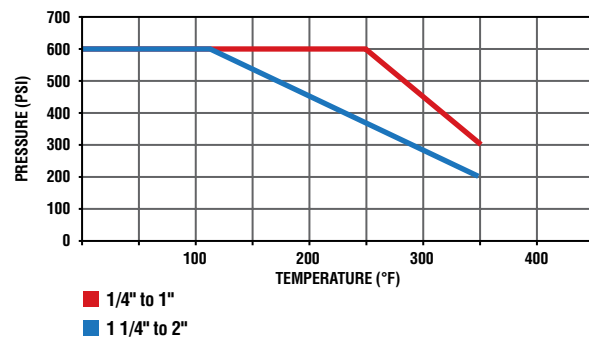
Specifications:

Pressure Range:

- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)

Temperature Range

- 0° to +350° F (-17.7° to +176.6° C)



FLOW DATA	
VALVE SIZE	CV
1/4	4.0
3/8	5.8
1/2	12.0
3/4	25.0
1	35.0
1-1/4*	57.0
1-1/2*	92.0
2*	224.0

*For these part numbers only the * options are available.

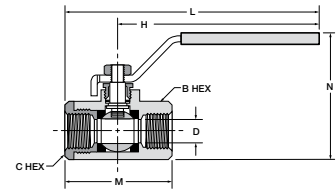
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Click here for CADs, Product Specifications or to Configure Parts Online

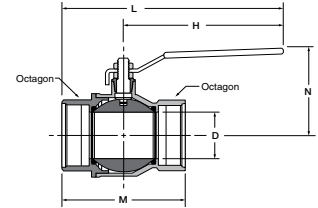
Female-Female Pipe Ends V500P

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	H	L	M	N	FLOW DIA. D
V500P-4	1/4	15/16	15/16	3.96	4.90	2.03	2.47	.375
V500P-6	3/8	15/16	15/16	3.96	4.90	2.03	2.47	.375
V500P-8	1/2*	1-1/16	1-1/16	3.96	5.00	2.20	2.58	.500
V500P-12	3/4**	1-1/4	1-5/16	3.96	5.25	2.42	2.81	.685
V500P-16	1**	1-1/2	1-9/16	3.96	5.34	2.75	3.08	.875



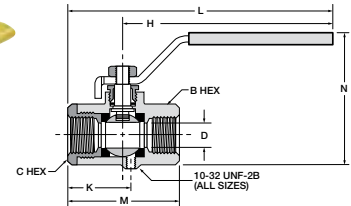
Female-Female Pipe Ends V500P-20, V500P-24, V500P-32

PART NO.	PIPE THREAD [NPT]	OCTAGON	H	L	M	N	FLOW DIA. D
V500P-20	1-1/4	1.93	6.22	8.05	3.66	3.01	1.18
V500P-24	1-1/2	2.13	6.22	8.23	4.02	3.25	1.50
V500P-32	2	2.69	6.22	8.58	4.76	3.52	1.89



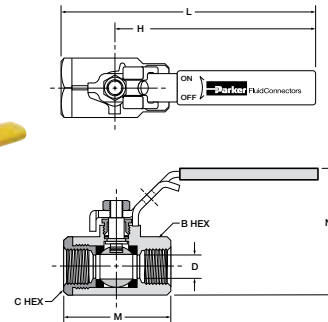
Vented, Female Pipe Ends VV500P

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VV500P-4	1/4	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VV500P-6	3/8	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VV500P-8	1/2*	1-1/16	1-1/16	1.23	3.96	5.00	2.20	2.58	.500
VV500P-12	3/4**	1-1/4	1-5/16	1.45	3.96	5.25	2.42	2.81	.685
VV500P-16	1**	1-1/2	1-9/16	1.58	3.96	5.34	2.75	3.08	.875



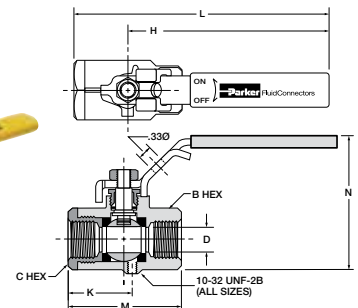
Locking Handle, Female Pipe Ends VP500P

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP500P-4	1/4	15/16	15/16	3.96	4.90	2.03	2.47	.375
VP500P-6	3/8	15/16	15/16	3.96	4.90	2.03	2.47	.375
VP500P-8	1/2*	1-1/16	1-1/16	3.96	5.00	2.20	2.58	.500
VP500P-12	3/4**	1-1/4	1-5/16	3.96	5.25	2.42	2.81	.685
VP500P-16	1**	1-1/2	1-9/16	3.96	5.34	2.75	3.08	.875
FOR USE WITH 5/16" Ø SHANK LOCK; .33Ø								
VP500P-20	1-1/4	1-15/16	1-15/16	6.22	8.05	3.66	4.04	1.180
VP500P-24	1-1/2	2-1/8	2-1/8	6.22	8.23	4.02	4.52	1.500
VP500P-32	2	2-11/16	2-11/16	6.22	8.60	4.76	5.07	1.890
FOR USE WITH 9/32" Ø SHANK LOCK; .31Ø								



OSHA 29 CFR Part 1910 Vented, Locking Handle, Female Pipe Ends VVP500P

PART NO.	PIPE THD [PTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VVP500P-4	1/4	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VVP500P-6	3/8	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VVP500P-8	1/2*	1-1/16	1-1/16	1.23	3.96	5.00	2.20	2.58	.500
VVP500P-12	3/4**	1-1/4	1-5/16	1.45	3.96	5.25	2.42	2.81	.685
VVP500P-16	1**	1-1/2	1-9/16	1.58	3.96	5.34	2.75	3.08	.875
FOR USE WITH 5/16" Ø SHANK LOCK									

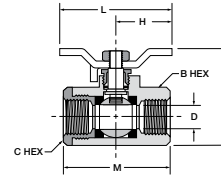


*PTF Special Short. **PTF SPL Extra Short

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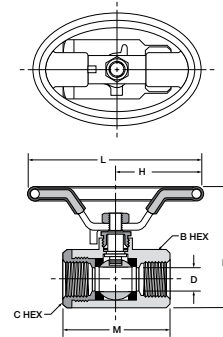
Tee Handle, Female Pipe Ends V500P-X-04

PART NO.	PIPE THREAD (PTF)	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500P-4-04	1/4	15/16	15/16	1.25	2.50	2.03	1.87	.375
V500P-6-04	3/8	15/16	15/16	1.25	2.50	2.03	1.87	.375
V500P-8-04	1/2*	1-1/16	1-1/16	1.25	2.50	2.20	1.98	.500
V500P-12-04	3/4**	1-1/4	1-5/16	1.25	2.50	2.42	2.20	.685
V500P-16-04	1**	1-1/2	1-9/16	1.25	2.50	2.75	2.48	.875



Oval Handle, Female Pipe Ends V500P-X-21

PART NO.	PIPE THREAD (PTF)	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500P-4-21	1/4	15/16	15/16	1.74	3.49	2.03	2.38	.375
V500P-6-21	3/8	15/16	15/16	1.74	3.49	2.03	2.38	.375
V500P-8-21	1/2*	1-1/16	1-1/16	1.74	3.49	2.20	2.49	.500
V500P-12-21	3/4**	1-1/4	1-5/16	1.74	3.48	2.42	2.71	.685
V500P-16-21	1**	1-1/2	1-9/16	1.74	3.48	2.75	2.99	.875



*PTF Special Short. **PTF SPL Extra Short



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Ball Valves

Brass Series 501



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle
- VV-Valve, vented
- VVP-Valve, vented, padlocking handle

Type:

- 501-Male/Female PTF ports

Material:

- P-Brass
- PN-Nickel plated

Options:

- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

Pressure Range:

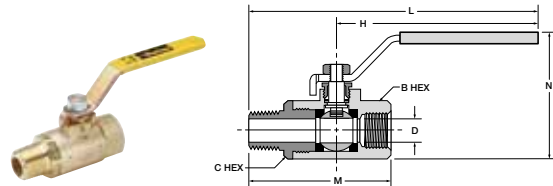
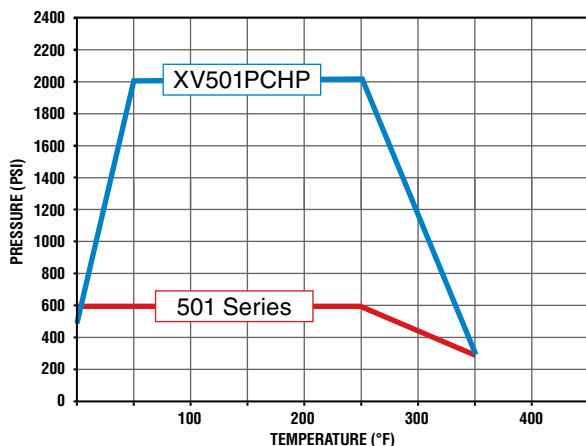
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)
- XV501PCHP up to 2000PSI (137.8 bar)

Temperature Range

- 0° to +350° F (-17.7° to +176.6° C)

Flow Data

VALVE SIZE	CV	VALVE SIZE	CV
1/4	6.3	3/4	25.0
3/8	5.7	1	35.0
1/2	10.0		



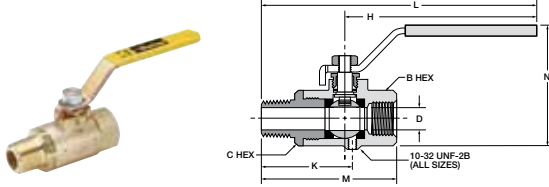
Male-Female Pipe Ends V501P

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V501P-4	1/4	1/4	15/16	15/16	3.96	5.46	2.59	2.47	.344
V501P-6	3/8	3/8	15/16	15/16	3.96	5.46	2.59	2.47	.375
V501P-8	1/2*	1/2	1-1/16	1-1/16	3.96	5.75	2.94	2.58	.500
V501P-12	3/4**	3/4*	1-1/4	1-5/16	3.96	5.83	3.00	2.81	.685
V501P-16	1**	1*	1-1/2	1-9/16	3.96	6.19	3.60	3.08	.875

*PTF Special Short. **PTF SPL Extra Short

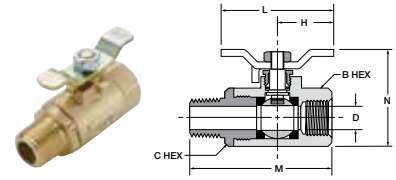
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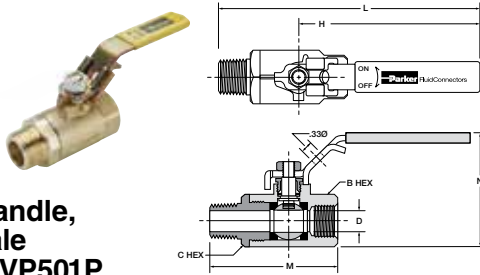
Vented, Male-Female Pipe Ends VV501P

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VV501P-4	1/4	1/4	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.344
VV501P-6	3/8	3/8	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.375
VV501P-8	1/2*	1/2	1-1/16	1-1/16	1.98	3.96	5.75	2.95	2.58	.500
VV501P-12	3/4**	3/4*	1-1/4	1-5/16	2.03	3.96	5.83	3.00	2.81	.685
VV501P-16	1**	1*	1-1/2	1-9/16	2.43	3.96	6.19	3.60	3.08	.875



Tee Handle, Male-Female Pipe Ends V501P-X-04

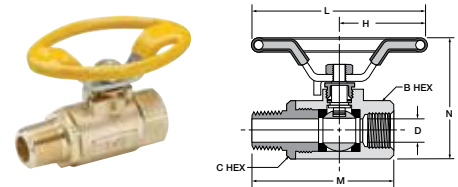
PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V501P-4-04	1/4	1/4	15/16	15/16	1.25	2.50	2.59	1.87	.344
V501P-6-04	3/8	3/8	15/16	15/16	1.25	2.50	2.59	1.87	.375
V501P-8-04	1/2*	1/2	1-1/16	1-1/16	1.25	2.50	2.95	1.98	.500
V501P-12-04	3/4**	3/4	1-1/4	1-5/16	1.25	2.50	3.00	2.20	.685
V501P-16-04	1**	1	1-1/2	1-9/16	1.25	2.50	3.60	2.48	.875



Locking Handle, Male-Female Pipe Ends VP501P

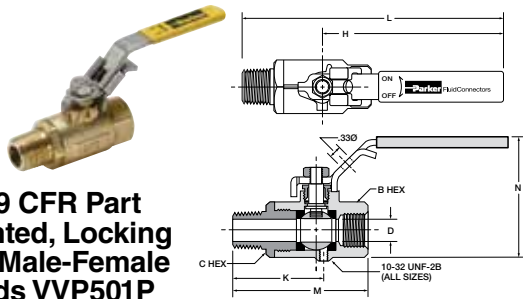
PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP501P-4	1/4	1/4	15/16	15/16	3.96	5.46	2.59	2.47	.344
VP501P-6	3/8	3/8	15/16	15/16	3.96	5.46	2.59	2.47	.375
VP501P-8	1/2*	1/2	1-1/16	1-1/16	3.96	5.75	2.95	2.58	.500
VP501P-12	3/4**	3/4*	1-1/4	1-5/16	3.96	5.83	3.00	2.81	.685
VP501P-16	1**	1*	1-1/2	1-9/16	3.96	6.19	3.60	3.08	.875

For use with 5/16" Ø shank lock



Oval Handle, Male-Female Pipe Ends V501P-X-21

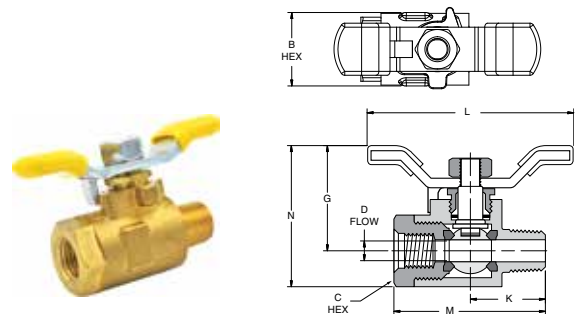
PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V501P-4-21	1/4	1/4	15/16	15/16	1.74	3.49	2.59	2.38	.344
V501P-6-21	3/8	3/8	15/16	15/16	1.74	3.49	2.59	2.38	.375
V501P-8-21	1/2*	1/2	1-1/16	1-1/16	1.74	3.49	2.95	2.49	.500
V501P-12-21	3/4**	3/4	1-1/4	1-5/16	1.74	3.48	3.00	2.71	.685
V501P-16-21	1**	1	1-1/2	1-9/16	1.74	3.48	3.60	2.99	.875



OSHA 29 CFR Part 1910 Vented, Locking Handle, Male-Female Pipe Ends VVP501P

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VVP501P-4	1/4	1/4	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.344
VVP501P-6	3/8	3/8	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.375
VVP501P-8	1/2*	1/2	1-1/16	1-1/16	1.98	3.96	5.75	2.95	2.58	.500
VVP501P-12	3/4**	3/4	1-1/4	1-5/16	2.03	3.96	5.83	3.00	2.81	.685
VVP501P-16	1**	1	1-1/2	1-9/16	2.43	3.96	6.19	3.60	3.08	.875

For use with 5/16" Ø shank lock



Compact High Pressure XV501PCHP

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	G	K	L	M	N	D FLOW Ø
XV501PCHP-4	1/4	1/4	15/16	13/16	1.33	.95	2.62	1.92	1.79	.25

*PTF Special Short. **PTF SPL Extra Short

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Ball Valves Brass Series 502



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle
- VV-Valve, vented
- VVP-Valve, vented, padlocking handle

Type:

- 502-Female/Female PTF ports

Material:

- P-Brass
- PN-Nickel plated

Options:

- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

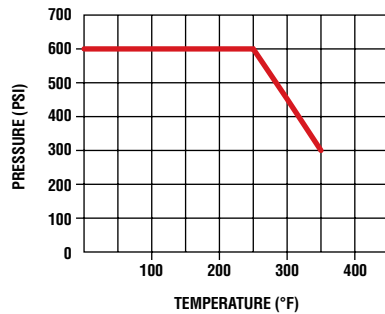
Specifications:

Pressure Range:

- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)

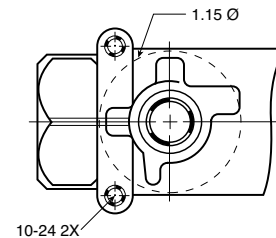
Temperature Range

- 0° to +350° F (-17.7° to +176.6° C)



FLOW DATA	
VALVE SIZE	CV
1/4	4.0
3/8	5.8
1/2	12.0
3/4	25.0
1	35.0

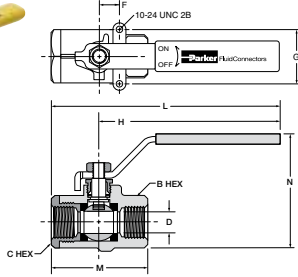
Mounting detail for all sizes



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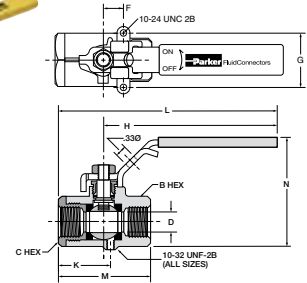


Click here for CADs, Product Specifications or to Configure Parts Online



Female-Female Pipe Ends, Panel Mount V502P

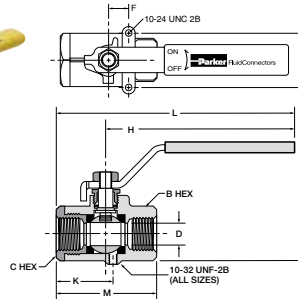
PART NO.	PIPE THD. (PTF)	B HEX	C HEX	F	G	H	L	M	N	FLOW DIA. D
V502P-4	1/4	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
V502P-6	3/8	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
V502P-8	1/2"	1-1/16	1-1/16	.50	1.12	3.96	5.06	2.20	2.58	.500
V502P-12	3/4**	1-1/4	1-5/16	.87	1.37	3.96	5.25	2.42	2.81	.685
V502P-16	1**	1-1/2	1-9/16	.87	1.37	3.96	5.34	2.75	3.08	.875



OSHA 29 CFR Part 1910 Vented, Locking Handle, Female Pipe Ends, Panel Mount VVP502P

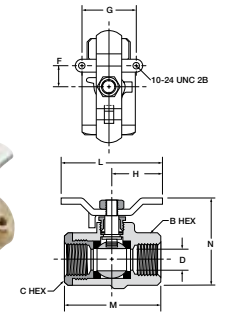
PART NO.	PIPE THD. (PTF)	B HEX	C HEX	F	G	K	H	L	M	N	D FLOW Ø
VVP502P-4	1/4	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VVP502P-6	3/8	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VVP502P-8	1/2"	1-1/16	1-1/16	.50	1.12	1.23	3.96	5.06	2.20	2.58	.500
VVP502P-12	3/4**	1-1/4	1-5/16	.87	1.37	1.45	3.96	5.25	2.42	2.81	.685
VVP502P-16	1**	1-1/2	1-9/16	.87	1.37	1.58	3.96	5.34	2.75	3.08	.875

For use with 5/16" Ø shank lock



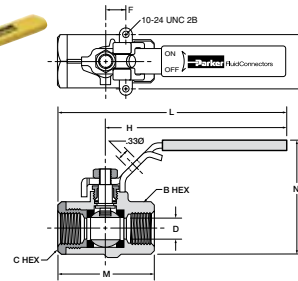
Vented, Female-Female Pipe Ends, Panel Mount VV502P

PART NO.	PIPE THD. (PTF)	B HEX	C HEX	F	G	K	H	L	M	N	D FLOW Ø
VV502P-4	1/4	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VV502P-6	3/8	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VV502P-8	1/2"	1-1/16	1-1/16	.50	1.12	1.23	3.96	5.06	2.20	2.58	.500
VV502P-12	3/4**	1-1/4	1-5/16	.87	1.37	1.45	3.96	5.25	2.42	2.81	.685
VV502P-16	1**	1-1/2	1-9/16	.87	1.37	1.58	3.96	5.34	2.75	3.08	.875



Tee Handle, Female Pipe Ends, Panel Mount V502P-X-04

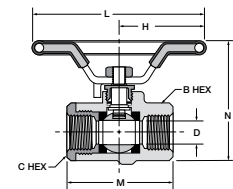
PART NO.	PIPE THD. (PTF)	B HEX	C HEX	F	G	H	L	M	N	D FLOW Ø
V502P-4-04	1/4	15/16	15/16	.50	1.12	1.25	2.50	2.03	1.87	.375
V502P-6-04	3/8	15/16	15/16	.50	1.12	1.25	2.50	2.03	1.87	.375
V502P-8-04	1/2"	1-1/16	1-1/16	.50	1.12	1.25	2.50	2.20	1.98	.500
V502P-12-04	3/4**	1-1/4	1-5/16	.87	1.37	1.25	2.50	2.42	2.20	.685
V502P-16-04	1**	1-1/2	1-9/16	.87	1.37	1.25	2.50	2.75	2.48	.875



Locking Handle, Female Pipe Ends, Panel Mount VP502P

PART NO.	PIPE THD. (PTF)	B HEX	C HEX	F	G	H	L	M	N	D FLOW Ø
VP502P-4	1/4	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
VP502P-6	3/8	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
VP502P-8	1/2"	1-1/16	1-1/16	.50	1.12	3.96	5.06	2.20	2.58	.500
VP502P-12	3/4**	1-1/4	1-5/16	.87	1.37	3.96	5.25	2.42	2.81	.685
VP502P-16	1**	1-1/2	1-9/16	.87	1.37	3.96	5.34	2.75	3.08	.875

For use with 5/16" Ø shank lock



Oval Handle, Female Pipe Ends, Panel Mount V502P-X-21

PART NO.	PIPE THD. (PTF)	B HEX	C HEX	H	L	M	N	D FLOW Ø
V502P-4-21	1/4	15/16	15/16	1.74	3.49	2.03	2.38	.375
V502P-6-21	3/8	15/16	15/16	1.74	3.49	2.03	2.38	.375
V502P-8-21	1/2"	1-1/16	1-1/16	1.74	3.49	2.20	2.49	.500
V502P-12-21	3/4**	1-1/4	1-5/16	1.74	3.48	2.42	2.71	.685
V502P-16-21	1**	1-1/2	1-9/16	1.74	3.48	2.75	2.99	.875

*PTF Special Short. **PTF SPL Extra Short

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Ball Valve Brass Series 506



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 506-Female/Female SAE J1926-1 Ports

Material:

- P-Brass
- PN-Nickel plated

Options:

- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

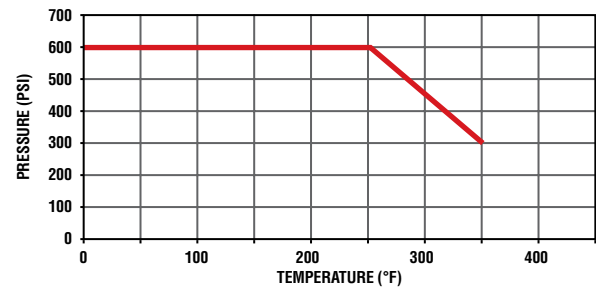
Specifications:

Pressure Range:

- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range

- 0° to +350° F (-17.7° to +176.6° C)

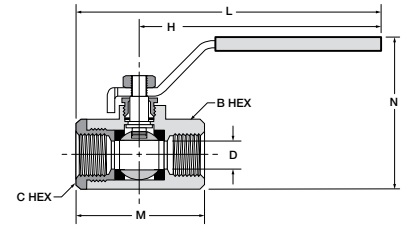


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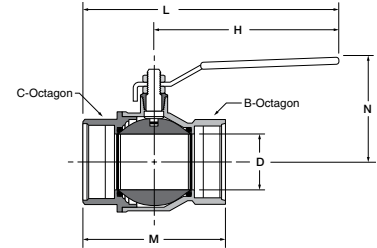
Female/Female, Straight Thread O-Ring Port V506P

PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V506P-4	7/16-20	15/16	15/16	3.96	5.01	2.20	2.47	.375
V506P-6	9/16-18	15/16	15/16	3.96	5.07	2.26	2.47	.375
V506P-8	3/4-16	1-1/16	1-1/16	3.96	5.18	2.42	2.60	.500
V506P-12	1-1/16-12	1-1/4	1-5/16	3.96	5.87	3.46	2.81	.685
V506P-16	1-5/16-12	1-1/2	1-9/16	3.96	5.96	3.68	3.08	.875



Female/Female, Straight Thread O-Ring Port V506P-20, V506P-24, V506P-32

PART NO.	STRT. THREAD	B OCT	C OCT	H	L	M	N	D FLOW Ø
V506P-20	1 5/8-12	1.93	1.93	6.22	8.05	3.66	3.01	1.18
V506P-24	1 7/8-12	2.13	2.13	6.22	8.23	4.02	3.25	1.50
V506P-32	2 1/2-12	2.85	2.85	6.22	8.60	4.76	3.52	1.89



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Ball Valves Brass Series 509



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve

Type:

- 509-Solder Ends

Material:

- P-Brass

Specifications:

Pressure Range:

- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)

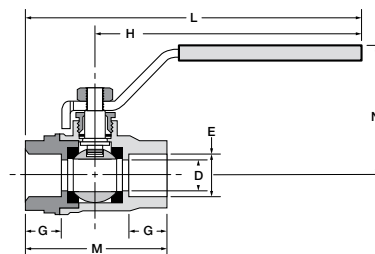
Temperature Range

- Nylon: 0° to +350° F (-17.7° to +176.6° C)
- Solder temperature not to exceed 470° F (243.3° C)

Solder Cup Ends V509P

PART NO.	TUBE SIZE	E	G	H	L	M	N	FLOW DIA. D
V509P-8	1/2	.630	.49	3.94	5.00	2.24	1.69	.55
V509P-12	3/4	.877	.75	4.72	6.10	2.85	1.97	.75
V509P-16	1	1.128	.90	4.72	6.40	3.35	2.13	.94
V509P-20	1 1/4	1.378	.96	6.22	8.13	3.82	3.01	1.18
V509P-24	1 1/2	1.628	1.10	6.22	8.46	4.49	3.25	1.50
V509P-32	2	2.128	1.34	6.22	8.94	5.43	3.52	1.89

FLOW DATA	
VALVE SIZE	CV
1/2"	26
3/4"	69
1"	91
1 1/4"	127
1 1/2"	299
2"	425



*For these part numbers only the * options are available.

Ball Valves

Brass Series 510



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 510-Male/Female Straight Thread O-ring SAE J1926

Material:

- P-Brass

Options:

- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

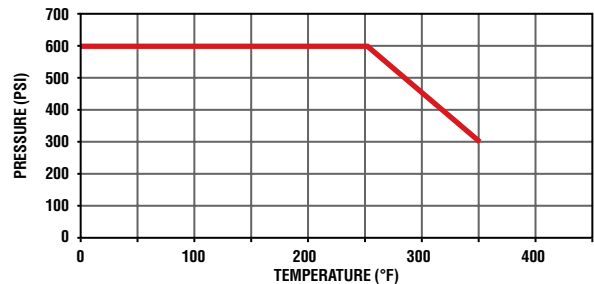
Specifications:

Pressure Range:

- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)

Temperature Range

- 0° to +350° F (-17.7° to +176.6° C)



FLOW DATA	
VALVE SIZE	CV
1/4	.8
3/8	2.1
1/2	5.3
5/8	7.6
3/4	13.0
1	33.0



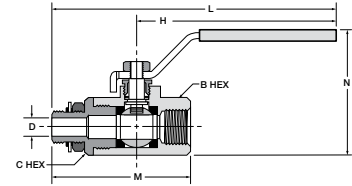
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Click here for CADs, Product Specifications or to Configure Parts Online

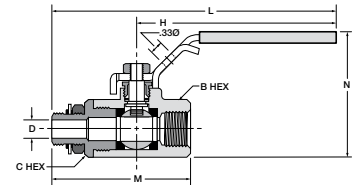
Male-Female, Straight Thread O-Ring Port V510P

PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V510P-4	7/16-20	15/16	15/16	3.96	5.61	2.85	2.47	.188
V510P-6	9/16-18	15/16	15/16	3.96	5.68	2.92	2.47	.281
V510P-8	3/4-16	1-1/16	1-1/16	3.96	5.88	3.17	2.58	.422
V510P-10	7/8-14	1-1/4	1-5/16	3.96	6.31	3.90	2.81	.500
V510P-12	1-1/16-12	1-1/4	1-5/16	3.96	6.44	4.03	2.81	.656
V510P-16	1-5/16-12	1-1/2	1-9/16	3.96	6.56	4.28	3.08	.875



Locking Handle, Straight Thread O-Ring Port VP510P

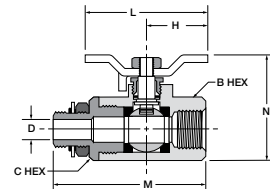
PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP510P-4	7/16-20	15/16	15/16	3.96	5.61	2.85	2.47	.188
VP510P-6	9/16-18	15/16	15/16	3.96	5.68	2.92	2.47	.281
VP510P-8	3/4-16	1-1/16	1-1/16	3.96	5.88	3.17	2.58	.422
VP510P-10	7/8-14	1-1/4	1-5/16	3.96	6.31	3.90	2.81	.500
VP510P-12	1-1/16-12	1-1/4	1-5/16	3.96	6.44	4.03	2.81	.656



For use with 5/16" Ø shank lock

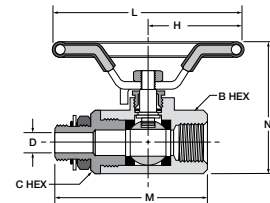
Tee Handle, Straight Thread O-Ring Port V510P-X-04

PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V510P-4-04	7/16-20	15/16	15/16	1.25	2.50	2.85	1.87	.188
V510P-6-04	9/16-18	15/16	15/16	1.25	2.50	2.92	1.87	.281
V510P-8-04	3/4-16	1-1/16	1-1/16	1.25	2.50	3.17	1.98	.422
V510P-10-04	7/8-14	1-1/4	1-5/16	1.25	2.50	3.90	2.20	.500
V510P-12-04	1-1/16-12	1-1/4	1-5/16	1.25	2.50	4.03	2.20	.656
V510P-16-04	1-5/16-12	1-1/2	1-9/16	1.25	2.50	4.28	2.48	.875



Oval Handle, Straight Thread O-Ring Port V510P-X-21

PART NO.	STRT. THREAD	B & C HEX	H	L	M	N	D FLOW Ø
V510P-4-21	7/16-20	15/16	1.74	3.49	2.85	2.38	.188
V510P-6-21	9/16-18	15/16	1.74	3.49	2.92	2.38	.281
V510P-8-21	3/4-16	1 1/16	1.74	3.49	3.17	2.49	.422
V510P-12-21	1-1/16-12	1-1/4 (B)	1.75	3.49	4.03	2.71	.656
		1-5/16 (C)					



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Ball Valves Brass Series 520



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Fluorocarbon Stem O-rings
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 520-Female/Female NPT Ports

Material:

- P-Brass

Options:

- 04-Tee Handle

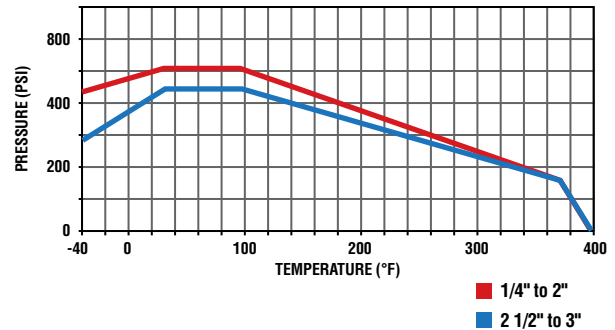
Specifications:

Pressure Range:

- 600 WOG Cold Non-shock 1/4" – 2"
- 450 WOG, Cold Non-shock 2 1/2" – 3"
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range

- -40° to +350° F (-40° to +176.6° C)



U.L. LISTED	
CATEGORY	
YSDT	LP-GAS SHUT-OFF VALVES
YRBX	FLAMMABLE LIQUID SHUT-OFF VALVES
YRPV	GAS SHUT-OFF VALVES
YQNZ	COMPRESSED GAS SHUT-OFF VALVES



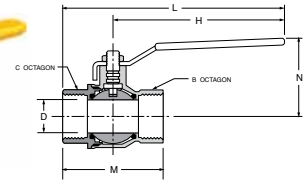
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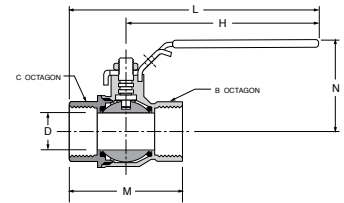
Female Pipe Ends V520P

PART NO.	PIPE THREAD [NPT]	B OCTAGON	C OCTAGON	H	L	M	N	D FLOW Ø
V520P-4	1/4-18	.79	.79	3.94	4.83	1.77	1.50	.310
V520P-6	3/8-18	.79	.79	3.94	4.83	1.77	1.50	.400
V520P-8	1/2-14	.98	.98	3.94	5.10	2.32	1.69	.600
V520P-12	3/4-14	1.22	1.22	4.72	5.98	2.52	1.97	.790
V520P-16	1-11.5	1.57	1.57	4.72	6.32	3.19	2.13	1.000
V520P-20	1-1/4	1.93	1.93	6.22	8.05	3.66	2.82	1.180
V520P-24	1-1/2	2.13	2.13	6.22	8.23	4.02	3.06	1.570
V520P-32	2	2.69	2.69	6.22	8.58	4.76	3.33	2.000
V520P-40	2-1/2	3.35	3.35	10.04	13.11	6.14	5.20	2.520
V520P-48	3	3.89	3.89	10.04	13.52	6.97	5.51	3.000



Locking Handle, Female Pipe Ends VP520P

PART NO.	PIPE THREAD [NPT]	B OCTAGON	C OCTAGON	H	L	M	N	D FLOW Ø
VP520P-4	1/4-18	.79	.79	3.94	4.83	1.77	1.50	.310
VP520P-6	3/8-18	.79	.79	3.94	4.83	1.77	1.50	.400
VP520P-8	1/2-14	.98	.98	3.94	5.10	2.32	1.69	.600
VP520P-12	3/4-14	1.22	1.22	4.72	5.98	2.52	1.97	.790
VP520P-16	1-11.5	1.57	1.57	4.72	6.32	3.19	2.13	1.000
VP520P-20	1-1/4	1.93	1.93	6.22	8.05	3.66	2.82	1.180
VP520P-24	1-1/2	2.13	2.13	6.22	8.23	4.02	3.06	1.570
VP520P-32	2	2.69	2.69	6.22	8.58	4.76	3.33	2.000
VP520P-40	2-1/2	3.35	3.35	10.04	13.11	6.14	5.20	2.520
VP520P-48	3	3.89	3.89	10.04	13.52	6.97	5.51	3.000



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Ball Valves Brass Series 525



Parker's industrial ball valves are intended for general purpose use. Ball valves are intended for use in the fully open or closed positions. Throttling of the valve may result in premature seal failure and/or inability to turn the valve handle.

Product Features:

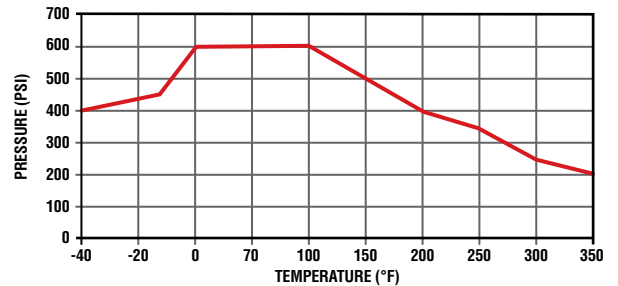
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle
- Standard Port
- Female/Female NPT Ports

Specifications: Pressure Range:

- 600 WOG Cold Non-shock 1/2" – 2"
- Vacuum Service to 29 Inches Hg

Temperature Range

- -40° to +350° F (-40° to +176.6° C)



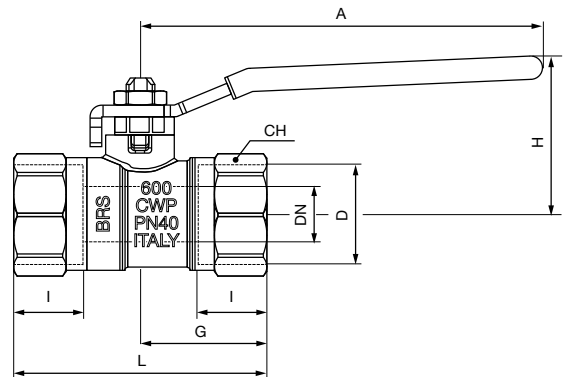
Flow Coefficient

VALUE SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
CV	8.4	16	22	38	52	78

Female Pipe Ends, V525P

PART NO.	D	DN	I	L	G	A	H	CH
V525P-8	1/2"	.453	.610	2.126	1.043	3.89	1.62	.984
V525P-12	3/4"	.590	.669	2.441	1.220	3.89	1.69	1.220
V525P-16	1"	.748	.827	2.835	1.417	4.72	1.98	1.496
V525P-20	1 1/4"	.945	.905	3.464	1.732	4.72	2.15	1.929
V525P-24	1 1/2"	1.181	.905	3.779	1.890	6.23	2.97	2.126
V525P-32	2"	1.496	1.043	4.409	2.205	6.23	3.24	2.677

Note: For larger sizes, please contact the division. Packing nut may need to be tightened depending on application temperature. Periodically check the packing nut and tighten as required



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Ball Valves Brass Series 533 3-Way Diversion / Series 540 4-Way

Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 533 3-Way Diversion
- 540 4-Way

Material:

- P-Brass

Options:

- 02-Stainless Steel Handle & Nut
- 08-Unmarked yellow vinyl handle cover

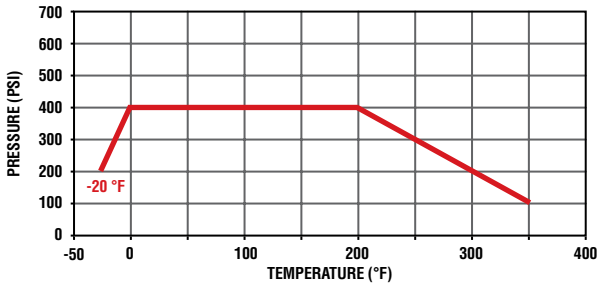
Specifications:

Pressure Range:

- 400 PSI (27.5 bar)
- Vacuum Service to 29 Inches Hg

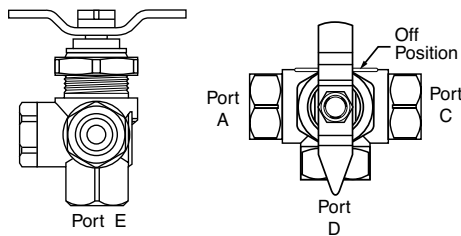
Temperature Range

- -20° to +350° F (-6.6° to +176.6° C)

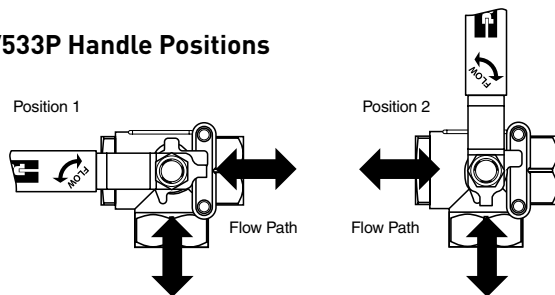


V540P FLOW INFORMATION	
POINTER OVER	FLOW PATH
A	A TO E
OFF	CLOSED
C	C TO E
D	D TO E

V540P Handle Positions



V533P Handle Positions



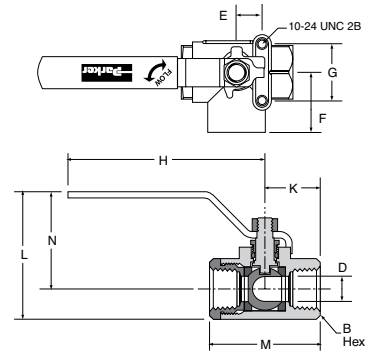
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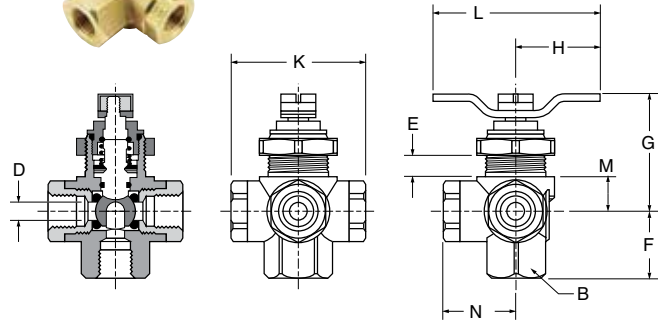
Female-Female-Female Pipe Ends V533P

PART NO.	PIPE THD (PTF)	B HEX	E	F	G	H	K	L	M	N	FLOW DIA. D
V533P-4	1/4	15/16	.50	1.08	1.12	3.96	1.03	2.47	2.03	1.94	.375
V533P-6	3/8	15/16	.50	1.08	1.12	3.96	1.03	2.47	2.03	1.94	.375
V533P-8	1/2	1-1/16	.50	1.18	1.12	3.96	1.11	2.58	2.20	1.98	.500
V533P-12	3/4	1-1/4	.87	1.43	1.37	3.96	1.42	2.90	2.83	2.17	.685
V533P-16	1	1-9/16	.87	1.62	1.37	3.96	1.58	3.21	3.16	2.32	.875



Female-Female-Female-Female Pipe Ends V540P

PART NO.	PIPE THD (PTF)	B HEX	E	F	G	H	K	L	M	N	FLOW DIA. D
V540P-4	1/4	7/8	.32	1.00	1.76	1.25	1.98	2.49	.52	1.07	.250



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Ball Valves

Brass Series 590/591



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve

Type:

- 590-Male/Female
- 591-Male/Female

Material:

- P-Brass

Options:

- 04-Lever Handle
- 08-Unmarked yellow vinyl handle cover

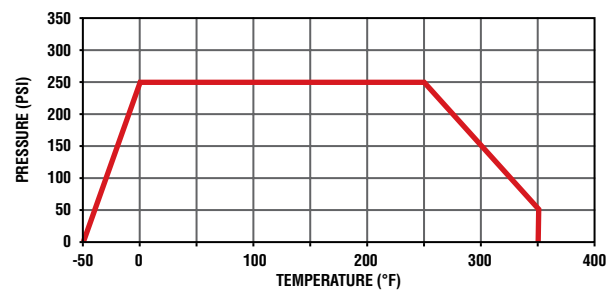
Specifications:

Pressure Range:

- 250 PSI (17.2 bar)
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range

- -50° to +350° F (-45.5° to +176.6° C)



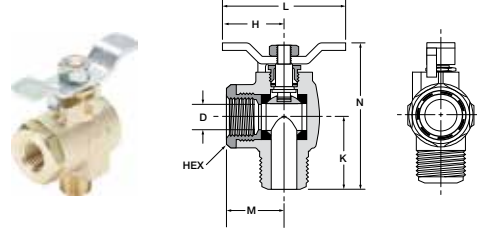
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[Click here for CADs, Product Specifications or to Configure Parts Online](#)

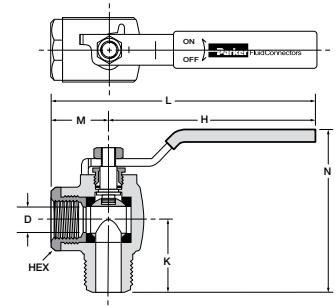
90° Flow, Male-Female Pipe Ends V590P

PART NO.	PIPE PTF THREAD	HEX	H	K	L	M	N	D FLOW Ø
V590P-4	1/4	15/16	1.25	1.08	2.50	1.00	2.42	.375
V590P-6	3/8	15/16	1.25	1.09	2.50	1.00	2.43	.375
V590P-8	1/2*	1-1/16	1.25	1.30	2.50	1.08	2.67	.500
V590P-16	1**	1-9/16"	1.30	1.90	2.60	1.38	3.62	.750



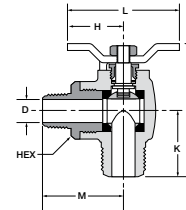
Lever Handle, 90° Flow, Male-Female Pipe Ends V590P-X-04

PART NO.	PIPE PTF THREAD	HEX	H	K	L	M	N	D FLOW Ø
V590P-4-04	1/4	15/16	3.96	1.08	4.96	1.00	3.02	.375
V590P-6-04	3/8	15/16	3.96	1.09	4.96	1.00	3.03	.375
V590P-8-04	1/2*	1-1/16	3.80	1.30	4.88	1.08	2.95	.500
V590P-16-04	1**	1-9/16"	3.96	1.90	5.34	1.38	4.17	.750



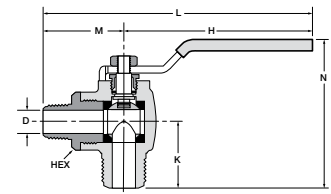
90° Flow, Male-Male Pipe Ends V591P

PART NO.	PIPE THREAD	HEX	H	K	L	M	N	D FLOW Ø
V591P-4	1/4	15/16	1.25	1.08	2.50	1.56	2.42	.375
V591P-6	3/8	15/16	1.25	1.09	2.50	1.56	2.43	.375
V591P-8	1/2	1-1/16	1.25	1.30	2.50	1.84	2.67	.500



Lever Handle, 90° Flow, Male-Male Pipe Ends V591P-X-04

PART NO.	PIPE THREAD	HEX	H	K	L	M	N	D FLOW Ø
V591P-4-04	1/4	15/16	3.96	1.08	5.52	1.56	3.02	.375
V591P-6-04	3/8	15/16	3.96	1.09	5.52	1.56	3.03	.375
V591P-8-04	1/2	1-1/16	3.80	1.30	5.64	1.84	2.95	.500



*PTF Special Short. **PTF SPL Extra Short

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

[Click here for CADs, Product Specifications or to Configure Parts Online](#)

Ball Valves Brass Series 500HB



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve

Type:

- 500HB-Female/Beaded Hose Barb

Material:

- P-Brass

Specifications:

Pressure Range:

- 150 PSI (10.3 bar) WOG, Cold Non-Shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

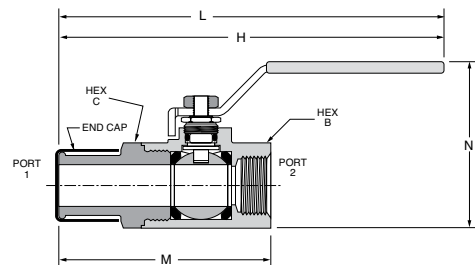
Temperature Range

- 0° to +350° F (-17.7° to +176.6° C)

Brass Hose Barb Ball Valve V500P-HB

PART NO.	PORT 1	PORT 2 PTF	B HEX	C HEX	H	L	M	N	FLOW DIA. D
V500P-12-16HB	1	3/4*	1-1/4	1-5/16	3.96	6.25	3.41	2.81	.685

*PTF special extra short



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Ball Valves

Brass Series 600



Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Fluorocarbon O-rings
- Steel handle

Style:

- V-Valve

Type:

- 600-Three Position
- 633-Two Position

Material:

- P-Brass

Specifications:

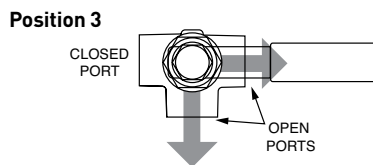
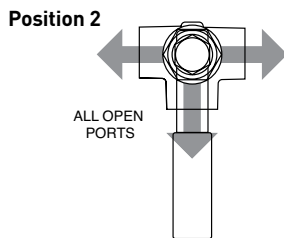
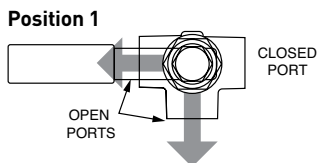
Pressure Range:

- 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

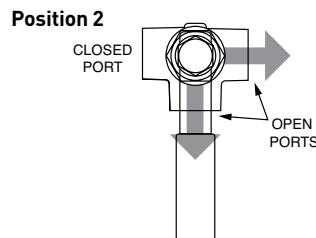
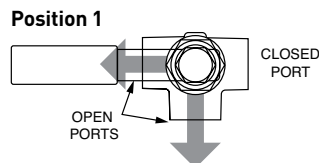
Temperature Range

- 0° to +250° F (-17.7° to +121.1° C)

Series 600 Handle Positions



Series 633 Handle Positions



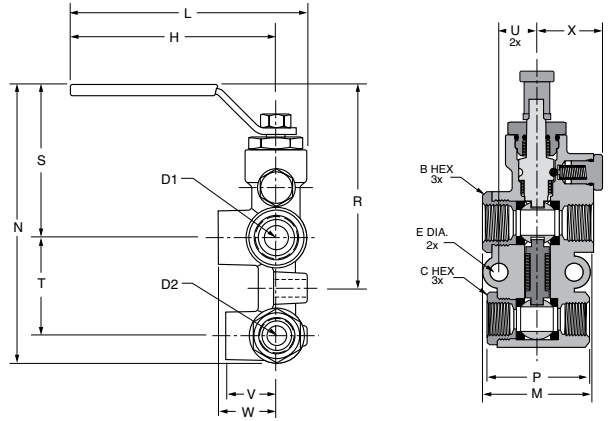
This valve can be used on applications where a fluid return or spillback is required. For use on construction equipment, chemical processing, diesel engines, filter banks, pumps and specialized industrial machinery.

NOTE: Diversion valves do not have off positions, therefore, the center ports can not be used for shut-off purposes.

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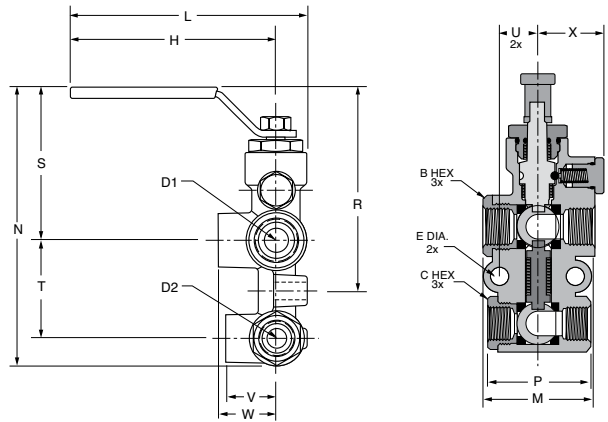


[Click here for CADs, Product Specifications or to Configure Parts Online](#)



Six Port Diversion Brass Valve V600P

PIPE THD. PART NO.	PIPE THD. TOP PORT SPL SHORT	BOTTOM PORT PTF	B HEX	C HEX	D1 FLOW	D2 FLOW	E	H	L	M	N	P	R	S	T	U	V	W	X
V600P-8-6	1/2	3/8	1 1/16	15/16	.500	.375	.34	3.96	4.56	2.20	5.43	2.03	3.98	2.99	1.91	.73	.98	1.12	1.31



Six Port Diversion Brass Valve V633P

PIPE THD. PART NO.	PIPE THD. TOP PORT SPL SHORT	BOTTOM PORT PTF	B HEX	C HEX	D1 FLOW	D2 FLOW	E	H	L	M	N	P	R	S	T	U	V	W	X
V633P-8-6	1/2	3/8	1 1/16	15/16	.500	.375	.34	3.96	4.56	2.20	5.43	2.03	3.98	2.99	1.91	.73	.98	1.12	1.31

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Ball Valves

Carbon Steel Series 500CS/502CS

Product Features:

- Carbon Steel Phosphate Coated body
- Steel ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 500-Female/Female
- 502-Female/Female

Material:

- CS-Carbon Steel

Options:

- 04-Tee Handle
- 21-Oval Handle

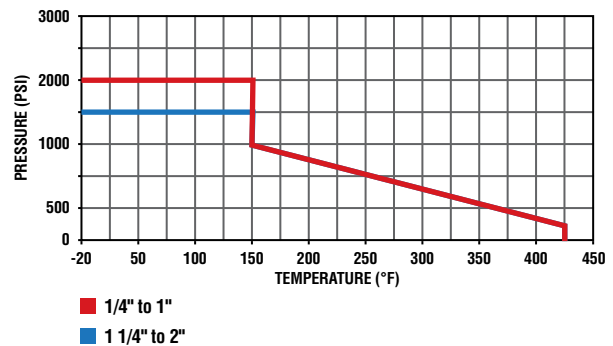
Specifications:

Pressure Range:

- 1/4" – 1": 2000 PSI (137.8 bar)
- 1 1/4" – 2": 1500 PSI (103.4 bar)
- Saturated Steam up to 150 PSI (10.3 bar)

Temperature Range

- -20° to +425° F (-28.8° to +218.3° C)



FLOW DATA	
VALVE SIZE	CV
1/4	6.0
3/8	12.8
1/2	15.0
3/4	23.0
1	36.0
1-1/4	44.0
1-1/2	64.0
2	114.0

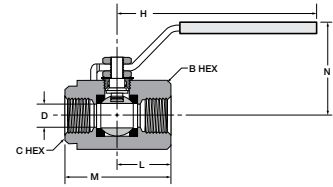
WARNING These products can expose you to chemicals including NICKEL, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov.



[Click here for CADs, Product Specifications or to Configure Parts Online](#)

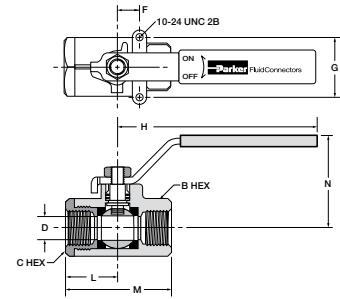
Female-Female Pipe Ends V500CS

PART NO.	PIPE THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500CS-4	1/4	1-1/16	15/16	3.78	1.00	2.00	1.63	.400
V500CS-6	3/8	1-1/16	15/16	3.78	1.00	2.00	1.63	.400
V500CS-8	1/2	1-1/4	1-1/16	3.78	1.25	2.37	1.73	.540
V500CS-12	3/4	1-5/8	1-3/8	5.10	1.50	2.90	2.08	.680
V500CS-16	1	2	1-5/8	5.10	1.76	3.41	2.30	.880



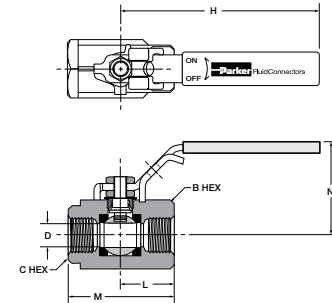
Female-Female Pipe Ends, Panel Mount V502CS

PART NO.	PIPE THD	B HEX	C HEX	F	G	H	L	M	N	FLOW DIA. D
V502CS-20	1-1/4	2	2-1/4	.94	1.50	6.10	1.87	3.80	2.76	1.000
V502CS-24	1-1/2	2-5/16	2-1/2	.94	1.50	6.10	2.27	4.55	2.98	1.250
V502CS-32	2	2-3/4	3	1.03	2.00	8.60	2.42	4.83	3.54	1.500



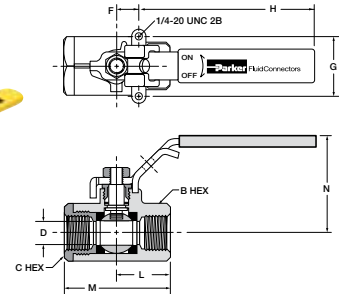
Locking Handle, Female Pipe Ends VP500CS

PART NO.	PIPE THD	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP500CS-4	1/4	1-1/16	15/16	4.13	1.00	2.00	2.23	.400
VP500CS-6	3/8	1-1/16	15/16	4.13	1.00	2.00	2.23	.400
VP500CS-8	1/2	1-1/4	1-1/16	4.13	1.25	2.37	2.33	.540
VP500CS-12	3/4	1-5/8	1-3/8	5.00	1.50	2.90	2.80	.680
VP500CS-16	1	2	1-5/8	5.00	1.76	3.41	2.97	.880



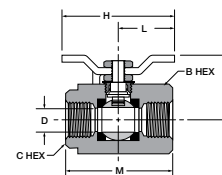
Locking Handle, Female Pipe Ends, Panel Mount VP502CS

PART NO.	PIPE THD	B HEX	C HEX	F	G	H	L	M	N	FLOW DIA. D
VP502CS-20	1-1/4	2	2-1/4	.94	1.50	7.50	1.87	3.80	3.15	1.000
VP502CS-24	1-1/2	2-5/16	2-1/2	.94	1.50	7.50	2.27	4.55	3.37	1.250
VP502CS-32	2	2-3/4	3	1.03	2.00	8.75	2.42	4.83	3.46	1.500



Tee Handle, Female Pipe Ends V500CS-X-04

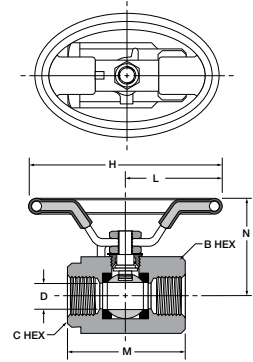
PART NO.	PIPE THD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500CS-4-04	1/4	1-1/16	15/16	2.16	1.08	2.00	1.41	.400
V500CS-6-04	3/8	1-1/16	15/16	2.16	1.08	2.00	1.41	.400
V500CS-8-04	1/2	1-1/4	1-1/16	2.90	1.45	2.37	1.66	.540
V500CS-12-04	3/4	1-5/8	1-3/8	3.63	1.81	2.90	2.06	.680
V500CS-16-04	1	2	1-5/8	3.63	1.81	3.41	2.23	.880



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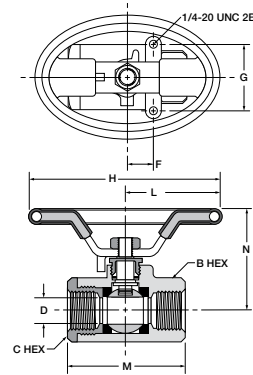
Oval Handle, Female Pipe Ends V500CS-X-21

PART NO.	PIPE THD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500CS-4-21	1/4	1-1/16	15/16	3.50	1.00	2.00	1.66	.400
V500CS-6-21	3/8	1-1/16	15/16	3.50	1.00	2.00	1.66	.400
V500CS-8-21	1/2	1-1/4	1-1/16	3.50	1.13	2.37	1.76	.540
V500CS-12-21	3/4	1-5/8	1-3/8	5.00	1.46	2.90	2.13	.680
V500CS-16-21	1	2	1-5/8	5.00	1.58	3.41	2.29	.880



Oval Handle, Female Pipe Ends, Panel Mount V502CS-X-21

PART NO.	PIPE THD	B HEX	C HEX	F	G	H	L	M	N	FLOW DIA. D
V502CS-20-21	1-1/4	2	2-1/4	.94	1.50	5.07	2.53	3.80	3.04	1.000
V502CS-24-21	1-1/2	2-5/16	2-1/2	.94	1.50	5.07	2.53	4.55	3.26	1.250
V502CS-32-21	2	2-3/4	3	1.03	2.00	6.50	3.25	4.83	3.57	1.500



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Ball Valves

Carbon Steel Series 506CS

Product Features:

- Carbon Steel Phosphate Coated body
- Steel ball
- PTFE seats/seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 506-Female/Female SAE Straight Thread Ports

Material:

- CS-Carbon Steel

Options:

- 04-Tee Handle
- 21-Oval Handle

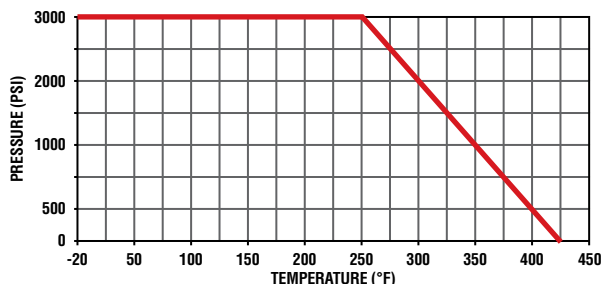
Specifications:

Pressure Range:

- 3000 PSI (206.8 bar)
- Saturated Steam up to 150 PSI (10.3 bar)

Temperature Range

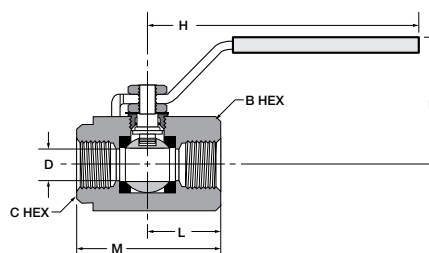
- -20° to +425° F (-28.8° to +218.3° C)



FLOW DATA	
VALVE SIZE	CV
1/4	6.0
3/8	12.0
1/2	15.0
3/4	34.0
1	54.0

Female-Female SAE Straight Thread Ports V506CS

PART NO.	STRAIGHT THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V506CS-4	7/16-20	1-1/16	15/16	3.78	1.00	2.00	1.63	.400
V506CS-6	9/16-18	1-1/16	15/16	3.78	1.00	2.00	1.63	.400
V506CS-8	3/4-16	1-5/8	1-1/4	4.78	1.32	2.84	2.16	.500
V506CS-12	1-1/16-12	1-7/8	1-5/8	4.78	1.66	3.71	2.35	.750
V506CS-16	1-5/16-12	2-1/2	2-1/8	6.10	1.88	4.15	2.85	1.000



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Ball Valves

Carbon Steel Series 500HP, 506HP

Product Features:

- Carbon Steel Phosphate Coated body
- Steel ball
- Delrin with Molybdenum Disulphide Seats
- Nitrile O-rings Stem Seals
- Steel handle

Style:

- V-Valve
- VP-Valve, padlocking handle

Type:

- 500-Female/Female NPT Ports
- 506-Female/Female SAE Straight Thread Ports

Material:

- HP-High Pressure Carbon Steel

Specifications:

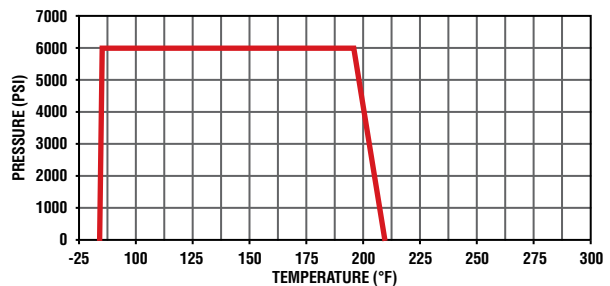
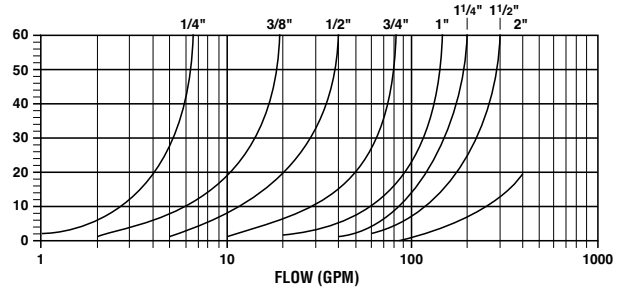
Pressure Range:

- 6000 PSI (413.6 bar)

Temperature Range

- -10° to +210° F (-23.3° to 98.8° C)

Pressure Drop (PSI)

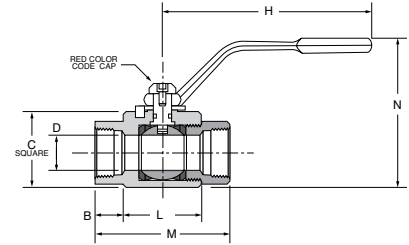


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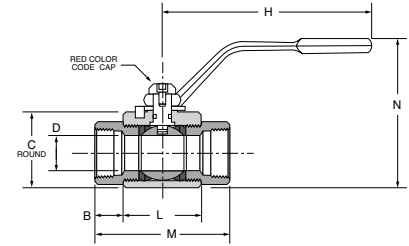
6000 PSI Female-Female Pipe Ends V500HP-X

PART NO.	PIPE THREAD (NPT)	B	C	H	L	M	N	FLOW DIA. D
V500HP-4	1/4-18	.69	1.38	4.50	1.44	2.75	2.94	.240
V500HP-6	3/8-18	.56	1.50	4.50	1.69	2.88	3.06	.390
V500HP-8	1/2-14	.75	1.63	4.50	1.88	3.38	3.19	.510
V500HP-12	3/4-14	.69	2.25	7.00	2.41	3.81	4.69	.790
V500HP-16	1-11.5	.94	2.50	7.00	2.56	4.50	4.94	.950



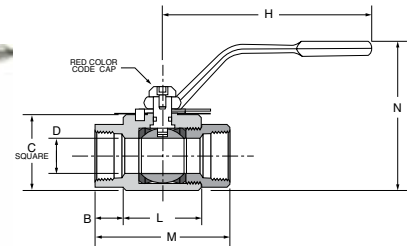
6000 PSI Female-Female Pipe Ends V500HP-X (LARGE)

PART NO.	PIPE THREAD (NPT)	B	C	H	L	M	N	FLOW DIA. D
V500HP-20	1 1/4-11.5	.85	3.25	10.00	3.15	4.84	6.31	1.26
V500HP-24	1 1/2-11.5	.99	3.75	10.00	3.35	5.33	6.76	1.50
V500HP-32	2-11.5	1.30	4.50	10.00	3.94	6.54	7.42	1.89



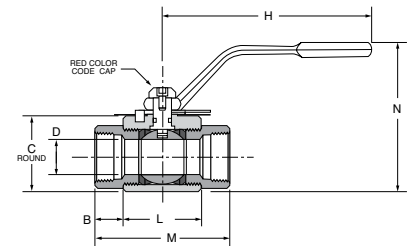
6000 PSI Locking-Female-Female Pipe Ends VP500HP-X

PART NO.	PIPE THREAD (NPT)	B	C	H	L	M	N	FLOW DIA. D
VP500HP-4	1/4-18	.69	1.38	4.50	1.44	2.75	2.94	.240
VP500HP-6	3/8-18	.56	1.50	4.50	1.69	2.88	3.06	.390
VP500HP-8	1/2-14	.75	1.63	4.50	1.88	3.38	3.19	.510
VP500HP-12	3/4-14	.69	2.25	7.00	2.41	3.81	4.69	.790
VP500HP-16	1-11.5	.94	2.50	7.00	2.56	4.50	4.94	.950



6000 PSI Locking-Female-Female Pipe Ends VP500HP-X (LARGE)

PART NO.	PIPE THREAD (NPT)	B	C	H	L	M	N	FLOW DIA. D
VP500HP-20	1 1/4-11.5	.85	3.25	10.00	3.15	4.84	6.31	1.26
VP500HP-24	1 1/2-11.5	.99	3.75	10.00	3.35	5.33	6.76	1.50
VP500HP-32	2-11.5	1.30	4.50	10.00	3.94	6.54	7.42	1.89

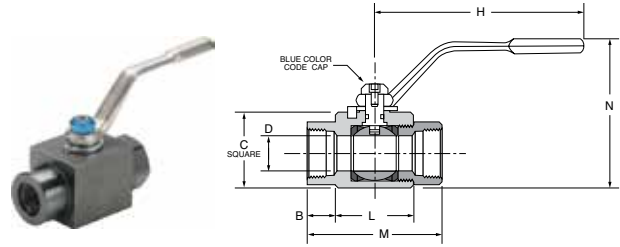


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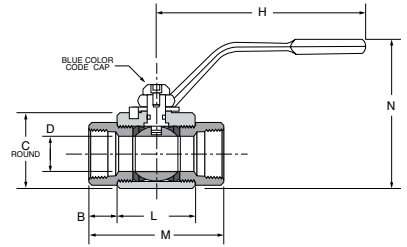
6000 PSI Female-Female Straight Thread Ends V506HP-X

PART NO.	SAE J1926-1 THREAD	B	C	H	L	M	N	FLOW DIA. D
V506HP-4	7/16-20 UNF	.69	1.38	4.50	1.44	2.75	2.94	.240
V506HP-6	9/16-18 UNF	.56	1.50	4.50	1.69	2.88	3.06	.390
V506HP-8	3/4-16 UNF	.75	1.63	4.50	1.88	3.38	3.19	.510
V506HP-12	1 1/16-12 UNF	.69	2.25	7.00	2.41	3.81	4.69	.790
V506HP-16	1 5/16-12 UNF	.94	2.50	7.00	2.56	4.50	4.94	.950



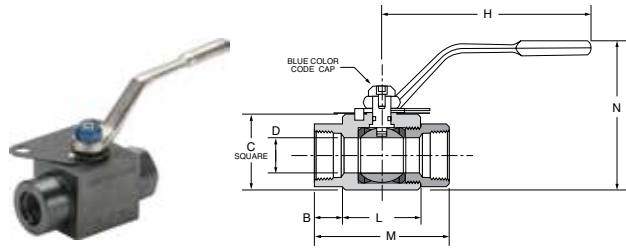
6000 PSI Female-Female Straight Thread Ends V506HP-X (LARGE)

PART NO.	SAE J1926-1 THREAD	B	C	H	L	M	N	FLOW DIA. D
V506HP-20	1 5/8-12 UNF	.85	3.25	10.00	3.15	4.84	6.31	1.26
V506HP-24	1 7/8-12 UNF	.99	3.75	10.00	3.35	5.33	6.76	1.50
V506HP-32	2 1/2-12 UNF	1.30	4.50	10.00	3.94	6.54	7.42	1.89



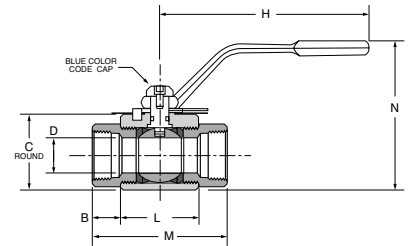
6000 PSI Locking-Female-Female Straight Thread Ends VP506HP-X

PART NO.	SAE J1926-1 THREAD	B	C	H	L	M	N	FLOW DIA. D
VP506HP-4	7/16-20 UNF	.69	1.38	4.50	1.44	2.75	2.94	.240
VP506HP-6	9/16-18 UNF	.56	1.50	4.50	1.69	2.88	3.06	.390
VP506HP-8	3/4-16 UNF	.75	1.63	4.50	1.88	3.38	3.19	.510
VP506HP-12	1 1/16-12 UNF	.69	2.25	7.00	2.41	3.81	4.69	.790
VP506HP-16	1 5/16-12 UNF	.94	2.50	7.00	2.56	4.50	4.94	.950



6000 PSI Locking-Female-Female Straight Thread Ends VP506HP-X (LARGE)

PART NO.	SAE J1926-1 THREAD	B	C	H	L	M	N	FLOW DIA. D
VP506HP-20	1 5/8-12 UNF	.85	3.25	10.00	3.15	4.84	6.31	1.26
VP506HP-24	1 7/8-12 UNF	.99	3.75	10.00	3.35	5.33	6.76	1.50
VP506HP-32	2 1/2-12 UNF	1.30	4.50	10.00	3.94	6.54	7.42	1.89



WARNING These products can expose you to chemicals including NICKEL, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Click here for CADs, Product Specifications or to Configure Parts Online



Ball Valves

Stainless Steel Series 501SS

Product Features:

- CF-8M Stainless Steel body
- Stainless Steel ball
- PTFE Seats/Seals
- Stainless Steel handle
- Silicone Free

Material:

- SS – Stainless Steel

Options

- 20-Short Handle
- 21-Oval Handle
- 35-Welded Retainer Nut

Specifications:

Pressure Range:

- 2000 PSI (137.8 bar)
- Vacuum service 28 inches Hg

Temperature Range

- 0° to +400° F (-17.7° to +204.4° C)

Style:

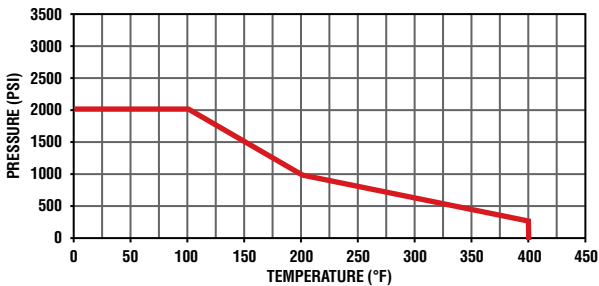
- V-Valve

Type:

- 501-Male/Female NPT Ports

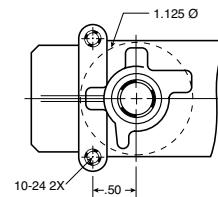
Approvals

- Meets material requirements of NACE MR-01-75



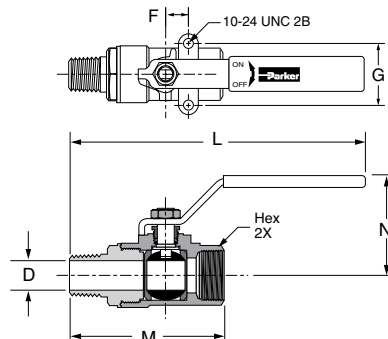
FLOW DATA	
VALVE SIZE	CV
1/4	4.0
3/8	6.0
1/2	14.0
3/4	35.0
1	54.0

Mounting Detail



Male-Female Pipe Ends V501SS

PART NO.	PIPE THREAD [NPT]	HEX	F	G	L	M	N	D FLOW Ø
V501SS-4	1/4	15/16	.50	1.12	5.60	2.65	1.97	.280
V501SS-6	3/8	15/16	.50	1.12	5.60	2.65	1.97	.375
V501SS-8	1/2	1-1/16	.50	1.12	5.85	3.05	2.00	.500
V501SS-12	3/4	1-3/8	.88	1.37	7.27	3.85	2.55	.720
V501SS-16	1	1-5/8	.88	1.37	7.48	4.25	2.68	.940



WARNING These products can expose you to chemicals including NICKEL, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov.





Ball Valves

Stainless Steel Series 502SS

Product Features:

- CF-8M Stainless Steel body
- Stainless Steel ball
- PTFE Seats/Seals
- Stainless Steel handle
- Silicone Free

Style:

- V-Valve
- VP-Valve, Padlocking

Type:

- 502-Panel Mount Female/ Female NPT Ports

Material:

- SS – Stainless Steel

Options

- 20-Short Handle
- 21-Oval Handle
- 35-Welded Retainer Nut

Specifications:

Pressure Range:

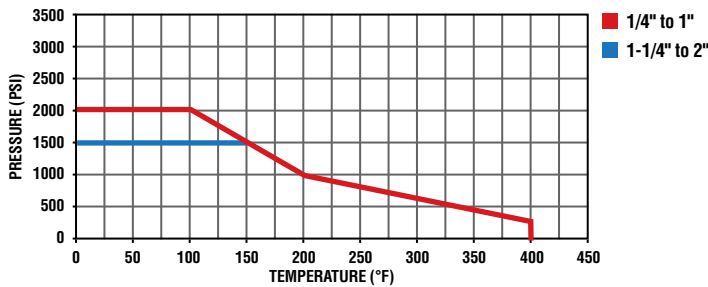
- 1/4" – 1": 2000 PSI (137.8 bar)
- 1 1/4" – 2": 1500 PSI (103.4 bar)
- Vacuum service 28 inches Hg

Temperature Range

- 0° to +400° F (-17.7° to +204.4° C)

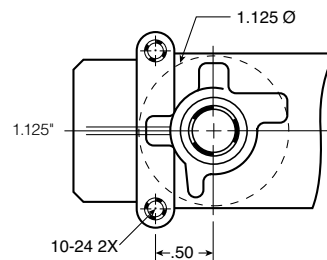
Approvals

- Meets material requirements of NACE MR-01-75



FLOW DATA		MOUNTING HOLE DIAMETER	
VALVE SIZE	CV	VALVE SIZE	DIA. IN.
1/4	4.0	1/4	1.125
3/8	6.0	3/8	1.125
1/2	14.0	1/2	1.125
3/4	35.0	3/4	1.500
1	54.0	1	1.500
1 1/4	74.0	1 1/4	1.875
1 1/2	120.0	1 1/2	1.875
2	226.0	2	1.875

Mounting Detail



Note: Periodically check the adjustable packing nut and tighten as required.

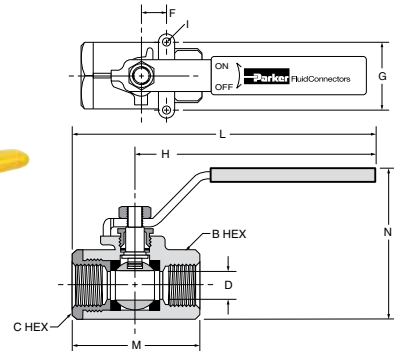
WARNING These products can expose you to chemicals including NICKEL, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov.



Click here for CADs, Product Specifications or to Configure Parts Online

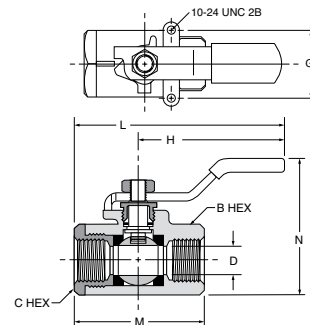
Female Pipe Ends, Panel Mount V502SS

PART NO.	PIPE THD (NPT)	B/C HEX	F	G	H	I THREAD	L	M	N	PANEL FLOW DIA. D	HOLE DIA.
V502SS-4	1/4	15/16	.500	1.125	4.00	10-24 UNC	5.03	2.07	2.52	.380	1.125
V502SS-6	3/8	15/16	.500	1.125	4.00	10-24 UNC	5.03	2.07	2.52	.380	1.125
V502SS-8	1/2	1-1/16	.500	1.125	4.00	10-24 UNC	5.13	2.27	2.65	.500	1.125
V502SS-12	3/4	1-3/8	.875	1.375	5.00	10-24 UNC	6.67	3.35	3.46	.790	1.500
V502SS-16	1	1-5/8	.875	1.375	5.00	10-24 UNC	6.77	3.54	3.74	1.000	1.500
V502SS-20	1-1/4	2	1.000	1.500	7.00	1/4-20 UNC	9.00	4.00	4.55	1.250	2.000
V502SS-24	1-1/2	2-3/8	1.000	1.500	7.00	1/4-20 UNC	7.19	4.38	5.42	1.500	2.000
V502SS-32	2	3	1.000	1.500	7.00	1/4-20 UNC	9.75	5.50	5.68	2.000	2.000



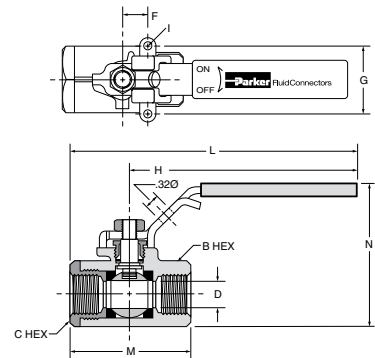
Short Handle, Female Pipe Ends, Panel Mount V502SS-X-20

PART NO.	PIPE THREAD (NPT)	B/C HEX	G	H	L	M	N	FLOW DIA. D
V502SS-4-20	1/4	15/16	1.12	2.28	3.32	2.07	2.53	.375
V502SS-6-20	3/8	15/16	1.12	2.28	3.32	2.07	2.53	.375
V502SS-8-20	1/2	1-1/16	1.12	2.22	3.37	2.25	2.63	.500



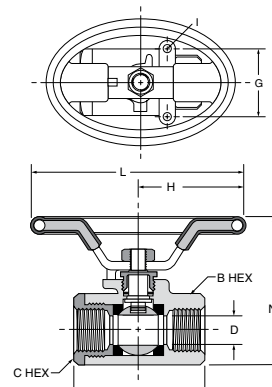
Locking Handle, Female Pipe Ends, Panel Mount VP502SS

PART NO.	PIPE THD (NPT)	B/C HEX	F	G	H	I THREAD	L	M	N	PANEL FLOW DIA. D	HOLE DIA.
VP502SS-4	1/4	15/16	.500	1.125	4.00	10-24 UNC	5.03	2.07	2.52	.380	1.125
VP502SS-6	3/8	15/16	.500	1.125	4.00	10-24 UNC	5.03	2.07	2.52	.380	1.125
VP502SS-8	1/2	1-1/16	.500	1.125	4.00	10-24 UNC	5.13	2.27	2.65	.500	1.125
VP502SS-12	3/4	1-3/8	.875	1.375	5.00	10-24 UNC	6.67	3.35	3.46	.790	1.500
VP502SS-16	1	1-5/8	.875	1.375	5.00	10-24 UNC	6.77	3.54	3.74	1.000	1.500
VP502SS-20	1-1/4	2	1.000	1.500	7.00	1/4-20 UNC	9.00	4.00	4.55	1.250	2.000
VP502SS-24	1-1/2	2-3/8	1.000	1.500	7.00	1/4-20 UNC	7.19	4.38	5.42	1.500	2.000
VP502SS-32	2	3	1.000	1.500	7.00	1/4-20 UNC	9.75	5.50	5.68	2.000	2.000



Oval Handle, Female Pipe Ends, Panel Mount V502SS-X-21

PART NO.	PIPE THD (NPT)	B/C HEX	G	H	L	I THREAD	M	N	PANEL FLOW DIA. D	HOLE DIA.
V502SS-4-21	1/4	15/16	1.125	1.74	3.48	10-24 UNC	2.07	2.43	.380	1.125
V502SS-6-21	3/8	15/16	1.125	1.74	3.48	10-24 UNC	2.07	2.43	.380	1.125
V502SS-8-21	1/2	1-1/16	1.125	1.74	3.48	10-24 UNC	2.27	2.54	.500	1.125
V502SS-12-21	3/4	1-3/8	1.375	2.68	5.36	10-24 UNC	3.35	3.45	.790	1.500
V502SS-16-21	1	1-5/8	1.375	2.68	5.36	10-24 UNC	3.54	3.74	1.000	1.500



WARNING These products can expose you to chemicals including NICKEL, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ball Valves Micro Series 708/709



Product Features:

- Brass Body
- Chrome Plated Brass Ball
- PTFE Seats/Seals
- Nitrile Stem Seal
- Chrome Plated Steel Handle

Style:

- MV-Micro Valve

Type:

- 708-Male/Female
- 709-Female/Female

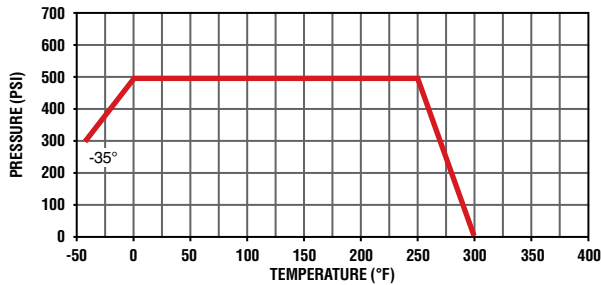
Specifications:

Pressure Range:

- Up to 500 PSI (34.4 bar)
- Vacuum service 29 inches Hg

Temperature Range

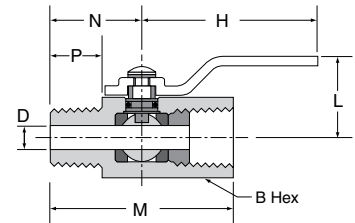
- -35° to +300° F (-37.2 to +148.8° C)



FLOW DATA		
VALVE SIZE	MV708 CV	MV709 CV
1/4	.95	.95

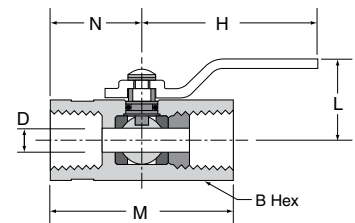
Male-Female Pipe Ends, Mini Ball Valve MV708

PART NO.	PIPE THREAD	B HEX	H	L	M	N	P	FLOW DIA. D
MV708-2	1/8	9/16	1.18	.63	1.62	.93	.38	.180
MV708-4	1/4	11/16	1.52	.70	1.57	.79	.50	.210



Female Pipe Ends, Mini Ball Valve MV709

PART NO.	PIPE THREAD	B HEX	H	L	M	N	FLOW DIA. D
MV709-2	1/8	9/16	1.18	.63	1.52	.68	.180
MV709-4	1/4	11/16	1.52	.70	1.57	.76	.210



WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Ball Valves

Mini Series 200/608/609



Product Features:

- Chrome Plated Brass Body
- Chrome Plated Brass Ball
- PTFE Seats/Seals
- Fluorocarbon Stem Seal
- 608/609 Polyamide Wedge Handle
- 200 Polyamide Lever Handle

Style:

- MV-Mini Valve

Type:

- 608-Male/Female
- 609-Female/Female
- 200-Female/Female
- 21-Oval Handle

Specifications:

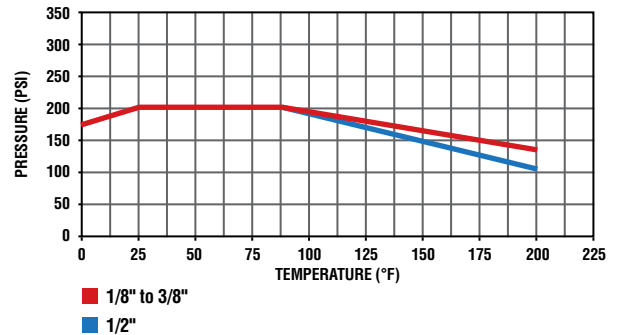
Pressure Range:

- MV200: 200 PSI (13.7 bar)
- MV608/609: Vacuum Service 28 Inches Hg
- MV608/609: 450 PSI (31.0 bar)

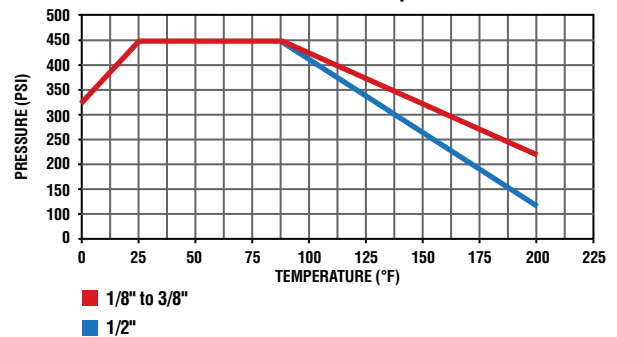
Temperature Range

- 0° to +200° F (-17.7° to +93.3° C)

MV200 Pressure and Temperature



MV608/609 Pressure and Temperature



FLOW DATA			
VALVE SIZE	MV200 CV	MV608 CV	MV609 CV
1/8	1.3	1.2	1.4
1/4	4.0	5.8	4.3
3/8	3.7	3.9	3.6
1/2	5.8	5.6	6.0

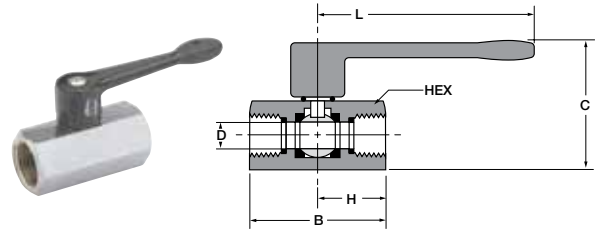
WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



[Click here for CADs, Product Specifications or to Configure Parts Online](#)

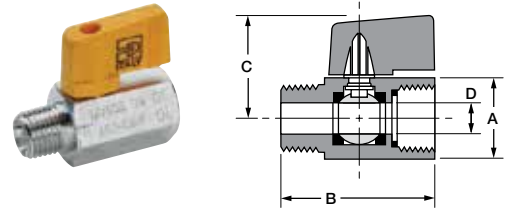
Female Pipe Ends, Lever Handle, Mini Ball Valve MV200

PART NO.	PIPE THREAD	HEX	B	C	H	L	FLOW DIA. D
MV200-2	1/8	.83	1.71	1.20	.91	2.83	.31
MV200-4	1/4	.83	1.71	1.20	.91	2.83	.31
MV200-6	3/8	.83	1.71	1.20	.91	2.83	.31
MV200-8	1/2	.98	2.11	1.28	1.10	2.83	.39



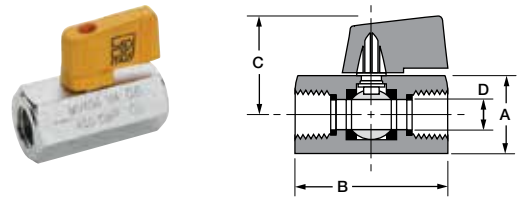
Male-Female Pipe Ends, Compact Handle, Mini Ball Valve MV608

PART NO.	PIPE THREAD	A HEX	B	C	FLOW DIA. D
MV608-2	1/8	.83	1.72	1.22	.20
MV608-4	1/4	.83	1.72	1.22	.31
MV608-6	3/8	.83	1.72	1.22	.31
MV608-8	1/2	.98	2.11	1.30	.39



Female Pipe Ends, Compact Handle, Mini Ball Valve MV609

PART NO.	PIPE THREAD	A HEX	B	C	FLOW DIA. D
MV609-2	1/8	.83	1.71	1.22	.24
MV609-4	1/4	.83	1.71	1.22	.31
MV609-6	3/8	.83	1.71	1.22	.31
MV609-8	1/2	.98	2.11	1.30	.39
MV609-6-4	3/8X1/4	.83	1.71	1.22	.31



WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ball Valves Polypropylene



Parker's Polypropylene Ball Valves offers a corrosion-resistant, all plastic design making them ideal for water filtration units, coffee and beverage machines and a wide variety of other fluid applications.

Product Features:

- Wide chemical acceptance range
- Bi-directional flow maximizes productivity
- Full flow reduces pressure drop across valve
- EPDM seals
- Push-in and barbed connections
- Meets FDA and NSF/ANSI 51 requirements for food contact

Advantages:

- Reduce costs – Built in LIQUIfit, TrueSeal and Par-Barb connections eliminates the need for a secondary fitting.
- Save Space – Low-profile design allows for easy assembly and access where space is a concern.

Type:

- LFPP – LIQUIfit
- PP – TrueSeal
- PBPP – Par-Barb

Specifications:

Pressure Range Up to 150 PSI (10.3 bar)

Temperature Range

LIQUIfit: 35° to +200° F (+1.7° to +93.3° C)

Par-Barb: 35° to +200° F (+1.7° to +93.3° C)

TrueSeal: 0° to +225° F (-17.8° to +107.2° C)

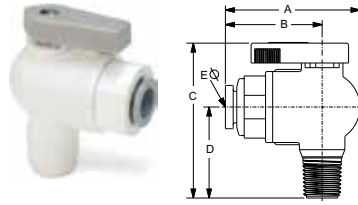
Assembly Instructions

1. Cut tubing squarely – maximum of 15° angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Mark tubing to appropriate tube insertion length. (see Tube Insertion Chart on page N22)
4. Insert tubing until it bottoms
5. Pull on tubing to verify it is fully inserted
6. To disassemble, simply press release button, hold against body and pull tubing out of fitting.

WARNING These products can expose you to chemicals including CARBON BLACK, or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

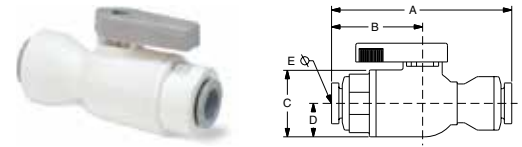


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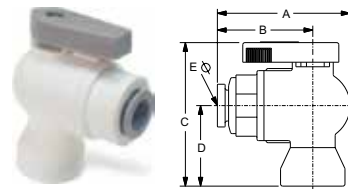
VME - Valve Male Elbow

PART NO.	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VME2	1/4	1/8	1.74	1.21	2.00	1.10	.19
LFPP4VME4	1/4	1/4	1.74	1.21	2.18	1.28	.19
LFPP4VME6	1/4	3/8	1.74	1.21	2.18	1.28	.19
LFPP4VME8	1/4	1/2	1.74	1.21	2.37	1.47	.19
LFPP6VME2	3/8	1/8	1.85	1.32	2.00	1.10	.25
LFPP6VME4	3/8	1/4	1.85	1.32	2.18	1.28	.25
LFPP6VME6	3/8	3/8	1.85	1.32	2.18	1.28	.25
LFPP6VME8	3/8	1/2	1.85	1.32	2.37	1.47	.25



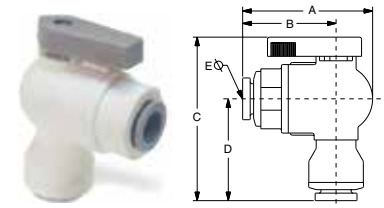
VUC - Valve Union Connector Metric

PART NO.	1 TUBE SIZE MM	2 TUBE SIZE MM	A MM	B MM	C MM	D MM	ØE THRU HOLE MIN. MM
LFPP6MVUC6M	6	6	.57	.27	.36	.13	.19
LFPP8MVUC8M	8	8	.60	.27	.36	.13	.25
LFPP10MVUC10M	10	10	.70	.33	.36	.13	.33
LFPP12MVUC12M	12	12	.88	.43	.36	.13	.37



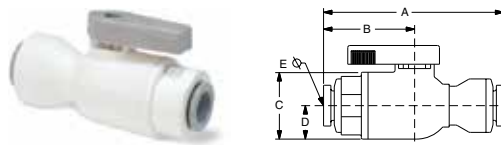
VFE - Valve Female Elbow

PART NO.	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VFE2	1/4	1/8	1.74	1.21	1.82	.92	.19
LFPP4VFE4	1/4	1/4	1.74	1.21	2.05	1.15	.19
LFPP4VFE6	1/4	3/8	1.74	1.21	2.18	1.28	.19
LFPP6VFE2	3/8	1/8	1.85	1.32	1.82	.92	.25
LFPP6VFE4	3/8	1/4	1.85	1.32	2.05	1.15	.25
LFPP6VFE6	3/8	3/8	1.85	1.32	2.18	1.28	.25



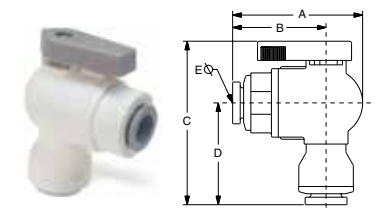
VEU - Valve Elbow Union

PART NO.	1 TUBE SIZE	2 TUBE SIZE	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VEU4	1/4	1/4	1.75	1.22	2.33	1.42	.19
LFPP4VEU6	1/4	3/8	1.75	1.22	2.33	1.42	.11
LFPP6VEU4	3/8	1/4	1.83	1.30	2.32	1.40	.19
LFPP6VEU6	3/8	3/8	1.85	1.32	2.34	1.44	.25



VUC - Valve Union Connector

PART NO.	1 TUBE SIZE	2 TUBE SIZE	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VUC4	1/4	1/4	2.55	1.22	1.0	.5	.19
LFPP4VUC6	1/4	3/8	2.57	1.30	1.0	.5	.19
LFPP6VUC6	3/8	3/8	2.67	1.32	1.4	.5	.25



VEU - Valve Elbow Union Metric

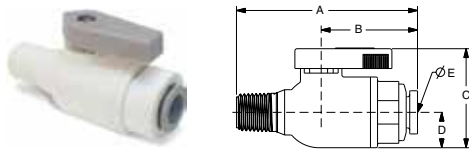
PART NO.	1 TUBE SIZE MM	2 TUBE SIZE MM	A MM	B MM	C MM	D MM	ØE THRU HOLE MIN. MM
LFPP6MVEU6M	6	6	.41	.27	.55	.31	.19
LFPP8MVEU8M	8	8	.41	.28	.56	.33	.25
LFPP10MVEU10M	10	10	.48	.33	.61	.38	.33

NOTE: PPL refers to Polypropylene. FCB refers to Fluorocarbon.

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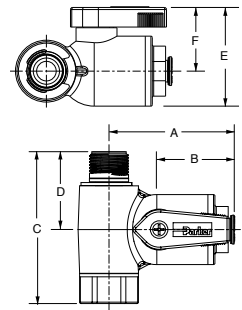


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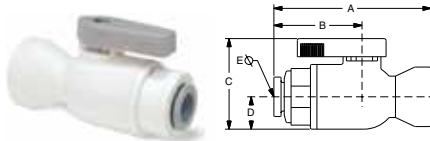
VMC - Valve Male Connector

PART NO.	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VMC2	1/4	1/8	2.22	1.21	1.4	.5	.19
LFPP4VMC4	1/4	1/4	2.40	1.21	1.4	.5	.19
LFPP4VMC6	1/4	3/8	2.40	1.21	1.4	.5	.19
LFPP4VMC8	1/4	1/2	2.59	1.21	1.4	.5	.19
LFPP6VMC2	3/8	1/8	2.33	1.32	1.4	.5	.25
LFPP6VMC4	3/8	1/4	2.51	1.32	1.4	.5	.25
LFPP6VMC6	3/8	3/8	2.51	1.32	1.4	.5	.25
LFPP6VMC8	3/8	1/2	2.70	1.32	1.4	.5	.25



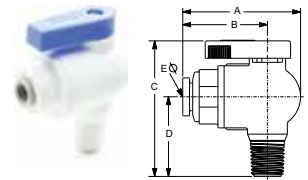
VAS - Valve Angle Stop

PART NO.	TUBE O.D.	MALE THD.	FEMALE THD.	A	B	C	D	E	F
LFPP4VAS6	1/4	3/8	3/8	1.95	1.24	2.17	1.11	1.41	.91
LFPP4VAS8	1/4	3/8	1/2	1.95	1.24	2.40	1.11	1.41	.91
LFPP6VAS6	3/8	3/8	3/8	2.06	1.35	2.17	1.11	1.41	.91
LFPP6VAS8	3/8	3/8	1/2	2.06	1.35	2.40	1.11	1.41	.91



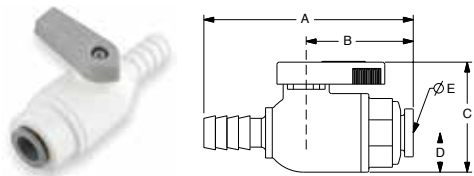
VFC - Valve Female Connector

PART NO.	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VFC2	1/4	1/8	2.04	1.21	1.4	.5	.19
LFPP4VFC4	1/4	1/4	2.27	1.21	1.4	.5	.19
LFPP4VFC6	1/4	3/8	2.40	1.21	1.4	.5	.19
LFPP6VFC2	3/8	1/8	2.15	1.32	1.4	.5	.25
LFPP6VFC4	3/8	1/4	2.38	1.32	1.4	.5	.25
LFPP6VFC6	3/8	3/8	2.51	1.32	1.4	.5	.25



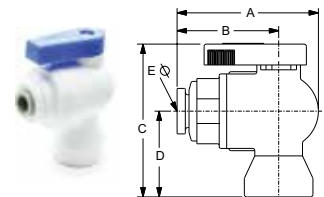
VME - Valve Male Elbow

PART NUMBER	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
PP4VME2-MG (+)	1/4	1/8	1.74	1.21	2.00	1.10	.19
PP4VME4-MG	1/4	1/4	1.74	1.21	2.18	1.28	.19
PP4VME6-MG	1/4	3/8	1.74	1.21	2.18	1.28	.19
PP4VME8-MG (+)	1/4	1/2	1.74	1.21	2.37	1.47	.19
PP6VME2-MG (+)	3/8	1/8	1.85	1.32	2.00	1.10	.25
PP6VME4-MG	3/8	1/4	1.85	1.32	2.18	1.28	.25
PP6VME6-MG	3/8	3/8	1.85	1.32	2.18	1.28	.25
PP6VME8-MG	3/8	1/2	1.85	1.32	2.37	1.47	.25



VUCPB - Valve Union Connector Barbed x Tube

PART NO.	HOSE ID	TUBE OD	OD	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VUCPB4	1/4	1/4	.31	2.40	1.08	1.42	.50	.15
LFPP6VUCPB6	3/8	3/8	.43	2.63	1.32	1.42	.50	.19



VFE - Valve Female Elbow

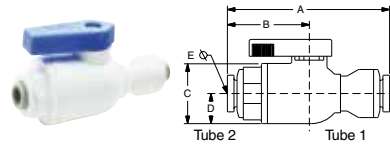
PART NUMBER	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
PP4VFE2-MG (+)	1/4	1/8	1.74	1.21	1.82	.92	.19
PP4VFE4-MG	1/4	1/4	1.74	1.21	2.05	1.15	.19
PP4VFE6-MG	1/4	3/8	1.74	1.21	2.18	1.28	.19
PP6VFE2-MG (+)	3/8	1/8	1.85	1.32	1.82	.92	.25
PP6VFE4-MG	3/8	1/4	1.85	1.32	2.05	1.15	.25
PP6VFE6-MG	3/8	3/8	1.85	1.32	2.18	1.28	.25

[+] Non Standard.

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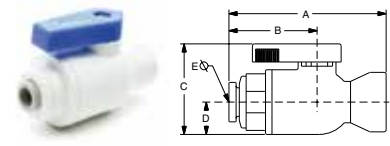
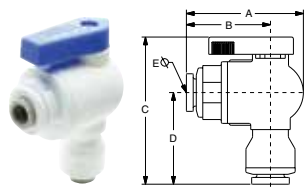


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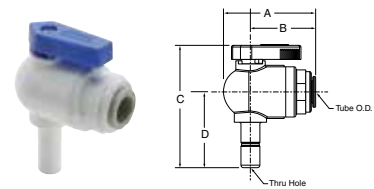
VUC - Valve Union Connector

PART NUMBER	1 TUBE SIZE	2 TUBE SIZE	A	B	C	D	ØE THRU HOLE MIN.
PP4VUC4-MG	1/4	1/4	2.55	1.22	1.0	.5	.19
PP4VUC6-MG	1/4	3/8	2.55	1.22	1.0	.5	.19
PP6VUC4-MG	3/8	1/4	2.57	1.30	1.0	.5	.19
PP6VUC6-MG	3/8	3/8	2.67	1.32	1.4	.5	.25



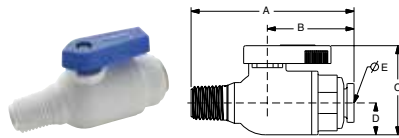
VFC - Valve Female Connector

PART NUMBER	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
PP4VFC2-MG	1/4	1/8	2.04	1.21	1.4	.5	.19
PP4VFC4-MG	1/4	1/4	2.27	1.21	1.4	.5	.19
PP4VFC6-MG	1/4	3/8	2.40	1.21	1.4	.5	.19
PP6VFC2-MG	3/8	1/8	2.15	1.32	1.4	.5	.25
PP6VFC4-MG	3/8	1/4	2.38	1.32	1.4	.5	.25
PP6VFC6-MG	3/8	3/8	2.51	1.32	1.4	.5	.25



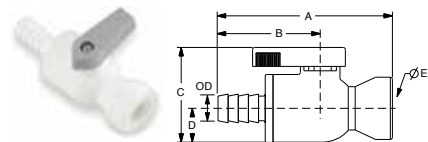
VEU - Valve Elbow Union

PART NUMBER	1 TUBE SIZE	2 TUBE SIZE	A	B	C	D	ØE THRU HOLE MIN.
PP4VEU4-MG	1/4	1/4	1.75	1.22	2.33	1.42	.19
PP4VEU6-MG	1/4	3/8	1.75	1.22	2.33	1.42	.11
PP6VEU4-MG	3/8	1/4	1.83	1.30	2.32	1.40	.19
PP6VEU6-MG	3/8	3/8	1.85	1.32	2.34	1.44	.25



VTEU - Valve Tube Elbow Union

PART NUMBER	NOM. TUBE O.D.	STEM	A	B	C	D	ØE THRU HOLE MIN.
PP4VTEU6-MG	1/4	3/8	1.75	1.22	2.43	1.50	.17
PP6VTEU6-MG	3/8	3/8	1.83	1.30	2.43	1.50	.25



VMC - Valve Male Connector

PART NUMBER	NOM. TUBE O.D.	NPTF THREAD SIZE	A	B	C	D	ØE THRU HOLE MIN.
PP4VMC2-MG (+)	1/4	1/8	2.22	1.21	1.4	.5	.19
PP4VMC4-MG	1/4	1/4	2.40	1.21	1.4	.5	.19
PP4VMC6-MG	1/4	3/8	2.40	1.21	1.4	.5	.19
PP4VMC8-MG (+)	1/4	1/2	2.59	1.21	1.4	.5	.19
PP6VMC2-MG (+)	3/8	1/8	2.33	1.32	1.4	.5	.25
PP6VMC4-MG	3/8	1/4	2.51	1.32	1.4	.5	.25
PP6VMC6-MG	3/8	3/8	2.51	1.32	1.4	.5	.25
PP6VMC8-MG (+)	3/8	1/2	2.70	1.32	1.4	.5	.25

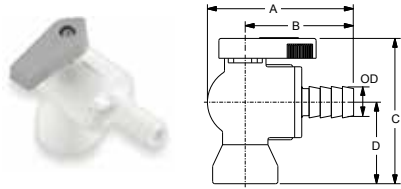
VFC - Valve Barbed Female Connector

PART NO.	HOSE I.D.	NPTF THD.	O.D.	A	B	C	D	ØE THRU HOLE MIN.
PBPP4VFC4	1/4	1/4	.31	2.76	1.60	1.41	.50	.15
PBPP6VFC6	3/8	3/8	.43	2.79	1.60	1.41	.50	.19

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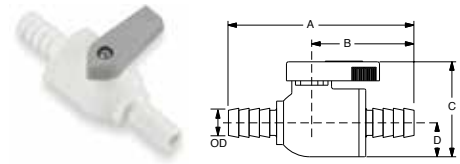


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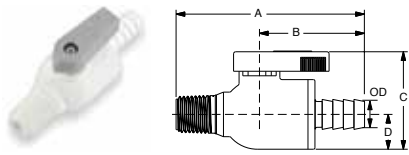
VFE - Valve Barbed Female Elbow

PART NO.	HOSE I.D.	NPTF THD.	O.D.	A	B	C	D	ØE THRU HOLE MIN.
PBPP4VFE4	1/4	1/4	.31	2.13	1.60	2.05	1.15	.15
PBPP6VFE4	3/8	1/4	.43	2.13	1.60	2.05	1.15	.15
PBPP6VFE6	3/8	3/8	.43	2.13	1.60	2.18	1.28	.19



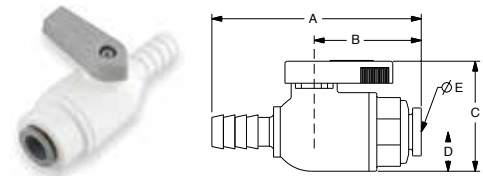
VUC - Valve Barbed Union Connector

PART NO.	HOSE I.D.	O.D.	A	B	C	D	ØE THRU HOLE MIN.
PBPP4VUC4	1/4	.31	2.91	1.60	1.42	.50	.15
PBPP6VUC6	3/8	.43	2.91	1.60	1.42	.50	.19
PBPP8VUC8	1/2	.55	2.91	1.60	1.42	.50	.25



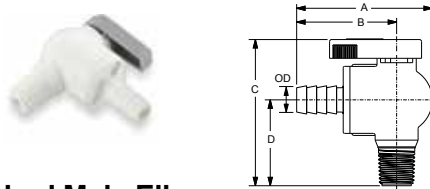
VMC - Valve Barbed Male Connector

PART NO.	HOSE I.D.	NPTF THD.	O.D.	A	B	C	D	ØE THRU HOLE MIN.
PBPP4VMC4	1/4	1/4	.31	2.79	1.60	1.42	.50	.15
PBPP6VMC6	3/8	3/8	.43	2.79	1.60	1.42	.50	.19



VUCPB - Valve Union Connector Barbed x Tube

PART NO.	HOSE ID	TUBE OD	OD	A	B	C	D	ØE THRU HOLE MIN.
LFPP4VUCPB4	1/4	1/4	.31	2.40	1.08	1.42	.50	.15
LFPP6VUCPB6	3/8	3/8	.43	2.63	1.32	1.42	.50	.19

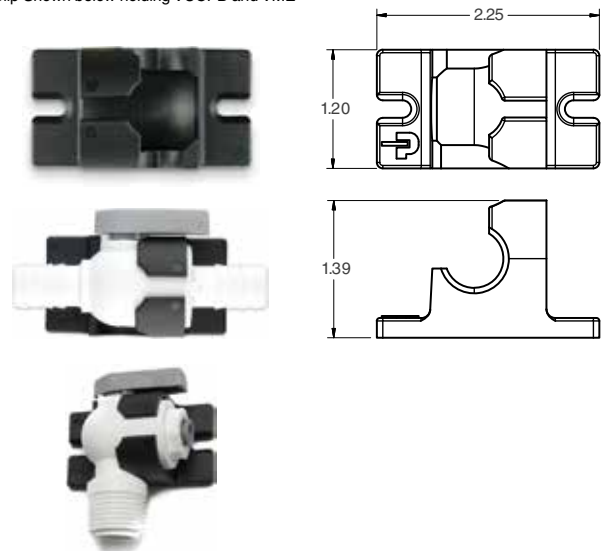


VME - Valve Barbed Male Elbow

PART NO.	HOSE I.D.	NPTF THD.	O.D.	A	B	C	D	ØE THRU HOLE MIN.
PBPP4VME4	1/4	1/4	.31	2.13	1.60	2.18	1.28	.15
PBPP6VME6	3/8	3/8	.43	2.13	1.60	2.18	1.28	.19

BVC Ball Valve Clip

BV-Clip Shown below holding VUCPB and VME



VEU - Parbarb Elbow Ball Valve

PART NO.	HOSE I.D.	O.D.	A	B	C	D	ØE THRU HOLE MIN.
PBPP4VEU4	1/4	.31	2.13	1.57	2.32	1.40	.15
PBPP6VEU6	3/8	.43	2.13	1.60	2.32	1.40	.25
PBPP8VEU8	1/2	.55	2.13	1.60	2.32	1.40	.25

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Plug Valves Series PV

Product Features:

- Extruded Brass Body
- One Piece Stem/Handle
- Acetal Stem/Handle
- 100% Leak Tested

Style:

- PV-Plug Valve

Type:

- 607-Male/Male
- 608-Male/Female
- 609-Female/Female

Specifications:

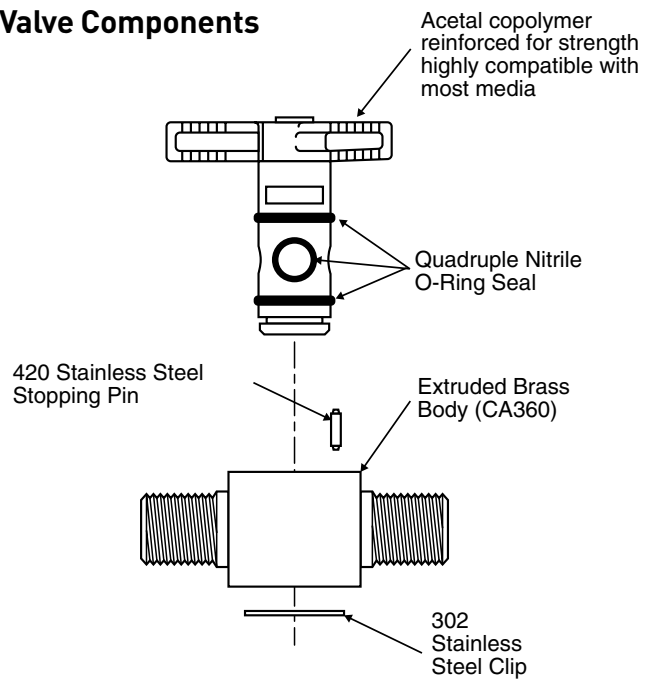
Pressure Range:

- Up to 250 PSI (17.2 bar)

Temperature Range

- -40° to +175° F (-40° to +79.4° C)

Valve Components



Assembly Instructions

To assure sealability and reliable performance, the valve must be installed so that the flow media travels in the direction of the arrow on the valve handle.



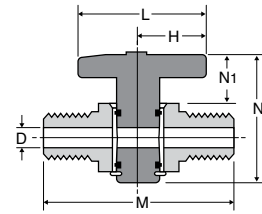
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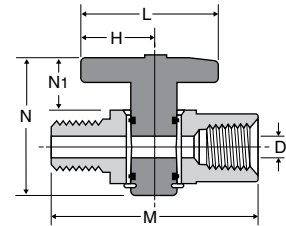
Male Pipe to Male Pipe Plug Valve PV607

PART NO.	PIPE THREAD	H	L	M	N	N1	FLOW DIA. D
PV607-2	1/8	.67	1.34	1.66	1.38	.51	.200
PV607-4	1/4	.67	1.34	2.02	1.38	.51	.200



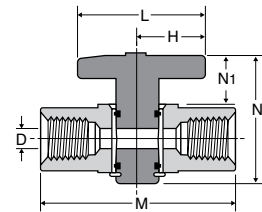
Female Pipe to Male Pipe Plug Valve PV608

PART NO.	PIPE THREAD	H	L	M	N	N1	FLOW DIA. D
PV608-2	1/8	.67	1.34	1.67	1.38	.51	.200
PV608-4	1/4	.67	1.34	2.06	1.38	.51	.200



Female Pipe to Female Pipe Plug Valve PV609

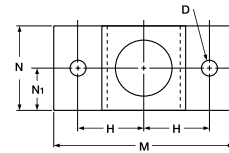
PART NO.	PIPE THREAD	H	L	M	N	N1	FLOW DIA. D
PV609-2	1/8	.67	1.34	1.68	1.38	.51	.200
PV609-4	1/4	.67	1.34	2.10	1.38	.51	.200



Mounting Bracket PVMB-001

PART NO.	H	M	N	N1	D
PVMB-001	.68	1.86	.90	.45	.135

Note: 1" diameter hole required in panel when using mounting bracket



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Ball Valves

Rotary Actuator Series ACT



Product Features:

- One Piece Aluminum Extrusion Body
- PTFE Seals
- Stainless Steel Shaft
- Self Lubricated Vane Seal
- Anodized Aluminum Extrusion Vane

Specifications:

Pressure Range:

- 150 PSI (10.3 bar)
Maximum Air Pressure to Actuator
- Vacuum service 28 inches Hg

Temperature Range

- -40° to +180° F (-40° to +82.2° C)

How Do Vane Actuators Work?

Parker vane actuators provide the maximum amount of output torque from the smallest possible envelope size. They convert fluid power pressure into rotary motion for a wide variety of industrial applications. Double vane units produce twice the torque output of single vane actuators from identical envelope dimensions and have a maximum rotation of 95°.

A short cylindrical chamber encloses a vane attached to a central shaft. Fluid pressure differential is applied through a stationary barrier (stator) within the cylinder to one side of the vane. The opposite side of the vane is connected to exhaust through the stator. This pressure differential produces rotation of the vane and central shaft. Due to vane actuator design there will always be some internal bypass in these units.

Rotary Actuator Series ACT Features

(See figure 1, next page)

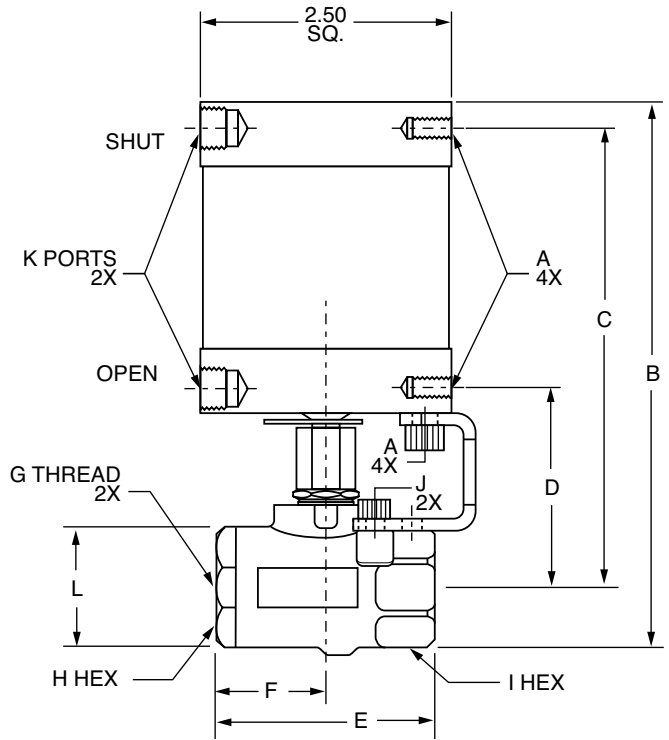
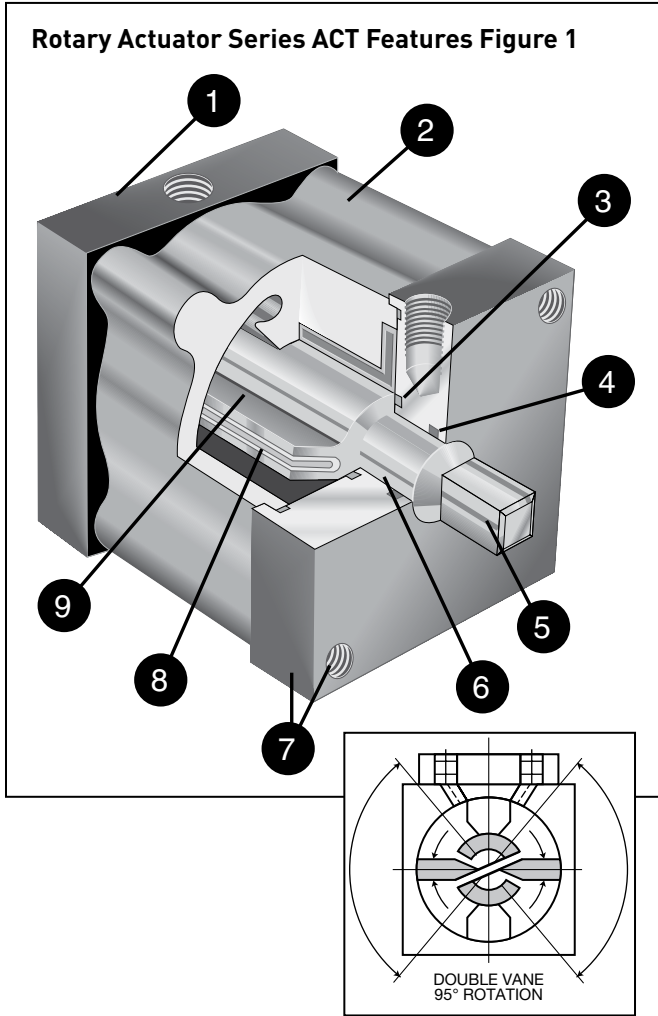
1. **Heads**-are precision machined from aluminum, then hard-coat anodized and PTFE impregnated to ensure long seal life and low breakaway pressure.
2. **Body** - is machined from a one-piece aluminum extrusion that incorporates the stator for superior rigidity. The extrusion is hard-coat anodized and PTFE impregnated, resulting in a smooth, slick seal surface which guarantees long seal life and low breakaway pressure.
3. **Shoulder Seal** - a nitrile-energized, PTFE seal is used to reduce bypass flow and friction, providing superior performance and long life.
4. **Shaft Seal** - the high-quality, self-lubricated, abrasion-resistant nitrile seal is a multiple lobe construction for leakfree operation and greater reliability.
5. **Shaft** - stainless steel provides high strength and corrosion resistance for the most demanding applications.
6. **Bearings** - hard-coat anodized aluminum-bearing surface with permanent solid film lubricant provides substantial shaft support and wear resistance, ensuring continuous lubrication, high performance, and long life.
7. **Mounting** - combination face and base mounting offer flexibility in application and design.
8. **Vane Seal** - a special self-lubricated, abrasion-resistant nitrile compound is molded into a one-piece vane seal, providing low breakaway pressure and long life, even with no lubrication. The vane seal is also removable so that field repairs can be made, if necessary.
9. **Vane** - a hard-coat anodized aluminum extrusion permanently affixed to shaft, forming a structurally sound assembly. The light weight also reduces inertia allowing faster operating speeds.



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Rotary Actuator, Female Pipe Ends V502P-X-ACT

PART NO.	SIZE	A MTG. HOLES	B	C	D	E	F	G	H HEX	I HEX	J UNC	K NPTF	L	FLOW DIA.	FLOW CV	MIN. ACT PRESSURE (PSI)
V502P-4-ACT	1/4	1/4-20 UNC	5.25	4.47	1.91	2.03	1.00	1/4-18PTF	15/16	15/16	10-24	1/8-27	1.06	.375	4.0	50
V502P-6-ACT	3/8	1/4-20 UNC	5.25	4.47	1.91	2.03	1.00	3/8-18PTF	15/16	15/16	10-24	1/8-27	1.06	.375	5.8	50
V502P-8-ACT	1/2	1/4-20 UNC	5.38	4.54	1.98	2.20	1.09	1/2-14PTF*	1-1/16	1-1/16	10-24	1/8-27	1.19	.500	12.0	50
V502P-12-ACT	3/4	1/4-20 UNC	5.57	4.63	2.07	2.42	1.29	3/4-14PTF**	1-5/16	1-1/4	10-24	1/8-27	1.38	.685	25.0	75
V502P-16-ACT	1	1/4-20 UNC	5.85	4.76	2.20	2.75	1.38	1-11.5PTF**	1-9/16	1-1/2	10-24	1/8-27	1.67	.875	35.0	75

Stainless Steel Rotary Actuator, Female Pipe Ends V502SS-X-ACT

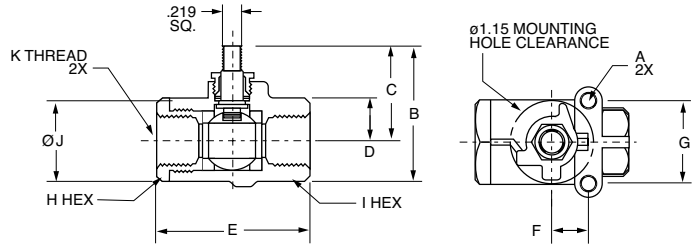
PART NO.	SIZE	A MTG. HOLES	B	C	D	E	F	G	H/I HEX	J	K NPTF	L	FLOW DIA.	FLOW CV
V502SS-4-ACT	1/4	1/4-20 UNC	5.41	4.61	2.05	2.07	1.04	1/4-18 NPT	15/16	10-24	1/8-27	1.10	.375	4.0
V502SS-6-ACT	3/8	1/4-20 UNC	5.41	4.61	2.05	2.07	1.04	3/8-18 NPT	15/16	10-24	1/8-27	1.10	.375	6.0
V502SS-8-ACT	1/2	1/4-20 UNC	5.53	4.64	2.08	2.27	1.17	1/2-14 NPT	1 1/16	10-24	1/8-27	1.28	.500	14.0

*Ptf Special Short. **Ptf Special Extra Short

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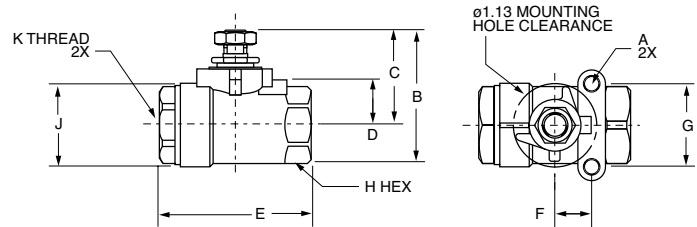
Click here for CADs, Product Specifications or to Configure Parts Online



Actuator Sub-Assembly V502P-X-SUB

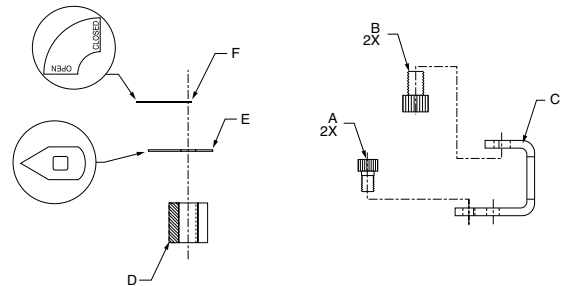
PART NO	SIZE	A UNC	B	C	D	E	F	G	H HEX	I HEX	J	K
V502P-4-SUB	1/4	10-24	1.68	1.15	.495	2.03	.50	1.12	15/16	15/16	1.06	1/4-18 PTF
V502P-6-SUB	3/8	10-24	1.68	1.15	.495	2.03	.50	1.12	15/16	15/16	1.06	3/8-18 PTF
V502P-8-SUB	1/2	10-24	1.78	1.19	.565	2.20	.50	1.12	1-1/16	1-1/16	1.19	1/2-14 PTF*
V502P-12-SUB	3/4	10-24	2.09	1.40	.655	2.42	.87	1.37	1-5/16	1-1/4	1.38	3/4-14 PTF**
V502P-16-SUB	1	10-24	2.38	1.54	.785	2.75	.87	1.37	1-9/16	1-1/2	1.67	1-11.5 PTF**

* PTF Special Short
 ** PTF Special Extra Short



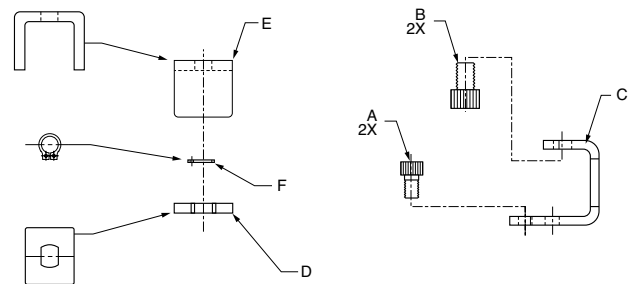
Actuator Sub-Assembly V502SS-X-SUB

PART NO	SIZE	A UNC	B	C	D	E	F	G	H HEX	J	K
V502SS-4-SUB	1/4	10-24	1.88	1.32	.63	2.07	.50	1.12	15/16	1.10	1/4-18 NPT
V502SS-6-SUB	3/8	10-24	1.88	1.32	.63	2.07	.50	1.12	15/16	1.10	3/8-18 NPT
V502SS-8-SUB	1/2	10-24	2.00	1.35	.66	2.27	.50	1.12	1-1/16	1.28	1/2-14 NPT



ACT-P-X-KIT

PART NO.	FOR USE WITH	A	B	C	D	E	F
ACT-P-1-KIT	V502P-4, 6, 8-ACT	10-24 UNC	1/4-20 UNC	BRACKET	.60 LONG COUPLING	POSITION INDICATOR	POSITION LABEL
ACT-P-2-KIT	V502P-12, 16-ACT	10-24 UNC	1/4-20 UNC	BRACKET	.55 LONG COUPLING	POSITION INDICATOR	POSITION LABEL



ACT-SS-X-KIT

PART NO.	FOR USE WITH	A	B	C	D	E	F
ACT-SS-1-KIT	V502SS-4, 6, 8-ACT	10-24 UNC	1/4-20 UNC	BRACKET	CLIP	HANDLE YOKE	SNAP RING

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Ball Valve Series BVGL

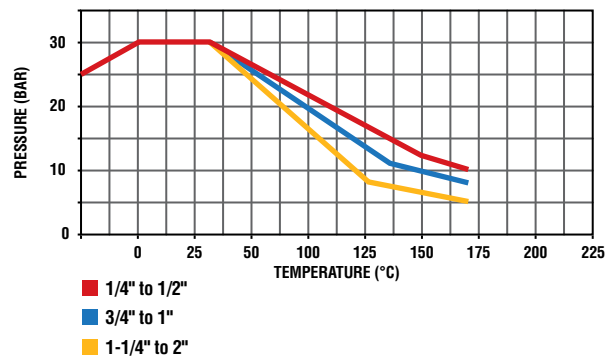


Product Features:

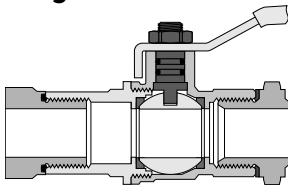
- Nickel plated brass body
- Chrome plated brass ball
- PTFE seats/seals
- Fluorocarbon stem seal

Specifications:

- Female threads manufactured in accordance to DIN 2999/ISO 228

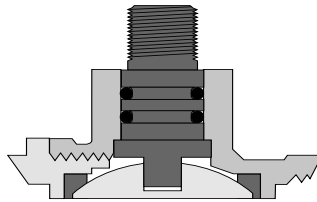


Advantages



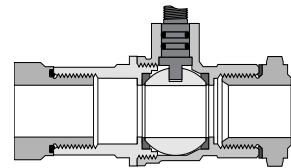
Long female threads

BVGL series valves are manufactured with long female threads in accordance to DIN 2999/ISO 228. This enables the valves to be used with Prestolok and brass adaptors but also Parker's range of steel hydraulic fittings, e.g. Triple-Lok, O-Lok, EO, and BSPP coned adaptors.



Anti extrusion stem

The BVGL series ball valves are fitted with an anti extrusion stem to prevent blow out in the case of pressure peaks. The stem is sealed with two Fluorocarbon O-rings for maximum safety and performance.



Full flow

All BVGL series valves are full-flow. This limits the turbulence created by the passage of fluid across the valve, minimizing pressure drop.

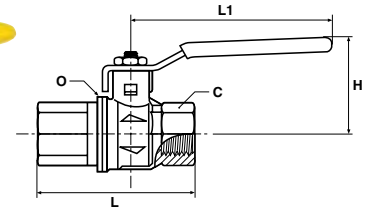


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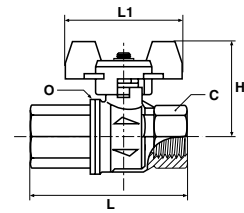
BVGL BSPP Female/Female Valve with Lever Handle

PART NO.	DN MM	THREAD BSPP	C	H	L	L1	O
BVG4-1/4L	8	1/4	20	38	50	82	25.0
BVG4-3/8L	10	3/8	20	38	60	82	25.0
BVG4-1/2L	15	1/2	25	43	75	100	32.5
BVG4-3/4L	20	3/4	32	50	80	120	39.0
BVG4-1L	25	1	41	54	90	120	47.5
BVG4-1.1/4L	32	1 1/4	50	73	110	158	59.0
BVG4-1.1/2L	40	1 1/2	55	79	120	158	71.5
BVG4-2L	50	2	70	86	140	158	86.0



BVGTL BSPP Female/Female Valve with Compact Handle

PART NO.	DN MM	THREAD BSPP	C	H	L	L1	O
BVGT4-1/4L	8	1/4	20	39	50	50	25.0
BVGT4-3/8L	10	3/8	20	39	60	50	25.0
BVGT4-1/2L	15	1/2	25	43	75	50	32.5
BVGT4-3/4L	20	3/4	32	47	80	60	39.0
BVGT4-1L	25	1	41	51	90	60	47.5



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Ball Valve Series BVGLOCK

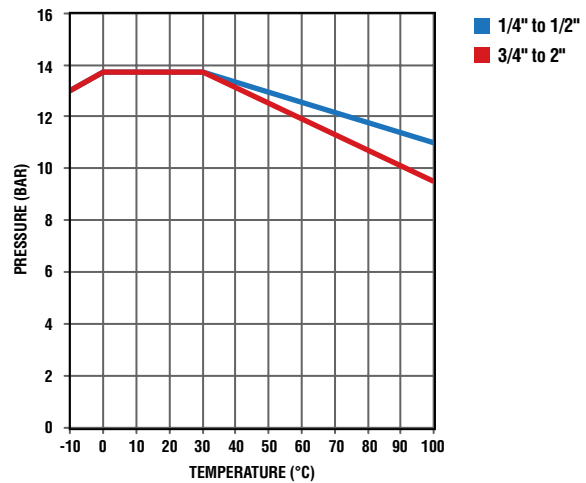


Product Features:

- Nickel plated brass body
- Chrome plated brass ball
- PTFE seats /seals
- PTFE packing gland
- Carbon steel handle

Specifications:

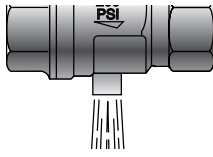
- Meets the requirements of European directive DI 89/392/CEE relating to the isolation of power supply and to meet the health and safety requirements for machines and materials in paragraphs L233-5 of the code DU Travail.



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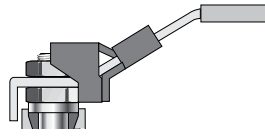


Advantages



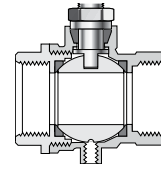
Threaded Exhaust

BVGLOCK series ball valves are manufactured with an exhaust port, this safety feature enables the downstream air pressure to be vented when the valve is closed. 1/4-1" have M5 thread. 1.1/4 and larger are not threaded.



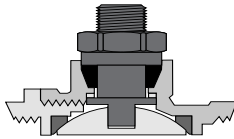
Lockable Handle

The BVGLOCK series ball valves are fitted with a handle that can be locked in the closed position with a padlock. This safety feature ensures the valve cannot be accidentally opened, and only authorized personnel can operate the valve.



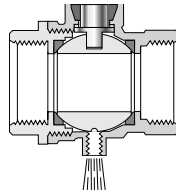
DIN 2999 / ISO 228 Female Threads

BVGLOCK series valves are manufactured with long female threads in accordance to DIN2999/ISO228. This enables the valves to be used with Prestolok and brass adaptors but also Parker's range of steel hydraulic fittings and EO-fittings form "A" or "C" to DIN 3852.



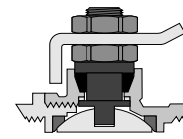
Anti Extrusion Stem

The BVGLOCK series ball valves are fitted with an anti-extrusion stem to prevent blow out in the case of pressure peaks.



Full Flow

All BVGLOCK series valves are full-flow. This limits the turbulence created by the passage of fluid across the valve, minimizing pressure drop.

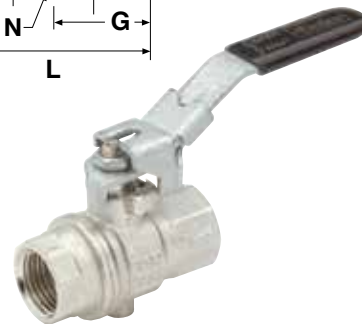
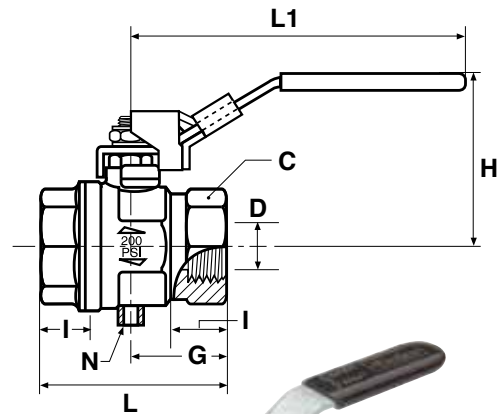


Adjustable Packing

The PTFE packing gland and adjustable washer are designed to give longer service life and lower operating torques.

BVG4PLOCK BSPP Female/Female, Vented, Locking Handle

PART NO.	D FLOW Ø	THREAD BSPP	C	G	H	I	L	L1	N
BVG4P-1/4 LOCK	8.0	1/4	20	22.5	47.5	12.0	45	96	M5
BVG4P-3/8 LOCK	9.5	3/8	20	22.5	47.5	12.0	45	96	
BVG4P-1/2 LOCK	15.0	1/2	25	29.5	52.0	15.5	59	96	
BVG4P-3/4 LOCK	19.0	3/4	31	32.0	59.5	17.0	64	117	
BVG4P-1 LOCK	24.0	1	40	40.5	63.5	21.0	81	117	
BVG4P-1.1/4LOCK	32.0	1-1/4	49	46.5	76.5	23.0	93	158	G1/4
BVG4P-1.1/2LOCK	40.0	1-1/2	54	51.0	82.5	23.0	102	158	
BVG4P-2LOCK	50.0	2	69	60.5	89.5	26.5	121	158	



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Axial Valves



Parker's Axial Valve incorporates both the valve and actuation function. With pneumatic or electro-pneumatic control, it avoids many of the restrictions associated with traditional actuators.

Product Features:

- Compact, up to 50% smaller than valves with separate actuators
- Simple to install
- Common sub-base for solenoid control
- Automation of the open/close function
- Operation independent of the upstream and downstream pressure in the circuit

Specifications:

Pressure Range:

- Up to 150 PSI (10.3 bar)

Vacuum Service:

- 29 in Hg

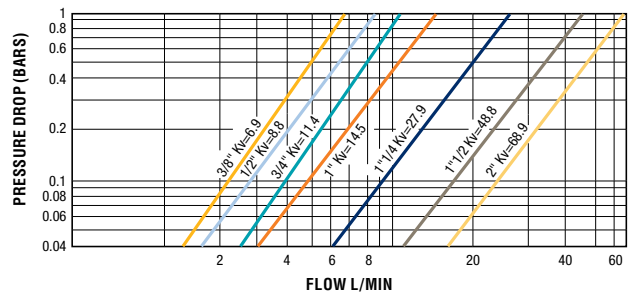
Pilot Pressure:

- NC: 60 to 115 PSI (4.1 to 7.9 bar)

Temperature Range:

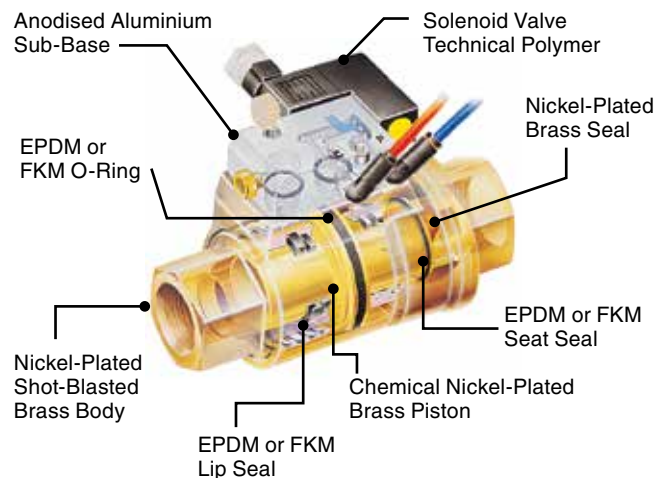
- -4° to +275° F (-20° to +135° C)

Water at ambient temperature under a 1 bar differential pressure.



Applications:

- Injection Molding
- Pneumatics
- Packaging
- Textile
- Printing
- Robotics



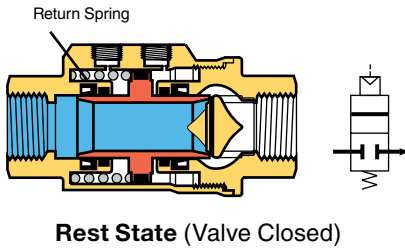
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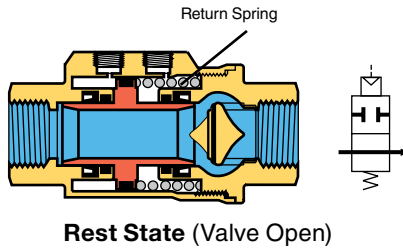
Operation

Depending on operational requirement, air is passed into the actuation chamber to open or close the valve.

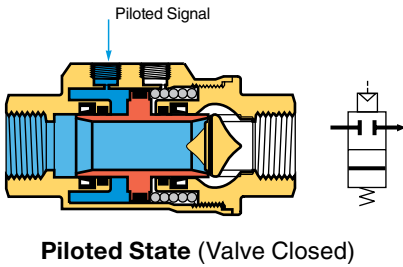
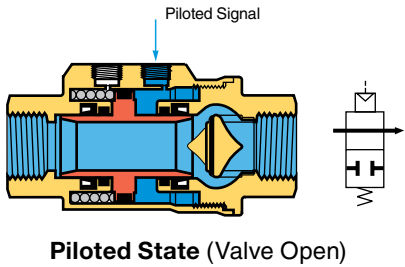
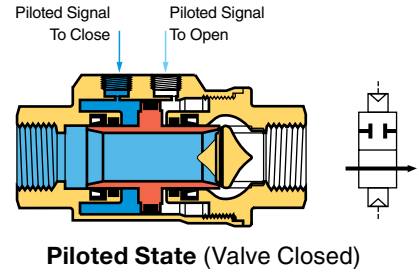
Normally Closed Axial Valve (NC)



Normally Open Axial Valve (NO)



Double-Acting Axial Valve (DE)



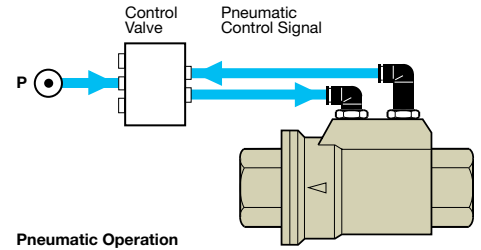
Installation Options

The Parker axial valve offers 3 different control methods dependant on the requirements of the installation:

Pneumatic Control

Example: Double-acting axial valve 4222

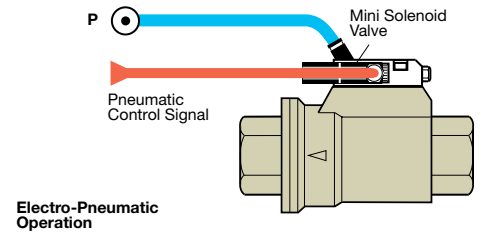
- Local compressed air control
- For repetitive on/off cycles
- Remote control where access to the machine is difficult
- For explosive or explosion prevention areas



Electro-Pneumatic Control

Example: Normally closed axial valve 4202

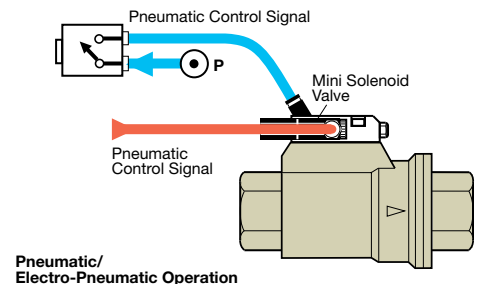
- Sub-base and mini-solenoid valve 4298
- For automated industrial systems requiring remote control
- Namur seating plane solenoid valve



Dual Pneumatic and Electro-Pneumatic Control

Example: Normally open axial valve 4212

- Sub-base and mini-solenoid valve 4298
- Pneumatic push-button 4299
- Dual control structure
- For increased safety: prevents localised operating errors
- Namur seating plane solenoid valve

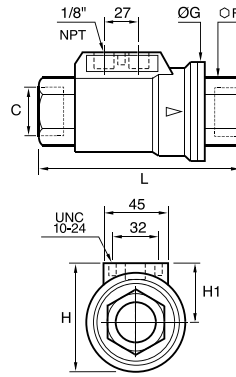


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4203 Normally Closed, Double Female – NPT

PART NO.	C NPT	DN	F MM	G IN	H IN	H1 IN	L IN	LB.
4203 10 18 20	3/8	10	22	1.81	2.12	1.21	3.60	1.79
4203 15 22 20	1/2	15	27	2.03	2.33	1.31	4.13	2.39
4203 20 28 20	3/4	20	33	2.50	2.76	1.51	4.92	3.60
4203 40 50 20	1 1/2	40	60	3.78	4.01	2.12	6.67	9.22
4203 50 44 20	2	50	75	4.29	4.50	2.35	7.39	14.02

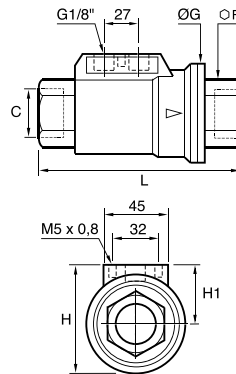
Pilot port: 1/8 - 27 NPT Complete with 1/8 NPT silencer



4202 Normally Closed, Double Female – BSPP

PART NO.	C BSPP	DN	F MM	G IN	H IN	H1 IN	L IN	KG.
4202 10 17 20	G3/8	10	22	46	54	31	98	.814
4202 15 21 20	G1/2	15	27	52	60	35	112	1.085
4202 20 27 20	G3/4	20	33	64	70	38	135	1.634
4202 25 34 20	G1	25	41	69	76	41.5	143	2.024
4202 32 42 20	G1 1/4	32	50	86	91	48	165	3.301
4202 40 49 20	G1 1/2	40	60	96	102	54	180	4.180
4202 50 48 20	G2	50	75	109	115	60.5	207	6.360

Pilot port: 1/8 BSPP Complete with 1/8 BSPT silencer



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Replacement Handles

	VALVE	PLATED STEEL LEVER W/COVER	S.S. LEVER (NO COVER)	S.S. LEVER W/COVER	TEE (NO COVER)	OVAL (W/COVER)	SHORT LEVER (NO COVER)	PLATED STEEL LKG. LEVER W/COVER	S.S. LOCKING LEVER W/COVER
V500P (501, 502, 506, 510, 590, 591)	-4	2560-10082	2566-00105		2566-00147	2566-00215	2566-00231	2560-10080	2560-10081
	-6	2560-10082	2566-00105		2566-00147	2566-00215	2566-00231	2560-10080	2560-10081
	-8	2560-10082	2566-00105		2566-00147	2566-00215	2566-00231	2560-10080	2560-10081
	-10	2560-10097	2566-00178		2566-00179			2566-10100	
	-12	2560-10097	2566-00178		2566-00179	2566-00180	—	2560-10100	2560-10101
	-16	2560-10097	2566-00178		2566-00179	2566-00180	—	2560-10100	2560-10101
	-20	2566-00143	2566-00153			—	2566-00142	2566-00135	—
	-24	2566-00143	2566-00153			—	2566-00142	2566-00135	—
V501SS & V502SS	-4	—		2566-00132	—	2566-00108	2566-00146	—	2566-00138
	-6	—		2566-00132	—	2566-00108	2566-00146	—	2566-00138
	-8	—		2566-00132	—	2566-00108	2566-00146	—	2566-00138
	-12	—		2566-00133	—	2566-00109	—	—	2566-00184
	-16	—		2566-00133	—	2566-00109	—	—	2566-00184
V502SS	-20	—		2566-00134	—	—	—	—	2566-00185
	-24	—		2566-00134	—	—	—	—	2566-00185
	-32	—		2566-00134	—	—	—	—	2566-00185
V500CS & V502CS	-4	2566-00158			2566-00170	2566-00166		2566-00162	
	-6	2566-00158			2566-00170	2566-00166		2566-00162	
	-8	2566-00158			2566-00171	2566-00166		2566-00162	
	-12	2566-00159			2566-00172	2566-00167		2566-00163	
	-16	2566-00159			2566-00172	2566-00167		2566-00163	
	-20	2566-00160				2566-00168		2566-00164	
	-24	2566-00160				2566-00168		2566-00164	
V506CS	-4	2566-00158			2566-00170	2566-00166		2566-00162	
	-6	2566-00158			2566-00170	2566-00166		2566-00162	
	-8							2566-00234	
	-12	—						2566-00235	
	-16	—						2566-00236	
V533P	-4	2560-10152	2566-00105		2566-00147	2566-00215	2566-00231	2560-10160	
	-6	2560-10152	2566-00105		2566-00147	2566-00215	2566-00231	2560-10160	
	-8	2560-10152	2566-00105		2566-00147	2566-00215	2566-00231	2560-10160	
	-12	2560-10153	2566-00178		2566-00179	2566-00180		2560-10168	
	-16	2560-10153	2566-00178		2566-00179	2566-00180		2560-10168	
V520P	-4				2566-00277			2566-00262	
	-6				2566-00277			2566-00262	
	-8				2566-00277			2566-00262	
	-12				2566-00280			2566-00261	
	-16				2566-00280			2566-00261	
	-20	2566-00143	2566-00153					2566-00135	
	-24	2566-00143	2566-00153					2566-00135	
	-32	2566-00143	2566-00153					2566-00135	
	40	2566-00253							
48	2566-00253								
V500HR, V506HP, V507HP	-4							BVHPLK-1 ^A	
	-6							BVHPLK-1 ^A	
	-8							BVHPLK-1 ^A	
	-12							BVHPLK-2 ^A	
	-16							BVHPLK-2 ^A	
	-20							BVHPLK-3 ^A	
	-24							BVHPLK-3 ^A	
-32							BVHPLK-3 ^A		

^A Locking kit for use with standard handles

Replacement Handle Nuts

VALVE	PLATED STEEL	STAINLESS STEEL
V500P-4	2567-00020	2567-00023
V500P-6	2567-00020	2567-00023
V500P-8	2567-00020	2567-00023
V500P-12	2567-00055	2567-00057
V500P-16	2567-00055	2567-00057
V500P-20	2567-00051	2567-00052
V500P-24	2567-00051	2567-00052
V500P-32	2567-00051	2567-00052
V500CS-4	2567-00020	2567-00023
V500CS-6	2567-00020	2567-00023
V500CS-8	2564-00020	2567-00023

Replacement Handle Covers

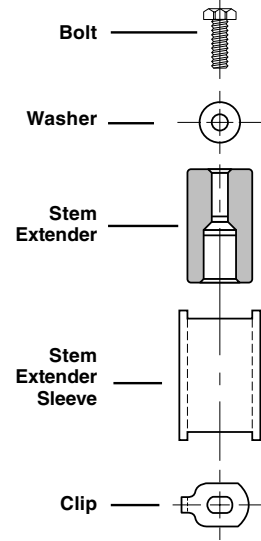
VALVE	LEVER	SHORT LEVER	TEE
V500P-4	2569-00108	2569-00342	2569-00155
V500P-6	2569-00108	2569-00342	2569-00155
V500P-8	2569-00108	2569-00342	2569-00155
V500P-12	2569-00296		2569-00155
V500P-16	2569-00296		2569-00155
V500P-20	2569-00229	2569-00234	
V500P-24	2569-00229	2569-00234	
V500P-32	2569-00229	2569-00234	
V502SS-4		2569-00203	
V502SS-6		2569-00203	
V502SS-8		2569-00203	

STX	Stem Extension Kit
P	For use on Brass Ball Valves
1	1: 1/4" thru 1/2" valves 2: 3/4" thru 1" valves
125	125: 1-1/4" extension length 225: 2-1/4" extension length

STX	Stem Extension Kit
SS	For use on Stainless Steel Ball Valves
1	1: 1/4" thru 1/2" valves 2: 3/4" thru 1" valves 3: 1-1/4"-2" valves
125	125: 1-1/4" extension length 225: 2-1/4" extension length

All stem extension kit componentry is made from high quality, corrosion resistant stainless steel

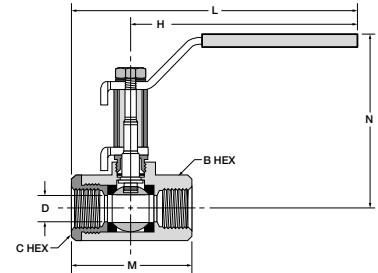
Note: Stem extensions cannot be used with series 509 and series 520.



Brass Valve Extension Dimensions STX-P-1-125

PART NO.	VALVE SIZE	B HEX	C HEX	H	L	M	N	D FLOW Ø
STX-P-1-125	1/4	15/16	15/16	3.96	4.96	2.03	3.73	.375
STX-P-1-125	3/8	15/16	15/16	3.96	4.96	2.03	3.73	.375
STX-P-1-125	1/2	1-1/16	1-1/16	3.96	5.05	2.20	3.84	.500
STX-P-2-125	3/4	1-1/4	1-5/16	3.96	5.25	2.42	4.06	.685
STX-P-2-125	1	1-1/2	1-9/16	3.96	5.89	2.75	4.33	.875

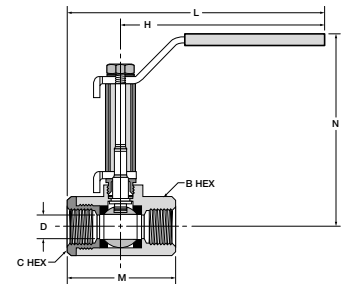
Note: Drawing shows STX-P assembled to XV500P series-not included



Brass Valve Extension Dimensions STX-P-1-225

PART NO.	VALVE SIZE	B HEX	C HEX	H	L	M	N	D FLOW Ø
STX-P-1-225	1/4	15/16	15/16	3.96	4.96	2.03	4.73	.375
STX-P-1-225	3/8	15/16	15/16	3.96	4.96	2.03	4.73	.375
STX-P-1-225	1/2	1-1/16	1-1/16	3.96	5.05	2.20	4.84	.500
STX-P-2-225	3/4	1-1/4	1-5/16	3.96	5.25	2.42	5.06	.685
STX-P-2-225	1	1-1/2	1-9/16	3.96	5.89	2.75	5.33	.875

Note: Drawing shows STX-P assembled to XV500P series-not included



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Needle Valves



Parker's all brass needle valves have metal-to-metal seats with fine thread screwdown. The specially formulated low temperature seal remains elastic to temperatures as low as -40°F (-40°C).

Product Features:

- Extruded Brass Body & Stem
- Low Temperature Seal
- Metal-to-Metal Seal
- Pin Handle

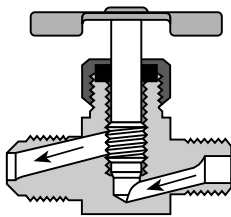
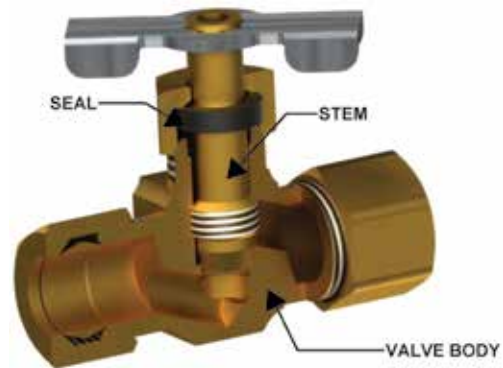
Specifications:

Pressure Range:

- Up to 150 PSI (10.3 bar)

Temperature Range

- -40° to $+175^{\circ}\text{F}$ (-20° to $+79.4^{\circ}\text{C}$)
- Humidifier Valve Kit & Self Piercing Humidifier Kit:
 -30° to $+250^{\circ}\text{F}$ (-34.4° to $+121.1^{\circ}\text{C}$)
- NV311P/NV312P: 0° to $+150^{\circ}\text{F}$ (-17.7° to $+65.5^{\circ}\text{C}$)



Needle Valves Installation Instructions

Series NV valves should always be installed with the pressure against the seat. Refer to drawing to determine correct direction of flow.

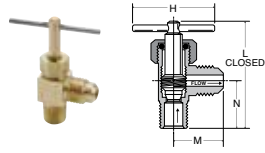
WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Angle Needle Valve NV101F

Flare to Male Pipe * Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

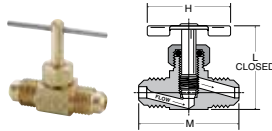
PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV101F-4-2*	1/4	1/8	1.50	1.58	.75	.66
NV101F-6-4	3/8	1/4	1.38	1.86	.95	.90



Needle Valve NV102F

Flare to Flare *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

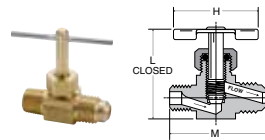
PART NO.	TUBE SIZE	H	L	M
NV102F-4*	1/4	1.50	1.34	1.50



Needle Valve NV103F

Flare to Male Pipe *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

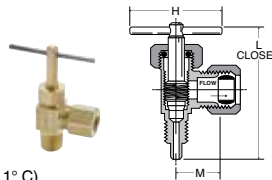
PART NO.	TUBE SIZE	PIPE THREAD	H	L	M
NV103F-4-2*	1/4	1/8	1.50	1.33	1.35



Humidifier Valve HV104C

Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

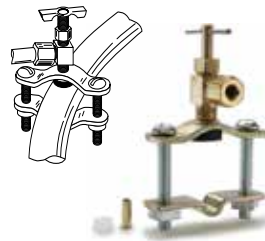
PART NO.	TUBE SIZE	PIPE THREAD	H	L	M
HV104C-4-2	1/4	1/8	1.50	1.89	.53



Humidifier Valve Clamp Kit HV104C-KIT

Temperature Range: -30° to +250° F (-34.4° to +121.1° C) Clamp fits 3/8" O.D. through 1.315" O.D. tube or pipe. Kit includes 60PT-4 and 63PT-4 for assembly with plastic or nylon tubing. For complete kit, specify entire part number as shown below:

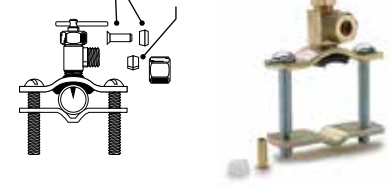
PART NO.	TUBE SIZE	PIPE THREAD
HV104C-4-2 KIT	1/4	1/8



Self-Piercing Humidifier Valve Clamp Kit SPV104C-KIT

Temperature Range: -30° to +250° F (-34.4° to +121.1° C) Clamp fits 3/8" O.D. through 1.315" O.D. tube or pipe. Kit includes 60PT-4 and 63PT-4 for assembly with plastic or nylon tubing. For complete kit, specify entire part number as shown below:

Plastic sleeve and brass insert for 1/4" O.D. x .040 wall plastic tubing
 Brass sleeve for 1/4" O.D. copper tube

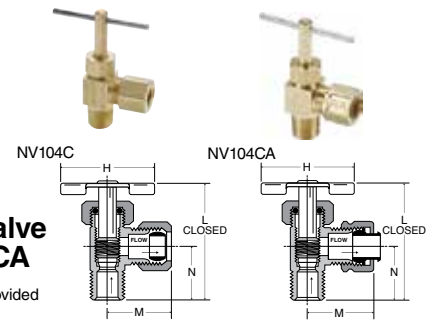


PART NO.	TUBE SIZE	PIPE THREAD
SPV104C KIT	1/4	1/8

Angle Needle Valve NV104C-NV104CA

Compression to Male Pipe *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

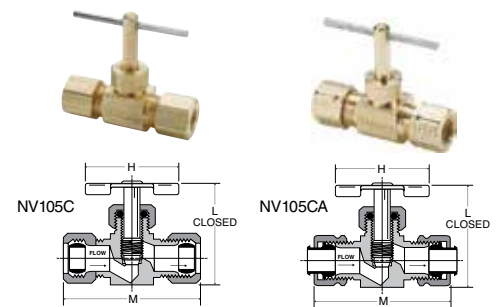
PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV104C-4-2*	1/4	1/8	1.50	1.54	.88	.67
NV104CA-4-2*	1/4	1/8	1.50	1.49	.77	.66
NV104C-4-4	1/4	1/4	1.38	1.80	.93	.75
NV104C-5-2*	5/16	1/8	1.50	1.63	.88	.68
NV104C-6-4	3/8	1/4	1.38	1.76	.94	.81



Needle Valve NV105C-NV105CA

Compression to Compression
 *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	H	L	M
NV105C-4*	1/4	1.50	1.41	1.75
NV105C-5*	5/16	1.50	1.35	1.73
NV105C-6	3/8	1.38	1.55	1.93
NV105CA-4*	1/4	1.50	1.41	1.64
NV105CA-6	3/8	1.38	1.55	1.78

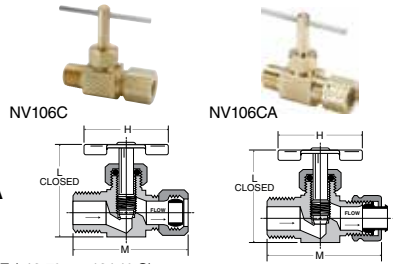


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Click here for CADs, Product Specifications or to Configure Parts Online

Needle Valve NV106C-NV106CA

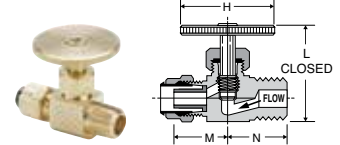
Compression to Male Pipe
 *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	TUBE SIZE	PIPE THREAD	H	L	M
NV106C-4-2*	1/4	1/8	1.50	1.41	1.53
NV106C-4-4*	1/4	1/4	1.50	1.40	1.55
NV106C-5-2*	5/16	1/8	1.50	1.35	1.50
NV106C-6-4	3/8	1/4	1.38	1.56	1.75
NV106CA-4-2	1/4	1/8	1.50	1.41	1.47
NV106CA-4-4*	1/4	1/4	1.50	1.33	1.52
NV106CA-6-4	3/8	1/4	1.38	1.53	1.78

Needle Valve NV311P

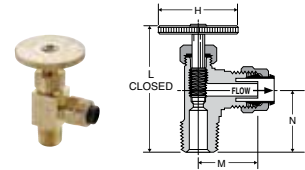
Poly-Tite to Male Pipe
 Temperature Range: 0° to +150° F (0° to +65.5° C)



PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV311P-4-2	1/4	1/8	1.07	1.17	.50	.63
NV311P-4-4	1/4	1/4	1.07	1.18	.50	.72
NV311P-6-4	3/8	1/4	1.07	1.19	.56	.72

Angle Needle Valve NV312P

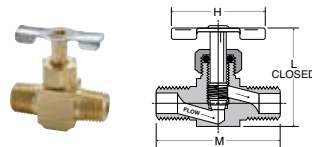
Poly-Tite to Male Pipe
 Temperature Range: 0° to +150° F (0° to +65.5° C)



PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV312P-4-2	1/4	1/8	1.07	1.53	.48	.68
NV312P-4-4	1/4	1/4	1.07	1.72	.56	.86
NV312P-6-4	3/8	1/4	1.07	1.68	.64	.86

Needle Valve NV107P

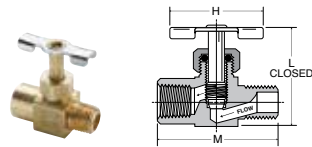
Male Pipe to Male Pipe
 *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	PIPE THREAD	H	L	M
NV107P-2*	1/8	1.50	1.35	1.25
NV107P-4	1/4	1.38	1.54	1.65

Needle Valve NV108P

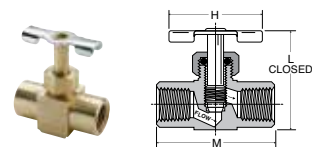
Female Pipe to Male Pipe
 *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	PIPE THREAD	H	L	M
NV108P-2*	1/8	1.50	1.36	1.24
NV108P-4	1/4	1.38	1.56	1.61

Needle Valve NV109P

Female Pipe to Female Pipe
 *Provided with Pin Handle
 Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	PIPE THREAD	H	L	M
NV109P-2*	1/8	1.50	1.35	1.25
NV109P-4	1/4	1.38	1.53	1.60

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Drain Cocks/ Ground Plug Shutoff



Parker's ground plug shutoffs are manufactured from castings or forged bodies for extra strength. Hand tightening provides a metal-to-metal seal. Drain cocks are manufactured in both external and internal seats.

Specifications:

Pressure Range:

- Ground Plug Shutoff: 30 PSI (2.0 bar)
- Drain Cocks: Up to 150 PSI (10.3 bar)

Temperature Range

- Ground Plug Shutoff: 32° to +125° F (0° to +51.6° C)
- V406P/V407P: -40° to +180° F (-40° to +82.2° C)
- Drain Cocks: -65° to +250° F (-53.8° to +121.1° C)
- DCR601: -30° to +250° F (-34.4° to +121.1° C)



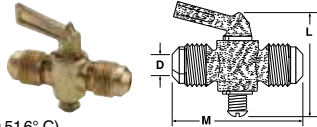
WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Click here for CADs, Product Specifications or to Configure Parts Online

Ground Plug Shutoff V203F

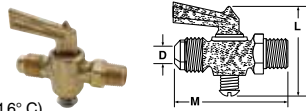
Flare to Flare
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	TUBE SIZE	L	M	FLOW DIA. D
V203F-6-6	3/8	2.26	2.13	.220
V203F-8-8	1/2	2.26	2.50	.281

Ground Plug Shutoff V204F

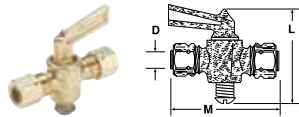
Flare to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	TUBE SIZE	PIPE THREAD	L	M	FLOW DIA. D
V204F-4-2	1/4	1/8	1.85	2.00	.188
V204F-6-4	3/8	1/4	1.85	2.18	.218

Ground Plug Shutoff V303C / V303CA

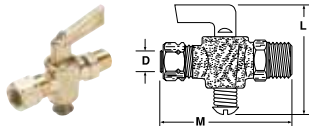
Compression to Compression
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	TUBE SIZE	L	M	FLOW DIA. D
V303C-4-4	1/4	1.88	2.33	.188
V303CA-4-4	1/4	1.90	1.75	.188
V303C-6-6	3/8	2.26	2.45	.218
V303CA-6-6	3/8	1.76	1.60	.218

Ground Plug Shutoff V304C / V304CA

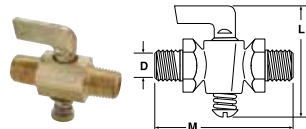
Compression to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	TUBE SIZE	PIPE THREAD	L	M	FLOW DIA. D
V304C-4-2	1/4	1/8	1.90	2.29	.188
V304CA-4-2	1/4	1/8	1.88	2.00	.188
V304C-4-4	1/4	1/4	1.90	2.15	.188
V304C-6-4	3/8	1/4	1.83	2.24	.218
V304CA-6-4	3/8	1/4	1.83	2.11	.218

Ground Plug Shutoff V401P

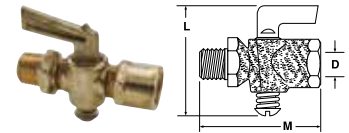
Male Pipe to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	PIPE THREAD	L	M	FLOW DIA. D
V401P-2-2	1/8	1.90	2.25	.188
V401P-4-4	1/4	1.90	1.98	.188

Ground Plug Shutoff V402P

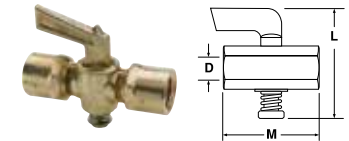
Female Pipe to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	FEMALE PIPE THREAD	PIPE THREAD	L	M	FLOW DIA. D
V402P-2-2	1/8	1/8	1.85	1.78	.218
V402P-4-4	1/4	1/4	1.86	2.26	.218
V402P-6-6	3/8	3/8	2.34	2.21	.245

Ground Plug Shutoff V403P

Female Pipe to Female Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)

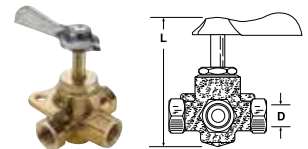


PART NO.	FEMALE PIPE THREAD	L	M	FLOW DIA. D
V403P-2-2	1/8	1.90	1.51	.218
V403P-4-4	1/4	1.90	1.65	.188
V403P-6-6*	3/8	2.25	2.00	.250

*Made from extruded bar stock

Three-Way Valve V406P

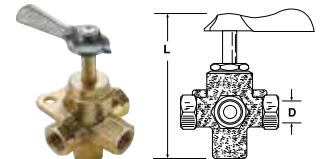
Female Pipe three ends
Temperature Range: -40° to +180° F (-40° to +82.2° C)



PART NO.	PIPE THREAD	L	FLOW DIA. D
V406P-4	1/4	3.10	.281

Four-Way Valve V407P

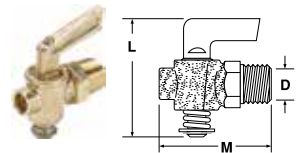
Female Pipe four ends
Temperature Range: -40° to +180° F (-40° to +82.2° C)



PART NO.	PIPE THREAD	L	FLOW DIA. D
V407P-4	1/4	3.30	.281

Ground Plug Shutoff DC601

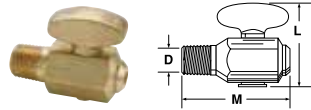
Temperature Range: +32° to +125° F (0° to +51.6° C)



PART NO.	PIPE THREAD	L	M	FLOW DIA. D
DC601-2	1/8	1.90	1.40	.170
DC601-4	1/4	1.90	1.52	.170
DC601-6	3/8	2.26	1.74	.281
DC601-8	1/2	2.29	1.82	.281

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

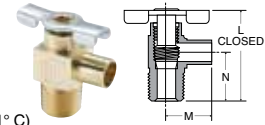
Drain Cock DCR601



Temperature Range: -30° to +250° F (-34.4° to +121.1° C)

PART NO.	PIPE THREAD	L	M	FLOW DIA. D
DCR601-4	1/4	1.41	1.73	.156

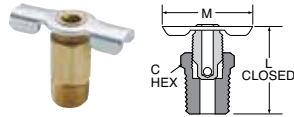
Bib Drain Valve DC607



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	HOSE SIZE	PIPE THREAD	FLOW	L	M	N
DC607-4	3/8	1/4	.28	1.32	.67	.71

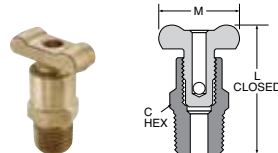
Internal Seal Drain Cock DC602



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC602-2	1/8	13/32	.92	1.25
DC602-4	1/4	9/16	.94	1.25

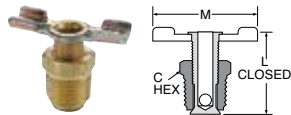
Drain Cock DC603



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC603-2	1/8	5/8	1.41	1.00
DC603-4	1/4	5/8	1.54	1.16
DC603-6	3/8	11/16	1.63	1.16

External Seal Drain Cock DC604

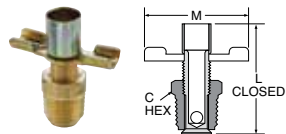


Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC604-2*	1/8	7/16	.85	1.25
DC604-4	1/4	9/16	1.00	1.38
DC604-6*	3/8	11/16	1.22	1.68

*When assembled handle wings are down facing

External Seal Drain Cock DC606



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC606-4	1/4-18	9/16	1.50	1.38

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



General Technical

General Technical

Numerical Index

Parker Safety Guide

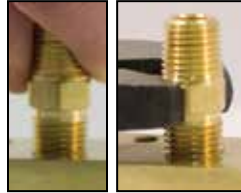
Offer of Sale



Pipe Fittings

Straight Fittings

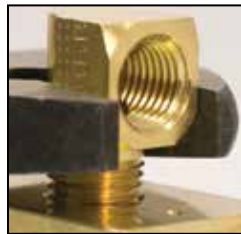
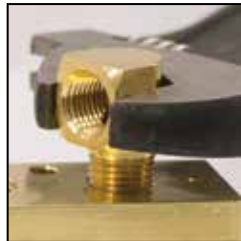
1. Hand tighten external thread into internal thread
2. Tighten an additional 2 turns with a wrench up to 1/2" male pipe thread.
3. Above 1/2" 1 1/2 to 2 1/2 turns.



Elbow or Tee Fittings

1. Hand tighten external thread into internal thread
2. Tighten an additional 1 to 1 1/2 turns with a wrench
3. Tighten fitting, clockwise to align with tubing. (Never counter clockwise)

Note: To minimize the possibility of a leaking threaded joint after assembling Male to female pipe threads, neither end should be backed out (loosened) Once the assembly has been made.



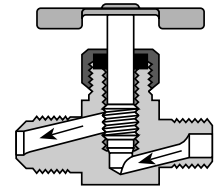
Plug Valves

To assure sealability and reliable performance, the valve must be installed so that the flow media travels in the direction of the arrow on the valve handle.



Needle Valves

Needle valves should always be installed with the pressure against the seat.



NEMA Rated Bulkhead

1. Drill panel to required diameter
2. Install sealing washer onto brass body.
3. Install fitting body through panel and secure with lock washer and jam nut.
4. Using a wrench to hold the fitting body torque the jam nut to spec per below table.

Note: For sealing bulkheads the sealing washer must be installed between the body hex and panel. To ensure a leak tight connection the panel surface must be kept flat and deburred after the drilling operation. It must be free from dirt, debris, and other contamination.

THREAD SIZE	MIN. TORQUE FT-LBS	MAX. TORQUE FT-LBS
5/8-18	15	20
3/4-16	15	25
1-14	40	50

4202.....A59	V204FA67	V591PA26
4203.....A59	V303C.....A67	V591P-X-04A26
ACT-P-X-KIT.....A52	V303CAA67	V600PA29
ACT-SS-X-KIT.....A52	V304C.....A67	V633PA29
BVCA47	V304CAA67	VASA6, A45
BVG4PLOCKA56	V401PA67	VEU.....A6, A44, A46
BVGLA54	V402PA67	VFC.....A6, A45, A46
BVGTA54	V403PA67	VFEA6, A44, A45, A47
DC601A67	V406PA67	VMC.....A6, A45, A46, A47
DC602A68	V407PA67	VMEA6, A44, A45, A47
DC603A68	V500CSA31	VP500CSA31
DC604A68	V500CS-X-04A31	VP500HPA35
DC606A68	V500CS-X-21A32	VP500PA9
DC607A68	V500HPA35	VP501PA12
DCR601A68	V500PA9	VP502CSA31
HV104CA64	V500P-HB.....A27	VP502PA14
HV104C-kit.....A64	V500P-X-04A10	VP502SSA39
MV200A42	V500P-X-21A10	VP506HPA36
MV608A42	V501PA11	VP510PA19
MV609A42	V501P-X-04A12	VTEUA6, A46
MV708A40	V501P-X-21A12	VUCA6, A44, A46, A47
MV709A40	V501SS.....A37	VUCPBA6, A45, A47
NV101F.....A64	V502CSA31	VV500PA9
NV102F.....A64	V502CS-X-21A32	VV501PA12
NV103F.....A64	V502PA14	VV502PA14
NV104CA64	V502P-X-04A14	VVP500PA9
NV104CA.....A64	V502P-X-ACTA51	VVP501PA12
NV105CA64	V502P-X-SUB.....A52	VVP502PA14
NV105CA.....A64	V502SS.....A39	
NV106CA65	V502SS-X-20.....A39	
NV106CA.....A65	V502SS-X-21.....A39	
NV107PA65	V502SS-X-ACT.....A51	
NV108PA65	V502SS-X-SUBA52	
NV109PA65	V506CSA33	
NV311PA65	V506HPA36	
NV312PA65	V506PA16	
PV607A49	V509PA17	
PV608A49	V510PA19	
PV609A49	V510P-X-04A19	
PVMB-001A49	V510P-X-21A19	
SPV104C-kit.....A64	V533PA24	
STX-P-1-125A62	V540PA24	
STX-P-1-225A62	V590PA26	
V203FA67	V590P-X-04A26	

Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings, Connectors, Conductors, Valves and Related Accessories

Parker Publication No. 4400-B.1

WARNING: Failure or improper selection or improper use of hose, tubing, fittings, assemblies, valves, connectors, conductors or related accessories ("Products") can cause death, personal injury and property damage. Possible consequences of failure or improper selection or improper use of these Products include but are not limited to:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocutation from high voltage electric powerlines.
- Contact with suddenly moving or falling objects that are controlled by the conveyed fluid.
- Injections by high-pressure fluid discharge.
- Dangerously whipping Hose.
- Tube or pipe burst.
- Weld joint fracture.
- Contact with conveyed fluids that may be hot, cold, toxic or otherwise injurious.
- Sparking or explosion caused by static electricity buildup or other sources of electricity.
- Sparking or explosion while spraying paint or flammable liquids.
- Injuries resulting from inhalation, ingestion or exposure to fluids.

Before selecting or using any of these Products, it is important that you read and follow the instructions below. No product from any division in Fluid Connector Group is approved for in-flight aerospace applications. For hoses and fittings used in in-flight aerospace applications, please contact Parker Aerospace Group

GENERAL INSTRUCTIONS

1.0 Scope: This safety guide provides instructions for selecting and using (including assembling, installing, and maintaining) these Products. For convenience, all rubber and/or thermoplastic products commonly called "hose" or "tubing" are called "Hose" in this safety guide. Metallic tube or pipe are called "tube". All assemblies made with Hose are called "Hose Assemblies". All assemblies made with Tube are called "Tube Assemblies". All products commonly called "fittings", "couplings" or "adapters" are called "Fittings". Valves are fluid system components that control the passage of fluid. Related accessories are ancillary devices that enhance or monitor performance including crimping, flaring, flanging, presetting, bending, cutting, deburring, swaging machines, sensors, tags, lockout handles, spring guards and associated tooling. This safety guide is a supplement to and is to be used with the specific Parker publications for the specific Hose, Fittings and Related Accessories that are being considered for use. Parker publications are available at www.parker.com. SAE J1273 (www.sae.org) and ISO 17165-2 (www.ansi.org) also provide recommended practices for hydraulic Hose Assemblies, and should be followed.

- 1.1 Fail-Safe:** Hose, Hose Assemblies, Tube, Tube Assemblies and Fittings can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of the Hose, Hose Assembly, Tube, Tube Assembly or Fitting will not endanger persons or property.
- 1.2 Distribution:** Provide a copy of this safety guide to each person responsible for selecting or using Hose, Tube and Fitting products. Do not select or use Parker Hose, Tube or Fittings without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the Products.
- 1.3 User Responsibility:** Due to the wide variety of operating conditions and applications for Hose, Tube and Fittings. Parker does not represent or warrant that any particular Hose, Tube or Fitting is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
- Making the final selection of the Products.
 - Assuring that the user's requirements are met and that the application presents no health or safety hazards.
 - Following the safety guide for Related Accessories and being trained to operate Related Accessories.
 - Providing all appropriate health and safety warnings on the equipment on which the Products are used.
 - Assuring compliance with all applicable government and industry standards.
- 1.4 Additional Questions:** Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the Products being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2.0 HOSE, TUBE AND FITTINGS SELECTION INSTRUCTIONS

2.1 Electrical Conductivity: Certain applications require that the Hose be nonconductive to prevent electrical current flow. Other applications require the Hose and the Fittings and the Hose/Fitting interface to be sufficiently conductive to drain off static electricity. Extreme care must be exercised when selecting Hose, Tube and Fittings for these or any other applications in which electrical conductivity or nonconductivity is a factor.

The electrical conductivity or nonconductivity of Hose, Tube and Fittings is dependent upon many factors and may be susceptible to change. These factors include but are not limited to the various materials used to make the Hose and the Fittings, Fitting finish (some Fitting finishes are electrically conductive while others are nonconductive), manufacturing methods (including moisture control), how the Fittings contact the Hose, age and amount of deterioration or damage or other changes, moisture content of the Hose at any particular time, and other factors.

The following are considerations for electrically nonconductive and conductive Hose. For other applications consult the individual catalog pages and the appropriate industry or regulatory standards for proper selection.

2.1.1 Electrically Nonconductive Hose: Certain applications require that the Hose be nonconductive to prevent electrical current flow or to maintain

electrical isolation. For applications that require Hose to be electrically nonconductive, including but not limited to applications near high voltage electric lines, only special nonconductive Hose can be used. The manufacturer of the equipment in which the nonconductive Hose is to be used must be consulted to be certain that the Hose, Tube and Fittings that are selected are proper for the application. Do not use any Parker Hose or Fittings for any such application requiring nonconductive Hose, including but not limited to applications near high voltage electric lines or dense magnetic fields, unless (i) the application is expressly approved in the Parker technical publication for the product, (ii) the Hose is marked "nonconductive", and (iii) the manufacturer of the equipment on which the Hose is to be used specifically approves the particular Parker Hose, Tube and Fittings for such use.

2.1.2 Electrically Conductive Hose: Parker manufactures special Hose for certain applications that require electrically conductive Hose. Parker manufactures special Hose for conveying paint in airless paint spraying applications. This Hose is labeled "Electrically Conductive Airless Paint Spray Hose" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in all airless paint spraying applications. Do not use any other Hose for airless paint spraying, even if electrically conductive. Use of any other Hose or failure to properly connect the Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. All hoses that convey fuels must be grounded. Parker manufactures a special Hose for certain compressed natural gas ("CNG") applications where static electricity buildup may occur. Parker CNG Hose assemblies comply with the requirements of ANSI/IAS NGV 4.2; CSA 12.52, "Hoses for Natural Gas Vehicles and Dispensing Systems" (www.ansi.org). This Hose is labeled "Electrically Conductive for CNG Use" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in, for example, high velocity CNG dispensing or transfer. Do not use any other Hose for CNG applications where static charge buildup may occur, even if electrically conductive. Use of other Hoses in CNG applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. Care must also be taken to protect against CNG permeation through the Hose wall. See section 2.6, Permeation, for more information. Parker CNG Hose is intended for dispenser and vehicle use within the specified temperature range. Parker CNG Hose should not be used in confined spaces or unventilated areas or areas exceeding the specified temperature range. Final assemblies must be tested for leaks. CNG Hose Assemblies should be tested on a monthly basis for conductivity per ANSI/IAS NGV 4.2; CSA 12.52. Parker manufactures special Hose for aerospace in-flight applications. Aerospace in-flight applications employing Hose to transmit fuel, lubricating fluids and hydraulic fluids require a special Hose with a conductive inner tube. This Hose for in-flight applications is available only from Parker's Stratoflex Products Division. Do not use any other Parker Hose for in-flight applications, even if electrically conductive. Use of other Hoses for in-flight applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury and property damage. These Hose assemblies for in-flight applications must meet all applicable aerospace industry, aircraft engine and aircraft requirements.

2.2 Pressure: Hose, Tube and Fitting selection must be made so that the published maximum working pressure of the Hose, Tube and Fittings are equal to or greater than the maximum system pressure. The maximum working pressure of a Hose, or Tube Assembly is the lower of the respective published maximum working pressures of the Hose, Tube and the Fittings used. Surge pressures or peak transient pressures in the system must be below the published maximum working pressure for the Hose, Tube and Fitting. Surge pressures and peak pressures can usually only be determined by sensitive electrical instrumentation that measures and indicates pressures at millisecond intervals. Mechanical pressure gauges indicate only average pressures and cannot be used to determine surge pressures or peak transient pressures. Published burst pressure ratings for Hose is for manufacturing test purposes only and is no indication that the Product can be used in applications at the burst pressure or otherwise above the published maximum recommended working pressure.

- 2.3 Suction:** Hoses used for suction applications must be selected to insure that the Hose will withstand the vacuum and pressure of the system. Improperly selected Hose may collapse in suction application.
- 2.4 Temperature:** Be certain that fluid and ambient temperatures, both steady and transient, do not exceed the limitations of the Hose, Tube, Fitting and Seals. Temperatures below and above the recommended limit can degrade Hose, Tube, Fittings and Seals to a point where a failure may occur and release fluid. Tube and Fittings performances are normally degraded at elevated temperature. Material compatibility can also change at temperatures outside of the rated range. Properly insulate and protect the Hose Assembly when routing near hot objects (e.g. manifolds). Do not use any Hose in any application where failure of the Hose could result in the conveyed fluids (or vapors or mist from the conveyed fluids) contacting any open flame, molten metal, or other potential fire ignition source that could cause burning or explosion of the conveyed fluids or vapors.
- 2.5 Fluid Compatibility:** Hose, and Tube Assembly selection must assure compatibility of the Hose tube, cover, reinforcement, Tube, Plating and Seals with the fluid media used. See the fluid compatibility chart in the Parker publication for the product being considered or used. This information is offered only as a guide. Actual service life can only be determined by the end user by testing under all extreme conditions and other analysis. Hose, and Tube that is chemically compatible with a particular fluid must be assembled using Fittings and adapters containing likewise compatible seals. Flange or flare processes can change Tube material properties that may not be compatible with certain requirements such as NACE Permeation: Permeation (that is, seepage through the Hose or Seal) will occur from inside the Hose or Fitting to outside when Hose or Fitting is used with gases, liquid and gas fuels, and refrigerants (including but not limited to such materials as helium, diesel fuel, gasoline, natural gas, or LPG). This permeation may result in high concentrations of vapors which are potentially flammable, explosive, or toxic, and in loss of fluid. Dangerous explosions, fires, and other hazards can result when using the wrong Hose for such applications. The system designer must take into account the fact that this permeation will take place and must not use Hose or Fitting if this permeation could be hazardous. The system designer must take into account all legal, government, insurance, or any other special regulations which govern the use of fuels and refrigerants. Never use a Hose or Fitting even though the fluid compatibility is acceptable without considering the potential hazardous effects that can result from permeation through the Hose or Tube Assembly. Permeation of moisture from outside the Hose or Fitting to inside the Hose or Fitting will also occur in Hose or Tube assemblies, regardless of internal pressure. If this moisture permeation would have detrimental effects (particularly, but not limited to refrigeration and air conditioning systems), incorporation of sufficient drying capacity in the system or other appropriate system safeguards should be selected and used. The sudden pressure release of highly pressurized gas could also result in Explosive Decompression failure of permeated Seals and Hoses.
- 2.7 Size:** Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage due to heat generation or excessive fluid velocity.
- 2.8 Routing:** Attention must be given to optimum routing to minimize inherent problems (kinking or flow restriction due to Hose collapse, twisting of the Hose, proximity to hot objects or heat sources). For additional routing recommendations see SAE J1273 and ISO 17165-2. Hose Assemblies have a finite life and should be installed in a manner that allows for ease of inspection and future replacement. Hose because of its relative short life, should not be used in residential and commercial buildings inside of inaccessible walls or floors, unless specifically allowed in the product literature. Always review all product literature for proper installation and routing instructions.
- 2.9 Environment:** Care must be taken to insure that the Hose, Tube and Fittings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed. Environmental conditions including but not limited to ultraviolet radiation, sunlight, heat, ozone, moisture, water, salt water, chemicals and air pollutants can cause degradation and premature failure.
- 2.10 Mechanical Loads:** External forces can significantly reduce Hose, Tube and Fitting life or cause failure. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel type Fittings or adapters may be required to insure no twist is put into the Hose. Use of proper Hose or Tube clamps may also be required to reduce external mechanical loads. Unusual applications may require special testing prior to Hose selection.
- 2.11 Physical Damage:** Care must be taken to protect Hose from wear, snagging, kinking, bending smaller than minimum bend radius and cutting, any of which can cause premature Hose failure. Any Hose that has been kinked or bent to a radius smaller than the minimum bend radius, and any Hose that has been cut or is cracked or is otherwise damaged should be removed and discarded. Fittings with damages such as scratches on sealing surfaces and deformation should be replaced.
- 2.12 Proper End Fitting:** See instructions 3.2 through 3.5. These recommendations may be substantiated by testing to industry standards such as SAE J517 for hydraulic applications, or MIL-A-5070, AS1339, or AS3517 for Hoses from Parker's Stratoflex Products Division for aerospace applications.
- 2.13 Length:** When determining the proper Hose or Tube length of an assembly, be aware of Hose length change due to pressure, Tube length change due to thermal expansion or contraction, and Hose or Tube and machine tolerances and movement must be considered. When routing short hose assemblies, it is recommended that the minimum free hose length is always used. Consult the hose manufacturer for their minimum free hose length recommendations. Hose assemblies should be installed in such a way that any motion or flexing occurs within the same plane.
- 2.14 Specifications and Standards:** When selecting Hose, Tube and Fittings, government, industry, and Parker specifications and recommendations must be reviewed and followed as applicable.
- 2.15 Hose Cleanliness:** Hose and Tube components may vary in cleanliness levels. Care must be taken to insure that the Hose and Tube Assembly selected has an adequate level of cleanliness for the application.
- 2.16 Fire Resistant Fluids:** Some fire resistant fluids that are to be conveyed by Hose or Tube require use of the same type of Hose or Tube as used with petroleum base fluids. Some such fluids require a special Hose, Tube, Fitting and Seal, while a few fluids will not work with any Hose at all. See instructions 2.5 and 1.5. The wrong Hose, Tube, Fitting or Seal may fail after a very short service. In addition, all liquids but pure water may burn fiercely under certain conditions, and even pure water leakage may be hazardous.
- 2.17 Radiant Heat:** Hose and Seals can be heated to destruction without contact by such nearby items as hot manifolds or molten metal. The same heat source may then initiate a fire. This can occur despite the presence of cool air around the Hose or Seal. Performance of Tube and Fitting subjected to the heat could be degraded.
- 2.18 Welding or Brazing:** When using a torch or arc welder in close proximity to hydraulic lines, the hydraulic lines should be removed or shielded with appropriate fire resistant materials. Flame or weld spatter could burn through the Hose or Seal and possibly ignite escaping fluid resulting in a catastrophic failure. Heating of plated parts, including Hose Fittings and adapters, above 450°F (232°C) such as during welding, brazing or soldering may emit deadly gases. Any elastomer seal on fittings shall be removed prior to welding or brazing, any metallic surfaces shall be protected after brazing or welding when necessary. Welding and brazing filler material shall be compatible with the Tube and Fitting that are joined.
- 2.19 Atomic Radiation:** Atomic radiation affects all materials used in Hose and Tube assemblies. Since the long-term effects may be unknown, do not expose Hose or Tube assemblies to atomic radiation. Nuclear applications may require special Tube and Fittings.
- 2.20 Aerospace Applications:** The only Hose, Tube and Fittings that may be used for in-flight aerospace applications are those available from Parker's Stratoflex Products Division. Do not use any other Hose or Fittings for in-flight applications. Do not use any Hose or Fittings from Parker's Stratoflex Products Division with any other Hose or Fittings, unless expressly approved in writing by the engineering manager or chief engineer of Stratoflex Products Division and verified by the user's own testing and inspection to aerospace industry standards.
- 2.21 Unlocking Couplings:** Ball locking couplings or other Fittings with quick disconnect ability can unintentionally disconnect if they are dragged over obstructions, or if the sleeve or other disconnect member, is bumped or moved enough to cause disconnect. Threaded Fittings should be considered where there is a potential for accidental uncoupling.
- 3.0 HOSE AND FITTINGS ASSEMBLY AND INSTALLATION INSTRUCTIONS**
- 3.1 Component Inspection:** Prior to assembly, a careful examination of the Hose and Fittings must be performed. All components must be checked for correct style, size, catalog number, and length. The Hose must be examined for cleanliness, obstructions, blisters, cover looseness, kinks, cracks, cuts or any other visible defects. Inspect the Fitting and sealing surfaces for burrs, nicks, corrosion or other imperfections. Do NOT use any component that displays any signs of nonconformance.
- 3.2 Hose and Fitting Assembly:** Do not assemble a Parker Fitting on a Parker Hose that is not specifically listed by Parker for that Fitting, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. Do not assemble a Parker Fitting on another manufacturer's Hose or a Parker Hose on another manufacturer's Fitting unless (i) the engineering manager or chief engineer of the appropriate Parker division approves the Assembly in writing or that combination is expressly approved in the appropriate Parker literature for the specific Parker product, and (ii) the user verifies the Assembly and the application through analysis and testing. For Parker Hose that does not specify a Parker Fitting, the user is solely responsible for the selection of the proper Fitting and Hose Assembly procedures. See instruction 1.4. To prevent the possibility of problems such as leakage at the Fitting or system contamination, it is important to completely remove all debris from the cutting operation before installation of the Fittings. The Parker published instructions must be followed for assembling the Fittings on the Hose. These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used, or by calling 1-800-CPARKER, or at www.parker.com.
- 3.3 Related Accessories:** Do not crimp or swage any Parker Hose or Fitting with anything but the listed swage or crimp machine and dies in accordance with Parker published instructions. Do not crimp or swage another manufacturer's Fitting with a Parker crimp or swage die unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.
- 3.4 Parts:** Do not use any Parker Fitting part (including but not limited to socket, shell, nipple, or insert) except with the correct Parker mating parts, in accordance with Parker published instructions, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.
- 3.5 Field Attachable/Permanent:** Do not reuse any field attachable Hose Fitting that has blown or pulled off a Hose. Do not reuse a Parker permanent Hose Fitting (crimped or swaged) or any part thereof. Complete Hose Assemblies may only be reused after proper inspection under section 4.0. Do not assemble Fittings to any previously used hydraulic Hose that was in service, for use in a fluid power application.
- 3.6 Pre-Installation Inspection:** Prior to installation, a careful examination of the Hose Assembly must be performed. Inspect the Hose Assembly for any damage or defects. DO NOT use any Hose Assembly that displays any signs of nonconformance.
- 3.7 Minimum Bend Radius:** Installation of a Hose at less than the minimum listed bend radius may significantly reduce the Hose life. Particular attention must be given to preclude sharp bending at the Hose to Fitting juncture. Any bending during installation at less than the minimum bend radius must be avoided. If any Hose is kinked during installation, the Hose must be discarded.
- 3.8 Twist Angle and Orientation:** Hose Assembly installation must be such that relative motion of machine components does not produce twisting.
- 3.9 Securement:** In many applications, it may be necessary to restrain, protect, or guide the Hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.
- 3.10 Proper Connection of Ports:** Proper physical installation of the Hose Assembly

requires a correctly installed port connection insuring that no twist or torque is transferred to the Hose when the Fittings are being tightened or otherwise during use.

- 3.11 **External Damage:** Proper installation is not complete without insuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage or damage to sealing surfaces are corrected or eliminated. See instruction 2.10.
- 3.12 **System Checkout:** All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Hose maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.
- 3.13 **Routing:** The Hose Assembly should be routed in such a manner so if a failure does occur, the escaping media will not cause personal injury or property damage. In addition, if fluid media comes in contact with hot surfaces, open flame or sparks, a fire or explosion may occur. See section 2.4.
- 3.14 **Ground Fault Equipment Protection Devices (GFEPDs):** WARNING! Fire and Shock Hazard. To minimize the danger of fire if the heating cable of a Multitube bundle is damaged or improperly installed, use a Ground Fault Equipment Protection Device. Electrical fault currents may be insufficient to trip a conventional circuit breaker. For ground fault protection, the IEEE 515: (www.ansi.org) standard for heating cables recommends the use of GFEPDs with a nominal 30 milliampere trip level for "piping systems in classified areas, those areas requiring a high degree of maintenance, or which may be exposed to physical abuse or corrosive atmospheres".

4.0 TUBE AND FITTINGS ASSEMBLY AND INSTALLATION INSTRUCTIONS

- 4.1 **Component Inspection:** Prior to assembly, a careful examination of the Tube and Fittings must be performed. All components must be checked for correct style, size, material, seal, and length. Inspect the Fitting and sealing surfaces for burrs, nicks, corrosion, missing seal or other imperfections. Do NOT use any component that displays any signs of nonconformance.
- 4.2 **Tube and Fitting Assembly:** Do not assemble a Parker Fitting with a Tube that is not specifically listed by Parker for that Fitting, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. The Tube must meet the requirements specified to the Fitting. The Parker published instructions must be followed for assembling the Fittings to a Tube. These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used, or by calling 1-800-CPARKER, or at www.parker.com.
- 4.3 **Related Accessories:** Do not preset or flange Parker Fitting components using another manufacturer's equipment or procedures unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. Tube, Fitting component and tooling must be checked for correct style, size and material. Operation and maintenance of Related Accessories must be in accordance with the operation manual for the designated Accessory.
- 4.4 **Securement:** In many applications, it may be necessary to restrain, protect, or guide the Tube to protect it from damage by unnecessary flexing, pressure surges, vibration, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.
- 4.5 **Proper Connection of Ports:** Proper physical installation of the Tube Assembly requires a correctly installed port connection insuring that no torque is transferred to the Tube when the Fittings are being tightened or otherwise during use.
- 4.6 **External Damage:** Proper installation is not complete without insuring that tensile loads, side loads, flattening, potential abrasion, thread damage or damage to sealing surfaces are corrected or eliminated. See instruction 2.10.
- 4.7 **System Checkout:** All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Tube Assembly maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.
- 4.8 **Routing:** The Tube Assembly should be routed in such a manner so if a failure does occur, the escaping media will not cause personal injury or property damage. In addition, if fluid media comes in contact with hot surfaces, open flame or sparks, a fire or explosion may occur. See section 2.4.

5.0 HOSE AND FITTING MAINTENANCE AND REPLACEMENT INSTRUCTIONS

- 5.1 Even with proper selection and installation, Hose life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a possible Hose failure, and experience with any Hose failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs. Certain products require maintenance and inspection per industry requirements. Failure to adhere to these requirements may lead to premature failure. A maintenance program must be established and followed by the user and, at minimum, must include instructions 5.2 through 5.7
- 5.2 **Visual Inspection Hose/Fitting:** Any of the following conditions require immediate shut down and replacement of the Hose Assembly:
 - Fitting slippage on Hose;
 - Damaged, cracked, cut or abraded cover (any reinforcement exposed);
 - Hard, stiff, heat cracked, or charred Hose;
 - Cracked, damaged, or badly corroded Fittings;
 - Leaks at Fitting or in Hose;
 - Kinked, crushed, flattened or twisted Hose; and
 - Blistered, soft, degraded, or loose cover.
- 5.3 **Visual Inspection All Other:** The following items must be tightened, repaired, corrected or replaced as required:
 - Leaking port conditions;
 - Excess dirt buildup;
 - Worn clamps, guards or shields; and
 - System fluid level, fluid type, and any air entrapment.
- 5.4 **Functional Test:** Operate the system at maximum operating pressure and check for possible malfunctions and leaks. Personnel must avoid potential hazardous areas while testing and using the system. See section 2.2.
- 5.5 **Replacement Intervals:** Hose assemblies and elastomeric seals used on Hose Fittings and adapters will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Hose Assemblies and elastomeric seals

should be inspected and replaced at specific replacement intervals, based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage, or injury risk. See section 1.2. Hose and Fittings may be subjected to internal mechanical and/or chemical wear from the conveying fluid and may fail without warning. The user must determine the product life under such circumstances by testing. Also see section 2.5.

- 5.6 **Hose Inspection and Failure:** Hydraulic power is accomplished by utilizing high pressure fluids to transfer energy and do work. Hoses, Fittings and Hose Assemblies all contribute to this by transmitting fluids at high pressures. Fluids under pressure can be dangerous and potentially lethal and, therefore, extreme caution must be exercised when working with fluids under pressure and handling the Hoses transporting the fluids. From time to time, Hose Assemblies will fail if they are not replaced at proper time intervals. Usually these failures are the result of some form of misapplication, abuse, wear or failure to perform proper maintenance. When Hoses fail, generally the high pressure fluids inside escape in a stream which may or may not be visible to the user. Under no circumstances should the user attempt to locate the leak by "feeling" with their hands or any other part of their body. High pressure fluids can and will penetrate the skin and cause severe tissue damage and possibly loss of limb. Even seemingly minor hydraulic fluid injection injuries must be treated immediately by a physician with knowledge of the tissue damaging properties of hydraulic fluid. If a Hose failure occurs, immediately shut down the equipment and leave the area until pressure has been completely released from the Hose Assembly. Simply shutting down the hydraulic pump may or may not eliminate the pressure in the Hose Assembly. Many times check valves, etc., are employed in a system and can cause pressure to remain in a Hose Assembly even when pumps or equipment are not operating. Tiny holes in the Hose, commonly known as pinholes, can eject small, dangerously powerful but hard to see streams of hydraulic fluid. It may take several minutes or even hours for the pressure to be relieved so that the Hose Assembly may be examined safely. Once the pressure has been reduced to zero, the Hose Assembly may be taken off the equipment and examined. It must always be replaced if a failure has occurred. Never attempt to patch or repair a Hose Assembly that has failed. Consult the nearest Parker distributor or the appropriate Parker division for Hose Assembly replacement information. Never touch or examine a failed Hose Assembly unless it is obvious that the Hose no longer contains fluid under pressure. The high pressure fluid is extremely dangerous and can cause serious and potentially fatal injury.
 - 5.7 **Elastomeric seals:** Elastomeric seals will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Elastomeric seals should be inspected and replaced.
 - 5.8 **Refrigerant gases:** Special care should be taken when working with refrigeration systems. Sudden escape of refrigerant gases can cause blindness if the escaping gases contact the eye and can cause freezing or other severe injuries if it contacts any other portion of the body.
 - 5.9 **Compressed natural gas (CNG):** Parker CNG Hose Assemblies should be tested after installation and before use, and at least on a monthly basis per instructions provided on the Hose Assembly tag. The recommended procedure is to pressurize the Hose and check for leaks and to visually inspect the Hose for damage and to perform an electrical resistance test. Caution: Matches, candles, open flame or other sources of ignition shall not be used for Hose inspection. Leak check solutions should be rinsed off after use.
- #### 6.0 HOSE STORAGE
- 6.1 **Age Control:** Hose and Hose Assemblies must be stored in a manner that facilitates age control and first-in and first-out usage based on manufacturing date of the Hose and Hose Assemblies. Unless otherwise specified by the manufacturer or defined by local laws and regulations:
 - 6.1.1 The shelf life of rubber hose in bulk form or hose made from two or more materials is 28 quarters (7 years) from the date of manufacture, with an extension of 12 quarters (3 years), if stored in accordance with ISO 22303;
 - 6.1.2 The shelf life of thermoplastic and polytetrafluoroethylene hose is considered to be unlimited;
 - 6.1.3 Hose assemblies that pass visual inspection and proof test shall not be stored for longer than 2 years.
 - 6.1.4 **Storage:** Stored Hose and Hose Assemblies must not be subjected to damage that could reduce their expected service life and must be placed in a cool, dark and dry area with the ends capped. Stored Hose and Hose Assemblies must not be exposed to temperature extremes, ozone, oils, corrosive liquids or fumes, solvents, high humidity, rodents, insects, ultraviolet light, electromagnetic fields or radioactive materials.

PARKER-HANNIFIN CORPORATION **OFFER OF SALE**

1. **Definitions.** As used herein, the following terms have the meanings indicated.

- Buyer: means any customer receiving a Quote for Products.
- Goods: means any tangible part, system or component to be supplied by Seller.
- Products: means the Goods, Services and/or Software as described in a Quote.
- Quote: means the offer or proposal made by Seller to Buyer for the supply of Products.
- Seller: means Parker-Hannifin Corporation, including all divisions and businesses thereof.
- Services: means any services to be provided by Seller.
- Software: means any software related to the Goods, whether embedded or separately downloaded.
- Terms: means the terms and conditions of this Offer of Sale.

2. **Terms.** All sales of Products by Seller are expressly conditioned upon, and will be governed by the acceptance of, these Terms. These Terms are incorporated into any Quote provided by Seller to Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms or conditions of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. **Price; Payment.** The Products set forth in the Quote are offered for sale at the prices indicated in the Quote. Unless otherwise specifically stated in the Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2020). All sales are contingent upon credit approval and full payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. **Shipment; Delivery; Title and Risk of Loss.** All delivery dates are approximate, and Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

5. **Warranty.** The warranty for the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS; THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".**

6. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. **LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. **IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.**

8. **Confidential Information.** Buyer acknowledges and agrees that any technical, commercial, or other confidential information of Seller, including, without limitation, pricing, technical drawings or prints and/or part lists, which has been or will be disclosed, delivered or made available, whether directly or indirectly, to Buyer ("Confidential Information"), has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller.

9. **Loss to Buyer's Property.** Any tools, patterns, materials, equipment or information furnished by Buyer or which are or become Buyer's property ("Buyer's Property"), will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property. Furthermore, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control.

10. **Special Tooling.** "Special Tooling" includes but is not limited to tools, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Goods. Seller may impose a tooling charge for any Special Tooling. Such Special Tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property owned by Seller in its sole discretion at any time.

11. **Security Interest.** To secure payment of all sums due from Buyer, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect Seller's security interest.

12. **User Responsibility.** Buyer, through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and any technical information provided with the Quote or the Products, such as Seller's instructions, guides and specifications. If Seller provides options of or for Products based upon data or specifications provided by Buyer, Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event Buyer is not the end-user of the Products, Buyer will ensure such end-user complies with this paragraph.

13. **Use of Products, Indemnity by Buyer.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. **Unauthorized Uses.** If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tools, equipment, plans, drawings, designs, specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

14. **Cancellations and Changes.** Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, any order for any reason except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

15. **Limitation on Assignment.** Buyer may not assign its rights or obligations without the prior written consent of Seller.

16. **Force Majeure.** Seller is not liable for delay or failure to perform any of its obligations by reason of events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, delays or failures in delivery from carriers or suppliers, shortages of materials, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by force majeure shall be tolled for the duration of such force majeure and rescheduled for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist. Force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or sub-contractors.

17. **Waiver and Severability.** Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

18. **Termination.** Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property, (d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

19. **Ownership of Software.** Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

20. **Indemnity for Infringement of Intellectual Property Rights.** Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by Seller to Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less

a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for claims of infringement of Intellectual Property Rights.

21. **Governing Law.** These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

22. **Entire Agreement.** These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

23. **Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Products from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws. Buyer agrees to promptly and reliably provide Seller all requested information or documents, including end-user statements and other written assurances, concerning Buyer's ongoing compliance with Export Laws.

Notes

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Parker's Motion & Control Product Groups

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 1 800 G-Parker (1 800 272 7537).



Aerospace

Key Markets

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes



Automation

Key Markets

Alternative energy
Conveyor & material handling
Factory automation
Food & beverage
Life sciences & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery
Primary metals
Safety & security
Semiconductor & electronics
Transportation & automotive

Key Products

AC/DC drives & systems
Air preparation
Electric actuators, gantry robots & slides
Human machine interfaces
Inverters
Manifolds
Miniature fluidics
Pneumatic actuators & grippers
Pneumatic valves & controls
Rotary actuators
Stepper motors, servo motors, drives & controls
Structural extrusions
Vacuum generators, cups & sensors



Climate & Industrial Controls

Key Markets

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO₂ controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves



Filtration

Key Markets

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & systems



Fluid Connectors

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings



Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors



Instrumentation

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves



Seal

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical windows
Silicone tubing & extrusions
Thermal management
Vibration dampening



ENGINEERING YOUR SUCCESS.

Parker Fluid Connectors Group

North American Divisions & Distribution Service Centers

Your complete source for quality tube fittings, hose & hose fittings, brass & composite fittings, quick-disconnect couplings, valves and assembly tools, locally available from a worldwide network of authorized distributors.

Fittings:

Available in inch and metric sizes covering SAE, BSP, DIN, GAZ, JIS and ISO thread configurations, manufactured from steel, stainless steel, brass, aluminum, nylon and thermoplastic.

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Available in a wide variety of sizes and materials including rubber, wire-reinforced, thermoplastic, hybrid and custom compounds.

Worldwide Availability:

Parker operates Fluid Connectors manufacturing locations and sales offices throughout North America, South America, Europe and Asia-Pacific.

For information, call toll free...

1-800-C-PARKER
(1-800-272-7537)

North American Divisions

Fluid System Connectors Division

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Customer Support:
FSC.Support@support.parker.com

Quote Support:
FSC.Quotes@support.parker.com

Hose Products Division

Wickliffe, OH
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fax 440 943 3129

Parflex Division

Ravenna, OH
phone 330 296 2871
fax 330 296 8433

Quick Coupling Division

Minneapolis, MN
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fax 763 544 3418

Tube Fittings Division

Columbus, OH
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fax 614 279 7685

Distribution Service Centers

Buena Park, CA

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phone 770 929 0330
fax 770 929 0230

Louisville, KY

phone 502 937 1322
fax 502 937 4180

Portland, OR

phone 503 283 1020
fax 503 283 2201

Toledo, OH

phone 419 878 7000
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fax 419 878 7420
(FCG Kit Operations)

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