KOMET GROUP

KomPass
DRILLING



TOOLS + IDEAS®

KomPass DRILLING – BENEFITS for you:



KOMET GROUP – The specialists in bore machining

Innovative tool concepts and holistic solutions for the bore machining industry distinguish the KOMET GROUP as a worldwide leader in machining technology.

We are known by our customers as a manufacturer of premium quality tools. They recognise the ideas behind our solutions. We have set ourselves the goal of bringing out the added value that this has, to the benefit of our customers.

We call it "TOOLS PLUS IDEAS". It is a new and innovative way of providing our customers with permanent and sustained benefits by means of improved support and services.

Index

Solid drilling
KUB® Drillmax · KUB K2® · KUB Quatron®
KUB Pentron® · KUB Trigon® · KUB Duon®
KUB Centron® · KUB Centron® Powerline · KUB® V464
4 – 195

Roughing
TwinKom® G01
196 – 229

Fine boring
MicroKom® *hi.flex* · MicroKom *BluFlex*® · UniTurn®
230 – 329

Easy Special
Solid Drilling · Roughing · Fine Boring
330 – 373

Adaptors
Taper Shanks · HSK · ABS®
374 – 495

Kometric®
Insert Seatings
496 – 579

Cutting elements
580 – 767

Informations
IDEEN-FABRIK · KOMET SERVICE® · KOMET® BRINKHAUS
Accessories · Additional information
768 – 809

Numerical Index
Order formulae
810 – 839

KOMET® – Solid drilling





The KOMET GROUP is one of the world's leading providers of high-precision drilling tools for efficient bore machining. Our potential for providing innovative solutions, a comprehensive performance spectrum and personal commitment form the basis for successful partnerships with our customers.

With the development of solid drill bits, KOMET® entered completely new territory in the Seventies.

The KUB® solid drill bit range has now become a leading concept in tool design.

Through the use of high-performance carbides and the latest generation of coatings, the cutting edges are always ideally matched with the solid bit drilling process.

The KOMET GROUP also provides its service and after-sales spectrum internationally. You will find us in any location where you manufacture products which demand a high level of quality.



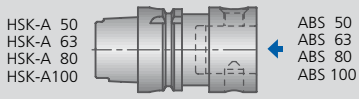
Index

	Page
Programme summary	6 – 7
Tool selection	8 – 9
Solid drilling tools	
KOMET KUB® Drillmax	14 – 29
Solid carbide spot drill	30 – 31
KOMET RHOBEST® Drillmax	40 – 46
KOMET KUB K2®	48 – 60
KOMET KUB Quatron®	62 – 77
KOMET KUB Pentron®	78 – 101
KOMET KUB Trigon®	102 – 129
KOMET KUB® drill	130 – 141
KOMET KUB Duon®	142 – 163
KOMET KUB Centron® Powerline	164 – 175
KOMET KUB Centron®	176 – 185
KOMET KUB® V464	186 – 189
KOMET KUB® drill head	190 – 191
KOMET® Flat-bottoming tool	192 – 193
KOMET® Trepannning tool	194
KOMET® Packet drill	195
KOMET® Easy Special	Chapter 4

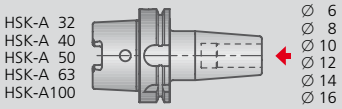
Programme summary – Solid drilling

5 Adaptors see chapter 5

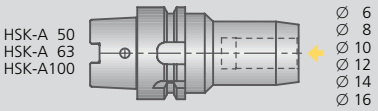
HSK-A Adaptors
with ABS® connection



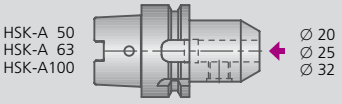
Thermal expansion chuck



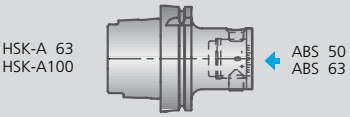
Expanding chuck



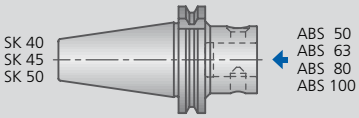
Adaptor sleeve Weldon



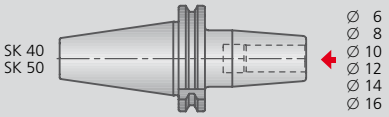
Eccentric adjusting device with ABS® connection



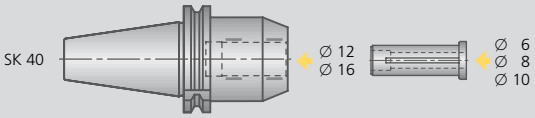
Taper shanks DIN 69871
with ABS® connection



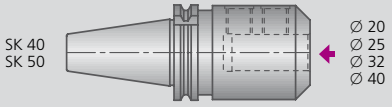
Thermal expansion chuck



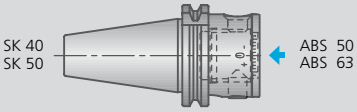
Expanding chuck



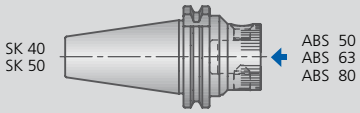
Adaptor sleeve Weldon / cylindrical shank (combination shank)



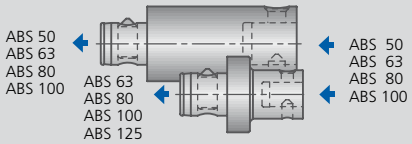
Eccentric adjusting device with ABS® connection



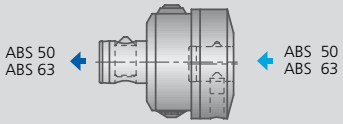
Torsional dampener with ABS® connection



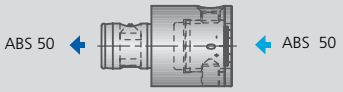
ABS® Adaptors
Extension / Reducer



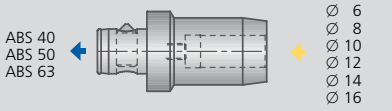
Adjustment device



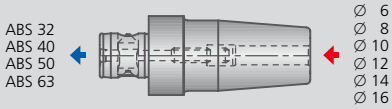
Eccentric adjusting device



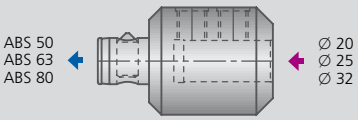
Expanding chuck



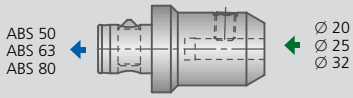
Thermal expansion chuck



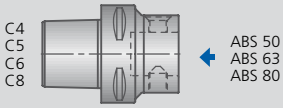
Adaptor sleeve Weldon



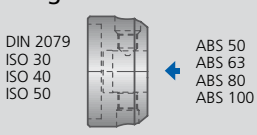
Adaptor sleeve Whistle Notch



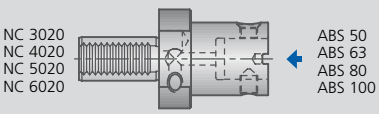
PSC Adaptor
with ABS® connection



Spindle adaptor flange
with ABS® connection



VDI Adaptor
with ABS® connection

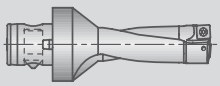


Further adaptors see chapter 5.

1 Tools for solid drilling, trepanning and flat bottoming

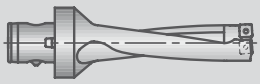
with ABS® connection

ABS 50 ABS 63 ABS 80



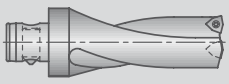
KUB Quatron®
Ø 14 – 65 mm
▸ 64 – 67

ABS 50 ABS 63



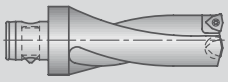
KUB Pentron®
Ø 14 – 46 mm
▸ 80 – 87

ABS 50



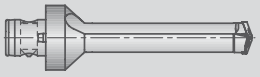
KUB Trigon®
Ø 14 – 44 mm
▸ 104 | 122

ABS 50 ABS 63 ABS 80



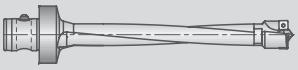
KUB® drill
Ø 38,5 – 82 mm
▸ 130 – 135

ABS 50 ABS 63



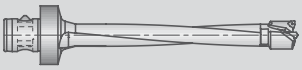
KUB Duon®
Ø 17,3 – 44,2 mm
▸ 144 – 159

ABS 50 ABS 63 ABS 80



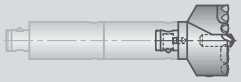
KUB Centron® Powerline
Ø 20 – 65 mm
▸ 166 – 171

ABS 50 ABS 63 ABS 80 ABS 100



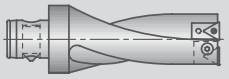
KUB Centron®
Ø 20 – 81 mm
▸ 176 – 181

ABS 50 ABS 63 ABS 80



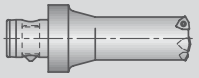
KUB® V464
Ø 80 – 155 mm
▸ 186

ABS 50 ABS 63 ABS 80



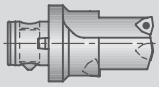
Flat-bottoming tool
Ø 37 – 64 mm
▸ 192

ABS 50 ABS 63 ABS 80



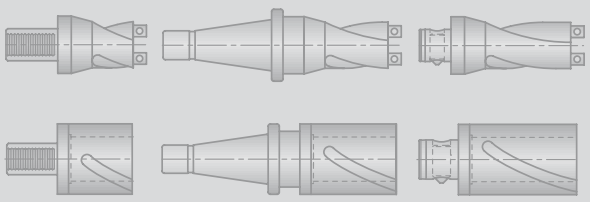
Packet drill
Ø 14 – 82 mm
▸ 195

ABS 50 ABS 63 ABS 80



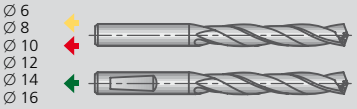
Easy Special
Ø 14 – 44 mm
▸ Chapter 4

ABS 50



with cylindrical shank

Ø 6 Ø 8 Ø 10 Ø 12 Ø 14 Ø 16



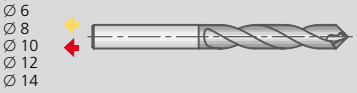
KUB® Drillmax
KUB® Drillmax VA
KUB® Drillmax ALU
Ø 3 – 16 mm
▸ 14 – 25

Ø 6 Ø 8 Ø 10 Ø 12



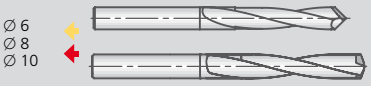
KUB® Drillmax XL
Ø 3 – 12 mm
▸ 26 – 29

Ø 3 Ø 6 Ø 8 Ø 10 Ø 12 Ø 14



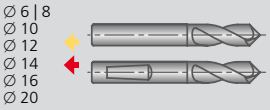
NCD Drillmax
Ø 0,8 – 13 mm
▸ 40 – 43

Ø 6 Ø 8 Ø 10



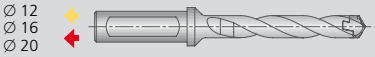
PKD Drillmax
Ø 6 – 10 mm
▸ 44 – 45

Ø 6 | 8 Ø 10 Ø 12 Ø 14 Ø 16 Ø 20



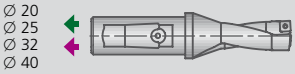
S.c. spot drill
Ø 6 – 20 mm
▸ 30 – 31

Ø 12 Ø 16 Ø 20



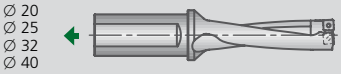
KUB K2®
Ø 10 – 20,5 mm
▸ 50 – 57

Ø 20 Ø 25 Ø 32 Ø 40



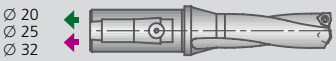
KUB Quatron®
Ø 14 – 44 mm
▸ 68 – 71

Ø 20 Ø 25 Ø 32 Ø 40



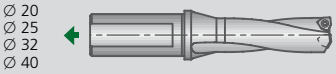
KUB Pentron®
Ø 14 – 46 mm
▸ 88 – 95

Ø 20 Ø 25 Ø 32



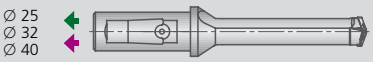
KUB Trigon®
Ø 12 – 44 mm
▸ 108

Ø 20 Ø 25 Ø 32 Ø 40



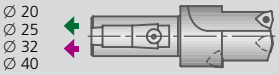
KUB Trigon®
Ø 14 – 54 mm
▸ 114 | 126

Ø 25 Ø 32 Ø 40



KUB Duon®
Ø 17,3 – 36,2 mm
▸ 144 – 155

Ø 20 Ø 25 Ø 32 Ø 40



Easy Special
Ø 14 – 44 mm
▸ Chapter 4

Key

- ABS® connection
- ABS® connection
- Cylindrical connection
- Whistle Notch connection
- Weldon connection
- Shrink connection



KUB® drill head
larger sizes on request
Ø 83 – 128 mm
▸ 190



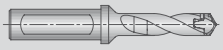
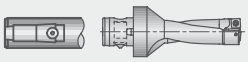
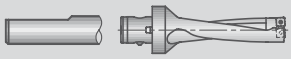
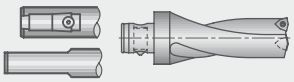
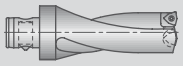
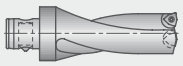
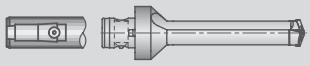
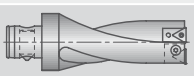
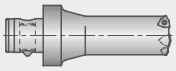
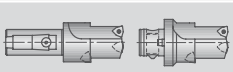
Trepannning tool
on request
Ø 83 – 198 mm
▸ 194

KOMET® Tool selection

Help table for solid drilling

Ø (mm)	L / D	Machining										
	Length/ diameter ratio	solid drilling	blind hole	forge/ casting skin, interface	angled start and drilling out, inter-rupted cut	convex	cross bore	centering bore, seam	chamber	stack plate drilling	rough boring	adjustable
3,0 – 16,0	3×D	●	●	◐	○	○	○	○		○	○	
	5×D	●	●	◐	○	○	○	○		○	○	
	7-8×D	●	●	○	○	○	○	○		○	○	
3,0 – 16,0	5×D	●	●	◐	○	○	○	○		○	○	
3,0 – 16,0	5×D 8×D	●	●	◐	○	○	○	○		○	○	
3,0 – 12,0	12×D	●	●	◐	○	○	◐					
3,0 – 10,0	20|30×D	●	●		○		○	○				
0,8 – 13,0	5×D 7×D	●	●		●	●	◐	◐			●	
6,0 – 10,0	5×D	●	●		●	●	◐	◐			●	
6,0 – 20,0			●	◐	◐	◐		◐				
10,0 – 20,5 +0,05	3×D 5×D 7×D	●	●	○	○			●		○		
14,0 – 65,0 ±0,2	2×D	●	●	●	●	●	●	●	●	●	◐	◐
	3×D	●	●	●	●	●	●	●	●	●	◐	◐
14,0 – 46,0 +0,3 −0,1	4×D	●	●	◐	◐	◐	◐	◐	○	◐		◐
14,0 – 46,0 +0,35 −0,1	5×D	●	●	◐	◐	◐	◐	◐		◐		◐
12,0 – 44,0 ±0,1	2×D	●	●	●	●	●	●	◐	●		◐	●
12,0 – 54,0 ±0,1	3×D	●	●	◐	◐	◐	◐	◐	◐		○	●
14,0 – 44,0 ±0,1	4×D	●	●	○	○	○	○	○	○			◐
38,5 – 82,0 +1,0 −0,5	3×D	●	●	○	○	○	○	○	○			◐
45,0 – 82,0 ±0,2	2×D	●	●	●	●	●	◐	◐	●		◐	◐
	3×D	●	●	●	◐	◐	◐	◐	◐			◐
17,3 – 44,2 ±0,1	5×D	●	●	◐	○	◐	◐	○		●	○	
20,0 – 65,0 +0,3 −0,1	4 – 9×D	●	●	◐	○	○	○	○				
20,0 – 81,0 ±0,1	4 – 9×D	●	●	◐	○	○	○	○	○			
80,0 – 155,0	6×D	●	●	◐	○	○	○	○				●
83,0 – 128,0 ±0,4	4×D	●	●	◐	○	○	○	○	○			
83,0 – 198,0 ±0,5	3×D	●		◐	◐	◐	◐	●	●			
37,0 – 64,0 ±0,5	3×D		◐								●	●
14,0 – 82,0	2×D	◐	◐	◐	○	◐	◐	◐	◐	●	○	○
	3×D	◐	◐	◐	○	◐	◐	◐	◐	●	○	○
14,0 – 44,0	1,5 - 4×D	●	●	●	◐	◐	◐	◐	◐			●

● very good | ◐ good | ○ possible: see technical notes

Coolant				Material						Tool	Page
Emulsion		MQL									
internal	external, drilling depth max. 3xD	internal	external, drilling depth max. 0,5xD	Mild steel/tool steel P	Stainless and acid-resistant steel M	Grey cast iron, spheroidal cast iron K	Non-ferrous metals N	Heat-resistant steels S	Hardened tool steel H		
	●			●	◑	◐				 **KOMET KUB® Drillmax** cylindrical shank DIN 6535 HA | HE	▸ 14 – 19
●	●	◐*	◐*	●	◑	◐					
●	●	◐*	◐*	●	◑	◐					
●	●	●*		●	○	◐	◐	●		 **KOMET KUB® Drillmax VA** cylindrical shank DIN 6535 HA | HE	▸ 20 – 21
●	●	●*					●			 **KOMET KUB® Drillmax ALU** cylindrical shank DIN 6535 HA | HE	▸ 22 – 25
●		●*		●		◐	◐			 **KOMET KUB® Drillmax XL** cylindrical shank DIN 6535 HA	▸ 26 – 35
●	●	◐*	◐*	●		◐					
●	●	●*	●*	CFRP ●	GFRP ●	CFRP/Al stacks ●	Honeycombs ◐			 **KOMET RHOBEST® Drillmax | NCD** cylindrical shank DIN 6535 HA	▸ 40 – 43
●	●	●*	●*	CFRP ●	GFRP ●	CFRP/Al stacks ●	Honeycombs ◐			 **KOMET RHOBEST® Drillmax | PCD** cylindrical shank DIN 6535 HA | HE	▸ 44 – 45
	●			●	○	◐	●			 **KOMET® Solid carbide spot drill** cylindrical shank DIN 6535 HA | HE	▸ 30 – 31
●	●			●	◑	◐				 **KOMET KUB K2®** cylindrical shank ISO 9766	▸ 50 – 57
●	◐	●		●	○	◐	●	●	○	 **KOMET KUB Quatron®** ABS® connection cylindrical shank (combination shank)	▸ 64 – 71
●	◐	●		●	○	◐	●	●	○		
●	◐	◐		●	○	◐	●	◑		 **KOMET KUB Pentron®** ABS® connection cylindrical shank ISO 9766	▸ 80 – 95
●	◐	◐		●	○	◐	●	◑			
●	◐	●		●	○	◐	●	●	○	 **KOMET KUB Trigon®** ABS® connection cylindrical shank (combination shank) VDI kompatibel	▸ 104 – 119 ⟲ ▸ 122 – 127
●	◐	●		●	○	◐	●	●	○		
●	◐	●		●	○	◐	●	●	○		
●	○	◐	○	●	○	◐	●	●		 **KOMET KUB® drill adjustable** ABS® connection	▸ 130 – 133
●	◐	◐		●	○	◐	●	●	○	 **KOMET KUB® drill** ABS® connection	▸ 134 – 135
●	○	◐	○	●	○	◐	●	●	○		
●	○	●	○	●		◐	●			 **KOMET KUB Duon®** ABS® connection cylindrical shank (combination shank)	▸ 144 – 159
●		○		●	○	◐	●	◑	○	 **KOMET KUB Centron® Powerline** ABS® connection	▸ 166 – 171
●		○		●	○	◐	●	◑		 **KOMET KUB Centron®** ABS® connection	▸ 176 – 181
●		○		●	○	◐	●			 **KOMET KUB® V464** ABS® T connection	▸ 186 – 187
●	○	◐	○	●	○	◐	●	●		 **KOMET KUB® drill head**	▸ 190
●	○	◐	○	●	○	◐	●	●		 **KOMET® trepannning tool**	▸ 194
●	◐	◐	○	●	○	◐	●			 **KOMET® flat-bottoming tool** ABS® connection	▸ 192
●	◐	◐	○	●	◑	◐	◐			 **KOMET® packet drill**	▸ 195
●	○	◐	○	●	◑	◐	◐				
●	◐		○	●	○	◐	●	●		 **KOMET® Easy Special**	Chapter 4

* For optimum MQL suitability, the delivery taper should be ground on the rear of the shank

⟲ L.H. cutting

KOMET KUB® Drillmax High-performance solid carbide drill

KOMET KUB® Drillmax 3×D | 5×D | 7–8×D



High-performance solid carbide drill

The KUB® Drillmax high-performance solid carbide drills complete our range for drill diameters of 3 to 16 mm and length/diameter ratios of 3×D, 5×D and 7-8×D.
Optimised, special flutes are ideal for removing chips and for highly productive machining.

BENEFITS for you:

- Excellent hole tolerances
- Optimum chip removal thanks to special flutes
- Optimum machining result thanks to good coordination of carbide and coating with drill geometry
- Long tool edge life thanks to effective coating

KOMET KUB® Drillmax XL 12×D | 20×D | 30×D

High-performance drill for deep holes

With the KOMET KUB® Drillmax XL, the expertise gained from developing many special solutions has been transferred to a standard tool range, which is available from stock for 12×D in diameters of 3.0 to 12.0 mm, 20×D in diameters of 3.0 to 10.0 mm and for 30×D in diameters of 3.0 to 8.0 mm.
The spiral-fluted deep-hole drills have four guide chamfers, ensuring good guidance.

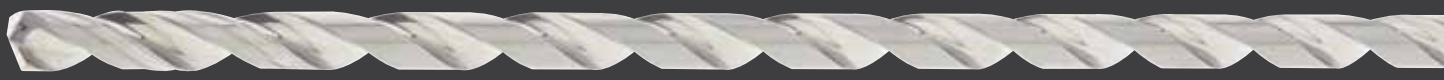
BENEFITS for you:

- 4 x chamfers for high drilling and alignment precision
- Ideal chip removal thanks to optimised, special flutes
- Reliable drilling up to 30×D, with no pecking
- Significantly reduced production times due to extremely high feed rates and cutting speeds



KOMET KUB® Drillmax XL ALU 40×D

for machining aluminium



Lightweight construction Focus COMPOSITE MATERIALS

In an era of increasing awareness of the issues surrounding energy, energy conservation and energy efficiency, the lightweight construction segment is becoming more and more important. At a rapid pace, composite materials are carving out ever larger market shares.
Outstanding material properties, however, also present challenges for the manufacturers of precision tools. The extremely high strength and complex make-up of these materials are placing new demands on the tools that work them: the high degree of abrasiveness means that conventional tools in drilling and milling setups last only a few metres.

In light of this requirement, the KOMET GROUP has developed a brand new class of tools distinguished by their innovative geometry, suitability for new machining strategies involving very high cutting parameters and also by the use of intelligent cutting materials. These new solutions range from single-edge to multi-tooth milling cutters and from drills with a new chamfer geometry to indexable tools having a special insert arrangement.
Cutting materials have also followed the trend: KOMET RHOBEST® diamond coatings and PCD solutions are demonstrating that they are fully equipped for the task.

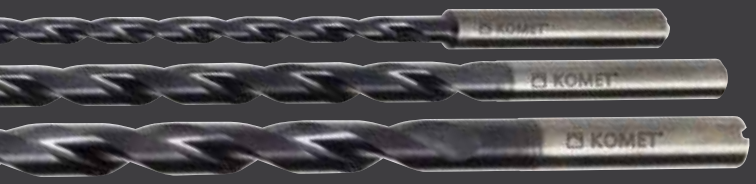


KOMET KUB® Drillmax VA 5×D

Ideal for machining stainless steels

The specially balanced geometry and coating produce excellent results when machining corrosion-resistant steels.

The new coating for stainless steels is characterised by a high level of resistance to wear and heat. This results in long tool life combined with excellent machining results.







The non-homogeneous nature of these new lightweight materials imposes exacting and individual requirements on the machining process. Not only does the KOMET GROUP offer a standard product range, it is an expert partner for its customers – with absolute focus on problem-solving. Thanks to full process control in-house – from carbide/cutting material selection, consolidated expertise and many years of experience in grinding – the KOMET GROUP is your single source of smart and viable machining solutions.

KOMET KUB® Drillmax	Page
Cylindrical shank DIN 6535 HA / HE	
3×D | ∅ 3 – 16 mm | R.H. cutting	14 – 15
5×D | ∅ 3 – 16 mm | R.H. cutting	16 – 17
7-8×D | ∅ 3 – 16 mm | R.H. cutting	18 – 19
KOMET KUB® Drillmax VA	
Cylindrical shank DIN 6535 HA / HE	
5×D | ∅ 3 – 16 mm | R.H. cutting	20 – 21
KOMET KUB® Drillmax ALU	
Cylindrical shank DIN 6535 HA / HE	
5×D | ∅ 3 – 16 mm | R.H. cutting	22 – 23
8×D | ∅ 3 – 16 mm | R.H. cutting	24 – 25
KOMET KUB® Drillmax XL	
Cylindrical shank DIN 6535 HA	
12×D | ∅ 3 – 12 mm | R.H. cutting	26
20×D | ∅ 3 – 10 mm | R.H. cutting	27
30×D | ∅ 3 – 8 mm | R.H. cutting	28
KOMET® Solid carbide spot drill	
∅ 6 – 20 mm | 90° | 120° | 142°	30 – 31
Recommended cutting data	32 – 35
Technical informations	36 – 38
KOMET RHOBEST® Drillmax	
NCD High-performance drill	
5×D | ∅ 0,8 – 13 mm | DIN 6535 HA	40 – 41
7×D | ∅ 5 – 13 mm | DIN 6535 HA	42 – 43
PCD High-performance drill	
5×D | ∅ 6 – 10 mm | DIN 6535 HA / HE	44 – 45
Recommended cutting data	46

KOMET SERVICE® – Chapter 8
The KOMET SERVICE® TOOL *life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

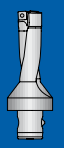
KOMET KUB® Drillmax

Overview of the high-performance solid carbide drill

Material Group		Strength Rm (N/mm²)	Hardness HB	Material	L×D	KUB® Drillmax 3×D V07 .. solid carbide TiAlN 14 – 15 32	KUB® Drillmax 5×D V03 .. solid carbide TiAlN 16 – 17 32	KUB® Drillmax 7-8×D V04 .. solid carbide TiAlN 18 – 19 32
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	●	●	●
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	●	●	●
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	●	●	●
P	3.0	> 900 - 1200		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	●	●	●
P	4.0	> 1200		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	●	●	●
P	4.1			HSS				
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb-5Mo3) 2.4631 (Nimonic 80A)			
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)			
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	◐	◐	◐
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	◐	◐	◐
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	◐	◐	◐
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	●	●	●
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	●	●	●
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	●	●	●
K	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	●	●	●
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	●	●	●
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	●	●	●
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	●	●	●
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)			
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)			
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)			
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)			
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)			
H	15.0	1400		hardened steels < 45 HRC				
H	16.0	1800		hardened steels > 45 HRC				

● very good | ◐ good

Overview of the high-performance solid carbide drill



	KUB® Drillmax VA	KUB® Drillmax ALU		KUB® Drillmax XL			Solid carbide spot drill
	5×D V09 .. solid carbide TiAlN 20 – 21 33	**5×D** V26 .. solid carbide – 22 – 23 33	**8×D** V27 .. solid carbide – 24 – 25 33	**12×D** V25 .. solid carbide TiAlN 26 34	**20×D** V05.. solid carbide TiAlN 27 35	**30×D** V06 .. solid carbide TiAlN 28 35	V95.. solid carbide PVD 30 – 31 –
	●			●	●	●	●
	●			●	●	●	●
	●			●	●	●	●
	●			●	●	●	●
	●						
							●
	◐			◐			
	◐						◐
	◐						◐
	◐						◐
	◐			●	●	●	●
	◐			●	●	●	●
	◐			●	●	●	●
	◐			●	●	●	●
	◐			●	●	●	●
	◐			●			
	◐			●	●	●	●
	◐	●	●				●
		●	●				●
	◐	●	●	◐			●
	◐	●	●	◐			●
	◐	●	●				●

KOMET KUB® Drillmax Ø 3,0 – 16,0 mm

High-performance solid carbide drill

1

Material P M K N S H

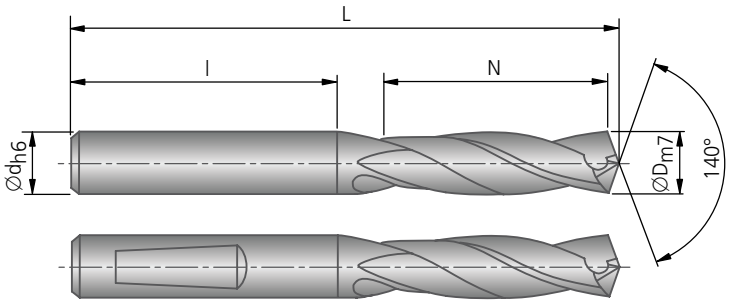
3×D

DIN 6535 HA

DIN 6535 HE

2 guide chamfer

TiAlN

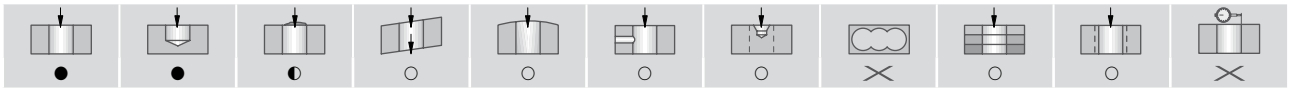


3×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d_{h6}×l	L	N	kg ~
3,0	V07 03000.112730	V07 03000.212730	6×36	62	15	0,014
3,1	V07 03100.112730	V07 03100.212730	6×36	62	15	0,014
3,2	V07 03200.112730	V07 03200.212730	6×36	62	15	0,015
3,3	V07 03300.112730	V07 03300.212730	6×36	62	15	0,015
3,4	V07 03400.112730	V07 03400.212730	6×36	62	15	0,015
3,5	V07 03500.112730	V07 03500.212730	6×36	62	15	0,016
3,6	V07 03600.112730	V07 03600.212730	6×36	62	15	0,016
3,7	V07 03700.112730	V07 03700.212730	6×36	62	15	0,016
3,8	V07 03800.112730	V07 03800.212730	6×36	66	18	0,016
3,9	V07 03900.112730	V07 03900.212730	6×36	66	18	0,016
4,0	V07 04000.112730	V07 04000.212730	6×36	66	18	0,016
4,1	V07 04100.112730	V07 04100.212730	6×36	66	18	0,017
4,2	V07 04200.112730	V07 04200.212730	6×36	66	18	0,017
4,3	V07 04300.112730	V07 04300.212730	6×36	66	18	0,017
4,4	V07 04400.112730	V07 04400.212730	6×36	66	18	0,017
4,5	V07 04500.112730	V07 04500.212730	6×36	66	18	0,017
4,6	V07 04600.112730	V07 04600.212730	6×36	66	18	0,017
4,7	V07 04700.112730	V07 04700.212730	6×36	66	18	0,017
4,8	V07 04800.112730	V07 04800.212730	6×36	66	20	0,018
4,9	V07 04900.112730	V07 04900.212730	6×36	66	20	0,018
5,0	V07 05000.112730	V07 05000.212730	6×36	66	20	0,018
5,1	V07 05100.112730	V07 05100.212730	6×36	66	20	0,019
5,2	V07 05200.112730	V07 05200.212730	6×36	66	20	0,019
5,3	V07 05300.112730	V07 05300.212730	6×36	66	20	0,020
5,4	V07 05400.112730	V07 05400.212730	6×36	66	20	0,020

3×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d_{h6}×l	L	N	kg ~
5,5	V07 05500.112730	V07 05500.212730	6×36	66	20	0,021
5,6	V07 05600.112730	V07 05600.212730	6×36	66	20	0,021
5,7	V07 05700.112730	V07 05700.212730	6×36	66	20	0,022
5,8	V07 05800.112730	V07 05800.212730	6×36	66	20	0,022
5,9	V07 05900.112730	V07 05900.212730	6×36	66	20	0,023
6,0	V07 06000.112730	V07 06000.212730	6×36	66	20	0,023
6,1	V07 06100.112730	V07 06100.212730	8×36	79	24	0,024
6,2	V07 06200.112730	V07 06200.212730	8×36	79	24	0,024
6,3	V07 06300.112730	V07 06300.212730	8×36	79	24	0,027
6,4	V07 06400.112730	V07 06400.212730	8×36	79	24	0,027
6,5	V07 06500.112730	V07 06500.212730	8×36	79	24	0,029
6,6	V07 06600.112730	V07 06600.212730	8×36	79	24	0,029
6,7	V07 06700.112730	V07 06700.212730	8×36	79	24	0,029
6,8	V07 06800.112730	V07 06800.212730	8×36	79	24	0,032
6,9	V07 06900.112730	V07 06900.212730	8×36	79	24	0,032
7,0	V07 07000.112730	V07 07000.212730	8×36	79	24	0,033
7,1	V07 07100.112730	V07 07100.212730	8×36	79	24	0,033
7,2	V07 07200.112730	V07 07200.212730	8×36	79	24	0,035
7,3	V07 07300.112730	V07 07300.212730	8×36	79	24	0,035
7,4	V07 07400.112730	V07 07400.212730	8×36	79	24	0,036
7,5	V07 07500.112730	V07 07500.212730	8×36	79	29	0,036
7,6	V07 07600.112730	V07 07600.212730	8×36	79	29	0,037
7,7	V07 07700.112730	V07 07700.212730	8×36	79	29	0,037
7,8	V07 07800.112730	V07 07800.212730	8×36	79	29	0,039
7,9	V07 07900.112730	V07 07900.212730	8×36	79	29	0,039

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example ***HB***: V07 xxxxx.***31***2730).
Delivery time 1 week (minimum purchase: 3 pieces)

● very good | ◐ good | ○ possible: see technical notes, page 36 | ✕ not possible



3×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d_{h6}×l	L	N	kg ~
8,0	V07 08000.112730	V07 08000.212730	8×36	79	29	0,040
8,1	V07 08100.112730	V07 08100.212730	10×40	89	35	0,041
8,2	V07 08200.112730	V07 08200.212730	10×40	89	35	0,041
8,3	V07 08300.112730	V07 08300.212730	10×40	89	35	0,042
8,4	V07 08400.112730	V07 08400.212730	10×40	89	35	0,042
8,5	V07 08500.112730	V07 08500.212730	10×40	89	35	0,045
8,6	V07 08600.112730	V07 08600.212730	10×40	89	35	0,045
8,7	V07 08700.112730	V07 08700.212730	10×40	89	35	0,047
8,8	V07 08800.112730	V07 08800.212730	10×40	89	35	0,047
8,9	V07 08900.112730	V07 08900.212730	10×40	89	35	0,050
9,0	V07 09000.112730	V07 09000.212730	10×40	89	35	0,050
9,1	V07 09100.112730	V07 09100.212730	10×40	89	35	0,051
9,2	V07 09200.112730	V07 09200.212730	10×40	89	35	0,051
9,3	V07 09300.112730	V07 09300.212730	10×40	89	35	0,056
9,4	V07 09400.112730	V07 09400.212730	10×40	89	35	0,056
9,5	V07 09500.112730	V07 09500.212730	10×40	89	35	0,060
9,6	V07 09600.112730	V07 09600.212730	10×40	89	35	0,060
9,7	V07 09700.112730	V07 09700.212730	10×40	89	35	0,065
9,8	V07 09800.112730	V07 09800.212730	10×40	89	35	0,065
9,9	V07 09900.112730	V07 09900.212730	10×40	89	35	0,069
10,0	V07 10000.112730	V07 10000.212730	10×40	89	35	0,069
10,1	V07 10100.112730	V07 10100.212730	12×45	102	42	0,072
10,2	V07 10200.112730	V07 10200.212730	12×45	102	42	0,077
10,3	V07 10300.112730	V07 10300.212730	12×45	102	42	0,081
10,4	V07 10400.112730	V07 10400.212730	12×45	102	42	0,085

3×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d_{h6}×l	L	N	kg ~
10,5	V07 10500.112730	V07 10500.212730	12×45	102	42	0,087
10,6	V07 10600.112730	V07 10600.212730	12×45	102	42	0,090
10,7	V07 10700.112730	V07 10700.212730	12×45	102	42	0,092
10,8	V07 10800.112730	V07 10800.212730	12×45	102	42	0,095
10,9	V07 10900.112730	V07 10900.212730	12×45	102	42	0,096
11,0	V07 11000.112730	V07 11000.212730	12×45	102	42	0,099
11,1	V07 11100.112730	V07 11100.212730	12×45	102	42	0,101
11,2	V07 11200.112730	V07 11200.212730	12×45	102	42	0,104
11,3	V07 11300.112730	V07 11300.212730	12×45	102	42	0,105
11,4	V07 11400.112730	V07 11400.212730	12×45	102	42	0,108
11,5	V07 11500.112730	V07 11500.212730	12×45	102	42	0,110
11,6	V07 11600.112730	V07 11600.212730	12×45	102	42	0,113
11,7	V07 11700.112730	V07 11700.212730	12×45	102	42	0,114
11,8	V07 11800.112730	V07 11800.212730	12×45	102	42	0,117
11,9	V07 11900.112730	V07 11900.212730	12×45	102	42	0,119
12,0	V07 12000.112730	V07 12000.212730	12×45	102	42	0,122
12,5	V07 12500.112730	V07 12500.212730	14×45	107	43	0,162
13,0	V07 13000.112730	V07 13000.212730	14×45	107	43	0,164
13,5	V07 13500.112730	V07 13500.212730	14×45	107	43	0,167
14,0	V07 14000.112730	V07 14000.212730	14×45	107	43	0,169
14,5	V07 14500.112730	V07 14500.212730	16×48	115	45	0,216
15,0	V07 15000.112730	V07 15000.212730	16×48	115	45	0,225
15,5	V07 15500.112730	V07 15500.212730	16×48	115	45	0,243
16,0	V07 16000.112730	V07 16000.212730	16×48	115	45	0,254

Other diameters on request.

Guideline values for solid drilling: page 32.

KOMET KUB® Drillmax Ø 3,0 – 16,0 mm

High-performance solid carbide drill

Material P M K N S H

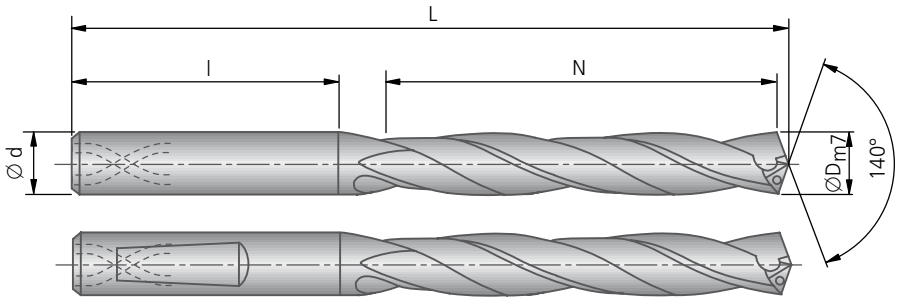
5×D

DIN 6535 HA

DIN 6535 HE

2 guide chamfer

TiAlN

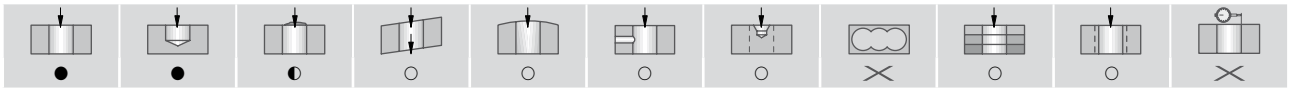


5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
3,0	V03 03000.112730	V03 03000.212730	6×36	66	24	0,016
3,1	V03 03100.112730	V03 03100.212730	6×36	66	24	0,016
3,2	V03 03200.112730	V03 03200.212730	6×36	66	24	0,017
3,3	V03 03300.112730	V03 03300.212730	6×36	66	24	0,017
3,4	V03 03400.112730	V03 03400.212730	6×36	66	24	0,017
3,5	V03 03500.112730	V03 03500.212730	6×36	66	24	0,018
3,6	V03 03600.112730	V03 03600.212730	6×36	66	24	0,018
3,7	V03 03700.112730	V03 03700.212730	6×36	66	24	0,018
3,8	V03 03800.112730	V03 03800.212730	6×36	74	30	0,018
3,9	V03 03900.112730	V03 03900.212730	6×36	74	30	0,018
4,0	V03 04000.112730	V03 04000.212730	6×36	74	30	0,018
4,1	V03 04100.112730	V03 04100.212730	6×36	74	30	0,019
4,2	V03 04200.112730	V03 04200.212730	6×36	74	30	0,019
4,3	V03 04300.112730	V03 04300.212730	6×36	74	30	0,019
4,4	V03 04400.112730	V03 04400.212730	6×36	74	30	0,019
4,5	V03 04500.112730	V03 04500.212730	6×36	74	30	0,019
4,6	V03 04600.112730	V03 04600.212730	6×36	74	30	0,019
4,7	V03 04700.112730	V03 04700.212730	6×36	74	30	0,019
4,8	V03 04800.112730	V03 04800.212730	6×36	82	35	0,020
4,9	V03 04900.112730	V03 04900.212730	6×36	82	35	0,020
5,0	V03 05000.112730	V03 05000.212730	6×36	82	35	0,020
5,1	V03 05100.112730	V03 05100.212730	6×36	82	35	0,021
5,2	V03 05200.112730	V03 05200.212730	6×36	82	35	0,021
5,3	V03 05300.112730	V03 05300.212730	6×36	82	35	0,022
5,4	V03 05400.112730	V03 05400.212730	6×36	82	35	0,022
5,5	V03 05500.112730	V03 05500.212730	6×36	82	35	0,023
5,54	V03 05540.112730	V03 05540.212730	6×36	82	35	0,023

5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
5,6	V03 05600.112730	V03 05600.212730	6×36	82	35	0,023
5,7	V03 05700.112730	V03 05700.212730	6×36	82	35	0,024
5,8	V03 05800.112730	V03 05800.212730	6×36	82	35	0,024
5,9	V03 05900.112730	V03 05900.212730	6×36	82	35	0,025
6,0	V03 06000.112730	V03 06000.212730	6×36	82	35	0,025
6,1	V03 06100.112730	V03 06100.212730	8×36	91	43	0,027
6,2	V03 06200.112730	V03 06200.212730	8×36	91	43	0,027
6,3	V03 06300.112730	V03 06300.212730	8×36	91	43	0,030
6,4	V03 06400.112730	V03 06400.212730	8×36	91	43	0,030
6,5	V03 06500.112730	V03 06500.212730	8×36	91	43	0,032
6,6	V03 06600.112730	V03 06600.212730	8×36	91	43	0,032
6,7	V03 06700.112730	V03 06700.212730	8×36	91	43	0,032
6,8	V03 06800.112730	V03 06800.212730	8×36	91	43	0,035
6,9	V03 06900.112730	V03 06900.212730	8×36	91	43	0,035
7,0	V03 07000.112730	V03 07000.212730	8×36	91	43	0,037
7,1	V03 07100.112730	V03 07100.212730	8×36	91	43	0,037
7,2	V03 07200.112730	V03 07200.212730	8×36	91	43	0,039
7,3	V03 07300.112730	V03 07300.212730	8×36	91	43	0,039
7,4	V03 07400.112730	V03 07400.212730	8×36	91	43	0,040
7,43	V03 07430.112730	V03 07430.212730	8×36	91	43	0,040
7,5	V03 07500.112730	V03 07500.212730	8×36	91	43	0,040
7,6	V03 07600.112730	V03 07600.212730	8×36	91	43	0,041
7,7	V03 07700.112730	V03 07700.212730	8×36	91	43	0,041
7,8	V03 07800.112730	V03 07800.212730	8×36	91	43	0,043
7,9	V03 07900.112730	V03 07900.212730	8×36	91	43	0,043
8,0	V03 08000.112730	V03 08000.212730	8×36	91	43	0,044
8,1	V03 08100.112730	V03 08100.212730	10×40	103	49	0,045

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example ***HB***: V03 xxxxx.***31***2730).
Delivery time 1 week (minimum purchase: 3 pieces)

● very good | ◐ good | ○ possible: see technical notes, page 36 | ✕ not possible



5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
8,2	V03 08200.112730	V03 08200.212730	10×40	103	49	0,045
8,3	V03 08300.112730	V03 08300.212730	10×40	103	49	0,047
8,4	V03 08400.112730	V03 08400.212730	10×40	103	49	0,047
8,5	V03 08500.112730	V03 08500.212730	10×40	103	49	0,050
8,6	V03 08600.112730	V03 08600.212730	10×40	103	49	0,050
8,7	V03 08700.112730	V03 08700.212730	10×40	103	49	0,052
8,8	V03 08800.112730	V03 08800.212730	10×40	103	49	0,052
8,9	V03 08900.112730	V03 08900.212730	10×40	103	49	0,055
9,0	V03 09000.112730	V03 09000.212730	10×40	103	49	0,055
9,1	V03 09100.112730	V03 09100.212730	10×40	103	49	0,057
9,2	V03 09200.112730	V03 09200.212730	10×40	103	49	0,057
9,3	V03 09300.112730	V03 09300.212730	10×40	103	49	0,062
9,4	V03 09400.112730	V03 09400.212730	10×40	103	49	0,062
9,5	V03 09500.112730	V03 09500.212730	10×40	103	49	0,067
9,54	V03 09540.112730	V03 09540.212730	10×40	103	49	0,067
9,6	V03 09600.112730	V03 09600.212730	10×40	103	49	0,067
9,7	V03 09700.112730	V03 09700.212730	10×40	103	49	0,072
9,8	V03 09800.112730	V03 09800.212730	10×40	103	49	0,072
9,9	V03 09900.112730	V03 09900.212730	10×40	103	49	0,077
10,0	V03 10000.112730	V03 10000.212730	10×40	103	49	0,077
10,1	V03 10100.112730	V03 10100.212730	12×45	118	56	0,080
10,2	V03 10200.112730	V03 10200.212730	12×45	118	56	0,085
10,3	V03 10300.112730	V03 10300.212730	12×45	118	56	0,090
10,4	V03 10400.112730	V03 10400.212730	12×45	118	56	0,094
10,5	V03 10500.112730	V03 10500.212730	12×45	118	56	0,097
10,6	V03 10600.112730	V03 10600.212730	12×45	118	56	0,100
10,7	V03 10700.112730	V03 10700.212730	12×45	118	56	0,102

5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
10,8	V03 10800.112730	V03 10800.212730	12×45	118	56	0,105
10,9	V03 10900.112730	V03 10900.212730	12×45	118	56	0,107
11,0	V03 11000.112730	V03 11000.212730	12×45	118	56	0,110
11,1	V03 11100.112730	V03 11100.212730	12×45	118	56	0,112
11,2	V03 11200.112730	V03 11200.212730	12×45	118	56	0,115
11,3	V03 11300.112730	V03 11300.212730	12×45	118	56	0,117
11,4	V03 11400.112730	V03 11400.212730	12×45	118	56	0,120
11,5	V03 11500.112730	V03 11500.212730	12×45	118	56	0,122
11,54	V03 11540.112730	V03 11540.212730	12×45	118	56	0,122
11,6	V03 11600.112730	V03 11600.212730	12×45	118	56	0,125
11,7	V03 11700.112730	V03 11700.212730	12×45	118	56	0,127
11,8	V03 11800.112730	V03 11800.212730	12×45	118	56	0,130
11,9	V03 11900.112730	V03 11900.212730	12×45	118	56	0,132
12,0	V03 12000.112730	V03 12000.212730	12×45	118	56	0,135
12,5	V03 12500.112730	V03 12500.212730	14×45	124	60	0,180
12,8	V03 12800.112730	V03 12800.212730	14×45	124	60	0,180
13,0	V03 13000.112730	V03 13000.212730	14×45	124	60	0,182
13,3	V03 13300.112730	V03 13300.212730	14×45	124	60	0,182
13,5	V03 13500.112730	V03 13500.212730	14×45	124	60	0,185
13,8	V03 13800.112730	V03 13800.212730	14×45	124	60	0,185
14,0	V03 14000.112730	V03 14000.212730	14×45	124	60	0,188
14,5	V03 14500.112730	V03 14500.212730	16×48	133	63	0,240
14,8	V03 14800.112730	V03 14800.212730	16×48	133	63	0,240
15,0	V03 15000.112730	V03 15000.212730	16×48	133	63	0,250
15,5	V03 15500.112730	V03 15500.212730	16×48	133	63	0,270
15,8	V03 15800.112730	V03 15800.212730	16×48	133	63	0,270
16,0	V03 16000.112730	V03 16000.212730	16×48	133	63	0,282

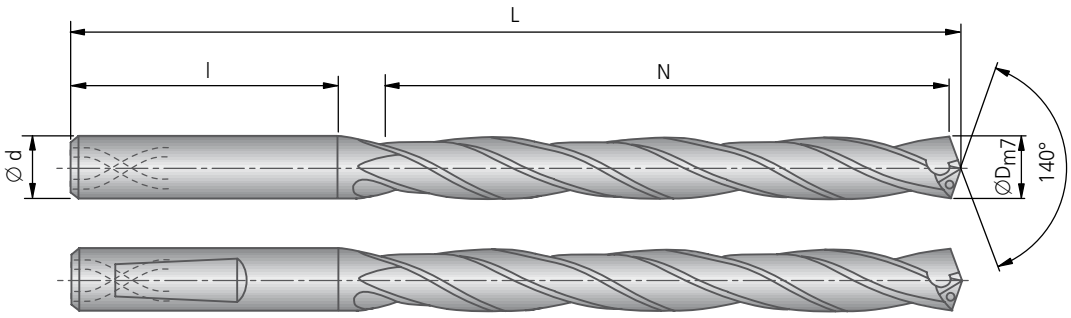
Other diameters on request.

Guideline values for solid drilling: page 32.

KOMET KUB® Drillmax Ø 3,0 – 16,0 mm

High-performance solid carbide drill



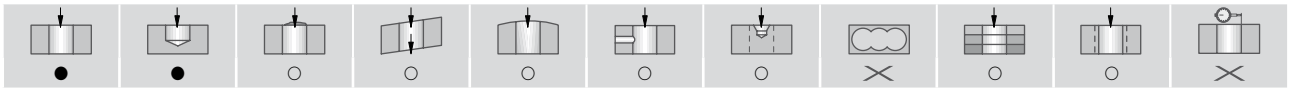


7 – 8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
3,0	V04 03000.112730	V04 03000.212730	6×36	70	28	0,017
3,1	V04 03100.112730	V04 03100.212730	6×36	70	28	0,017
3,2	V04 03200.112730	V04 03200.212730	6×36	70	28	0,017
3,3	V04 03300.112730	V04 03300.212730	6×36	70	28	0,017
3,4	V04 03400.112730	V04 03400.212730	6×36	70	28	0,018
3,5	V04 03500.112730	V04 03500.212730	6×36	70	28	0,018
3,6	V04 03600.112730	V04 03600.212730	6×36	70	28	0,018
3,7	V04 03700.112730	V04 03700.212730	6×36	70	28	0,018
3,8	V04 03800.112730	V04 03800.212730	6×36	80	36	0,019
3,9	V04 03900.112730	V04 03900.212730	6×36	80	36	0,019
4,0	V04 04000.112730	V04 04000.212730	6×36	80	36	0,019
4,1	V04 04100.112730	V04 04100.212730	6×36	80	36	0,020
4,2	V04 04200.112730	V04 04200.212730	6×36	80	36	0,020
4,3	V04 04300.112730	V04 04300.212730	6×36	80	36	0,020
4,4	V04 04400.112730	V04 04400.212730	6×36	80	36	0,021
4,5	V04 04500.112730	V04 04500.212730	6×36	80	36	0,021
4,6	V04 04600.112730	V04 04600.212730	6×36	80	36	0,021
4,7	V04 04700.112730	V04 04700.212730	6×36	80	36	0,021
4,8	V04 04800.112730	V04 04800.212730	6×36	92	45	0,023
4,9	V04 04900.112730	V04 04900.212730	6×36	92	45	0,023
5,0	V04 05000.112730	V04 05000.212730	6×36	92	45	0,024
5,1	V04 05100.112730	V04 05100.212730	6×36	92	45	0,025
5,2	V04 05200.112730	V04 05200.212730	6×36	92	45	0,025
5,3	V04 05300.112730	V04 05300.212730	6×36	92	45	0,026
5,4	V04 05400.112730	V04 05400.212730	6×36	92	45	0,027
5,5	V04 05500.112730	V04 05500.212730	6×36	92	45	0,027
5,54	V04 05540.112730	V04 05540.212730	6×36	92	45	0,027

7 – 8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
5,6	V04 05600.112730	V04 05600.212730	6×36	92	45	0,028
5,7	V04 05700.112730	V04 05700.212730	6×36	92	45	0,029
5,8	V04 05800.112730	V04 05800.212730	6×36	92	45	0,030
5,9	V04 05900.112730	V04 05900.212730	6×36	92	45	0,030
6,0	V04 06000.112730	V04 06000.212730	6×36	92	45	0,031
6,1	V04 06100.112730	V04 06100.212730	8×36	100	52	0,032
6,2	V04 06200.112730	V04 06200.212730	8×36	100	52	0,034
6,3	V04 06300.112730	V04 06300.212730	8×36	100	52	0,036
6,4	V04 06400.112730	V04 06400.212730	8×36	100	52	0,038
6,5	V04 06500.112730	V04 06500.212730	8×36	100	52	0,039
6,6	V04 06600.112730	V04 06600.212730	8×36	100	52	0,040
6,7	V04 06700.112730	V04 06700.212730	8×36	100	52	0,041
6,8	V04 06800.112730	V04 06800.212730	8×36	100	52	0,043
6,9	V04 06900.112730	V04 06900.212730	8×36	108	60	0,045
7,0	V04 07000.112730	V04 07000.212730	8×36	108	60	0,045
7,1	V04 07100.112730	V04 07100.212730	8×36	108	60	0,046
7,2	V04 07200.112730	V04 07200.212730	8×36	108	60	0,047
7,3	V04 07300.112730	V04 07300.212730	8×36	108	60	0,047
7,4	V04 07400.112730	V04 07400.212730	8×36	108	60	0,048
7,43	V04 07430.112730	V04 07430.212730	8×36	108	60	0,048
7,5	V04 07500.112730	V04 07500.212730	8×36	108	60	0,049
7,6	V04 07600.112730	V04 07600.212730	8×36	108	60	0,050
7,7	V04 07700.112730	V04 07700.212730	8×36	108	60	0,050
7,8	V04 07800.112730	V04 07800.212730	8×36	108	60	0,051
7,9	V04 07900.112730	V04 07900.212730	8×36	108	60	0,052
8,0	V04 08000.112730	V04 08000.212730	8×36	108	60	0,053
8,1	V04 08100.112730	V04 08100.212730	10×40	122	68	0,055

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example ***HB***: V04 xxxxx.***31***2730).
Delivery time 1 week (minimum purchase: 3 pieces)

● very good | ◐ good | ○ possible: see technical notes, page 37 | ✕ not possible



7 – 8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
8,2	V04 08200.112730	V04 08200.212730	10×40	122	68	0,057
8,3	V04 08300.112730	V04 08300.212730	10×40	122	68	0,060
8,4	V04 08400.112730	V04 08400.212730	10×40	122	68	0,062
8,5	V04 08500.112730	V04 08500.212730	10×40	122	68	0,065
8,6	V04 08600.112730	V04 08600.212730	10×40	122	68	0,067
8,7	V04 08700.112730	V04 08700.212730	10×40	122	68	0,070
8,8	V04 08800.112730	V04 08800.212730	10×40	122	68	0,072
8,9	V04 08900.112730	V04 08900.212730	10×40	122	68	0,075
9,0	V04 09000.112730	V04 09000.212730	10×40	122	68	0,077
9,1	V04 09100.112730	V04 09100.212730	10×40	130	76	0,080
9,2	V04 09200.112730	V04 09200.212730	10×40	130	76	0,082
9,3	V04 09300.112730	V04 09300.212730	10×40	130	76	0,085
9,4	V04 09400.112730	V04 09400.212730	10×40	130	76	0,087
9,5	V04 09500.112730	V04 09500.212730	10×40	130	76	0,090
9,54	V04 09540.112730	V04 09540.212730	10×40	130	76	0,090
9,6	V04 09600.112730	V04 09600.212730	10×40	130	76	0,090
9,7	V04 09700.112730	V04 09700.212730	10×40	130	76	0,092
9,8	V04 09800.112730	V04 09800.212730	10×40	130	76	0,095
9,9	V04 09900.112730	V04 09900.212730	10×40	130	76	0,097
10,0	V04 10000.112730	V04 10000.212730	10×40	130	76	0,099
10,1	V04 10100.112730	V04 10100.212730	12×45	152	90	0,102
10,2	V04 10200.112730	V04 10200.212730	12×45	152	90	0,105
10,3	V04 10300.112730	V04 10300.212730	12×45	152	90	0,110
10,4	V04 10400.112730	V04 10400.212730	12×45	152	90	0,112
10,5	V04 10500.112730	V04 10500.212730	12×45	152	90	0,115
10,6	V04 10600.112730	V04 10600.212730	12×45	152	90	0,117
10,7	V04 10700.112730	V04 10700.212730	12×45	152	90	0,120

7 – 8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
10,8	V04 10800.112730	V04 10800.212730	12×45	152	90	0,122
10,9	V04 10900.112730	V04 10900.212730	12×45	152	90	0,125
11,0	V04 11000.112730	V04 11000.212730	12×45	152	90	0,127
11,1	V04 11100.112730	V04 11100.212730	12×45	152	90	0,130
11,2	V04 11200.112730	V04 11200.212730	12×45	152	90	0,132
11,3	V04 11300.112730	V04 11300.212730	12×45	152	90	0,135
11,4	V04 11400.112730	V04 11400.212730	12×45	152	90	0,137
11,5	V04 11500.112730	V04 11500.212730	12×45	152	90	0,140
11,54	V04 11540.112730	V04 11540.212730	12×45	152	90	0,140
11,6	V04 11600.112730	V04 11600.212730	12×45	152	90	0,145
11,7	V04 11700.112730	V04 11700.212730	12×45	152	90	0,150
11,8	V04 11800.112730	V04 11800.212730	12×45	152	90	0,155
11,9	V04 11900.112730	V04 11900.212730	12×45	152	90	0,160
12,0	V04 12000.112730	V04 12000.212730	12×45	152	90	0,168
12,5	V04 12500.112730	V04 12500.212730	14×45	170	106	0,198
12,8	V04 12800.112730	V04 12800.212730	14×45	170	106	0,200
13,0	V04 13000.112730	V04 13000.212730	14×45	170	106	0,210
13,3	V04 13300.112730	V04 13300.212730	14×45	170	106	0,220
13,5	V04 13500.112730	V04 13500.212730	14×45	170	106	0,230
13,8	V04 13800.112730	V04 13800.212730	14×45	170	106	0,240
14,0	V04 14000.112730	V04 14000.212730	14×45	170	106	0,246
14,5	V04 14500.112730	V04 14500.212730	16×48	192	122	0,315
14,8	V04 14800.112730	V04 14800.212730	16×48	192	122	0,317
15,0	V04 15000.112730	V04 15000.212730	16×48	192	122	0,320
15,5	V04 15500.112730	V04 15500.212730	16×48	192	122	0,340
15,8	V04 15800.112730	V04 15800.212730	16×48	192	122	0,350
16,0	V04 16000.112730	V04 16000.212730	16×48	192	122	0,360

Other diameters on request.

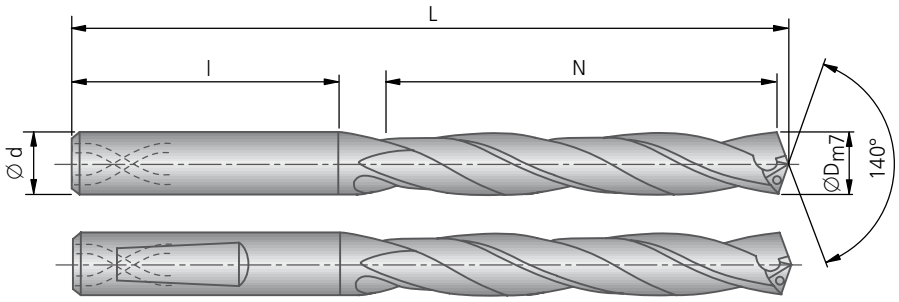
Guideline values for solid drilling: page 32.

KOMET KUB® Drillmax VA

Ø 3,0 – 16,0 mm

High-performance solid carbide drill



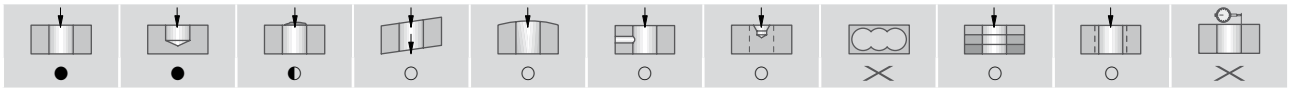


5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
3,0	V09 03000.112930	V09 03000.212930	6×36	66	24	0,016
3,1	V09 03100.112930	V09 03100.212930	6×36	66	24	0,016
3,2	V09 03200.112930	V09 03200.212930	6×36	66	24	0,017
3,3	V09 03300.112930	V09 03300.212930	6×36	66	24	0,017
3,4	V09 03400.112930	V09 03400.212930	6×36	66	24	0,017
3,5	V09 03500.112930	V09 03500.212930	6×36	66	24	0,018
3,6	V09 03600.112930	V09 03600.212930	6×36	66	24	0,018
3,7	V09 03700.112930	V09 03700.212930	6×36	66	24	0,018
3,8	V09 03800.112930	V09 03800.212930	6×36	74	30	0,018
3,9	V09 03900.112930	V09 03900.212930	6×36	74	30	0,018
4,0	V09 04000.112930	V09 04000.212930	6×36	74	30	0,018
4,1	V09 04100.112930	V09 04100.212930	6×36	74	30	0,019
4,2	V09 04200.112930	V09 04200.212930	6×36	74	30	0,019
4,3	V09 04300.112930	V09 04300.212930	6×36	74	30	0,019
4,4	V09 04400.112930	V09 04400.212930	6×36	74	30	0,019
4,5	V09 04500.112930	V09 04500.212930	6×36	74	30	0,019
4,6	V09 04600.112930	V09 04600.212930	6×36	74	30	0,019
4,7	V09 04700.112930	V09 04700.212930	6×36	74	30	0,019
4,8	V09 04800.112930	V09 04800.212930	6×36	82	35	0,020
4,9	V09 04900.112930	V09 04900.212930	6×36	82	35	0,020
5,0	V09 05000.112930	V09 05000.212930	6×36	82	35	0,020
5,1	V09 05100.112930	V09 05100.212930	6×36	82	35	0,021
5,2	V09 05200.112930	V09 05200.212930	6×36	82	35	0,021
5,3	V09 05300.112930	V09 05300.212930	6×36	82	35	0,022
5,4	V09 05400.112930	V09 05400.212930	6×36	82	35	0,022
5,5	V09 05500.112930	V09 05500.212930	6×36	82	35	0,023
5,54	V09 05540.112930	V09 05540.212930	6×36	82	35	0,023

5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
5,6	V09 05600.112930	V09 05600.212930	6×36	82	35	0,023
5,7	V09 05700.112930	V09 05700.212930	6×36	82	35	0,024
5,8	V09 05800.112930	V09 05800.212930	6×36	82	35	0,024
5,9	V09 05900.112930	V09 05900.212930	6×36	82	35	0,025
6,0	V09 06000.112930	V09 06000.212930	6×36	82	35	0,025
6,1	V09 06100.112930	V09 06100.212930	8×36	91	43	0,027
6,2	V09 06200.112930	V09 06200.212930	8×36	91	43	0,027
6,3	V09 06300.112930	V09 06300.212930	8×36	91	43	0,030
6,4	V09 06400.112930	V09 06400.212930	8×36	91	43	0,030
6,5	V09 06500.112930	V09 06500.212930	8×36	91	43	0,032
6,6	V09 06600.112930	V09 06600.212930	8×36	91	43	0,032
6,7	V09 06700.112930	V09 06700.212930	8×36	91	43	0,032
6,8	V09 06800.112930	V09 06800.212930	8×36	91	43	0,035
6,9	V09 06900.112930	V09 06900.212930	8×36	91	43	0,035
7,0	V09 07000.112930	V09 07000.212930	8×36	91	43	0,037
7,1	V09 07100.112930	V09 07100.212930	8×36	91	43	0,037
7,2	V09 07200.112930	V09 07200.212930	8×36	91	43	0,039
7,3	V09 07300.112930	V09 07300.212930	8×36	91	43	0,039
7,4	V09 07400.112930	V09 07400.212930	8×36	91	43	0,040
7,43	V09 07430.112930	V09 07430.212930	8×36	91	43	0,040
7,5	V09 07500.112930	V09 07500.212930	8×36	91	43	0,040
7,6	V09 07600.112930	V09 07600.212930	8×36	91	43	0,041
7,7	V09 07700.112930	V09 07700.212930	8×36	91	43	0,041
7,8	V09 07800.112930	V09 07800.212930	8×36	91	43	0,043
7,9	V09 07900.112930	V09 07900.212930	8×36	91	43	0,043
8,0	V09 08000.112930	V09 08000.212930	8×36	91	43	0,044
8,1	V09 08100.112930	V09 08100.212930	10×40	103	49	0,045

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example ***HB***: V09 xxxxx.***31***2930).
Delivery time 1 week (minimum purchase: 3 pieces)

● very good | ◐ good | ○ possible: see technical notes, page 36 | ✕ not possible



5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
8,2	V09 08200.112930	V09 08200.212930	10×40	103	49	0,045
8,3	V09 08300.112930	V09 08300.212930	10×40	103	49	0,047
8,4	V09 08400.112930	V09 08400.212930	10×40	103	49	0,047
8,5	V09 08500.112930	V09 08500.212930	10×40	103	49	0,050
8,6	V09 08600.112930	V09 08600.212930	10×40	103	49	0,050
8,7	V09 08700.112930	V09 08700.212930	10×40	103	49	0,052
8,8	V09 08800.112930	V09 08800.212930	10×40	103	49	0,052
8,9	V09 08900.112930	V09 08900.212930	10×40	103	49	0,055
9,0	V09 09000.112930	V09 09000.212930	10×40	103	49	0,055
9,1	V09 09100.112930	V09 09100.212930	10×40	103	49	0,057
9,2	V09 09200.112930	V09 09200.212930	10×40	103	49	0,057
9,3	V09 09300.112930	V09 09300.212930	10×40	103	49	0,062
9,4	V09 09400.112930	V09 09400.212930	10×40	103	49	0,062
9,5	V09 09500.112930	V09 09500.212930	10×40	103	49	0,067
9,54	V09 09540.112930	V09 09540.212930	10×40	103	49	0,067
9,6	V09 09600.112930	V09 09600.212930	10×40	103	49	0,067
9,7	V09 09700.112930	V09 09700.212930	10×40	103	49	0,072
9,8	V09 09800.112930	V09 09800.212930	10×40	103	49	0,072
9,9	V09 09900.112930	V09 09900.212930	10×40	103	49	0,077
10,0	V09 10000.112930	V09 10000.212930	10×40	103	49	0,077
10,1	V09 10100.112930	V09 10100.212930	12×45	118	56	0,080
10,2	V09 10200.112930	V09 10200.212930	12×45	118	56	0,085
10,3	V09 10300.112930	V09 10300.212930	12×45	118	56	0,090
10,4	V09 10400.112930	V09 10400.212930	12×45	118	56	0,094
10,5	V09 10500.112930	V09 10500.212930	12×45	118	56	0,097
10,6	V09 10600.112930	V09 10600.212930	12×45	118	56	0,100
10,7	V09 10700.112930	V09 10700.212930	12×45	118	56	0,102

5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
10,8	V09 10800.112930	V09 10800.212930	12×45	118	56	0,105
10,9	V09 10900.112930	V09 10900.212930	12×45	118	56	0,107
11,0	V09 11000.112930	V09 11000.212930	12×45	118	56	0,110
11,1	V09 11100.112930	V09 11100.212930	12×45	118	56	0,112
11,2	V09 11200.112930	V09 11200.212930	12×45	118	56	0,115
11,3	V09 11300.112930	V09 11300.212930	12×45	118	56	0,117
11,4	V09 11400.112930	V09 11400.212930	12×45	118	56	0,120
11,5	V09 11500.112930	V09 11500.212930	12×45	118	56	0,122
11,54	V09 11540.112930	V09 11540.212930	12×45	118	56	0,122
11,6	V09 11600.112930	V09 11600.212930	12×45	118	56	0,125
11,7	V09 11700.112930	V09 11700.212930	12×45	118	56	0,127
11,8	V09 11800.112930	V09 11800.212930	12×45	118	56	0,130
11,9	V09 11900.112930	V09 11900.212930	12×45	118	56	0,132
12,0	V09 12000.112930	V09 12000.212930	12×45	118	56	0,135
12,5	V09 12500.112930	V09 12500.212930	14×45	124	60	0,180
12,8	V09 12800.112930	V09 12800.212930	14×45	124	60	0,180
13,0	V09 13000.112930	V09 13000.212930	14×45	124	60	0,182
13,3	V09 13300.112930	V09 13300.212930	14×45	124	60	0,182
13,5	V09 13500.112930	V09 13500.212930	14×45	124	60	0,185
13,8	V09 13800.112930	V09 13800.212930	14×45	124	60	0,185
14,0	V09 14000.112930	V09 14000.212930	14×45	124	60	0,188
14,5	V09 14500.112930	V09 14500.212930	16×48	133	63	0,240
14,8	V09 14800.112930	V09 14800.212930	16×48	133	63	0,240
15,0	V09 15000.112930	V09 15000.212930	16×48	133	63	0,250
15,5	V09 15500.112930	V09 15500.212930	16×48	133	63	0,270
15,8	V09 15800.112930	V09 15800.212930	16×48	133	63	0,270
16,0	V09 16000.112930	V09 16000.212930	16×48	133	63	0,282

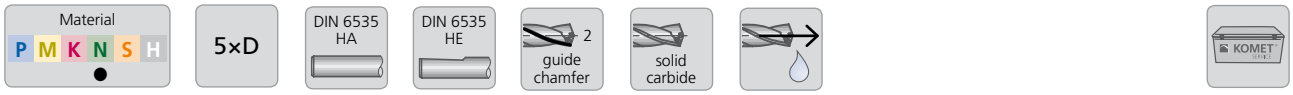
Other diameters on request.

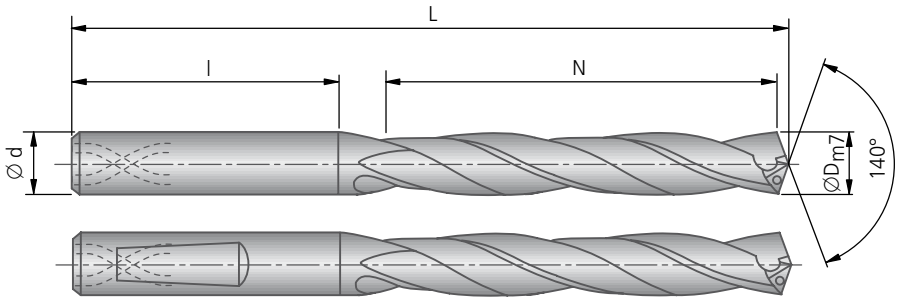
Guideline values for solid drilling: page 33.

KOMET KUB® Drillmax ALU

Ø 3,0 – 16,0 mm

High-performance solid carbide drill



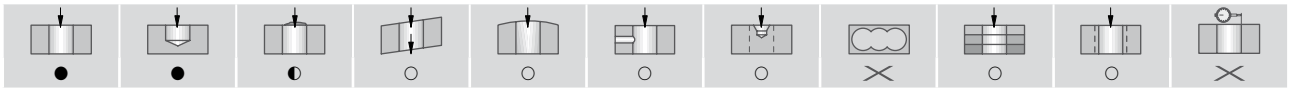


5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
3,0	V26 03000.1125	V26 03000.2125	6×36	66	24	0,016
3,1	V26 03100.1125	V26 03100.2125	6×36	66	24	0,016
3,2	V26 03200.1125	V26 03200.2125	6×36	66	24	0,017
3,3	V26 03300.1125	V26 03300.2125	6×36	66	24	0,017
3,4	V26 03400.1125	V26 03400.2125	6×36	66	24	0,017
3,5	V26 03500.1125	V26 03500.2125	6×36	66	24	0,018
3,6	V26 03600.1125	V26 03600.2125	6×36	66	24	0,018
3,7	V26 03700.1125	V26 03700.2125	6×36	66	24	0,018
3,8	V26 03800.1125	V26 03800.2125	6×36	74	30	0,018
3,9	V26 03900.1125	V26 03900.2125	6×36	74	30	0,018
4,0	V26 04000.1125	V26 04000.2125	6×36	74	30	0,018
4,1	V26 04100.1125	V26 04100.2125	6×36	74	30	0,019
4,2	V26 04200.1125	V26 04200.2125	6×36	74	30	0,019
4,3	V26 04300.1125	V26 04300.2125	6×36	74	30	0,019
4,4	V26 04400.1125	V26 04400.2125	6×36	74	30	0,019
4,5	V26 04500.1125	V26 04500.2125	6×36	74	30	0,019
4,6	V26 04600.1125	V26 04600.2125	6×36	74	30	0,019
4,7	V26 04700.1125	V26 04700.2125	6×36	74	30	0,019
4,8	V26 04800.1125	V26 04800.2125	6×36	82	35	0,020
4,9	V26 04900.1125	V26 04900.2125	6×36	82	35	0,020
5,0	V26 05000.1125	V26 05000.2125	6×36	82	35	0,020
5,1	V26 05100.1125	V26 05100.2125	6×36	82	35	0,021
5,2	V26 05200.1125	V26 05200.2125	6×36	82	35	0,021
5,3	V26 05300.1125	V26 05300.2125	6×36	82	35	0,022
5,4	V26 05400.1125	V26 05400.2125	6×36	82	35	0,022
5,5	V26 05500.1125	V26 05500.2125	6×36	82	35	0,023
5,54	V26 05540.1125	V26 05540.2125	6×36	82	35	0,023

5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
5,6	V26 05600.1125	V26 05600.2125	6×36	82	35	0,023
5,7	V26 05700.1125	V26 05700.2125	6×36	82	35	0,024
5,8	V26 05800.1125	V26 05800.2125	6×36	82	35	0,024
5,9	V26 05900.1125	V26 05900.2125	6×36	82	35	0,025
6,0	V26 06000.1125	V26 06000.2125	6×36	82	35	0,025
6,1	V26 06100.1125	V26 06100.2125	8×36	91	43	0,027
6,2	V26 06200.1125	V26 06200.2125	8×36	91	43	0,027
6,3	V26 06300.1125	V26 06300.2125	8×36	91	43	0,030
6,4	V26 06400.1125	V26 06400.2125	8×36	91	43	0,030
6,5	V26 06500.1125	V26 06500.2125	8×36	91	43	0,032
6,6	V26 06600.1125	V26 06600.2125	8×36	91	43	0,032
6,7	V26 06700.1125	V26 06700.2125	8×36	91	43	0,032
6,8	V26 06800.1125	V26 06800.2125	8×36	91	43	0,035
6,9	V26 06900.1125	V26 06900.2125	8×36	91	43	0,035
7,0	V26 07000.1125	V26 07000.2125	8×36	91	43	0,037
7,1	V26 07100.1125	V26 07100.2125	8×36	91	43	0,037
7,2	V26 07200.1125	V26 07200.2125	8×36	91	43	0,039
7,3	V26 07300.1125	V26 07300.2125	8×36	91	43	0,039
7,4	V26 07400.1125	V26 07400.2125	8×36	91	43	0,040
7,43	V26 07430.1125	V26 07430.2125	8×36	91	43	0,040
7,5	V26 07500.1125	V26 07500.2125	8×36	91	43	0,040
7,6	V26 07600.1125	V26 07600.2125	8×36	91	43	0,041
7,7	V26 07700.1125	V26 07700.2125	8×36	91	43	0,041
7,8	V26 07800.1125	V26 07800.2125	8×36	91	43	0,043
7,9	V26 07900.1125	V26 07900.2125	8×36	91	43	0,043
8,0	V26 08000.1125	V26 08000.2125	8×36	91	43	0,044
8,1	V26 08100.1125	V26 08100.2125	10×40	103	49	0,045

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example ***HB***: V26 xxxxx.***31***25).
Delivery time 1 week (minimum purchase: 3 pieces)

● very good | ◐ good | ○ possible: see technical notes, page 36 | ✕ not possible



5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
8,2	V26 08200.1125	V26 08200.2125	10×40	103	49	0,045
8,3	V26 08300.1125	V26 08300.2125	10×40	103	49	0,047
8,4	V26 08400.1125	V26 08400.2125	10×40	103	49	0,047
8,5	V26 08500.1125	V26 08500.2125	10×40	103	49	0,050
8,6	V26 08600.1125	V26 08600.2125	10×40	103	49	0,050
8,7	V26 08700.1125	V26 08700.2125	10×40	103	49	0,052
8,8	V26 08800.1125	V26 08800.2125	10×40	103	49	0,052
8,9	V26 08900.1125	V26 08900.2125	10×40	103	49	0,055
9,0	V26 09000.1125	V26 09000.2125	10×40	103	49	0,055
9,1	V26 09100.1125	V26 09100.2125	10×40	103	49	0,057
9,2	V26 09200.1125	V26 09200.2125	10×40	103	49	0,057
9,3	V26 09300.1125	V26 09300.2125	10×40	103	49	0,062
9,4	V26 09400.1125	V26 09400.2125	10×40	103	49	0,062
9,5	V26 09500.1125	V26 09500.2125	10×40	103	49	0,067
9,54	V26 09540.1125	V26 09540.2125	10×40	103	49	0,067
9,6	V26 09600.1125	V26 09600.2125	10×40	103	49	0,067
9,7	V26 09700.1125	V26 09700.2125	10×40	103	49	0,072
9,8	V26 09800.1125	V26 09800.2125	10×40	103	49	0,072
9,9	V26 09900.1125	V26 09900.2125	10×40	103	49	0,077
10,0	V26 10000.1125	V26 10000.2125	10×40	103	49	0,077
10,1	V26 10100.1125	V26 10100.2125	12×45	118	56	0,080
10,2	V26 10200.1125	V26 10200.2125	12×45	118	56	0,085
10,3	V26 10300.1125	V26 10300.2125	12×45	118	56	0,090
10,4	V26 10400.1125	V26 10400.2125	12×45	118	56	0,094
10,5	V26 10500.1125	V26 10500.2125	12×45	118	56	0,097
10,6	V26 10600.1125	V26 10600.2125	12×45	118	56	0,100
10,7	V26 10700.1125	V26 10700.2125	12×45	118	56	0,102

5×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
10,8	V26 10800.1125	V26 10800.2125	12×45	118	56	0,105
10,9	V26 10900.1125	V26 10900.2125	12×45	118	56	0,107
11,0	V26 11000.1125	V26 11000.2125	12×45	118	56	0,110
11,1	V26 11100.1125	V26 11100.2125	12×45	118	56	0,112
11,2	V26 11200.1125	V26 11200.2125	12×45	118	56	0,115
11,3	V26 11300.1125	V26 11300.2125	12×45	118	56	0,117
11,4	V26 11400.1125	V26 11400.2125	12×45	118	56	0,120
11,5	V26 11500.1125	V26 11500.2125	12×45	118	56	0,122
11,54	V26 11540.1125	V26 11540.2125	12×45	118	56	0,122
11,6	V26 11600.1125	V26 11600.2125	12×45	118	56	0,125
11,7	V26 11700.1125	V26 11700.2125	12×45	118	56	0,127
11,8	V26 11800.1125	V26 11800.2125	12×45	118	56	0,130
11,9	V26 11900.1125	V26 11900.2125	12×45	118	56	0,132
12,0	V26 12000.1125	V26 12000.2125	12×45	118	56	0,135
12,5	V26 12500.1125	V26 12500.2125	14×45	124	60	0,180
12,8	V26 12800.1125	V26 12800.2125	14×45	124	60	0,180
13,0	V26 13000.1125	V26 13000.2125	14×45	124	60	0,182
13,3	V26 13300.1125	V26 13300.2125	14×45	124	60	0,182
13,5	V26 13500.1125	V26 13500.2125	14×45	124	60	0,185
13,8	V26 13800.1125	V26 13800.2125	14×45	124	60	0,185
14,0	V26 14000.1125	V26 14000.2125	14×45	124	60	0,188
14,5	V26 14500.1125	V26 14500.2125	16×48	133	63	0,240
14,8	V26 14800.1125	V26 14800.2125	16×48	133	63	0,240
15,0	V26 15000.1125	V26 15000.2125	16×48	133	63	0,250
15,5	V26 15500.1125	V26 15500.2125	16×48	133	63	0,270
15,8	V26 15800.1125	V26 15800.2125	16×48	133	63	0,270
16,0	V26 16000.1125	V26 16000.2125	16×48	133	63	0,282

Other diameters on request.

Guideline values for solid drilling: page 33.

KOMET KUB® Drillmax ALU

Ø 3,0 – 16,0 mm

High-performance solid carbide drill

Material: P M K N S H ●

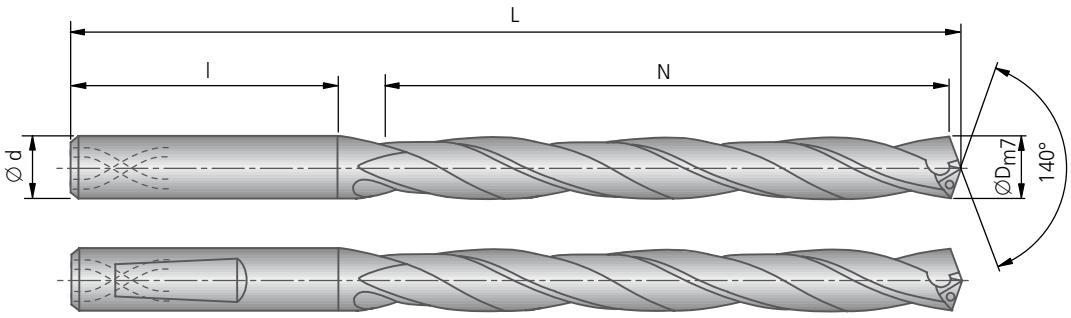
8×D

DIN 6535 HA

DIN 6535 HE

2 guide chamfer

solid carbide

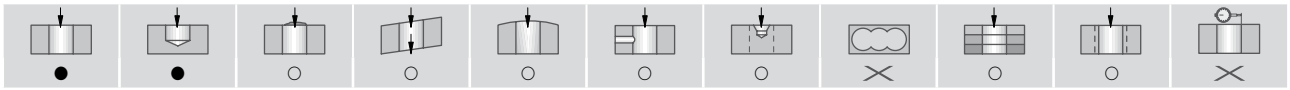


8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
3,0	V27 03000.1125	V27 03000.2125	6×36	72	29	0,017
3,1	V27 03100.1125	V27 03100.2125	6×36	72	29	0,017
3,2	V27 03200.1125	V27 03200.2125	6×36	72	29	0,017
3,3	V27 03300.1125	V27 03300.2125	6×36	72	29	0,017
3,4	V27 03400.1125	V27 03400.2125	6×36	72	29	0,018
3,5	V27 03500.1125	V27 03500.2125	6×36	72	29	0,018
3,6	V27 03600.1125	V27 03600.2125	6×36	72	29	0,018
3,7	V27 03700.1125	V27 03700.2125	6×36	72	29	0,018
3,8	V27 03800.1125	V27 03800.2125	6×36	81	36	0,019
3,9	V27 03900.1125	V27 03900.2125	6×36	81	36	0,019
4,0	V27 04000.1125	V27 04000.2125	6×36	81	36	0,019
4,1	V27 04100.1125	V27 04100.2125	6×36	81	36	0,020
4,2	V27 04200.1125	V27 04200.2125	6×36	81	36	0,020
4,3	V27 04300.1125	V27 04300.2125	6×36	81	36	0,020
4,4	V27 04400.1125	V27 04400.2125	6×36	81	36	0,021
4,5	V27 04500.1125	V27 04500.2125	6×36	81	36	0,021
4,6	V27 04600.1125	V27 04600.2125	6×36	81	36	0,021
4,7	V27 04700.1125	V27 04700.2125	6×36	81	36	0,021
4,8	V27 04800.1125	V27 04800.2125	6×36	95	48	0,023
4,9	V27 04900.1125	V27 04900.2125	6×36	95	48	0,023
5,0	V27 05000.1125	V27 05000.2125	6×36	95	48	0,024
5,1	V27 05100.1125	V27 05100.2125	6×36	95	48	0,025
5,2	V27 05200.1125	V27 05200.2125	6×36	95	48	0,025
5,3	V27 05300.1125	V27 05300.2125	6×36	95	48	0,026
5,4	V27 05400.1125	V27 05400.2125	6×36	95	48	0,027
5,5	V27 05500.1125	V27 05500.2125	6×36	95	48	0,027
5,54	V27 05540.1125	V27 05540.2125	6×36	95	48	0,027

8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
5,6	V27 05600.1125	V27 05600.2125	6×36	95	48	0,028
5,7	V27 05700.1125	V27 05700.2125	6×36	95	48	0,029
5,8	V27 05800.1125	V27 05800.2125	6×36	95	48	0,030
5,9	V27 05900.1125	V27 05900.2125	6×36	95	48	0,030
6,0	V27 06000.1125	V27 06000.2125	6×36	95	48	0,031
6,1	V27 06100.1125	V27 06100.2125	8×36	114	64	0,032
6,2	V27 06200.1125	V27 06200.2125	8×36	114	64	0,034
6,3	V27 06300.1125	V27 06300.2125	8×36	114	64	0,036
6,4	V27 06400.1125	V27 06400.2125	8×36	114	64	0,038
6,5	V27 06500.1125	V27 06500.2125	8×36	114	64	0,039
6,6	V27 06600.1125	V27 06600.2125	8×36	114	64	0,040
6,7	V27 06700.1125	V27 06700.2125	8×36	114	64	0,041
6,8	V27 06800.1125	V27 06800.2125	8×36	114	64	0,043
6,9	V27 06900.1125	V27 06900.2125	8×36	114	64	0,045
7,0	V27 07000.1125	V27 07000.2125	8×36	114	64	0,045
7,1	V27 07100.1125	V27 07100.2125	8×36	114	64	0,046
7,2	V27 07200.1125	V27 07200.2125	8×36	114	64	0,047
7,3	V27 07300.1125	V27 07300.2125	8×36	114	64	0,047
7,4	V27 07400.1125	V27 07400.2125	8×36	114	64	0,048
7,43	V27 07430.1125	V27 07430.2125	8×36	114	64	0,048
7,5	V27 07500.1125	V27 07500.2125	8×36	114	64	0,049
7,6	V27 07600.1125	V27 07600.2125	8×36	114	64	0,050
7,7	V27 07700.1125	V27 07700.2125	8×36	114	64	0,050
7,8	V27 07800.1125	V27 07800.2125	8×36	114	64	0,051
7,9	V27 07900.1125	V27 07900.2125	8×36	114	64	0,052
8,0	V27 08000.1125	V27 08000.2125	8×36	114	64	0,053
8,1	V27 08100.1125	V27 08100.2125	10×40	142	80	0,055

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example ***HB***: V04 xxxxx.***31***25).
Delivery time 1 week (minimum purchase: 3 pieces)

● very good | ◐ good | ○ possible: see technical notes, page 37 | ✕ not possible



8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
8,2	V27 08200.1125	V27 08200.2125	10×40	142	80	0,057
8,3	V27 08300.1125	V27 08300.2125	10×40	142	80	0,060
8,4	V27 08400.1125	V27 08400.2125	10×40	142	80	0,062
8,5	V27 08500.1125	V27 08500.2125	10×40	142	80	0,065
8,6	V27 08600.1125	V27 08600.2125	10×40	142	80	0,067
8,7	V27 08700.1125	V27 08700.2125	10×40	142	80	0,070
8,8	V27 08800.1125	V27 08800.2125	10×40	142	80	0,072
8,9	V27 08900.1125	V27 08900.2125	10×40	142	80	0,075
9,0	V27 09000.1125	V27 09000.2125	10×40	142	80	0,077
9,1	V27 09100.1125	V27 09100.2125	10×40	142	80	0,080
9,2	V27 09200.1125	V27 09200.2125	10×40	142	80	0,082
9,3	V27 09300.1125	V27 09300.2125	10×40	142	80	0,085
9,4	V27 09400.1125	V27 09400.2125	10×40	142	80	0,087
9,5	V27 09500.1125	V27 09500.2125	10×40	142	80	0,090
9,54	V27 09540.1125	V27 09540.2125	10×40	142	80	0,090
9,6	V27 09600.1125	V27 09600.2125	10×40	142	80	0,090
9,7	V27 09700.1125	V27 09700.2125	10×40	142	80	0,092
9,8	V27 09800.1125	V27 09800.2125	10×40	142	80	0,095
9,9	V27 09900.1125	V27 09900.2125	10×40	142	80	0,097
10,0	V27 10000.1125	V27 10000.2125	10×40	142	80	0,099
10,1	V27 10100.1125	V27 10100.2125	12×45	162	96	0,102
10,2	V27 10200.1125	V27 10200.2125	12×45	162	96	0,105
10,3	V27 10300.1125	V27 10300.2125	12×45	162	96	0,110
10,4	V27 10400.1125	V27 10400.2125	12×45	162	96	0,112
10,5	V27 10500.1125	V27 10500.2125	12×45	162	96	0,115
10,6	V27 10600.1125	V27 10600.2125	12×45	162	96	0,117
10,7	V27 10700.1125	V27 10700.2125	12×45	162	96	0,120

Other diameters on request.

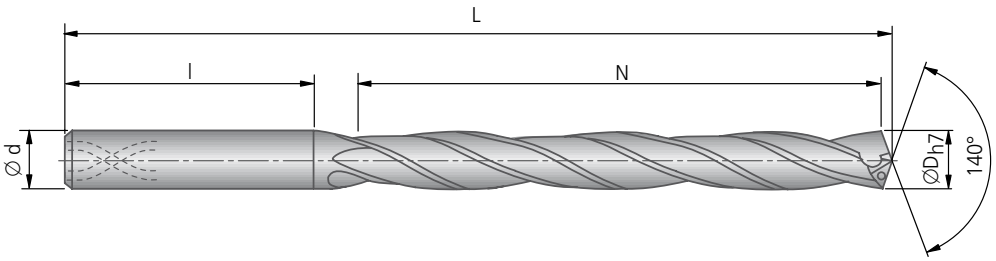
8×D						
D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg ~
10,8	V27 10800.1125	V27 10800.2125	12×45	162	96	0,122
10,9	V27 10900.1125	V27 10900.2125	12×45	162	96	0,125
11,0	V27 11000.1125	V27 11000.2125	12×45	162	96	0,127
11,1	V27 11100.1125	V27 11100.2125	12×45	162	96	0,130
11,2	V27 11200.1125	V27 11200.2125	12×45	162	96	0,132
11,3	V27 11300.1125	V27 11300.2125	12×45	162	96	0,135
11,4	V27 11400.1125	V27 11400.2125	12×45	162	96	0,137
11,5	V27 11500.1125	V27 11500.2125	12×45	162	96	0,140
11,54	V27 11540.1125	V27 11540.2125	12×45	162	96	0,140
11,6	V27 11600.1125	V27 11600.2125	12×45	162	96	0,145
11,7	V27 11700.1125	V27 11700.2125	12×45	162	96	0,150
11,8	V27 11800.1125	V27 11800.2125	12×45	162	96	0,155
11,9	V27 11900.1125	V27 11900.2125	12×45	162	96	0,160
12,0	V27 12000.1125	V27 12000.2125	12×45	162	96	0,168
12,5	V27 12500.1125	V27 12500.2125	14×45	178	112	0,198
12,7	V27 12700.1125	V27 12700.2125	14×45	178	112	0,199
12,8	V27 12800.1125	V27 12800.2125	14×45	178	112	0,200
13,0	V27 13000.1125	V27 13000.2125	14×45	178	112	0,210
13,3	V27 13300.1125	V27 13300.2125	14×45	178	112	0,220
13,5	V27 13500.1125	V27 13500.2125	14×45	178	112	0,230
13,8	V27 13800.1125	V27 13800.2125	14×45	178	112	0,240
14,0	V27 14000.1125	V27 14000.2125	14×45	178	112	0,246
14,5	V27 14500.1125	V27 14500.2125	16×48	203	128	0,315
14,8	V27 14800.1125	V27 14800.2125	16×48	203	128	0,317
15,0	V27 15000.1125	V27 15000.2125	16×48	203	128	0,320
15,5	V27 15500.1125	V27 15500.2125	16×48	203	128	0,340
15,8	V27 15800.1125	V27 15800.2125	16×48	203	128	0,350
16,0	V27 16000.1125	V27 16000.2125	16×48	203	128	0,360

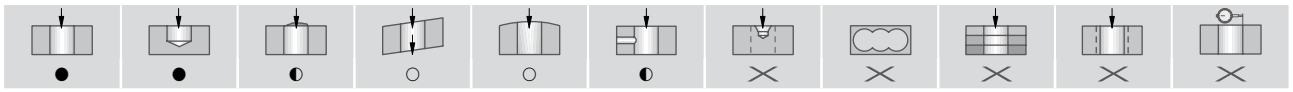
Guideline values for solid drilling: page 33.

KOMET KUB® Drillmax XL 12×D

High-performance solid carbide drill





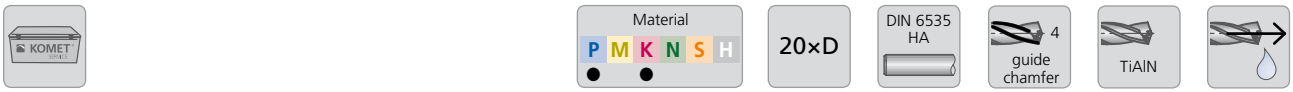


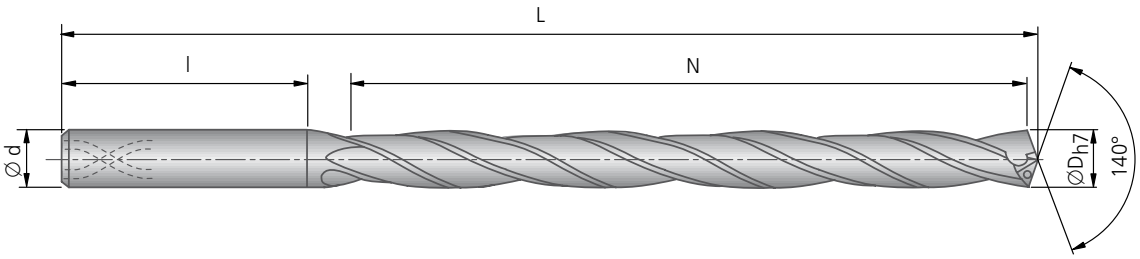
12×D				
Ø D_{h7}	DIN 6535 HA Order No.	Ø d × l	L	N
3,0	V25 03000.117830	6 × 36	84	38
4,0	V25 04000.117830	6 × 36	100	50
4,5	V25 04500.117830	6 × 36	108	56
5,0	V25 05000.117830	6 × 36	116	63
5,5	V25 05500.117830	6 × 36	124	69
6,0	V25 06000.117830	6 × 36	132	75
6,5	V25 06500.117830	8 × 36	140	81
8,0	V25 08000.117830	8 × 36	164	100
8,5	V25 08500.117830	10 × 40	176	106
9,0	V25 09000.117830	10 × 40	184	112
10,0	V25 10000.117830	10 × 40	200	125
12,0	V25 12000.117830	12 × 45	237	149

Other diameters on request.

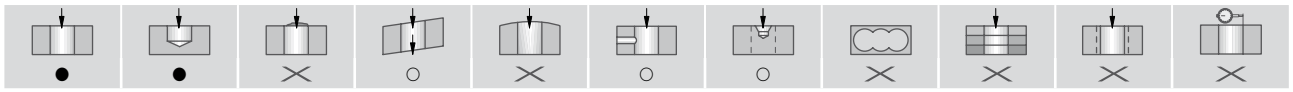
● very good | ◐ good | ○ possible: see technical notes, page 38 | ✕ not possible

Guideline values for solid drilling: page 34.





Warning! A pilot hole must always be drilled. Direct spot drilling is not possible, even on a machined spot-drill surface. Angled surfaces or unmachined spot-drill surfaces must also be faced or spot faced for the pilot drilling tool (page 39).



20×D				
Ø D_{h7}	DIN 6535 HA Order No.	Ø d × l	L	N
3,0	V05 03000.117830	6 × 36	108	62
4,0	V05 04000.117830	6 × 36	132	82
4,5	V05 04500.117830	6 × 36	144	95
5,0	V05 05000.117830	6 × 36	156	103
5,5	V05 05500.117830	6 × 36	168	113
6,0	V05 06000.117830	6 × 36	178	123
6,5	V05 06500.117830	8 × 36	192	133
8,0	V05 08000.117830	8 × 36	222	164
8,5	V05 08500.117830	10 × 40	244	174
9,0	V05 09000.117830	10 × 40	256	184
10,0	V05 10000.117830	10 × 40	270	205

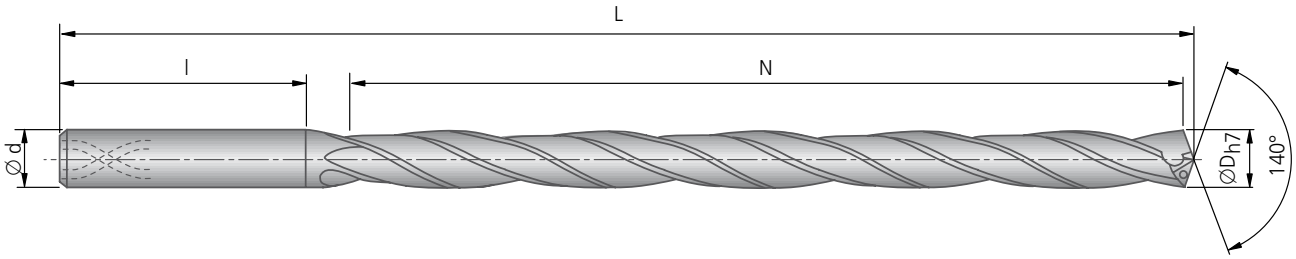
Other diameters on request.

Guideline values for solid drilling: page 35.

KOMET KUB® Drillmax XL 30×D

High-performance solid carbide drill





Warning! A pilot hole must always be drilled. Direct spot drilling is not possible, even on a machined spot-drill surface. Angled surfaces or unmachined spot-drill surfaces must also be faced or spot faced for the pilot drilling tool (page 39).

●	●	✕	○	✕	○	○	✕	✕	✕	✕

30×D				
Ø D_{h7}	DIN 6535 HA Order No.	Ø d × l	L	N
3,0	V06 03000.117830	6 × 36	138	92
4,0	V06 04000.117830	6 × 36	172	122
4,5	V06 04500.117830	6 × 36	189	137
5,0	V06 05000.117830	6 × 36	206	153
5,5	V06 05500.117830	6 × 36	223	168
6,0	V06 06000.117830	6 × 36	238	183
6,5	V06 06500.117830	8 × 36	257	198
8,0	V06 08000.117830	8 × 36	302	244

Other diameters on request.

● very good | ◐ good | ○ possible: see technical notes, page 38 | ✕ not possible

Guideline values for solid drilling: page 35.

up to 40×D

KOMET KUB® Drillmax XL ALU

High-performance solid carbide drill

available on request



High-performance drills specially designed for aluminium

The KOMET KUB® Drillmax XL ALU is designed for machining aluminium and has optimised cutting edge and flute geometry. The drill is optimally centred and guided by the additional lands, which guarantees a high degree of alignment accuracy. The flutes have been additionally polished, which provides reliable chip removal from the hole to a depth of 40×D.

BENEFITS for you:

- Optimally matched cutting edge geometry
- Polished flutes
- Internal coolant supply for MSS or KSS
- Reliable drilling to a depth of 40×D without pecking
- High degree of alignment accuracy

Application example:
Deep-hole drilling, dia. 5.0 mm, in aluminium, MQL

Material: AlSi12Cu1
Workpiece: Ladder frame
Hole: ∅ 5.0 mm, 36×D deep after cylindrical countersink
Machine: Machining centre, vertical
Cooling:
Minimum quantity lubrication 10 bar (MQL)

Tool: KOMET KUB® Drillmax XL ALU
∅ 5.0 mm tool designed for 40×D
6xD pilot hole required

Cutting values:
v_C = 100 m/min = 6370 rpm
f = 0.12 mm/rev

Machining: Plunging in pilot hole at reduced speed and with reduced feed. Continued drilling with two pauses, then down to end of hole depth at reduced speed and with reduced feed. Retraction from the finished hole at reduced speed.

Conclusion: In comparison to the competition, it was possible to increase tool life from 6000 to 10,000 holes (1.802 m). Application runs reliably.

KOMET ®

Ø 6,0 – 20,0 mm

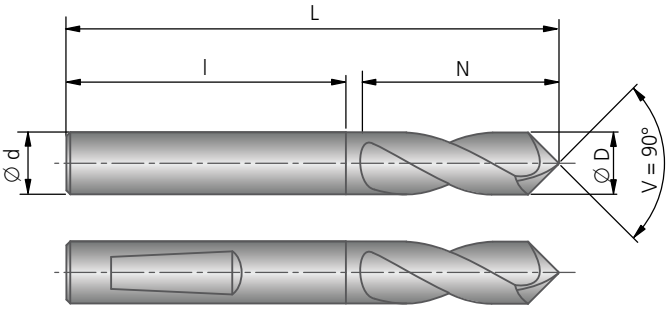
Solid carbide spot drill

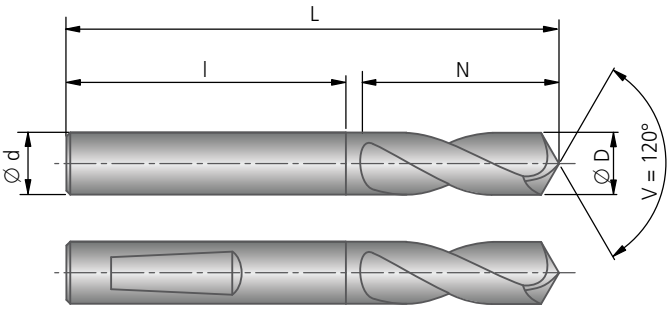
Material
P M K N S H

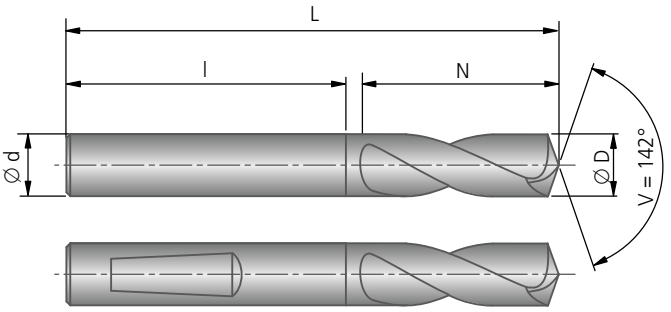
DIN 6535 HA

DIN 6535 HE

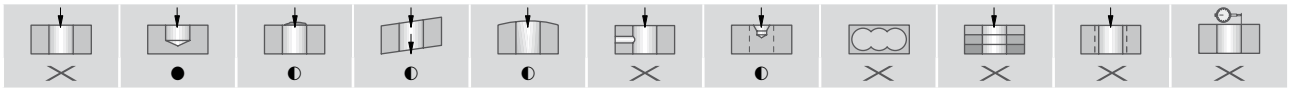
PVD







● very good | ◐ good | ○ possible | ✕ not possible



V = 90°						
D_{m7}	d_{h6}×l	L	N	kg ~	DIN 6535 HA Order No.	DIN 6535 HE Order No.
6,0	6×36	50	13	0,02	V95 04060.112730	V95 04060.212730
8,0	8×36	60	23	0,03	V95 04080.112730	V95 04080.212730
10,0	10×40	70	24	0,04	V95 04100.112730	V95 04100.212730
12,0	12×45	70	24	0,05	V95 04120.112730	V95 04120.212730
14,0	14×45	75	29	0,06	V95 04140.112730	V95 04140.212730
16,0	16×48	75	29	0,07	V95 04160.112730	V95 04160.212730
20,0	20×50	100	35	0,08	V95 04200.112730	V95 04200.212730

V = 120°						
D_{m7}	d_{h6}×l	L	N	kg ~	DIN 6535 HA Order No.	DIN 6535 HE Order No.
6,0	6×36	50	13	0,02	V95 03060.112730	V95 03060.212730
8,0	8×36	60	23	0,03	V95 03080.112730	V95 03080.212730
10,0	10×40	70	24	0,04	V95 03100.112730	V95 03100.212730
12,0	12×45	70	24	0,05	V95 03120.112730	V95 03120.212730
14,0	14×45	75	29	0,06	V95 03140.112730	V95 03140.212730
16,0	16×48	75	29	0,07	V95 03160.112730	V95 03160.212730
20,0	20×50	100	35	0,08	V95 03200.112730	V95 03200.212730

V = 142°						
D_{m7}	d_{h6}×l	L	N	kg ~	DIN 6535 HA Order No.	DIN 6535 HE Order No.
6,0	6×36	50	13	0,02	V95 05060.112730	V95 05060.212730
8,0	8×36	60	23	0,03	V95 05080.112730	V95 05080.212730
10,0	10×40	70	24	0,04	V95 05100.112730	V95 05100.212730
12,0	12×45	70	24	0,05	V95 05120.112730	V95 05120.212730
14,0	14×45	75	29	0,06	V95 05140.112730	V95 05140.212730
16,0	16×48	75	29	0,07	V95 05160.112730	V95 05160.212730
20,0	20×50	100	35	0,08	V95 05200.112730	V95 05200.212730

Recommended cutting data



Guideline values for solid drilling						KUB® Drillmax 3×D | 5×D | 7–8×D																				
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)			Feed f (mm/rev)																		
									Ø 3,0-5,0			Ø 5,1-8,0			Ø 8,1-10,0			Ø 10,1-12,0			Ø 12,1-14,0			Ø 14,1-16,0		
						min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	95	**115**	135	0,08	**0,14**	0,20	0,15	**0,20**	0,25	0,15	**0,23**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40	0,30	**0,38**	0,45
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	70	**85**	100	0,06	**0,12**	0,18	0,12	**0,17**	0,22	0,15	**0,20**	0,25	0,18	**0,24**	0,30	0,20	**0,28**	0,35	0,30	**0,44**	0,48
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	70	**85**	100	0,06	**0,12**	0,18	0,10	**0,18**	0,25	0,20	**0,28**	0,35	0,25	**0,33**	0,40	0,30	**0,38**	0,45	0,35	**0,44**	0,52
P	3.0	> 900 - 1200		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	70	**75**	80	0,05	**0,10**	0,15	0,10	**0,15**	0,20	0,12	**0,19**	0,25	0,15	**0,23**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40
P	4.0	> 1200		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	45	**60**	75	0,05	**0,09**	0,13	0,10	**0,14**	0,18	0,12	**0,18**	0,23	0,15	**0,22**	0,28	0,18	**0,25**	0,32	0,20	**0,28**	0,35
P	4.1			HSS																							
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb-5Mo3) 2.4631 (Nimonic 80A)																						
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)																						
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	40	**55**	70	0,06	**0,12**	0,18	0,12	**0,17**	0,22	0,15	**0,20**	0,25	0,18	**0,24**	0,30	0,20	**0,28**	0,35	0,22	**0,31**	0,40
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	25	**45**	65	0,05	**0,08**	0,10	0,09	**0,15**	0,20	0,11	**0,17**	0,22	0,14	**0,20**	0,25	0,16	**0,23**	0,30	0,20	**0,28**	0,35
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	15	**30**	40	0,05	**0,08**	0,10	0,06	**0,10**	0,14	0,08	**0,13**	0,18	0,12	**0,17**	0,22	0,14	**0,20**	0,26	0,16	**0,23**	0,30
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	90	**115**	140	0,10	**0,18**	0,25	0,15	**0,23**	0,30	0,20	**0,30**	0,40	0,25	**0,33**	0,40	0,25	**0,35**	0,45	0,30	**0,40**	0,50
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	70	**95**	120	0,10	**0,18**	0,25	0,15	**0,23**	0,30	0,20	**0,30**	0,40	0,25	**0,33**	0,40	0,25	**0,35**	0,45	0,30	**0,40**	0,50
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	100	**120**	140	0,08	**0,14**	0,20	0,15	**0,20**	0,25	0,15	**0,23**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40	0,30	**0,38**	0,45
K	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	80	**100**	120	0,06	**0,12**	0,18	0,10	**0,15**	0,20	0,14	**0,20**	0,25	0,18	**0,24**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	70	**90**	110	0,06	**0,12**	0,18	0,10	**0,15**	0,20	0,14	**0,20**	0,25	0,18	**0,24**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	60	**70**	80	0,06	**0,12**	0,18	0,10	**0,15**	0,20	0,14	**0,20**	0,25	0,18	**0,24**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	60	**70**	80	0,06	**0,12**	0,18	0,10	**0,15**	0,20	0,14	**0,20**	0,25	0,18	**0,24**	0,30	0,20	**0,28**	0,35	0,25	**0,33**	0,40
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)																						
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)																						
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)																						
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)																						
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)																						
H	15.0	1400		hardened steels < 45 HRC																						
H	16.0	1800		hardened steels > 45 HRC																						

Cutting values shown are relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

| | KUB® Drillmax VA 5×D | | |

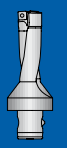
Recommended cutting data



Guideline values for solid drilling						KUB® Drillmax XL 12×D											
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)			Feed f (mm/rev)								
									Ø 3,0-6,0			Ø 6,1-10,0			Ø 10,1-12,0		
						min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	60	**85**	100	0,15	**0,20**	0,25	0,20	**0,30**	0,35	0,25	**0,35**	0,40
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	60	**80**	100	0,08	**0,10**	0,15	0,15	**0,20**	0,25	0,20	**0,30**	0,40
	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	60	**85**	100	0,08	**0,10**	0,15	0,15	**0,20**	0,25	0,20	**0,30**	0,40
	3.0	> 900 - 1200		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	60	**75**	90	0,08	**0,10**	0,15	0,15	**0,20**	0,25	0,20	**0,30**	0,40
	4.0	> 1200		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)												
	4.1			HSS													
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb-5Mo3) 2.4631 (Nimonic 80A)												
	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	30	**35**	50	0,04	**0,05**	0,06	0,08	**0,10**	0,12	0,12	**0,15**	0,18
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)												
	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)												
	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)												
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	60	**80**	100	0,10	**0,15**	0,18	0,18	**0,20**	0,25	0,25	**0,35**	0,40
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	60	**80**	100	0,10	**0,15**	0,18	0,15	**0,20**	0,25	0,25	**0,30**	0,35
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	40	**70**	90	0,10	**0,12**	0,15	0,15	**0,20**	0,25	0,20	**0,25**	0,30
	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	40	**70**	90	0,08	**0,10**	0,12	0,12	**0,18**	0,20	0,15	**0,20**	0,25
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	35	**65**	80	0,06	**0,10**	0,12	0,15	**0,20**	0,25	0,15	**0,20**	0,25
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	35	**65**	80	0,06	**0,10**	0,12	0,15	**0,20**	0,25	0,15	**0,20**	0,25
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	35	**65**	80	0,06	**0,10**	0,12	0,15	**0,20**	0,25	0,15	**0,20**	0,25
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)												
	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)												
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	80	**100**	120	0,15	0,20	0,35	0,20	**0,25**	0,40	0,20	**0,35**	0,40
	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	80	**100**	120	0,20	0,35	0,45	0,25	**0,40**	0,60	0,25	**0,40**	0,60
	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)												
H	15.0	1400		hardened steels < 45 HRC													
	16.0	1800		hardened steels > 45 HRC													

Cutting values shown are relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

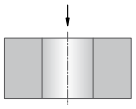


KUB® Drillmax XL 20×D | 30×D											
Cutting speed v_c (m/min)			Feed f (mm/rev)								
			Ø 3,0-4,0			Ø 4,1-6,0			Ø 6,1-10,0		
min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max
40	**85**	100	0,06	**0,10**	0,15	0,10	**0,20**	0,30	0,15	**0,25**	0,35
40	**75**	100	0,06	**0,09**	0,12	0,10	**0,17**	0,25	0,15	**0,20**	0,25
40	**85**	100	0,06	**0,10**	0,15	0,15	**0,25**	0,30	0,15	**0,25**	0,35
35	**60**	80	0,06	**0,09**	0,12	0,10	**0,15**	0,20	0,15	**0,20**	0,25
40	**70**	85	0,07	**0,11**	0,15	0,18	**0,24**	0,30	0,20	**0,25**	0,35
40	**70**	85	0,07	**0,11**	0,15	0,18	**0,24**	0,30	0,20	**0,25**	0,35
35	**65**	80	0,06	**0,10**	0,15	0,15	**0,20**	0,25	0,15	**0,25**	0,30
35	**65**	80	0,06	**0,10**	0,15	0,15	**0,20**	0,25	0,15	**0,25**	0,30
35	**65**	80	0,06	**0,10**	0,15	0,15	**0,20**	0,25	0,15	**0,25**	0,30
35	**65**	80	0,06	**0,09**	0,12	0,15	**0,20**	0,25	0,15	**0,25**	0,30

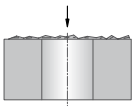
Information on deep-hole drilling on page 39.

Technical informations

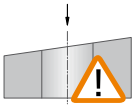
1

1. 

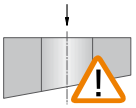
Starting on straight, machined surfaces
- starting without feed rate reduction
- no need for chip removal cycles and pre-centring
- Please note: If centring has already been performed, care should be taken to ensure that the centring is concentric with the drilling axis and the centring angle is identical to the point angle of the solid carbide drill.

2. 

Starting on uneven surfaces (cast surfaces)
- depending on the quality of the surface or when spot drilling, reduce the feed
- Please note: Cast workpieces can have mould contours inclined up to an angle of 5° (see 3.)

3. 

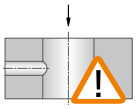
Starting on angled surfaces
- depending on the angle of inclination, the feed rate when starting must be reduced accordingly. Rule of thumb for tools with a maximum projection length of 3×D: 2°≙80°, 4°≙70°, 6°≙50°
- spotfacing must be performed for greater angles of inclination

4. 

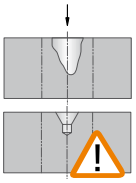
Angled bore exit
- reduce feed by 50 % in the exit area

5. 

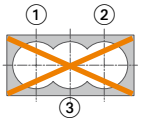
Starting on cambered surfaces
- if the drill hole is started in the centre of convex surfaces, no parameter reductions are necessary.
- if the starting point is outside the radius centre, proceed as indicated at point 3.

6. 

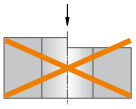
Drilling through a cross bore
- drilling through a cross bore or interrupted cut is generally problematic
- half feed rate at interruption

7. 

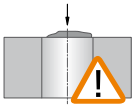
Starting on a groove or large centering bore
- end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
- possible under certain conditions. Reduce feed where necessary

8. 

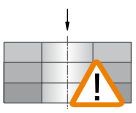
Drilling a chamfer
- not possible

9. 

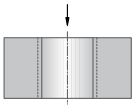
Starting on an edge
- not possible (start point must be flat)

10. 

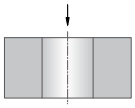
Starting on a welded seam
- spot face surface before starting bore

11. 

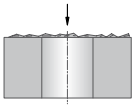
Drilling through stacked plates
- if the contact surfaces have been machined and the workpieces firmly clamped on top of each other with no gaps, drilling can proceed.
- Please note: Welded-on eyes made of plate often form a gap between the workpieces. Problems caused by the tool hooking in are then to be expected. Edge fractures may occur more frequently. For this reason, this application is not recommended.

12. 

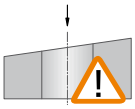
Roughing
- 3×D and 5×D possible

1. 

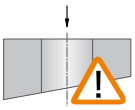
Starting on straight, machined surfaces
- when starting up to a drilling depth of 0.25×D, reduce feed rate to below 50% of the normal feed rate
- no need for chip removal cycles and pre-centring

2. 

Starting on uneven surfaces (cast surfaces)
- depending on the quality of the surface or when spot drilling, reduce the feed
- Please note: Cast workpieces can have mould contours inclined up to an angle of 5° (see 3.)

3. 

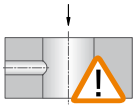
Starting on angled surfaces
- spot face surface before starting bore

4. 

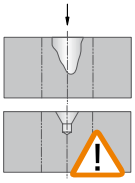
Angled bore exit
- reduce feed by 50 % in the exit area

5. 

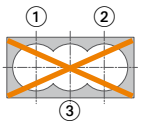
Starting on cambered surfaces
- spot face surface before starting bore

6. 

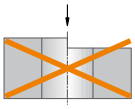
Drilling through a cross bore
- drilling through a cross bore or interrupted cut is generally problematic
- half feed rate at interruption

7. 

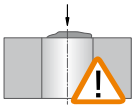
Starting on a groove or large centering bore
- end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
- possible under certain conditions. Reduce feed where necessary

8. 

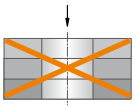
Drilling a chamfer
- not possible

9. 

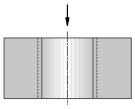
Starting on an edge
- not possible (start point must be flat)

10. 

Starting on a welded seam
- spot face surface before starting bore

11. 

Drilling through stacked plates
- not possible

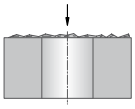
12. 

Roughing
- 7-8×D possible

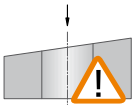
Warning! A pilot hole must always be drilled. Direct spot drilling is not possible, even on a machined spot-drill surface.
Angled surfaces or unmachined spot-drill surfaces must also be faced or spot faced for the pilot drilling tool.

Technical informations

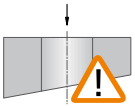
1

1. 

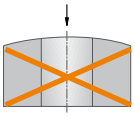
Starting on uneven surfaces (cast surfaces)
- depending on the quality of the surface or when spot drilling, reduce the feed
- first drill a pilot bore

2. 

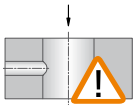
Starting on angled surfaces
- spot face surface before starting bore

3. 

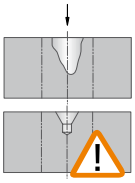
Angled bore exit
- reduce feed by 50 % in the exit area

4. 

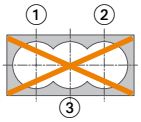
Starting on cambered surfaces
- not possible

5. 

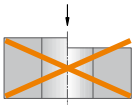
Drilling through a cross bore
- half feed rate at interruption

6. 

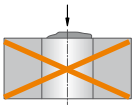
Starting on a groove or large centering bore
- end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
- possible under certain conditions. Reduce feed where necessary

7. 

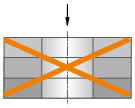
Drilling a chamfer
- not possible

8. 

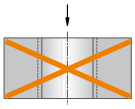
Starting on an edge
- not possible

9. 

Starting on a welded seam
- not possible

10. 

Drilling through stacked plates
- not possible

11. 

Roughing
- not possible

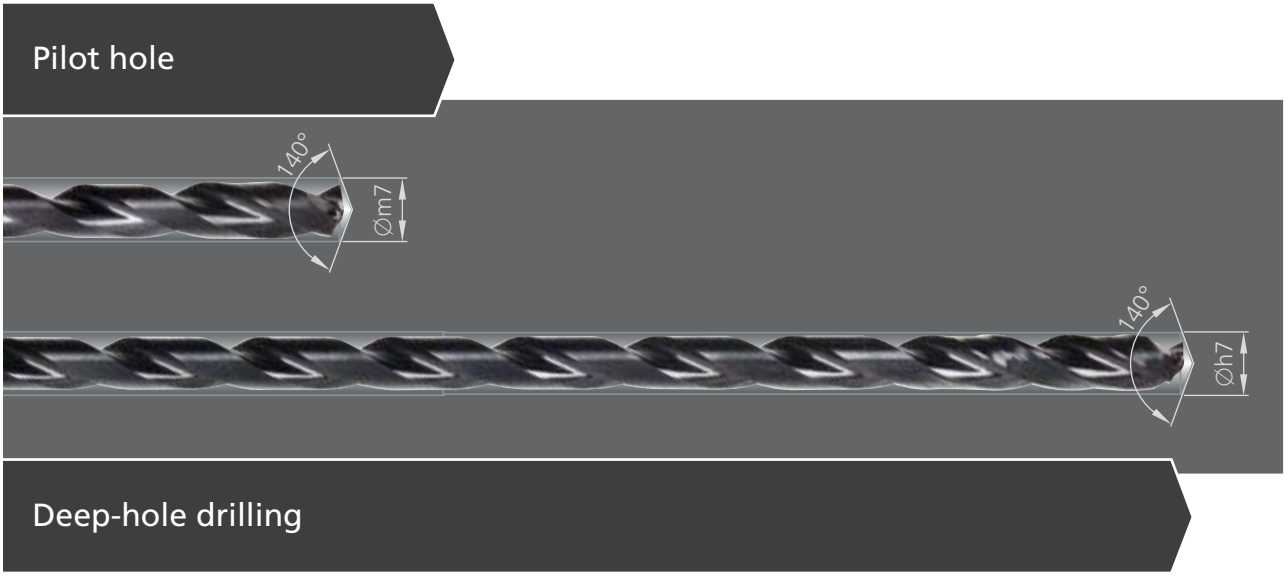
Recommended drilling depth for pilot hole 〉Follow-on tool

for deep-hole drilling 12×D

pilot hole 3×D | for deep-hole drilling 20×D

pilot hole 3×D | for deep-hole drilling 30×D

Optimally matched tolerance position of our KUB® Drillmax drills.
The KUB® Drillmax with a tolerance of m7 is ideally suited to piloting,
and the KUB® Drillmax XL with a tolerance of h7 is best suited as a follow-on tool for deep-hole drilling.



Through hole:

Enter pilot hole at working feed rate of v_c = 20-30 m/min

Stop drill feed just before the bottom of the pilot hole and increase speed straight to cycle speed

Increase feed rate to cycle speed

Reduce feed rate at hole exit by 50%

Exit hole at
n = 300 rpm · v_f = 3000 mm/min

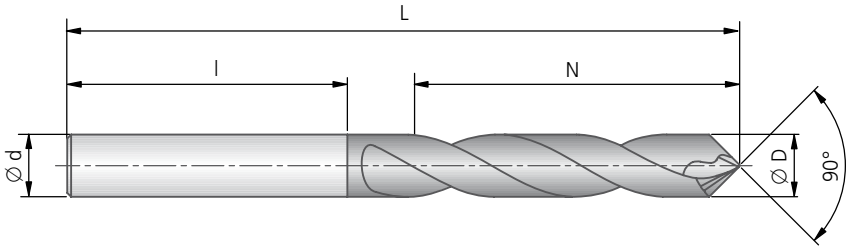
Back to pilot hole depth at
v_c = 20-30 m/min · v_f = 3000 mm/min

Withdraw tool 2-3 mm

KOMET RHOBEST® Drillmax 90 Ø 0,80 – 13,0 mm

NCD High-performance drill

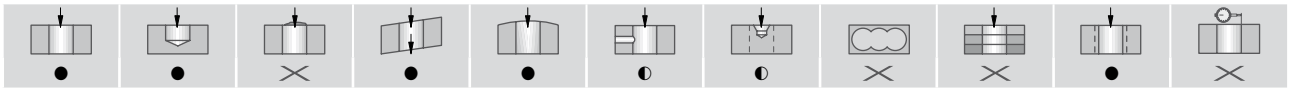




5×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
0,80	V11 00800.135210	3 × 28	38	6
1,00	V11 01000.135210	3 × 28	38	6
1,50	V11 01500.135210	3 × 28	48	12
1,60	V11 01600.135210	3 × 28	48	12
1,70	V11 01700.135210	3 × 28	48	12
1,80	V11 01800.135210	3 × 28	48	12
1,90	V11 01900.135210	3 × 28	48	12
2,00	V11 02000.135210	3 × 28	48	12
2,10	V11 02100.135210	3 × 28	48	15
2,20	V11 02200.135210	3 × 28	48	15
2,30	V11 02300.135210	3 × 28	48	15
2,40	V11 02400.135210	3 × 28	48	15
2,50	V11 02500.135210	6 × 36	66	19
2,60	V11 02600.135210	6 × 36	66	19
2,70	V11 02700.135210	6 × 36	66	19
2,80	V11 02800.135210	6 × 36	66	19
2,90	V11 02900.135210	6 × 36	66	19
3,00	V11 03000.135210	6 × 36	66	23
3,10	V11 03100.135210	6 × 36	66	23
3,20	V11 03200.135210	6 × 36	66	23
3,30	V11 03300.135210	6 × 36	66	23
3,40	V11 03400.135210	6 × 36	66	23
3,50	V11 03500.135210	6 × 36	66	23
3,60	V11 03600.135210	6 × 36	66	23
3,70	V11 03700.135210	6 × 36	66	23
3,80	V11 03800.135210	6 × 36	74	29
3,90	V11 03900.135210	6 × 36	74	29
4,00	V11 04000.135210	6 × 36	74	29
4,10	V11 04100.135210	6 × 36	74	29
4,20	V11 04200.135210	6 × 36	74	29
4,30	V11 04300.135210	6 × 36	74	29

5×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
4,40	V11 04400.135210	6 × 36	74	29
4,50	V11 04500.135210	6 × 36	74	29
4,60	V11 04600.135210	6 × 36	74	29
4,70	V11 04700.135210	6 × 36	74	29
4,80	V11 04800.135210	6 × 36	82	35
4,83	V11 04830.135210	6 × 36	82	35
4,90	V11 04900.135210	6 × 36	82	35
4,93	V11 04930.135210	6 × 36	82	35
5,00	V11 05000.135210	6 × 36	82	35
5,10	V11 05100.135210	6 × 36	82	35
5,20	V11 05200.135210	6 × 36	82	35
5,30	V11 05300.135210	6 × 36	82	35
5,40	V11 05400.135210	6 × 36	82	35
5,50	V11 05500.135210	6 × 36	82	35
5,60	V11 05600.135210	6 × 36	82	35
5,70	V11 05700.135210	6 × 36	82	35
5,80	V11 05800.135210	6 × 36	82	35
5,90	V11 05900.135210	6 × 36	82	35
6,00	V11 06000.135210	6 × 36	82	35
6,10	V11 06100.135210	8 × 36	91	42
6,20	V11 06200.135210	8 × 36	91	42
6,30	V11 06300.135210	8 × 36	91	42
6,35	V11 06350.135210	8 × 36	91	42
6,40	V11 06400.135210	8 × 36	91	42
6,50	V11 06500.135210	8 × 36	91	42
6,60	V11 06600.135210	8 × 36	91	42
6,70	V11 06700.135210	8 × 36	91	42
6,80	V11 06800.135210	8 × 36	91	42
6,90	V11 06900.135210	8 × 36	91	42
7,00	V11 07000.135210	8 × 36	91	42
7,10	V11 07100.135210	8 × 36	91	42

● very good | ◐ good | ○ possible | ✕ not possible



5×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
7,20	V11 07200.135210	8 × 36	91	42
7,30	V11 07300.135210	8 × 36	91	42
7,40	V11 07400.135210	8 × 36	91	42
7,50	V11 07500.135210	8 × 36	91	42
7,60	V11 07600.135210	8 × 36	91	42
7,70	V11 07700.135210	8 × 36	91	42
7,80	V11 07800.135210	8 × 36	91	42
7,90	V11 07900.135210	8 × 36	91	42
7,93	V11 07930.135210	8 × 36	91	42
8,00	V11 08000.135210	8 × 36	91	42
8,10	V11 08100.135210	10 × 40	103	48
8,20	V11 08200.135210	10 × 40	103	48
8,30	V11 08300.135210	10 × 40	103	48
8,40	V11 08400.135210	10 × 40	103	48
8,50	V11 08500.135210	10 × 40	103	48
8,60	V11 08600.135210	10 × 40	103	48
8,70	V11 08700.135210	10 × 40	103	48
8,80	V11 08800.135210	10 × 40	103	48
8,90	V11 08900.135210	10 × 40	103	48
9,00	V11 09000.135210	10 × 40	103	48
9,10	V11 09100.135210	10 × 40	103	48
9,20	V11 09200.135210	10 × 40	103	48
9,30	V11 09300.135210	10 × 40	103	48
9,40	V11 09400.135210	10 × 40	103	48
9,50	V11 09500.135210	10 × 40	103	48
9,52	V11 09520.135210	10 × 40	103	48
9,60	V11 09600.135210	10 × 40	103	48
9,70	V11 09700.135210	10 × 40	103	48
9,80	V11 09800.135210	10 × 40	103	48
9,90	V11 09900.135210	10 × 40	103	48
10,00	V11 10000.135210	10 × 40	103	48

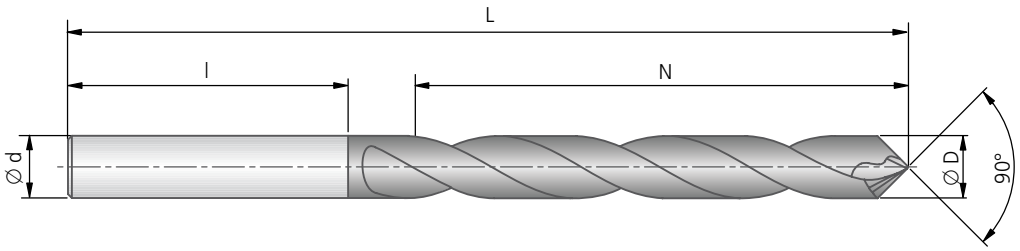
5×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
10,10	V11 10100.135210	12 × 45	118	56
10,20	V11 10200.135210	12 × 45	118	56
10,30	V11 10300.135210	12 × 45	118	56
10,40	V11 10400.135210	12 × 45	118	56
10,50	V11 10500.135210	12 × 45	118	56
10,60	V11 10600.135210	12 × 45	118	56
10,70	V11 10700.135210	12 × 45	118	56
10,80	V11 10800.135210	12 × 45	118	56
10,90	V11 10900.135210	12 × 45	118	56
11,00	V11 11000.135210	12 × 45	118	56
11,10	V11 11100.135210	12 × 45	118	56
11,20	V11 11200.135210	12 × 45	118	56
11,30	V11 11300.135210	12 × 45	118	56
11,40	V11 11400.135210	12 × 45	118	56
11,50	V11 11500.135210	12 × 45	118	56
11,60	V11 11600.135210	12 × 45	118	56
11,70	V11 11700.135210	12 × 45	118	56
11,80	V11 11800.135210	12 × 45	118	56
11,90	V11 11900.135210	12 × 45	118	56
12,00	V11 12000.135210	12 × 45	118	56
12,10	V11 12100.135210	14 × 45	126	60
12,20	V11 12200.135210	14 × 45	126	60
12,30	V11 12300.135210	14 × 45	126	60
12,40	V11 12400.135210	14 × 45	126	60
12,50	V11 12500.135210	14 × 45	126	60
12,60	V11 12600.135210	14 × 45	126	60
12,70	V11 12700.135210	14 × 45	126	60
12,80	V11 12800.135210	14 × 45	126	60
12,90	V11 12900.135210	14 × 45	126	60
13,00	V11 13000.135210	14 × 45	126	60

Guideline values for solid drilling: page 46.

KOMET RHOBEST® Drillmax 90 Ø 5,0 – 13,0 mm

NCD High-performance drill

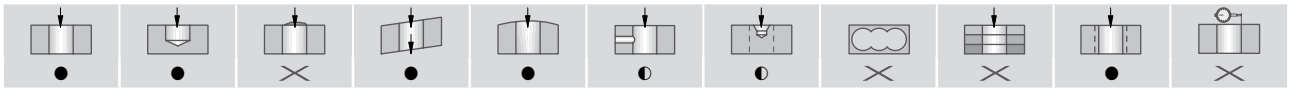




7×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
5,00	V21 05000.135210	6 × 36	88	43
5,10	V21 05100.135210	6 × 36	88	43
5,20	V21 05200.135210	6 × 36	88	43
5,30	V21 05300.135210	6 × 36	88	43
5,40	V21 05400.135210	6 × 36	88	43
5,50	V21 05500.135210	6 × 36	88	43
5,60	V21 05600.135210	6 × 36	88	43
5,70	V21 05700.135210	6 × 36	88	43
5,80	V21 05800.135210	6 × 36	88	43
5,90	V21 05900.135210	6 × 36	88	43
6,00	V21 06000.135210	6 × 36	88	43
6,10	V21 06100.135210	8 × 36	105	56
6,20	V21 06200.135210	8 × 36	105	56
6,30	V21 06300.135210	8 × 36	105	56
6,40	V21 06400.135210	8 × 36	105	56
6,50	V21 06500.135210	8 × 36	105	56
6,60	V21 06600.135210	8 × 36	105	56
6,70	V21 06700.135210	8 × 36	105	56
6,80	V21 06800.135210	8 × 36	105	56
6,90	V21 06900.135210	8 × 36	105	56

7×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
7,00	V21 07000.135210	8 × 36	105	56
7,10	V21 07100.135210	8 × 36	105	56
7,20	V21 07200.135210	8 × 36	105	56
7,30	V21 07300.135210	8 × 36	105	56
7,40	V21 07400.135210	8 × 36	105	56
7,50	V21 07500.135210	8 × 36	105	56
7,60	V21 07600.135210	8 × 36	105	56
7,70	V21 07700.135210	8 × 36	105	56
7,80	V21 07800.135210	8 × 36	105	56
7,90	V21 07900.135210	8 × 36	105	56
8,00	V21 08000.135210	8 × 36	105	56
8,10	V21 08100.135210	10 × 40	125	68
8,20	V21 08200.135210	10 × 40	125	68
8,30	V21 08300.135210	10 × 40	125	68
8,40	V21 08400.135210	10 × 40	125	68
8,50	V21 08500.135210	10 × 40	125	68
8,60	V21 08600.135210	10 × 40	125	68
8,70	V21 08700.135210	10 × 40	125	68
8,80	V21 08800.135210	10 × 40	125	68
8,90	V21 08900.135210	10 × 40	125	68

● very good | ◐ good | ○ possible | ✕ not possible



7×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
9,00	V21 09000.135210	10 × 40	125	68
9,10	V21 09100.135210	10 × 40	125	68
9,20	V21 09200.135210	10 × 40	125	68
9,30	V21 09300.135210	10 × 40	125	68
9,40	V21 09400.135210	10 × 40	125	68
9,50	V21 09500.135210	10 × 40	125	68
9,60	V21 09600.135210	10 × 40	125	68
9,70	V21 09700.135210	10 × 40	125	68
9,80	V21 09800.135210	10 × 40	125	68
9,90	V21 09900.135210	10 × 40	125	68
10,00	V21 10000.135210	10 × 40	125	68
10,10	V21 10100.135210	12 × 45	145	82
10,20	V21 10200.135210	12 × 45	145	82
10,30	V21 10300.135210	12 × 45	145	82
10,40	V21 10400.135210	12 × 45	145	82
10,50	V21 10500.135210	12 × 45	145	82
10,60	V21 10600.135210	12 × 45	145	82
10,70	V21 10700.135210	12 × 45	145	82
10,80	V21 10800.135210	12 × 45	145	82
10,90	V21 10900.135210	12 × 45	145	82

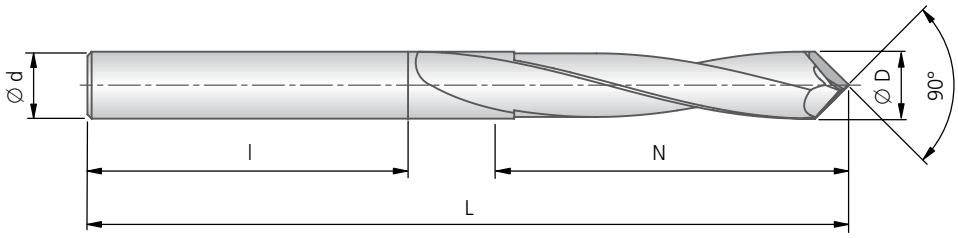
7×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
11,00	V21 11000.135210	12 × 45	145	82
11,10	V21 11100.135210	12 × 45	145	82
11,20	V21 11200.135210	12 × 45	145	82
11,30	V21 11300.135210	12 × 45	145	82
11,40	V21 11400.135210	12 × 45	145	82
11,50	V21 11500.135210	12 × 45	145	82
11,60	V21 11600.135210	12 × 45	145	82
11,70	V21 11700.135210	12 × 45	145	82
11,80	V21 11800.135210	12 × 45	145	82
11,90	V21 11900.135210	12 × 45	145	82
12,00	V21 12000.135210	12 × 45	145	82
12,10	V21 12100.135210	14 × 45	160	92
12,20	V21 12200.135210	14 × 45	160	92
12,30	V21 12300.135210	14 × 45	160	92
12,40	V21 12400.135210	14 × 45	160	92
12,50	V21 12500.135210	14 × 45	160	92
12,60	V21 12600.135210	14 × 45	160	92
12,70	V21 12700.135210	14 × 45	160	92
12,80	V21 12800.135210	14 × 45	160	92
12,90	V21 12900.135210	14 × 45	160	92
13,00	V21 13000.135210	14 × 45	160	92

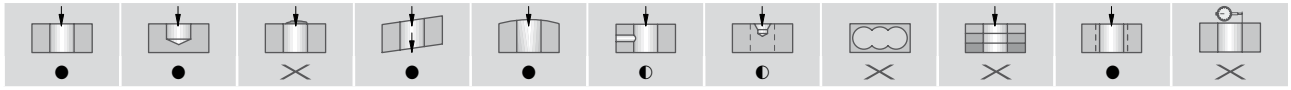
Guideline values for solid drilling: page 46.

KOMET RHOBEST® Drillmax 90 Ø 6 – 10 mm

PCD High-performance drill







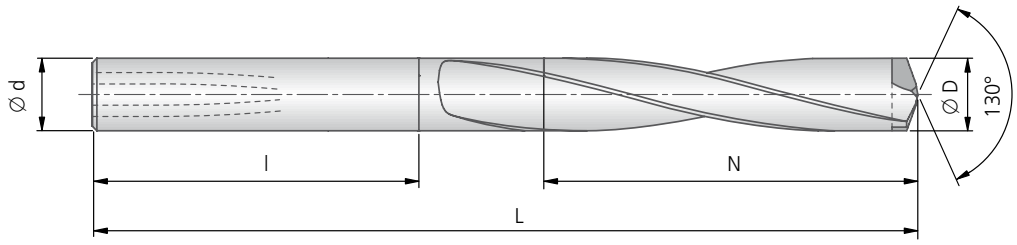
5×D					
Ø D_{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	Ø d_{h6} × l	L	N
6	V11 06000.235510	V11 06000.135510	6 × 36	82	30
8	V11 08000.235510	V11 08000.135510	8 × 36	91	42
10	V11 10000.235510	V11 10000.135510	10 × 40	103	50

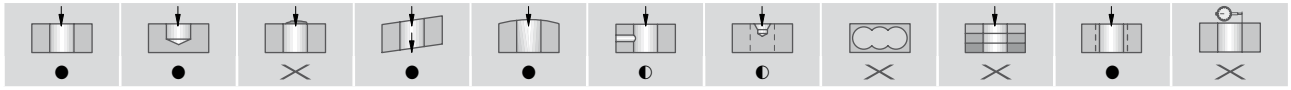
● very good | ◐ good | ○ possible | ✕ not possible

KOMET RHOBEST® Drillmax

PCD High-performance drill







5×D				
Ø D_{m7}	DIN 6535 HA Order No.	Ø d_{h6} × l	L	N
6	V03 06000.145510	6 × 36	82	30
8	V03 08000.145510	8 × 36	91	42
10	V03 10000.145510	10 × 40	103	50

Guideline values for solid drilling: page 46.



KOMET RHOBEST®

Recommended application areas

NCD High-performance drill Drillmax 90 (V11.. / V21..)												
Machining: through hole, blind hole												
Cutting speed v_c (m/min) Feed f (mm/rev)	Ø 0,8 - 1,5 mm		Ø 1,6 - 3,9 mm		Ø 4 - 5,9 mm		Ø 6 - 7,9 mm		Ø 8 - 9,9 mm		Ø 10 - 13 mm	
	v_c	f	v_c	f	v_c	f	v_c	f	v_c	f	v_c	f
CFRP	30 - 100	0,01 - 0,03	60 - 200	0,02 - 0,06	100 - 200	0,04 - 0,08	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12
GFRP	30 - 100	0,01 - 0,04	60 - 200	0,02 - 0,08	100 - 200	0,04 - 0,10	100 - 300	0,06 - 0,15	100 - 300	0,06 - 0,18	100 - 300	0,06 - 0,20
CFRP/Al stacks	30 - 100	0,01 - 0,03	60 - 200	0,02 - 0,06	100 - 200	0,04 - 0,08	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12
Honeycombs	30 - 100	0,01 - 0,03	60 - 200	0,02 - 0,06	100 - 200	0,04 - 0,08	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12

PCD High-performance drill Drillmax and Drillmax 90 (V03..)						
Machining: through hole, blind hole						
Cutting speed v_c (m/min) Feed f (mm/rev)	Ø 6 mm		Ø 8 mm		Ø 10 mm	
	v_c	f	v_c	f	v_c	f
CFRP	100 - 300	0,05 - 0,12	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12
GFRP	100 - 300	0,05 - 0,15	100 - 300	0,06 - 0,18	100 - 300	0,06 - 0,20
CFRP/Al stacks	100 - 300	0,05 - 0,12	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12
Honeycombs	100 - 300	0,05 - 0,12	100 - 300	0,06 - 0,12	100 - 300	0,06 - 0,12

Other materials and combinations on request.

We would be delighted to collaborate with you to develop new machining strategies. We offer a modern machining environment to conduct tests in-house or we can visit you to coordinate further.

Interested? Simply contact our experts in lightweight construction at www.kometgroup.com

Important: See chapter 8 for more application details and safety notes!



① Solid drilling with PCD High-performance drill Drillmax 90 (V11..)
② Solid drilling with NCD High-performance drill Drillmax 90 (V11..)
③ Slot milling with PCD Slot milling cutter straight fluted (38304..)
④ Interpolation milling with NCD Composite multi-tooth milling cutter, helical teeth, pull cut (78989..)
⑤ Circular and slot milling with NCD Composite milling cutter, HSC type FZ, straight teeth (78981..)
⑥ Slot milling with NCD Composite milling cutter, HSC type FZ, 2 front cutters, 135° drill centre (78986..)

Classification of composite materials and typical applications

FIBROUS COMPOSITE MATERIALS

Fibrous composites are inhomogeneous materials that are essentially an assembly of three components – fibres and matrices or binders.

Typical fibres include carbon fibre (CFRP), glass fibre (GFRP) or aramid fibre (AFRP). With respect to their tensile strength, they are categorised into HT (high tenacity), UT (ultra high tenacity) and IM (intermediate modulus). Depending on the properties desired, the fibres differ in length, thickness and relative orientation (unidirectional, bidirectional, multidirectional).

As matrices, there are currently more than 100 different resins/polymers available on the market, which is just a hint at how varied these materials are. "Cold" cutting is generally recommended for duroplastics (90%) and thermoplastics (PEEK, PEI, PPS, etc.), while elastomers (PUR) should be cut at "high speed".

Applications:
Aerospace, automotive, medical industry, sports industry, wind farms, transport, building/architecture

HYBRIDS

Hybrids are material combinations of at least three layers of metals, polymers and fibrous composites.

Application: Aircraft construction

HONEYCOMBS

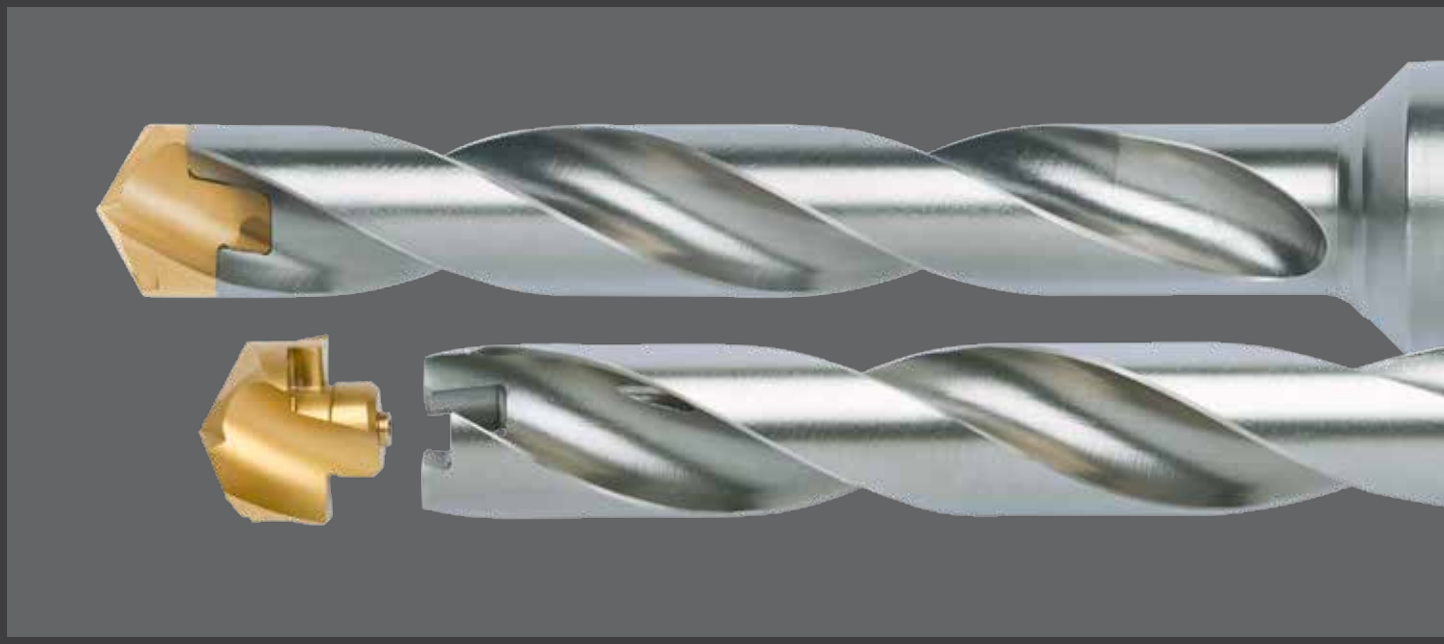
These materials are usually three-layer composite constructions with a honeycomb-shaped core made, for example, of aluminium, polycarbonate or polypropylene and are therefore characterised by their extremely lightweight and highly stiff properties.

Applications:
Satellite engineering, packaging industry, exhibition stand, model and aircraft construction

METAL MATRIX COMPOSITE MATERIAL

Metal matrix composites (MMC) have at least two constituent materials, usually a ceramic or organic component bonded in a metal matrix.

Applications:
Engine building, cylinder liners, connecting rods



KOMET KUB K2 ® replaceable head drill

With this replaceable head system for the double-cutting KUB K2 ®, KOMET ® has introduced an ingenious system of replaceable drill heads.
These now also make the most of the cost efficiency and flexibility advantages of replaceable cutting heads in an extremely wide variety of different areas of application and materials.
A patented attachment point makes them self-clamping, self-centring, this results in higher repeating accuracy and the tool change times are reduced to a minimum.

BENEFITS for you:

- Easy replacement of the KUB K2 ® replaceable heads even in the machine, with secure, user-friendly quick-change connector
- Good performance and best possible feed with the latest coatings and high-end polished sections
- Outstanding tension release properties for many materials, due to optimum formed cutting channels
- Impressive performance and life of the main drill body due to a special surface treatment

Rotating application
in a machining centre
Material: 1.4301, V2A
v_C = 70 m/min · f = 0.2 mm/rev



Stationary application
in a cyclically-controlled lathe
Material: 42CrMo4
v_C = 90 m/min · f = 0.22 mm/rev



Rotating application
in a machining centre
Material: 1.6758 (23MnNiMoCr5-4)
v_C = 46 m/min · f = 0.1 mm/rev



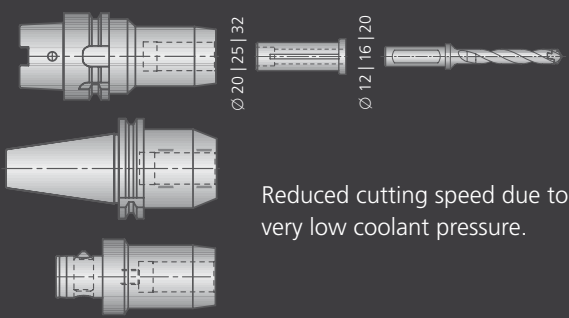
Replaceable head H71:
Specially adapted insert edge chamfer in the transition from primary to secondary cutting edge for cast iron machining.



Applications:

- For diameter range 10 to 20.5 mm
- Internal coolant supply
- Suitable for use with steel and cast metal
- Replaceable head system enables use with a wide variety of sections and coatings
- Universal 3×D, 5×D and 7×D basic holders
- Multi-stage tools with short delivery times

Please note: When using the KUB K2® in a hydraulic expansion chuck, use a reducing sleeve.



Reduced cutting speed due to very low coolant pressure.

KOMET KUB K2®

	Page
Cylindrical shank ISO 9766	50 – 57
∅ 10 – 20.5 mm, R.H. cutting Drilling depth 3×D | 5×D | 7×D	
Recommended cutting data	58
Technical informations	59 – 60
Step drill	61

Step drill for continuous drilling with up to three counterboring steps

BENEFITS for you:

- Use of the H70 and H71 replaceable heads
- Fewer tools and less changeover time required
- Increased process reliability
- Improved tool life
- Shorter machining times

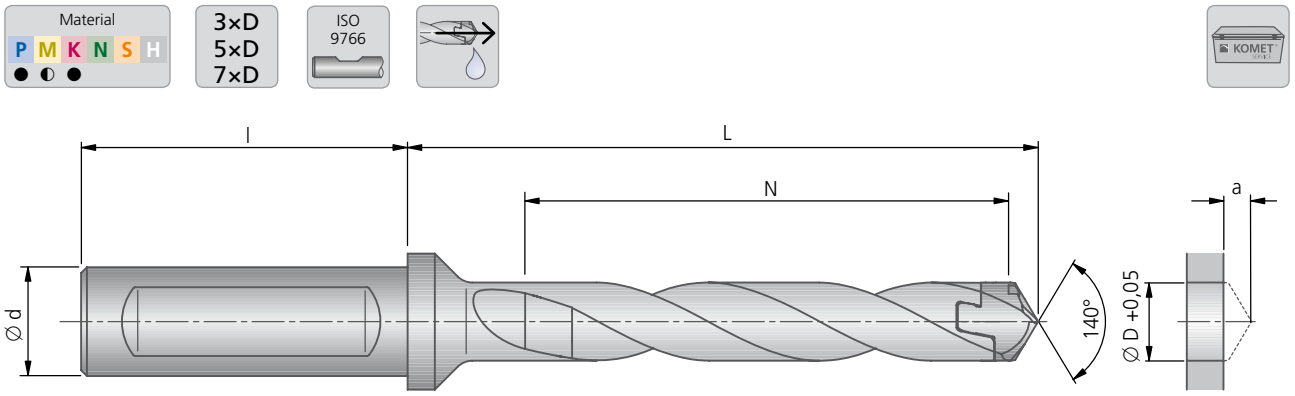


KOMET SERVICE® – Chapter 8
The KOMET SERVICE® TOOL*life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET KUB K2 ®

Ø 10,0 – 12,9 mm

Replaceable head drill



Replaceable head							
Ø D	H70 BK8425 Order No.	Chamfer H71 BK2725 Order No.	Starting / roughing size a	kg	Coating	for workpiece material P M K N S H	
10,0	H70 10000.018425	H71 10000.012725	2,1	0,004	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
10,1	H70 10100.018425	H71 10100.012725					
10,2	H70 10200.018425	H71 10200.012725					
10,3	H70 10300.018425	H71 10300.012725					
10,4	H70 10400.018425	H71 10400.012725					
10,5	H70 10500.018425	H71 10500.012725	2,1	0,004	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
10,6	H70 10600.018425	H71 10600.012725					
10,7	H70 10700.018425	H71 10700.012725					
10,8	H70 10800.018425	H71 10800.012725					
10,9	H70 10900.018425	H71 10900.012725					
11,0	H70 11000.018425	H71 11000.012725	2,3	0,005	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
11,1	H70 11100.018425	H71 11100.012725					
11,2	H70 11200.018425	H71 11200.012725					
11,3	H70 11300.018425	H71 11300.012725					
11,4	H70 11400.018425	H71 11400.012725					
11,5	H70 11500.018425	H71 11500.012725	2,3	0,005	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
11,6	H70 11600.018425	H71 11600.012725					
11,7	H70 11700.018425	H71 11700.012725					
11,8	H70 11800.018425	H71 11800.012725					
11,9	H70 11900.018425	H71 11900.012725					
12,0	H70 12000.018425	H71 12000.012725	2,45	0,006	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
12,1	H70 12100.018425	H71 12100.012725					
12,2	H70 12200.018425	H71 12200.012725					
12,3	H70 12300.018425	H71 12300.012725					
12,4	H70 12400.018425	H71 12400.012725					
12,5	H70 12500.018425	H71 12500.012725	2,45	0,007	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
12,6	H70 12600.018425	H71 12600.012725					
12,7	H70 12700.018425	H71 12700.012725					
12,8	H70 12800.018425	H71 12800.012725					
12,9	H70 12900.018425	H71 12900.012725					

For other diameters see following page.

Supply includes:
Replaceable head with mounting key.
Please order basic body and multi mounting key separately.

● very good | ◐ good | ○ possible: see technical notes, page 59 | ✕ not possible

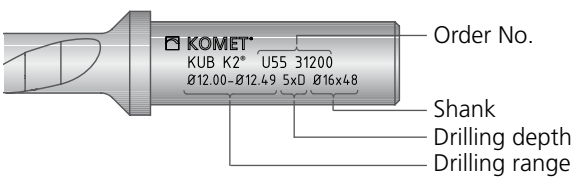
Patent applied for inside and outside Germany



3×D	●	●	○	○	×	×	●	×	○	×	×
5×D	●	●	○	○	×	×	●	×	○	×	×
7×D*	●	●	○	○	×	×	●	×	○	×	×

* **Please note:** Technical notes page 59, position 15.

	Basic body												
		3×D				5×D				7×D				Multi mounting key
	Cylindrical shank Ø d × l	Order No.	L	N	kg	Order No.	L	N	kg	Order No.	L	N	kg	Bestell-Nr. *Order No.*
	12 × 45	**U53 21000**	56,6	33	0,05	**U55 21000**	78,6	55	0,055	**U57 21000**	100,6	77	0,06	**L05 10010** Size 1
	12 × 45	**U53 21050**	56,6	33	0,05	**U55 21050**	78,6	55	0,057	**U57 21050**	100,6	77	0,065	
	12 × 45	**U53 21100**	60,7	36	0,054	**U55 21100**	84,7	60	0,062	**U57 21100**	108,7	84	0,07	
	12 × 45	**U53 21150**	60,7	36	0,055	**U55 21150**	84,7	60	0,064	**U57 21150**	108,7	84	0,075	
	16 × 48	**U53 31200**	66,7	39	0,09	**U55 31200**	92,7	65	0,10	**U57 31200**	118,7	91	0,111	**L05 10020** Size 2
	16 × 48	**U53 31250**	66,7	39	0,09	**U55 31250**	92,7	65	0,10	**U57 31250**	118,7	91	0,115	

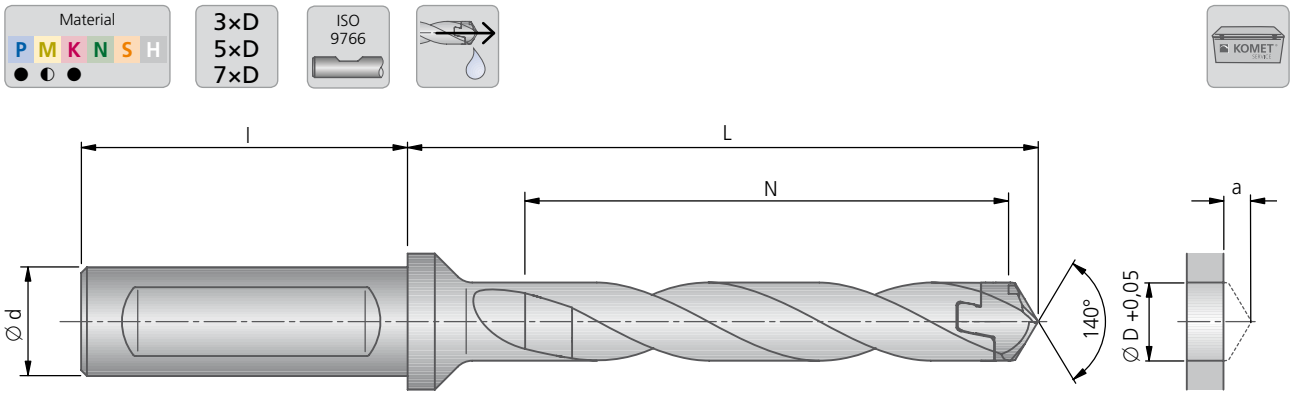


Guideline values for solid drilling: page 58.

KOMET KUB K2 ®

Ø 13,0 – 15,9 mm

Replaceable head drill



Replaceable head							
Ø D	H70 BK8425 Order No.	Chamfer H71 BK2725 Order No.	Starting / roughing size a	kg	Coating	for workpiece material P M K N S H	
13,0	H70 13000.018425	H71 13000.012725	2,6	0,008	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
13,1	H70 13100.018425	H71 13100.012725					
13,2	H70 13200.018425	H71 13200.012725					
13,3	H70 13300.018425	H71 13300.012725					
13,4	H70 13400.018425	H71 13400.012725					
13,5	H70 13500.018425	H71 13500.012725					
13,6	H70 13600.018425	H71 13600.012725					
13,7	H70 13700.018425	H71 13700.012725					
13,8	H70 13800.018425	H71 13800.012725					
13,9	H70 13900.018425	H71 13900.012725					
14,0	H70 14000.018425	H71 14000.012725	2,8	0,010	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
14,1	H70 14100.018425	H71 14100.012725					
14,2	H70 14200.018425	H71 14200.012725					
14,3	H70 14300.018425	H71 14300.012725					
14,4	H70 14400.018425	H71 14400.012725					
14,5	H70 14500.018425	H71 14500.012725					
14,6	H70 14600.018425	H71 14600.012725					
14,7	H70 14700.018425	H71 14700.012725					
14,8	H70 14800.018425	H71 14800.012725					
14,9	H70 14900.018425	H71 14900.012725					
15,0	H70 15000.018425	H71 15000.012725	3,0	0,012	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
15,1	H70 15100.018425	H71 15100.012725					
15,2	H70 15200.018425	H71 15200.012725					
15,3	H70 15300.018425	H71 15300.012725					
15,4	H70 15400.018425	H71 15400.012725					
15,5	H70 15500.018425	H71 15500.012725					
15,6	H70 15600.018425	H71 15600.012725					
15,7	H70 15700.018425	H71 15700.012725					
15,8	H70 15800.018425	H71 15800.012725					
15,9	H70 15900.018425	H71 15900.012725					

For other diameters see following page.

Supply includes:
Replaceable head with mounting key.
Please order basic body and multi mounting key separately.

● very good | ◐ good | ○ possible: see technical notes, page 59 | ✕ not possible

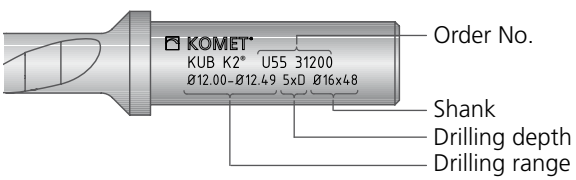
Patent applied for inside and outside Germany



3×D	●	●	○	○	×	×	●	×	○	×	×
5×D	●	●	○	○	×	×	●	×	○	×	×
7×D*	●	●	○	○	×	×	●	×	○	×	×

* **Please note:** Technical notes page 59, position 15.

	Basic body												
		3×D				5×D				7×D				Multi mounting key
	Cylindrical shank Ø d × l	Order No.	L	N	kg	Order No.	L	N	kg	Order No.	L	N	kg	Bestell-Nr. *Order No.*
	16 × 48	**U53 31300**	70,8	42	0,10	**U55 31300**	98,8	70	0,11	**U57 31300**	126,8	98	0,123	
	16 × 48	**U53 31400**	74,9	45	0,10	**U55 31400**	104,9	75	0,12	**U57 31400**	134,8	105	0,137	**L05 10020** Size 2
	16 × 48	**U53 31500**	78,9	48	0,11	**U55 31500**	110,9	80	0,13	**U57 31500**	142,9	112	0,154	



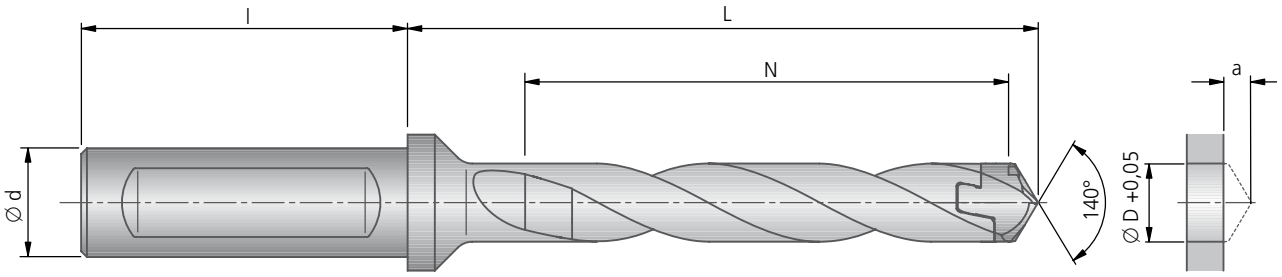
Guideline values for solid drilling: page 58.

KOMET KUB K2 ®

Ø 16,0 – 18,9 mm

Replaceable head drill





Replaceable head							
Ø D	H70 BK8425 Order No.	Chamfer H71 BK2725 Order No.	Starting / roughing size a	kg	Coating	for workpiece material P M K N S H	
16,0	H70 16000.018425	H71 16000.012725	3,2	0,014	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
16,1	H70 16100.018425	H71 16100.012725					
16,2	H70 16200.018425	H71 16200.012725					
16,3	H70 16300.018425	H71 16300.012725					
16,4	H70 16400.018425	H71 16400.012725					
16,5	H70 16500.018425	H71 16500.012725					
16,6	H70 16600.018425	H71 16600.012725					
16,7	H70 16700.018425	H71 16700.012725					
16,8	H70 16800.018425	H71 16800.012725					
16,9	H70 16900.018425	H71 16900.012725					
17,0	H70 17000.018425	H71 17000.012725	3,4	0,017	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
17,1	H70 17100.018425	H71 17100.012725					
17,2	H70 17200.018425	H71 17200.012725					
17,3	H70 17300.018425	H71 17300.012725					
17,4	H70 17400.018425	H71 17400.012725					
17,5	H70 17500.018425	H71 17500.012725					
17,6	H70 17600.018425	H71 17600.012725					
17,7	H70 17700.018425	H71 17700.012725					
17,8	H70 17800.018425	H71 17800.012725					
17,9	H70 17900.018425	H71 17900.012725					
18,0	H70 18000.018425	H71 18000.012725	3,5	0,020	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
18,1	H70 18100.018425	H71 18100.012725					
18,2	H70 18200.018425	H71 18200.012725					
18,3	H70 18300.018425	H71 18300.012725					
18,4	H70 18400.018425	H71 18400.012725					
18,5	H70 18500.018425	H71 18500.012725					
18,6	H70 18600.018425	H71 18600.012725					
18,7	H70 18700.018425	H71 18700.012725					
18,8	H70 18800.018425	H71 18800.012725					
18,9	H70 18900.018425	H71 18900.012725					

For other diameters see following page.

Supply includes:
Replaceable head with mounting key.
Please order basic body and multi mounting key separately.

● very good | ◐ good | ○ possible: see technical notes, page 59 | ✕ not possible

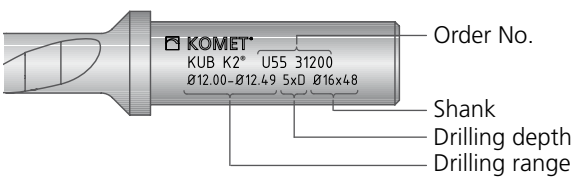
Patent applied for inside and outside Germany



3×D	●	●	○	○	×	×	●	×	○	×	×
5×D	●	●	○	○	×	×	●	×	○	×	×
7×D*	●	●	○	○	×	×	●	×	○	×	×

* **Please note:** Technical notes page 59, position 15.

	Basic body												
		3×D				5×D				7×D				
	Cylindrical shank Ø d × l	Order No.	L	N	kg	Order No.	L	N	kg	Order No.	L	N	kg	Multi mounting key Bestell-Nr. *Order No.*
	20 × 50	**U53 41600**	85,5	51	0,17	**U55 41600**	119,5	85	0,19	**U57 41600**	153,4	119	0,22	
	20 × 50	**U53 41700**	89,5	54	0,18	**U55 41700**	125,5	90	0,21	**U57 41700**	161,4	126	0,24	**L05 10020** Size 2
	20 × 50	**U53 41800**	93,7	57	0,19	**U55 41800**	131,7	95	0,23	**U57 41800**	169,5	133	0,26	



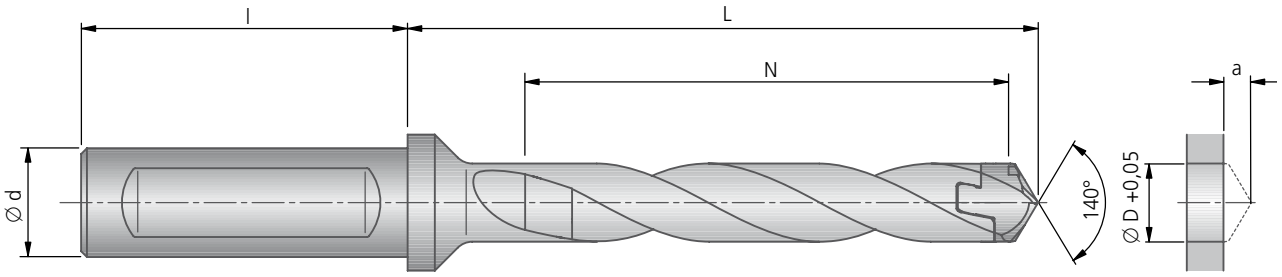
Guideline values for solid drilling: page 58.

KOMET KUB K2 ®

Ø 19,0 – 20,5 mm

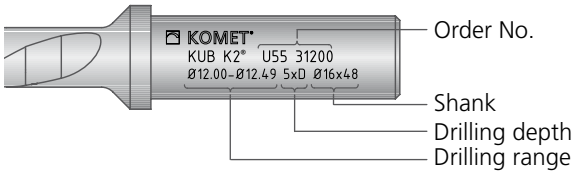
Replaceable head drill





Replaceable head							
Ø D	H70 BK8425 Order No.	Chamfer H71 BK2725 Order No.	Starting / roughing size a	kg	Coating	for workpiece material P M K N S H	
19,0	H70 19000.018425	H71 19000.012725	3,8	0,023	H70: BK8425 H71: BK2725	● ◐ ◐ ◑ ●	
19,1	H70 19100.018425	H71 19100.012725					
19,2	H70 19200.018425	H71 19200.012725					
19,3	H70 19300.018425	H71 19300.012725					
19,4	H70 19400.018425	H71 19400.012725					
19,5	H70 19500.018425	H71 19500.012725					
19,6	H70 19600.018425	H71 19600.012725					
19,7	H70 19700.018425	H71 19700.012725					
19,8	H70 19800.018425	H71 19800.012725					
19,9	H70 19900.018425	H71 19900.012725					
20,0	H70 20000.018425	H71 20000.012725					
20,1	H70 20100.018425	H71 20100.012725					
20,2	H70 20200.018425	H71 20200.012725					
20,3	H70 20300.018425	H71 20300.012725					
20,4	H70 20400.018425	H71 20400.012725					
20,5	H70 20500.018425	H71 20500.012725					

Supply includes:
Replaceable head with mounting key.
Please order basic body and multi mounting key separately.



● very good | ◐ good | ○ possible: see technical notes, page 59 | ✕ not possible

Patent applied for inside and outside Germany



3×D	●	●	○	○	×	×	●	×	○	×	×
5×D	●	●	○	○	×	×	●	×	○	×	×
7×D*	●	●	○	○	×	×	●	×	○	×	×

* **Please note:** Technical notes page 59, position 15.

	Basic body												
		3×D				5×D				7×D				Multi mounting key
	Cylindrical shank Ø d × l	Order No.	L	N	kg	Order No.	L	N	kg	Order No.	L	N	kg	Bestell-Nr. *Order No.*
	20 × 50	**U53 41900**	97,7	61,5	0,21	**U55 41900**	137,7	102,5	0,25	**U57 41900**	178,05	143,5	0,29	**L05 10020** Size 2

Guideline values for solid drilling: page 58.

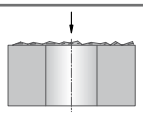
Recommended cutting data



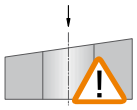
Guideline values for solid drilling						v_c (m/min)						f (mm/rev)					
						Cutting speed						Feed					
						H70 BK8425			H71 BK2725			3×D / 5×D Ø10–20,5			7×D Ø10–20,5		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	min	opt.	max	min	opt	max	min	opt.	max	min	opt.	max
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	100	**120**	140	100	**120**	140	0,15	**0,18**	0,22	0,16	**0,18**	0,20
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	100	**120**	140	100	**120**	140	0,15	**0,20**	0,25	0,15	**0,18**	0,22
P	2.1	<500		lead alloys	1.0718 (11SMnPb30)	80	**100**	120	80	**100**	120	0,20	**0,25**	0,30	0,18	**0,22**	0,28
P	3.0	>900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	70	**90**	110	70	**90**	110	0,20	**0,25**	0,30	0,18	**0,22**	0,28
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	50	**70**	90	50	**70**	90	0,15	**0,20**	0,25	0,14	**0,18**	0,22
P	4.1			HSS													
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb-5Mo3) 2.4631 (Nimonic 80A)												
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)												
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)				40	**60**	80	0,15	**0,20**	0,25	0,12	**0,15**	0,18
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)												
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)												
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	70	**90**	110	70	**90**	110	0,20	**0,30**	0,40	0,20	**0,28**	0,38
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	60	**80**	100	60	**80**	100	0,20	**0,30**	0,40	0,20	**0,28**	0,38
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	60	**80**	100	60	**80**	100	0,25	**0,35**	0,45	0,20	**0,30**	0,40
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	50	**70**	90	50	**70**	90	0,25	**0,35**	0,45	0,20	**0,30**	0,40
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	50	**70**	90	50	**70**	90	0,25	**0,35**	0,45	0,20	**0,30**	0,40
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	30	**50**	70	30	**50**	70	0,20	**0,25**	0,35	0,18	**0,22**	0,30
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	40	**60**	80	40	**60**	80	0,25	**0,35**	0,45	0,20	**0,30**	0,40
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)												
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)												
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)												
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)												
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)												
H	15.0	1400		hardened steels < 45 HRC													
H	16.0	1800		hardened steels > 45 HRC													

Cutting values shown are relating to the basic recommendations for cutting materials given.

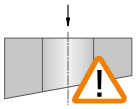
Patent applied for inside and outside Germany

1. 

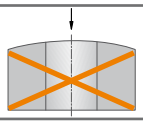
Starting on uneven surfaces (cast surfaces)
- depending on the quality of the surface or when spot drilling, reduce the feed

2. 

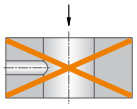
Starting on angled surfaces
- spot face surface before starting bore

3. 

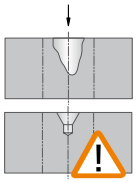
Angled bore exit
- reduce feed by 50 % in the exit area

4. 

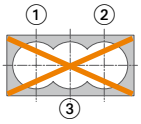
Starting on cambered surfaces
- not possible

5. 

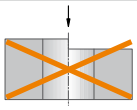
Drilling through a cross bore
- not possible

6. 

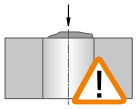
Starting on a groove or large centering bore
- end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
- possible under certain conditions. Reduce feed where necessary

7. 

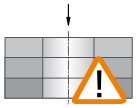
Drilling a chamfer
- not possible

8. 

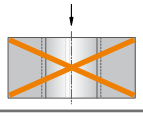
Starting on an edge
- not possible (start point must be flat)

9. 

Starting on a welded seam
- spot face surface before starting bore

10. 

Drilling through stacked plates
- possible in principle
- good workpiece clamping required
- avoid large spaces between elements

11. 

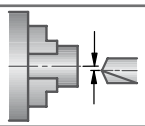
Roughing
- not possible

12. 

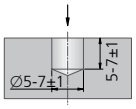
Coolant
- internal coolant supply min. 5 bar

13. 

Rotating application
- max. concentricity in rotating application 0,05 mm

14. 

Stationary application
- max. offset in stationary application 0,025 mm

15. 

Recommended pilot hole
- basic body from 5×D: for the material group 1.0

KOMET KUB K2 ®

Drilling strategy

Solid carbide spot drill

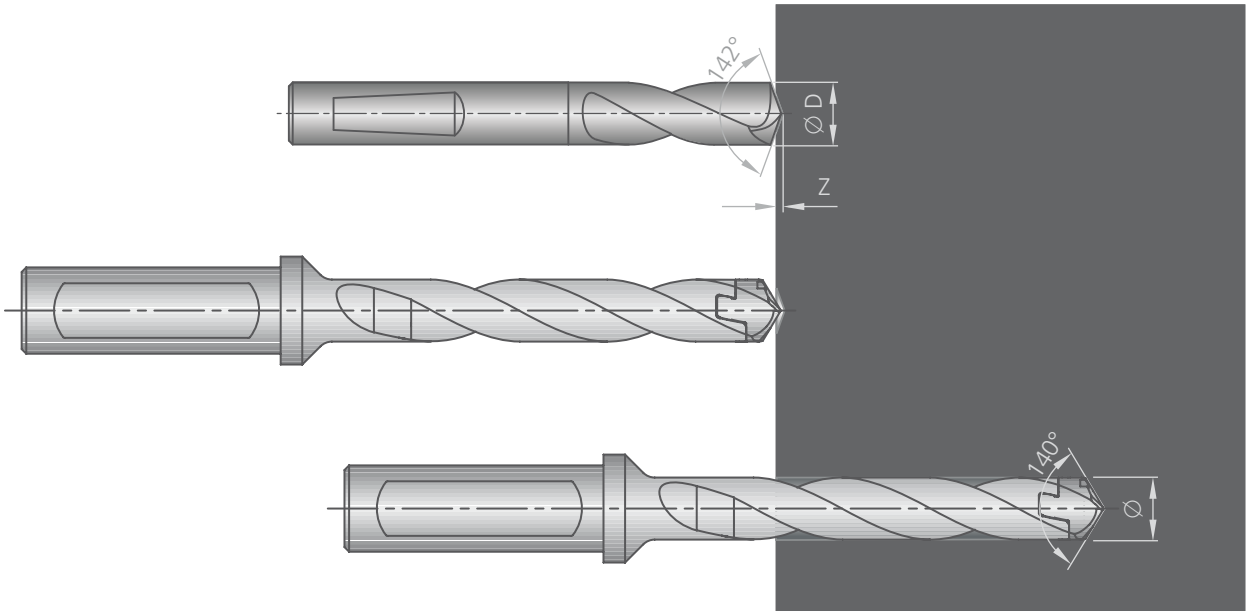
Drill a pilot hole with dimension Z.

KUB K2 ®

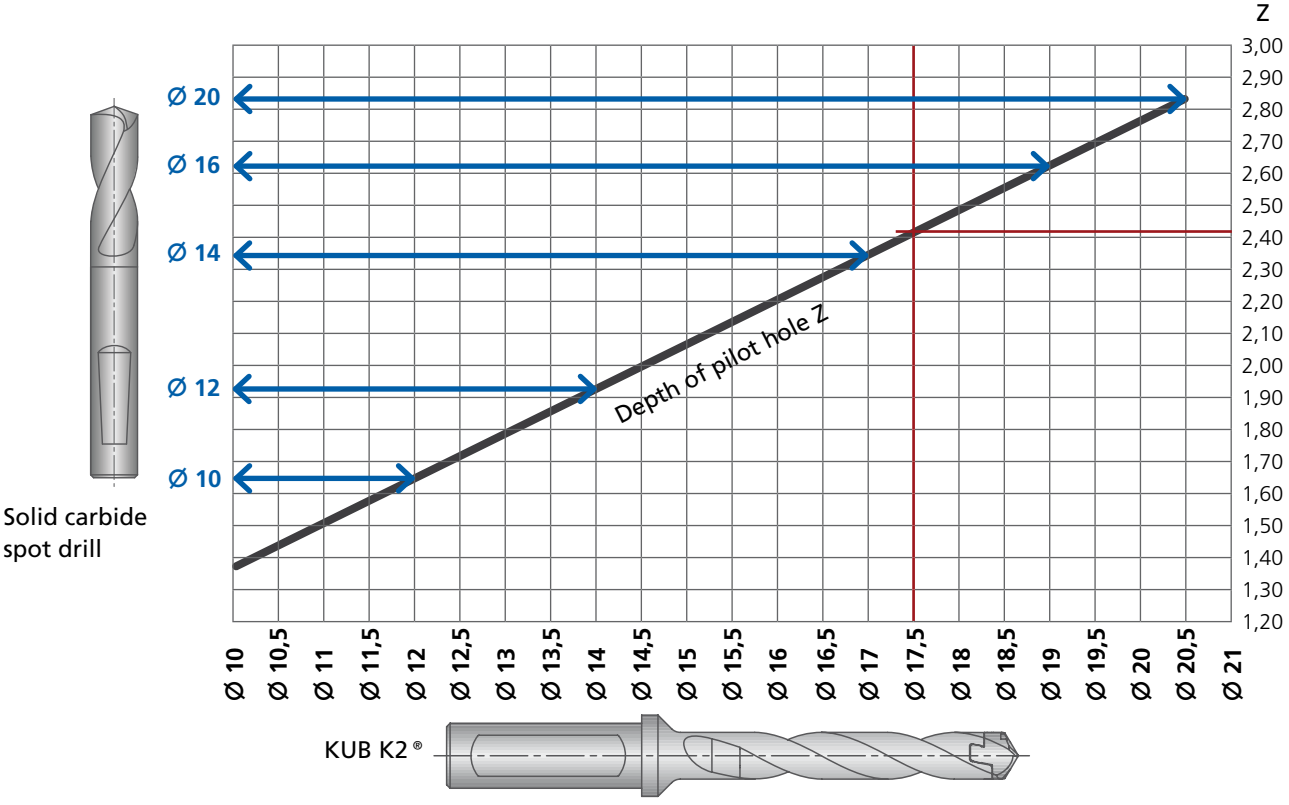
Move the spot drill into the pilot hole up to 2 mm above the bottom of the hole with reduced cutting values (50%).

Build up coolant pressure, increase the speed and hold for 2-3 seconds. Then set the recommended feed rate.

After the required drilling depth has been reached, move the spot drill out of the hole with reduced cutting values (50%).



Example: Select solid carbide spot drill for KUB K2 ® bore dia. 17,5 mm:
Use solid carbide spot drill ∅ 16 mm for KUB K2 ® bore dia. 10 to 19 mm or
use solid carbide spot drill ∅ 20 mm for KUB K2 ® bore dia. 10 to 20,5 mm
= Depth of pilot hole Z = 2,41 mm

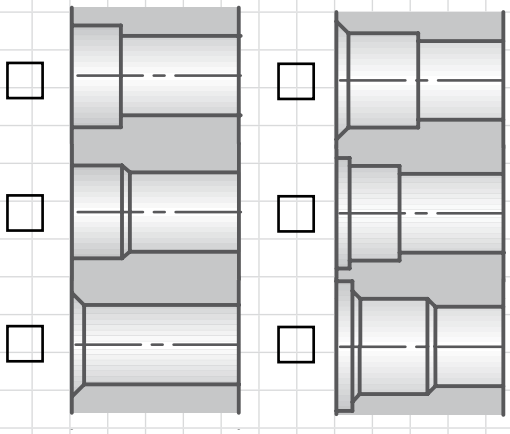


Enquiry Special Tool: KUB K2® Step Drill

Company:
Customer No.:
Address:

Contact:
Department:
Phone:
Fax:
E-Mail:

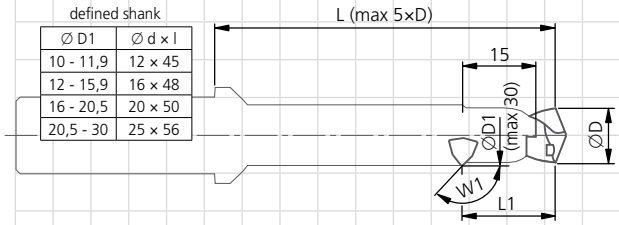
Bore variants:



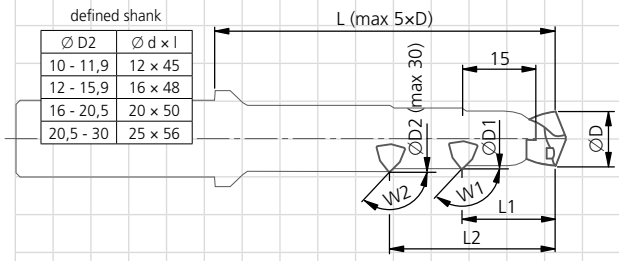
ØD	L1 min
10 - 10,99	18,4
11 - 11,99	18,8
12 - 12,99	19,1
13 - 13,99	19,5

ØD	L1 min
14 - 14,99	19,8
15 - 15,99	20,2
16 - 16,99	20,5
17 - 17,99	20,9

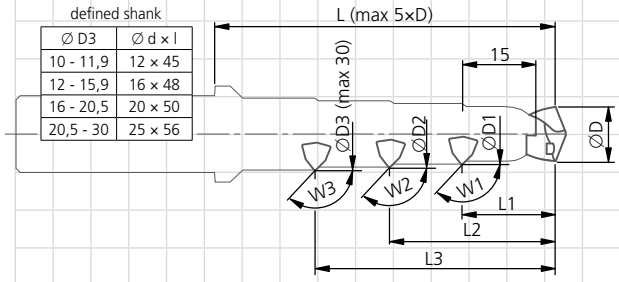
ØD	L1 min
18 - 18,99	19,8
19 - 19,99	20,2
20 - 20,5	20,5



Ø D1	Ø d x l
10 - 11,9	12 x 45
12 - 15,9	16 x 48
16 - 20,5	20 x 50
20,5 - 30	25 x 56



Ø D2	Ø d x l
10 - 11,9	12 x 45
12 - 15,9	16 x 48
16 - 20,5	20 x 50
20,5 - 30	25 x 56



Ø D3	Ø d x l
10 - 11,9	12 x 45
12 - 15,9	16 x 48
16 - 20,5	20 x 50
20,5 - 30	25 x 56

KUB K2® Step drill	Dimension	Tolerance
Ø D drill		
Ø D1		
Ø D2		
Ø D3		
L1		
L2		
L3		
L drill (max. 5×D)		
W1		
W2		
W3		

Cylindrical shank HA standard

optional ☐ HE ☐ HB

Internal cooling on ØD standard changeable head

☐ optional coolant channels to stepped cutting edge

Workpiece

Tools required units

Workpiece units / year

Material to be machined

For a selection, see "Recommended application areas"

Optional material (with surcharge and test):

KOMET KUB Quatron®

Continuous drilling to 3×D

1

The KOMET KUB Quatron® is supplied as standard in drilling depths up to 3×D with combination shank DIN 6536 HE and DIN 6595 and also with ABS 50 connection.

High overall rigidity and square indexable inserts are features of the KOMET KUB Quatron® that guarantee drilling that is dimensionally and directionally accurate at high feed speeds.

The four cutting edges on each insert make the KOMET® KUB Quatron® totally economic. The latest coatings combined with tough, strong substrates reduce friction and also ensure maximum tool life.

The KUB Quatron® from KOMET®, which has already been successfully established in extreme technical situations such as for interrupted cuts, angled castings and rolling skins, is now available with the new insert technology -21 and -03 system.

BENEFITS for you:

- High stability and economy by using square inserts
- Free flow of chips and no wear on the tool body because of the special surface treatment
- Can be used for difficult drilling conditions such as cast angles, rolling skin or interrupted cut
- Excellent bore quality with no withdrawal grooves
- Maximum tool life with four cutting edges made up of specific substrates and coatings
- Same insert internally and externally same coating, same locking screw
- Intermediate sizes can be supplied within 4 weeks e.g. U10 71940 (Ø 19,4 mm 2×D)

Insert geometry 21:

Consisting of ultra fine grain carbide with highly positive top rake, clearly reduced cutting edge rounding and a new type of coating, it has been possible to halve cutting forces compared to previous versions.

This reduces the stress on machine and on workpiece, which allows significantly higher cutting parameters and, as a result, increases in productivity.

Geometry 21 was developed specifically for materials that produce long chips and for stainless steels. However, this is also very well suited to universal use in steel and for aluminium alloys.



Insert geometry 03:

Generally suitable for all steels, in particular for long-chipping steel materials and stainless steels. The SOEX indexable insert topography is predestined for use in long-chipping materials, and, thanks to its optimum chip formation, ensures reliable removal of chips, even with high L/D ratios.



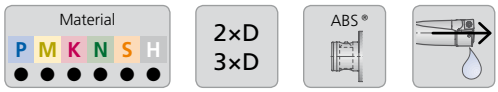
KOMET KUB Quatron®

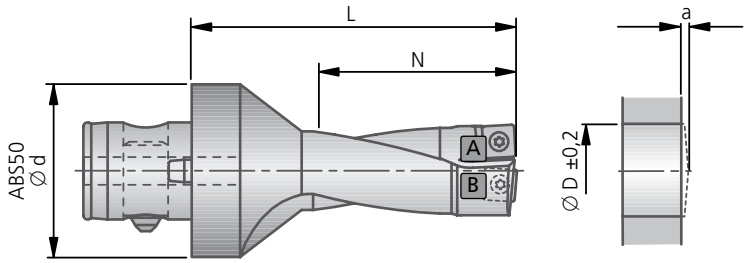
	Page
ABS® connection	64 – 67
∅ 14 – 65 mm, R.H. cutting Drilling depth 2×D | 3×D	
Cylindrical shank (combination shank)	68 – 71
∅ 14 – 44 mm, R.H. cutting Drilling depth 2×D | 3×D	
Recommended application areas	72 – 73
Guideline values for solid drilling	
Technical informations	74 – 75
Alternative inserts	76
Problems → Causes → Solutions	77
Milling cartridge	Chapter 6

KOMET KUB Quatron®

Ø 14 – 33 mm

Indexable insert drill





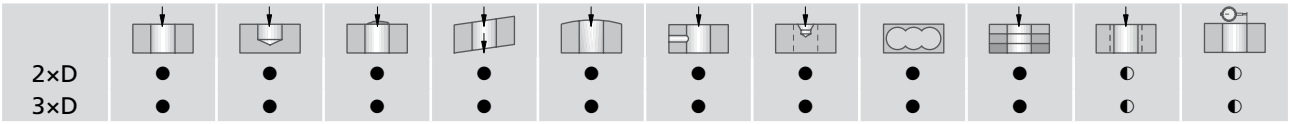
				2×D				3×D					
Ø D	*max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
14,0	14,5	1,5	50	U10 71402	28	63	0,45	U11 51402	42	77	0,47		
15,0	15,5	1,5	50	U10 71502	30	65	0,46	U11 51502	45	80	0,47		
15,5	16,0	1,5	50	U10 71550	32	67	0,46	U11 51550	48	83	0,47	N00 56041 S/M2×4,3-6IP 0,62 Nm	
16,0	16,5	1,5	50	U10 71600	32	67	0,46	U11 51600	48	83	0,48		
16,5	17,0	1,5	50	–				U11 51650	51	86	0,48		
17,0	17,5	1,5	50	U10 71700	34	69	0,47	U11 51700	51	86	0,48		
17,5	18,0	1,5	50	U10 71750	36	71	0,47	U11 51750	54	89	0,49		
18,0	18,5	1,9	50	U10 71800	36	71	0,47	U11 51800	54	89	0,49		
18,5	19,0	1,9	50	U10 71850	38	73	0,48	U11 51850	57	92	0,50		
19,0	19,5	1,9	50	U10 71900	38	73	0,48	U11 51900	57	92	0,48	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	
19,5	20,0	1,9	50	U10 71950	40	75	0,49	U11 51950	60	95	0,51		
20,0	20,5	1,9	50	U10 72000	40	75	0,49	U11 52000	60	95	0,52		
20,5	21,0	1,9	50	U10 72050	42	77	0,5	U11 52050	63	98	0,52		
21,0	21,5	1,9	50	U10 72100	42	77	0,5	U11 52100	63	98	0,53		
22,0	22,5	2,4	50	U10 72200	44	79	0,51	U11 52200	66	101	0,52		
22,5	23,0	2,4	50	U10 72250	46	81	0,52	U11 52250	69	104	0,56		
23,0	23,5	2,4	50	U10 72300	46	81	0,52	U11 52300	69	104	0,59		
24,0	24,5	2,4	50	U10 72400	48	83	0,54	U11 52400	72	107	0,60		
24,5	25,0	2,4	50	U10 72450	50	85	0,54	U11 52450	75	110	0,60	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	
25,0	25,5	2,4	50	U10 72500	50	85	0,55	U11 52500	75	110	0,60		
26,0	26,5	2,4	50	U10 72600	52	87	0,56	U11 52600	78	113	0,61		
26,5	27,0	2,4	50	U10 72650	54	89	0,58	U11 52650	81	116	0,63		
27,0	27,5	2,8	50	U10 72700	54	89	0,58	U11 52700	81	116	0,63		
28,0	28,5	2,8	50	U10 72800	56	91	0,60	U11 52800	84	119	0,65		
28,5	29,0	2,8	50	U10 72850	58	93	0,61	U11 52850	87	122	0,67		
29,0	29,5	2,8	50	U10 72900	58	93	0,61	U11 52900	87	122	0,67		
29,5	30,0	2,8	50	U10 72950	59	95	0,63	U11 52950	88,5	125	0,69		
30,0	30,5	2,8	50	U10 73000	60	100	0,66	U11 53000	90	130	0,79	N00 57261 S3575-15IP 2,8 Nm	
31,0	31,5	2,8	50	U10 73100	62	102	0,68	U11 53100	93	133	0,79		
31,5	32,0	2,8	50	U10 73150	64	104	0,70	U11 53150	96	136	0,78		
32,0	32,5	2,8	50	U10 73200	64	104	0,70	U11 53200	96	136	0,80		
33,0	33,5	2,8	50	U10 73300	66	106	0,73	U11 53300	99	139	0,84		

For other diameters see following page.
Any **intermediate dimensions** from ∅ 14 – 33 mm and **inch dimensions** are available on request.

* Adjustment device see chapter 5

● very good | ◐ good | ○ possible: see technical notes, page 74-75 | ✕ not possible

Patent applied for inside and outside Germany



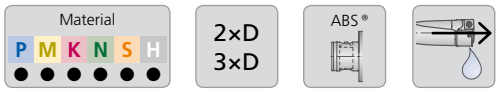
Basic recommendation							
Indexable insert A -01 -21			Indexable insert B -01 -21			for workpiece material	
Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H	
W83 13010.048425	SOEX 050204-01 BK8425		**W83 13010.048425**	SOEX 050204-01 BK8425			
W83 13210.047935	SOEX 050204-21 BK7935		**W83 13010.048425**	SOEX 050204-01 BK8425			
W83 13010.047615	SOEX 050204-01 BK7615	1	**W83 13010.047615**	SOEX 050204-01 BK7615	1		
W83 13210.047710	SOEX 050204-21 BK7710		**W83 13210.047710**	SOEX 050204-21 BK7710			
W83 13010.047935	SOEX 050204-01 BK7935		**W83 13010.047935**	SOEX 050204-01 BK7935			
W83 18010.068425	SOEX 060306-01 BK8425		**W83 18010.068425**	SOEX 060306-01 BK8425			
W83 18210.067935	SOEX 060306-21 BK7935		**W83 18010.068425**	SOEX 060306-01 BK8425			
W83 18010.067615	SOEX 060306-01 BK7615	1	**W83 18010.067615**	SOEX 060306-01 BK7615	1		
W83 18210.067710	SOEX 060306-21 BK7710		**W83 18210.067710**	SOEX 060306-21 BK7710			
W83 18010.067935	SOEX 060306-01 BK7935		**W83 18010.067935**	SOEX 060306-01 BK7935			
W83 23010.088425	SOEX 07T308-01 BK8425		**W83 23010.088425**	SOEX 07T308-01 BK8425			
W83 23210.087935	SOEX 07T308-21 BK7935		**W83 23010.088425**	SOEX 07T308-01 BK8425			
W83 23010.087615	SOEX 07T308-01 BK7615	1	**W83 23010.087615**	SOEX 07T308-01 BK7615	1		
W83 23210.087710	SOEX 07T308-21 BK7710		**W83 23210.087710**	SOEX 07T308-21 BK7710			
W83 23010.087935	SOEX 07T308-01 BK7935		**W83 23010.087935**	SOEX 07T308-01 BK7935			
W83 32010.088425	SOEX 090408-01 BK8425		**W83 32010.088425**	SOEX 090408-01 BK8425			
W83 32210.087935	SOEX 090408-21 BK7935		**W83 32010.088425**	SOEX 090408-01 BK8425			
W83 32010.087615	SOEX 090408-01 BK7615	1	**W83 32010.087615**	SOEX 090408-01 BK7615	1		
W83 32210.087710	SOEX 090408-21 BK7710		**W83 32210.087710**	SOEX 090408-21 BK7710			
W83 32010.087935	SOEX 090408-01 BK7935		**W83 32010.087935**	SOEX 090408-01 BK7935			

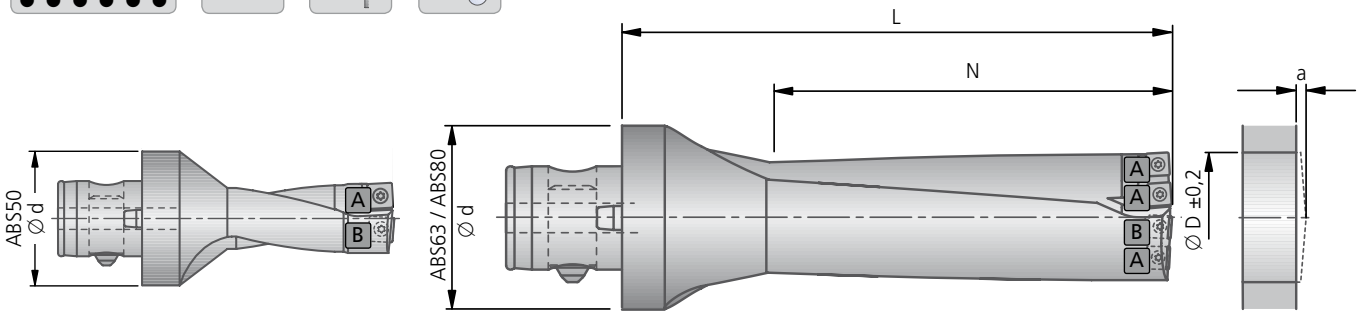
Supply includes: KUB Quatron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

KOMET KUB Quatron®

Ø 34 – 65 mm

Indexable insert drill





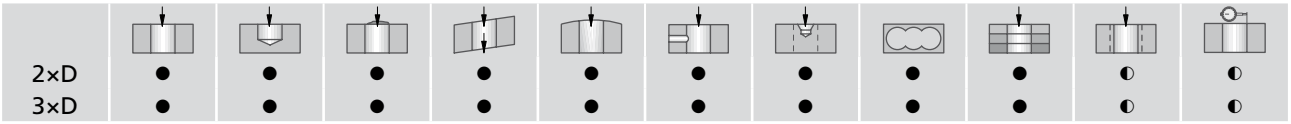
				2×D				3×D					
Ø D	*max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
34,0	34,5	3,0	50	U10 73400	68	108	0,75	U11 53400	102	142	0,85	N00 57301 S45100-20IP 6,25 Nm	
35,0	35,5	3,0	50	U10 73500	70	110	0,77	U11 53500	105	145	0,89		
36,0	36,5	3,0	50	U10 73600	72	112	0,8	U11 53600	108	148	0,93		
37,0	37,5	3,0	50	U10 73700	74	124	0,88	U11 53700	111	161	1,04		
37,5	38,0	3,0	50	U10 73750	76	126	0,9	U11 53750	114	164	1,02		
38,0	38,5	3,0	50	U10 73800	76	126	0,92	U11 53800	114	164	1,08		
39,0	39,5	3,0	50	U10 73900	78	128	0,95	U11 53900	117	167	1,13		
39,5	40,0	3,0	50	U10 73950	80	130	0,97	U11 53950	120	170	1,14		
40,0	40,5	3,0	50	U10 74000	80	130	0,98	U11 54000	120	170	1,17		
41,0	41,5	3,0	50	U10 74100	82	132	1,02	U11 54100	123	173	1,22		
42,0	42,5	3,0	50	U10 74200	84	134	1,06	U11 54200	126	176	1,27		
43,0	43,5	3,0	50	U10 74300	86	136	1,1	U11 54300	129	179	1,33		
44,0	44,5	3,0	50	U10 74400	88	138	1,14	U11 54400	132	182	1,41		
45,0	45,5	3,3	63	U10 84500	90	145	1,47	U12 34500	135	190	1,73	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	
46,0	46,5	3,3	63	U10 84600	92	147	1,51	U12 34600	138	193	1,8		
47,0	47,5	3,3	63	U10 84700	94	149	1,55	U12 34700	141	196	1,86		
48,0	48,5	3,3	63	U10 84800	96	151	1,6	U12 34800	144	199	1,93		
49,0	49,5	3,3	63	U10 84900	98	153	1,65	U12 34900	147	202	2,0		
50,0	50,5	3,3	63	U10 85000	100	155	1,7	U12 35000	150	205	2,08		
51,0	51,5	3,3	63	U10 85100	102	157	1,75	U12 35100	153	208	2,15		
52,0	52,5	3,3	63	U10 85200	104	159	1,81	U12 35200	156	211	2,24		
53,0	53,5	3,7	63	U10 85300	106	161	1,82	U12 35300	159	214	2,27	N00 57261 S3575-15IP 2,8 Nm	
54,0	54,5	3,7	63	U10 85400	108	163	1,88	U12 35400	162	217	2,35		
55,0	55,5	3,7	80	U10 95500	110	165	2,57	U12 45500	165	220	3,07		
56,0	56,5	3,7	80	U10 95600	112	167	2,64	U12 45600	168	223	3,16		
57,0	57,5	3,7	80	U10 95700	114	169	2,7	U12 45700	171	226	3,26		
58,0	58,5	3,7	80	U10 95800	116	171	2,76	U12 45800	174	229	3,35		
59,0	59,5	3,7	80	U10 95900	118	173	2,83	U12 45900	177	232	3,45		
60,0	60,5	3,7	80	U10 96000	120	175	2,93	U12 46000	180	235	3,59		
61,0	61,5	3,7	80	U10 96100	122	177	3,01	U12 46100	183	238	3,6		
62,0	62,5	3,7	80	U10 96200	124	179	3,08	U12 46200	186	241	3,81		
63,0	63,5	3,7	80	U10 96300	126	181	3,18	U12 46300	189	244	3,95		
64,0	64,5	3,7	80	U10 96400	128	183	3,26	U12 46400	192	247	4,07		
65,0	65,5	3,7	80	U10 96500	130	185	3,35	U12 46500	195	250	4,2		

Any **intermediate dimensions** from Ø 34 – 65 mm and **inch dimensions** are available on request.

* Adjustment device see chapter 5

● very good | ◐ good | ○ possible: see technical notes, page 74-75 | ✕ not possible

Patent applied for inside and outside Germany



2×D	●	●	●	●	●	●	●	●	●	◐	◐
3×D	●	●	●	●	●	●	●	●	●	◐	◐

Basic recommendation							
Indexable insert A -01 -21			Indexable insert B -01 -21			for workpiece material	
Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H	
W83 44010.088425	SOEX 120508-01 BK8425		**W83 44010.088425**	SOEX 120508-01 BK8425			
W83 44210.087635	SOEX 120508-21 BK7935		**W83 44010.088425**	SOEX 120508-01 BK8425			
W83 44010.087615	SOEX 120508-01 BK7615	1	**W83 44010.087615**	SOEX 120508-01 BK7615	1		
W83 44210.087710	SOEX 120508-21 BK7710		**W83 44210.087710**	SOEX 120508-21 BK7710			
W83 44010.087935	SOEX 120508-01 BK7935		**W83 44010.087935**	SOEX 120508-01 BK7935			
W83 23010.088425	SOEX 07T308-01 BK8425		**W83 23010.088425**	SOEX 07T308-01 BK8425			
W83 23210.087935	SOEX 07T308-21 BK7935		**W83 23010.088425**	SOEX 07T308-01 BK8425			
W83 23010.087615	SOEX 07T308-01 BK7615	3	**W83 23010.087615**	SOEX 07T308-01 BK7615	1		
W83 23210.087710	SOEX 07T308-21 BK7710		**W83 23210.087710**	SOEX 07T308-21 BK7710			
W83 23010.087935	SOEX 07T308-01 BK7935		**W83 23010.087935**	SOEX 07T308-01 BK7935			
W83 32010.088425	SOEX 090408-01 BK8425		**W83 32010.088425**	SOEX 090408-01 BK8425			
W83 32210.087935	SOEX 090408-21 BK7935		**W83 32010.088425**	SOEX 090408-01 BK8425			
W83 32010.087615	SOEX 090408-01 BK7615	3	**W83 32010.087615**	SOEX 090408-01 BK7615	1		
W83 32210.087710	SOEX 090408-21 BK7710		**W83 32210.087710**	SOEX 090408-21 BK7710			
W83 32010.087935	SOEX 090408-01 BK7935		**W83 32010.087935**	SOEX 090408-01 BK7935			

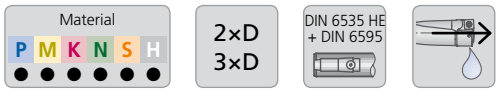
Supply includes: KUB Quatron ® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

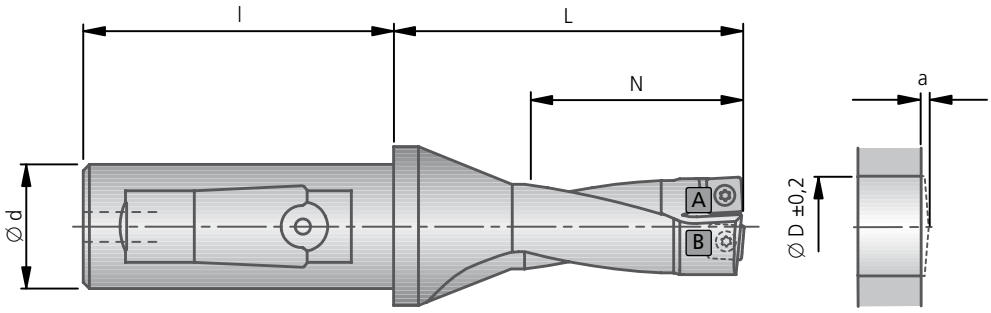
Guideline values for solid drilling: pages 72-73 / alternative inserts: page 76.

KOMET KUB Quatron®

Ø 14 – 33 mm

Indexable insert drill



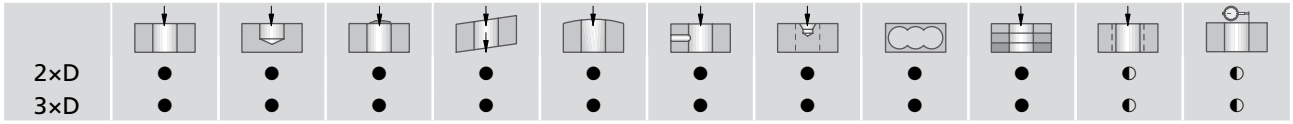


				2×D				3×D					
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
14,0	14,5	1,5	20 × 50	**U10 01402**	28	52	0,17	**U11 61402**	42	66	0,18		
15,0	15,5	1,5	20 × 50	**U10 01502**	30	54	0,18	**U11 61502**	45	69	0,19		
15,5	16,0	1,5	20 × 50	**U10 01550**	32	56	0,18	**U11 61550**	48	72	0,19	**N00 56041** S/M2×4,3-6IP 0,62 Nm	
16,0	16,5	1,5	20 × 50	**U10 01600**	32	56	0,19	**U11 61600**	48	72	0,20		
16,5	17,0	1,5	20 × 50	–				**U11 61650**	51	75	0,20		
17,0	17,5	1,5	20 × 50	**U10 01700**	34	58	0,19	**U11 61700**	51	75	0,20		
17,5	18,0	1,5	25 × 56	**U10 11750**	36	60	0,27	**U11 71750**	54	78	0,28		
18,0	18,5	1,9	25 × 56	**U10 11800**	36	60	0,27	**U11 71800**	54	78	0,28		
18,5	19,0	1,9	25 × 56	**U10 11850**	38	62	0,27	**U11 71850**	57	81	0,29		
19,0	19,5	1,9	25 × 56	**U10 11900**	38	62	0,28	**U11 71900**	57	81	0,29	**N00 57553** S/M2,2×5,5-6IP 1,01 Nm	
19,5	20,0	1,9	25 × 56	**U10 11950**	40	64	0,29	**U11 71950**	60	84	0,30		
20,0	20,5	1,9	25 × 56	**U10 12000**	40	64	0,29	**U11 72000**	60	84	0,31		
20,5	21,0	1,9	25 × 56	**U10 12050**	42	66	0,30	**U11 72050**	63	87	0,31		
21,0	21,5	1,9	25 × 56	**U10 12100**	42	66	0,30	**U11 72100**	63	87	0,32		
22,0	22,5	2,4	25 × 56	**U10 12200**	44	68	0,31	**U11 72200**	66	90	0,33		
22,5	23,0	2,4	25 × 56	**U10 12250**	46	70	0,31	**U11 72250**	69	93	0,34		
23,0	23,5	2,4	25 × 56	**U10 12300**	46	70	0,32	**U11 72300**	69	93	0,35		
24,0	24,5	2,4	32 × 60	**U10 22400**	48	72	0,51	**U11 82400**	72	96	0,55	**N00 57571** S/M2,5×6,3-8IP 1,28 Nm	
24,5	25,0	2,4	32 × 60	**U10 22450**	50	74	0,52	**U11 82450**	75	99	0,56		
25,0	25,5	2,4	32 × 60	**U10 22500**	50	74	0,52	**U11 82500**	75	99	0,56		
26,0	26,5	2,4	32 × 60	**U10 22600**	52	76	0,54	**U11 82600**	78	102	0,58		
26,5	27,0	2,4	32 × 60	**U10 22650**	54	78	0,55	**U11 82650**	81	105	0,60		
27,0	27,5	2,8	32 × 60	**U10 22700**	54	78	0,56	**U11 82700**	81	105	0,61		
28,0	28,5	2,8	32 × 60	**U10 22800**	56	80	0,57	**U11 82800**	84	108	0,63		
28,5	29,0	2,8	32 × 60	**U10 22850**	58	82	0,58	**U11 82850**	87	111	0,65		
29,0	29,5	2,8	32 × 60	**U10 22900**	58	82	0,59	**U11 82900**	87	111	0,66		
29,5	30,0	2,8	32 × 60	**U10 22950**	59	84	0,60	**U11 82950**	88,5	114	0,67		
30,0	30,5	2,8	32 × 60	**U10 23000**	60	89	0,63	**U11 83000**	90	119	0,70	**N00 57261** S3575-15IP 2,8 Nm	
31,0	31,5	2,8	32 × 60	**U10 23100**	62	91	0,65	**U11 83100**	93	122	0,73		
31,5	32,0	2,8	32 × 60	**U10 23150**	64	93	0,66	**U11 83150**	96	125	0,75		
32,0	32,5	2,8	32 × 60	**U10 23200**	64	93	0,67	**U11 83200**	96	125	0,76		
33,0	33,5	2,8	32 × 60	**U10 23300**	66	95	0,73	**U11 83300**	99	128	0,83		
			40 × 68	**U10 33300**	66	95	1,02	**U11 93300**	99	128	1,12		

For other diameters see following page.
Any **intermediate dimensions** from Ø 14 – 33 mm and **inch dimensions** are available on request.

● very good | ◐ good | ○ possible: see technical notes, page 74-75 | ✕ not possible

Patent applied for inside and outside Germany



2×D	●	●	●	●	●	●	●	●	●	◐	◐
3×D	●	●	●	●	●	●	●	●	●	◐	◐

Basic recommendation							
Indexable insert A -01 -21			Indexable insert B -01 -21			for workpiece material	
Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H	
W83 13010.048425	SOEX 050204-01 BK8425		**W83 13010.048425**	SOEX 050204-01 BK8425			
W83 13210.047935	SOEX 050204-21 BK7935		**W83 13010.048425**	SOEX 050204-01 BK8425			
W83 13010.047615	SOEX 050204-01 BK7615	1	**W83 13010.047615**	SOEX 050204-01 BK7615	1		
W83 13210.047710	SOEX 050204-21 BK7710		**W83 13210.047710**	SOEX 050204-21 BK7710			
W83 13010.047935	SOEX 050204-01 BK7935		**W83 13010.047935**	SOEX 050204-01 BK7935			
W83 18010.068425	SOEX 060306-01 BK8425		**W83 18010.068425**	SOEX 060306-01 BK8425			
W83 18210.067935	SOEX 060306-21 BK7935		**W83 18010.068425**	SOEX 060306-01 BK8425			
W83 18010.067615	SOEX 060306-01 BK7615	1	**W83 18010.067615**	SOEX 060306-01 BK7615	1		
W83 18210.067710	SOEX 060306-21 BK7710		**W83 18210.067710**	SOEX 060306-21 BK7710			
W83 18010.067935	SOEX 060306-01 BK7935		**W83 18010.067935**	SOEX 060306-01 BK7935			
W83 23010.088425	SOEX 07T308-01 BK8425		**W83 23010.088425**	SOEX 07T308-01 BK8425			
W83 23210.087935	SOEX 07T308-21 BK7935		**W83 23010.088425**	SOEX 07T308-01 BK8425			
W83 23010.087615	SOEX 07T308-01 BK7615	1	**W83 23010.087615**	SOEX 07T308-01 BK7615	1		
W83 23210.087710	SOEX 07T308-21 BK7710		**W83 23210.087710**	SOEX 07T308-21 BK7710			
W83 23010.087935	SOEX 07T308-01 BK7935		**W83 23010.087935**	SOEX 07T308-01 BK7935			
W83 32010.088425	SOEX 090408-01 BK8425		**W83 32010.088425**	SOEX 090408-01 BK8425			
W83 32210.087935	SOEX 090408-21 BK7935		**W83 32010.088425**	SOEX 090408-01 BK8425			
W83 32010.087615	SOEX 090408-01 BK7615	1	**W83 32010.087615**	SOEX 090408-01 BK7615	1		
W83 32210.087710	SOEX 090408-21 BK7710		**W83 32210.087710**	SOEX 090408-21 BK7710			
W83 32010.087935	SOEX 090408-01 BK7935		**W83 32010.087935**	SOEX 090408-01 BK7935			

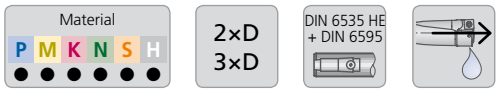
Supply includes: KUB Quatron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

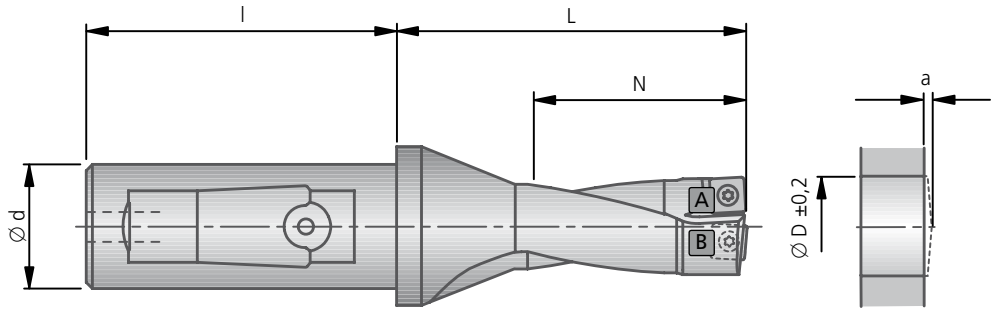
Guideline values for solid drilling: pages 72-73 / alternative inserts: page 76.

KOMET KUB Quatron ®

Ø 34 – 44 mm

Indexable insert drill



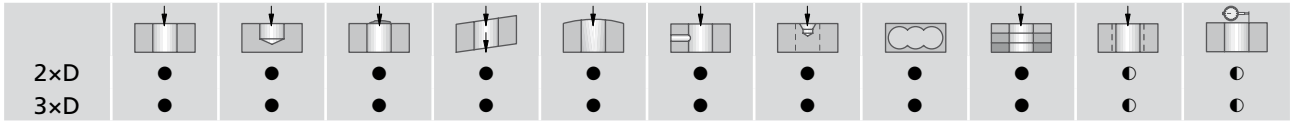


				2×D				3×D					
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
34,0	34,5	3,0	32 × 60	**U10 23400**	68	97	0,75	**U11 83400**	102	131	0,86	**N00 57301** S45100-20IP 6,25 Nm	
			40 × 68	**U10 33400**	68	97	1,04	**U11 93400**	102	131	1,15		
35,0	35,5	3,0	32 × 60	**U10 23500**	70	99	0,78	**U11 83500**	105	134	0,89		
			40 × 68	**U10 33500**	70	99	1,07	**U11 93500**	105	134	1,18		
36,0	36,5	3,0	32 × 60	**U10 23600**	72	101	0,8	**U11 83600**	108	137	0,93		
			40 × 68	**U10 33600**	72	101	1,09	**U11 93600**	108	137	1,22		
37,0	37,5	3,0	32 × 60	**U10 23700**	74	113	0,89	**U11 83700**	111	150	1,03		
			40 × 68	**U10 33700**	74	113	1,18	**U11 93700**	111	150	1,32		
37,5	38,0	3,0	32 × 60	**U10 23750**	76	115	0,91	**U11 83750**	114	153	1,06		
			40 × 68	**U10 33750**	76	115	1,2	**U11 93750**	114	153	1,35		
38,0	38,5	3,0	32 × 60	**U10 23800**	76	115	0,92	**U11 83800**	114	153	1,07		
			40 × 68	**U10 33800**	76	115	1,21	**U11 93800**	114	153	1,36		
39,0	39,5	3,0	32 × 60	**U10 23900**	78	117	0,95	**U11 83900**	117	156	1,12		
			40 × 68	**U10 33900**	78	117	1,24	**U11 93900**	117	156	1,41		
39,5	40,0	3,0	32 × 60	**U10 23950**	80	119	0,97	**U11 83950**	120	159	1,15		
			40 × 68	**U10 33950**	80	119	1,26	**U11 93950**	120	159	1,44		
40,0	40,5	3,0	32 × 60	**U10 24000**	80	119	0,99	**U11 84000**	120	159	1,17		
			40 × 68	**U10 34000**	80	119	1,28	**U11 94000**	120	159	1,46		
41,0	41,5	3,0	32 × 60	**U10 24100**	82	121	1,02	**U11 84100**	123	162	1,22		
			40 × 68	**U10 34100**	82	121	1,31	**U11 94100**	123	162	1,51		
42,0	42,5	3,0	32 × 60	**U10 24200**	84	123	1,06	**U11 84200**	126	165	1,27		
			40 × 68	**U10 34200**	84	123	1,35	**U11 94200**	126	165	1,56		
43,0	43,5	3,0	32 × 60	**U10 24300**	86	125	1,1	**U11 84300**	129	168	1,33		
			40 × 68	**U10 34300**	86	125	1,39	**U11 94300**	129	168	1,62		
44,0	44,5	3,0	32 × 60	**U10 24400**	88	127	1,14	**U11 84400**	132	171	1,34		
			40 × 68	**U10 34400**	88	127	1,43	**U11 94400**	132	171	1,63		

Any **intermediate dimensions** from ∅ 34 – 44 mm and **inch dimensions** are available on request.

● very good | ◐ good | ○ possible: see technical notes, page 74-75 | ✕ not possible

Patent applied for inside and outside Germany



2×D	●	●	●	●	●	●	●	●	●	◐	◐
3×D	●	●	●	●	●	●	●	●	●	◐	◐

Basic recommendation							
Indexable insert A -01 -21			Indexable insert B -01 -21			for workpiece material	
Order No. ▽▽ Size	ISO code	Piece	Order No. ▽▽ Size	ISO code	Piece	P M K N S H	
W83 44010.088425	SOEX 120508-01 BK8425		**W83 44010.088425**	SOEX 120508-01 BK8425		●	
W83 44210.087935	SOEX 120508-21 BK7935		**W83 44010.088425**	SOEX 120508-01 BK8425		●	
W83 44010.087615	SOEX 120508-01 BK7615	1	**W83 44010.087615**	SOEX 120508-01 BK7615	1	●	
W83 44210.087710	SOEX 120508-21 BK7710		**W83 44210.087710**	SOEX 120508-21 BK7710		●	
W83 44010.087935	SOEX 120508-01 BK7935		**W83 44010.087935**	SOEX 120508-01 BK7935		●	

Supply includes: KUB Quatron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

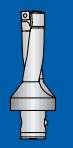
Recommended application areas



Guideline values for solid drilling						v_c	Max. feed f (mm/rev)							
							2×D							
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Ø 14 – 15,9	Ø 16 – 17,5	Ø 17,6 – 21,5	Ø 21,6 – 27	Ø 28 – 33	Ø 34 – 44	Ø 45 – 52	Ø 53 – 65
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,10	0,12	0,12	0,14	0,14	0,14	0,14	0,14
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,12	0,14	0,16	0,20	0,20	0,25	0,20	0,20
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,14	0,16	0,18	0,25	0,25	0,30	0,25	0,25
P	3.0	>900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	180	0,14	0,16	0,18	0,20	0,20	0,25	0,20	0,20
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,10	0,12	0,12	0,18	0,18	0,20	0,18	0,18
P	4.1			HSS		80	0,08	0,10	0,12	0,14	0,16	0,18	0,14	0,16
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,06	0,08	0,10	0,12	0,12	0,12	0,12	0,12
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,06	0,08	0,10	0,12	0,12	0,12	0,12	0,12
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	180	0,08	0,10	0,12	0,14	0,14	0,16	0,14	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	160	0,08	0,08	0,12	0,16	0,16	0,20	0,16	0,16
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	160	0,06	0,08	0,10	0,12	0,12	0,14	0,12	0,12
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,16	0,16	0,25	0,30	0,30	0,30	0,30	0,30
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,14	0,16	0,18	0,20	0,20	0,25	0,20	0,20
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,14	0,16	0,18	0,20	0,20	0,25	0,20	0,20
K	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,14	0,16	0,18	0,22	0,22	0,25	0,22	0,22
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,14	0,16	0,18	0,22	0,22	0,25	0,22	0,22
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,14	0,16	0,18	0,22	0,25	0,25	0,22	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,10	0,12	0,16	0,20	0,20	0,25	0,20	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,12	0,14	0,16	0,25	0,20	0,25	0,25	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	400	0,08	0,08	0,10	0,12	0,12	0,15	0,12	0,12
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,08	0,08	0,10	0,12	0,12	0,12	0,12	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,12	0,14	0,16	0,16	0,20	0,16	0,16
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,12	0,14	0,20	0,20	0,30	0,20	0,20
H	15.0	1400		hardened steels < 45 HRC		80	0,05	0,05	0,08	0,10	0,10	0,10	0,10	0,10
H	16.0	1800		hardened steels > 45 HRC		40	0,05	0,05	0,08	0,10	0,10	0,10	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

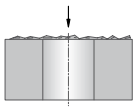
Patent applied for inside and outside Germany



Max. feed f (mm/rev)								
	3×D							
	Ø 14 – 15,9	Ø 16 – 17,5	Ø 17,6 – 21,5	Ø 21,6 – 27	Ø 28– 33	Ø 34 – 44	Ø 45 – 52	Ø 53 – 65
	0,10	0,12	0,12	0,14	0,14	0,14	0,14	0,14
	0,12	0,14	0,16	0,20	0,20	0,25	0,20	0,20
	0,14	0,16	0,18	0,25	0,25	0,30	0,25	0,25
	0,14	0,16	0,18	0,20	0,20	0,25	0,20	0,20
	0,10	0,12	0,12	0,18	0,18	0,20	0,18	0,18
	0,08	0,10	0,12	0,14	–	–	0,14	–
	0,06	0,08	0,10	0,12	0,12	0,12	0,12	0,12
	0,06	0,08	0,10	0,12	0,12	0,12	0,12	0,12
	0,08	0,10	0,12	0,14	0,14	0,16	0,14	0,14
	0,08	0,08	0,12	0,16	0,16	0,20	0,16	0,16
	0,06	0,08	0,10	0,12	0,12	0,14	0,12	0,12
	0,16	0,16	0,25	0,30	0,30	0,30	0,30	0,30
	0,14	0,16	0,18	0,20	0,20	0,25	0,20	0,20
	0,14	0,16	0,18	0,20	0,20	0,25	0,20	0,20
	0,14	0,16	0,18	0,22	0,22	0,25	0,22	0,22
	0,14	0,16	0,18	0,22	0,22	0,25	0,22	0,22
	0,14	0,16	0,18	0,22	0,25	0,25	0,22	0,25
	0,10	0,12	0,16	0,20	0,20	0,25	0,20	0,20
	0,12	0,14	0,16	0,25	0,20	0,25	0,25	0,20
	0,08	0,08	0,10	0,12	0,12	0,15	0,12	0,12
	0,08	0,08	0,10	0,12	0,12	0,12	0,12	0,12
	0,10	0,12	0,14	0,16	0,16	0,20	0,16	0,16
	0,10	0,12	0,14	0,20	0,20	0,30	0,20	0,20
	0,05	0,05	0,08	0,10	0,10	0,10	0,10	0,10
	0,05	0,05	0,08	0,10	0,10	0,10	0,10	0,10

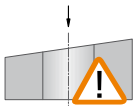
Technical informations

1.



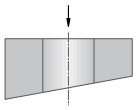
Starting on uneven surfaces (cast surfaces)
- subject to the surface, reduce feed as required when starting the bore

2.



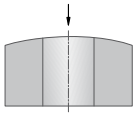
Starting on angled surfaces
- subject to the starting angle, the feed must be reduced when starting the bore.
  Rule of thumb: 3° ≙ 30%; 10° ≙ 40%; 25° ≙ 60% use tools max. 2×D
- use tough insert and stable corner radius

3.



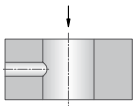
Angled bore exit
- from wear cut is interrupted reduce feed rate up to 50%
- use tough insertand stable corner radius

4.



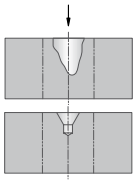
Starting on cambered surfaces
- no problems
- reduce feed rate if necessary

5.



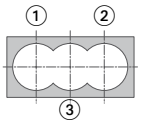
Drilling through a cross bore
- reduce feed rate 50% if necessary
- watch for chip jamming around tool
- use tough insert and stable corner radius

6.



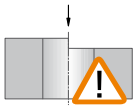
Starting on a groove or large centering bore
- use short tools, max. 3×D
- spot face if required
- reduce feed rate
- use tough insert for internal cutting edge

7.



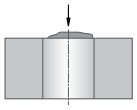
Drilling a chamber
- first bore Nos. 1 + 2, then bore No. 3
- check distribution is symmetrical
- avoid chip jams
- if necessary reduce to approx. 1-1.5 mm in the ∅ on circumference
- reduce feed rate 50% for interrupted cut
- use tough insert and stable corner radius

8.



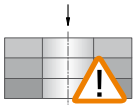
Starting on an edge
- reduce feed rate by 50%
- use tough insert and stable corner radius

9.



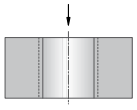
Starting on a welded seam
- reduce feed rate
- use max. 3×D tools

10.



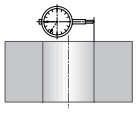
Drilling through stacked plates
- good workpiece clamping required
- max. gap = 1 mm

11.



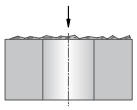
Roughing
- possible

12.

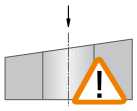


Adjustable
- using adjusting device (ABS-MV) and eccentric adjusting device
- for turning machines over axis

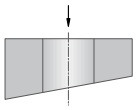
Note: please note max. offset ∅ in tables

1. 

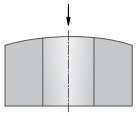
Starting on uneven surfaces (cast surfaces)
- subject to the surface, reduce feed as required when starting the bore

2. 

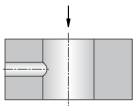
Starting on angled surfaces
- max. 3° angled position possible (cast angles)
- reduce feed rate when starting bore
- use stable corner radius

3. 

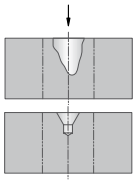
Angled bore exit
- from wear cut is interrupted reduce feed rate up to 50%
- use tough insertand stable corner radius

4. 

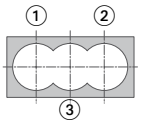
Starting on cambered surfaces
- no problems
- reduce feed rate if necessary

5. 

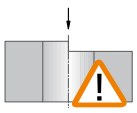
Drilling through a cross bore
- reduce feed rate 50% if necessary
- watch for chip jamming around tool
- use tough insertand stable corner radius

6. 

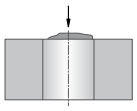
Starting on a groove or large centering bore
- use short tools, max. 3×D
- spot face if required
- reduce feed rate
- use tough insert for internal cutting edge

7. 

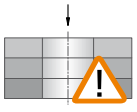
Drilling a chamber
- first bore Nos. 1 + 2, then bore No. 3
- check distribution is symmetrical
- avoid chip jams
- if necessary reduce to approx. 1-1.5 mm in the ∅ on circumference
- reduce feed rate 50% for interrupted cut
- use tough insertand stable corner radius

8. 

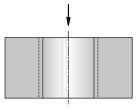
Starting on an edge
- not possible for 3×D tools
- because of the undefined surface for starting the bore, pre-machining is required (spot facing, face milling)
- then continue as described under Point 1

9. 

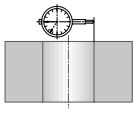
Starting on a welded seam
- reduce feed rate
- use max. 3×D tools

10. 

Drilling through stacked plates
- good workpiece clamping required

11. 

Roughing
- possible

12. 

Adjustable
- using adjusting device (ABS-MV) and eccentric adjusting device
- for turning machines over axis

Note: please note max. offset ∅ in tables

Alternative inserts

for better chip control

ØD	Order No.	ISO code	for workpiece material P	M	K	N	S	H
14 – 17,5	**W83 13130.048425**	SOEX 050204-13 BK8425	◐					
	W83 13210.047935	SOEX 050204-21 BK7935 ⚠	◐					
	W83 13030.048430	SOEX 050204-03 BK8430	◐	◑				
	W83 13130.047935	SOEX 050204-13 BK7935		◑				
	W83 13210.047710	SOEX 050204-21 BK7710 ⚠				◐	◐	
18 – 21,5	**W83 18130.068425**	SOEX 060306-13 BK8425	◐					
	W83 18210.067935	SOEX 060306-21 BK7935 ⚠	◐					
	W83 18030.068430	SOEX 060306-03 BK8430	◐	◑				
	W83 18130.067935	SOEX 060306-13 BK7935		◑				
	W83 18210.067710	SOEX 060306-21 BK7710 ⚠				◐	◐	
22 – 27	**W83 23130.088425**	SOEX 07T308-13 BK8425	◐					
	W83 23210.087935	SOEX 07T308-21 BK7935 ⚠	◐					
	W83 23030.088430	SOEX 07T308-03 BK8430	◐	◑				
	W83 23130.087935	SOEX 07T308-13 BK7935		◑				
	W83 23210.087710	SOEX 07T308-21 BK7710 ⚠				◐	◐	
28 – 33	**W83 32130.088425**	SOEX 090408-13 BK8425	◐					
	W83 32210.087935	SOEX 090408-21 BK7935 ⚠	◐					
	W83 32030.088430	SOEX 090408-03 BK8430	◐	◑				
	W83 32130.087935	SOEX 090408-13 BK7935		◑				
	W83 32210.087710	SOEX 090408-21 BK7710 ⚠				◐	◐	
34 – 44	**W83 44130.088425**	SOEX 120508-13 BK8425	◐					
	W83 44210.087935	SOEX 120508-21 BK7935 ⚠	◐					
	W83 44030.088430	SOEX 120508-03 BK8430	◐	◑				
	W83 44130.087935	SOEX 120508-13 BK7935		◑				
	W83 44210.087710	SOEX 120508-21 BK7710 ⚠				◐	◐	
45 – 52	**W83 23130.088425**	SOEX 07T308-13 BK8425	◐					
	W83 23210.087935	SOEX 07T308-21 BK7935 ⚠	◐					
	W83 23030.088430	SOEX 07T308-03 BK8430	◐	◑				
	W83 23130.087935	SOEX 07T308-13 BK7935		◑				
	W83 23210.087710	SOEX 07T308-21 BK7710 ⚠				◐	◐	
53 – 65	**W83 32130.088425**	SOEX 090408-13 BK8425	◐					
	W83 32210.087935	SOEX 090408-21 BK7935 ⚠	◐					
	W83 32030.088430	SOEX 090408-03 BK8430	◐	◑				
	W83 32130.087935	SOEX 090408-13 BK7935		◑				
	W83 32210.087710	SOEX 090408-21 BK7710 ⚠				◐	◐	

⚠ Only use this insert with KUB Quatron® as an external cutting edge:
SOEX ... -01 (Geometry 01) in BK6115,
SOEX ... -21 (Geometry 21) in BK2730 and BK7710
(suitable as internal cutting edge for machining BK7710 aluminium).

for higher cutting speed

ØD	Order No.	ISO code	for workpiece material P	M	K	N	S	H
14 – 17,5	W83 13010.046420	SOEX 050204-01 BK6420	◐					
	W83 13210.046130	SOEX 050204-21 BK6130	◐	◑				
	W83 13000.0174	SOEX 050204-01 BK74		◑				
	W83 13000.016115	SOEX 050204-01 BK6115 ⚠				◐		
18 – 21,5	W83 18010.066420	SOEX 060306-01 BK6420	◐					
	W83 18210.066130	SOEX 060306-21 BK6130	◐	◑				
	W83 18000.0974	SOEX 060306-01 BK74		◑				
	W83 18000.096115	SOEX 060306-01 BK6115 ⚠				◐		
22 – 27	W83 23010.086420	SOEX 07T308-01 BK6420	◐					
	W83 23210.086130	SOEX 07T308-21 BK6130	◐	◑				
	W83 23000.0174	SOEX 07T308-01 BK74		◑				
	W83 23000.016115	SOEX 07T308-01 BK6115 ⚠				◐		
28 – 33	W83 32010.086420	SOEX 090408-01 BK6420	◐					
	W83 32210.086130	SOEX 090408-21 BK6130	◐	◑				
	W83 32000.1574	SOEX 090408-01 BK74		◑				
	W83 32000.156115	SOEX 090408-01 BK6115 ⚠				◐		
34 – 44	W83 44010.086420	SOEX 120508-01 BK6420	◐					
	W83 44210.086130	SOEX 120508-21 BK6130	◐	◑				
	W83 44000.1874	SOEX 120508-01 BK74		◑				
	W83 44000.186115	SOEX 120508-01 BK6115 ⚠				◐		
45 – 52	W83 23010.086420	SOEX 07T308-01 BK6420	◐					
	W83 23210.086130	SOEX 07T308-21 BK6130	◐	◑				
	W83 23000.0174	SOEX 07T308-01 BK74		◑				
	W83 23000.016115	SOEX 07T308-01 BK6115 ⚠				◐		
53 – 65	W83 32010.086420	SOEX 090408-01 BK6420	◐					
	W83 32210.086130	SOEX 090408-21 BK6130	◐	◑				
	W83 32000.1574	SOEX 090408-01 BK74		◑				
	W83 32000.156115	SOEX 090408-01 BK6115 ⚠				◐		

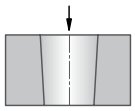
for greater strength

ØD	Order No.	ISO code	for workpiece material P	M	K	N	S	H
14 – 17,5	**W83 13010.047935**	SOEX 050204-01 BK7935	◐					
	W83 13010.046420	SOEX 050204-01 BK6420				◐		
18 – 21,5	**W83 18010.067935**	SOEX 060306-01 BK7935	◐					
	W83 18010.066420	SOEX 060306-01 BK6420				◐		
22 – 27	**W83 23010.087935**	SOEX 07T308-01 BK7935	◐					
	W83 23010.086420	SOEX 07T308-01 BK6420				◐		
28 – 33	**W83 32010.087935**	SOEX 090408-01 BK7935	◐					
	W83 32010.086420	SOEX 090408-01 BK6420				◐		
34 – 44	**W83 44010.087935**	SOEX 120508-01 BK7935	◐					
	W83 44010.086420	SOEX 120508-01 BK6420				◐		
45 – 52	**W83 23000.0179**	SOEX 07T308-01 BK79	◐					
	W83 23010.086420	SOEX 07T308-01 BK6420				◐		
53 – 65	**W83 32000.1579**	SOEX 090408-01 BK79	◐					
	W83 32010.086420	SOEX 090408-01 BK6420				◐		

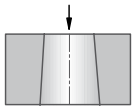
rotating and stationary use



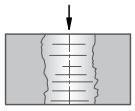
Short tool life types of wear on inserts
- cutting speed to high → select correct cutting speed
- cutting material with too little wear resistance → select grade with higher wear resistance
- tool overhang too great → if possible use shorter tool
- damaged insert seating → check tool, change if necessary
- clamping device not stable enough → improve stability



Bore narrows at bottom
- chip jam on external cutting edge → use different chip fracture geometry, increase feed if necessary
- material very soft → increase cutting speed, reduce feed. Use positive chip geometry



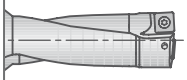
Bore widens at bottom
- chip jam on internal cutting edge → use different chip fracture geometry, increase feed if necessary



Bad surface finish
- bad chip removal → improve cutting parameters: increase cutting speed reduce feed

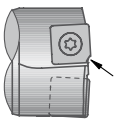


Bild up on cutting edge
- cutting speed too low → increase cutting speed
- insert too negative → use positive geometry
- coating not suitable → select correct coating

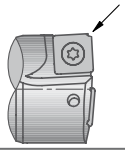


Friction marks on tool shank
- bore diameter too small → check setting
- chip removal problems → improve cutting parameters, check geometry of inserts
- cutting edge corner radius too large → use correct cutting edge radius

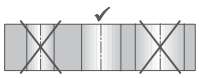
stationary use



Fracture on internal cutting edge
- drill bit height of tool too high/too low → tool turret/holder may have shifted. Readjust machine
- feed rate too high → reduce feed rate
- insert grade too brittle → use tougher insert grade
- wrong insert geometry → use geometry with chamfered cutting edge

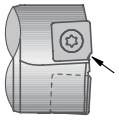


Fracture on external cutting edge
- feed rate too high → reduce feed rate
- interrupted cut → change to tougher insert grade
- cutting edge corner radius too small → use insert with larger cutting edge radius

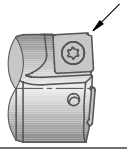


Bore too small/ too large
- machine not at X-0 position → move axis to correct position
- machine axis shifted → readjust machine

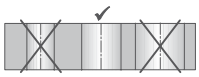
rotating use



Fracture on internal cutting edge
- feed rate too high → reduce feed rate
- insert grade too brittle → use tougher insert grade
- wrong insert geometry → use geometry with chamfered cutting edge



Fracture on external cutting edge
- feed rate too high → reduce feed rate
- interrupted cut → change to tougher insert grade
- cutting edge corner radius too small → use insert with larger cutting edge radius



Bore too small/ too large with adjustable tool
- wrong cutting edge radius used → use correct cutting edge radius
- setting wrong → correct setting

KOMET KUB Pentron®

Continuous drilling to 5×D









KOMET KUB Pentron® continuous drill

In developing the KUB Pentron®, KOMET® has blazed a completely new trail.

It has combined key features such as real accuracy, top performance parameters and deep drilling depths in a single tool.

The KOMET KUB Pentron® enables up to 20% higher cutting and feed rates, all the way through to a 5×D length/diameter ratio.

It can handle extreme working conditions that were previously only feasible with 3×D.

BENEFITS for you:

- Maximum performance and life with excellent drilling performance due to optimum main body stability and a special surface treatment
- Optimum dimensional accuracy in the most difficult drilling conditions to 5×D
- Cost reductions in stocking and ease of handling due to identical internal and external indexable inserts
- Maximum tool life due to four fully useable cutting edges of modern substrates with appropriate coatings

Applications:

- Perfect for great drilling depths and high feed performance
- Ideal for extreme working situations
- Ideal for machining steel, cast metal, aluminium and stainless materials
- Geometry -03 for reliable machining of long-chipping steel materials and corrosion-resistant steels

Extreme applications in the 5×D region:

1 Drilling on an edge
2 Drilling in an acute corner
3 Multiple drilling
4 Drilling on a welded seam or undulating surfaces



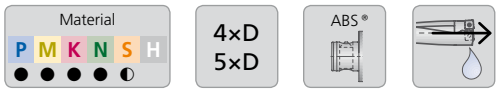
KOMET KUB Pentron®

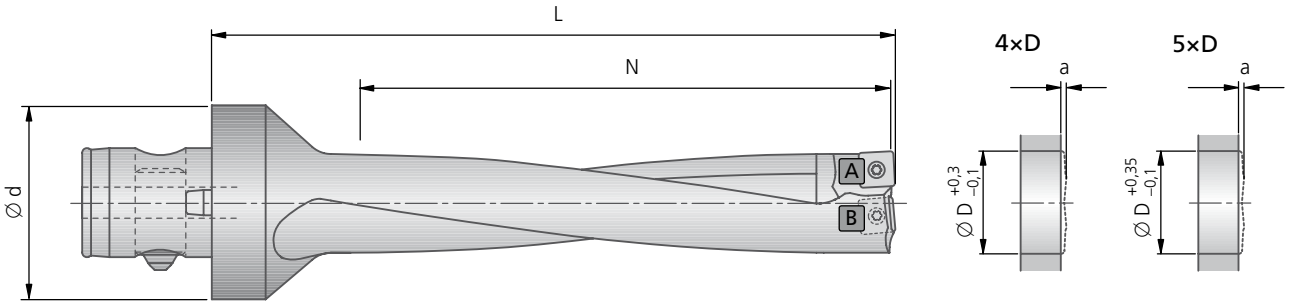
	Page
ABS® connection	80 – 85
∅ 14 – 46 mm, R.H. cutting Drilling depth 4×D | 5×D	
Cylindrical shank ISO 9766	88 – 95
∅ 14 – 46 mm, R.H. cutting Drilling depth 4×D | 5×D	
Recommended application areas	96 – 99
Guideline values for solid drilling	
Technical informations	101
Alternative inserts	100
Milling cartridge	Chapter 6

KOMET KUB Pentron ®

Ø 14,0 – 23,0 mm

Indexable insert drill



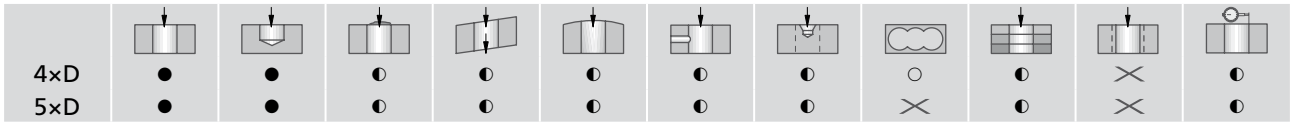


				4×D				5×D					
Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
14,0	14,5	1,5	50	U44 51400	56	83	0,39	U45 51400	70	97	0,40	N00 56051 S/M1,8×3,85-5IP 0,38 Nm	
14,3 (0,562)	14,8	1,5	50	U44 51430	60	88	0,40	U45 51430	75	103	0,41		
14,5	15,0	1,5	50	U44 51450	60	88	0,40	U45 51450	75	103	0,41		
15,0	15,5	1,5	50	U44 51500	60	88	0,41	U45 51500	75	103	0,41		
15,1 (0,593)	15,6	1,5	50	U44 51510	64	94	0,41	U45 51510	80	110	0,42		
15,5	16,0	1,5	50	U44 51550	64	94	0,41	U45 51550	80	110	0,42		
15,9 (0,625)	16,4	1,5	50	U44 51590	64	94	0,42	U45 51590	80	110	0,43		
16,0	16,5	1,5	50	U44 51600	64	94	0,42	U45 51600	80	110	0,43		
16,5	17,0	1,5	50	U44 51650	68	99	0,43	U45 51650	85	116	0,44	N00 56041 S/M2×4,3-6IP 0,62 Nm	
16,7 (0.656)*	17,2	1,5	50	U44 51670	68	99	0,43	U45 51670	85	116	0,44		
17,0	17,5	1,5	50	U44 51700	68	99	0,43	U45 51700	85	116	0,44		
17,5 (0.687)	18,0	1,5	50	U44 51750	72	103	0,44	U45 51750	90	121	0,45		
17,9 (0.703)*	18,4	1,9	50	U44 51790	72	103	0,44	U45 51790	90	121	0,45		
18,0	18,5	1,9	50	U44 51800	72	103	0,44	U45 51800	90	121	0,46		
18,5	19,0	1,9	50	U44 51850	76	108	0,47	U45 51850	95	127	0,51	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	
19,0	19,5	1,9	50	U44 51900	76	108	0,49	U45 51900	95	127	0,52		
19,1 (0.750)*	19,6	1,9	50	U44 51910	80	112	0,49	U45 51910	100	132	0,53		
19,4 (0.765)*	19,9	1,9	50	U44 51940	80	112	0,50	U45 51940	100	132	0,53		
19,5	20,0	1,9	50	U44 51950	80	112	0,50	U45 51950	100	132	0,53		
19,8 (0.781)*	20,3	1,9	50	U44 51980	80	112	0,51	U45 51980	100	132	0,53		
20,0	20,5	1,9	50	U44 52000	80	112	0,51	U45 52000	100	132	0,53		
20,5	21,0	1,9	50	U44 52050	84	116	0,51	U45 52050	105	137	0,53	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	
20,6 (0.812)*	21,1	1,9	50	U44 52060	84	116	0,51	U45 52060	105	137	0,53		
21,0 (0.828)	21,5	1,9	50	U44 52100	84	116	0,51	U45 52100	105	137	0,54		
21,5	22,0	2,4	50	U44 52150	88	120	0,52	U45 52150	110	142	0,55		
22,0	22,5	2,4	50	U44 52200	88	120	0,53	U45 52200	110	142	0,56		
22,2 (0.875)*	22,7	2,4	50	U44 52220	92	124	0,54	U45 52220	115	147	0,58		
22,5	23,0	2,4	50	U44 52250	92	124	0,55	U45 52250	115	147	0,59		
23,0 (0.906)	23,5	2,4	50	U44 52300	92	124	0,56	U45 52300	115	147	0,60		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.
** Adjustment device see "KomPass Bore machining – chapter 5"

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany

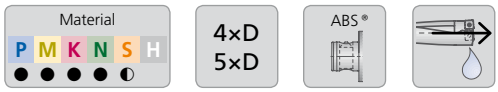


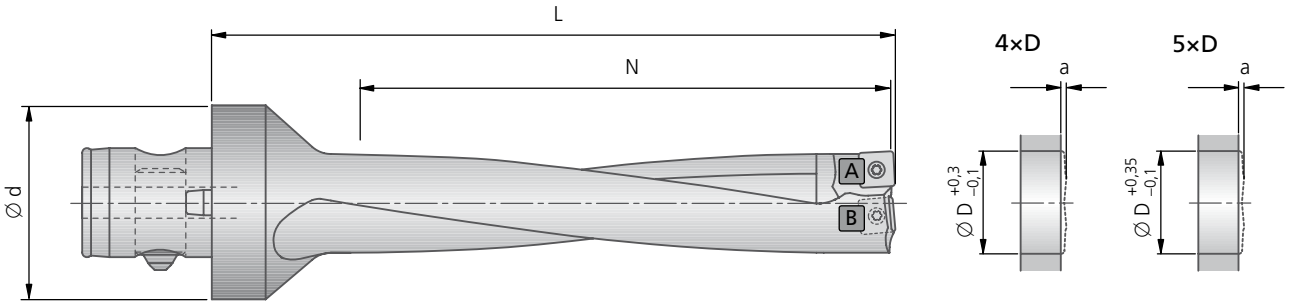
	Basic recommendation						
	Indexable insert A -01			Indexable insert B -01			for workpiece material
	Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H
	W80 10010.048425 **W80 10010.047935** **W80 10010.046115** **W80 10010.047710**	SOGX 040204-01 BK8425 SOGX 040204-01 BK7935 SOGX 040204-01 BK6115 SOGX 040204-01 BK7710	1	**W80 10010.048425** **W80 10010.047935** **W80 10010.048425** **W80 10010.047710**	SOGX 040204-01 BK8425 SOGX 040204-01 BK7935 SOGX 040204-01 BK8425 SOGX 040204-01 BK7710	1	
	W80 12010.048425 **W80 12010.047935** **W80 12010.046115** **W80 12010.047710**	SOGX 050204-01 BK8425 SOGX 050204-01 BK7935 SOGX 050204-01 BK6115 SOGX 050204-01 BK7710	1	**W80 12010.048425** **W80 12010.047935** **W80 12010.048425** **W80 12010.047710**	SOGX 050204-01 BK8425 SOGX 050204-01 BK7935 SOGX 050204-01 BK8425 SOGX 050204-01 BK7710	1	
	W80 18010.068425 **W80 18010.067935** **W80 18010.066115** **W80 18010.067710**	SOGX 060206-01 BK8425 SOGX 060206-01 BK7935 SOGX 060206-01 BK6115 SOGX 060206-01 BK7710	1	**W80 18010.068425** **W80 18010.067935** **W80 18010.068425** **W80 18010.067710**	SOGX 060206-01 BK8425 SOGX 060206-01 BK7935 SOGX 060206-01 BK8425 SOGX 060206-01 BK7710	1	
	W80 20010.088425 **W80 20010.087935** **W80 20010.086115** **W80 20010.087710**	SOGX 07T208-01 BK8425 SOGX 07T208-01 BK7935 SOGX 07T208-01 BK6115 SOGX 07T208-01 BK7710	1	**W80 20010.088425** **W80 20010.087935** **W80 20010.088425** **W80 20010.087710**	SOGX 07T208-01 BK8425 SOGX 07T208-01 BK7935 SOGX 07T208-01 BK8425 SOGX 07T208-01 BK7710	1	

Supply includes: KUB Pentron ® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

KOMET KUB Pentron ® Ø 23,5 – 33,0 mm

Indexable insert drill



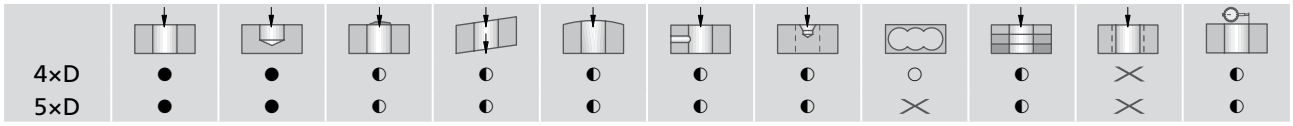


				4×D				5×D					
Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
23,5	24,0	2,4	50	U44 52350	96	128	0,56	U45 52350	120	152	0,60	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	
23,8 (0.937)*	24,3	2,4	50	U44 52380	96	128	0,57	U45 52380	120	152	0,61		
24,0	24,5	2,4	50	U44 52400	96	128	0,57	U45 52400	120	152	0,61		
24,5	25,0	2,4	50	U44 52450	100	133	0,59	U45 52450	125	158	0,63		
25,0 (0.985)	25,5	2,4	50	U44 52500	100	133	0,60	U45 52500	125	158	0,64		
25,4 (1.000)*	25,9	2,4	50	U44 52540	104	137	0,61	U45 52540	130	163	0,66		
25,5	26,0	2,4	50	U44 52550	104	137	0,61	U45 52550	130	163	0,66		
26,0	26,5	2,4	50	U44 52600	104	137	0,63	U45 52600	130	163	0,68		
26,2 (1.031)*	26,7	2,4	50	U44 52620	108	142	0,61	U45 52620	135	169	0,66	N00 57251 S3076-8IP 2,25 Nm	
26,5	27,0	2,4	50	U44 52650	108	142	0,61	U45 52650	135	169	0,66		
27,0 (1.062)	27,5	2,8	50	U44 52700	108	142	0,62	U45 52700	135	169	0,67		
27,5	28,0	2,8	50	U44 52750	112	146	0,64	U45 52750	140	174	0,70		
28,0	28,5	2,8	50	U44 52800	112	146	0,65	U45 52800	140	174	0,71		
28,2 (1.109)*	28,7	2,8	50	U44 52820	116	151	0,67	U45 52820	145	180	0,73		
28,5	29,0	2,8	50	U44 52850	116	151	0,68	U45 52850	145	180	0,74		
28,6 (1.125)*	29,1	2,8	50	U44 52860	116	151	0,68	U45 52860	145	180	0,75		
29,0	29,5	2,8	50	U44 52900	116	151	0,69	U45 52900	145	180	0,76		
29,4 (1.156)*	29,9	2,8	50	U44 52940	120	155	0,70	U45 52940	150	185	0,77		
29,5	30,0	2,8	50	U44 52950	120	155	0,70	U45 52950	150	185	0,77		
30,0	30,5	2,8	50	U44 53000	120	155	0,71	U45 53000	150	185	0,79		
30,2 (1.187)*	30,7	2,8	63	U44 63020	124	163	1,03	U45 63020	155	194	1,12	N00 57261 S3575-15IP 2,8 Nm	
30,5	31,0	2,8	63	U44 63050	124	163	1,05	U45 63050	155	194	1,13		
30,9 (1.218)*	31,4	2,8	63	U44 63090	124	163	1,06	U45 63090	155	194	1,15		
31,0	31,5	2,8	63	U44 63100	124	163	1,07	U45 63100	155	194	1,15		
31,5	32,0	2,8	63	U44 63150	128	167	1,10	U45 63150	160	199	1,18		
31,8 (1.250)*	32,3	2,8	63	U44 63180	128	167	1,10	U45 63180	160	199	1,19		
32,0	32,5	2,8	63	U44 63200	128	167	1,11	U45 63200	160	199	1,20		
32,5 (1.281)	33,0	2,8	63	U44 63250	132	172	1,15	U45 63250	165	205	1,25		
33,0	33,5	2,8	63	U44 63300	132	172	1,17	U45 63300	165	205	1,27		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.
** Adjustment device see "KomPass Bore machining – chapter 5"

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany



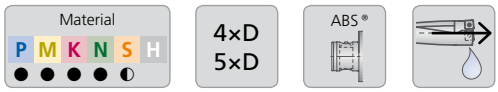
	Basic recommendation						
	Indexable insert A -01			Indexable insert B -01			for workpiece material
	Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H
	W80 24010.088425 **W80 24010.087935** **W80 24010.086115** **W80 24010.087710**	SOGX 080308-01 BK8425 SOGX 080308-01 BK7935 SOGX 080308-01 BK6115 SOGX 080308-01 BK7710	1	**W80 24010.088425** **W80 24010.087935** **W80 24010.088425** **W80 24010.087710**	SOGX 080308-01 BK8425 SOGX 080308-01 BK7935 SOGX 080308-01 BK8425 SOGX 080308-01 BK7710	1	
	W80 28010.088425 **W80 28010.087935** **W80 28010.086115** **W80 28010.087710**	SOGX 09T308-01 BK8425 SOGX 09T308-01 BK7935 SOGX 09T308-01 BK6115 SOGX 09T308-01 BK7710	1	**W80 28010.088425** **W80 28010.087935** **W80 28010.088425** **W80 28010.087710**	SOGX 09T308-01 BK8425 SOGX 09T308-01 BK7935 SOGX 09T308-01 BK8425 SOGX 09T308-01 BK7710	1	
	W80 32010.088425 **W80 32010.087935** **W80 32010.086115** **W80 32010.087710**	SOGX 100408-01 BK8425 SOGX 100408-01 BK7935 SOGX 100408-01 BK6115 SOGX 100408-01 BK7710	1	**W80 32010.088425** **W80 32010.087935** **W80 32010.088425** **W80 32010.087710**	SOGX 100408-01 BK8425 SOGX 100408-01 BK7935 SOGX 100408-01 BK8425 SOGX 100408-01 BK7710	1	

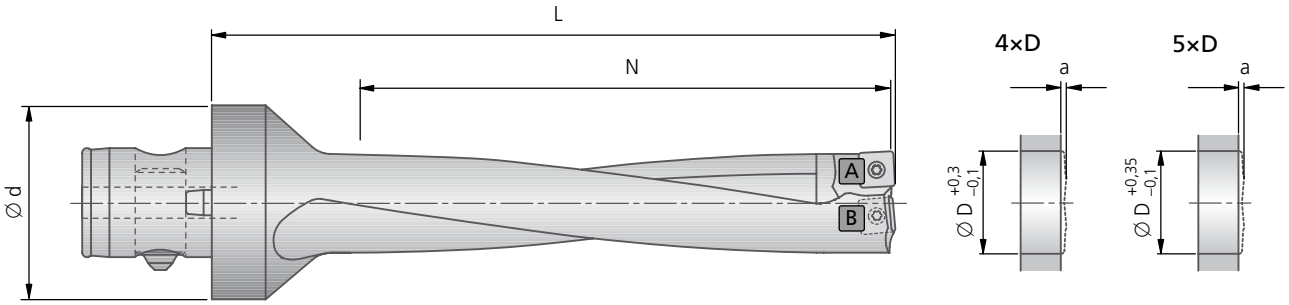
Supply includes: KUB Pentron ® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

KOMET KUB Pentron ®

Ø 33,2 – 42,0 mm

Indexable insert drill



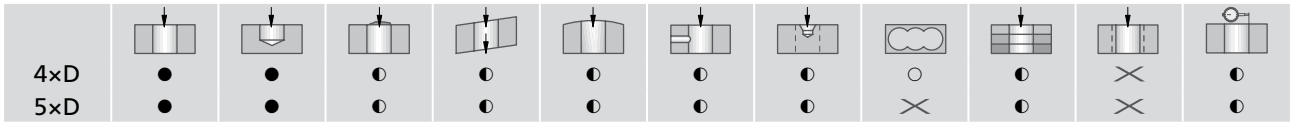


				4×D				5×D					
Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
33,2	33,7	3,0	63	U44 63320	136	176	1,18	U45 63320	170	210	1,28	N00 57261 S3575-15IP 2,8 Nm	
33,3 (1.312)*	33,8	3,0	63	U44 63330	136	176	1,18	U45 63330	170	210	1,28		
33,5	34,0	3,0	63	U44 63350	136	176	1,18	U45 63350	170	210	1,29		
33,7 (1.328)*	34,2	3,0	63	U44 63370	136	176	1,19	U45 63370	170	210	1,29		
34,0	34,5	3,0	63	U44 63400	136	176	1,19	U45 63400	170	210	1,30		
34,5	35,0	3,0	63	U44 63450	140	181	1,23	U45 63450	175	216	1,34		
34,9 (1.375)*	35,4	3,0	63	U44 63490	140	181	1,24	U45 63490	175	216	1,36		
35,0	35,5	3,0	63	U44 63500	140	181	1,24	U45 63500	175	216	1,36		
35,5	36,0	3,0	63	U44 63550	144	185	1,27	U45 63550	180	221	1,40		
36,0	36,5	3,0	63	U44 63600	144	185	1,29	U45 63600	180	221	1,42		
36,5 (1.437)	37,0	3,0	63	U44 63650	148	190	1,34	U45 63650	185	227	1,48		
37,0	37,5	3,0	63	U44 63700	148	190	1,36	U45 63700	185	227	1,50		
37,3 (1.469)*	37,8	3,0	63	U44 63730	152	194	1,38	U45 63730	190	232	1,52	N00 57301 S45100-20IP 6,25 Nm	
37,5	38,0	3,0	63	U44 63750	152	194	1,39	U45 63750	190	232	1,53		
38,0	38,5	3,0	63	U44 63800	152	194	1,40	U45 63800	190	232	1,55		
38,1 (1.500)*	38,6	3,0	63	U44 63810	156	199	1,42	U45 63810	195	238	1,57		
38,5	39,0	3,0	63	U44 63850	156	199	1,43	U45 63850	195	238	1,58		
39,0	39,5	3,0	63	U44 63900	156	199	1,44	U45 63900	195	238	1,60		
39,2	39,7	3,0	63	U44 63920	160	203	1,48	U45 63920	200	243	1,64		
39,5	40,0	3,0	63	U44 63950	160	203	1,49	U45 63950	200	243	1,65		
39,7 (1.562)*	40,2	3,0	63	U44 63970	160	203	1,50	U45 63970	200	243	1,66		
40,0	40,5	3,0	63	U44 64000	160	203	1,51	U45 64000	200	243	1,68		
40,5	41,0	3,0	63	U44 64050	164	208	1,56	U45 64050	205	249	1,74		
41,0	41,5	3,0	63	U44 64100	164	208	1,58	U45 64100	205	249	1,77		
41,3 (1.625)*	41,8	3,0	63	U44 64130	168	212	1,62	U45 64130	210	254	1,82		
41,5	42,0	3,0	63	U44 64150	168	212	1,63	U45 64150	210	254	1,83		
42,0	42,5	3,0	63	U44 64200	168	212	1,65	U45 64200	210	254	1,86		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.
** Adjustment device see "KomPass Bore machining – chapter 5"

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany



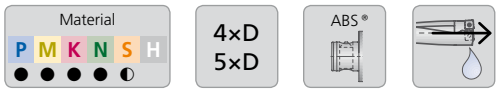
	Basic recommendation						
	Indexable insert A -01			Indexable insert B -01			for workpiece material
	Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H
	W80 38010.088425 **W80 38010.087935** **W80 38010.086115** **W80 38010.087710**	SOGX 110408-01 BK8425 SOGX 110408-01 BK7935 SOGX 110408-01 BK6115 SOGX 110408-01 BK7710	1	**W80 38010.088425** **W80 38010.087935** **W80 38010.088425** **W80 38010.087710**	SOGX 110408-01 BK8425 SOGX 110408-01 BK7935 SOGX 110408-01 BK8425 SOGX 110408-01 BK7710	1	
	W80 42010.088425 **W80 42010.087935** **W80 42010.086115** **W80 42010.087710**	SOGX 120408-01 BK8425 SOGX 120408-01 BK7935 SOGX 120408-01 BK6115 SOGX 120408-01 BK7710	1	**W80 42010.088425** **W80 42010.087935** **W80 42010.088425** **W80 42010.087710**	SOGX 120408-01 BK8425 SOGX 120408-01 BK7935 SOGX 120408-01 BK8425 SOGX 120408-01 BK7710	1	

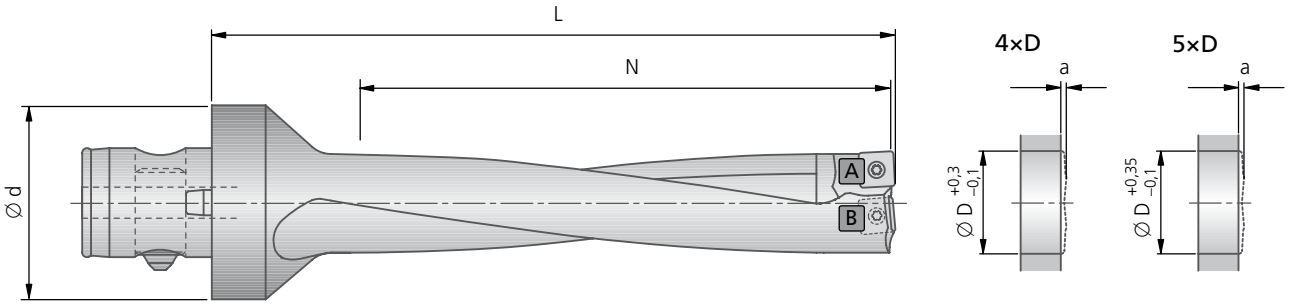
Supply includes: KUB Pentron ® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

KOMET KUB Pentron ®

Ø 42,1 – 46,0 mm

Indexable insert drill





				4×D				5×D					
Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
42,1 (1.656)*	42,6	3,0	63	U44 64210	172	217	1,66	U45 64210	215	260	1,89		
42,5	43,0	3,0	63	U44 64250	172	217	1,68	U45 64250	215	260	1,90		
42,9 (1.687)*	43,4	3,0	63	U44 64290	172	217	1,70	U45 64290	215	260	1,92		
43,0	43,5	3,0	63	U44 64300	172	217	1,70	U45 64300	215	260	1,92		
43,5	44,0	3,0	63	U44 64350	176	221	1,75	U45 64350	220	265	1,99	N00 57301 S45100-20IP 6,25 Nm	
44,0	44,5	3,0	63	U44 64400	176	221	1,78	U45 64400	220	265	2,02		
44,5 (1.750)	45,0	3,3	63	U44 64450	180	226	1,84	U45 64450	225	271	2,09		
45,0	45,5	3,3	63	U44 64500	180	226	1,87	U45 64500	225	271	2,13		
45,5	46,0	3,3	63	U44 64550	184	230	1,93	U45 64550	230	276	2,20		
46,0	46,5	3,3	63	U44 64600	184	230	1,96	U45 64600	230	276	2,24		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.
** Adjustment device see "KomPass Bore machining – chapter 5"

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany

4×D	●	●	◐	◐	◐	◐	◐	○	◐	✕	◐
5×D	●	●	◐	◐	◐	◐	◐	✕	◐	✕	◐

Basic recommendation							
Indexable insert A -01			Indexable insert B -01			for workpiece material	
Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H	
W80 46010.088425	SOGX 130508-01 BK8425	1	**W80 46010.088425**	SOGX 130508-01 BK8425	1		
W80 46010.087935	SOGX 130508-01 BK7935		**W80 46010.087935**	SOGX 130508-01 BK7935			
W80 46010.086115	SOGX 130508-01 BK6115		**W80 46010.088425**	SOGX 130508-01 BK8425			
W80 46010.087710	SOGX 130508-01 BK7710		**W80 46010.087710**	SOGX 130508-01 BK7710			

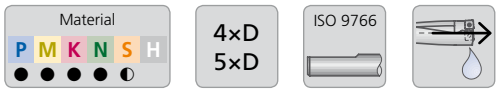
Supply includes: KUB Pentron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

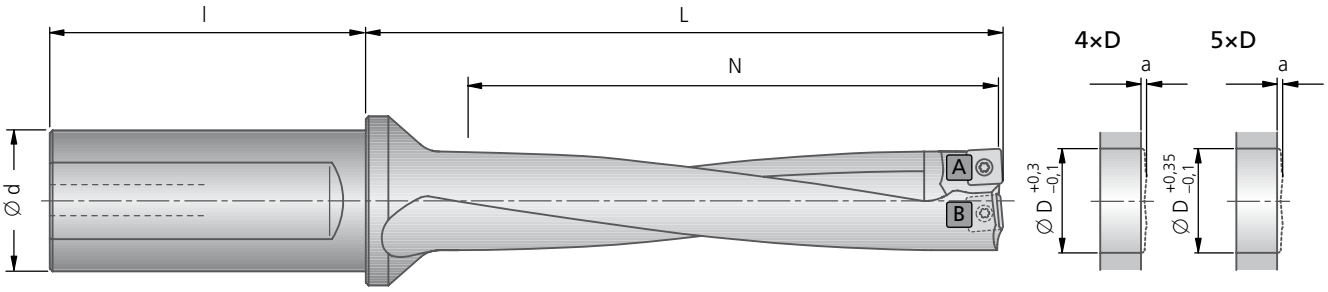
Guideline values for solid drilling: pages 96-99 / alternative inserts: page 100.

KOMET KUB Pentron ®

Ø 14,0 – 23,0 mm

Indexable insert drill



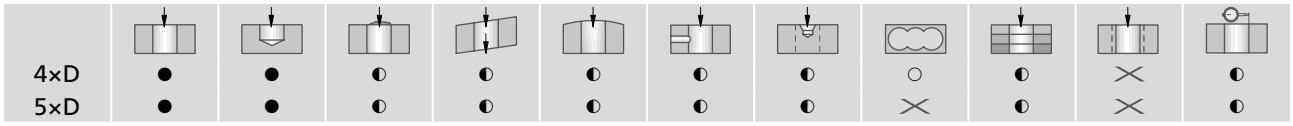


				4×D				5×D					
Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
14,0	14,5	1,5	20×50	**U44 01400**	56	69	0,14	**U45 01400**	70	83	0,15	**N00 56051** S/M1,8×3,85-5IP 0,38 Nm	
14,3 (0,562)	14,8	1,5	20×50	**U44 01430**	60	74	0,15	**U45 01430**	75	89	0,16		
14,5	15,0	1,5	20×50	**U44 01450**	60	74	0,15	**U45 01450**	75	89	0,16		
15,0	15,5	1,5	20×50	**U44 01500**	60	74	0,15	**U45 01500**	75	89	0,16		
15,1 (0,593)	15,6	1,5	20×50	**U44 01510**	64	80	0,16	**U45 01510**	80	96	0,17		
15,5	16,0	1,5	20×50	**U44 01550**	64	80	0,16	**U45 01550**	80	96	0,17		
15,9 (0,625)	16,4	1,5	20×50	**U44 01590**	64	80	0,16	**U45 01590**	80	96	0,17		
16,0	16,5	1,5	20×50	**U44 01600**	64	80	0,16	**U45 01600**	80	96	0,17		
16,5	17,0	1,5	20×50	**U44 01650**	68	85	0,17	**U45 01650**	85	102	0,18	**N00 56041** S/M2×4,3-6IP 0,62 Nm	
16,7 (0.656)*	17,2	1,5	20x50	**U44 01670**	68	85	0,17	**U45 01670**	85	102	0,18		
17,0	17,5	1,5	20×50	**U44 01700**	68	85	0,17	**U45 01700**	85	102	0,19		
17,5 (0.687)	18,0	1,5	25×56	**U44 11750**	72	89	0,25	**U45 11750**	90	107	0,27		
17,9 (0.703)*	18,4	1,9	25x56	**U44 11790**	72	89	0,26	**U45 11790**	90	107	0,28		
18,0	18,5	1,9	25×56	**U44 11800**	72	89	0,26	**U45 11800**	90	107	0,28		
18,5	19,0	1,9	25×56	**U44 11850**	76	94	0,26	**U45 11850**	95	113	0,28	**N00 57553** S/M2,2×5,5-6IP 1,01 Nm	
19,0	19,5	1,9	25×56	**U44 11900**	76	94	0,27	**U45 11900**	95	113	0,29		
19,1 (0.750)*	19,6	1,9	25x56	**U44 11910**	80	98	0,28	**U45 11910**	100	118	0,30		
19,4 (0.765)*	19,9	1,9	25x56	**U44 11940**	80	98	0,28	**U45 11940**	100	118	0,30		
19,5	20,0	1,9	25×56	**U44 11950**	80	98	0,28	**U45 11950**	100	118	0,30		
19,8 (0.781)*	20,3	1,9	25x56	**U44 11980**	80	98	0,29	**U45 11980**	100	118	0,31		
20,0	20,5	1,9	25×56	**U44 12000**	80	98	0,29	**U45 12000**	100	118	0,31		
20,5	21,0	1,9	25×56	**U44 12050**	84	103	0,31	**U45 12050**	105	124	0,33	**N00 57553** S/M2,2×5,5-6IP 1,01 Nm	
20,6 (0.812)*	21,1	1,9	25x56	**U44 12060**	84	103	0,31	**U45 12060**	105	124	0,33		
21,0 (0.828)	21,5	1,9	25×56	**U44 12100**	84	103	0,31	**U45 12100**	105	124	0,34		
21,5	22,0	2,4	25×56	**U44 12150**	88	107	0,32	**U45 12150**	110	129	0,35		
22,0	22,5	2,4	25×56	**U44 12200**	88	107	0,33	**U45 12200**	110	129	0,36		
22,2 (0.875)*	22,7	2,4	25x56	**U44 12220**	92	112	0,34	**U45 12220**	115	135	0,37		
22,5	23,0	2,4	25×56	**U44 12250**	92	112	0,35	**U45 12250**	115	135	0,38		
23,0 (0.906)	23,5	2,4	25×56	**U44 12300**	92	112	0,36	**U45 12300**	115	135	0,39		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany



4×D	●	●	◐	◐	◐	◐	◐	○	◐	✕	◐
5×D	●	●	◐	◐	◐	◐	◐	✕	◐	✕	◐

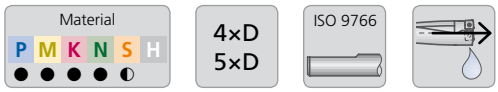
	Basic recommendation						
	Indexable insert A -01			Indexable insert B -01			for workpiece material
	Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H
	W80 10010.048425 **W80 10010.047935** **W80 10010.046115** **W80 10010.047710**	SOGX 040204-01 BK8425 SOGX 040204-01 BK7935 SOGX 040204-01 BK6115 SOGX 040204-01 BK7710	1	**W80 10010.048425** **W80 10010.047935** **W80 10010.048425** **W80 10010.047710**	SOGX 040204-01 BK8425 SOGX 040204-01 BK7935 SOGX 040204-01 BK8425 SOGX 040204-01 BK7710	1	
	W80 12010.048425 **W80 12010.047935** **W80 12010.046115** **W80 12010.047710**	SOGX 050204-01 BK8425 SOGX 050204-01 BK7935 SOGX 050204-01 BK6115 SOGX 050204-01 BK7710	1	**W80 12010.048425** **W80 12010.047935** **W80 12010.048425** **W80 12010.047710**	SOGX 050204-01 BK8425 SOGX 050204-01 BK7935 SOGX 050204-01 BK8425 SOGX 050204-01 BK7710	1	
	W80 18010.068425 **W80 18010.067935** **W80 18010.066115** **W80 18010.067710**	SOGX 060206-01 BK8425 SOGX 060206-01 BK7935 SOGX 060206-01 BK6115 SOGX 060206-01 BK7710	1	**W80 18010.068425** **W80 18010.067935** **W80 18010.068425** **W80 18010.067710**	SOGX 060206-01 BK8425 SOGX 060206-01 BK7935 SOGX 060206-01 BK8425 SOGX 060206-01 BK7710	1	
	W80 20010.088425 **W80 20010.087935** **W80 20010.086115** **W80 20010.087710**	SOGX 07T208-01 BK8425 SOGX 07T208-01 BK7935 SOGX 07T208-01 BK6115 SOGX 07T208-01 BK7710	1	**W80 20010.088425** **W80 20010.087935** **W80 20010.088425** **W80 20010.087710**	SOGX 07T208-01 BK8425 SOGX 07T208-01 BK7935 SOGX 07T208-01 BK8425 SOGX 07T208-01 BK7710	1	

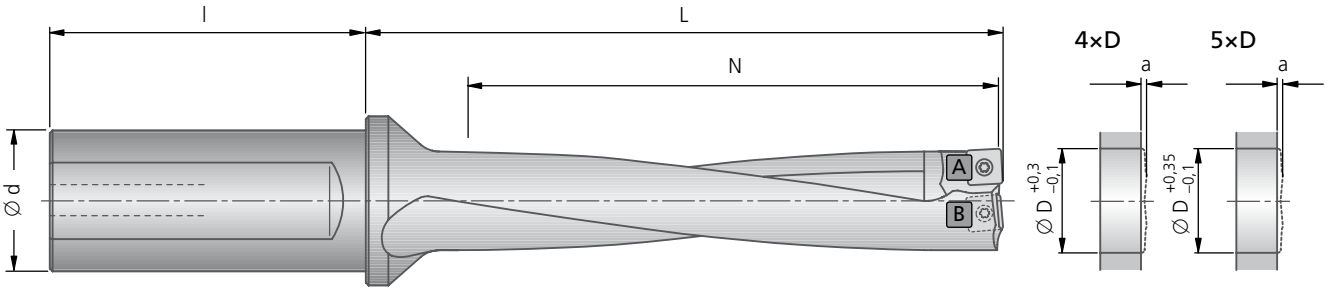
Supply includes: KUB Pentron ® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

KOMET KUB Pentron®

Ø 23,5 – 33,0 mm

Indexable insert drill



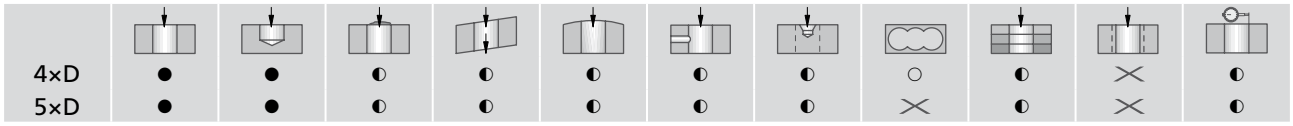


				4×D				5×D					
Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
23,5	24,0	2,4	32×60	U44 22350	96	116	0,51	U45 22350	120	140	0,54	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	
23,8 (0.937)*	24,3	2,4	32×60	U44 22380	96	116	0,51	U45 22380	120	140	0,55		
24,0	24,5	2,4	32×60	U44 22400	96	116	0,51	U45 22400	120	140	0,55		
24,5	25,0	2,4	32×60	U44 22450	100	121	0,54	U45 22450	125	146	0,59		
25,0 (0.985)	25,5	2,4	32×60	U44 22500	100	121	0,55	U45 22500	125	146	0,60		
25,4 (1.000)*	25,9	2,4	32×60	U44 22540	104	125	0,56	U45 22540	130	151	0,61		
25,5	26,0	2,4	32×60	U44 22550	104	125	0,56	U45 22550	130	151	0,61		
26,0	26,5	2,4	32×60	U44 22600	104	125	0,57	U45 22600	130	151	0,62		
26,2 (1.031)*	26,7	2,4	32x60	U44 22620	108	130	0,57	U45 22620	135	157	0,63	N00 57251 S3076-8IP 2,25 Nm	
26,5	27,0	2,4	32×60	U44 22650	108	130	0,57	U45 22650	135	157	0,63		
27,0 (1.062)	27,5	2,8	32×60	U44 22700	108	130	0,58	U45 22700	135	157	0,64		
27,5	28,0	2,8	32×60	U44 22750	112	134	0,60	U45 22750	140	162	0,66		
28,0	28,5	2,8	32×60	U44 22800	112	134	0,62	U45 22800	140	162	0,68		
28,2 (1.109)*	28,6	2,8	32x60	U44 22820	116	139	0,63	U45 22820	145	168	0,70		
28,5	29,0	2,8	32×60	U44 22850	116	139	0,64	U45 22850	145	168	0,71		
28,6 (1.125)*	29,1	2,8	32x60	U44 22860	116	139	0,64	U45 22860	145	168	0,71		
29,0	29,5	2,8	32×60	U44 22900	116	139	0,65	U45 22900	145	168	0,72		
29,4 (1.156)*	29,9	2,8	32x60	U44 22940	120	143	0,66	U45 22940	150	173	0,73		
29,5	30,0	2,8	32×60	U44 22950	120	143	0,66	U45 22950	150	173	0,73		
30,0	30,5	2,8	32×60	U44 23000	120	143	0,67	U45 23000	150	173	0,75		
30,2 (1.187)*	30,7	2,8	40x68	U44 33020	124	148	0,89	U45 33020	155	179	0,99	N00 57261 S3575-15IP 2,8 Nm	
30,5	31,0	2,8	40x68	U44 33050	124	148	0,90	U45 33050	155	179	1,00		
30,9 (1.218)*	31,4	2,8	40x68	U44 33090	124	148	0,91	U45 33090	155	179	1,01		
31,0	31,5	2,8	40x68	U44 33100	124	148	0,92	U45 33100	155	179	1,01		
31,5	32,0	2,8	40x68	U44 33150	128	152	0,96	U45 33150	160	184	1,05		
31,8 (1.250)*	32,3	2,8	40x68	U44 33180	128	152	0,97	U45 33180	160	184	1,06		
32,0	32,5	2,8	40x68	U44 33200	128	152	0,97	U45 33200	160	184	1,06		
32,5 (1.281)	33,0	2,8	40x68	U44 33250	132	157	1,01	U45 33250	165	190	1,10		
33,0	33,5	2,8	40x68	U44 33300	132	157	1,02	U45 33300	165	190	1,12		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany



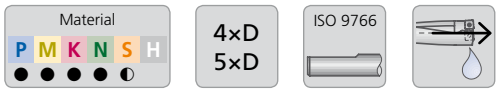
	Basic recommendation						
	Indexable insert A -01			Indexable insert B -01			for workpiece material
	Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H
	W80 24010.088425 **W80 24010.087935** **W80 24010.086115** **W80 24010.087710**	SOGX 080308-01 BK8425 SOGX 080308-01 BK7935 SOGX 080308-01 BK6115 SOGX 080308-01 BK7710	1	**W80 24010.088425** **W80 24010.087935** **W80 24010.088425** **W80 24010.087710**	SOGX 080308-01 BK8425 SOGX 080308-01 BK7935 SOGX 080308-01 BK8425 SOGX 080308-01 BK7710	1	
	W80 28010.088425 **W80 28010.087935** **W80 28010.086115** **W80 28010.087710**	SOGX 09T308-01 BK8425 SOGX 09T308-01 BK7935 SOGX 09T308-01 BK6115 SOGX 09T308-01 BK7710	1	**W80 28010.088425** **W80 28010.087935** **W80 28010.088425** **W80 28010.087710**	SOGX 09T308-01 BK8425 SOGX 09T308-01 BK7935 SOGX 09T308-01 BK8425 SOGX 09T308-01 BK7710	1	
	W80 32010.088425 **W80 32010.087935** **W80 32010.086115** **W80 32010.087710**	SOGX 100408-01 BK8425 SOGX 100408-01 BK7935 SOGX 100408-01 BK6115 SOGX 100408-01 BK7710	1	**W80 32010.088425** **W80 32010.087935** **W80 32010.088425** **W80 32010.087710**	SOGX 100408-01 BK8425 SOGX 100408-01 BK7935 SOGX 100408-01 BK8425 SOGX 100408-01 BK7710	1	

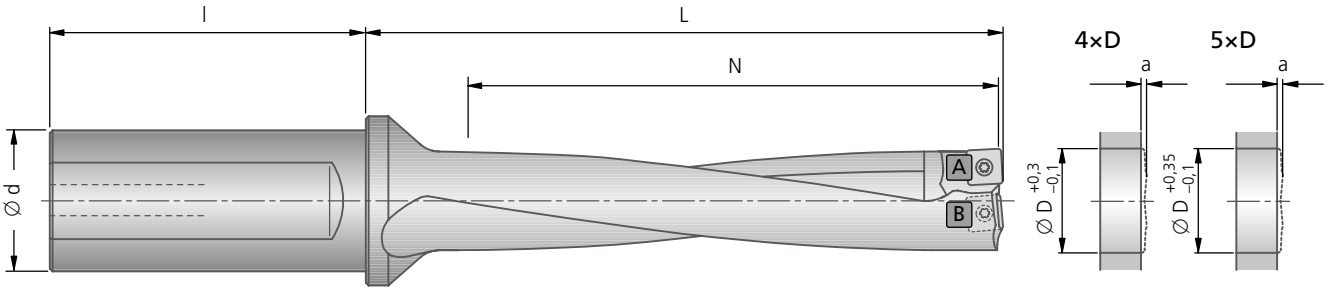
Supply includes: KUB Pentron ® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

KOMET KUB Pentron®

Ø 33,2 – 42,0 mm

Indexable insert drill



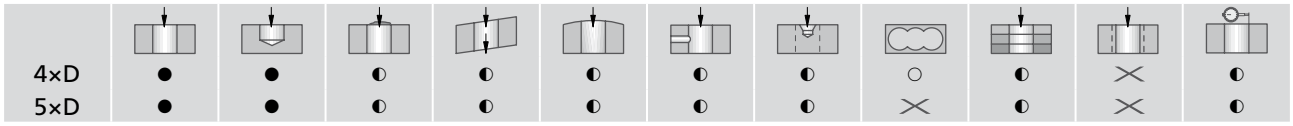


				4×D				5×D					
Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
33,2	33,7	3,0	40x68	**U44 33320**	136	161	1,01	**U45 33320**	170	195	1,13	**N00 57261** S3575-15IP 2,8 Nm	
33,3 (1.312)*	33,8	3,0	40x68	**U44 33330**	136	161	1,02	**U45 33330**	170	195	1,13		
33,5	34,0	3,0	40x68	**U44 33350**	136	161	1,03	**U45 33350**	170	195	1,14		
33,7 (1.328)*	34,2	3,0	40x68	**U44 33370**	136	161	1,03	**U45 33370**	170	195	1,14		
34,0	34,5	3,0	40x68	**U44 33400**	136	161	1,04	**U45 33400**	170	195	1,15		
34,5	35,0	3,0	40x68	**U44 33450**	140	166	1,08	**U45 33450**	175	201	1,19		
34,9 (1.375)*	35,4	3,0	40x68	**U44 33490**	140	166	1,09	**U45 33490**	175	201	1,21		
35,0	35,5	3,0	40x68	**U44 33500**	140	166	1,09	**U45 33500**	175	201	1,21		
35,5	36,0	3,0	40x68	**U44 33550**	144	170	1,13	**U45 33550**	180	206	1,25		
36,0	36,5	3,0	40x68	**U44 33600**	144	170	1,14	**U45 33600**	180	206	1,27		
36,5 (1.437)	37,0	3,0	40x68	**U44 33650**	148	175	1,18	**U45 33650**	185	212	1,32		
37,0	37,5	3,0	40x68	**U44 33700**	148	175	1,20	**U45 33700**	185	212	1,34		
37,3 (1.469)*	37,8	3,0	40x68	**U44 33730**	152	179	1,22	**U45 33730**	190	217	1,36	**N00 57301** S45100-20IP 6,25 Nm	
37,5	38,0	3,0	40x68	**U44 33750**	152	179	1,23	**U45 33750**	190	217	1,37		
38,0	38,5	3,0	40x68	**U44 33800**	152	179	1,24	**U45 33800**	190	217	1,39		
38,1 (1.500)*	38,6	3,0	40x68	**U44 33810**	156	184	1,27	**U45 33810**	195	223	1,41		
38,5	39,0	3,0	40x68	**U44 33850**	156	184	1,28	**U45 33850**	195	223	1,43		
39,0	39,5	3,0	40x68	**U44 33900**	156	184	1,29	**U45 33900**	195	223	1,45		
39,2	39,7	3,0	40x68	**U44 33920**	160	188	1,33	**U45 33920**	200	228	1,49		
39,5	40,0	3,0	40x68	**U44 33950**	160	188	1,34	**U45 33950**	200	228	1,50		
39,7 (1.562)*	40,2	3,0	40x68	**U44 33970**	160	188	1,34	**U45 33970**	200	228	1,51		
40,0	40,5	3,0	40x68	**U44 34000**	160	188	1,35	**U45 34000**	200	228	1,52		
40,5	41,0	3,0	40x68	**U44 34050**	164	193	1,40	**U45 34050**	205	234	1,58		
41,0	41,5	3,0	40x68	**U44 34100**	164	193	1,42	**U45 34100**	205	234	1,61		
41,3 (1.625)*	41,8	3,0	40x68	**U44 34130**	168	197	1,46	**U45 34130**	210	239	1,66		
41,5	42,0	3,0	40x68	**U44 34150**	168	197	1,47	**U45 34150**	210	239	1,67		
42,0	42,5	3,0	40x68	**U44 34200**	168	197	1,49	**U45 34200**	210	239	1,70		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany



4×D	●	●	◐	◐	◐	◐	◐	○	◐	✕	◐
5×D	●	●	◐	◐	◐	◐	◐	✕	◐	✕	◐

Basic recommendation							
Indexable insert A -01			Indexable insert B -01			for workpiece material	
Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H	
W80 38010.088425	SOGX 110408-01 BK8425	1	**W80 38010.088425**	SOGX 110408-01 BK8425	1		
W80 38010.087935	SOGX 110408-01 BK7935		**W80 38010.087935**	SOGX 110408-01 BK7935			
W80 38010.086115	SOGX 110408-01 BK6115		**W80 38010.088425**	SOGX 110408-01 BK8425			
W80 38010.087710	SOGX 110408-01 BK7710		**W80 38010.087710**	SOGX 110408-01 BK7710			
W80 42010.088425	SOGX 120408-01 BK8425	1	**W80 42010.088425**	SOGX 120408-01 BK8425	1		
W80 42010.087935	SOGX 120408-01 BK7935		**W80 42010.087935**	SOGX 120408-01 BK7935			
W80 42010.086115	SOGX 120408-01 BK6115		**W80 42010.088425**	SOGX 120408-01 BK8425			
W80 42010.087710	SOGX 120408-01 BK7710		**W80 42010.087710**	SOGX 120408-01 BK7710			

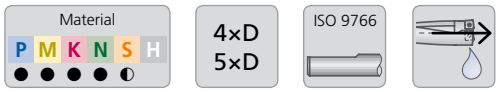
Supply includes: KUB Pentron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

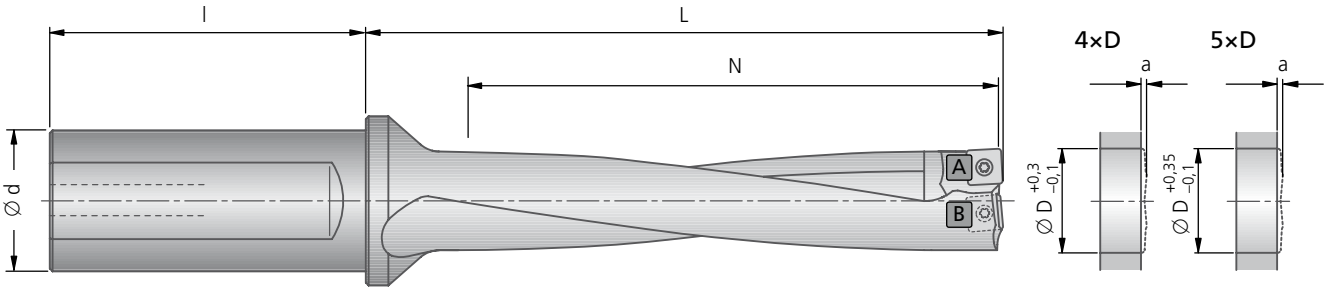
Guideline values for solid drilling: pages 96-99 / alternative inserts: page 100.

KOMET KUB Pentron®

Ø 42,1 – 46,0 mm

Indexable insert drill



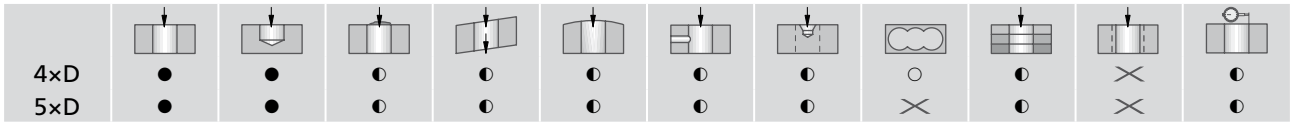


				4×D				5×D					
Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	Clamping screw Order No. Article	
42,1 (1.656)*	42,6	3,0	40x68	**U44 34210**	172	202	1,52	**U45 34210**	215	245	1,73		
42,5	43,0	3,0	40x68	**U44 34250**	172	202	1,53	**U45 34250**	215	245	1,74		
42,9 (1.687)*	43,4	3,0	40x68	**U44 34290**	172	202	1,54	**U45 34290**	215	245	1,76		
43,0	43,5	3,0	40x68	**U44 34300**	172	202	1,54	**U45 34300**	215	245	1,76		
43,5	44,0	3,0	40x68	**U44 34350**	176	206	1,60	**U45 34350**	220	250	1,82	**N00 57301** S45100-20IP 6,25 Nm	
44,0	44,5	3,0	40x68	**U44 34400**	176	206	1,62	**U45 34400**	220	250	1,85		
44,5 (1.750)	45,0	3,3	40x68	**U44 34450**	180	211	1,68	**U45 34450**	225	256	1,92		
45,0	45,5	3,3	40×68	**U44 34500**	180	211	1,70	**U45 34500**	225	256	1,96		
45,5	46,0	3,3	40×68	**U44 34550**	184	215	1,76	**U45 34550**	230	261	2,03		
46,0	46,5	3,3	40×68	**U44 34600**	184	215	1,79	**U45 34600**	230	261	2,07		

All intermediate dimensions can be supplied quickly on request.
* Inch measurements marked with an asterisk (*) can be supplied quickly.

● very good | ◐ good | ○ possible: see technical notes, page 101 | ✕ not possible

Patent applied for inside and outside Germany



4×D	●	●	◐	◐	◐	◐	◐	○	◐	✕	◐
5×D	●	●	◐	◐	◐	◐	◐	✕	◐	✕	◐

	Basic recommendation						
	Indexable insert A -01			Indexable insert B -01			for workpiece material
	Order No. ▽▽Size	ISO code	Piece	Order No. ▽▽Size	ISO code	Piece	P M K N S H
	W80 46010.088425	SOGX 130508-01 BK8425	1	**W80 46010.088425**	SOGX 130508-01 BK8425	1	
	W80 46010.087935	SOGX 130508-01 BK7935		**W80 46010.087935**	SOGX 130508-01 BK7935		
	W80 46010.086115	SOGX 130508-01 BK6115		**W80 46010.088425**	SOGX 130508-01 BK8425		
	W80 46010.087710	SOGX 130508-01 BK7710		**W80 46010.087710**	SOGX 130508-01 BK7710		

Supply includes: KUB Pentron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter 8.

Guideline values for solid drilling: pages 96-99 / alternative inserts: page 100.

Recommended application areas

Guideline values for solid drilling						Cutting speed v_c (m/min)														
						4×D														
						 BK8425			 BK7935			 BK6425			 BK6115			 BK7710		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	**260**	320	200	**250**	300	270	**320**	370	250	**300**	350		–	
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	**270**	300	250	**270**	300	250	**280**	320	250	**270**	300		–	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	200	**260**	320	160	**220**	280	270	**320**	370	250	**300**	350		–	
P	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	**180**	220	120	**160**	200	220	**260**	300	200	**240**	280		–	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	120	**160**	200	100	**140**	180	190	**220**	250	170	**200**	230		–	
P	4.1			HSS		50	**70**	90	40	**60**	80	80	**100**	120	70	**90**	110		–	
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							on request								
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							on request								
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	150	**170**	210	140	**180**	220	190	**220**	250	210	**240**	270		–	
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	120	**150**	200	120	**160**	200	170	**200**	230	190	**220**	250		–	
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	110	**150**	190	120	**160**	200	170	**200**	230	190	**220**	250		–	
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	140	**180**	220	120	**160**	200	150	**200**	250	160	**240**	320		–	
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	120	**150**	180	100	**130**	160	100	**140**	180	100	**140**	180		–	
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	**180**	220	120	**160**	200	120	**160**	200	120	**160**	200		–	
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	120	**150**	180	110	**130**	160	100	**140**	180	100	**140**	180		–	
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	110	**140**	170	90	**120**	150	90	**120**	150	90	**120**	150		–	
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	110	**140**	170	90	**120**	150	90	**120**	150	90	**120**	150		–	
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	90	**110**	130	80	**100**	120	70	**100**	130	70	**100**	130		–	
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150	**200**	250	150	**200**	250		–			–		150	**250**	350
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	200	**300**	400	200	**300**	400		–			–		250	**350**	450
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	**400**	500	300	**400**	500		–			–		300	**500**	700
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	180	**250**	320	180	**250**	320		–			–		210	**280**	350
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	150	**200**	250	150	**200**	250		–			–		140	**220**	300
H	15.0	1400		hardened steels < 45 HRC								on request								
H	16.0	1800		hardened steels > 45 HRC								on request								

Cutting values shown are relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany

| | Feed f (mm/rev) | | |

Recommended application areas

Guideline values for solid drilling						Cutting speed v_c (m/min)														
						5×D														
						 BK8425			 BK7935			 BK6425			 BK6115			 BK7710		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	**260**	320	200	**250**	300	270	**320**	370	250	**300**	350		–	
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	**270**	300	250	**270**	300	250	**280**	320	250	**270**	300		–	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	200	**260**	320	160	**220**	280	270	**320**	370	250	**300**	350		–	
P	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	**180**	220	120	**160**	200	220	**260**	300	200	**240**	280		–	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	120	**160**	200	100	**140**	180	190	**220**	250	170	**200**	230		–	
P	4.1			HSS		50	**70**	90	40	**60**	80	80	**100**	120	70	**90**	110		–	
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							on request								
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							on request								
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	150	**170**	210	140	**180**	220	190	**220**	250	210	**240**	270		–	
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	120	**150**	200	120	**160**	200	170	**200**	230	190	**220**	250		–	
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	110	**150**	190	120	**160**	200	170	**200**	230	190	**220**	250		–	
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	140	**180**	220	120	**160**	200	150	**200**	250	160	**240**	320		–	
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	120	**150**	180	100	**130**	160	100	**140**	180	100	**140**	180		–	
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	**180**	220	120	**160**	200	120	**160**	200	120	**160**	200		–	
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	120	**150**	180	110	**130**	160	100	**140**	180	100	**140**	180		–	
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	110	**140**	170	90	**120**	150	90	**120**	150	90	**120**	150		–	
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	110	**140**	170	90	**120**	150	90	**120**	150	90	**120**	150		–	
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	90	**110**	130	80	**100**	120	70	**100**	130	70	**100**	130		–	
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150	**200**	250	150	**200**	250		–			–		150	**250**	350
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	200	**300**	400	200	**300**	400		–			–		250	**350**	450
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	**400**	500	300	**400**	500		–			–		300	**500**	700
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	180	**250**	320	180	**250**	320		–			–		210	**280**	350
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	150	**200**	250	150	**200**	250		–			–		140	**220**	300
H	15.0	1400		hardened steels < 45 HRC								on request								
H	16.0	1800		hardened steels > 45 HRC								on request								

Cutting values shown are relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany

| | Feed f (mm/rev) | | |

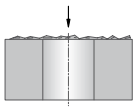
KOMET KUB Pentron®

Alternative inserts

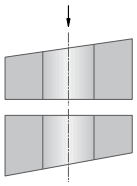
for better chip control			
Ø D	Indexable insert Order No.	ISO code	for workpiece material P M K N S H
14,0 – 16,0	W80 10030.048430	SOGX 040204-03 BK8430	◐ ◑
16,1 – 18,0	W80 12030.048430	SOGX 050204-03 BK8430	◐ ◑
18,1 – 20,0	W80 18030.068430	SOGX 060206-03 BK8430	◐ ◑
20,1 – 23,0	W80 20030.088430	SOGX 07T208-03 BK8430	◐ ◑
23,1 – 26,0	W80 24030.088430	SOGX 080308-03 BK8430	◐ ◑
26,1 – 30,0	W80 28030.088430	SOGX 09T308-03 BK8430	◐ ◑
30,1 – 33,0	W80 32030.088430	SOGX 100408-03 BK8430	◐ ◑
33,1 – 37,0	W80 38030.088430	SOGX 110408-03 BK8430	◐ ◑
37,1 – 42,0	W80 42030.088430	SOGX 120408-03 BK8430	◐ ◑
42,1 – 46,0	W80 46030.088430	SOGX 130508-03 BK8430	◐ ◑

for higher cutting speed			
Ø D	Indexable insert Order No.	ISO code	for workpiece material P M K N S H
14,0 – 16,0	W80 10010.046425 W80 10010.046115	SOGX 040204-01 BK6425 SOGX 040204-01 BK6115 ⚠	◐ ◑
16,1 – 18,0	W80 12010.046425 W80 12010.046115	SOGX 050204-01 BK6425 SOGX 050204-01 BK6115 ⚠	◐ ◑
18,1 – 20,0	W80 18010.066425 W80 18010.066115	SOGX 060206-01 BK6425 SOGX 060206-01 BK6115 ⚠	◐ ◑
20,1 – 23,0	W80 20010.086425 W80 20010.086115	SOGX 07T208-01 BK6425 SOGX 07T208-01 BK6115 ⚠	◐ ◑
23,1 – 26,0	W80 24010.086425 W80 24010.086115	SOGX 080308-01 BK6425 SOGX 080308-01 BK6115 ⚠	◐ ◑
26,1 – 30,0	W80 28010.086425 W80 28010.086115	SOGX 09T308-01 BK6425 SOGX 09T308-01 BK6115 ⚠	◐ ◑
30,1 – 33,0	W80 32010.086425 W80 32010.086115	SOGX 100408-01 BK6425 SOGX 100408-01 BK6115 ⚠	◐ ◑
33,1 – 37,0	W80 38010.086425 W80 38010.086115	SOGX 110408-01 BK6425 SOGX 110408-01 BK6115 ⚠	◐ ◑
37,1 – 42,0	W80 42010.086425 W80 42010.086115	SOGX 120408-01 BK6425 SOGX 120408-01 BK6115 ⚠	◐ ◑
42,1 – 46,0	W80 46010.086425 W80 46010.086115	SOGX 130508-01 BK6425 SOGX 130508-01 BK6115 ⚠	◐ ◑

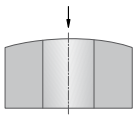
⚠ Note: Only use this insert with KUB Pentron® as an external cutting edge:
SOGX ... -01 (geometry 01) in BK6115, internal cutting edge in BK8425

1. 

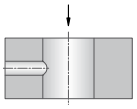
Starting on uneven surfaces (cast surfaces)
- when inserting and withdrawing the drill, reduce the feed rate by approx. 30-50% (depending on component stability, clamping and surface quality)

2. 

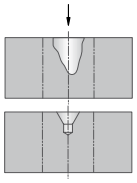
Starting on angled surfaces / angled bore exit
- when inserting the drill, reduce the feed rate by approx. 30-60% until full diameter is reached
- when withdrawing the drill after interruption to the cut, reduce the feed rate by approx. 30-60%
- use tough insert and stable corner radius

3. 

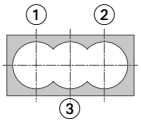
Starting on cambered surfaces
- when inserting the drill, reduce the feed rate by approx. 30-60% until full diameter is reached
- when withdrawing the drill after interruption to the cut, reduce the feed rate by approx. 30-60% (depending on component stability and clamping).

4. 

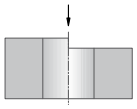
Drilling through a cross bore
- when inserting and withdrawing the drill, reduce the feed rate by approx. 30-50% (depending on component stability, clamping and surface quality)
- in the vicinity of the cross bore, reduce the feed rate by 50%
- watch for chip jamming around tool
- use tough insert and stable corner radius

5. 

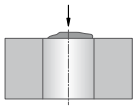
Starting on a groove or large centering bore
- when inserting the drill, reduce the feed rate by approx. 30-50% until centring depth is reached
- reduce feed rate
- use tough insert for internal cutting edge
- spot face if required

6. 

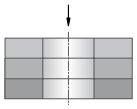
Drilling a chamber
- first bore Nos. 1 + 2, then bore No. 3
- check distribution is symmetrical
- avoid chip jams
- use tough insertand stable corner radius
- Continuous drilling: when inserting the drill, reduce the feed rate by approx. 30-60% (depending on component stability and clamping)
- Interruption to cut: when drilling the cut interruption, reduce the feed rate by approx. 50-60%

7. 

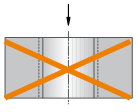
Starting on an edge
- when inserting and withdrawing the drill, reduce the feed rate by approx. 30-50% (depending on component stability, clamping and surface quality)
- use tough insert and stable corner radius

8. 

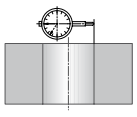
Starting on a welded seam
- when inserting the drill, reduce the feed rate by approx. 30-60% until full diameter is reached
- when withdrawing the drill after interruption to the cut, reduce the feed rate by approx. 30-60% (depending on component stability and clamping).

9. 

Drilling through stacked plates
- good workpiece clamping required
- max. gap = 1 mm

10. 

Roughing
- not possible

11. 

Adjustable
- when inserting and withdrawing the drill reduce the feed rate by approx. 30-50% until full bore diameter is reached (depending on component stability and clamping).
- use tough insert and stable corner radius

KOMET KUB Trigon® | KUB® drill — Continuous drilling to 4×D

As early as 1977, KOMET® introduced the world's first indexable insert solid drill bit without an HSS centring tip, thereby laying the foundation for the triumphal procession of the KOMET KUB® drills.

It was based on the familiar Unisix® indexable insert with three cutting edges. Thanks to its 84° edge angle and variable fitting angle, the indexable insert enables ideal balancing of the thrust forces. This has significantly contributed to the resounding success of the new solid drill bit tools.

In just a few years, the KOMET KUB Trigon® indexable insert drills have become the most commonly used solid drill bit tools in the diameter ranges from 12 millimetres to a maximum of 350 millimetres, with drilling depths of up to 4×D.





BENEFITS for you:

- Flexibility in application with various geometries and coatings
- Close bore tolerances up to IT 8
- Extremely good surface finish can be achieved
- Machining to production dimension without separate fine machining
- Universal use – suitable for rotating and stationary operations

KOMET KUB Trigon® — Page

ABS® connection

∅ 14 – 44 mm, R.H. cutting
Drilling depth 2×D | 3×D | 4×D 104 – 105
Guideline values for solid drilling 106 – 107
Alternative inserts 121

Cylindrical shank (combination shank)

∅ 12 – 44 mm, R.H. cutting
Drilling depth 2×D | 3×D | 4×D 108 – 111
Guideline values for solid drilling 112 – 113
Alternative inserts 121

Cylindrical shank (parallel clamping surface)

∅ 14 – 54 mm, R.H. cutting
Drilling depth 3×D | 4×D 114 – 119
Guideline values for solid drilling 120
Alternative inserts 121

ABS® connection

∅ 14 – 44 mm, L.H. cutting
Drilling depth 3×D | 4×D 122 – 123
Guideline values for solid drilling 124
Alternative inserts 125

Cylindrical shank (parallel clamping surface)

∅ 14 – 54 mm, L.H. cutting
Drilling depth 3×D 126 – 127
Guideline values for solid drilling 128
Alternative inserts 129

KOMET KUB®

ABS® connection

∅ 38,5 – 82 mm, R.H. cutting, adjustable
Drilling depth 3×D 130 – 131
Guideline values for solid drilling 132
Alternative inserts 133

ABS® connection

∅ 45 – 82 mm, R.H. cutting
Drilling depth 2×D | 3×D 134 – 135
Guideline values for solid drilling 136
Alternative inserts 137

Technical informations 138 – 140

Problems → Causes → Solutions 141

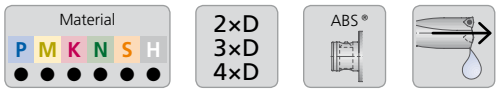


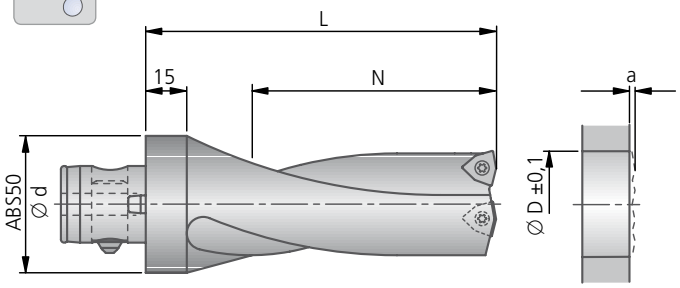
Milling cartridge for KUB Trigon® see chapter 6

KOMET KUB Trigon®

Ø 14 – 44 mm

Indexable insert drill





				2×D				3×D			
Ø D	*max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg
14,0	15,0	1,3	50	V30 31403	28	63	0,46	V30 71403	42	77	0,47
15,0	16,0	1,3	50	V30 31503	30	65	0,46	V30 71503	45	80	0,47
15,5	16,5	1,3	50	V30 31551	32	67	0,46	V30 71551	48	83	0,47
16,0	17,0	1,3	50	V30 31601	32	67	0,47	V30 71601	48	83	0,48
17,0	18,0	1,3	50	V30 31701	34	69	0,47	V30 71701	51	86	0,48
17,5	18,5	1,3	50	V30 31751	36	71	0,48	V30 71751	54	89	0,49
18,0	19,0	1,3	50	V30 31801	36	71	0,48	V30 71801	54	89	0,49
18,5	19,0	1,3	50	V30 31851	38	73	0,48	V30 71851	57	92	0,50
19,0	20,0	1,3	50	V30 31901	38	73	0,48	V30 71901	57	92	0,48
19,5	20,0	1,3	50	V30 31951	40	75	0,48	V30 71951	60	95	0,51
20,0	21,0	1,5	50	V30 32001	40	75	0,50	V30 72001	60	95	0,52
21,0	22,0	1,5	50	V30 32101	42	77	0,51	V30 72101	63	98	0,53
22,0	23,0	1,5	50	V30 32201	44	79	0,52	V30 72201	66	101	0,52
22,5	23,5	1,5	50	V30 32251	46	81	0,53	V30 72251	69	104	0,56
23,0	24,0	1,5	50	V30 32301	46	81	0,53	V30 72301	69	104	0,59
24,0	25,0	1,5	50	V30 32401	48	83	0,55	V30 72401	72	107	0,60
24,5	25,5	1,5	50	V30 32451	50	85	0,55	V30 72451	75	110	0,60
25,0	26,0	1,7	50	V30 32501	50	85	0,62	V30 72501	75	110	0,60
26,0	28,0	1,7	50	V30 32601	52	87	0,64	V30 72601	78	113	0,61
26,5	28,5	1,7	50	V30 32651	54	89	0,57	V30 72651	81	116	0,63
27,0	30,0	1,7	50	V30 32701	54	89	0,58	V30 72701	81	116	0,63
28,0	31,0	1,7	50	V30 32801	56	91	0,59	V30 72801	84	119	0,65
28,5	31,5	1,7	50	V30 32851	58	93	0,60	V30 72851	87	122	0,67
29,0	32,0	1,7	50	V30 32901	58	93	0,61	V30 72901	87	122	0,67
29,5	32,5	1,7	50	V30 32951	60	95	0,62	V30 72951	90	125	0,69
30,0	32,5	1,7	50	V30 33001	60	100	0,74	V30 73001	90	130	0,79
31,0	33,5	1,7	50	V30 33101	62	102	0,69	V30 73101	93	133	0,79
31,5	33,5	1,7	50	V30 33151	64	104	0,70	V30 73151	96	136	0,78
32,0	34,0	1,7	50	V30 33201	64	104	0,71	V30 73201	96	136	0,8
33,0	34,0	1,7	50	V30 33301	66	106	0,82	V30 73301	99	139	0,84
34,0	35,0	1,7	50	V30 33401	68	108	0,78	V30 73401	102	142	0,85
35,0	36,0	1,7	50	V30 33501	70	110	0,77	V30 73501	105	145	0,89
36,0	37,0	1,7	50	V30 33601	72	112	0,79	V30 73601	108	148	0,93
37,0	40,0	2,0	50	V30 33701	74	124	0,89	V30 73701	111	161	1,04
37,5	40,5	2,0	50	V30 33751	76	126	0,9	V30 73751	114	164	1,02
38,0	41,0	2,0	50	V30 33801	76	126	0,92	V30 73801	114	164	1,08
39,0	42,0	2,0	50	V30 33901	78	128	0,95	V30 73901	117	167	1,13
39,5	42,5	2,0	50	V30 33951	80	130	0,96	V30 73951	120	170	1,14
40,0	43,0	2,0	50	V30 34001	80	130	0,98	V30 74001	120	170	1,17
41,0	44,0	2,0	50	V30 34101	82	132	1,10	V30 74101	123	173	1,22
42,0	45,0	2,0	50	V30 34201	84	134	1,10	V30 74201	126	176	1,27
43,0	45,0	2,0	50	V30 34301	86	136	1,10	V30 74301	129	179	1,33
44,0	45,0	2,0	50	V30 34401	88	138	1,13	V30 74401	132	182	1,41

Any **intermediate dimensions** from ∅ 14 – 44 mm and **inch dimensions** are available on request.

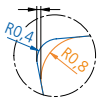
* Adjustment device see chapter 5

Patent applied for inside and outside Germany

2×D	●	●	●	●	●	●	◐	●	✕	◐	◐
3×D	●	●	◐	◐	◐	◐	◐	◐	✕	○	◐
4×D	●	●	○	○	○	○	○	○	✕	✕	◐

● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



	4×D					Basic recommendation				
					Clamping screw	Indexable insert -01 -11			for workpiece material	
Ø D	Order No.	N	L	kg	Order No. Article	Order No. ▽▽Size	ISO code	Piece	P M K N S H	
14,0	V30 91403	56	91	0,47	N00 56041 S/M2×4,3-6IP 0,62 Nm	W29 10010.048425 W29 10010.047930 W29 10010.0462 W29 10110.0477	WOEX 030204-01 BK8425 WOEX 030204-01 BK7930 WOEX 030204-01 BK62 WOEX 030204-11 BK77	2	● ● ● ● ● ○	
15,0	V30 91503	60	95	0,48						
15,5	V30 91551	64	99	0,48						
16,0	V30 91601	64	99	0,49						
17,0	V30 91701	68	103	0,50						
17,5	V30 91751	72	107	0,50						
18,0	V30 91801	72	107	0,51						
18,5	V30 91851	76	111	0,52						
19,0	V30 91901	76	111	0,52						
19,5	V30 91951	80	115	0,52						
20,0	V30 92001	80	115	0,54	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	W29 18010.048425 W29 18010.047930 W29 18010.0462 W29 18110.0477	WOEX 040304-01 BK8425 WOEX 040304-01 BK7930 WOEX 040304-01 BK62 WOEX 040304-11 BK77	2	● ● ● ● ● ○	
21,0	V30 92101	84	119	0,56						
22,0	V30 92201	88	123	0,58						
22,5	V30 92251	92	127	0,55						
23,0	V30 92301	92	127	0,60						
24,0	V30 92401	96	131	0,62						
24,5	V30 92451	100	135	0,64						
25,0	V30 92501	100	135	0,63	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W29 24010.048425 W29 24010.047930 W29 24010.0462 W29 24110.0477	WOEX 05T304-01 BK8425 WOEX 05T304-01 BK7930 WOEX 05T304-01 BK62 WOEX 05T304-11 BK77	2	● ● ● ● ● ○	
26,0	V30 92601	104	139	0,66						
26,5	V30 92651	108	143	0,67						
27,0	V30 92701	108	143	0,72						
28,0	V30 92801	112	147	0,70						
28,5	V30 92851	116	151	0,73						
29,0	V30 92901	116	151	0,75						
29,5	V30 92951	120	155	0,76						
30,0	V30 93001	120	160	0,82						
31,0	V30 93101	124	164	0,86						
31,5	V30 93151	128	168	0,88						
32,0	V30 93201	128	168	0,91						
33,0	V30 93301	132	172	0,94						
34,0	V30 93401	136	176	0,97						
35,0	V30 93501	140	180	1,01						
36,0	V30 93601	144	184	1,06						
37,0	V30 93701	148	198	1,18	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W29 34010.048425 W29 34010.047930 W29 34010.0462 W29 34110.0477	WOEX 06T304-01 BK8425 WOEX 06T304-01 BK7930 WOEX 06T304-01 BK62 WOEX 06T304-11 BK77	2	● ● ● ● ● ○	
37,5	V30 93751	152	202	1,19						
38,0	V30 93801	152	202	1,22						
39,0	V30 93901	156	206	1,29						
39,5	V30 93951	160	210	1,32						
40,0	V30 94001	160	210	1,36						
41,0	V30 94101	164	214	1,43						
42,0	V30 94201	168	218	1,50						
43,0	V30 94301	172	222	1,52						
44,0	V30 94401	176	226	1,66						

Supply includes: KUB Trigon® drill with clamping screw.
Please order indexalbe insert separately. Screwdriver see chapter 8.

Guideline values for solid drilling: pages 106-107 / alternative inserts: page 121.

KOMET KUB Trigon®

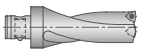
Ø 14 – 44 mm

Indexable insert drill with ABS® connection, R.H. cutting

Guideline values for solid drilling						v_c	Max. feed f (mm/rev)						
							2×D						
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,08	0,10	0,10	0,12	0,12	0,12	0,12
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,06	0,08	0,12	0,14	0,14	0,14	0,16
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,08	0,10	0,12	0,14	0,16	0,16	0,20
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	200	0,06	0,08	0,10	0,14	0,16	0,16	0,16
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,06	0,08	0,10	0,12	0,12	0,12	0,14
P	4.1			HSS		80	0,04	0,06	0,08	0,10	0,10	0,12	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,04	0,06	0,08	0,10	0,10	0,10	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,06	0,08	0,10	0,12	0,10	0,12	0,12
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	180	0,06	0,08	0,10	0,14	0,14	0,14	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	160	0,06	0,06	0,08	0,12	0,12	0,12	0,14
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	160	0,06	0,06	0,08	0,12	0,12	0,12	0,12
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,10	0,12	0,14	0,20	0,20	0,20	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,08	0,08	0,10	0,14	0,14	0,16	0,18
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,08	0,10	0,14	0,20	0,20	0,20	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,08	0,10	0,14	0,20	0,20	0,20	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,10	0,12	0,16	0,25	0,16	0,18	0,18
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,08	0,10	0,14	0,20	0,20	0,20	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,08	0,10	0,14	0,16	0,16	0,16	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,05	0,08	0,12	0,16	0,16	0,18	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	400	0,05	0,08	0,08	0,10	0,10	0,10	0,12
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,05	0,08	0,08	0,10	0,10	0,12	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,12	0,14	0,18	0,18	0,20	0,20
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,12	0,14	0,20	0,20	0,20	0,25
H	15.0	1400		hardened steels < 45 HRC		80	0,05	0,05	0,08	0,10	0,10	0,12	0,12
H	16.0	1800		hardened steels > 45 HRC		40	0,05	0,08	0,08	0,10	0,10	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



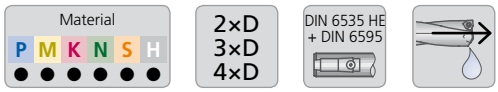
Max. feed f (mm/rev)

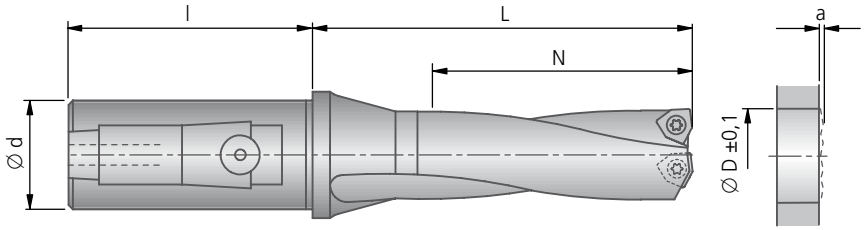
	3×D							4×D						
	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0
	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,06	0,08	0,08	0,10	0,10	0,10	0,10
	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,04	0,06	0,10	0,12	0,12	0,12	0,14
	0,08	0,10	0,12	0,14	0,16	0,16	0,20	0,06	0,08	0,10	0,12	0,14	0,14	0,18
	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,04	0,06	0,08	0,12	0,14	0,14	0,14
	0,06	0,08	0,10	0,12	0,12	0,12	0,14	0,04	0,06	0,08	0,10	0,10	0,10	0,12
	0,04	0,06	0,08	0,10	0,10	0,12	0,12	0,02	0,04	0,06	0,08	0,10	0,12	0,12
	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,02	0,04	0,06	0,08	0,08	0,08	0,08
	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,04	0,06	0,08	0,10	0,08	0,10	0,10
	0,06	0,08	0,10	0,14	0,14	0,14	0,14	0,04	0,06	0,08	0,12	0,12	0,12	0,12
	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,04	0,04	0,06	0,10	0,10	0,10	0,12
	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,04	0,04	0,06	0,10	0,10	0,10	0,10
	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,08	0,10	0,12	0,18	0,18	0,18	0,23
	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,06	0,06	0,08	0,12	0,12	0,14	0,16
	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,06	0,08	0,12	0,18	0,18	0,18	0,23
	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,06	0,08	0,12	0,18	0,18	0,18	0,23
	0,10	0,12	0,16	0,25	0,25	0,25	0,25	0,08	0,10	0,14	0,23	0,23	0,23	0,23
	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,06	0,08	0,12	0,18	0,18	0,18	0,23
	0,08	0,10	0,14	0,16	0,16	0,16	0,20	0,06	0,08	0,12	0,14	0,14	0,14	0,18
	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,03	0,06	0,10	0,14	0,14	0,16	0,18
	0,05	0,08	0,08	0,10	0,10	0,10	0,12	0,03	0,06	0,06	0,08	0,08	0,08	0,10
	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,03	0,06	0,06	0,08	0,08	0,10	0,10
	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,08	0,10	0,12	0,16	0,16	0,18	0,18
	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,08	0,10	0,12	0,18	0,18	0,18	0,23
	0,05	0,05	0,08	0,10	0,10	0,12	0,12	0,03	0,03	0,06	0,08	0,08	0,10	0,10
	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,03	0,06	0,06	0,08	0,08	0,08	0,08

KOMET KUB Trigon®

Ø 12 – 23 mm

Indexable insert drill





				2×D				3×D				
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	
12,0	13,0	1,3	20 × 50	V43 31202	24	48	0,17	V43 71202	36	60	0,17	
12,7	13,7	1,3	20 × 50	V43 31272	26	50	0,17	V43 71272	39	63	0,17	
13,0	14,0	1,3	20 × 50	V43 31302	26	50	0,17	V43 71302	39	63	0,18	
13,7	14,7	1,3	20 × 50	V43 31372	28	52	0,17	V43 71372	42	66	0,18	
14,0	15,0	1,3	20 × 50	V43 31404	28	52	0,17	V43 71404	42	66	0,20	
			25 × 56	–				V44 71404	42	66	0,24	
15,0	16,0	1,3	20 × 50	V43 31504	30	54	0,18	V43 71504	45	69	0,20	
			25 × 56	–				V44 71504	45	69	0,28	
15,5	16,5	1,3	20 × 50	V43 31552	32	56	0,18	V43 71552	48	72	0,20	
			25 × 56	–				V44 71552	48	72	0,28	
16,0	17,0	1,3	20 × 50	V43 31602	32	56	0,19	V43 71602	48	72	0,20	
			25 × 56	–				V44 71602	48	72	0,28	
17,0	18,0	1,3	20 × 50	V43 31702	34	58	0,19	V43 71702	51	75	0,20	
			25 × 56	–				V44 71702	51	75	0,29	
17,5	18,5	1,3	20 × 50	V43 31752	36	60	0,20	V43 71752	54	78	0,21	
			25 × 56	–				V44 71752	54	78	0,29	
18,0	19,0	1,3	20 × 50	V43 31802	36	60	0,20	V43 71802	54	78	0,21	
			25 × 56	–				V44 71802	54	78	0,29	
18,5	19,0	1,3	20 × 50	V43 31852	38	62	0,20	V43 71852	57	81	0,22	
			25 × 56	–				V44 71852	57	81	0,31	
19,0	19,5	1,3	20 × 50	V43 31902	38	62	0,20	V43 71902	57	81	0,22	
			25 × 56	–				V44 71902	57	81	0,31	
19,5	20,0	1,3	20 × 50	V43 31952	40	64	0,21	V43 71952	60	84	0,23	
			25 × 56	–				V44 71952	60	84	0,34	
20,0	21,0	1,5	20 × 50	V43 32002	40	64	0,25	V43 72002	60	84	0,23	
			25 × 56	V44 32002	40	64	0,30	V44 72002	60	84	0,32	
			32 × 60	–				V45 72002	60	84	0,51	
21,0	22,0	1,5	20 × 50	V43 32102	42	66	0,22	V43 72102	63	87	0,2	
			25 × 56	V44 32102	42	66	0,31	V44 72102	63	87	0,33	
			32 × 60	–				V45 72102	63	87	0,55	
22,0	23,0	1,5	20 × 50	V43 32202	44	68	0,22	V43 72202	66	90	0,26	
			25 × 56	V44 32202	44	68	0,32	V44 72202	66	90	0,35	
			32 × 60	–				V45 72202	66	90	0,54	
22,5	23,5	1,5	20 × 50	V43 32252	46	70	0,24	V43 72252	69	93	0,23	
			25 × 56	V44 32252	46	70	0,32	V44 72252	69	93	0,36	
			32 × 60	–				V45 72252	69	93	0,56	
23,0	24,0	1,5	20 × 50	V43 32302	46	70	0,24	V43 72302	69	93	0,28	
			25 × 56	V44 32302	46	70	0,33	V44 72302	69	93	0,36	
			32 × 60	–				V45 72302	69	93	0,56	

For other diameters see following page.

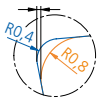
Any **intermediate dimensions** from ∅ 12 – 44 mm and **inch dimensions** are available on request.

Patent applied for inside and outside Germany

2×D	●	●	●	●	●	●	◐	●	✕	◐	◐
3×D	●	●	◐	◐	◐	◐	◐	◐	✕	○	◐
4×D	●	●	○	○	○	○	○	○	✕	✕	◐

● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



	4×D					Basic recommendation			
					Clamping screw	Indexable insert -01 -11			for workpiece material
∅ D	Order No.	N	L	kg	Order No. Article	Order No. ▽▽Size	ISO code	Piece	P M K N S H
12,0	–				**N00 56051** S/M1,8×3,8-5IP 0,38 Nm	**W29 04010.028425** **W29 04010.0279**	WOEX 020102-01 BK8425 WOEX 020102-01 BK79	2	● ● ● ● ●
12,7	–								
13,0	–								
13,7	–								
14,0	**V43 91404**	56	80	0,22	**N00 56041** S/M2×4,3-6IP 0,62 Nm	**W29 10010.048425** **W29 10010.047930** **W29 10010.0462** **W29 10110.0477**	WOEX 030204-01 BK8425 WOEX 030204-01 BK7930 WOEX 030204-01 BK62 WOEX 030204-11 BK77	2	● ● ● ● ● ○
	–								
15,0	**V43 91504**	60	84	0,20					
	–								
15,5	–								
	–								
16,0	**V43 91602**	64	88	0,19					
	–								
17,0	**V43 91702**	68	92	0,21					
	–								
17,5	–								
	–								
18,0	**V43 91802**	72	96	0,27					
	–								
18,5	–								
	–								
19,0	**V43 91902**	76	100	0,28					
	–								
19,5	–								
	–								
	–								
20,0	**V44 92002**	80	104	0,34	**N00 57553** S/M2,2×5,5-6IP 1,01 Nm	**W29 18010.048425** **W29 18010.047930** **W29 18010.0462** **W29 18110.0477**	WOEX 040304-01 BK8425 WOEX 040304-01 BK7930 WOEX 040304-01 BK62 WOEX 040304-11 BK77	2	● ● ● ● ● ○
	–								
	–								
21,0	**V44 92102**	84	108	0,36					
	–								
	–								
22,0	**V44 92202**	88	112	0,38					
	–								
	–								
22,5	–								
	–								
	–								
23,0	**V44 92302**	92	116	0,40					
	–								

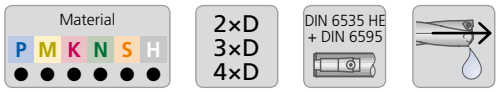
Supply includes: KUB Trigon® drill with clamping screw.
Please order indexalbe insert separately. Screwdriver see chapter 8.

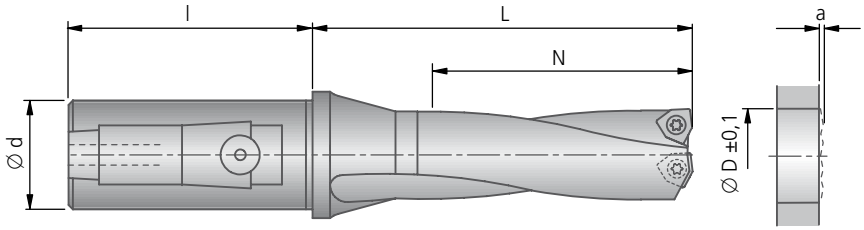
Guideline values for solid drilling: pages 112-113 / alternative inserts: page 121.

KOMET KUB Trigon®

Ø 24 – 44 mm

Indexable insert drill





				2×D				3×D				
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	
24,0	25,0	1,5	20 × 50	V43 32402	48	72	0,25	V43 72402	72	96	0,30	
			25 × 56	V44 32402	48	72	0,34	V44 72402	72	96	0,38	
			32 × 60	V45 32402	48	72	0,57	V45 72402	72	96	0,57	
24,5	25,5	1,7	20 × 50	V43 32452	50	74	0,26	V43 72452	75	99	0,31	
			25 × 56	V44 32452	50	74	0,35	V44 72452	75	99	0,40	
			32 × 60	V45 32452	50	74	0,54	V45 72452	75	99	0,58	
25,0	26,0	1,7	25 × 56	V44 32502	50	74	0,35	V44 72502	75	99	0,4	
			32 × 60	V45 32502	50	74	0,55	V45 72502	75	99	0,59	
26,0	28,0	1,7	25 × 56	V44 32602	52	76	0,37	V44 72602	78	102	0,44	
			32 × 60	V45 32602	52	76	0,56	V45 72602	78	102	0,61	
26,5	28,5	1,7	25 × 56	V44 32652	54	78	0,37	V44 72652	81	105	0,43	
			32 × 60	V45 32652	54	78	0,57	V45 72652	81	105	0,62	
27,0	30,0	1,7	25 × 56	V44 32702	54	78	0,40	V44 72702	81	105	0,44	
			32 × 60	V45 32702	54	78	0,57	V45 72702	81	105	0,62	
28,0	31,0	1,7	25 × 56	V44 32802	56	80	0,40	V44 72802	84	108	0,45	
			32 × 60	V45 32802	56	80	0,59	V45 72802	84	108	0,65	
28,5	31,5	1,7	25 × 56	V44 32852	58	82	0,40	V44 72852	87	111	0,47	
			32 × 60	V45 32852	58	82	0,59	V45 72852	87	111	0,66	
29,0	32,0	1,7	25 × 56	V44 32902	58	82	0,41	V44 72902	87	111	0,48	
			32 × 60	V45 32902	58	82	0,60	V45 72902	87	111	0,68	
29,5	32,5	1,7	25 × 56	V44 32952	60	84	0,42	V44 72952	90	114	0,49	
			32 × 60	V45 32952	60	84	0,61	V45 72952	90	114	0,69	
30,0	32,5	1,7	32 × 60	V45 33002	60	89	0,65	V45 73002	90	119	0,72	
31,0	33,5	1,7	32 × 60	V45 33102	62	91	0,67	V45 73102	93	122	0,76	
31,5	33,5	1,7	32 × 60	V45 33152	64	93	0,68	V45 73152	96	125	0,77	
32,0	34,0	1,7	32 × 60	V45 33202	64	93	0,69	V45 73202	96	125	0,78	
33,0	34,0	1,7	32 × 60	V45 33302	66	95	0,71	V45 73302	99	128	0,82	
34,0	35,0	1,7	32 × 60	V45 33402	68	97	0,73	V45 73402	102	131	0,84	
35,0	36,0	1,7	32 × 60	V45 33502	70	99	0,75	V45 73502	105	134	0,87	
36,0	37,0	1,7	32 × 60	V45 33602	72	101	0,78	V45 73602	108	137	0,91	
37,0	40,0	2,0	32 × 60	V45 33702	74	113	0,85	V45 73702	111	150	1,00	
37,5	40,5	2,0	32 × 60	V45 33752	76	115	0,86	V45 73752	114	153	1,01	
38,0	41,0	2,0	32 × 60	V45 33802	76	115	0,87	V45 73802	114	153	1,04	
39,0	42,0	2,0	32 × 60	V45 33902	78	117	0,90	V45 73902	117	156	1,09	
39,5	42,5	2,0	32 × 60	V45 33952	80	119	0,92	V45 73952	120	159	1,10	
40,0	43,0	2,0	32 × 60	V45 34002	80	119	0,94	V45 74002	120	159	1,12	
41,0	44,0	2,0	32 × 60	V45 34102	82	121	0,98	V45 74102	123	162	1,20	
42,0	45,0	2,0	32 × 60	V45 34202	84	123	1,04	V45 74202	126	165	1,25	
43,0	45,0	2,0	32 × 60	V45 34302	86	125	1,10	V45 74302	129	168	1,32	
44,0	45,0	2,0	32 × 60	V45 34402	88	127	1,13	V45 74402	132	171	1,39	

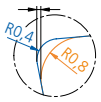
Any **intermediate dimensions** from ∅ 12 – 44 mm and **inch dimensions** are available on request.

Patent applied for inside and outside Germany

2×D	●	●	●	●	●	●	◐	●	✕	◐	◐
3×D	●	●	◐	◐	◐	◐	◐	◐	✕	○	◐
4×D	●	●	○	○	○	○	○	○	✕	✕	◐

● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



	4×D					Basic recommendation			
					Clamping screw	Indexable insert -01 -11			for workpiece material
∅ D	Order No.	N	L	kg	Order No. Article	Order No. ▽▽Size	ISO code	Piece	P M K N S H
24,0	–				N00 57553 S/M2,2×5,5-6IP 1,01 Nm	W29 18010.048425 W29 18010.047930 W29 18010.0462 W29 18110.0477	WOEX 040304-01 BK8425 WOEX 040304-01 BK7930 WOEX 040304-01 BK62 WOEX 040304-11 BK77	2	● ● ● ● ● ○
	V44 92402	96	120	0,45					
	–								
24,5	–								
	V44 92452	100	124	0,43					
	–								
25,0	–				N00 57511 S/M2,5×7,2-8IP 1,28	W29 24010.048425 W29 24010.047930 W29 24010.0462 W29 24110.0477	WOEX 05T304-01 BK8425 WOEX 05T304-01 BK7930 WOEX 05T304-01 BK62 WOEX 05T304-11 BK77	2	● ● ● ● ● ○
	V45 92502	100	124	0,63					
26,0	–								
	V45 92602	104	128	0,65					
26,5	–								
	–								
27,0	–								
	V45 92702	108	132	0,68					
28,0	–								
	V45 92802	112	136	0,71					
28,5	–								
	–								
29,0	–								
	V45 92902	116	140	0,74					
29,5	–								
	–								
30,0	V45 93002	120	149	0,81					
31,0	V45 93102	124	153	0,84					
31,5	–								
32,0	V45 93202	128	157	0,87					
33,0	V45 93302	132	161	0,93					
34,0	V45 93402	136	165	0,95					
35,0	V45 93502	140	169	0,99					
36,0	V45 93602	144	173	1,05					
37,0	–				N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W29 34010.048425 W29 34010.047930 W29 34010.0462 W29 34110.0477	WOEX 06T304-01 BK8425 WOEX 06T304-01 BK7930 WOEX 06T304-01 BK62 WOEX 06T304-11 BK77	2	● ● ● ● ● ○
37,5	–								
38,0	–								
39,0	–								
39,5	–								
40,0	–								
41,0	–								
42,0	–								
43,0	–								
44,0	–								

Supply includes: KUB Trigon® drill with clamping screw.
Please order indexalbe insert separately. Screwdriver see chapter 8.

Guideline values for solid drilling: pages 112-113 / alternative inserts: page 121.

KOMET KUB Trigon®

Ø 12 – 44 mm

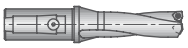
Indexable insert drill with cylindrical shank (combination shank), R.H. cutting



Guideline values for solid drilling						v_c	Max. feed f (mm/rev)							
							2×D							
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 12 – 13,9	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,05	0,08	0,10	0,10	0,12	0,12	0,12	0,12
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,05	0,06	0,08	0,12	0,14	0,14	0,14	0,16
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,08	0,08	0,10	0,12	0,14	0,16	0,16	0,20
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	200	0,05	0,06	0,08	0,10	0,14	0,16	0,16	0,16
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,03	0,05	0,08	0,10	0,12	0,12	0,12	0,14
P	4.1			HSS		80	0,02	0,04	0,06	0,08	0,10	0,10	0,12	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,02	0,04	0,06	0,08	0,10	0,10	0,10	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,02	0,06	0,08	0,10	0,12	0,10	0,12	0,12
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	180	0,03	0,06	0,08	0,10	0,14	0,14	0,14	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	160	0,05	0,06	0,06	0,08	0,12	0,12	0,12	0,14
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	160	0,05	0,06	0,06	0,08	0,12	0,12	0,12	0,12
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,10	0,10	0,12	0,14	0,20	0,20	0,20	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,08	0,08	0,08	0,10	0,14	0,14	0,16	0,18
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,06	0,08	0,10	0,14	0,20	0,20	0,20	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,05	0,08	0,10	0,14	0,20	0,20	0,20	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,05	0,10	0,12	0,16	0,25	0,25	0,25	0,25
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,03	0,08	0,10	0,14	0,20	0,20	0,20	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,05	0,08	0,10	0,14	0,16	0,16	0,16	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,05	0,05	0,08	0,12	0,16	0,16	0,18	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	400	0,03	0,05	0,08	0,08	0,10	0,10	0,10	0,12
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,03	0,05	0,08	0,08	0,10	0,10	0,12	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,08	0,10	0,12	0,14	0,18	0,18	0,20	0,20
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,05	0,10	0,12	0,14	0,20	0,20	0,20	0,25
H	15.0	1400		hardened steels < 45 HRC		80	–	0,05	0,05	0,08	0,10	0,10	0,12	0,12
H	16.0	1800		hardened steels > 45 HRC		40	–	0,05	0,08	0,08	0,10	0,10	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany

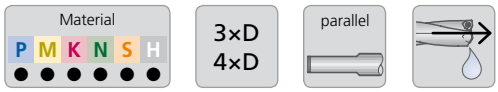


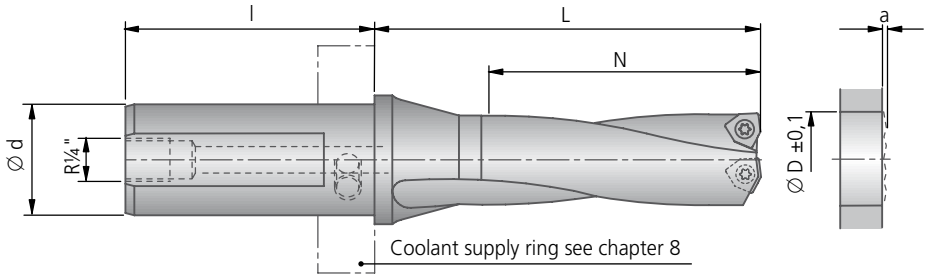
Max. feed f (mm/rev)													
	3×D								4×D				
	Ø 12 – 13,9	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9
	0,05	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,06	0,08	0,08	0,10	0,11
	0,05	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,04	0,06	0,10	0,12	0,12
	0,08	0,08	0,10	0,12	0,14	0,16	0,16	0,20	0,06	0,08	0,10	0,12	0,14
	0,05	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,04	0,06	0,08	0,12	0,14
	0,03	0,05	0,08	0,10	0,12	0,12	0,12	0,14	0,04	0,06	0,08	0,10	0,11
	0,02	0,04	0,06	0,08	0,10	0,10	0,12	0,12	0,03	0,05	0,07	0,08	0,09
	0,02	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,03	0,05	0,07	0,08	0,09
	0,02	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,04	0,06	0,08	0,10	0,10
	0,03	0,06	0,08	0,10	0,14	0,14	0,14	0,14	0,04	0,06	0,08	0,12	0,13
	0,05	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,04	0,04	0,06	0,10	0,11
	0,05	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,04	0,04	0,06	0,10	0,11
	0,10	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,08	0,10	0,12	0,18	0,19
	0,08	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,06	0,06	0,08	0,12	0,12
	0,06	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,06	0,08	0,12	0,18	0,19
	0,05	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,06	0,08	0,12	0,18	0,19
	0,05	0,10	0,12	0,16	0,25	0,25	0,25	0,25	0,08	0,10	0,14	0,23	0,24
	0,03	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,06	0,08	0,12	0,18	0,19
	0,05	0,08	0,10	0,14	0,16	0,16	0,16	0,20	0,06	0,08	0,12	0,14	0,15
	0,05	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,04	0,06	0,10	0,14	0,15
	0,03	0,05	0,08	0,08	0,10	0,10	0,10	0,12	0,03	0,06	0,06	0,08	0,09
	0,03	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,03	0,06	0,06	0,08	0,09
	0,08	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,08	0,10	0,12	0,16	0,17
	0,05	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,08	0,10	0,12	0,18	0,19
	–	0,05	0,05	0,08	0,10	0,10	0,12	0,12	0,03	0,03	0,06	0,08	0,09
	–	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,03	0,06	0,06	0,08	0,08

KOMET KUB Trigon®

Ø 14 – 19,5 mm

Indexable insert drill

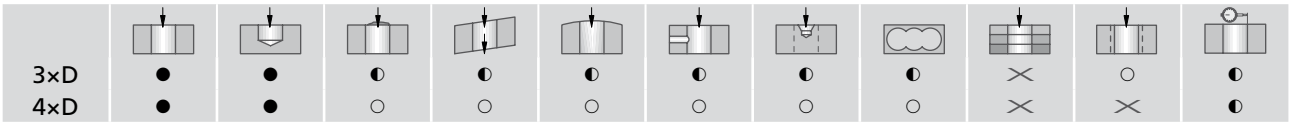




				3×D				4×D				
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	
14,0	15,0	1,3	20 × 50	V36 71402	42	66	0,18	–				
			25 × 56	V37 71402	42	66	0,27	–				
			30 × 58	V38 71402	42	66	0,37	V38 91402	56	80	0,39	
			40 × 68	V39 71402	42	66	0,73	V39 91402	56	80	0,74	
15,0	16,0	1,3	20 × 50	V36 71502	45	69	0,19	–				
			25 × 56	V37 71502	45	69	0,25	–				
			30 × 58	V38 71502	45	69	0,38	V38 91502	60	84	0,40	
			40 × 68	V39 71502	45	69	0,74	V39 91502	60	84	0,97	
15,5	16,5	1,3	30 × 58	–				V38 91550	64	88	0,40	
			40 × 68	–				V39 91550	64	88	0,97	
16,0	17,0	1,3	20 × 50	V36 71600	48	72	0,20	–				
			25 × 56	V37 71600	48	72	0,28	–				
			30 × 58	V38 71600	48	72	0,39	V38 91600	64	88	0,40	
			40 × 68	V39 71600	48	72	0,75	V39 91600	64	88	0,76	
17,0	18,0	1,3	20 × 50	V36 71700	51	75	0,20	–				
			25 × 56	V37 71700	51	75	0,29	–				
			30 × 58	V38 71700	51	75	0,40	V38 91700	68	92	0,41	
			40 × 68	V39 71700	51	75	0,76	V39 91700	68	92	0,76	
17,5	18,5	1,3	30 × 58	–				V38 91750	72	96	0,42	
			40 × 68	–				V39 91750	72	96	0,77	
18,0	19,0	1,3	20 × 50	V36 71800	54	78	0,21	–				
			25 × 56	V37 71800	54	78	0,27	–				
			30 × 58	V38 71800	54	78	0,40	V38 91800	72	96	0,42	
			40 × 68	V39 71800	54	78	0,76	V39 91800	72	96	0,76	
18,5	19,0	1,3	30 × 58	–				V38 91850	76	100	0,43	
			40 × 68	–				V39 91850	76	100	0,79	
19,0	19,5	1,3	20 × 50	V36 71900	57	81	0,22	–				
			25 × 56	V37 71900	57	81	0,31	–				
			30 × 58	V38 71900	57	81	0,41	V38 91900	76	100	0,43	
			40 × 68	V39 71900	57	81	0,78	V39 91900	76	100	0,79	
19,5	20,0	1,3	30 × 58	–				V38 91950	80	104	0,44	
			40 × 68	–				V39 91950	80	104	0,79	

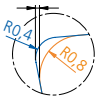
For other diameters see following page.
Any **intermediate dimensions** from ∅ 14 – 54 mm and **inch dimensions** are available on request.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



	Basic recommendation				
Clamping screw	Indexable insert -01 -11				for workpiece material
Order No. Article	**Order No.** ▽▽ Size		ISO code	Piece	P M K N S H
N00 56041 S/M2×4,3-6IP 0,62 Nm	**W29 10010.048425** **W29 10010.047930** **W29 10010.0462** **W29 10110.0477**		WOEX 030204-01 BK8425 WOEX 030204-01 BK7930 WOEX 030204-01 BK62 WOEX 030204-11 BK77	2	● ● ● ● ● ○

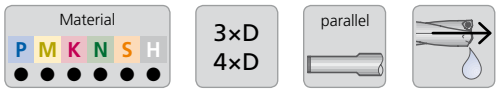
Supply includes: KUB Trigon® drill with clamping screw.
Please order indexalbe insert separately. Screwdriver see chapter 8.

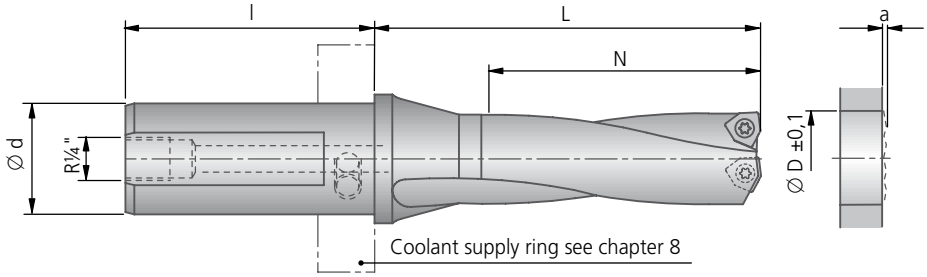
Guideline values for solid drilling: page 120 / alternative inserts: page 121.

KOMET KUB Trigon®

Ø 20 – 29,5 mm

Indexable insert drill





				3×D				4×D				
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	
20,0	21,0	1,5	20 × 50	V36 72000	60	84	0,23	–				
			25 × 56	V37 72000	60	84	0,32	–				
			30 × 58	V38 72000	60	84	0,44	V38 92000	80	104	0,46	
			40 × 68	V39 72000	60	84	0,79	V39 92000	80	104	0,81	
21,0	22,0	1,5	20 × 50	V36 72100	63	87	0,23	–				
			25 × 56	V37 72100	63	87	0,33	–				
			30 × 58	V38 72100	63	87	0,45	V38 92100	84	108	0,47	
			40 × 68	V39 72100	63	87	0,81	V39 92100	84	108	0,82	
22,0	23,0	1,5	20 × 50	V36 72200	66	90	0,23	–				
			25 × 56	V37 72200	66	90	0,35	–				
			30 × 58	V38 72200	66	90	0,46	V38 92200	88	112	0,49	
			40 × 68	V39 72200	66	90	0,82	V39 92200	88	112	0,84	
22,5	23,5	1,5	30 × 58	–				V38 92250	92	116	0,51	
			40 × 68	–				V39 92250	92	116	0,85	
23,0	24,0	1,5	20 × 50	V36 72300	69	93	0,27	–				
			25 × 56	V37 72300	69	93	0,37	–				
			30 × 58	V38 72300	69	93	0,48	V38 92300	92	116	0,52	
			40 × 68	V39 72300	69	93	0,84	V39 92300	92	116	0,87	
24,0	25,0	1,5	20 × 50	V36 72400	72	96	0,29	–				
			25 × 56	V37 72400	72	96	0,38	–				
			30 × 58	V38 72400	72	96	0,49	V38 92400	96	120	0,51	
			40 × 68	V39 72400	72	96	0,86	V39 92400	96	120	0,88	
24,5	25,5	1,7	30 × 58	–				V38 92450	100	124	0,55	
			40 × 68	–				V39 92450	100	124	0,90	
25,0	26,0	1,7	30 × 58	V38 72500	75	99	0,48	V38 92500	100	124	0,54	
			40 × 68	V39 72500	75	99	0,86	V39 92500	100	124	0,91	
26,0	28,0	1,7	25 × 56	V37 72600	78	102	0,35	–				
			30 × 58	V38 72600	78	102	0,55	V38 92600	104	128	0,57	
			40 × 68	V39 72600	78	102	0,88	V39 92600	104	128	0,93	
26,5	28,5	1,7	30 × 58	–				V38 92650	108	132	0,59	
			40 × 68	–				V39 92650	108	132	0,98	
27,0	30,0	1,7	30 × 58	V38 72700	81	105	0,54	V38 92700	108	132	0,65	
			40 × 68	V39 72700	81	105	0,90	V39 92700	108	132	0,95	
28,0	31,0	1,7	25 × 56	V37 72800	84	108	0,38	–				
			30 × 58	V38 72800	84	108	0,57	V38 92800	112	136	0,63	
			40 × 68	V39 72800	84	108	0,91	V39 92800	112	136	0,98	
28,5	31,5	1,7	30 × 58	–				V38 92850	116	140	0,70	
			40 × 68	–				V39 92850	116	140	1,00	
29,0	32,0	1,7	25 × 56	V37 72900	87	111	0,40	–				
			30 × 58	V38 72900	87	111	0,59	V38 92900	116	140	0,68	
			40 × 68	V39 72900	87	111	0,96	V39 92900	116	140	0,70	
29,5	32,5	1,7	30 × 58	–				V38 92950	120	144	1,01	
			40 × 68	–				V39 92950	120	144	1,04	

For other diameters see following page.

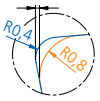
Any **intermediate dimensions** from ∅ 14 – 54 mm and **inch dimensions** are available on request.

Patent applied for inside and outside Germany

3×D	●	●	◐	◐	◐	◐	◐	◐	✕	○	◐
4×D	●	●	○	○	○	○	○	○	✕	✕	◐

● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



Clamping screw	Basic recommendation			
	Indexable insert -01 -11			for workpiece material
Order No. Article	**Order No.** ▽▽ Size	ISO code	Piece	P M K N S H
N00 57553 S/M2,2×5,5-6IP 1,01 Nm	**W29 18010.048425** **W29 18010.047930** **W29 18010.0462** **W29 18110.0477**	WOEX 040304-01 BK8425 WOEX 040304-01 BK7930 WOEX 040304-01 BK62 WOEX 040304-11 BK77	2	● ○ ● ● ● ○
N00 57511 S/M2,5×7,2-8IP 1,28 Nm	**W29 24010.048425** **W29 24010.047930** **W29 24010.0462** **W29 24110.0477**	WOEX 05T304-01 BK8425 WOEX 05T304-01 BK7930 WOEX 05T304-01 BK62 WOEX 05T304-11 BK77	2	● ○ ● ● ● ○

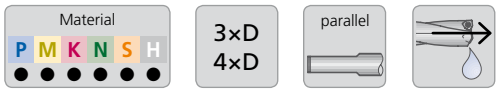
Supply includes: KUB Trigon® drill with clamping screw.
Please order indexalbe insert separately. Screwdriver see chapter 8.

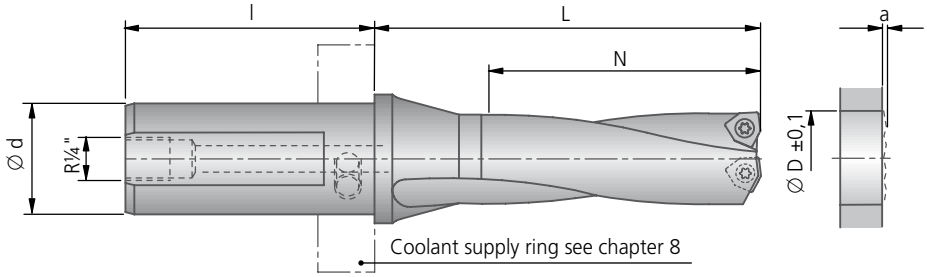
Guideline values for solid drilling: page 120 / alternative inserts: page 121.

KOMET KUB Trigon®

Ø 30 – 54 mm

Indexable insert drill





				3×D				4×D				
Ø D	max. diameter with offset	Starting / roughing size a	Cylindrical shank Ø d×l	Order No.	N	L	kg	Order No.	N	L	kg	
30,0	32,5	1,7	30 × 58	V38 73000	90	119	0,65	V38 93000	120	149	0,72	
			40 × 68	V39 73000	90	119	1,01	V39 93000	120	149	1,09	
31,0	33,5	1,7	30 × 58	V38 73100	93	122	0,68	V38 93100	124	153	0,76	
			40 × 68	V39 73100	93	122	0,99	V39 93100	124	153	1,13	
31,5	33,5	1,7	30 × 58	–				V38 93150	128	157	0,78	
			40 × 68	–				V39 93150	128	157	1,15	
32,0	34,0	1,7	30 × 58	V38 73200	96	125	0,71	V38 93200	128	157	0,80	
			40 × 68	V39 73200	96	125	1,08	V39 93200	128	157	1,17	
33,0	34,0	1,7	30 × 58	V38 73300	99	128	0,74	V38 93300	132	161	0,85	
			40 × 68	V39 73300	99	128	1,12	V39 93300	132	161	1,21	
34,0	35,0	1,7	30 × 58	V38 73400	102	131	0,75	V38 93400	136	165	0,86	
			40 × 68	V39 73400	102	131	1,13	V39 93400	136	165	1,23	
35,0	36,0	1,7	30 × 58	V38 73500	105	134	0,79	V38 93500	140	169	0,91	
			40 × 68	V39 73500	105	134	1,16	V39 93500	140	169	1,28	
36,0	37,0	1,7	30 × 58	V38 73600	108	137	0,82	V38 93600	144	173	0,96	
			40 × 68	V39 73600	108	137	1,19	V39 93600	144	173	1,33	
37,0	40,0	2,0	30 × 58	V38 73700	111	150	0,9	–				
			40 × 68	V39 73700	111	150	1,29	V39 93700	148	187	1,44	
37,5	40,5	2,0	40 × 68	–				V39 93750	152	191	1,57	
38,0	41,0	2,0	30 × 58	V38 73800	114	153	0,94	–				
			40 × 68	V39 73800	114	153	1,33	V39 93800	152	191	1,50	
39,0	42,0	2,0	30 × 58	V38 73900	117	156	0,99	–				
			40 × 68	V39 73900	117	156	1,38	V39 93900	156	195	1,55	
39,5	42,5	2,0	40 × 68	–				V39 93950	160	199	1,59	
40,0	43,0	2,0	30 × 58	V38 74000	120	159	1,03	–				
			40 × 68	V39 74000	120	159	1,43	V39 94000	160	199	1,62	
41,0	44,0	2,0	30 × 58	V38 74100	123	162	1,08	–				
			40 × 68	V39 74100	123	162	1,48	V39 94100	164	203	1,68	
42,0	45,0	2,0	30 × 58	V38 74200	126	165	1,15	–				
			40 × 68	V39 74200	126	165	1,54	V39 94200	168	207	1,76	
43,0	45,0	2,0	30 × 58	V38 74300	129	168	1,22	–				
			40 × 68	V39 74300	129	168	1,60	V39 94300	172	211	1,83	
44,0	45,0	2,0	30 × 58	V38 74400	132	171	1,23	–				
			40 × 68	V39 74400	132	171	1,66	V39 94400	176	215	1,91	
45,0	48,0	2,4	40 × 68	V59 74500	135	179	1,88	–				
46,0	49,0	2,4	40 × 68	V59 74600	138	182	1,87	–				
47,0	50,0	2,4	40 × 68	V59 74700	141	185	1,94	–				
48,0	51,0	2,4	40 × 68	V59 74800	144	188	2,09	–				
49,0	52,0	2,4	40 × 68	V59 74900	147	191	2,19	–				
50,0	53,0	2,4	40 × 68	V59 75000	150	194	2,28	–				
51,0	54,0	2,4	40 × 68	V59 75100	153	197	2,40	–				
52,0	55,0	2,4	40 × 68	V59 75200	156	200	2,42	–				
53,0	55,0	2,4	40 × 68	V59 75300	159	203	2,51	–				
54,0	55,0	2,4	40 × 68	V59 75400	162	206	2,64	–				

For other diameters see following page.

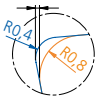
Any **intermediate dimensions** from ∅ 14 – 54 mm and **inch dimensions** are available on request.

Patent applied for inside and outside Germany

3×D	●	●	◐	◐	◐	◐	◐	◐	✕	○	◐
4×D	●	●	○	○	○	○	○	○	✕	✕	◐

● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



	Basic recommendation				
	Clamping screw	Indexable insert -01 -11			for workpiece material
	Order No. Article	**Order No.** ▽▽ Size	ISO code	Piece	P M K N S H
	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	**W29 24010.048425** **W29 24010.047930** **W29 24010.0462** **W29 24110.0477**	WOEX 05T304-01 BK8425 WOEX 05T304-01 BK7930 WOEX 05T304-01 BK62 WOEX 05T304-11 BK77	2	● ● ● ● ● ○
	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	**W29 34010.048425** **W29 34010.047930** **W29 34010.0462** **W29 34110.0477**	WOEX 06T304-01 BK8425 WOEX 06T304-01 BK7930 WOEX 06T304-01 BK62 WOEX 06T304-11 BK77	2	● ● ● ● ● ○
	N00 57531 S/M4,5×9-15IP 6,25 Nm	**W29 42010.048425** **W29 42010.047930** **W29 42010.0462** **W29 42110.0477**	WOEX 080404-01 BK8425 WOEX 080404-01 BK7930 WOEX 080404-01 BK62 WOEX 080404-11 BK77	2	● ● ● ● ● ○

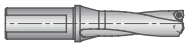
Supply includes: KUB Trigon® drill with clamping screw.
Please order indexalbe insert separately. Screwdriver see chapter 8.

Guideline values for solid drilling: page 120 / alternative inserts: page 121.

KOMET KUB Trigon®

Ø 14 – 54 mm, 3×D | 4×D

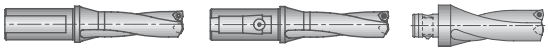
Indexable insert drill with cylindrical shank (parallel clamping surface), R.H. cutting



Guideline values for solid drilling							v_c	Max. feed f (mm/rev)																
								3×D								4×D								
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN		Cutting speed v_c (m/min)	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0	Ø 44,5 – 54,0	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)		300	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,06	0,08	0,08	0,12	0,12	0,12	0,12
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)		250	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,18	0,04	0,06	0,10	0,14	0,14	0,14	0,16
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)		300	0,08	0,10	0,12	0,14	0,16	0,16	0,20	0,22	0,06	0,08	0,10	0,14	0,16	0,16	0,20
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)		200	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,18	0,04	0,06	0,08	0,14	0,16	0,16	0,16
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)		180	0,06	0,08	0,10	0,10	0,12	0,12	0,14	0,16	0,04	0,06	0,08	0,10	0,12	0,12	0,14
P	4.1			HSS			80	0,04	0,06	0,08	0,10	0,10	0,12	0,12	0,14	0,03	0,05	0,07	0,10	0,10	0,12	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		60	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,03	0,05	0,07	0,10	0,10	0,10	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		80	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,12	0,04	0,06	0,08	0,12	0,10	0,12	0,12
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)		180	0,06	0,08	0,10	0,14	0,14	0,14	0,14	0,14	0,04	0,06	0,08	0,14	0,14	0,14	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)		160	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,15	0,04	0,04	0,06	0,12	0,12	0,12	0,14
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)		160	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,14	0,04	0,04	0,06	0,12	0,12	0,12	0,12
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		200	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,28	0,08	0,10	0,12	0,20	0,20	0,20	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		160	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,20	0,06	0,06	0,08	0,14	0,14	0,16	0,18
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)		180	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,26	0,06	0,08	0,12	0,20	0,20	0,20	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		160	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,26	0,06	0,08	0,12	0,20	0,20	0,20	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)		140	0,10	0,12	0,16	0,25	0,25	0,25	0,25	0,26	0,08	0,10	0,14	0,25	0,25	0,25	0,25
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		140	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,26	0,06	0,08	0,12	0,20	0,20	0,20	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		120	0,08	0,10	0,14	0,16	0,16	0,16	0,20	0,22	0,06	0,08	0,12	0,16	0,16	0,16	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		300	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,22	0,04	0,06	0,10	0,16	0,16	0,18	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		400	0,05	0,08	0,08	0,10	0,10	0,10	0,12	0,14	0,03	0,06	0,06	0,10	0,10	0,10	0,12
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		600	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,14	0,03	0,06	0,06	0,10	0,10	0,12	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		300	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,22	0,08	0,10	0,12	0,18	0,18	0,20	0,20
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		250	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,26	0,08	0,10	0,12	0,20	0,20	0,20	0,25
H	15.0	1400		hardened steels < 45 HRC			80	0,05	0,05	0,08	0,10	0,10	0,12	0,12	0,12	0,03	0,03	0,06	0,10	0,10	0,12	0,12
H	16.0	1800		hardened steels > 45 HRC			40	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,03	0,06	0,06	0,10	0,10	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



for better chip control

ØD	Indexable insert -03 / -13 Order No.	ISO code	for workpiece material P M K N S H
12-13,7	–		
14 – 19,5	**W29 10130.048425** **W29 10130.0479**	WOEX 030204-13 BK8425 WOEX 030204-13 BK79	◐ ◑
20 – 24,5	**W29 18130.048425** **W29 18130.0479**	WOEX 040304-13 BK8425 WOEX 040304-13 BK79	◐ ◑
25 – 36	**W29 24130.048425** **W29 24030.046425** **W29 24130.0479**	WOEX 05T304-13 BK8425 WOEX 05T304-03 BK6425 ⚠ WOEX 05T304-13 BK79	◐ ◐ ◑ ◑ ◐
37 – 44	**W29 34130.048425** **W29 34030.046425** **W29 34130.0479**	WOEX 06T304-13 BK8425 WOEX 06T304-03 BK6425 ⚠ WOEX 06T304-13 BK79	◐ ◐ ◑ ◑ ◐
45 – 54	**W29 42030.046425** **W29 42000.048425**	WOEX 080404-03 BK6425 ⚠ WOEX 080404-00 BK8425	◐ ◑ ◐

⚠
Only use this insert with KUB Trigon®
as an external cutting edge:
WOEX ... -03 (Geometry 03)
WOEX ... -01 (Geometry 01) in BK6115
WOEX ... -01 (Geometry 01) in BK6420

for higher cutting speed

ØD	Indexable insert -00 -01 / -11 Order No.	ISO code	for workpiece material P M K N S H
12-13,7	–		
14 – 19,5	W29 10010.0472 W29 10110.0450	WOEX 030204-01 BK72 WOEX 030204-11 BK50	◐ ◐
20 – 24,5	W29 18010.0472 W29 18110.0450	WOEX 040304-01 BK72 WOEX 040304-11 BK50	◐ ◐
25 – 36	W29 24010.0472 W29 24110.0450	WOEX 05T304-01 BK72 WOEX 05T304-11 BK50	◐ ◐
37 – 44	W29 34010.0472 W29 34110.0450	WOEX 06T304-01 BK72 WOEX 06T304-11 BK50	◐ ◐
45 – 54	W29 42010.0472 W01 42940.045510 W01 42600.047615	WOEX 080404-01 BK72 WOHX 080404 F PKD5510 WOHX 080404 EN BK7615	◐ ◑ ◐ ◑

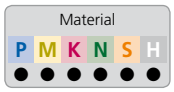
for greater strength

12-13,7	W29 04010.0279	WOEX 020102-01 BK79	◐
14 – 19,5	**W29 10010.047930** **W29 10010.0404** **W29 10010.0421** **W29 10110.0421**	WOEX 030204-01 BK7930 WOEX 030204-01 P40 WOEX 030204-01 K10 WOEX 030204-11 K10	◐ ◐ ◐ ◑ ◐ ◐ ◐
20 – 24,5	**W29 18010.047930** **W29 18010.0404** **W29 18010.0421** **W29 18110.0421**	WOEX 040304-01 BK7930 WOEX 040304-01 P40 WOEX 040304-01 K10 WOEX 040304-11 K10	◐ ◐ ◐ ◑ ◐ ◐ ◐
25 – 36	**W29 24010.047930** **W29 24010.0404** **W29 24010.0421** **W29 24110.0421**	WOEX 05T304-01 BK7930 WOEX 05T304-01 P40 WOEX 05T304-01 K10 WOEX 05T304-11 K10	◐ ◐ ◐ ◑ ◐ ◐ ◐
37 – 44	**W29 34010.047930** **W29 34010.0404** **W29 34010.0421** **W29 34110.0421**	WOEX 06T304-01 BK7930 WOEX 06T304-01 P40 WOEX 06T304-01 K10 WOEX 06T304-11 K10	◐ ◐ ◐ ◑ ◐ ◐ ◐
45 – 54	**W29 42010.047930** **W29 42010.0404** **W29 42010.0421** **W29 42000.0421**	WOEX 080404-01 BK7930 WOEX 080404-01 P40 WOEX 080404-01 K10 WOEX 080404-00 K10	◐ ◐ ◑ ◐ ◐ ◐ ◑

KOMET KUB Trigon®

Ø 14 – 44 mm

Indexable insert drill



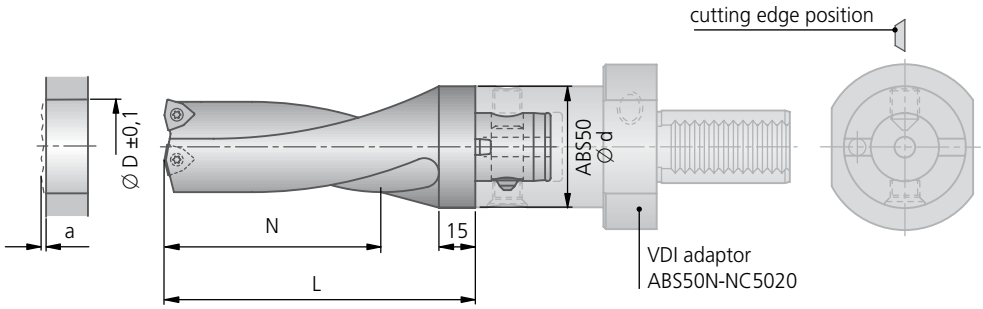






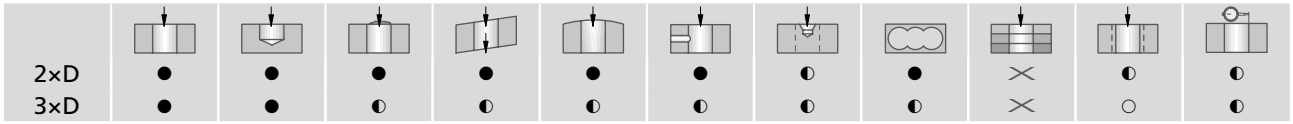
Anti-clockwise





				2×D				3×D				
Ø D	max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	
14,0	15,0	1,3	50	V30 21402	28	63	0,40	V30 61402	42	77	0,50	
15,0	16,0	1,3	50	V30 21502	30	65	0,40	V30 61502	45	80	0,50	
16,0	17,0	1,3	50	V30 21600	32	67	0,40	V30 61600	48	83	0,50	
17,0	18,0	1,3	50	V30 21700	34	69	0,40	V30 61700	51	86	0,50	
18,0	19,0	1,3	50	V30 21800	36	71	0,40	V30 61800	54	89	0,50	
19,0	20,0	1,3	50	V30 21900	38	73	0,50	V30 61900	57	92	0,55	
20,0	21,0	1,5	50	V30 22000	40	75	0,50	V30 62000	60	95	0,60	
21,0	22,0	1,5	50	V30 22100	42	77	0,55	V30 62100	63	98	0,60	
22,0	23,0	1,5	50	V30 22200	44	79	0,55	V30 62200	66	101	0,60	
23,0	24,0	1,5	50	V30 22300	46	81	0,55	V30 62300	69	104	0,60	
24,0	25,0	1,5	50	V30 22400	48	83	0,60	V30 62400	72	107	0,65	
25,0	26,0	1,7	50	V30 22500	50	85	0,60	V30 62500	75	110	0,65	
26,0	28,0	1,7	50	V30 22600	52	87	0,60	V30 62600	78	113	0,70	
27,0	30,0	1,7	50	V30 22700	54	89	0,60	V30 62700	81	116	0,70	
28,0	31,0	1,7	50	V30 22800	56	91	0,65	V30 62800	84	119	0,75	
29,0	32,0	1,7	50	V30 22900	58	93	0,70	V30 62900	87	122	0,75	
30,0	32,5	1,7	50	V30 23000	60	100	0,75	V30 63000	90	130	0,80	
31,0	33,5	1,7	50	V30 23100	62	102	0,75	V30 63100	93	133	0,85	
32,0	34,0	1,7	50	V30 23200	64	104	0,75	V30 63200	96	136	0,90	
33,0	34,0	1,7	50	V30 23300	66	106	0,80	V30 63300	99	139	0,95	
34,0	35,0	1,7	50	V30 23400	68	108	0,85	V30 63400	102	142	1,00	
35,0	36,0	1,7	50	V30 23500	70	110	0,90	V30 63500	105	145	1,00	
36,0	37,0	1,7	50	V30 23600	72	112	0,90	V30 63600	108	148	1,05	
37,0	40,0	2,0	50	V30 23700	74	124	1,05	V30 63700	111	161	1,20	
38,0	41,0	2,0	50	V30 23800	76	126	1,05	V30 63800	114	164	1,25	
39,0	42,0	2,0	50	V30 23900	78	128	1,10	V30 63900	117	167	1,30	
40,0	43,0	2,0	50	V30 24000	80	130	1,15	V30 64000	120	170	1,40	
41,0	44,0	2,0	50	V30 24100	82	132	1,20	V30 64100	123	173	1,45	
42,0	45,0	2,0	50	V30 24200	84	134	1,20	V30 64200	126	176	1,50	
43,0	45,0	2,0	50	V30 24300	86	136	1,25	V30 64300	129	179	1,55	
44,0	45,0	2,0	50	V30 24400	88	138	1,25	V30 64400	132	182	1,55	

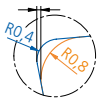
Patent applied for inside and outside Germany



2×D	●	●	●	●	●	●	◐	●	✕	◐	◐
3×D	●	●	◐	◐	◐	◐	◐	◐	✕	○	◐

● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



	Clamping screw	Basic recommendation			
		Indexable insert			for workpiece material
	Order No. Article	**Order No.** ▽▽ Size	ISO code	Piece	P M K N S H
	N00 56041 S/M2×4,3-6IP 0,62 Nm	**W29 10010.048425** **W29 10010.047930** **W29 10010.0462** **W29 10110.0477**	WOEX 030204-01 BK8425 WOEX 030204-01 BK7930 WOEX 030204-01 BK62 WOEX 030204-11 BK77	2	● ● ● ● ● ○
	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	**W29 18010.048425** **W29 18010.047930** **W29 18010.0462** **W29 18110.0477**	WOEX 040304-01 BK8425 WOEX 040304-01 BK7930 WOEX 040304-01 BK62 WOEX 040304-11 BK77	2	● ● ● ● ● ○
	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	**W29 24010.048425** **W29 24010.047930** **W29 24010.0462** **W29 24110.0477**	WOEX 05T304-01 BK8425 WOEX 05T304-01 BK7930 WOEX 05T304-01 BK62 WOEX 05T304-11 BK77	2	● ● ● ● ● ○
	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	**W29 34010.048425** **W29 34010.047930** **W29 34010.0462** **W29 34110.0477**	WOEX 06T304-01 BK8425 WOEX 06T304-01 BK7930 WOEX 06T304-01 BK62 WOEX 06T304-11 BK77	2	● ● ● ● ● ○

Supply includes: KUB Trigon® drill with clamping screw.

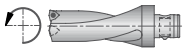
Please order indexalbe insert separately. Screwdriver see chapter 8.

Guideline values for solid drilling: page 124 / alternative inserts: page 125.

KOMET KUB Trigon®

Ø 14 – 44 mm

Insert drill with ABS® connection, L.H. cutting



Guideline values for solid drilling						v_c	Max. feed f (mm/rev)									
							2×D					3×D				
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 36,9	Ø 37 – 44,0	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 36,9	Ø 37 – 44,0
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,08	0,10	0,10	0,12	0,12	0,08	0,10	0,10	0,12	0,12
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,06	0,08	0,12	0,14	0,16	0,06	0,08	0,12	0,14	0,16
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,08	0,10	0,12	0,14	0,20	0,08	0,10	0,12	0,14	0,20
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	200	0,06	0,08	0,10	0,14	0,16	0,06	0,08	0,10	0,14	0,16
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,06	0,08	0,10	0,12	0,14	0,06	0,08	0,10	0,12	0,14
P	4.1			HSS		80	0,04	0,06	0,08	0,10	0,12	0,04	0,06	0,08	0,10	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,04	0,06	0,08	0,10	0,10	0,04	0,06	0,08	0,10	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,06	0,08	0,10	0,12	0,12	0,06	0,08	0,10	0,12	0,12
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	180	0,06	0,08	0,10	0,14	0,14	0,06	0,08	0,10	0,14	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	160	0,06	0,06	0,08	0,12	0,14	0,06	0,06	0,08	0,12	0,14
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	160	0,06	0,06	0,08	0,12	0,12	0,06	0,06	0,08	0,12	0,12
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,10	0,12	0,14	0,20	0,25	0,10	0,12	0,14	0,20	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,08	0,08	0,10	0,14	0,18	0,08	0,08	0,10	0,14	0,18
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,08	0,10	0,14	0,20	0,25	0,08	0,10	0,14	0,20	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,08	0,10	0,14	0,20	0,25	0,08	0,10	0,14	0,20	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,10	0,12	0,16	0,25	0,25	0,10	0,12	0,16	0,25	0,25
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,08	0,10	0,14	0,20	0,25	0,08	0,10	0,14	0,20	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,08	0,10	0,14	0,16	0,20	0,08	0,10	0,14	0,16	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,05	0,08	0,12	0,16	0,20	0,05	0,08	0,12	0,16	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	400	0,05	0,08	0,08	0,10	0,12	0,05	0,08	0,08	0,10	0,12
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,05	0,08	0,08	0,10	0,12	0,05	0,08	0,08	0,10	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,12	0,14	0,18	0,20	0,10	0,12	0,14	0,18	0,20
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,12	0,14	0,20	0,25	0,10	0,12	0,14	0,20	0,25
H	15.0	1400		hardened steels < 45 HRC		80	0,05	0,05	0,08	0,10	0,12	0,05	0,05	0,08	0,10	0,12
H	16.0	1800		hardened steels > 45 HRC		40	0,05	0,08	0,08	0,10	0,10	0,05	0,08	0,08	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



for better chip control

ØD	Indexable insert -03 / -13 Order No.	ISO code	for workpiece material P M K N S H
14 – 19,5	**W29 10130.046425**	WOEX 030204-13 BK6425 ⚠	◐ ◑
20 – 24,5	**W29 18130.046425**	WOEX 040304-13 BK6425 ⚠	◐ ◑
25 – 36	**W29 24030.046425**	WOEX 05T304-03 BK6425 ⚠	◐ ◑
37 – 44	**W29 34030.046425**	WOEX 06T304-03 BK6425 ⚠	◐ ◑

⚠

Only use this insert with KUB Trigon®
as an external cutting edge:
WOEX ... -03 (Geometry 03)
WOEX ... -01 (Geometry 01) in BK6115
WOEX ... -01 (Geometry 01) in BK6420

for higher cutting speed

ØD	Indexable insert -00 -01 / -11 Order No.	ISO code	for workpiece material P M K N S H
14 – 19,5	W29 10010.0472 W29 10110.0450	WOEX 030204-01 BK72 WOEX 030204-11 BK50	◐ ◐
20 – 24,5	W29 18010.0472 W29 18110.0450	WOEX 040304-01 BK72 WOEX 040304-11 BK50	◐ ◐
25 – 36	W29 24010.0472 W29 24110.0450	WOEX 05T304-01 BK72 WOEX 05T304-11 BK50	◐ ◐
37 – 44	W29 34010.0472 W29 34110.0450	WOEX 06T304-01 BK72 WOEX 06T304-11 BK50	◐ ◐

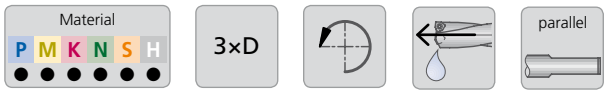
for greater strength

14 – 19,5	**W29 10010.047930**	WOEX 030204-01 BK7930	◐ ◐
	W29 10010.0404	WOEX 030204-01 P40	◐ ◑ ◐
	W29 10010.0421	WOEX 030204-01 K10	◐
	W29 10110.0421	WOEX 030204-11 K10	◐
20 – 24,5	**W29 18010.047930**	WOEX 040304-01 BK7930	◐ ◐
	W29 18010.0404	WOEX 040304-01 P40	◐ ◑ ◐
	W29 18010.0421	WOEX 040304-01 K10	◐
	W29 18110.0421	WOEX 040304-11 K10	◐
25 – 36	**W29 24010.047930**	WOEX 05T304-01 BK7930	◐ ◐
	W29 24010.0404	WOEX 05T304-01 P40	◐ ◑ ◐
	W29 24010.0421	WOEX 05T304-01 K10	◐
	W29 24110.0421	WOEX 05T304-11 K10	◐
37 – 44	**W29 34010.047930**	WOEX 080404-01 BK7930	◐ ◐
	W29 34010.0404	WOEX 080404-01 P40	◐ ◑ ◐
	W29 34010.0421	WOEX 080404-01 K10	◐
	W29 34110.0421	WOEX 080404-11 K10	◐

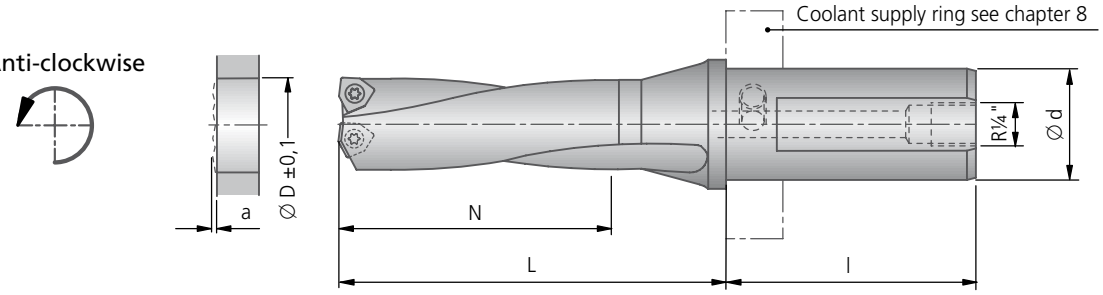
KOMET KUB Trigon®

Ø 14 – 54 mm

Indexable insert drill

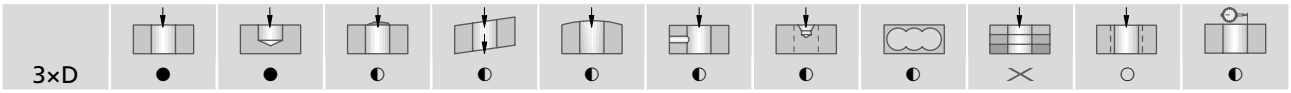


Anti-clockwise



					3×D					
					Cylindrical shank Ø d × l Ø 25 × 56		Cylindrical shank Ø d × l Ø 30 × 58		Cylindrical shank Ø d × l Ø 40 × 68	
Ø D	max. diameter with offset	Starting / roughing size a	N	L	Order No.	kg	Order No.	kg	Order No.	kg
14,0	15,0	1,3	42	66	V37 61402	0,27	V38 61402	0,37	V39 61402	0,73
15,0	16,0	1,3	45	69	V37 61502	0,25	V38 61502	0,38	V39 61502	0,74
16,0	17,0	1,3	48	72	V37 61600	0,28	V38 61600	0,39	V39 61600	0,75
17,0	18,0	1,3	51	75	V37 61700	0,29	V38 61700	0,40	V39 61700	0,76
18,0	19,0	1,3	54	78	V37 61800	0,27	V38 61800	0,40	V39 61800	0,76
19,0	19,5	1,3	57	81	V37 61900	0,31	V38 61900	0,41	V39 61900	0,78
20,0	21,0	1,5	60	84	V37 62000	0,32	V38 62000	0,44	V39 62000	0,79
21,0	22,0	1,5	63	87	V37 62100	0,33	V38 62100	0,45	V39 62100	0,81
22,0	23,0	1,5	66	90	V37 62200	0,35	V38 62200	0,46	V39 62200	0,82
23,0	24,0	1,5	69	93	V37 62300	0,37	V38 62300	0,48	V39 62300	0,84
24,0	25,0	1,5	72	96	V37 62400	0,38	V38 62400	0,49	V39 62400	0,86
25,0	26,0	1,7	75	99	–		V38 62500	0,48	V39 62500	0,86
26,0	28,0	1,7	78	102	–		V38 62600	0,55	V39 62600	0,88
27,0	30,0	1,7	81	105	–		V38 62700	0,54	V39 62700	0,90
28,0	31,0	1,7	84	108	–		V38 62800	0,57	V39 62800	0,91
29,0	32,0	1,7	87	111	–		V38 62900	0,59	V39 62900	0,96
30,0	32,5	1,7	90	119	–		V38 63000	0,65	V39 63000	1,01
31,0	33,5	1,7	93	122	–		V38 63100	0,68	V39 63100	0,99
32,0	34,0	1,7	96	125	–		V38 63200	0,71	V39 63200	1,08
33,0	35,0	1,7	99	128	–		V38 63300	0,74	V39 63300	1,12
34,0	35,0	1,7	102	131	–		V38 63400	0,75	V39 63400	1,13
35,0	36,0	1,7	105	134	–		V38 63500	0,79	V39 63500	1,16
36,0	37,0	1,7	108	137	–		V38 63600	0,82	V39 63600	1,19
37,0	40,0	2,0	111	150	–		V38 63700	0,90	V39 63700	1,29
38,0	41,0	2,0	114	153	–		V38 63800	0,94	V39 63800	1,33
39,0	42,0	2,0	117	156	–		V38 63900	0,99	V39 63900	1,38
40,0	43,0	2,0	120	159	–		V38 64000	1,03	V39 64000	1,43
41,0	44,0	2,0	123	162	–		V38 64100	1,08	V39 64100	1,48
42,0	45,0	2,0	126	165	–		V38 64200	1,15	V39 64200	1,54
43,0	45,0	2,0	129	168	–		V38 64300	1,22	V39 64300	1,60
44,0	45,0	2,0	132	171	–		V38 64400	1,23	V39 64400	1,66
45,0	48,0	2,4	135	179	–		–		V59 64500	1,88
46,0	49,0	2,4	138	182	–		–		V59 64600	1,87
47,0	50,0	2,4	141	185	–		–		V59 64700	1,94
48,0	51,0	2,4	144	188	–		–		V59 64800	2,09
49,0	52,0	2,4	147	191	–		–		V59 64900	2,19
50,0	53,0	2,4	150	194	–		–		V59 65000	2,28
51,0	54,0	2,4	153	197	–		–		V59 65100	2,40
54,0	55,0	2,4	162	206	–		–		V59 65400	2,64

Patent applied for inside and outside Germany

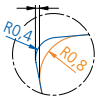


● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Supply includes: KUB Trigon® drill with clamping screw.

Please order indexalbe insert separately. Screwdriver see chapter 8.

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)



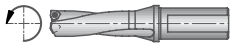
Clamping screw	Basic recommendation			
	Indexable insert -01 -11			for workpiece material
Order No. Article	**Order No.** ▽▽ Size	ISO code	Piece	P M K N S H
N00 56041 S/M2×4,3-6IP 0,62 Nm	**W29 10010.048425** **W29 10010.047930** **W29 10010.0462** **W29 10110.0477**	WOEX 030204-01 BK8425 WOEX 030204-01 BK7930 WOEX 030204-01 BK62 WOEX 030204-11 BK77	2	●○●●◐◐
N00 57553 S/M2,2×5,5-6IP 1,01 Nm	**W29 18010.048425** **W29 18010.047930** **W29 18010.0462** **W29 18110.0477**	WOEX 040304-01 BK8425 WOEX 040304-01 BK7930 WOEX 040304-01 BK62 WOEX 040304-11 BK77	2	●○●●◐◐
N00 57511 S/M2,5×7,2-8IP 1,28 Nm	**W29 24010.048425** **W29 24010.047930** **W29 24010.0462** **W29 24110.0477**	WOEX 05T304-01 BK8425 WOEX 05T304-01 BK7930 WOEX 05T304-01 BK62 WOEX 05T304-11 BK77	2	●○●●◐◐
N00 57521 S/M3,5×7,3-10IP 2,8 Nm	**W29 34010.048425** **W29 34010.047930** **W29 34010.0462** **W29 34110.0477**	WOEX 06T304-01 BK8425 WOEX 06T304-01 BK7930 WOEX 06T304-01 BK62 WOEX 06T304-11 BK77	2	●○●●◐◐
N00 57531 S/M4,5×9-15IP 6,25 Nm	**W29 42010.048425** **W29 42010.047930** **W29 42010.0462** **W29 42110.0477**	WOEX 080404-01 BK8425 WOEX 080404-01 BK7930 WOEX 080404-01 BK62 WOEX 080404-11 BK77	2	●○●●◐◐

Guideline values for solid drilling: page 128 / alternative inserts: page 129.

KOMET KUB Trigon®

Ø 14 – 54 mm

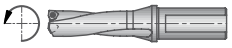
Indexable insert drill with cylindrical shank (parallel clamping surface), L.H. cutting



Guideline values for solid drilling						v_c	Max. feed f (mm/rev)							
							3×D							
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 14 – 16,9	Ø 17 – 19,9	Ø 20 – 24,9	Ø 25 – 29,9	Ø 30 – 36,9	Ø 37 – 40,9	Ø 41 – 44,0	Ø 44,5 – 54,0
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,18
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,08	0,10	0,12	0,14	0,16	0,16	0,20	0,22
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	200	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,18
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,06	0,08	0,10	0,10	0,12	0,12	0,14	0,16
P	4.1			HSS		80	0,04	0,06	0,08	0,10	0,10	0,12	0,12	0,14
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,12
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	180	0,06	0,08	0,10	0,14	0,14	0,14	0,14	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	160	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,15
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	160	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,14
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,28
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,20
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,26
K	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,26
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,10	0,12	0,16	0,25	0,25	0,25	0,25	0,26
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,26
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,08	0,10	0,14	0,16	0,16	0,16	0,20	0,22
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,22
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	400	0,05	0,08	0,08	0,10	0,10	0,10	0,12	0,14
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,14
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,22
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,26
H	15.0	1400		hardened steels < 45 HRC		80	0,05	0,05	0,08	0,10	0,10	0,12	0,12	0,12
H	16.0	1800		hardened steels > 45 HRC		40	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



for better chip control

ØD	Indexable insert Order No. (-03 / -13)	ISO code	for workpiece material P M K N S H
14 – 19,5	**W29 10130.046425**	WOEX 030204-13 BK6425 ⚠	◐ ◑
20 – 24,5	**W29 18130.046425**	WOEX 040304-13 BK6425 ⚠	◐ ◑
25 – 36	**W29 24030.046425**	WOEX 05T304-03 BK6425 ⚠	◐ ◑
37 – 44	**W29 34130.048425** **W29 34030.046425** **W29 34130.0479**	WOEX 06T304-13 BK8425 WOEX 06T304-03 BK6425 ⚠ WOEX 06T304-13 BK79	◐ ◐ ◑ ◐
45 – 54	**W29 42030.046425** **W29 42000.048425**	WOEX 080404-03 BK6425 ⚠ WOEX 080404-00 BK8425	◐ ◑ ◐

⚠

Only use this insert with KUB Trigon®
as an external cutting edge:
WOEX ... -03 (Geometry 03)
WOEX ... -01 (Geometry 01) in BK6115
WOEX ... -01 (Geometry 01) in BK6420

for higher cutting speed

ØD	Indexable insert Order No. (-00 -01 / -11)	ISO code	for workpiece material P M K N S H
14 – 19,5	W29 10010.0472 W29 10110.0450	WOEX 030204-01 BK72 WOEX 030204-11 BK50	◐ ◐
20 – 24,5	W29 18010.0472 W29 18110.0450	WOEX 040304-01 BK72 WOEX 040304-11 BK50	◐ ◐
25 – 36	W29 24010.0472 W29 24110.0450	WOEX 05T304-01 BK72 WOEX 05T304-11 BK50	◐ ◐
37 – 44	W29 34010.0472 W29 34110.0450	WOEX 06T304-01 BK72 WOEX 06T304-11 BK50	◐ ◐
45 – 54	W29 42010.0472 W01 42940.045510 W01 42600.047615	WOEX 080404-01 BK72 WOHX 080404 F PKD5510 WOHX 080404 EN BK7615	◐ ◑ ◐ ◑

for greater strength

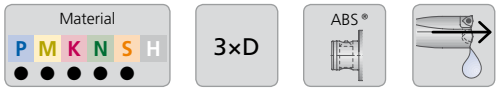
14 – 19,5	**W29 10010.047930** **W29 10010.0404** **W29 10010.0421** **W29 10110.0421**	WOEX 030204-01 BK7930 WOEX 030204-01 P40 WOEX 030204-01 K10 WOEX 030204-11 K10	◐ ◐ ◐ ◑ ◐ ◑ ◐
20 – 24,5	**W29 18010.047930** **W29 18010.0404** **W29 18010.0421** **W29 18110.0421**	WOEX 040304-01 BK7930 WOEX 040304-01 P40 WOEX 040304-01 K10 WOEX 040304-11 K10	◐ ◐ ◐ ◑ ◐ ◑ ◐
25 – 36	**W29 24010.047930** **W29 24010.0404** **W29 24010.0421** **W29 24110.0421**	WOEX 05T304-01 BK7930 WOEX 05T304-01 P40 WOEX 05T304-01 K10 WOEX 05T304-11 K10	◐ ◐ ◐ ◑ ◐ ◑ ◐
37 – 44	**W29 34010.047930** **W29 34010.0404** **W29 34010.0421** **W29 34110.0421**	WOEX 080404-01 BK7930 WOEX 080404-01 P40 WOEX 080404-01 K10 WOEX 080404-11 K10	◐ ◐ ◐ ◑ ◐ ◑ ◐
45 – 54	**W29 42010.047930** **W29 42010.0404** **W29 42010.0421** **W29 42000.0421**	WOEX 080404-01 BK7930 WOEX 080404-01 P40 WOEX 080404-01 K10 WOEX 080404-00 K10	◐ ◐ ◑ ◐ ◑ ◐ ◑

KOMET KUB ®

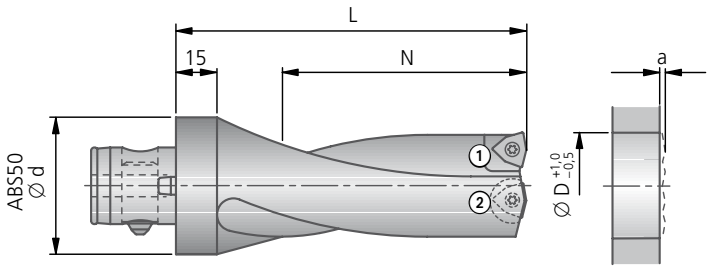
Ø 38,5 – 82 mm

Indexable insert drill





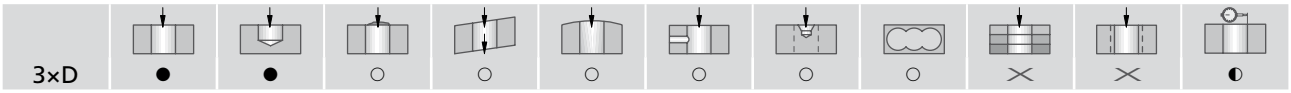
2×D on request



			3×D				Insert seating ①				
Ø D adjustable	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	Location screw ③ Order No. Article	Adjusting screw ④ Order No. Article	Clamping screw ⑤ Order No. Article	
38,5 – 40	2,0	50	V82 73900	117	167	1,17	D53 56201	N10 11400 M3,5×9,4-Tx10	55051 03006 M3×6	N00 57611 S/M3,5×6,6-10IP 2,8 Nm	
39,5 – 41	2,0	50	V82 74000	120	170	1,20					
40,5 – 42	2,0	50	V82 74100	123	173	1,32					
41,5 – 43	2,0	50	V82 74200	126	176	1,33					
42,5 – 44	2,0	50	V82 74300	129	179	1,44					
43,5 – 45	2,0	50	V82 74400	132	182	1,44					
44,5 – 46	2,4	63	V83 74500	135	190	1,91	D53 56211	N10 11500 M4,5×10,5 Tx15	55051 04010 M4×10	N00 57531 S/M4,5×9-15IP 6,25 Nm	
45,5 – 47	2,4	63	V83 74600	138	193	1,79					
46,5 – 48	2,4	63	V83 74700	141	196	2,02					
47,5 – 49	2,4	63	V83 74800	144	199	2,01					
48,5 – 50	2,4	63	V83 74900	147	202	2,18					
49,5 – 51	2,4	63	V83 75000	150	205	2,23					
50,5 – 52	2,4	63	V83 75100	153	208	2,30					
51,5 – 53	2,4	63	V83 75200	156	211	2,40					
52,5 – 54	2,4	63	V83 75300	159	214	2,48					
53,5 – 55	2,4	63	V83 75400	162	217	2,55					
54,5 – 56	2,7	80	V84 75500	165	220	3,50	D53 56221	N10 11510 M4,5×11,5 Tx15	55051 04012 M4×12	N00 57531 S/M4,5×9-15IP 6,25 Nm	
55,5 – 57	2,7	80	V84 75600	168	223	3,68					
56,5 – 58	2,7	80	V84 75700	171	226	3,70					
57,5 – 59	2,7	80	V84 75800	174	229	3,80					
58,5 – 60	2,7	80	V84 75900	177	232	3,92					
59,5 – 61	2,7	80	V84 76000	180	235	4,00					
60,5 – 62	2,7	80	V84 76100	183	238	4,00					
61,5 – 63	2,7	80	V84 76200	186	241	4,10					
62,5 – 64	2,7	80	V84 76300	189	244	4,43					
63,5 – 65	2,7	80	V84 76400	192	247	4,31					
64,5 – 66	2,7	80	V84 76500	195	250	4,61					
65,5 – 67	2,7	80	V84 76600	198	253	4,65					
66,5 – 68	2,7	80	V84 76700	201	256	4,70					
67,5 – 69	2,7	80	V84 76800	204	259	5,00					
68,5 – 70	3,5	80	V84 76900	207	272	5,44	D53 56231	N10 11010 M4×16,2	55051 04010 M4×10	N00 57541 S/M5,5×11-20IP 6,25 Nm	
69,5 – 71	3,5	80	V84 77000	210	275	5,51					
70,5 – 72	3,5	80	V84 77100	213	278	5,58					
71,5 – 73	3,5	80	V84 77200	216	281	5,91					
72,5 – 74	3,5	80	V84 77300	219	284	6,07					
73,5 – 75	3,5	80	V84 77400	222	287	6,15					
74,5 – 76	3,5	80	V84 77500	225	290	6,21					
75,5 – 77	3,5	80	V84 77600	228	293	6,35					
76,5 – 78	3,5	80	V84 77700	231	296	6,50					
77,5 – 79	3,5	80	V84 77800	234	299	6,80					
78,5 – 80	3,5	80	V84 77900	237	302	7,00					
79,5 – 81	3,5	80	V84 78000	240	305	7,39					
80,5 – 82	3,5	80	V84 78100	243	308	7,61					

Any **intermediate dimensions** from ∅ 38,5 – 82 mm and **inch dimensions** are available on request.

Patent applied for inside and outside Germany

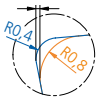


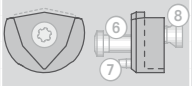
● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Supply KUB® drill includes: with insert seating ① and ②.
Supply insert seating ① includes: with location screw ③, adjusting screw ④ and clamping screw ⑤.
Supply insert seating ② includes: with location screw ⑥, cylindrical pin ⑦ and clamping screw ⑧.

Please order indexalbe insert separately. Screwdriver see chapter 8.

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)

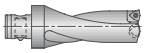


	Insert seating ②				Basic recommendation			
		Location screw ⑥ 	Cylindrical pin ⑦	Clamping screw ⑧ 	Indexable insert  -01 -11			for workpiece material
	Order No.	Order No. Article	Order No. Article	Order No. Article	Order No. ▽▽ Size	ISO code	Piece	P M K N S H
	D50 55100	N00 55701 M3,5×5-8IP 2,25 Nm	N00 52000 1,8/2×4,5	N00 57611 S/M3,5×6,6-10IP 2,8 Nm	W29 34010.048425 W29 34010.047930 W29 34010.0462 W29 34110.0477	WOEX 06T304-01 BK8425 WOEX 06T304-01 BK7930 WOEX 06T304-01 BK62 WOEX 06T304-11 BK77	2	
	D50 55110	N00 55821 M4,5×9-10IP 4,3 Nm	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm	W29 42010.048425 W29 42010.047930 W29 42010.0462 W29 42110.0477	WOEX 080404-01 BK8425 WOEX 080404-01 BK7930 WOEX 080404-01 BK62 WOEX 080404-11 BK77	2	
	D50 55120	N00 55821 M4,5×9-10IP 4,3 Nm	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm	W29 50010.048425 W29 50010.047930 W29 50010.0462 W29 50110.0477	WOEX 100504-01 BK8425 WOEX 100504-01 BK7930 WOEX 100504-01 BK62 WOEX 100504-11 BK77	2	
	D50 55130	N00 55891 M5,5×8,5-20IP 6,25 Nm	N00 52020 4/5×7,0	N00 57541 S/M5,5×11-20IP 6,25 Nm	W29 58010.088425 W29 58010.087930 W29 58010.0862 W29 58000.088425 W29 58000.0821	WOEX 120608-01 BK8425 WOEX 120608-01 BK7930 WOEX 120608-01 BK62 WOEX 120608-00 BK8425 WOEX 120608-00 K10	2	

KOMET KUB®

Ø 38,5 – 82 mm

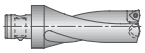
Indexable insert drill with ABS® connection, R.H. cutting



Guideline values for solid drilling						v_c	Max. feed f (mm/rev)			
							3×D			
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 38,5 – 44	Ø 44,5 – 54	Ø 54,5 – 68	Ø 68,5 – 82
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,10	0,12	0,12	0,14
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,10	0,12	0,12	0,14
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,12	0,14	0,14	0,16
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	200	0,10	0,12	0,12	0,14
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,08	0,10	0,10	0,12
P	4.1			HSS		80	0,06	0,08	0,08	0,10
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,06	0,08	0,08	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,06	0,08	0,08	0,10
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	180	0,08	0,10	0,10	0,12
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	160	0,08	0,10	0,10	0,12
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	160	0,06	0,08	0,08	0,10
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,16	0,18	0,18	0,23
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,16	0,18	0,18	0,23
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,14	0,16	0,16	0,18
K	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,14	0,16	0,16	0,18
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,12	0,14	0,14	0,16
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,10	0,12	0,12	0,14
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,12	0,14	0,14	0,16
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,14	0,16	0,16	0,18
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	400	0,14	0,16	0,16	0,18
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,14	0,16	0,16	0,18
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,16	0,18	0,18	0,23
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,16	0,18	0,18	0,23
H	15.0	1400		hardened steels < 45 HRC						
H	16.0	1800		hardened steels > 45 HRC						

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



for better chip control

ØD	Order No. ▽▽	ISO code	for workpiece material P M K N S H
	Indexable insert  -02  -03  -13		
38,5 – 44	**W29 34130.048425**	WOEX 06T304-13 BK8425	◐
	W29 34020.0464	WOEX 06T304-02 BK64	◐
	W29 34030.046425	WOEX 06T304-03 BK6425 ⚠	◐ ◐
	W29 34130.0479	WOEX 06T304-13 BK79	◑
44,5 – 54	**W29 42130.048425**	WOEX 080404-13 BK8425	◐
	W29 42020.0464	WOEX 080404-02 BK64	◐
	W29 42030.046425	WOEX 080404-03 BK6425 ⚠	◐ ◐
	W29 42130.0479	WOEX 080404-13 BK79	◑
54,5 – 68	**W29 50130.048425**	WOEX 100504-13 BK8425	◐
	W29 50020.0864	WOEX 100508-02 BK64	◐
	W29 50030.086425	WOEX 100508-03 BK6425 ⚠	◐ ◐
	W29 50130.0479	WOEX 100504-13 BK79	◑
68,5 – 82	**W29 58130.088425**	WOEX 120608-13 BK8425	◐
	W29 58030.086425	WOEX 120608-03 BK6425 ⚠	◐ ◐
	W29 58130.0879	WOEX 120608-13 BK79	◑

⚠ Only use this insert with KUB®
as an external cutting edge:
WOEX ... -03 (Geometry 03)
WOEX ... -01 (Geometry 01) in BK6115
WOEX ... -01 (Geometry 01) in BK6420

for higher cutting speed

ØD	Order No.	ISO code	for workpiece material P M K N S H
	Indexable insert  -00 -01  -11		
38,5 – 44	**W29 34010.0472**	WOEX 06T304-01 BK72	◐
	W29 34110.0450	WOEX 06T304-11 BK50	◐
44,5 – 54	**W29 42010.0472**	WOEX 080404-01 BK72	◐
	W29 42110.0450	WOEX 080404-11 BK50	◐
54,5 – 68	**W29 50010.0872**	WOEX 100508-01 BK72	◐
	W29 50110.0450	WOEX 100504-11 BK50	◐
68,5 – 82	**W29 58010.0872**	WOEX 120608-01 BK72	◐ ◑
	W29 58000.0862	WOEX 120608-00 BK62	◐

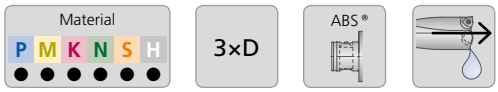
for greater strength

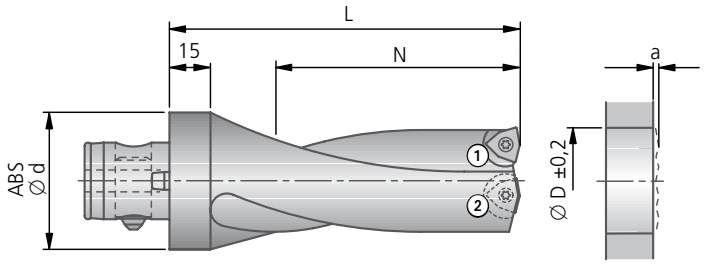
38,5 – 44	**W29 34010.047930**	WOEX 06T304-01 BK7930	◐ ◐
	W29 34010.0404	WOEX 06T304-01 P40	◐ ◑ ◐
	W29 34010.0421	WOEX 06T304-01 K10	◐
	W29 34110.0421	WOEX 06T304-11 K10	◐
44,5 – 54	**W29 42010.047930**	WOEX 080404-01 BK7930	◐ ◐
	W29 42010.0404	WOEX 080404-01 P40	◐ ◑ ◐
	W29 42010.0421	WOEX 080404-01 K10	◐
	W29 42110.0421	WOEX 080404-11 K10	◐
54,5 – 68	**W29 50010.047930**	WOEX 100504-01 BK7930	◐ ◐
	W29 50010.0804	WOEX 100508-01 P40	◐ ◑ ◐
	W29 50010.0821	WOEX 100508-01 K10	◐
	W29 50110.0421	WOEX 100504-11 K10	◐
68,5 – 82	**W29 58010.087930**	WOEX 120608-01 BK7930	◐ ◐
	W29 58010.0804	WOEX 120608-01 P40	◐ ◑ ◐
	W29 58010.0821	WOEX 120608-01 K10	◐
	W29 58000.0821	WOEX 120608-00 K10	◐

KOMET KUB®

Ø 45 – 82 mm

Indexable insert drill





				2×D				3×D				
Ø D	*max. diameter with offset	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg	Order No.	N	L	kg	
45	48	2,4	63	V13 34500	90	145	1,61	V13 74500	135	190	1,61	
46	49	2,4	63	V13 34600	92	147	1,66	V13 74600	138	193	1,95	
47	50	2,4	63	V13 34700	94	149	1,70	V13 74700	141	196	2,02	
48	51	2,4	63	V13 34800	96	151	1,75	V13 74800	144	199	2,08	
49	52	2,4	63	V13 34900	98	153	1,80	V13 74900	147	202	2,16	
50	53	2,4	63	V13 35000	100	155	1,85	V13 75000	150	205	2,23	
51	54	2,4	63	V13 35100	102	157	1,89	V13 75100	153	208	2,27	
52	55	2,4	63	V13 35200	104	159	1,94	V13 75200	156	211	2,45	
53	55	2,4	63	V13 35300	106	161	2,00	V13 75300	159	214	2,45	
54	55	2,4	63	V13 35400	108	163	2,07	V13 75400	162	217	2,54	
55	58	2,7	80	V14 35500	110	165	2,91	V14 75500	165	220	3,41	
56	59	2,7	80	V14 35600	112	167	2,96	V14 75600	168	223	3,51	
57	60	2,7	80	V14 35700	114	169	3,06	V14 75700	171	226	3,62	
58	61	2,7	80	V14 35800	116	171	3,13	V14 75800	174	229	3,73	
59	62	2,7	80	V14 35900	118	173	3,21	V14 75900	177	232	3,82	
60	63	2,7	80	V14 36000	120	175	3,32	V14 76000	180	235	3,93	
61	64	2,7	80	V14 36100	122	177	3,32	V14 76100	183	238	4,05	
62	65	2,7	80	V14 36200	124	179	3,44	V14 76200	186	241	4,19	
63	66	2,7	80	V14 36300	126	181	3,54	V14 76300	189	244	4,31	
64	67	2,7	80	V14 36400	128	183	3,59	V14 76400	192	247	4,34	
65	68	2,7	80	V14 36500	130	185	3,65	V14 76500	195	250	4,60	
66	69	2,7	80	V14 36600	132	187	3,73	V14 76600	198	253	4,61	
67	69,5	2,7	80	V14 36700	134	189	3,82	V14 76700	201	256	4,80	
68	70	2,7	80	V14 36800	136	191	3,99	V14 76800	204	259	4,93	
69	72	3,5	80	V14 36900	138	203	4,30	V14 76900	207	272	5,25	
70	73	3,5	80	V14 37000	140	205	4,38	V14 77000	210	275	5,32	
71	74	3,5	80	V14 37100	142	207	4,57	V14 77100	213	278	5,55	
72	75	3,5	80	V14 37200	144	209	4,53	V14 77200	216	281	5,79	
73	76	3,5	80	V14 37300	146	211	4,65	V14 77300	219	284	5,96	
74	77	3,5	80	V14 37400	148	213	4,76	V14 77400	222	287	6,13	
75	78	3,5	80	V14 37500	150	215	4,90	V14 77500	225	290	6,32	
76	79	3,5	80	V14 37600	152	217	5,10	V14 77600	228	293	6,43	
77	80	3,5	80	V14 37700	154	219	5,18	V14 77700	231	296	6,60	
78	81	3,5	80	V14 37800	156	221	5,39	V14 77800	234	299	6,80	
79	82	3,5	80	V14 37900	158	223	5,42	V14 77900	237	302	7,10	
80	82	3,5	80	V14 38000	160	225	5,66	V14 78000	240	305	7,23	
81	82,5	3,5	80	V14 38100	162	227	5,75	V14 78100	243	308	7,57	
82	83	3,5	80	V14 38200	164	229	5,97	V14 78200	246	311	7,69	

Any **intermediate dimensions** from Ø 45 – 82 mm and **inch dimensions** are available on request.

* Adjustment device see "KomPass Bore machining – chapter 5"

Patent applied for inside and outside Germany

2×D	●	●	●	●	●	◐	◐	●	✕	◐	◐
3×D	●	●	●	◐	◐	◐	◐	◐	✕	✕	◐

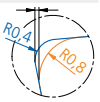
● very good | ◐ good | ○ possible: see technical notes, page 138-140 | ✕ not possible

Supply KUB ® drill includes: with insert seating ① and ②.
Supply insert seating ① includes: with location screw ③, cylindrical pin ④ and clamping screw ⑤.
Supply insert seating ② includes: with location screw ③, cylindrical pin ④ and clamping screw ⑤.

Please order indexalbe insert separately. Screwdriver see chapter 8.

Insert seating ① and ②					Basic recommendation			
external ①	internal ②	Location screw ③	Cylindrical pin ④	Clamping screw ⑤	Indexable insert -01 -11			for workpiece material
Order No.	Order No.	Order No. Article	Order No. Article	Order No. Article	Order No. ▽▽ Size	ISO code	Piece	P M K N S H
D50 55310	D50 55110	N00 55821 M4,5×9-10IP 4,3 Nm	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm	**W29 42010.048425** **W29 42010.047930** **W29 42010.0462** **W29 42110.0477**	WOEX 080404-01 BK8425 WOEX 080404-01 BK7930 WOEX 080404-01 BK62 WOEX 080404-11 BK77	2	
D50 55320	D50 55120	N00 55821 M4,5×9-10IP 4,3 Nm	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm	**W29 50010.048425** **W29 50010.047930** **W29 50010.0462** **W29 50110.0477**	WOEX 100504-01 BK8425 WOEX 100504-01 BK7930 WOEX 100504-01 BK62 WOEX 100504-11 BK77	2	
D50 55330	D50 55130	N00 55901 M5,5×13,5-20IP 6,25 Nm	N00 52020 4/5×7,0	N00 57541 S/M5,5×11-20IP 6,25 Nm	**W29 58010.088425** **W29 58010.087930** **W29 58010.0862** **W29 58000.088425** **W29 58000.0821**	WOEX 120608-01 BK8425 WOEX 120608-01 BK7930 WOEX 120608-01 BK62 WOEX 120608-00 BK8425 WOEX 120608-00 K10	2	

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)

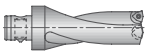


Guideline values for solid drilling: page 136 / alternative inserts: page 137.

KOMET KUB®

Ø 45 – 82 mm

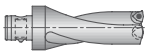
Indexable insert drill with ABS® connection, R.H. cutting



Guideline values for solid drilling						v_c	Max. feed f (mm/rev)					
							2×D			3×D		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 45 – 54	Ø 54,5 – 68	Ø 68,5 – 82	Ø 45 – 54	Ø 54,5 – 68	Ø 68,5 – 82
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,12	0,14	0,16	0,12	0,14	0,14
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,16	0,20	0,25	0,16	0,20	0,20
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,20	0,25	0,25	0,20	0,25	0,25
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	200	0,16	0,20	0,20	0,16	0,18	0,18
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	180	0,14	0,16	0,16	0,14	0,14	0,16
P	4.1			HSS		–	–	–	–	–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	60	0,10	0,12	0,14	0,10	0,12	0,14
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	80	0,12	0,14	0,16	0,12	0,14	0,14
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	180	0,14	0,16	0,16	0,14	0,14	0,16
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	160	0,14	0,16	0,16	0,14	0,16	0,16
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	160	0,12	0,16	0,18	0,12	0,16	0,16
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	200	0,25	0,30	0,30	0,25	0,25	0,30
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,18	0,30	0,30	0,18	0,20	0,25
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,25	0,30	0,30	0,25	0,25	0,30
K	9.1		230	spheroidal graphite cast iron, ferritic/ perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	160	0,25	0,30	0,30	0,25	0,25	0,30
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	140	0,25	0,30	0,30	0,25	0,25	0,30
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,25	0,30	0,30	0,25	0,25	0,30
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,20	0,25	0,30	0,20	0,20	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,20	0,25	0,25	0,20	0,20	0,25
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	400	0,12	0,16	0,16	0,12	0,12	0,14
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,12	0,12	0,14	0,12	0,12	0,14
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,20	0,25	0,25	0,20	0,25	0,25
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,25	0,30	0,30	0,25	0,30	0,30
H	15.0	1400		hardened steels < 45 HRC		80	0,12	0,14	0,14	0,12	0,14	0,14
H	16.0	1800		hardened steels > 45 HRC		40	0,10	0,10	0,10	0,10	0,10	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



for better chip control

ØD	Order No. ▽▽	ISO code	for workpiece material P M K N S H
	Indexable insert  -03  -13		
45 – 54	**W29 42130.048425**	WOEX 080404-13 BK8425	◐
	W29 42030.046425	WOEX 080404-03 BK6425 ⚠	◐
	W29 42130.0479	WOEX 080404-13 BK79	◑ ◐
55 – 68	**W29 50130.048425**	WOEX 100504-13 BK8425	◐
	W29 50030.086425	WOEX 100508-03 BK6425 ⚠	◐
	W29 50130.0479	WOEX 100504-13 BK79	◑ ◐
69 – 82	**W29 58130.088425**	WOEX 120608-13 BK8425	◐
	W29 58030.086425	WOEX 120608-03 BK6425 ⚠	◐
	W29 58130.0879	WOEX 120608-13 BK79	◑

⚠ Only use this insert with KUB®
as an external cutting edge:
WOEX ... -03 (Geometry 03)
WOEX ... -01 (Geometry 01) in BK6115
WOEX ... -01 (Geometry 01) in BK6420

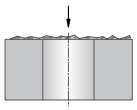
for higher cutting speed

ØD	Order No.	ISO code	for workpiece material P M K N S H
	Indexable insert  -00 -01  -11		
45 – 54	**W29 42010.0472**	WOEX 080404-01 BK72	◐
	W29 42110.0450	WOEX 080404-11 BK50	◐
55 – 68	**W29 50010.0872**	WOEX 100508-01 BK72	◐
	W29 50110.0450	WOEX 100504-11 BK50	◐
69 – 82	**W29 58010.0872**	WOEX 120608-01 BK72	◐
	W29 58000.0862	WOEX 120608-00 BK62	◐ ◑

for greater strength

ØD	Order No.	ISO code	for workpiece material P M K N S H
45 – 54	**W29 42010.047930**	WOEX 080404-01 BK7930	◐ ◐
	W29 42010.0404	WOEX 080404-01 P40	◐ ◑ ◐
	W29 42010.0421	WOEX 080404-01 K10	◐
	W29 42110.0421	WOEX 080404-11 K10	◐
55 – 68	**W29 50010.047930**	WOEX 100504-01 BK7930	◐ ◐
	W29 50010.0804	WOEX 100508-01 P40	◐ ◑ ◐
	W29 50010.0821	WOEX 100508-01 K10	◐
	W29 50110.0421	WOEX 100504-11 K10	◐
69 – 82	**W29 58010.087930**	WOEX 120608-01 BK7930	◐ ◐
	W29 58010.0804	WOEX 120608-01 P40	◐ ◑ ◐
	W29 58010.0821	WOEX 120608-01 K10	◐
	W29 58000.0821	WOEX 120608-00 K10	◐

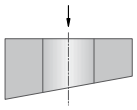
Technical informations

1. 

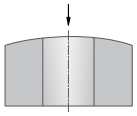
Starting on uneven surfaces (cast surfaces)
- subject to the surface, reduce feed as required when starting the bore

2. 

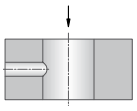
Starting on angled surfaces
- subject to the starting angle, the feed must be reduced when starting the bore.
  Rule of thumb: 3° ≙ 30%; 10° ≙ 40%; 25° ≙ 60% use tools max. 2×D
- use tough insertand stable corner radius

3. 

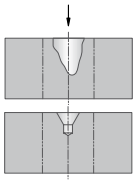
Angled bore exit
- from wear cut is interrupted reduce feed rate up to 50%
- use tough insertand stable corner radius

4. 

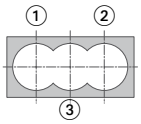
Starting on cambered surfaces
- no problems
- reduce feed rate if necessary

5. 

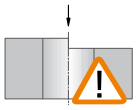
Drilling through a cross bore
- reduce feed rate 50% if necessary
- watch for chip jamming around tool
- use tough insertand stable corner radius

6. 

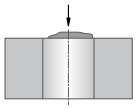
Starting on a groove or large centering bore
- use short tools, max. 3×D
- spot face if required
- reduce feed
- use tough insert for internal cutting edge

7. 

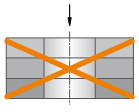
Drilling a chamber
- first bore Nos. 1 + 2, then bore No. 3
- check distribution is symmetrical
- avoid chip jams
- if necessary reduce to approx. 1-1.5 mm in the ∅ on circumference
- reduce feed rate 50% for interrupted cut
- use tough insertand stable corner radius

8. 

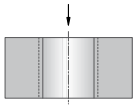
Starting on an edge
- reduce feed rate by 50%
- use tough insertand stable corner radius

9. 

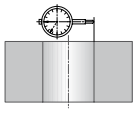
Starting on a welded seam
- reduce feed rate
- use max. 3×D tools

10. 

Drilling through stacked plates
- not possible

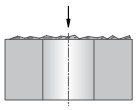
11. 

Roughing
- possible

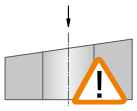
12. 

Adjustable
- using adjusting device (ABS-MV) and eccentric adjusting device
- for turning machines over axis

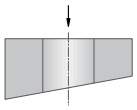
Note: please note max. offset ∅ in tables

1. 

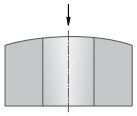
Starting on uneven surfaces (cast surfaces)
- subject to the surface, reduce feed as required when starting the bore

2. 

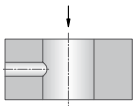
Starting on angled surfaces
- max. 3° angled position possible (cast angles)
- reduce feed rate when starting bore
- use stable corner radius

3. 

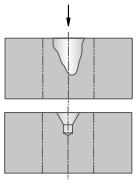
Angled bore exit
- from wear cut is interrupted reduce feed rate up to 50%
- use tough insertand stable corner radius

4. 

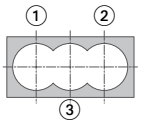
Starting on cambered surfaces
- no problems
- reduce feed rate if necessary

5. 

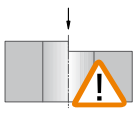
Drilling through a cross bore
- reduce feed rate 50% if necessary
- watch for chip jamming around tool
- use tough insertand stable corner radius

6. 

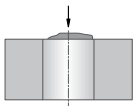
Starting on a groove or large centering bore
- use short tools, max. 3×D
- spot face if required
- reduce feed
- use tough insert for internal cutting edge

7. 

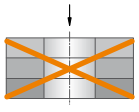
Drilling a chamber
- first bore Nos. 1 + 2, then bore No. 3
- check distribution is symmetrical
- avoid chip jams
- if necessary reduce to approx. 1-1.5 mm in the ∅ on circumference
- reduce feed rate 50% for interrupted cut
- use tough insertand stable corner radius

8. 

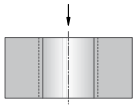
Starting on an edge
- not possible for 3×D tools
- because of the undefined surface for starting the bore, pre-machining is required (spot facing, face milling)
- then continue as described under Point 1

9. 

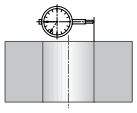
Starting on a welded seam
- reduce feed rate
- use max. 3×D tools

10. 

Drilling through stacked plates
- not possible

11. 

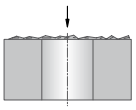
Roughing
- possible

12. 

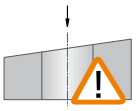
Adjustable
- using adjusting device (ABS-MV) and eccentric adjusting device
- for turning machines over axis

Note: please note max. offset ∅ in tables

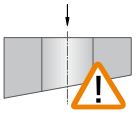
Technical informations

1. 

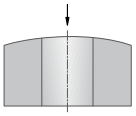
   Starting on uneven surfaces (cast surfaces)
   - subject to the surface, reduce feed as required when starting the bore

2. 

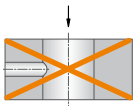
   Starting on angled surfaces
   - not possible for 4×D tools
   - starting surface must be spot faced or spot milled

3. 

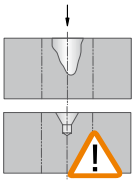
   Angled bore exit
   - reduce feed by up to 50% for 4×D tools

4. 

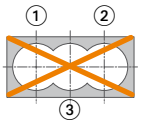
   Starting on cambered surfaces
   - starting surface must be milled evenly

5. 

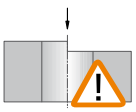
   Drilling through a cross bore
   - not possible with 4×D tools
   - if necessary apply cross bore later

6. 

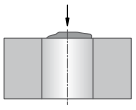
   Starting on a groove or large centering bore
   - points for starting bore must be rough machined first

7. 

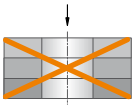
   Drilling a chamber
   - not possible

8. 

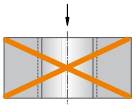
   Starting on an edge
   - not possible for 4×D tools
   - because of the undefined surface for starting the bore, pre-machining is required (spot facing, face milling)
   - then continue as described under Point 1

9. 

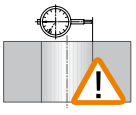
   Starting on a welded seam
   - reduce feed by up to 50% for 4×D tools
   - if necessary pre-machine point for starting bore

10. 

    Drilling through stacked plates
    - not possible

11. 

    Roughing
    - not possible

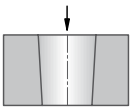
12. 

    adjustable
    - dimensional adjustment within 1/10 range possible

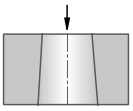
rotating and stationary use



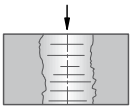
Short tool life types of wear on inserts
- cutting speed to high → select correct cutting speed
- cutting material with too little wear resistance → select grade with higher wear resistance
- tool overhang too great → if possible use shorter tool
- damaged insert seating → check tool, change if necessary
- clamping device not stable enough → improve stability



Bore narrows at bottom
- chip jam on external cutting edge → use different chip fracture geometry, increase feed if necessary
- material very soft → increase cutting speed, reduce feed. Use positive chip geometry



Bore widens at bottom
- chip jam on internal cutting edge → use different chip fracture geometry, increase feed if necessary



Bad surface finish
- bad chip removal → improve cutting parameters: increase cutting speed reduce feed

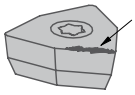
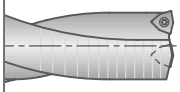
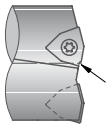


Bild up on cutting edge
- cutting speed too low → increase cutting speed
- insert too negative → use positive geometry
- coating not suitable → select correct coating

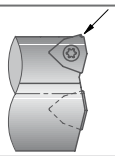


Friction marks on tool shank
- bore diameter too small → check setting
- chip removal problems → improve cutting parameters, check geometry of inserts
- cutting edge corner radius too large → use correct cutting edge radius

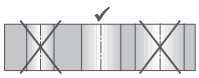
stationary use



Fracture on internal cutting edge
- drill bit height of tool too high/too low → tool turret/holder may have shifted. Readjust machine
- mix-up between renforced/non renforced insert → use correct insert
- feed rate too high → reduce feed rate
- insert grade too brittle → use tougher insert grade
- wrong insert geometry → use geometry with chamfered cutting edge

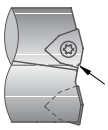


Fracture on external cutting edge
- feed rate too high → reduce feed rate
- interrupted cut → change to tougher insert grade
- cutting edge corner radius too small → use insert with larger cutting edge radius

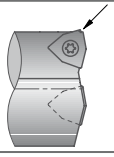


Bore too small/ too large
- machine not at X-0 position → move axis to correct position
- machine axis shifted → readjust machine

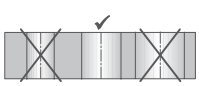
rotating use



Fracture on internal cutting edge
- mix-up between renforced/non renforced insert → use correct insert
- feed rate too high → reduce feed rate
- insert grade too brittle → use tougher insert grade
- wrong insert geometry → use geometry with chamfered cutting edge



Fracture on external cutting edge
- feed rate too high → reduce feed rate
- interrupted cut → change to tougher insert grade
- cutting edge corner radius too small → use insert with larger cutting edge radius



Bore too small/ too large with adjustable tool
- wrong cutting edge radius used → use correct cutting edge radius
- setting wrong → correct setting

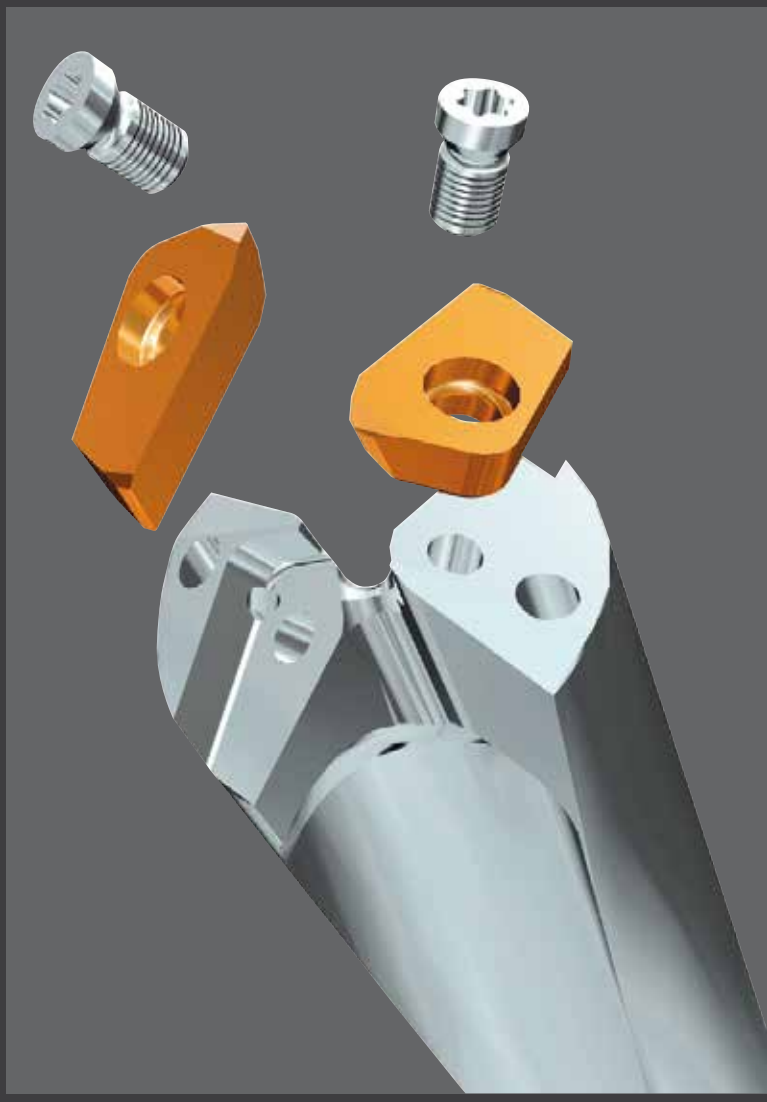
KOMET KUB Duon ®

Continuous drilling to 5×D



With our KOMET KUB Duon ® drill concept, we have incorporated the principle of exchangeable cutting elements in double-edged tools.

The KOMET KUB Duon ® is supplied as standard in drilling depths up to 5×D with combination shank DIN 6536 HE and DIN 6595 and also with ABS ® connection.



BENEFITS for you:

- Twin cutting edges with high cutting speeds
- Drills with 2 replaceable screw-on cutter bodies; no regrinding necessary
- Face side, tangential mounting of inserts produces greater stability
- Precision ground inserts
- Intermediate dimensions can be changed very flexibly on standard tool bodies by means of the inserts
- Bore machining accurate and highly productive

Flexibility is the trump card:

1 Design to customer requirement e.g. with integral steps or chamfering insert

2 Suitable for retro-fitting a chamfering cartridge







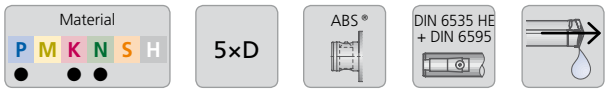
KOMET KUB Duon®

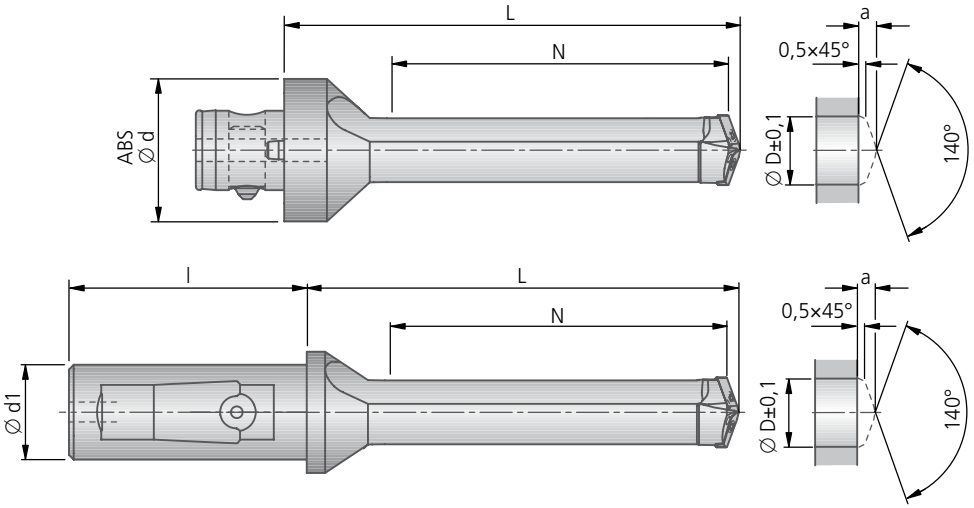
	Page
ABS® connection	144 – 159
R.H. cutting Drilling depth 5×D – ∅ 17.3 - 44.2 mm	
Cylindrical shank (combination shank)	144 – 155
R.H. cutting Drilling depth 5×D – ∅ 17.3 - 36.2 mm	
Technical notes	160
Guideline values for solid drilling	
Pre-centering	161
ABS® connection Cylindrical shank (combination shank)	
Technical informations	162
Problems → Causes → Solutions	163
Milling cartridge	Chapter 6

KOMET KUB Duon ®

Ø 17,3 – 20,7 mm

Twin cutting drill

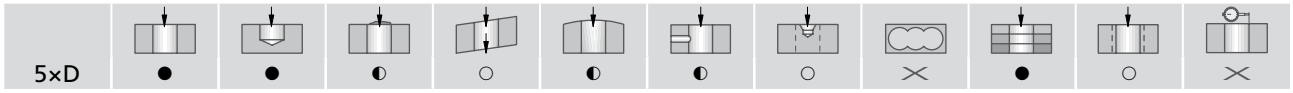




		ABS ®					Cylindrical shank						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Cylindrical shank Ød1×l	Order No.	N	L	kg ~	Clamping screw Order No. Article	
17,3	4,0												
17,4	4,1												
17,5	4,1	50	**U20 01750**	90	125	0,6	25×56	**U20 71750**	90	114	0,34	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
17,6	4,1												
17,7	4,1												
17,8													
17,9													
18,0	4,1	50	**U20 01800**	90	125	0,6	25×56	**U20 71800**	90	114	0,34	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
18,1													
18,2													
18,3													
18,4													
18,5	4,2	50	**U20 01850**	95	130	0,6	25×56	**U20 71850**	95	119	0,35	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
18,6													
18,7													
18,8													
18,9													
19,0	4,3	50	**U20 01900**	95	130	0,6	25×56	**U20 71900**	95	119	0,35	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
19,1													
19,2													
19,3													
19,4													
19,5	4,4	50	**U20 01950**	100	135	0,6	32×60	**U20 81950**	100	124	0,56	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
19,6													
19,7													
19,8													
19,9													
20,0	4,5	50	**U20 02000**	100	135	0,6	32×60	**U20 82000**	100	124	0,56	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
20,1													
20,2													
20,3													
20,4													
20,5	4,5	50	**U20 02050**	105	140	0,6	32×60	**U20 82050**	105	134	0,57	**N00 57660** S/M2,2×4,8-6IP 1,01 Nm	
20,6													
20,7													

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 18.0 mm, coating BK84, Order No.: H60 18000.84

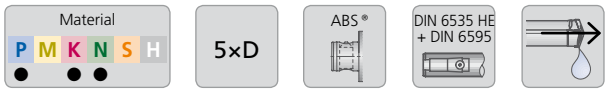
Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P K N ●	●	◐ ◐ ◐		P K N	●
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX 0802-17,3...	H60 17300. ..				XOHX 0802-17,3-62...	H62 17300. ..	
XOHX 0802-17,4...	H60 17400. ..				XOHX 0802-17,4-62...	H62 17400. ..	
XOHX 0802-17,5...	H60 17500. ..	8440	2715	84	XOHX 0802-17,5-62...	H62 17500. ..	7710
XOHX 0802-17,6...	H60 17600. ..				XOHX 0802-17,6-62...	H62 17600. ..	
XOHX 0802-17,7...	H60 17700. ..				XOHX 0802-17,7-62...	H62 17700. ..	
XOHX 0802-17,8...	H60 17800. ..				XOHX 0802-17,8-62...	H62 17800. ..	
XOHX 0802-17,9...	H60 17900. ..				XOHX 0802-17,9-62...	H62 17900. ..	
XOHX 0802-18,0...	H60 18000. ..	8440	2715	84	XOHX 0802-18,0-62...	H62 18000. ..	7710
XOHX 0802-18,1...	H60 18100. ..				XOHX 0802-18,1-62...	H62 18100. ..	
XOHX 0802-18,2...	H60 18200. ..				XOHX 0802-18,2-62...	H62 18200. ..	
XOHX 0802-18,3...	H60 18300. ..				XOHX 0802-18,3-62...	H62 18300. ..	
XOHX 0802-18,4...	H60 18400. ..				XOHX 0802-18,4-62...	H62 18400. ..	
XOHX 0802-18,5...	H60 18500. ..	8440	2715	84	XOHX 0802-18,5-62...	H62 18500. ..	7710
XOHX 0802-18,6...	H60 18600. ..				XOHX 0802-18,6-62...	H62 18600. ..	
XOHX 0802-18,7...	H60 18700. ..				XOHX 0802-18,7-62...	H62 18700. ..	
XOHX 0802-18,8...	H60 18800. ..				XOHX 0802-18,8-62...	H62 18800. ..	
XOHX 0802-18,9...	H60 18900. ..				XOHX 0802-18,9-62...	H62 18900. ..	
XOHX 0802-19,0...	H60 19000. ..	8440	2715	84	XOHX 0802-19,0-62...	H62 19000. ..	7710
XOHX 0802-19,1...	H60 19100. ..				XOHX 0802-19,1-62...	H62 19100. ..	
XOHX 0802-19,2...	H60 19200. ..				XOHX 0802-19,2-62...	H62 19200. ..	
XOHX 0802-19,3...	H60 19300. ..				XOHX 0802-19,3-62...	H62 19300. ..	
XOHX 0802-19,4...	H60 19400. ..				XOHX 0802-19,4-62...	H62 19400. ..	
XOHX 0802-19,5...	H60 19500. ..	8440	2715	84	XOHX 0802-19,5-62...	H62 19500. ..	7710
XOHX 0802-19,6...	H60 19600. ..				XOHX 0802-19,6-62...	H62 19600. ..	
XOHX 0802-19,7...	H60 19700. ..				XOHX 0802-19,7-62...	H62 19700. ..	
XOHX 0802-19,8...	H60 19800. ..				XOHX 0802-19,8-62...	H62 19800. ..	
XOHX 0802-19,9...	H60 19900. ..				XOHX 0802-19,9-62...	H62 19900. ..	
XOHX 0802-20,0...	H60 20000. ..	8440	2715	84	XOHX 0802-20,0-62...	H62 20000. ..	7710
XOHX 0802-20,1...	H60 20100. ..				XOHX 0802-20,1-62...	H62 20100. ..	
XOHX 0802-20,2...	H60 20200. ..				XOHX 0802-20,2-62...	H62 20200. ..	
XOHX 0802-20,3...	H60 20300. ..				XOHX 0802-20,3-62...	H62 20300. ..	
XOHX 0802-20,4...	H60 20400. ..				XOHX 0802-20,4-62...	H62 20400. ..	
XOHX 0802-20,5...	H60 20500. ..	8440	2715	84	XOHX 0802-20,5-62...	H62 20500. ..	7710
XOHX 0802-20,6...	H60 20600. ..				XOHX 0802-20,6-62...	H62 20600. ..	
XOHX 0802-20,7...	H60 20700. ..				XOHX 0802-20,7-62...	H62 20700. ..	

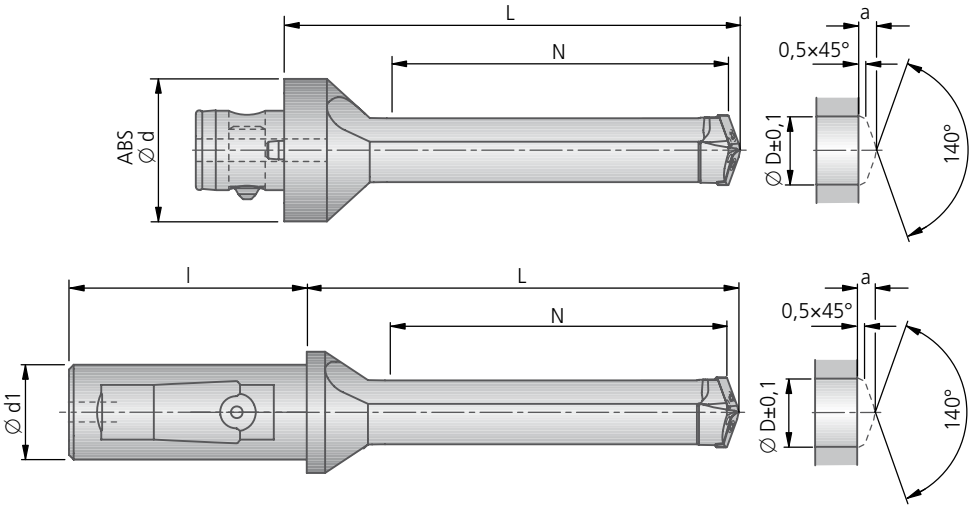
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 20,8 – 24,2 mm

Twin cutting drill

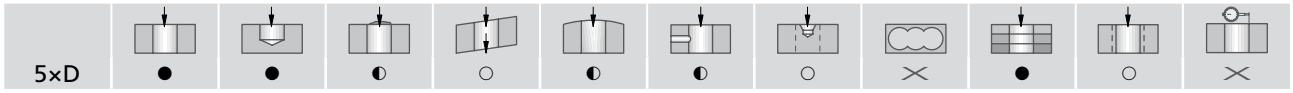




		ABS ®					Cylindrical shank						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Cylindrical shank Ød1×l	Order No.	N	L	kg ~	Clamping screw Order No. Article	
20,8													
20,9													
21,0	4,8	50	**U20 02100**	105	140	0,6	32×60	**U20 82100**	105	134	0,58	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
21,1													
21,2													
21,3													
21,4													
21,5	4,9	50	**U20 02150**	110	145	0,6	32×60	**U20 82150**	110	139	0,59	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
21,6													
21,7													
21,8													
21,9													
22,0	5,0	50	**U20 02200**	110	145	0,6	32×60	**U20 82200**	110	139	0,6	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
22,1													
22,2													
22,3													
22,4													
22,5	5,1	50	**U20 02250**	115	150	0,6	32×60	**U20 82250**	115	144	0,61	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
22,6													
22,7													
22,8													
22,9													
23,0	5,1	50	**U20 02300**	115	150	0,6	32×60	**U20 82300**	115	144	0,62	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
23,1													
23,2													
23,3													
23,4													
23,5	5,2	50	**U20 02350**	120	155	0,7	32×60	**U20 82350**	120	149	0,64	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
23,6													
23,7													
23,8													
23,9													
24,0	5,3	50	**U20 02400**	120	155	0,7	32×60	**U20 82400**	120	149	0,65	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
24,1													
24,2													

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 21.0 mm, coating BK84, Order No.: H60 21000.84

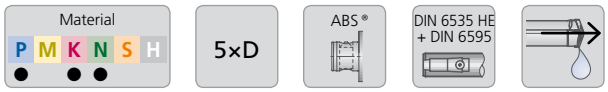
Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P ●	●	◐			
		K		◐			
		N		◐		P K N	●
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX1003-20,8....	H60 20800. ..				XOHX1003-20,8-62...	H62 20800. ..	
XOHX1003-20,9....	H60 20900. ..				XOHX1003-20,9-62...	H62 20900. ..	
XOHX1003-21,0....	H60 21000. ..	8440	2715	84	XOHX1003-21,0-62...	H62 21000. ..	7710
XOHX1003-21,1....	H60 21100. ..				XOHX1003-21,1-62...	H62 21100. ..	
XOHX1003-21,2....	H60 21200. ..				XOHX1003-21,2-62...	H62 21200. ..	
XOHX1003-21,3....	H60 21300. ..				XOHX1003-21,3-62...	H62 21300. ..	
XOHX1003-21,4....	H60 21400. ..				XOHX1003-21,4-62...	H62 21400. ..	
XOHX1003-21,5....	H60 21500. ..	8440	2715	84	XOHX1003-21,5-62...	H62 21500. ..	7710
XOHX1003-21,6....	H60 21600. ..				XOHX1003-21,6-62...	H62 21600. ..	
XOHX1003-21,7....	H60 21700. ..				XOHX1003-21,7-62...	H62 21700. ..	
XOHX1003-21,8....	H60 21800. ..				XOHX1003-21,8-62...	H62 21800. ..	
XOHX1003-21,9....	H60 21900. ..				XOHX1003-21,9-62...	H62 21900. ..	
XOHX1003-22,0....	H60 22000. ..	8440	2715	84	XOHX1003-22,0-62...	H62 22000. ..	7710
XOHX1003-22,1....	H60 22100. ..				XOHX1003-22,1-62...	H62 22100. ..	
XOHX1003-22,2....	H60 22200. ..				XOHX1003-22,2-62...	H62 22200. ..	
XOHX1003-22,3....	H60 22300. ..				XOHX1003-22,3-62...	H62 22300. ..	
XOHX1003-22,4....	H60 22400. ..				XOHX1003-22,4-62...	H62 22400. ..	
XOHX1003-22,5....	H60 22500. ..	8440	2715	84	XOHX1003-22,5-62...	H62 22500. ..	7710
XOHX1003-22,6....	H60 22600. ..				XOHX1003-22,6-62...	H62 22600. ..	
XOHX1003-22,7....	H60 22700. ..				XOHX1003-22,7-62...	H62 22700. ..	
XOHX1003-22,8....	H60 22800. ..				XOHX1003-22,8-62...	H62 22800. ..	
XOHX1003-22,9....	H60 22900. ..				XOHX1003-22,9-62...	H62 22900. ..	
XOHX1003-23,0....	H60 23000. ..	8440	2715	84	XOHX1003-23,0-62...	H62 23000. ..	7710
XOHX1003-23,1....	H60 23100. ..				XOHX1003-23,1-62...	H62 23100. ..	
XOHX1003-23,2....	H60 23200. ..				XOHX1003-23,2-62...	H62 23200. ..	
XOHX1003-23,3....	H60 23300. ..				XOHX1003-23,3-62...	H62 23300. ..	
XOHX1003-23,4....	H60 23400. ..				XOHX1003-23,4-62...	H62 23400. ..	
XOHX1003-23,5....	H60 23500. ..	8440	2715	84	XOHX1003-23,5-62...	H62 23500. ..	7710
XOHX1003-23,6....	H60 23600. ..				XOHX1003-23,6-62...	H62 23600. ..	
XOHX1003-23,7....	H60 23700. ..				XOHX1003-23,7-62...	H62 23700. ..	
XOHX1003-23,8....	H60 23800. ..				XOHX1003-23,8-62...	H62 23800. ..	
XOHX1003-23,9....	H60 23900. ..				XOHX1003-23,9-62...	H62 23900. ..	
XOHX1003-24,0....	H60 24000. ..	8440	2715	84	XOHX1003-24,0-62...	H62 24000. ..	7710
XOHX1003-24,1....	H60 24100. ..				XOHX1003-24,1-62...	H62 24100. ..	
XOHX1003-24,2....	H60 24200. ..				XOHX1003-24,2-62...	H62 24200. ..	

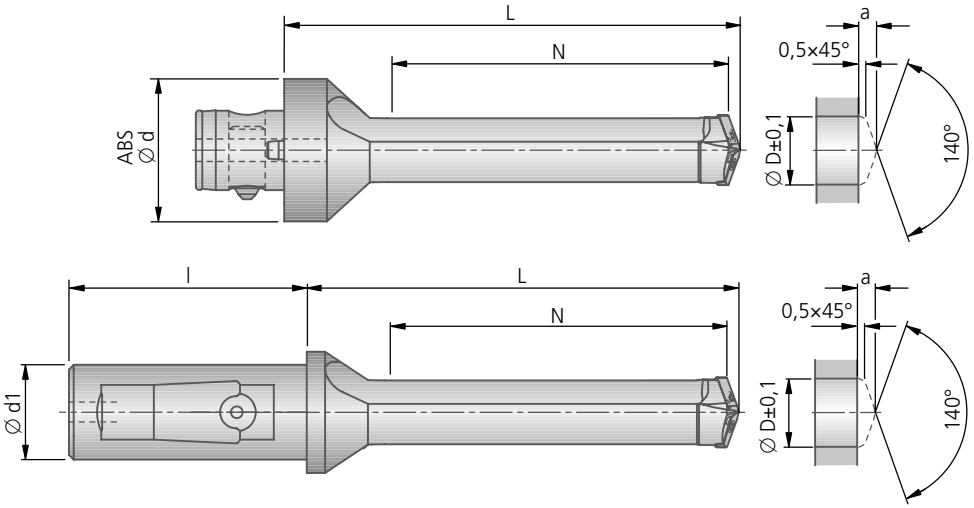
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 24,3 – 27,7 mm

Twin cutting drill

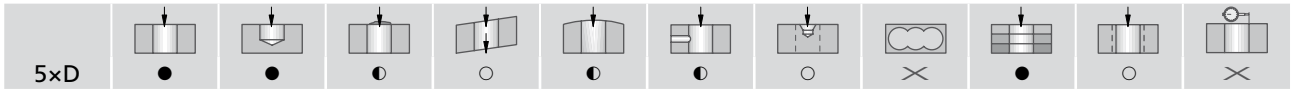




		ABS ®					Cylindrical shank						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Cylindrical shank Ød1×l	Order No.	N	L	kg ~	Clamping screw Order No. Article	
24,3													
24,4													
24,5	5,4	50	**U20 02450**	125	160	0,7	32×60	**U20 82450**	125	154	0,67	**N00 57630** S/M3×5,8-8IP 2,25 Nm	
24,6													
24,7													
24,8													
24,9													
25,0	5,7	50	**U20 02500**	125	160	0,7	32×60	**U20 82500**	125	154	0,68	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
25,1													
25,2													
25,3													
25,4													
25,5	5,7	50	**U20 02550**	130	165	0,7	32×60	**U20 82550**	130	159	0,69	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
25,6													
25,7													
25,8													
25,9													
26,0	5,8	50	**U20 02600**	130	165	0,7	32×60	**U20 82600**	130	159	0,71	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
26,1													
26,2													
26,3													
26,4													
26,5	5,9	50	**U20 02650**	135	170	0,7	32×60	**U20 82650**	135	164	0,73	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
26,6													
26,7													
26,8													
26,9													
27,0	6,0	50	**U20 02700**	135	170	0,7	32×60	**U20 82700**	135	164	0,74	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
27,1													
27,2													
27,3													
27,4													
27,5	6,1	50	**U20 02750**	140	175	0,8	40×68	**U20 92750**	140	169	1,11	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
27,6													
27,7													

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 25.0 mm, coating BK84, Order No.: H60 25000.84

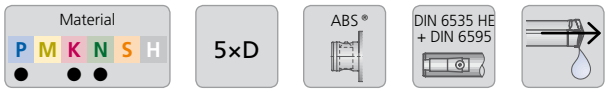
Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P ●		◐			
		K	●	◐			
		N		◐			●
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX1003-24,3....	H60 24300. ..				XOHX1003-24,3-62...	H62 24300. ..	
XOHX1003-24,4....	H60 24400. ..				XOHX1003-24,4-62...	H62 24400. ..	
XOHX1003-24,5....	H60 24500. ..	8440	2715	84	XOHX1003-24,5-62...	H62 24500. ..	7710
XOHX1003-24,6....	H60 24600. ..				XOHX1003-24,6-62...	H62 24600. ..	
XOHX1003-24,7....	H60 24700. ..				XOHX1003-24,7-62...	H62 24700. ..	
XOHX12T3-24,8....	H60 24800. ..				XOHX12T3-24,8-62...	H62 24800. ..	
XOHX12T3-24,9....	H60 24900. ..				XOHX12T3-24,9-62...	H62 24900. ..	
XOHX12T3-25,0....	H60 25000. ..	8440	2715	84	XOHX12T3-25,0-62...	H62 25000. ..	7710
XOHX12T3-25,1....	H60 25100. ..				XOHX12T3-25,1-62...	H62 25100. ..	
XOHX12T3-25,2....	H60 25200. ..				XOHX12T3-25,2-62...	H62 25200. ..	
XOHX12T3-25,3....	H60 25300. ..				XOHX12T3-25,3-62...	H62 25300. ..	
XOHX12T3-25,4....	H60 25400. ..				XOHX12T3-25,4-62...	H62 25400. ..	
XOHX12T3-25,5....	H60 25500. ..	8440	2715	84	XOHX12T3-25,5-62...	H62 25500. ..	7710
XOHX12T3-25,6....	H60 25600. ..				XOHX12T3-25,6-62...	H62 25600. ..	
XOHX12T3-25,7....	H60 25700. ..				XOHX12T3-25,7-62...	H62 25700. ..	
XOHX12T3-25,8....	H60 25800. ..				XOHX12T3-25,8-62...	H62 25800. ..	
XOHX12T3-25,9....	H60 25900. ..				XOHX12T3-25,9-62...	H62 25900. ..	
XOHX12T3-26,0....	H60 26000. ..	8440	2715	84	XOHX12T3-26,0-62...	H62 26000. ..	7710
XOHX12T3-26,1....	H60 26100. ..				XOHX12T3-26,1-62...	H62 26100. ..	
XOHX12T3-26,2....	H60 26200. ..				XOHX12T3-26,2-62...	H62 26200. ..	
XOHX12T3-26,3....	H60 26300. ..				XOHX12T3-26,3-62...	H62 26300. ..	
XOHX12T3-26,4....	H60 26400. ..				XOHX12T3-26,4-62...	H62 26400. ..	
XOHX12T3-26,5....	H60 26500. ..	8440	2715	84	XOHX12T3-26,5-62...	H62 26500. ..	7710
XOHX12T3-26,6....	H60 26600. ..				XOHX12T3-26,6-62...	H62 26600. ..	
XOHX12T3-26,7....	H60 26700. ..				XOHX12T3-26,7-62...	H62 26700. ..	
XOHX12T3-26,8....	H60 26800. ..				XOHX12T3-26,8-62...	H62 26800. ..	
XOHX12T3-26,9....	H60 26900. ..				XOHX12T3-26,9-62...	H62 26900. ..	
XOHX12T3-27,0....	H60 27000. ..	8440	2715	84	XOHX12T3-27,0-62...	H62 27000. ..	7710
XOHX12T3-27,1....	H60 27100. ..				XOHX12T3-27,1-62...	H62 27100. ..	
XOHX12T3-27,2....	H60 27200. ..				XOHX12T3-27,2-62...	H62 27200. ..	
XOHX12T3-27,3....	H60 27300. ..				XOHX12T3-27,3-62...	H62 27300. ..	
XOHX12T3-27,4....	H60 27400. ..				XOHX12T3-27,4-62...	H62 27400. ..	
XOHX12T3-27,5....	H60 27500. ..	8440	2715	84	XOHX12T3-27,5-62...	H62 27500. ..	7710
XOHX12T3-27,6....	H60 27600. ..				XOHX12T3-27,6-62...	H62 27600. ..	
XOHX12T3-27,7....	H60 27700. ..				XOHX12T3-27,7-62...	H62 27700. ..	

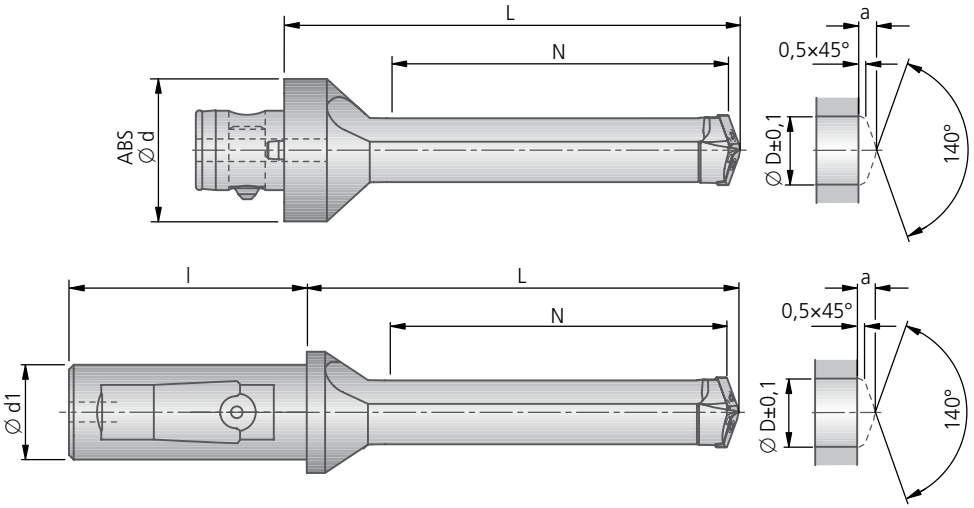
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 27,8 – 31,2 mm

Twin cutting drill

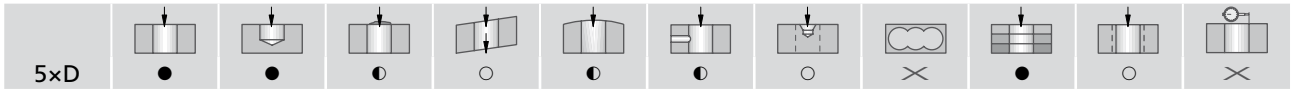




		ABS ®					Cylindrical shank						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Cylindrical shank Ød1×l	Order No.	N	L	kg ~	Clamping screw Order No. Article	
27,8													
27,9													
28,0	6,1	50	**U20 02800**	140	175	0,8	40×68	**U20 92800**	140	169	1,12	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
28,1													
28,2													
28,3													
28,4													
28,5	6,2	50	**U20 02850**	145	180	0,8	40×68	**U20 92850**	145	174	1,14	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
28,6													
28,7													
28,8													
28,9													
29,0	6,3	50	**U20 02900**	145	180	0,8	40×68	**U20 92900**	145	174	1,16	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
29,1													
29,2													
29,3													
29,4													
29,5	6,4	50	**U20 02950**	150	185	0,9	40×68	**U20 92950**	150	179	1,18	**N00 57640** S/M3,5×6,9-10IP 2,8 Nm	
29,6													
29,7													
29,8													
29,9													
30,0	6,7	50	**U20 03000**	150	185	0,9	40×68	**U20 93000**	150	179	1,20	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
30,1													
30,2													
30,3													
30,4													
30,5	6,7	50	**U20 03050**	155	190	0,9	40×68	**U20 93050**	155	184	1,22	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
30,6													
30,7													
30,8													
30,9													
31,0	6,8	50	**U20 03100**	155	190	0,9	40×68	**U20 93100**	155	184	1,24	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
31,1													
31,2													

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 28.0 mm, coating BK84, Order No.: H60 28000.84

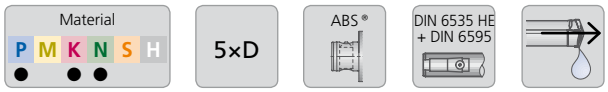
Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P K N ●	●	◐ ◐ ◐		P K N ●	
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX12T3-27,8...	H60 27800. ..				XOHX12T3-27,8-62...	H62 27800. ..	
XOHX12T3-27,9....	H60 27900. ..				XOHX12T3-27,9-62...	H62 27900. ..	
XOHX12T3-28,0....	H60 28000. ..	8440	2715	84	XOHX12T3-28,0-62...	H62 28000. ..	7710
XOHX12T3-28,1....	H60 28100. ..				XOHX12T3-28,1-62...	H62 28100. ..	
XOHX12T3-28,2....	H60 28200. ..				XOHX12T3-28,2-62...	H62 28200. ..	
XOHX12T3-28,3....	H60 28300. ..				XOHX12T3-28,3-62...	H62 28300. ..	
XOHX12T3-28,4....	H60 28400. ..				XOHX12T3-28,4-62...	H62 28400. ..	
XOHX12T3-28,5....	H60 28500. ..	8440	2715	84	XOHX12T3-28,5-62...	H62 28500. ..	7710
XOHX12T3-28,6....	H60 28600. ..				XOHX12T3-28,6-62...	H62 28600. ..	
XOHX12T3-28,7....	H60 28700. ..				XOHX12T3-28,7-62...	H62 28700. ..	
XOHX12T3-28,8....	H60 28800. ..				XOHX12T3-28,8-62...	H62 28800. ..	
XOHX12T3-28,9....	H60 28900. ..				XOHX12T3-28,9-62...	H62 28900. ..	
XOHX12T3-29,0....	H60 29000. ..	8440	2715	84	XOHX12T3-29,0-62...	H62 29000. ..	7710
XOHX12T3-29,1....	H60 29100. ..				XOHX12T3-29,1-62...	H62 29100. ..	
XOHX12T3-29,2....	H60 29200. ..				XOHX12T3-29,2-62...	H62 29200. ..	
XOHX12T3-29,3....	H60 29300. ..				XOHX12T3-29,3-62...	H62 29300. ..	
XOHX12T3-29,4....	H60 29400. ..				XOHX12T3-29,4-62...	H62 29400. ..	
XOHX12T3-29,5....	H60 29500. ..	8440	2715	84	XOHX12T3-29,5-62...	H62 29500. ..	7710
XOHX12T3-29,6....	H60 29600. ..				XOHX12T3-29,6-62...	H62 29600. ..	
XOHX12T3-29,7....	H60 29700. ..				XOHX12T3-29,7-62...	H62 29700. ..	
XOHX1504-29,8....	H60 29800. ..				XOHX1504-29,8-62...	H62 29800. ..	
XOHX1504-29,9....	H60 29900. ..				XOHX1504-29,9-62...	H62 29900. ..	
XOHX1504-30,0....	H60 30000. ..	8440	2715	84	XOHX1504-30,0-62...	H62 30000. ..	7710
XOHX1504-30,1....	H60 30100. ..				XOHX1504-30,1-62...	H62 30100. ..	
XOHX1504-30,2....	H60 30200. ..				XOHX1504-30,2-62...	H62 30200. ..	
XOHX1504-30,3....	H60 30300. ..				XOHX1504-30,3-62...	H62 30300. ..	
XOHX1504-30,4....	H60 30400. ..				XOHX1504-30,4-62...	H62 30400. ..	
XOHX1504-30,5....	H60 30500. ..	8440	2715	84	XOHX1504-30,5-62...	H62 30500. ..	7710
XOHX1504-30,6....	H60 30600. ..				XOHX1504-30,6-62...	H62 30600. ..	
XOHX1504-30,7....	H60 30700. ..				XOHX1504-30,7-62...	H62 30700. ..	
XOHX1504-30,8....	H60 30800. ..				XOHX1504-30,8-62...	H62 30800. ..	
XOHX1504-30,9....	H60 30900. ..				XOHX1504-30,9-62...	H62 30900. ..	
XOHX1504-31,0....	H60 31000. ..	8440	2715	84	XOHX1504-31,0-62...	H62 31000. ..	7710
XOHX1504-31,1....	H60 31100. ..				XOHX1504-31,1-62...	H62 31100. ..	
XOHX1504-31,2....	H60 31200. ..				XOHX1504-31,2-62...	H62 31200. ..	

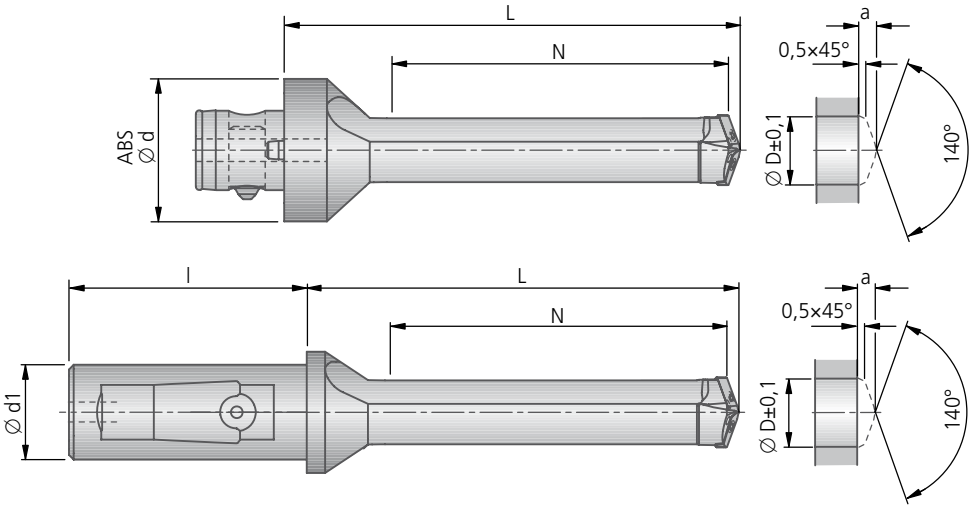
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 31,3 – 34,7 mm

Twin cutting drill

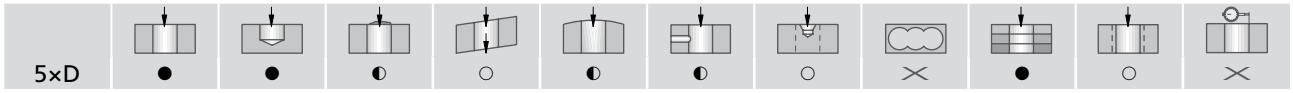




		ABS ®					Cylindrical shank						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Cylindrical shank Ød1×l	Order No.	N	L	kg ~	Clamping screw Order No. Article	
31,3													
31,4													
31,5	6,9	50	**U20 03150**	160	195	0,9	40×68	**U20 93150**	160	189	1,27	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
31,6													
31,7													
31,8													
31,9													
32,0	7,0	50	**U20 03200**	160	195	0,9	40×68	**U20 93200**	160	189	1,28	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
32,1													
32,2													
32,3													
32,4													
32,5	7,1	50	**U20 03250**	165	200	0,9	40×68	**U20 93250**	165	194	1,32	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
32,6													
32,7													
32,8													
32,9													
33,0	7,1	50	**U20 03300**	165	200	0,9	40×68	**U20 93300**	165	194	1,33	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
33,1													
33,2													
33,3													
33,4													
33,5	7,2	50	**U20 03350**	170	205	0,9	40×68	**U20 93350**	170	199	1,36	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
33,6													
33,7													
33,8													
33,9													
34,0	7,3	50	**U20 03400**	170	205	1,0	40×68	**U20 93400**	170	199	1,37	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
34,1													
34,2													
34,3													
34,4													
34,5	7,4	50	**U20 03450**	175	210	1,0	40×68	**U20 93450**	175	204	1,41	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
34,6													
34,7													

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 32.0 mm, coating BK84, Order No.: H60 32000.84

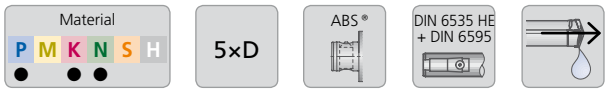
Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P K N ●	●	◐ ◐ ◐		P K N	●
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX1504-31,3....	H60 31300. ..				XOHX1504-31,3-62...	H62 31300. ..	
XOHX1504-31,4....	H60 31400. ..				XOHX1504-31,4-62...	H62 31400. ..	
XOHX1504-31,5....	H60 31500. ..	8440	2715	84	XOHX1504-31,5-62...	H62 31500. ..	7710
XOHX1504-31,6....	H60 31600. ..				XOHX1504-31,6-62...	H62 31600. ..	
XOHX1504-31,7....	H60 31700. ..				XOHX1504-31,7-62...	H62 31700. ..	
XOHX1504-31,8....	H60 31800. ..				XOHX1504-31,8-62...	H62 31800. ..	
XOHX1504-31,9....	H60 31900. ..				XOHX1504-31,9-62...	H62 31900. ..	
XOHX1504-32,0....	H60 32000. ..	8440	2715	84	XOHX1504-32,0-62...	H62 32000. ..	7710
XOHX1504-32,1....	H60 32100. ..				XOHX1504-32,1-62...	H62 32100. ..	
XOHX1504-32,2....	H60 32200. ..				XOHX1504-32,2-62...	H62 32200. ..	
XOHX1504-32,3....	H60 32300. ..				XOHX1504-32,3-62...	H62 32300. ..	
XOHX1504-32,4....	H60 32400. ..				XOHX1504-32,4-62...	H62 32400. ..	
XOHX1504-32,5....	H60 32500. ..	8440	2715	84	XOHX1504-32,5-62...	H62 32500. ..	7710
XOHX1504-32,6....	H60 32600. ..				XOHX1504-32,6-62...	H62 32600. ..	
XOHX1504-32,7....	H60 32700. ..				XOHX1504-32,7-62...	H62 32700. ..	
XOHX1504-32,8....	H60 32800. ..				XOHX1504-32,8-62...	H62 32800. ..	
XOHX1504-32,9....	H60 32900. ..				XOHX1504-32,9-62...	H62 32900. ..	
XOHX1504-33,0....	H60 33000. ..	8440	2715	84	XOHX1504-33,0-62...	H62 33000. ..	7710
XOHX1504-33,1....	H60 33100. ..				XOHX1504-33,1-62...	H62 33100. ..	
XOHX1504-33,2....	H60 33200. ..				XOHX1504-33,2-62...	H62 33200. ..	
XOHX1504-33,3....	H60 33300. ..				XOHX1504-33,3-62...	H62 33300. ..	
XOHX1504-33,4....	H60 33400. ..				XOHX1504-33,4-62...	H62 33400. ..	
XOHX1504-33,5....	H60 33500. ..	8440	2715	84	XOHX1504-33,5-62...	H62 33500. ..	7710
XOHX1504-33,6....	H60 33600. ..				XOHX1504-33,6-62...	H62 33600. ..	
XOHX1504-33,7....	H60 33700. ..				XOHX1504-33,7-62...	H62 33700. ..	
XOHX1504-33,8....	H60 33800. ..				XOHX1504-33,8-62...	H62 33800. ..	
XOHX1504-33,9....	H60 33900. ..				XOHX1504-33,9-62...	H62 33900. ..	
XOHX1504-34,0....	H60 34000. ..	8440	2715	84	XOHX1504-34,0-62...	H62 34000. ..	7710
XOHX1504-34,1....	H60 34100. ..				XOHX1504-34,1-62...	H62 34100. ..	
XOHX1504-34,2....	H60 34200. ..				XOHX1504-34,2-62...	H62 34200. ..	
XOHX1504-34,3....	H60 34300. ..				XOHX1504-34,3-62...	H62 34300. ..	
XOHX1504-34,4....	H60 34400. ..				XOHX1504-34,4-62...	H62 34400. ..	
XOHX1504-34,5....	H60 34500. ..	8440	2715	84	XOHX1504-34,5-62...	H62 34500. ..	7710
XOHX1504-34,6....	H60 34600. ..				XOHX1504-34,6-62...	H62 34600. ..	
XOHX1504-34,7....	H60 34700. ..				XOHX1504-34,7-62...	H62 34700. ..	

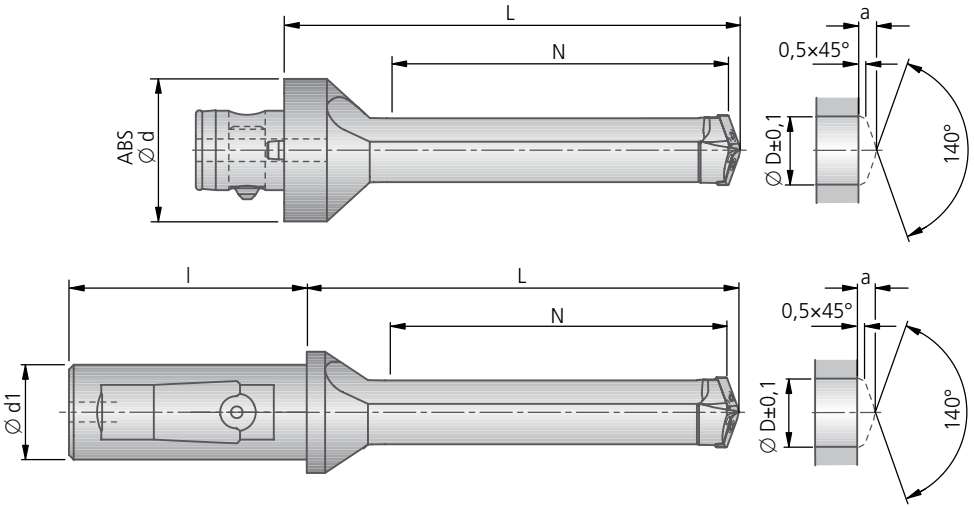
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 34,8 – 38,2 mm

Twin cutting drill

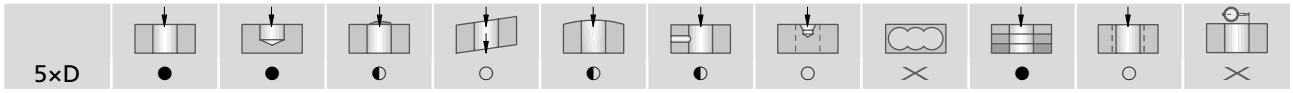




		ABS ®					Cylindrical shank						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Cylindrical shank Ød1×l	Order No.	N	L	kg ~	Clamping screw Order No. Article	
34,8													
34,9													
35,0	7,5	50	**U20 03500**	175	210	1,0	40×68	**U20 93500**	175	204	1,43	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
35,1													
35,2													
35,3													
35,4													
35,5	7,5	50	**U20 03550**	180	215	1,0	40×68	**U20 93550**	180	209	1,47	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
35,6													
35,7													
35,8													
35,9													
36,0	7,6	50	**U20 03600**	180	215	1,0	40×68	**U20 93600**	180	209	1,49	**N00 57650** S/M4×8,7-15IP 4,3 Nm	
36,1													
36,2													
36,3													
36,4													
36,5	7,7	63	**U20 13650**	185	243	1,7		–				**N00 57670** S/M5×10,4-20IP 6,25 Nm	
36,6													
36,7													
36,8													
36,9													
37,0	8,0	63	**U20 13700**	185	243	1,7		–				**N00 57670** S/M5×10,4-20IP 6,25 Nm	
37,1													
37,2													
37,3													
37,4													
37,5	8,1	63	**U20 13750**	190	248	1,77		–				**N00 57670** S/M5×10,4-20IP 6,25 Nm	
37,6													
37,7													
37,8													
37,9													
38,0	8,1	63	**U20 13800**	190	248	1,77		–				**N00 57670** S/M5×10,4-20IP 6,25 Nm	
38,1													
38,2													

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 35.0 mm, coating BK84, Order No.: H60 35000.84

Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P K N ●	●	◐ ◐ ◐		P K N ●	
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX1504-34,8...	H60 34800. ..				XOHX1504-34,8-62...	H62 34800. ..	
XOHX1504-34,9...	H60 34900. ..				XOHX1504-34,9-62...	H62 34900. ..	
XOHX1504-35,0...	H60 35000. ..	8440	2715	84	XOHX1504-35,0-62...	H62 35000. ..	7710
XOHX1504-35,1...	H60 35100. ..				XOHX1504-35,1-62...	H62 35100. ..	
XOHX1504-35,2...	H60 35200. ..				XOHX1504-35,2-62...	H62 35200. ..	
XOHX1504-35,3...	H60 35300. ..				XOHX1504-35,3-62...	H62 35300. ..	
XOHX1504-35,4...	H60 35400. ..				XOHX1504-35,4-62...	H62 35400. ..	
XOHX1504-35,5...	H60 35500. ..	8440	2715	84	XOHX1504-35,5-62...	H62 35500. ..	7710
XOHX1504-35,6...	H60 35600. ..				XOHX1504-35,6-62...	H62 35600. ..	
XOHX1504-35,7...	H60 35700. ..				XOHX1504-35,7-62...	H62 35700. ..	
XOHX1504-35,8...	H60 35800. ..				XOHX1504-35,8-62...	H62 35800. ..	
XOHX1504-35,9...	H60 35900. ..				XOHX1504-35,9-62...	H62 35900. ..	
XOHX1504-36,0...	H60 36000. ..	8440	2715	84	XOHX1504-36,0-62...	H62 36000. ..	7710
XOHX1504-36,1...	H60 36100. ..				XOHX1504-36,1-62...	H62 36100. ..	
XOHX1504-36,2...	H60 36200. ..				XOHX1504-36,2-62...	H62 36200. ..	
XOHX2205-36,3...	H60 36300. ..				XOHX2205-36,3-62...	H62 36300. ..	
XOHX2205-36,4...	H60 36400. ..				XOHX2205-36,4-62...	H62 36400. ..	
XOHX2205-36,5...	H60 36500. ..	8440	2715	84	XOHX2205-36,5-62...	H62 36500. ..	7710
XOHX2205-36,6...	H60 36600. ..				XOHX2205-36,6-62...	H62 36600. ..	
XOHX2205-36,7...	H60 36700. ..				XOHX2205-36,7-62...	H62 36700. ..	
XOHX2205-36,8...	H60 36800. ..				XOHX2205-36,8-62...	H62 36800. ..	
XOHX2205-36,9...	H60 36900. ..				XOHX2205-36,9-62...	H62 36900. ..	
XOHX2205-37,0...	H60 37000. ..	8440	2715	84	XOHX2205-37,0-62...	H62 37000. ..	7710
XOHX2205-37,1...	H60 37100. ..				XOHX2205-37,1-62...	H62 37100. ..	
XOHX2205-37,2...	H60 37200. ..				XOHX2205-37,2-62...	H62 37200. ..	
XOHX2205-37,3...	H60 37300. ..				XOHX2205-37,3-62...	H62 37300. ..	
XOHX2205-37,4...	H60 37400. ..				XOHX2205-37,4-62...	H62 37400. ..	
XOHX2205-37,5...	H60 37500. ..	8440	2715	84	XOHX2205-37,5-62...	H62 37500. ..	7710
XOHX2205-37,6...	H60 37600. ..				XOHX2205-37,6-62...	H62 37600. ..	
XOHX2205-37,7...	H60 37700. ..				XOHX2205-37,7-62...	H62 37700. ..	
XOHX2205-37,8...	H60 37800. ..				XOHX2205-37,8-62...	H62 37800. ..	
XOHX2205-37,9...	H60 37900. ..				XOHX2205-37,9-62...	H62 37900. ..	
XOHX2205-38,0...	H60 38000. ..	8440	2715	84	XOHX2205-38,0-62...	H62 38000. ..	7710
XOHX2205-38,1...	H60 38100. ..				XOHX2205-38,1-62...	H62 38100. ..	
XOHX2205-38,2...	H60 38200. ..				XOHX2205-38,2-62...	H62 38200. ..	

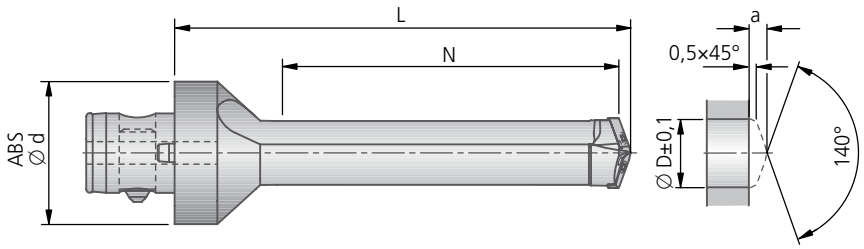
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 38,3 – 41,7 mm

Twin cutting drill

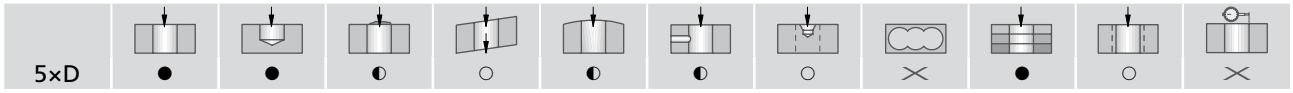




		ABS ®						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Clamping screw Order No. Article	
38,3								
38,4								
38,5	8,2	63	**U20 13850**	195	253	1,84	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
38,6								
38,7								
38,8								
38,9								
39,0	8,3	63	**U20 13900**	195	253	1,84	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
39,1								
39,2								
39,3								
39,4								
39,5	8,4	63	**U20 13950**	200	258	1,91	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
39,6								
39,7								
39,8								
39,9								
40,0	8,5	63	**U20 14000**	200	258	1,91	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
40,1								
40,2								
40,3								
40,4								
40,5	8,5	63	**U20 14050**	205	263	1,99	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
40,6								
40,7								
40,8								
40,9								
41,0	8,6	63	**U20 14100**	205	263	1,99	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
41,1								
41,2								
41,3								
41,4								
41,5	8,7	63	**U20 14150**	210	268	2,08	**N00 57670** S/M5×10,4-20IP 6,25 Nm	
41,6								
41,7								

For other diameters see following page.

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 39.0 mm, coating BK84, Order No.: H60 39000.84

Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P K N ●	●	◐ ◐ ◐			●
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX2205-38,3....	H60 38300. ..				XOHX2205-38,3-62...	H62 38300. ..	
XOHX2205-38,4....	H60 38400. ..				XOHX2205-38,4-62...	H62 38400. ..	
XOHX2205-38,5....	H60 38500. ..	8440	2715	84	XOHX2205-38,5-62...	H62 38500. ..	7710
XOHX2205-38,6....	H60 38600. ..				XOHX2205-38,6-62...	H62 38600. ..	
XOHX2205-38,7....	H60 38700. ..				XOHX2205-38,7-62...	H62 38700. ..	
XOHX2205-38,8....	H60 38800. ..				XOHX2205-38,8-62...	H62 38800. ..	
XOHX2205-38,9....	H60 38900. ..				XOHX2205-38,9-62...	H62 38900. ..	
XOHX2205-39,0....	H60 39000. ..	8440	2715	84	XOHX2205-39,0-62...	H62 39000. ..	7710
XOHX2205-39,1....	H60 39100. ..				XOHX2205-39,1-62...	H62 39100. ..	
XOHX2205-39,2....	H60 39200. ..				XOHX2205-39,2-62...	H62 39200. ..	
XOHX2205-39,3....	H60 39300. ..				XOHX2205-39,3-62...	H62 39300. ..	
XOHX2205-39,4....	H60 39400. ..				XOHX2205-39,4-62...	H62 39400. ..	
XOHX2205-39,5....	H60 39500. ..	8440	2715	84	XOHX2205-39,5-62...	H62 39500. ..	7710
XOHX2205-39,6....	H60 39600. ..				XOHX2205-39,6-62...	H62 39600. ..	
XOHX2205-39,7....	H60 39700. ..				XOHX2205-39,7-62...	H62 39700. ..	
XOHX2205-39,8....	H60 39800. ..				XOHX2205-39,8-62...	H62 39800. ..	
XOHX2205-39,9....	H60 39900. ..				XOHX2205-39,9-62...	H62 39900. ..	
XOHX2205-40,0....	H60 40000. ..	8440	2715	84	XOHX2205-40,0-62...	H62 40000. ..	7710
XOHX2205-40,1....	H60 40100. ..				XOHX2205-40,1-62...	H62 40100. ..	
XOHX2205-40,2....	H60 40200. ..				XOHX2205-40,2-62...	H62 40200. ..	
XOHX2205-40,3....	H60 40300. ..				XOHX2205-40,3-62...	H62 40300. ..	
XOHX2205-40,4....	H60 40400. ..				XOHX2205-40,4-62...	H62 40400. ..	
XOHX2205-40,5....	H60 40500. ..	8440	2715	84	XOHX2205-40,5-62...	H62 40500. ..	7710
XOHX2205-40,6....	H60 40600. ..				XOHX2205-40,6-62...	H62 40600. ..	
XOHX2205-40,7....	H60 40700. ..				XOHX2205-40,7-62...	H62 40700. ..	
XOHX2205-40,8....	H60 40800. ..				XOHX2205-40,8-62...	H62 40800. ..	
XOHX2205-40,9....	H60 40900. ..				XOHX2205-40,9-62...	H62 40900. ..	
XOHX2205-41,0....	H60 41000. ..	8440	2715	84	XOHX2205-41,0-62...	H62 41000. ..	7710
XOHX2205-41,1....	H60 41100. ..				XOHX2205-41,1-62...	H62 41100. ..	
XOHX2205-41,2....	H60 41200. ..				XOHX2205-41,2-62...	H62 41200. ..	
XOHX2205-41,3....	H60 41300. ..				XOHX2205-41,3-62...	H62 41300. ..	
XOHX2205-41,4....	H60 41400. ..				XOHX2205-41,4-62...	H62 41400. ..	
XOHX2205-41,5....	H60 41500. ..	8440	2715	84	XOHX2205-41,5-62...	H62 41500. ..	7710
XOHX2205-41,6....	H60 41600. ..				XOHX2205-41,6-62...	H62 41600. ..	
XOHX2205-41,7....	H60 41700. ..				XOHX2205-41,7-62...	H62 41700. ..	

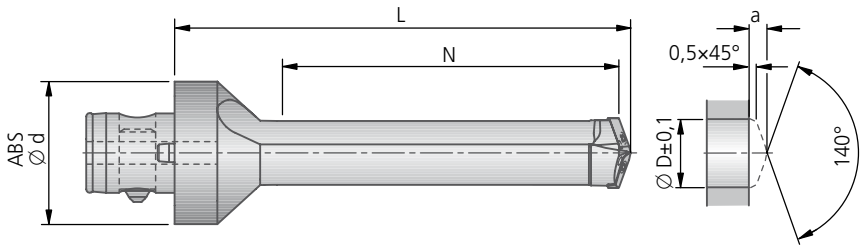
Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

Ø 41,8 – 44,2 mm

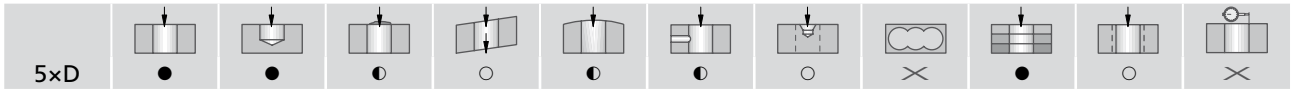
Twin cutting drill





		ABS ®						
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L	kg ~	Clamping screw Order No. Article	
41,8	8,8	63	U20 14200	210	268	2,08	N00 57670 S/M5×10,4-20IP 6,25 Nm	
41,9								
42,0								
42,1								
42,2								
42,3	8,9	63	U20 14250	215	273	0,17	N00 57670 S/M5×10,4-20IP 6,25 Nm	
42,4								
42,5								
42,6								
42,7								
42,8	8,9	63	U20 14300	215	273	0,17	N00 57670 S/M5×10,4-20IP 6,25 Nm	
42,9								
43,0								
43,1								
43,2								
43,2	9,0	63	U20 14350	220	278	2,23	N00 57670 S/M5×10,4-20IP 6,25 Nm	
43,4								
43,5								
43,6								
43,7								
43,8	9,1	63	U20 14400	220	278	2,23	N00 57670 S/M5×10,4-20IP 6,25 Nm	
43,9	9,1							
44,0	9,1							
44,1	9,1							
44,2	9,2							

Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 162 | ✕ not possible

Areas of use:

P high tensile strength steels, heat treated steels and tool steels
K grey cast iron, SG cast iron
N cast aluminium alloys, brass and bronze which produce short chips

Supply includes: KUB Duon® drill with clamping screw.

Please order insert separately (pack of 2 inserts). Deliverability see current price list.
Screwdriver see chapter 8.

Order example insert: for ∅ 42.0 mm, coating BK84, Order No.: H60 42000.84

Basic recommendation				alternative for ...	Basic recommendation		
Insert		for workpiece material		higher cutting speed	Insert		
		P K N ●	●	◐ ◐ ◐		P K N ●	
ISO-Code enter carbide ▼	Order No.	BK8440	BK2715	BK84	ISO-Code enter carbide ▼	Order No.	BK7710
XOHX2205-41,8....	H60 41800. ..				XOHX2205-41,8-62...	H62 41800. ..	
XOHX2205-41,9....	H60 41900. ..				XOHX2205-41,9-62...	H62 41900. ..	
XOHX2205-42,0....	H60 42000. ..	8440	2715	84	XOHX2205-42,0-62...	H62 42000. ..	7710
XOHX2205-42,1....	H60 42100. ..				XOHX2205-42,1-62...	H62 42100. ..	
XOHX2205-42,2....	H60 42200. ..				XOHX2205-42,2-62...	H62 42200. ..	
XOHX2205-42,3....	H60 42300. ..				XOHX2205-42,3-62...	H62 42300. ..	
XOHX2205-42,4....	H60 42400. ..				XOHX2205-42,4-62...	H62 42400. ..	
XOHX2205-42,5....	H60 42500. ..	8440	2715	84	XOHX2205-42,5-62...	H62 42500. ..	7710
XOHX2205-42,6....	H60 42600. ..				XOHX2205-42,6-62...	H62 42600. ..	
XOHX2205-42,7....	H60 42700. ..				XOHX2205-42,7-62...	H62 42700. ..	
XOHX2205-42,8....	H60 42800. ..				XOHX2205-42,8-62...	H62 42800. ..	
XOHX2205-42,9....	H60 42900. ..				XOHX2205-42,9-62...	H62 42900. ..	
XOHX2205-43,0....	H60 43000. ..	8440	2715	84	XOHX2205-43,0-62...	H62 43000. ..	7710
XOHX2205-43,1....	H60 43100. ..				XOHX2205-43,1-62...	H62 43100. ..	
XOHX2205-43,2....	H60 43200. ..				XOHX2205-43,2-62...	H62 43200. ..	
XOHX2205-43,3....	H60 43300. ..				XOHX2205-43,3-62...	H62 43300. ..	
XOHX2205-43,4....	H60 43400. ..				XOHX2205-43,4-62...	H62 43400. ..	
XOHX2205-43,5....	H60 43500. ..	8440	2715	84	XOHX2205-43,5-62...	H62 43500. ..	7710
XOHX2205-43,6....	H60 43600. ..				XOHX2205-43,6-62...	H62 43600. ..	
XOHX2205-43,7....	H60 43700. ..				XOHX2205-43,7-62...	H62 43700. ..	
XOHX2205-43,8....	H60 43800. ..				XOHX2205-43,8-62...	H62 43800. ..	
XOHX2205-43,9....	H60 43900. ..				XOHX2205-43,9-62...	H62 43900. ..	
XOHX2205-44,0....	H60 44000. ..	8440	2715	84	XOHX2205-44,0-62...	H62 44000. ..	7710
XOHX2205-44,1....	H60 44100. ..				XOHX2205-44,1-62...	H62 44100. ..	
XOHX2205-44,2....	H60 44200. ..				XOHX2205-44,2-62...	H62 44200. ..	

Guideline values for solid drilling: page 160.

KOMET KUB Duon ®

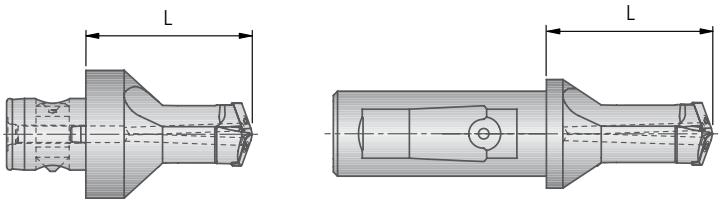
Twin cutting drill

Ø 17,3 – 44,2 mm

Guideline values for solid drilling						v_c	Max. feed f (mm/rev)			
							5×D			
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Cutting speed v_c (m/min)	Ø 17,3 – 20,7	Ø 20,8 – 29,7	Ø 29,8 – 36,2	Ø 36,3 – 44,2
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	–	–	–	–	–
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	140	0,15	0,20	0,22	0,25
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	160	0,15	0,20	0,22	0,25
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	120	0,15	0,20	0,25	0,30
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	100	0,15	0,18	0,20	0,25
P	4.1			HSS		–	–	–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	–	–	–	–	–
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	–	–	–	–	–
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	–	–	–	–	–
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	–	–	–	–	–
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	–	–	–	–	–
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	140	0,30	0,40	0,50	0,55
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	100	0,20	0,30	0,40	0,50
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	120	0,25	0,35	0,45	0,50
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	100	0,20	0,30	0,40	0,45
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120	0,20	0,30	0,40	0,45
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	100	0,25	0,35	0,45	0,50
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	80	0,20	0,30	0,35	0,40
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	180	0,30	0,40	0,45	0,50
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	–	–	–	–	–
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	600	0,20	0,20	0,25	0,30
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	500	0,20	0,20	0,25	0,30
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	350	0,20	0,20	0,25	0,30
H	15.0	1400		hardened steels < 45 HRC		–	–	–	–	–
H	16.0	1800		hardened steels > 45 HRC		–	–	–	–	–

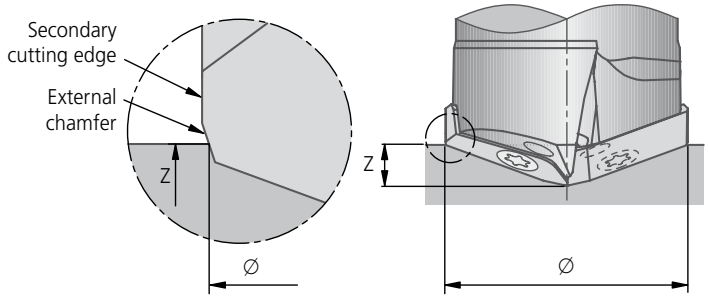
Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!



Application notes for pre-centering

- from drilling depth > 5 × D (tools to customer requirement)
- where drilling starts on surfaces which are angled or have not been pre-machined
- where there are unstable conditions because of large tool overhang



Method 1:
Determining the centre depth Z

Size	Centre depth Z
1	2,7 mm
2	3,3 mm
3	4,0 mm
4	4,7 mm
5	6,5 mm

Method 2:
Determining the centre dia.

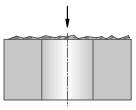
Size	Centre dia.
1	17,3 mm
2	20,8 mm
3	24,8 mm
4	29,8 mm
5	36,5 mm

Size	for bore-Ø	Nominal-Ø	L	Connection	Order No.	Insert
1	17,3 – 20,7	17,5	47,75	ABS50	**U22 21750**	H60 17500.. (XOHX0802..)
			36,75	25×56	**U22 71750**	
2	20,8 – 24,7	21	51,2	ABS50	**U22 22100**	H60 21000.. (XOHX1003..)
			40,2	32×60	**U22 82100**	
3	24,8 – 29,7	25	55,14	ABS50	**U22 22500**	H60 25000.. (XOHX12T3..)
			44,14	32×60	**U22 82500**	
4	29,8 – 36,2	30	60	ABS50	**U22 23000**	H60 30000.. (XOHX1504..)
			49	40×68	**U22 93000**	
5	36,3 – 44,2	36,5	94,5	ABS63	**U22 43650**	H60 36500.. (XOHX2205..)

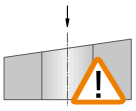
Short spot drills for KUB Duon® are fitted with standard H60… inserts.

General note: Drill until the chamfer can be seen at the external bore diameter

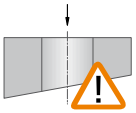
Technical informations

1. 

Starting on uneven surfaces (cast surfaces)
- possible in principle
- reduce feed rate when starting bore

2. 

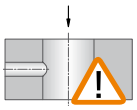
Starting on angled surfaces
- spot face surface before starting bore
- avoid chips jams

3. 

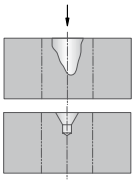
Angled bore exit
- possible under certain conditions
- reduce feed rate if necessary

4. 

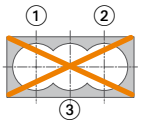
Starting on cambered surfaces
- centered boring can be started with reduced feed rate
- spot facing is required if the point for starting the bore is outside the radius centre

5. 

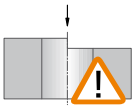
Drilling through a cross bore
- halve feed rate at interruption
- cross bore max. 1/3 of bore diameter
- off-centre cross bore not possible

6. 

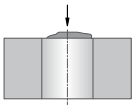
Starting on a groove or large centering bore
- possible under certain conditions
- reduce feed rate if necessary
- face beforehand where centre is particularly large

7. 

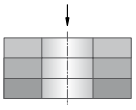
Drilling a chamber
- not possible

8. 

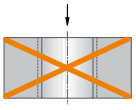
Starting on an edge
- start point must be flat

9. 

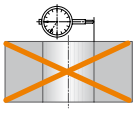
Starting on a welded seam
- reduce feed rate when starting bore
- face beforehand if necessary

10. 

Drilling through stacked plates
- possible in principle
- avoid large spaces between elements

11. 

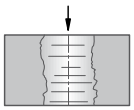
Roughing
- not possible

12. 

adjustable
- not possible
- dimensional adjustment of diameter by means of inserts



Short tool life types of wear on inserts
- cutting speed to high → select correct cutting speed
- cutting material with too little wear resistance → select grade with higher wear resistance
- tool overhang too great → if possible use shorter tool
- damaged insert seating → check tool, change if necessary
- clamping device not stable enough → improve stability
- run-out error → check tool, adaptor and spindle

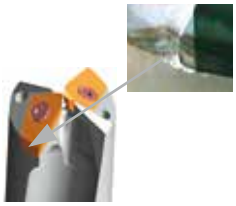


Bad surface finish
- chip jam on external cutting edge

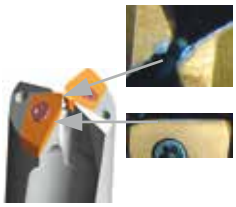
→ improve cutting parameters: increase cutting speed reduce feed
→ check cutting parameters: reduce feed rate when starting bore



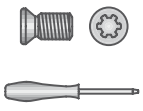
Friction marks on tool shank
- bore diameter too small → check setting
- chip removal problems → improve cutting parameters, check geometry of inserts



Wear
- cutting material not sufficiently wear resistant → better wear resistant material
- cutting speed too high → reduce cutting speed
- run-out error → check tool, adaptor and spindle



Wear, micro fractures
- cutting material too hard → use tougher cutting material with higher tensile strength
- feed rate not reduced when starting bore → reduce feed rate when starting bore and drilling out
- run-out error → check tool, adaptor and spindle



Securing the inserts
- wrong screwdriver used → only use Torx Plus screws and screwdriver
- starting torque too low → Check starting torques. Optimum starting torques only possible with Torx Plus

KOMET KUB Centron® Powerline Continuous drilling to 9×D

Together with the double-sided design of the cutter, this tool ensures extremely high performance in all standard materials.

The centring spade of the KOMET® KUB Centron® Powerline guides the tool exactly into the drill axis and thereby ensures straightness and maximum process reliability at drilling depths of up to 9×D. The extremely stabile SOEX indexable insert ensures maximum stability and optimum chip removal, even at maximum drilling depths.

Enables drilling up to 9×D is on flat even surfaces without a pilot hole.

BENEFITS for you:

- In contrast to the KUB Centron® drill head, the guide rails are unnecessary and thus their adjustment, too
- High stability and economy by using square inserts
- Maximum tool life with four cutting edges made up of specific substrates and coatings
- Doubling of the feed values
- Stable drilling process thanks to proven cutting geometries
- Centring spade of carbide for better tool life and higher cutting values
- Compatibility with proven KUB Centron® basic elements
- Intermediate sizes are available on request e.g. V46 22340 (Ø 23,4 mm)



① **Drill head:** Through the double-sided design of the KUB Centron® Powerline, guide rails are not necessary, and no constrictions develop at the bore exit.

② **Centring spade/central drill bit:** The centring spade/central drill bit guides the solid drill precisely in the bore axis. This means dimensional stability even at bore depths of up to 9 × D. Optimised concentricity properties for the whole system mean the central drill bit and for the inserts have a noticeably longer life.

③ **Inserts:** New cutting materials and geometries guarantee maximum tool life and reliable machining.

④ **Connection point:** Central positioning is produced by means of an accurately fitting centering spigot. Two tapered screws which act in the direction of the torque pull the drill head onto large drive pins, producing a precise and stable connection between the drill head and the basic element.

⑤ **Basic element:** Compatible with all existing KUB Centron® base elements. With the tried and tested ABS® connection, the KUB Centron® Powerline has no connection problems.

⑥ **Guide pads:** The carbide guide pads prevent the drill from deflecting at the bore exit and reduce narrowing to a minimum (see "Setting the guide pads..."). The screw connection allows easy changing and setting on site by the user over the whole diameter range. Optimal guide control and high wear resistance through top quality coatings.

KOMET KUB Centron®

Extremely high performance data matched by a very high level of process reliability for drilling depths of up to 9 × D.The KOMET KUB Centron® can be used to reliably machine virtually all materials.

BENEFITS for you:

- High production reliability for boring depths up to 9×D
- Short process times from high performance parameters
- Long tool life means low operating costs
- Modular design gives high flexibility
- Reliable machining in almost any materials
- Suitable for rotating and stationary applications and for vertical and horizontal applications
- Combination options reduce tool costs



KOMET KUB Centron® Powerline

Page

ABS® connection 166 – 171
∅ 20 – 65 mm, R.H. cutting
Drilling depth 4×D – 9×D

Recommended application areas 172 – 173
Guideline values for solid drilling

Alternative inserts 174

Technical informations 175

KOMET KUB Centron®

ABS® connection 176 – 181
∅ 20 – 81 mm, R.H. cutting
Drilling depth 4×D – 9×D

Recommended application areas 182
Guideline values for solid drilling

Alternative inserts 183

Technical informations 184

Problems → Causes → Solutions 185

KOMET KUB® V464

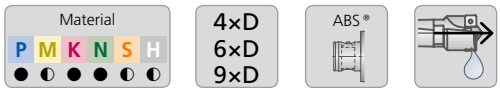
ABS® T connection 186 – 187
∅ 80 – 155 mm, R.H. cutting
Drilling depth 6×D

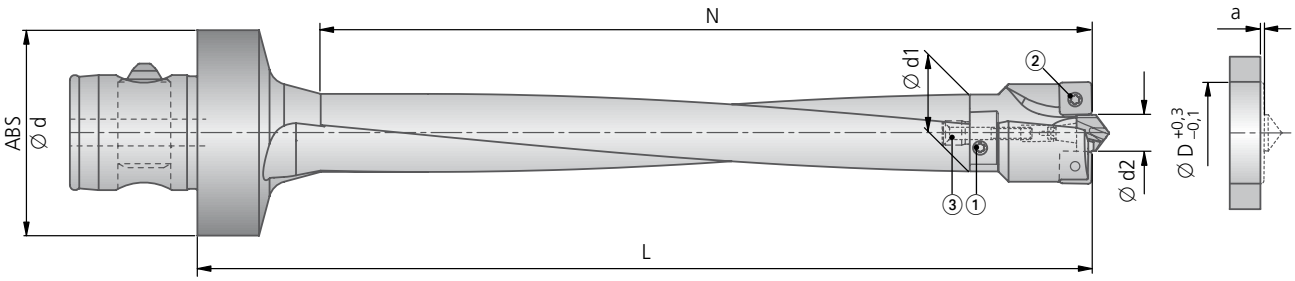
Recommended application areas 188
Guideline values for solid drilling

Alternative inserts 189

KOMET KUB Centron® Powerline Ø 20 – 39,9 mm

Indexable insert drill





Drill head								
Ø D	Order No.	Connecting point Ø d1	Roughing size a	kg	Clamping screw ① for basic body Order No. Article	Clamping screw ② for insert Order No. Article	Clamping screw ③ for centring spade Order No. Article	depending on Ø d2
20,0	V46 22000	19	1,4	0,031	N00 57480 S2564-8IP 1,28 Nm	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	N10 12010 M3×22-8IP	1,28 Nm
21,0	V46 22100	19	1,4	0,034				1,28 Nm
22,0	V46 22200	19	1,4	0,038				1,28 Nm
23,0	V46 22300	19	1,4	0,040				1,8 Nm
24,0	V46 22400	19	1,4	0,044				1,8 Nm
25,0	V46 22500	19	1,4	0,047	N00 57480	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	N10 12010 M3×22-8IP	1,28 Nm
26,0	V46 22600	25	1,8	0,052	N00 57490 S3074-8IP 2,25 Nm			1,8 Nm
27,0	V46 22700	25	1,8	0,056				1,8 Nm
28,0	V46 22800	25	1,8	0,059				1,8 Nm
29,0	V46 22900	25	1,8	0,061				1,8 Nm
30,0	V46 23000	25	1,8	0,066	N00 57490 S3074-8IP 2,25 Nm	N00 57261 S3575-15IP 2,8 Nm	N10 12010 M3×22-8IP	1,8 Nm
31,0	V46 23100	25	1,8	0,070				
32,0	V46 23200	25	1,8	0,072				
33,0	V46 23300	32	2	0,079	N00 57440 S4089-15IP 4,3 Nm	N00 57271 S3585-15IP 2,8 Nm	N10 12010 M3×22-8IP	1,8 Nm
33,2	V46 23320	32	2	0,080				
34,0	V46 23400	32	2	0,084				
35,0	V46 23500	32	2	0,087				
36,0	V46 23600	32	2	0,093				
37,0	V46 23700	32	2	0,096	N00 57440 S4089-15IP 4,3 Nm	N00 57301 S45100-20IP 6,25 Nm	N10 12010 M3×22-8IP	1,8 Nm
38,0	V46 23800	32	2	0,099				
39,0	V46 23900	32	2	0,105				
39,2	V46 23920	32	2	0,105				

Intermediate dimensions on request.

Basic element		~ 4×D				~ 6×D				~ 8×D			
ABS Ø d	Connecting point Ø d1	Order No.	N	L	kg	Order No.	N	L	kg	Order No.	N	L	kg
50	19	V47 20201	113	145	0,52	V47 40201	150	185	0,55	V47 60201	200	235	0,63
50	25	V47 20261	130	160	0,66	V47 40261	175	210	0,77	V47 60261	230	260	0,90
50	32	V47 20331	160	195	0,93	V47 40331	215	255	1,13	V47 60331	290	330	1,4

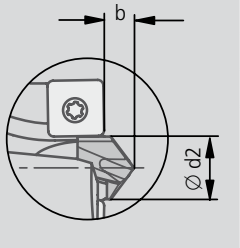
The precise diameter to length ratio (L:D) is produced from relationship of the relevant basic element to the diameter of the drill head selected.

Patent applied for inside and outside Germany

4-9×D	●	●	◐	○	○	○	○	✕	✕	✕	✕

Centring spade		Basic recommendation			
		Indexable insert -01 -21			for workpiece material
Ø d2	Order No.	Order No. ▽▽Size	ISO code	Piece	P M K N S H
10,3	V96 01100.8450	W83 18210.088430 W83 18210.087935 W83 18210.086130 W83 18210.087710	SOEX 060308-21 BK8430 SOEX 060308-21 BK7935 SOEX 060308-21 BK6130 SOEX 060308-21 BK7710	2	
10,3	V96 01100.8450				
11,3	V96 01110.8450				
12,3	V96 01120.8450				
13,3	V96 01130.8450				
11,3	V96 01110.8450	W83 23210.088430 W83 23210.087935 W83 23000.016115 W83 23210.087710	SOEX 07T308-21 BK8430 SOEX 07T308-21 BK7935 SOEX 07T308-01 BK6115 SOEX 07T308-21 BK7710	2	
12,3	V96 01120.8450				
13,3	V96 01130.8450				
14,3	V96 01140.8450				
15,3	V96 01150.8450				
13,3	V96 01130.8450	W83 32210.088430 W83 32210.087935 W83 32000.156115 W83 32210.087710	SOEX 090408-21 BK8430 SOEX 090408-21 BK7935 SOEX 090408-01 BK6115 SOEX 090408-21 BK7710	2	
14,3	V96 01140.8450				
15,3	V96 01150.8450				
13,3	V96 01130.8450	W83 39210.088430 W83 39210.087935 W83 39210.086130 W83 39210.087710	SOEX 110508-21 BK8430 SOEX 110508-21 BK7935 SOEX 110508-21 BK6130 SOEX 110508-21 BK7710	2	
14,3	V96 01140.8450				
14,3	V96 01140.8450				
15,3	V96 01150.8450				
16,3	V96 01160.8450				
14,3	V96 01140.8450	W83 44210.088430 W83 44210.087935 W83 44000.186115 W83 44210.087710	SOEX 120508-21 BK8430 SOEX 120508-21 BK7935 SOEX 120508-01 BK6115 SOEX 120508-21 BK7710	2	
15,3	V96 01150.8450				
16,3	V96 01160.8450				
16,3	V96 01160.8450				

● very good | ◐ good | ○ possible: see technical notes, page 175 | ✕ not possible

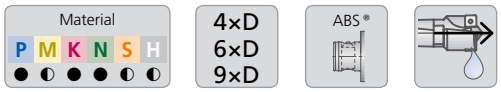


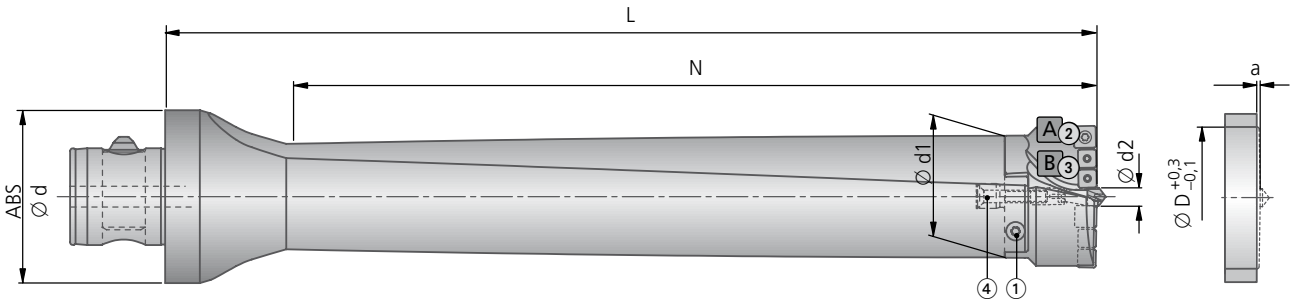
Ø d2	b
10,3	3,94
11,3	4,23
12,3	4,72
13,3	4,94
14,3	5,18
15,3	5,57
16,3	6,06

Supply drill head includes: with screws ①, ② and ③.
Please order insert and centring spade separately.
Screwdriver see chapter 8.

Guideline values for solid drilling: page 172 / alternative inserts: page 174.

Indexable insert drill





Drill head									
Ø D	Order No.	Connecting point Ø d1	Roughing size a	kg	Clamping screw ① for basic body Order No. Article	Clamping screw ② for insert A Order No. Article	Clamping screw ③ for insert B Order No. Article	Clamping screw ④ for centring spade Order No. Article	depending on Ø d2
40,0	V46 24000	38,5	2,2	0,13	N00 57500 S45105-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N00 57553 S/M2,2×5,5-6IP 1,01Nm	N10 12030 M3×30-8IP	1,28 Nm
41,0	V46 24100	38,5	2,2	0,14					
42,0	V46 24200	38,5	2,2	0,14					
43,0	V46 24300	38,5	2,2	0,15					
44,0	V46 24400	38,5	2,2	0,16	N00 57500 S45105-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N00 57553 S/M2,2×5,5-6IP 1,01Nm	N10 12020 M3×26-8IP	1,8 Nm
45,0	V46 24500	38,5	2,2	0,17					
46,0	V46 24600	44,5	2,2	0,20	N00 57450 S/M5×11,5-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N00 57553 S/M2,2×5,5-6IP 1,01Nm	N10 12030 M3×30-8IP	1,8 Nm
47,0	V46 24700	44,5	2,2	0,20					
48,0	V46 24800	44,5	2,2	0,21					
49,0	V46 24900	44,5	2,2	0,21	N00 57450 S/M5×11,5-20IP 6,25Nm	N00 57271 S3585-15IP 2,8Nm	N00 57571 S/M2,5×6,3-8IP 1,28Nm	N10 12040 M3×33-8IP	1,28 Nm
50,0	V46 25000	44,5	2,3	0,22	N00 57450 S/M5×11,5-20IP 6,25Nm	N00 57271 S3585-15IP 2,8Nm	N00 57571 S/M2,5×6,3-8IP 1,28Nm	N10 12030 M3×30-8IP	1,8 Nm
50,5	V46 25050	44,5	2,3	0,23					
51,0	V46 25100	44,5	2,3	0,23					
52,0	V46 25200	44,5	2,3	0,23					
52,5	V46 25250	44,5	2,3	0,24					
53,0	V46 25300	44,5	2,3	0,24					
54,0	V46 25400	44,5	2,3	0,25					
55,0	V46 25500	53,5	2,3	0,31	N00 57460 S/M5,5×14-20IP 6,25Nm	N00 57301 S45100-20IP 6,25Nm	N00 57571 S/M2,5×6,3-8IP 1,28Nm	N10 12050 M3×35-8IP	1,8 Nm
56,0	V46 25600	53,5	2,4	0,32					
57,0	V46 25700	53,5	2,4	0,33					
58,0	V46 25800	53,5	2,4	0,34					
59,0	V46 25900	53,5	2,4	0,35					

Intermediate dimensions on request.

Basic element		~ 4×D				~ 6×D				~ 8×D			
ABS Ø d	Connecting point Ø d1	Order No.	N	L	kg	Order No.	N	L	kg	Order No.	N	L	kg
63	38,5	V47 20401	185	235	1,68	V47 40401	260	310	2,08	V47 60401	340	390	2,50
80	44,5	V47 20461	215	280	3,31	V47 40461	310	375	3,97	V47 60461	415	480	4,82
80	53,5	V47 20551	260	325	4,30	V47 40551	370	435	5,42	V47 60551	495	560	6,68

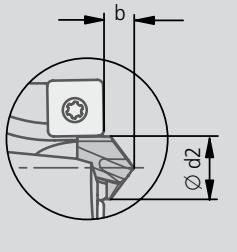
The precise diameter to length ratio (L:D) is produced from relationship of the relevant basic element to the diameter of the drill head selected.

Patent applied for inside and outside Germany

4-9×D	●	●	◐	○	○	○	○	✕	✕	✕	✕

Centring spade		Basic recommendation							
		Indexable insert A -01 -21			Indexable insert B -01 -21			for workpiece material	
Ø d2	Order No.	Order No. ▽▽ Size	ISO code	Piece	Order No. ▽▽ Size	ISO code	Piece	P M K N S H	
10,3	V96 01100.8450								
10,3	V96 01100.8450								
10,3	V96 01100.8450								
11,3	V96 01110.8450	W83 32210.088430	SOEX 090408-21 BK8430		W83 18210.088430	SOEX 060308-21 BK8430			
12,3	V96 01120.8450	W83 32210.087935	SOEX 090408-21 BK7935	2	W83 18210.087935	SOEX 060308-21 BK7935	2		
13,3	V96 01130.8450	W83 32000.156115	SOEX 090408-01 BK6115		W83 18210.086130	SOEX 060308-21 BK6130			
14,3	V96 01140.8450	W83 32210.087710	SOEX 090408-21 BK7710		W83 18210.087710	SOEX 060308-21 BK7710			
15,3	V96 01150.8450								
16,3	V96 01160.8450								
11,3	V96 01110.8450								
12,3	V96 01120.8450								
13,3	V96 01130.8450	W83 39210.088430	SOEX 110508-21 BK8430		W83 23210.088430	SOEX 07T308-21 BK8430			
13,3	V96 01130.8450	W83 39210.087935	SOEX 110508-21 BK7935	2	W83 23210.087935	SOEX 07T308-21 BK7935	2		
14,3	V96 01140.8450	W83 39210.086130	SOEX 110508-21 BK6130		W83 23000.016115	SOEX 07T308-01 BK6115			
15,3	V96 01150.8450	W83 39210.087710	SOEX 110508-21 BK7710		W83 23210.087710	SOEX 07T308-21 BK7710			
15,3	V96 01150.8450								
16,3	V96 01160.8450								
13,3	V96 01130.8450								
13,3	V96 01130.8450	W83 44210.088430	SOEX 120508-21 BK8430		W83 23210.088430	SOEX 07T308-21 BK8430			
14,3	V96 01140.8450	W83 44210.087935	SOEX 120508-21 BK7935	2	W83 23210.087935	SOEX 07T308-21 BK7935	2		
15,3	V96 01150.8450	W83 44000.186115	SOEX 120508-01 BK6115		W83 23000.016115	SOEX 07T308-01 BK6115			
16,3	V96 01160.8450	W83 44210.087710	SOEX 120508-21 BK7710		W83 23210.087710	SOEX 07T308-21 BK7710			

● very good | ◐ good | ○ possible: see technical notes, page 175 | ✕ not possible

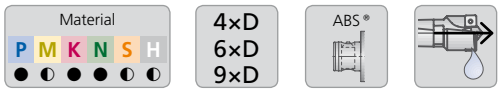


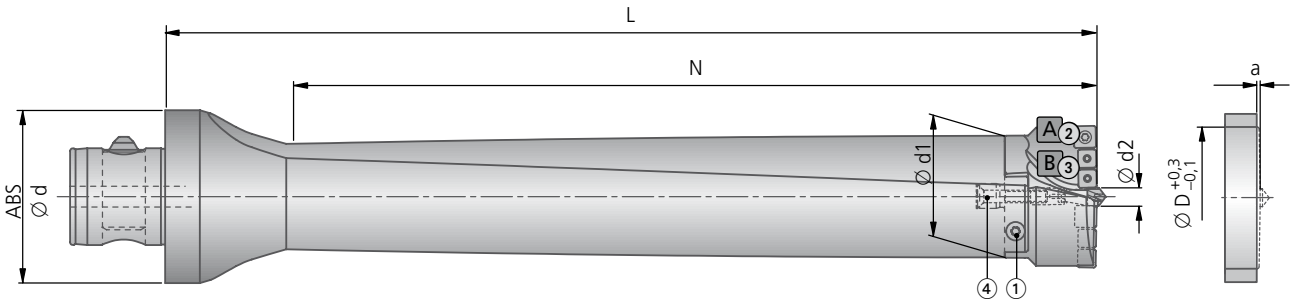
Ø d2	b
10,3	3,94
11,3	4,23
12,3	4,72
13,3	4,94
14,3	5,18
15,3	5,57
16,3	6,06

Supply drill head includes: with screws ①, ②, ③ and ④.
Please order insert and centring spade separately.
Screwdriver see chapter 8.

KOMET KUB Centron® Powerline Ø 60 – 65 mm

Indexable insert drill





Drill head									
Ø D	Order No.	Connecting point Ø d1	Roughing size a	kg	Clamping screw ① for basic body Order No. Article	Clamping screw ② for insert A Order No. Article	Clamping screw ③ for insert B Order No. Article	Clamping screw ④ for centring spade Order No. Article	depending on Ø d2
60,0	V46 26000	53,5	2,4	0,35	N00 57460 S/M5,5×14-20IP 6,25Nm	N00 57301 S45100-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N10 12050 M3×35-8IP	1,8 Nm
61,0	V46 26100	53,5	2,4	0,37					
62,0	V46 26200	53,5	2,5	0,37	N00 57460 S/M5,5×14-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N00 57571 S/M2,5×6,3-8IP 1,28Nm	N10 12060 M3×38-8IP	1,28 Nm
63,0	V46 26300	53,5	2,5	0,38					
64,0	V46 26400	53,5	2,5	0,40	N00 57460 S/M5,5×14-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N00 57571 S/M2,5×6,3-8IP 1,28Nm	N10 12050 M3×35-8IP	1,8 Nm
65,0	V46 26500	63,5	2,5	0,50	N00 57470 S60160-20IP 6,25Nm	N00 57261 S3575-15IP 2,8Nm	N00 57571 S/M2,5×6,3-8IP 1,28Nm	N10 12070 M3×47,5-8IP	1,8 Nm

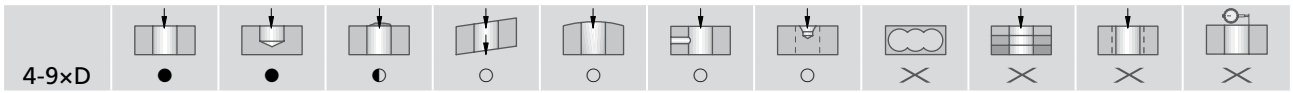
Intermediate dimensions on request.

Basic element		~ 4×D				~ 6×D				~ 8×D			
ABS Ø d	Connecting point Ø d1	Order No.	N	L	kg	Order No.	N	L	kg	Order No.	N	L	kg
80	53,5	V47 20551	260	325	4,30	V47 40551	370	435	5,42	V47 60551	495	560	6,68
80	63,5	V47 20651	295	375	5,80	V47 40651	420	500	7,52	V47 60651	560	640	9,46

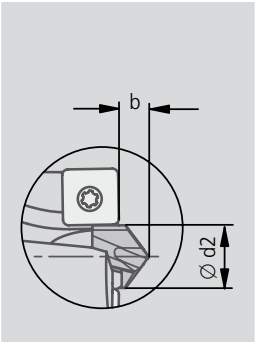
The precise diameter to length ratio (L:D) is produced from relationship of the relevant basic element to the diameter of the drill head selected.

● very good | ◐ good | ○ possible: see technical notes, page 175 | ✕ not possible

Patent applied for inside and outside Germany



	Centring spade		Basic recommendation							
			Indexable insert A -01 -21			Indexable insert B -01 -21			for workpiece material	
	Ø d2	Order No.	Order No. ▽▽ Size	ISO code	Piece	Order No. ▽▽ Size	ISO code	Piece	P M K N S H	
	16,3	V96 01160.8450	W83 44210.088430 W83 44210.087935	SOEX 120508-21 BK8430 SOEX 120508-21 BK7935	2	W83 32210.088430 W83 32210.087935	SOEX 090408-21 BK8430 SOEX 090408-21 BK7935	2		
	16,3	V96 01160.8450	W83 44000.186115 W83 44210.087710	SOEX 120508-01 BK6115 SOEX 120508-21 BK7710		W83 32000.156115 W83 32210.087710	SOEX 090408-01 BK6115 SOEX 090408-21 BK7710			
	10,3	V96 01100.8450								
	11,3	V96 01110.8450	W83 32210.088430 W83 32210.087935	SOEX 090408-21 BK8430 SOEX 090408-21 BK7935	2	W83 23210.088430 W83 23210.087935	SOEX 07T308-21 BK8430 SOEX 07T308-21 BK7935	4		
	12,3	V96 01120.8450	W83 32000.156115 W83 32210.087710	SOEX 090408-01 BK6115 SOEX 090408-21 BK7710		W83 23000.016115 W83 23210.087710	SOEX 07T308-01 BK6115 SOEX 07T308-21 BK7710			
	13,3	V96 01130.8450								



Ø d2	b
10,3	3,94
11,3	4,23
12,3	4,72
13,3	4,94
14,3	5,18
15,3	5,57
16,3	6,06

Supply drill head includes: with screws ①, ②, ③ and ④.
Please order insert and centring spade separately.
Screwdriver see chapter 8.

Guideline values for solid drilling: page 172 / alternative inserts: page 174.

Recommended application areas



Guideline values for solid drilling						Cutting speed v_c · feed f (mm/rev)							
						⚠ Backing out of the bore with greatly reduced speed							
						Ø 20 - 24,9		Ø 25 - 29,9		Ø 30 - 32,9		Ø 33 - 36,9	
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max
						⚠ ~ 6×D v_c = –10% · ~ 8×D v_c = –25%							
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	0,14 **0,16** 0,18	180	0,14 **0,17** 0,20	180	0,15 **0,18** 0,21	180	0,15 **0,18** 0,21
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	200	0,14 **0,16** 0,18	180	0,14 **0,17** 0,20	180	0,15 **0,18** 0,21	180	0,15 **0,18** 0,21
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	200	0,16 **0,18** 0,20	200	0,17 **0,20** 0,23	200	0,22 **0,25** 0,28	200	0,22 **0,25** 0,28
P	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	160	0,14 **0,16** 0,18	160	0,17 **0,20** 0,23	160	0,19 **0,22** 0,25	160	0,22 **0,25** 0,28
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	140	0,12 **0,14** 0,16	140	0,13 **0,16** 0,19	140	0,15 **0,18** 0,21	140	0,17 **0,20** 0,23
P	4.1			HSS					on request				
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)				on request				
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)				on request				
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)				on request				
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)				on request				
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)				on request				
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	180	0,23 **0,25** 0,27	180	0,27 **0,30** 0,33	180	0,32 **0,35** 0,38	180	0,32 **0,35** 0,38
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	170	0,23 **0,25** 0,27	170	0,27 **0,30** 0,33	170	0,32 **0,35** 0,38	170	0,32 **0,35** 0,38
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,23 **0,25** 0,27	180	0,27 **0,30** 0,33	180	0,32 **0,35** 0,38	180	0,32 **0,35** 0,38
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	170	0,20 **0,22** 0,24	170	0,22 **0,25** 0,28	170	0,27 **0,30** 0,33	170	0,27 **0,30** 0,33
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,18 **0,20** 0,22	160	0,19 **0,22** 0,25	160	0,25 **0,28** 0,31	160	0,25 **0,28** 0,31
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	120	0,12 **0,14** 0,16	120	0,15 **0,18** 0,21	120	0,19 **0,22** 0,25	120	0,19 **0,22** 0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,20 **0,22** 0,24	120	0,22 **0,25** 0,28	120	0,32 **0,35** 0,38	120	0,32 **0,35** 0,38
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	250	0,18 **0,20** 0,22	250	0,22 **0,25** 0,28	250	0,25 **0,28** 0,31	250	0,27 **0,30** 0,33
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	250	0,16 **0,18** 0,20	250	0,19 **0,22** 0,25	250	0,25 **0,28** 0,31	250	0,25 **0,28** 0,31
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	0,12 **0,14** 0,16	300	0,15 **0,18** 0,21	300	0,17 **0,20** 0,23	300	0,17 **0,20** 0,23
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	250	0,18 **0,20** 0,22	250	0,22 **0,25** 0,28	250	0,27 **0,30** 0,33	250	0,27 **0,30** 0,33
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,18 **0,20** 0,22	250	0,22 **0,25** 0,28	250	0,27 **0,30** 0,33	250	0,27 **0,30** 0,33
H	15.0	1400		hardened steels < 45 HRC					on request				
H	16.0	1800		hardened steels > 45 HRC					on request				

Cutting values shown are relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany



Cutting speed v_c · feed f (mm/rev)															
⚠ Backing out of the bore with greatly reduced speed															
Ø 37 - 39,9		Ø 40 - 44,9		Ø 45 - 48,9		Ø 49 - 51,9		Ø 52 - 54,9		Ø 55 - 61,9		Ø 62 - 65,9	
v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max	v_c m/min ~ 4×D	f mm/rev min opt. max
⚠ ~ 6×D v_c = –10% · ~ 8×D v_c = –25%													
180	0,17 **0,20** 0,23	200	0,14 **0,16** 0,18	180	0,14 **0,16** 0,18	200	0,14 **0,17** 0,18	180	0,14 **0,17** 0,18	180	0,14 **0,17** 0,18	200	0,14 **0,17** 0,18
180	0,17 **0,20** 0,23	200	0,14 **0,16** 0,18	180	0,14 **0,16** 0,18	200	0,14 **0,17** 0,18	180	0,14 **0,17** 0,18	180	0,14 **0,17** 0,18	200	0,14 **0,17** 0,18
200	0,22 **0,25** 0,28	220	0,16 **0,18** 0,20	200	0,17 **0,20** 0,22	220	0,20 **0,23** 0,25	200	0,20 **0,25** 0,28	200	0,20 **0,25** 0,28	220	0,20 **0,23** 0,25
160	0,22 **0,25** 0,28	180	0,16 **0,20** 0,22	160	0,16 **0,20** 0,22	180	0,18 **0,20** 0,24	160	0,18 **0,20** 0,24	160	0,18 **0,20** 0,24	180	0,18 **0,20** 0,24
140	0,17 **0,20** 0,23	160	0,12 **0,16** 0,19	140	0,12 **0,16** 0,19	160	0,12 **0,16** 0,19	140	0,17 **0,20** 0,23	140	0,17 **0,20** 0,23	160	0,17 **0,20** 0,23
						on request							
						on request							
						on request							
						on request							
						on request							
						on request							
180	0,32 **0,35** 0,38	180	0,23 **0,25** 0,27	170	0,23 **0,25** 0,27	180	0,27 **0,30** 0,33	170	0,27 **0,30** 0,33	170	0,27 **0,30** 0,33	180	0,23 **0,25** 0,27
170	0,32 **0,35** 0,38	170	0,23 **0,25** 0,27	160	0,23 **0,25** 0,27	170	0,27 **0,30** 0,33	160	0,27 **0,30** 0,33	160	0,27 **0,30** 0,33	170	0,23 **0,25** 0,27
180	0,32 **0,35** 0,38	180	0,23 **0,25** 0,27	170	0,23 **0,25** 0,27	180	0,27 **0,30** 0,33	170	0,27 **0,30** 0,33	170	0,27 **0,30** 0,33	180	0,23 **0,25** 0,27
170	0,27 **0,30** 0,33	170	0,20 **0,22** 0,24	160	0,20 **0,22** 0,24	170	0,22 **0,25** 0,28	160	0,22 **0,25** 0,28	160	0,22 **0,25** 0,28	170	0,20 **0,22** 0,24
160	0,25 **0,28** 0,31	160	0,18 **0,20** 0,22	150	0,18 **0,20** 0,22	160	0,19 **0,22** 0,25	150	0,19 **0,22** 0,25	150	0,19 **0,22** 0,25	160	0,18 **0,20** 0,22
120	0,19 **0,22** 0,25	130	0,12 **0,14** 0,16	120	0,12 **0,14** 0,16	130	0,15 **0,18** 0,21	120	0,15 **0,18** 0,21	130	0,15 **0,18** 0,21	120	0,12 **0,14** 0,16
120	0,32 **0,35** 0,38	130	0,20 **0,22** 0,24	120	0,20 **0,22** 0,24	130	0,22 **0,25** 0,28	120	0,22 **0,25** 0,28	130	0,22 **0,25** 0,28	120	0,20 **0,22** 0,24
250	0,27 **0,30** 0,33	250	0,18 **0,20** 0,22	240	0,18 **0,20** 0,22	250	0,22 **0,25** 0,28	240	0,22 **0,25** 0,28	240	0,22 **0,25** 0,28	250	0,18 **0,20** 0,22
250	0,25 **0,28** 0,31	250	0,16 **0,18** 0,20	240	0,16 **0,18** 0,20	250	0,19 **0,22** 0,25	240	0,19 **0,22** 0,25	240	0,19 **0,22** 0,25	250	0,16 **0,18** 0,20
300	0,17 **0,20** 0,23	300	0,12 **0,14** 0,16	280	0,12 **0,14** 0,16	300	0,15 **0,18** 0,21	280	0,15 **0,18** 0,21	280	0,15 **0,18** 0,21	300	0,12 **0,14** 0,16
250	0,27 **0,30** 0,33	250	0,18 **0,20** 0,22	240	0,18 **0,20** 0,22	250	0,22 **0,25** 0,28	240	0,22 **0,25** 0,28	240	0,22 **0,25** 0,28	250	0,18 **0,20** 0,22
250	0,27 **0,30** 0,33	250	0,18 **0,20** 0,22	240	0,18 **0,20** 0,22	250	0,22 **0,25** 0,28	240	0,22 **0,25** 0,28	240	0,22 **0,25** 0,28	250	0,18 **0,20** 0,22
						on request							
						on request							

1

Alternative inserts

for better chip control

	Order No.	ISO code	for workpiece material P M K N S H
W83 18...	W83 18130.088425	SOEX 060308-13 BK8425	●
	W83 18130.087935	SOEX 060308-13 BK7935	◐
	W83 18210.087710	SOEX 060308-21 BK7710	●
W83 23...	W83 23130.088425	SOEX 07T308-13 BK8425	●
	W83 23030.088430	SOEX 07T308-03 BK8430	● ◐
	W83 23130.087935	SOEX 07T308-13 BK7935	◐
	W83 23210.087710	SOEX 07T308-21 BK7710	●
W83 32...	W83 32130.088425	SOEX 090408-13 BK8425	●
	W83 32030.088430	SOEX 090408-03 BK8430	● ◐
	W83 32130.087935	SOEX 090408-13 BK7935	◐
	W83 32210.087710	SOEX 090408-21 BK7710	●
W83 39...	W83 39130.088425	SOEX 110508-13 BK8425	●
	W83 39130.087935	SOEX 110508-13 BK7935	◐
	W83 39210.087710	SOEX 110508-21 BK7710	●
W83 44...	W83 44130.088425	SOEX 120508-13 BK8425	●
	W83 44030.088430	SOEX 120508-03 BK8430	● ◐
	W83 44130.087935	SOEX 120508-13 BK7935	◐
	W83 44210.087710	SOEX 120508-21 BK7710	●

for higher cutting speed

	Order No.	ISO code	for workpiece material P M K N S H
W83 18...	W83 18130.086420	SOEX 060308-13 BK6420	●
	W83 18130.0874	SOEX 060308-13 BK74	◐
	W83 18210.086130	SOEX 060308-21 BK6130	◐ ◐
W83 23...	W83 23010.086420	SOEX 07T308-01 BK6420	●
	W83 23210.086130	SOEX 07T308-21 BK6130	● ◐
	W83 23000.0174	SOEX 07T308-01 BK74	◐
	W83 23000.016115	SOEX 07T308-01 BK6115	
W83 32...	W83 32010.086420	SOEX 090408-01 BK6420	●
	W83 32210.086130	SOEX 090408-21 BK6130	● ◐
	W83 32000.1574	SOEX 090408-01 BK74	◐
	W83 32000.156115	SOEX 090408-01 BK6115	
W83 39...	W83 39130.086420	SOEX 110508-13 BK6420	●
	W83 39210.086130	SOEX 110508-21 BK6130	◐ ◐
W83 44...	W83 44010.086420	SOEX 120508-01 BK6420	●
	W83 44210.086130	SOEX 120508-21 BK6130	● ◐
	W83 44000.1874	SOEX 120508-01 BK74	◐
	W83 44000.186115	SOEX 120508-01 BK6115	

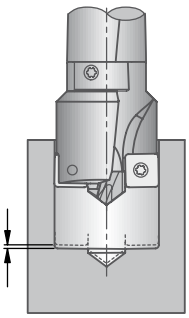
for greater strength

W83 18...	W83 18130.088425	SOEX 060308-13 BK8425	●
	W83 18130.087935	SOEX 060308-13 BK7935	◐
	W83 18210.086130	SOEX 060308-21 BK6130	●
W83 23...	W83 23010.088425	SOEX 07T308-01 BK8425	● ●
	W83 23010.087935	SOEX 07T308-01 BK7935	◐ ◐
W83 32...	W83 32010.088425	SOEX 090408-01 BK8425	● ●
	W83 32010.087935	SOEX 090408-01 BK7935	◐ ◐
W83 39...	W83 39130.088425	SOEX 110508-13 BK8425	●
	W83 39130.087935	SOEX 110508-13 BK7935	◐
	W83 39210.086130	SOEX 110508-21 BK6130	●
W83 44...	W83 44010.088425	SOEX 120508-01 BK8425	● ●
	W83 44010.087935	SOEX 120508-01 BK7935	◐ ◐

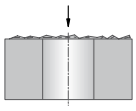
From experience

Entering an existing bore

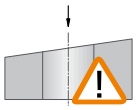
- Before the tool is backed out of the bore, the exact position must be determined.
- Back out with stationary spindle or with approx. 50-150 rpm.
- Clean bore.
- Enter with stationary spindle up to 0.8 mm before the bottom of the bore. Drill bit must be in the existing bore.
- Turn on spindle and feed at 50% of the cutting values; when cutting edges fully engage again, increase to 100%.



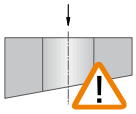
Patent applied for inside and outside Germany

1. 

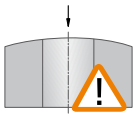
Starting on uneven surfaces (cast surfaces)
- possible in principle
- reduce feed rate when starting bore

2. 

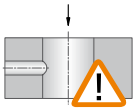
Starting on angled surfaces
- surface for starting bore must be spot faced beforehand
- avoid chip jams on drill shank

3. 

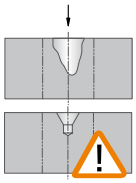
Angled bore exit
- possible under certain conditions
- reduce feed rate if necessary
- drilling angle max. 3°

4. 

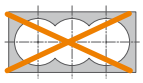
Starting on cambered surfaces
- centered boring can be started with reduced feed rate
- spot facing is required if the point for starting the bore is outside the radius centre

5. 

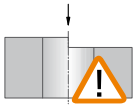
Drilling through a cross bore
- halve feed rate at interruption
- cross bore max. 1/3 of bore diameter
- off-centre cross bore not possible

6. 

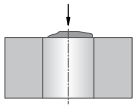
Starting on a groove or large centering bore
- surface for starting bore must be spot faced beforehand
- reduce feed rate if necessary

7. 

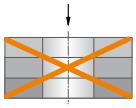
Drilling a chamber
- not possible

8. 

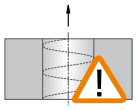
Starting on an edge
- not possible
- surface for starting bore must be spot faced beforehand
- avoid chip jams on drill shank

9. 

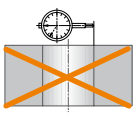
Starting on a welded seam
- reduce feed rate when starting bore
- face beforehand if necessary

10. 

Drilling through stacked plates
- not possible

11. 

Backing out of the bore
- tool 9×D swings up at bore exit
- back out of the bore with greatly reduced speed to avoid any development of chatter marks

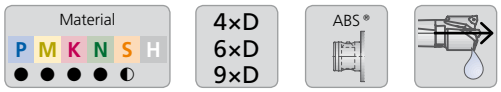
12. 

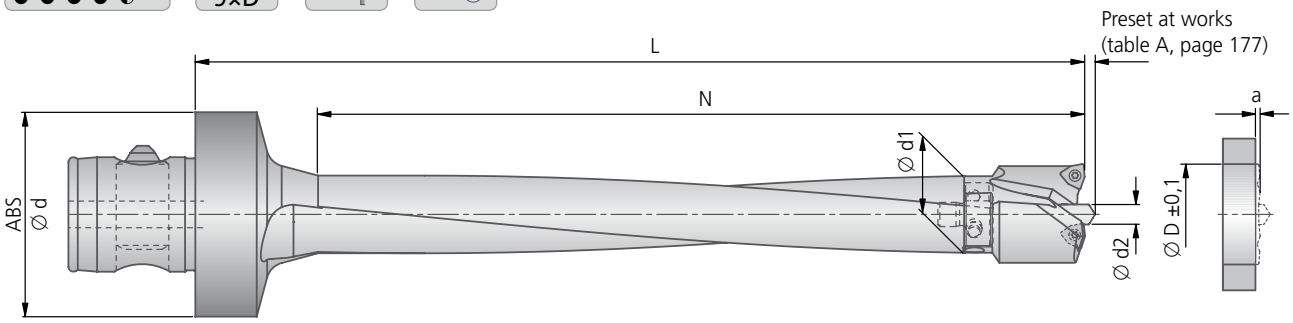
adjustable
- not adjustable, fixed diameter
- intermediate dimensions on request

KOMET KUB Centron®

Ø 20 – 39 mm

Indexable insert drill





4-9×D												
	●	●	◐	○	○	○	○	○	✕	✕	✕

Drill head												
Ø D	Order No.	Connecting point Ø d1	Roughing size a	kg	Clamping screw ⑥ for basic element Order No. Article	Clamping screw ⑤ for indexable insert Order No. Article	Guide pad ⑦ Order No.	Clamping screw ⑧ for guide pad Order No. Article	Shim set ⑨ for adjusting guide pad Order No. includes	Clamping screw ② for central drill bit Order No. Article ⬡AF	Adjusting screw ③ for central drill bit Order No. Article
20,0	V46 50200	19	1,5	0,03	N00 57480 S2564-8IP 1,28 Nm	N00 56041 S/M2×4,3-6IP 0,62 Nm	L01 03990	N00 57211 S2542-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70910 M4×6-⬡2 1,5Nm	55051 03008 M3×8
21,0	V46 50210	19	1,5	0,04						N00 70920 M4×8-⬡2 1,5 Nm	
22,0	V46 50220	19	1,5	0,04							
23,0	V46 50230	19	1,5	0,04	N00 57480 S2564-8IP 1,28 Nm	N00 56041 S/M2×4,3-6IP 0,62 Nm	L01 04000	N00 55581 M2,5×4,5-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70920 M4×8-⬡2 1,5 Nm	55051 03008 M3×8
24,0	V46 50240	19	1,5	0,05							
25,0	V46 50250	19	1,5	0,05							
26,0	V46 50260	25	2	0,05	N00 57490 S3074-8IP 2,25 Nm	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	L01 04000	N00 55581 M2,5×4,5-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70930 M5×10-⬡2,5 2,5 Nm	55051 04010 M4×10
27,0	V46 50270	25	2	0,06							
28,0	V46 50280	25	2	0,06							
29,0	V46 50290	25	2	0,06							
30,0	V46 50300	25	2	0,07	N00 57490 S3074-8IP 2,25 Nm	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	L01 04010	N00 55581 M2,5×4,5-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70930 M5×10-⬡2,5 2,5 Nm	55051 04010 M4×10
31,0	V46 50310	25	2	0,07							
32,0	V46 50320	25	2	0,07							
33,0	V46 50330	32	2,1	0,09	N00 57440 S4089-15IP 4,3 Nm	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	L01 04010	N00 55581 M2,5×4,5-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70940 M5×12-⬡2,5 2,5 Nm	55051 04010 M4×10
34,0	V46 50340	32	2,1	0,09							
35,0	V46 50350	32	2,1	0,09							
36,0	V46 50360	32	2,1	0,10							
37,0	V46 50370	32	2,1	0,10	N00 57440 S4089-15IP 4,3 Nm	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	L01 04020	N00 55581 M2,5×4,5-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70940 M5×12-⬡2,5 2,5 Nm	55051 04010 M4×10
38,0	V46 50380	32	2,4	0,11							
39,0	V46 50390	32	2,4	0,11							

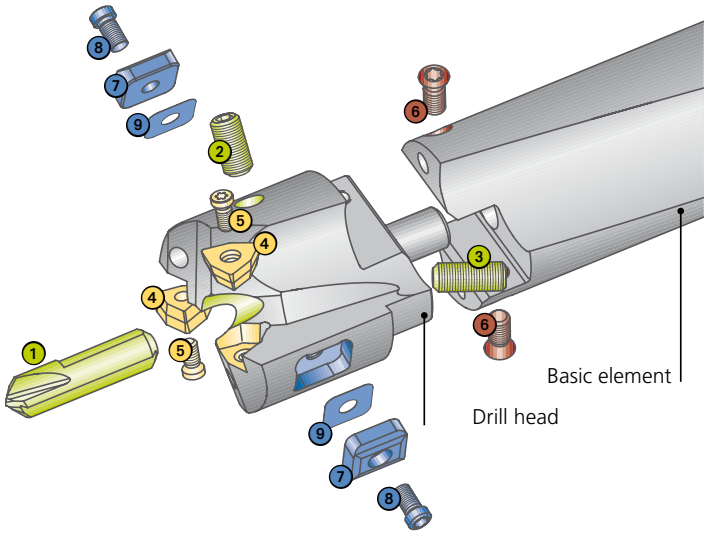
Further diameters on request.

Basic element		~ 4×D				~ 6×D				~ 8×D			
ABS Ø d	Connecting point Ø d1	Order No.	N	L	kg	Order No.	N	L	kg	Order No.	N	L	kg
50	19	V47 20201	113	145	0,52	V47 40201	150	185	0,55	V47 60201	200	235	0,63
50	25	V47 20261	130	160	0,66	V47 40261	175	210	0,77	V47 60261	230	260	0,90
50	32	V47 20331	160	195	0,93	V47 40331	215	255	1,13	V47 60331	290	330	1,4

The precise diameter to length ratio (L:D) is produced from relationship of the relevant basic element to the diameter of the drill head selected.

Patent applied for inside and outside Germany

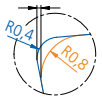
1. Central drill bit
2. Clamping screw for central drill bit
3. Adjusting screw for central drill bit
4. Indexable inserts
5. Clamping screw for indexable inserts
6. Clamping screw for basic element
7. Guide pad
8. Clamping screw for guide pad
9. Shim for adjusting guide pad



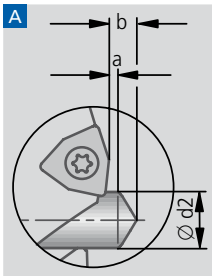
Central drill bit				Basic recommendation			
			for workpiece material	Indexable insert -13 -01 -11			for workpiece material
Ø d2	Order No.	Article	P M K N S H	Order No. ▽▽ Size	ISO code	piece	P M K N S H
5	V95 10012.0089 V95 10012.0090 V95 10310.8450	HSS TiN HSS TiAlN VHM TiAlN/TiN	● ○ ● ● ● ○ ◐ ◐	W29 10130.048425 W29 10130.0479 W29 10010.047615 W29 10110.0477	WOEX 030204-13 BK8425 WOEX 030204-13 BK79 WOEX 030204-01 BK7615 WOEX 030204-11 BK77	2	● ○ ● ◐
6	V95 10022.0089 V95 10022.0090 V95 10320.8450	HSS TiN HSS TiAlN VHM TiAlN/TiN	● ○ ● ● ● ○ ◐ ◐	W29 18130.048425 W29 18130.0479 W29 18010.047615 W29 18110.0477	WOEX 040304-13 BK8425 WOEX 040304-13 BK79 WOEX 040304-01 BK7615 WOEX 040304-11 BK77	2	● ○ ● ◐
6	V95 10022.0089 V95 10022.0090 V95 10320.8450	HSS TiN HSS TiAlN VHM TiAlN/TiN	● ○ ● ● ● ○ ◐ ◐	W29 24130.048425 W29 24130.0479 W29 24010.047615 W29 24110.0477	WOEX 05T304-13 BK8425 WOEX 05T304-13 BK79 WOEX 05T304-01 BK7615 WOEX 05T304-11 BK77	2	● ○ ● ◐

● very good | ◐ good | ○ possible: see technical notes, page 184 | ✕ not possible

Note re. insert radius: The nominal dimension Ø is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension Ø (see Chapter 8)



A



Ø d2	a	b
5	1,0	2,25
6	1,1	2,65
8	1,25	3,38
10	1,25	3,86
12	1,45	4,67
16	1,8	5,78
20	2,5	7,91

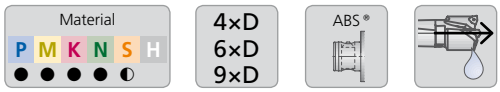
Supply drill head includes:
with screws ②, ③, ⑤, ⑥ and ⑧, guide pads ⑦ and shim sets ⑨.
Please order insert and central drill bit separately.
Screwdriver see chapter 8.

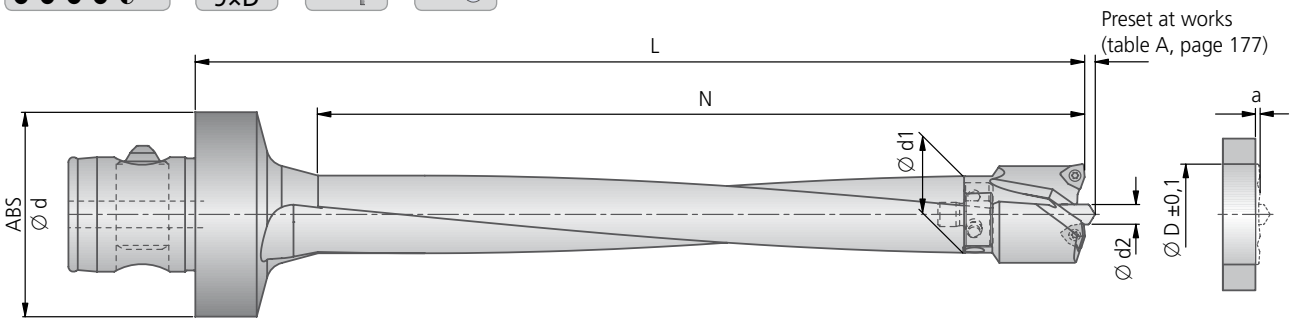
Length adjustment central drill bit ①:
In principle there is no need to adjust the length of the central drill bit (preset at works). However, if an alternative length setting is required, this can be achieved by applying the adjusting screw ③ (→ table A).

Guideline values for solid drilling: page 182 / alternative inserts: page 183.

KOMET KUB Centron ® Ø 40 – 64 mm

Indexable insert drill





4-9×D												
	●	●	◐	○	○	○	○	○	×	×	×	

Drill head												
Ø D	Order No.	Connecting point Ø d1	Roughing size a	kg	Clamping screw ⑥ for basic element Order No. Article	Clamping screw ⑤ for indexable insert Order No. Article	Guide pad ⑦ Order No.	Clamping screw ⑧ for guide pad Order No. Article	Shim set ⑨ for adjusting guide pad Order No. includes	Clamping screw ② for central drill bit Order No. Article ⬡AF	Adjusting screw ③ for central drill bit Order No. Article	
40,0	V46 50400	38,5	2,4	0,13	N00 57500 S45105-20IP 6,25 Nm	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	L01 04020	N00 55581 M2,5×4,5-8IP 1,28 Nm	L01 04190 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70950 M6×12-⬡3 5 Nm	55051 05010 M5×10	
41,0	V46 50410	38,5	2,4	0,16								
42,0	V46 50420	38,5	2,4	0,16								
43,0	V46 50430	38,5	2,4	0,16								
44,0	V46 50440	38,5	2,4	0,16								
45,0	V46 50450	38,5	2,4	0,16								
46,0	V46 50460	44,5	2,7	0,18	N00 57450 S50115-20IP 6,25 Nm	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	L01 04150	N00 55701 M3,5×5-8IP 2,25 Nm	L01 04240 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70960 M8×16-⬡4 8 Nm	55051 05010 M5×10	
47,0	V46 50470	44,5	2,7	0,18								
48,0	V46 50480	44,5	2,7	0,19								
49,0	V46 50490	44,5	2,7	0,20								
50,0	V46 50500	44,5	2,7	0,21								
51,0	V46 50510	44,5	2,7	0,22								
52,0	V46 50520	44,5	2,7	0,22								
53,0	V46 50530	44,5	2,7	0,23								
54,0	V46 50540	44,5	2,7	0,24								
55,0	V46 50550	53,5	3,3	0,29	N00 57460 S55140-20IP 6,25 Nm	N00 57531 S/M4,5×9-15IP 6,25 Nm	L01 04160	N00 55701 M3,5×5-8IP 2,25 Nm	L01 04240 4× 0,025 2× 0,050 2× 0,075 2× 0,100	N00 70960 M8×16-⬡4 8 Nm	55051 05008 M5×8	
56,0	V46 50560	53,5	3,3	0,30								
57,0	V46 50570	53,5	3,3	0,31								
58,0	V46 50580	53,5	3,3	0,31								
59,0	V46 50590	53,5	3,3	0,32								
60,0	V46 50600	53,5	3,3	0,33								
61,0	V46 50610	53,5	3,3	0,34								
62,0	V46 50620	53,5	3,3	0,35								
63,0	V46 50630	53,5	3,3	0,36								
64,0	V46 50640	53,5	3,3	0,37								

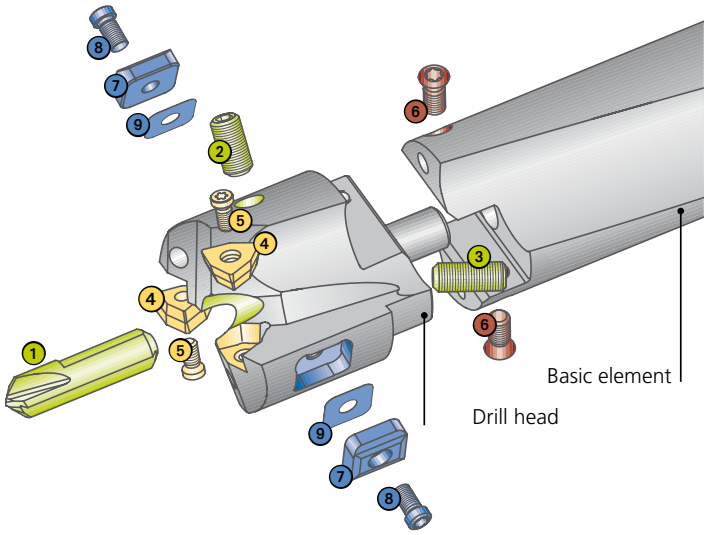
Further diameters on request.

Basic element		~ 4×D				~ 6×D				~ 8×D			
ABS Ø d	Connecting point Ø d1	Order No.	N	L	kg	Order No.	N	L	kg	Order No.	N	L	kg
63	38,5	V47 20401	185	235	1,68	V47 40401	260	310	2,08	V47 60401	340	390	2,5
80	44,5	V47 20461	215	280	3,31	V47 40461	310	375	3,97	V47 60461	415	480	4,82
80	53,5	V47 20551	260	325	4,30	V47 40551	370	435	5,42	V47 60551	495	560	6,68

The precise diameter to length ratio (L:D) is produced from relationship of the relevant basic element to the diameter of the drill head selected.

Patent applied for inside and outside Germany

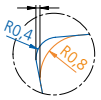
1. Central drill bit
2. Clamping screw for central drill bit
3. Adjusting screw for central drill bit
4. Indexable inserts
5. Clamping screw for indexable inserts
6. Clamping screw for basic element
7. Guide pad
8. Clamping screw for guide pad
9. Shim for adjusting guide pad



	Central drill bit				Basic recommendation			
				for workpiece material	Indexable insert -13 -01 -11			for workpiece material
	Ø d2	Order No.	Article	P M K N S H	Order No. ▽▽ Size	ISO code	piece	P M K N S H
	8	**V95 10032.0089** **V95 10032.0090** **V95 10330.8450**	HSS TiN HSS TiAlN VHM TiAlN/TiN	● ○ ○ ◐ ● ○ ● ● ● ◐ ● ◐	**W29 24130.048425** **W29 24130.0479** **W29 24010.047615** **W29 24110.0477**	WOEX 05T304-13 BK8425 WOEX 05T304-13 BK79 WOEX 05T304-01 BK7615 WOEX 05T304-11 BK77	2	● ○ ● ● ◐
	10	**V95 10042.0089** **V95 10042.0090** **V95 10340.8450**	HSS TiN HSS TiAlN VHM TiAlN/TiN	● ○ ○ ◐ ● ○ ● ● ● ◐ ● ◐	**W29 34130.048425** **W29 34130.0479** **W29 34010.047615** **W29 34110.0477**	WOEX 06T304-13 BK8425 WOEX 06T304-13 BK79 WOEX 06T304-01 BK7615 WOEX 06T304-11 BK77	2	● ○ ● ● ◐
	10	**V95 10042.0089** **V95 10042.0090** **V95 10340.8450**	HSS TiN HSS TiAlN VHM TiAlN/TiN	● ○ ○ ◐ ● ○ ● ● ● ◐ ● ◐	**W29 42130.048425** **W29 42130.0479** **W29 42010.047615** **W29 42110.0477**	WOEX 080404-13 BK8425 WOEX 080404-13 BK79 WOEX 080404-01 BK7615 WOEX 080404-11 BK77	2	● ○ ● ● ◐

● very good | ◐ good | ○ possible: see technical notes, page 184 | ✕ not possible

Note re. insert radius: The nominal dimension ∅ is only achieved with the appropriate standardised insert radius. Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)

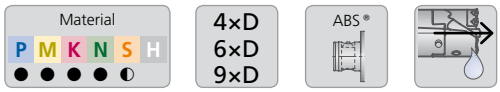


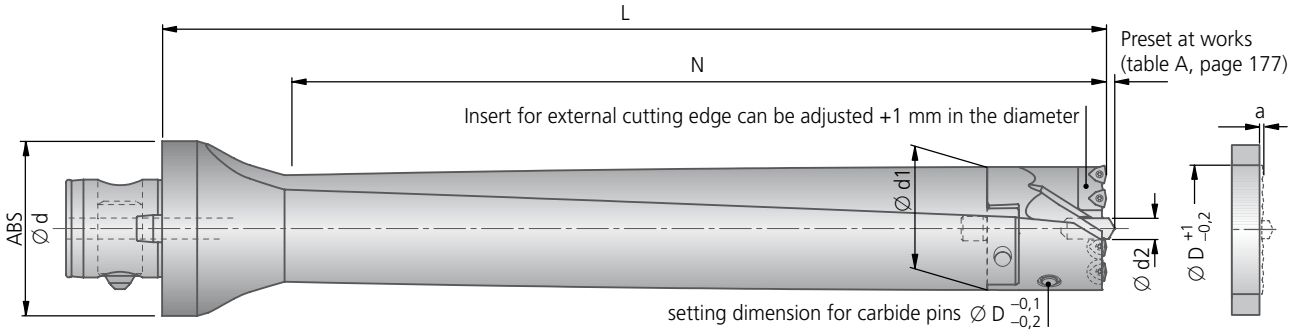
Supply drill head includes:
with screws ②, ③, ⑤, ⑥ and ⑧, guide pads ⑦ and shim sets ⑨.
Please order insert and central drill bit separately. Screwdriver see chapter 8.

Guideline values for solid drilling: page 182 / alternative inserts: page 183.

KOMET KUB Centron ® Ø 65 – 81 mm

Indexable insert drill





Supply drill head includes:
with screws ②, ③ and ⑤, insert seating ⑥, ⑩ and ⑪, carbide pin ⑮ , threaded pin ⑯ and copper disc ⑰.
Supply insert seating ⑥ includes: with location screw ⑦, adjusting screw ⑧ and clamping screws ⑨.
Supply insert seating ⑩ ⑪ includes: with location screw ⑫, cylindrical pin ⑬ and clamping screw ⑭.
Please order insert and central drill bit separately. Screwdriver see chapter 8.

4-9×D	●	●	◐	○	○	○	○	○	✕	✕	✕

Drill head												
Ø D	Order No.	Connecting point Ø d1	Roughing size a	kg	Clamping screw ⑤ for basic element Order No. Article	Carbide pin ⑮ Order No.	Key for carbide pin Order No.	Threaded pin ⑯ Order No. Article	Copper disc ⑰ Order No. Article	Clamping screw ② for central drill bit Order No. Article ⬡AF	Adjusting screw ③ for central drill bit Order No. Article	
65,0	V46 50650	63,5	3	0,49	N00 57470 S60160-20IP 6,25 Nm	L01 04310	L01 04370	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70970 M10×20-⬡5 16 Nm	55051 08010 M8×10	
66,0	V46 50660	63,5	3	0,51								
67,0	V46 50670	63,5	3	0,43								
68,0	V46 50680	63,5	3	0,54								
69,0	V46 50690	63,5	3	0,55								
70,0	V46 50700	63,5	3	0,56								
71,0	V46 50710	63,5	3	0,57								
72,0	V46 50720	70,5	3	0,93	N00 57470 S60160-20IP 6,25 Nm	L01 04310	L01 04370	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70970 M10×20-⬡5 16 Nm	55051 08025 M8×25	
73,0	V46 50730	70,5	3,1	0,93								
74,0	V46 50740	70,5	3,1	0,93								
75,0	V46 50750	70,5	3,1	0,93								
76,0	V46 50760	70,5	3,1	0,93	N00 57470 S60160-20IP 6,25 Nm	L01 04310	L01 04370	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70970 M10×20-⬡5 16 Nm	55051 08025 M8×25	
77,0	V46 50770	70,5	3,1	0,93								
78,0	V46 50780	70,5	3,1	0,93								
79,0	V46 50790	70,5	3,1	0,93	N00 57470 S60160-20IP 6,25 Nm	L01 04310	L01 04370	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70970 M10×20-⬡5 16 Nm	55051 08025 M8×25	
80,0	V46 50800	70,5	3,1	0,93								
81,0	V46 50810	70,5	3,1	0,93								

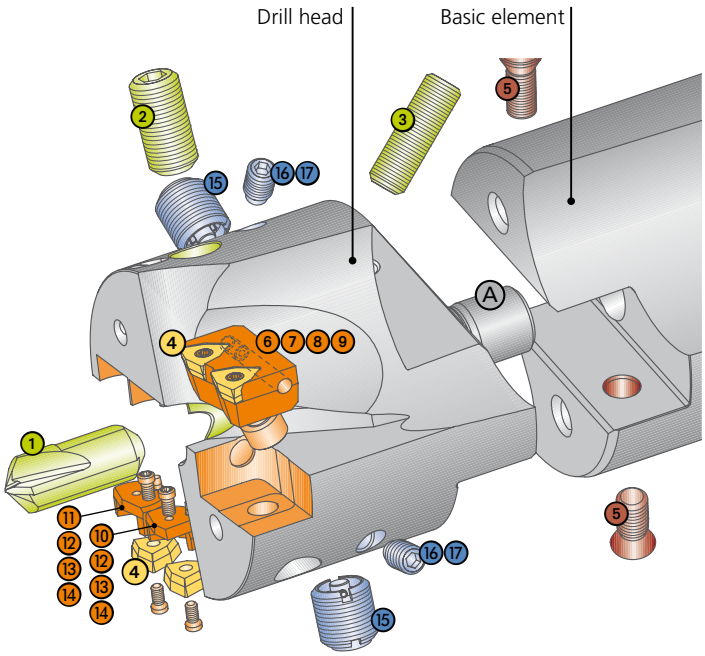
Basic element		~ 4×D				~ 6×D				~ 8×D			
ABS Ø d	Connecting point Ø d1	Order No.	N	L	kg	Order No.	N	L	kg	Order No.	N	L	kg
80	63,5	V47 20651	295	375	5,80	V47 40651	420	500	7,52	V47 60651	560	640	9,46
100	70,5	V47 20721	325	405	8,59	V47 40721	460	540	10,8	V47 60721	610	690	13,5

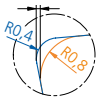
The precise diameter to length ratio (L:D) is produced from relationship of the relevant basic element to the diameter of the drill head selected.

● very good | ◐ good | ○ possible: see technical notes, page 184 | ✕ not possible

Patent applied for inside and outside Germany

1 Central drill bit
2 Clamping screw for central drill bit
3 Adjusting screw for central drill bit
4 Indexable inserts
5 Clamping screw for basic element
6 Insert seating
7 Location screw for insert seating
8 Adjusting screw for insert seating
9 Clamping screw for indexable insert
10 Insert seating
11 Insert seating
12 Location screw for insert seating
13 Cylindrical pin for insert seating
14 Clamping screw for indexable insert
15 Carbide pin
16 Threaded pin
17 Copper disc





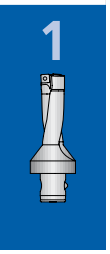
Note re. insert radius:
The nominal dimension ∅ is only achieved with the appropriate standardised insert radius.
Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)

Insert seating			Central drill bit			Basic recommendation		
⑥ Order No.	⑩ Order No.	⑪ Order No.	Ød2	Order No.	for workpiece material P M K N S H	Indexable insert -13 -01 -11 Order No. · ISO code ▽▽ Size	piece	for workpiece material P M K N S H
D53 53200	–	–	12	V95 10050.0089 HSS TiN V95 10050.0090 HSS TiAlN	● ● ● ● ●	W29 24130.048425 WOEX 05T304-13 BK8425 W29 24130.0479 WOEX 05T304-13 BK79 W29 24010.047615 WOEX 05T304-01 BK7615 W29 24110.0477 WOEX 05T304-11 BK77	4	● ● ● ● ●
D53 53220 D53 53230 D53 53240	D50 50290	D50 55090	12	V95 10050.0089 HSS TiN V95 10050.0090 HSS TiAlN	● ● ● ● ●	W29 24130.048425 WOEX 05T304-13 BK8425 W29 24130.0479 WOEX 05T304-13 BK79 W29 24010.047615 WOEX 05T304-01 BK7615 W29 24110.0477 WOEX 05T304-11 BK77	4	● ● ● ● ●

Insert seating ⑥				Insert seating ⑩ and ⑪				
⑥ Order No.	Location screw ⑦ Order No. Article	Adjusting screw ⑧ Order No. Article	Clamping screw ⑨ Order No. Article	⑩ Order No.	⑪ Order No.	Location screw ⑫ Order No. Article	Cylindrical pin ⑬ Order No. Article	Clamping screw ⑭ Order No. Article
D53 53200	N10 11510 M4,5×11,5-Tx15	55051 04008 M4×8	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	–	–	–	–	–
D53 53220 D53 53230 D53 53240	55011 05012 M5×12	55051 04010 M4×10	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	D50 50290	D50 55090	N00 55571	N00 52000	N00 57571 S/M2,5×6,3-8IP 1,28 Nm

Guideline values for solid drilling: page 182 / alternative inserts: page 183.

Recommended application areas



Guideline values for solid drilling						KUB Centron ®																			
						Max. feed f (mm/rev) · Cutting speed v_c (m/min)																			
						Ø20–25			Ø26–32			Ø33–45			Ø46–54			Ø55–64			Ø65–71		Ø72–81	
							HSS*	VHM*		HSS*	VHM*		HSS*	VHM*		HSS*	VHM*		HSS*	VHM*		HSS*		HSS*
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	f	v_c	v_c	f	v_c	v_c	f	v_c	v_c	f	v_c	v_c	f	v_c	v_c	f	v_c	f	v_c
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	0,08	160	250	0,08	170	250	0,10	200	250	0,12	180	250	0,14	180	250	0,10	210	0,12	210
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	0,10	160	200	0,12	170	200	0,12	200	200	0,14	180	200	0,16	180	200	0,12	210	0,14	210
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	0,12	160	250	0,14	170	250	0,14	200	250	0,14	180	250	0,16	180	250	0,14	210	0,16	210
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	0,12	140	180	0,14	170	180	0,14	180	180	0,14	180	180	0,16	180	180	0,14	180	0,16	180
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	0,08	120	160	0,10	160	160	0,10	160	160	0,14	160	160	0,14	160	160	0,10	160	0,12	160
P	4.1			HSS		0,07	80	80	0,07	80	80	0,07	80	80	0,08	80	80	0,10	80	80	0,08	80	0,10	80
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	on request																		
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	on request																		
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	0,07	70	180	0,10	70	180	0,10	90	180	0,10	90	180	0,12	90	180	0,10	100	0,12	100
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	0,10	70	160	0,12	70	160	0,12	90	160	0,12	90	160	0,14	90	160	0,12	100	0,14	100
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	0,08	70	120	0,10	70	120	0,10	90	120	0,10	90	120	0,12	90	120	0,10	100	0,12	100
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	0,14	100	200	0,16	110	200	0,16	120	200	0,18	120	200	0,25	120	200	0,16	140	0,20	140
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	0,12	100	160	0,14	110	160	0,14	120	160	0,15	120	160	0,20	120	160	0,16	140	0,20	140
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	0,12	100	160	0,14	110	160	0,14	120	160	0,18	120	160	0,25	120	160	0,16	140	0,20	140
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	0,12	100	140	0,14	110	140	0,14	120	140	0,18	120	140	0,25	120	140	0,14	140	0,16	140
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	0,12	100	120	0,14	110	120	0,14	120	120	0,18	120	120	0,25	120	120	0,14	120	0,16	120
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	0,10	100	100	0,12	100	100	0,12	100	100	0,15	100	100	0,20	100	100	0,12	100	0,14	100
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	0,10	80	80	0,12	80	80	0,12	80	80	0,15	80	80	0,20	80	80	0,12	80	0,14	80
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	0,14	200	200	0,16	200	200	0,16	200	200	0,20	200	200	0,25	200	200	0,16	200	0,20	200
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	0,08	250	250	0,08	250	250	0,10	250	250	0,12	250	250	0,15	250	250	0,08	250	0,10	250
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	0,07	350	350	0,07	350	350	0,07	350	350	0,10	350	350	0,12	350	350	0,08	350	0,10	350
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	0,10	250	250	0,12	250	250	0,14	250	250	0,18	250	250	0,25	250	250	0,14	250	0,16	250
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	0,12	200	200	0,14	200	200	0,14	200	200	0,15	200	200	0,20	200	200	0,12	200	0,14	200
H	15.0	1400		hardened steels < 45 HRC		–			–			–			–			–			–		–	
H	16.0	1800		hardened steels > 45 HRC		–			–			–			–			–			–		–	

* Cutting values shown are maximum values relating on the nominal diameter of the drill head using the respective central drill bit.

Patent applied for inside and outside Germany

for better chip control

ØD	Indexable insert -03 / -13 Order No.	ISO code	for workpiece material P M K N S H
20 – 25	**W29 10030.048425**	WOEX 030204-03 BK8425	◐ ◑
	W29 10030.046425	WOEX 030204-03 BK6425	◐
26 – 33	**W29 18030.048425**	WOEX 040304-03 BK8425	◐ ◑
	W29 18030.046425	WOEX 040304-03 BK6425	◐
33 – 45	**W29 24130.048425**	WOEX 05T304-13 BK8425	◐
	W29 24030.046425	WOEX 05T304-03 BK6425	◐
	W29 24130.0479	WOEX 05T304-13 BK79	◑
46 – 54	**W29 34130.048425**	WOEX 06T304-13 BK8425	◐
	W29 34030.046425	WOEX 06T304-03 BK6425	◐
	W29 34130.0479	WOEX 06T304-13 BK79	◑
55 – 64	**W29 42130.048425**	WOEX 080404-13 BK8425	◐
	W29 42030.046425	WOEX 080404-03 BK6425	◐
	W29 42130.0479	WOEX 080404-13 BK79	◑
65 – 81	**W29 24130.048425**	WOEX 05T304-13 BK8425	◐
	W29 24030.046425	WOEX 05T304-03 BK6425	◐ ◑
	W29 24130.0479	WOEX 05T304-13 BK79	◑

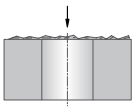
for higher cutting speed

ØD	Indexable insert -01 / -11 / -13 Order No.	ISO code	for workpiece material P M K N S H
20 – 25	W29 10010.0472	WOEX 030204-01 BK72	◐
	W29 10130.047325	WOEX 030204-13 BK7325	◑
	W29 10110.0450	WOEX 030404-11 BK50	◐
26 – 33	W29 18010.0472	WOEX 040304-01 BK72	◐
	W29 18130.047325	WOEX 040304-13 BK7325	◑
	W29 18110.0450	WOEX 040304-11 BK50	◐
33 – 45	W29 24010.0472	WOEX 05T304-01 BK72	◐
	W29 24130.047325	WOEX 05T304-13 BK7325	◑
	W29 24110.0450	WOEX 05T304-11 BK50	◐
46 – 54	W29 34010.0472	WOEX 06T304-01 BK72	◐
	W29 34130.047325	WOEX 06T304-13 BK7325	◑
	W29 34110.0450	WOEX 06T304-11 BK50	◐
55 – 64	W29 42010.0472	WOEX 080404-01 BK72	◐
	W29 42130.047325	WOEX 080404-13 BK7325	◑
	W29 42110.0450	WOEX 080404-11 BK50	◐
65 – 81	W29 24010.0472	WOEX 05T304-01 BK72	◐
	W29 24110.0450	WOEX 05T304-11 BK50	◐

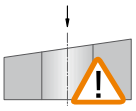
for greater strength

20 – 25	**W29 10010.047930**	WOEX 030204-01 BK7930	◐
	W29 10010.0404	WOEX 030204-01 P40	◐ ◑
	W29 10010.0421	WOEX 030204-01 K10	◐
	W29 10110.0421	WOEX 030204-11 K10	◐
26 – 33	**W29 18010.047930**	WOEX 040304-01 BK7930	◐
	W29 18010.0404	WOEX 040304-01 P40	◐ ◑
	W29 18010.0421	WOEX 040304-01 K10	◐
	W29 18110.0421	WOEX 040304-11 K10	◐
33 – 45	**W29 24010.047930**	WOEX 05T304-01 BK7930	◐
	W29 24010.0404	WOEX 05T304-01 P40	◐ ◑
	W29 24010.0421	WOEX 05T304-01 K10	◐
	W29 24110.0421	WOEX 05T304-11 K10	◐
46 – 54	**W29 34010.047930**	WOEX 080404-01 BK7930	◐
	W29 34010.0404	WOEX 080404-01 P40	◐ ◑
	W29 34010.0421	WOEX 080404-01 K10	◐
	W29 34110.0421	WOEX 080404-11 K10	◐
55 – 64	**W29 42010.047930**	WOEX 080404-01 BK7930	◐
	W29 42010.0404	WOEX 080404-01 P40	◐ ◑
	W29 42010.0421	WOEX 080404-01 K10	◐
	W29 42000.0421	WOEX 080404-00 K10	◐
65 – 81	**W29 24010.047930**	WOEX 05T304-01 BK7930	◐
	W29 24010.0404	WOEX 05T304-01 P40	◑
	W29 24010.0421	WOEX 05T304-01 K10	◐
	W29 24110.0421	WOEX 05T304-11 K10	◐

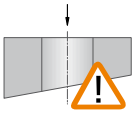
Technical informations

1. 

Starting on uneven surfaces (cast surfaces)
- possible in principle
- reduce feed rate when starting bore

2. 

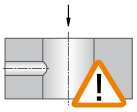
Starting on angled surfaces
- surface for starting bore must be spot faced beforehand
- avoid chip jams on drill shank

3. 

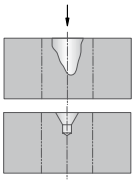
Angled bore exit
- possible under certain conditions
- reduce feed rate if necessary
- drilling angle max. 3°

4. 

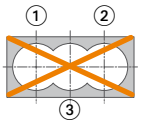
Starting on cambered surfaces
- centered boring can be started with reduced feed rate
- spot facing is required if the point for starting the bore is outside the radius centre

5. 

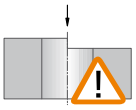
Drilling through a cross bore
- halve feed rate at interruption
- cross bore max. 1/3 of bore diameter
- off-centre cross bore not possible

6. 

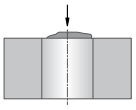
Starting on a groove or large centering bore
- possible under certain conditions
- reduce feed rate if necessary
- face beforehand where centre is particularly large
- central drill bit basic adjustment optimize if necessary

7. 

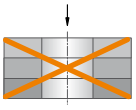
Drilling a chamber
- not possible

8. 

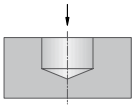
Starting on an edge
- surface for starting bore must be spot faced beforehand
- avoid chip jams on drill shank

9. 

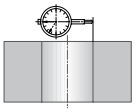
Starting on a welded seam
- reduce feed rate when starting bore
- face beforehand if necessary

10. 

Drilling through stacked plates
- not possible

11. 

Blind hole
- possible
- set guide pads 0.5 mm below actual ∅

12. 

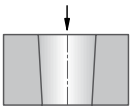
adjustable
- can be adjusted from 65 mm diameter

Patent applied for inside and outside Germany

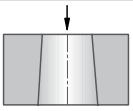
Rotating and stationary use



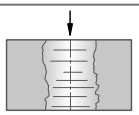
Short tool life types of wear on inserts
- cutting speed to high → select correct cutting speed
- cutting material with too little wear resistance → select grade with higher wear resistance
- tool overhang too great → if possible use shorter tool
- damaged insert seating → check tool, change if necessary
- clamping device not stable enough → improve stability



Bore narrows at bottom
- chip jam on external cutting edge → use different chip fracture geometry, increase feed if necessary
- material very soft → increase cutting speed, reduce feed. Use positive chip geometry
- axial adjustment of central drill bit not the best > adjust setting as shown on setting sheet in operating instructions



Bore widens at bottom
- chip jam on internal cutting edge → use different chip fracture geometry, increase feed if necessary



Bad surface finish
- bad chip removal → improve cutting parameters: increase cutting speed reduce feed

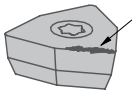
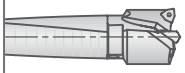
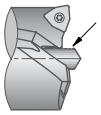


Bild up on cutting edge
- cutting speed too low → increase cutting speed
- insert too negative → use positive geometry
- coating not suitable → select correct coating

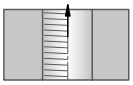


Friction marks on tool shank
- bore diameter too small → check setting
- chip removal problems → improve cutting parameters, check geometry of inserts
- cutting edge corner radius too large → use correct cutting edge radius
- chip jams on support element, fractured support element > where basic element < 6 × D use of support element can be dispensed with

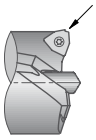
Stationary use



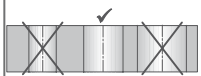
Heavy wear on one side on central drill bit
- tool not central → tool turret/holder may have shifted – readjust machine



Withdrawal groove on one side
- tool not central → tool turret/holder may have shifted – readjust machine

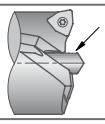


Fracture on external cutting edge
- feed rate too high → reduce feed rate
- interrupted cut → change to tougher insert grade
- cutting edge corner radius too small → use insert with larger cutting edge radius

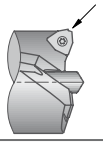


Bore too small/ too large
- machine not at X-0 position → move axis to correct position
- machine axis shifted → readjust machine

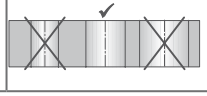
Rotating use



Heavy wear on one side on central drill bit
- insufficient guiding → check length setting on central drill bit



Fracture on external cutting edge
- feed rate too high → reduce feed rate
- interrupted cut → change to tougher insert grade
- cutting edge corner radius too small → use insert with larger cutting edge radius



Bore too small/ too large with adjustable tool
- wrong cutting edge radius used → use correct cutting edge radius
- setting wrong → correct setting

KOMET KUB® V464 Ø 80 – 155 mm

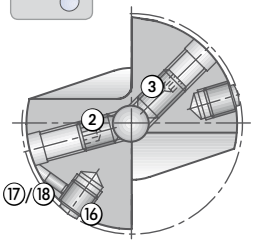
Indexable insert drill (drill head)

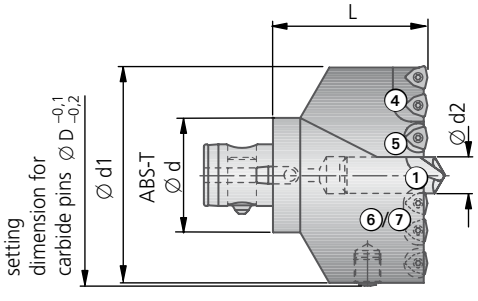
Material P M K N S H

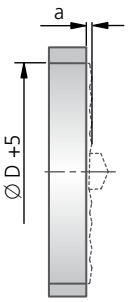
6×D

ABS® T

Insert ④ for external cutting edge can be adjusted +5 mm in the diameter







Drill head												
Ø D +5 mm	ABS-T Ø d	Order No.	Ø d1	Roughing size a	L	kg	Carbide pin ⑯ Order No.	Key for carbide pin Order No.	Threaded pin ⑰ Order No. Article	Copper disc ⑱ Order No. Article	Clamping screw ② for central drill bit Order No. Article ⬡AF	Adjusting screw ③ for central drill bit Order No. Article
80	50	V46 40801	78,5	4,2	75	1,75	L01 04300	L01 04350	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70370 M12×16-⬡6 25 Nm	55052 12016 M12×16
85	50	V46 40851	83,5	4,2	75	1,80						
90	50	V46 40901	87,5	4,2	75	2,06	L01 04300	L01 04350	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70380 M12×20-⬡6 25 Nm	55052 12020 M12×20
95	50	V46 40951	92,5	4,2	75	2,16						
100	63	V46 41001	97,2	4,8	85	3,12						
105	63	V46 41051	102,5	4,8	85	2,92	L01 04300	L01 04350	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70380 M12×20-⬡6 25 Nm	55052 12020 M12×20
110	63	V46 41101	107,5	4,8	85	3,20						
115	63	V46 41151	112,5	4,8	85	3,35	L01 04300	L01 04350	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70460 M16×20-⬡8 35 Nm	N00 70800 M16×22
120	63	V46 41201	118,5	4,2	85	3,60						
125	63	V46 41251	123,5	4,2	85	3,82						
130	80	V46 41301	127,5	4,2	90	5,62	L01 04300	L01 04350	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70460 M16×20-⬡8 35 Nm	N00 70800 M16×22
135	80	V46 41351	132,5	4,2	90	5,52						
140	80	V46 41401	137,5	4,2	90	5,79						
145	80	V46 41451	142,5	4,8	90	5,95						
150	80	V46 41501	147,5	4,8	90	6,08	L01 04300	L01 04350	55051 06008 M6×8	L01 04450 Ø4,5×1,5	N00 70460 M16×20-⬡8 35 Nm	N00 70800 M16×22
155	80	V46 41551	152,5	4,8	90	6,50						

For torsional dampeners we recommend the use of appropriate reducers (available on request).

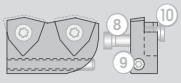
Supply drill head includes: with screws ② and ③, insert seating ④, ⑤ and ⑥/⑦, carbide pin ⑯, threaded pin ⑰ and copper disc ⑱.

Supply insert seating ④ includes:
with location screw ⑧, adjusting screw ⑨ and clamping screws ⑩.

Supply insert seating ⑤ and ⑥ includes:
with location screw ⑪, Zylinderstift ⑫ and clamping screw ⑬.

Supply insert seating ⑦ includes:
with location screw ⑭ and clamping screws ⑮.

Please order insert and central drill bit separately.
Screwdriver see chapter 8.

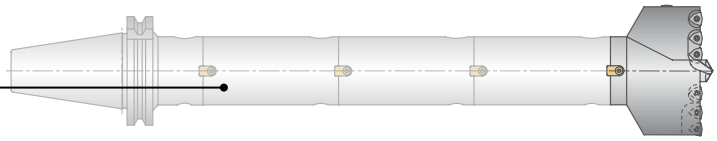
Insert seating ④			
④  Order No.	Location screw ⑧ Order No. Article	Adjusting screw ⑨ Order No. Article	Clamping screw ⑩ Order No. Article
D53 53360 D53 53370 D53 53380 D53 53390	55011 05012 M5×12	55051 05016 M5×16	N00 57521 S/M3,5×7,3-10IP 2,8 Nm
D53 53400 D53 53410 D53 53420 D53 53430	55011 05012 M5×12	55051 06020 M6×20	N00 57531 S/M4,5×9-15IP 6,25 Nm

Patent applied for inside and outside Germany

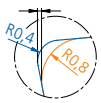
6×D	●	●	◐	○	○	○	○	✕	✕	✕	●

● very good | ◐ good | ○ possible: see technical notes, page 184 | ✕ not possible

Note: Use extensions in ABS® T (see chapter 5)



Insert seating						Central drill bit ①			Basic recommendation		
④ Order No.	piece	⑤ Order No.	piece	D50 ⑥ D53 ⑦ Order No.	piece	Ød2	Order No.	for workpiece material P M K N S H	Indexable insert -13 -01 -11 Order No. · ISO code ▽▽ Size	piece	for workpiece material P M K N S H
D53 53360	1	–		D53 53350	1	16	V95 10063.0089 HSS TiN V95 10063.0090 HSS TiAlN	● ● ●	W29 34130.048425 WOEX 06T304-13 BK8425 W29 34130.0479 WOEX 06T304-13 BK79 W29 34010.047615 WOEX 06T304-01 BK7615 W29 34110.0477 WOEX 06T304-11 BK77	4	● ● ● ●
D53 53370	1										
D53 53380	1	D50 55100	1	D50 50300	1						
D53 53390	1										
D53 53400	1										
D53 53410	1	D50 55110	1	D50 50310	1	16	V95 10063.0089 HSS TiN V95 10063.0090 HSS TiAlN	● ● ●	W29 42130.048425 WOEX 080404-13 BK8425 W29 42130.0479 WOEX 080404-13 BK79 W29 42010.047615 WOEX 080404-01 BK7615 W29 42110.0477 WOEX 080404-11 BK77	4	● ● ● ●
D53 53420	1										
D53 53430	1	D50 55110	1	D50 50310	1	20	V95 10213.0089 HSS TiN V95 10213.0090 HSS TiAlN	● ● ●			
D53 53360	1	D50 55100	2	D53 53350	1	20	V95 10213.0089 HSS TiN V95 10213.0090 HSS TiAlN	● ● ●	W29 34130.048425 WOEX 06T304-13 BK8425 W29 34130.0479 WOEX 06T304-13 BK79 W29 34010.047615 WOEX 06T304-01 BK7615 W29 34110.0477 WOEX 06T304-11 BK77	6	● ● ● ●
D53 53360	1	D50 55100	3	D50 50300	1						
D53 53380	1										
D53 53380	1	D50 55100	3	D50 50300	1						
D53 53390	1										
D53 53400	1										
D53 53400	1	D50 55110	3	D50 50310	1	20	V95 10213.0089 HSS TiN V95 10213.0090 HSS TiAlN	● ● ●	W29 42130.048425 WOEX 080404-13 BK8425 W29 42130.0479 WOEX 080404-13 BK79 W29 42010.047615 WOEX 080404-01 BK7615 W29 42110.0477 WOEX 080404-11 BK77	6	● ● ● ●
D53 53400	1										



Note re. insert radius:
The nominal dimension ∅ is only achieved with the appropriate standardised insert radius.
Insert radii which deviate from this will alter the nominal dimension ∅ (see Chapter 8)

Insert seating ⑤ and ⑥				
⑤ Order No.	⑥ Order No.	Location screw ⑪ Order No. Article	Cylindrical pin ⑫ Order No. Article	Clamping screw ⑬ Order No. Article
D50 55100	D50 50300	N00 55701 M3,5×5-8IP	N00 52000 1,8/2x4,5	N00 57521 S/M3,5×7,3-10IP 2,8 Nm
D50 55110	D50 50310	N00 55821 M4,5×9-10IP	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm

Insert seating ⑦			
⑦ Order No.	Location screw ⑭ Order No. Article	Clamping screw ⑮ Order No. Article	
D53 53350	55011 05012 M5×12	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	

Guideline values for solid drilling: page 188 / alternative inserts: page 189.

KOMET KUB® V464 Ø 80 – 155 mm

Recommended application areas

Guideline values for solid drilling						KUB® V464					
						Max. feed f (mm/rev) · Cutting speed v_c (m/min)					
						Ø 80 – 99		Ø 100 – 119		Ø 120 – 159	
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	f mm/U	HSS * v_c m/min	f mm/rev	HSS * v_c m/min	f mm/rev	HSS * v_c m/min
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	0,10	200	0,12	200	0,12	200
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	0,12	180	0,14	180	0,16	180
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	0,12	200	0,14	200	0,16	200
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	0,12	160	0,14	160	0,16	160
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	0,12	140	0,14	140	0,16	140
P	4.1			HSS		0,10	60	0,12	60	0,14	60
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	–		–		–	
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	–		–		–	
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	0,10	100	0,12	100	0,14	160
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	0,12	100	0,14	100	0,14	140
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	0,12	100	0,14	100	0,14	100
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	0,16	180	0,16	180	0,25	180
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	0,14	140	0,16	140	0,20	140
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	0,14	140	0,16	140	0,20	140
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	0,14	120	0,16	120	0,20	120
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	0,12	100	0,14	100	0,18	100
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	0,12	80	0,14	80	0,16	80
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	0,12	80	0,14	80	0,16	80
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	0,16	180	0,20	180	0,25	180
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	0,08	200	0,10	200	0,12	200
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	0,08	300	0,10	300	0,12	300
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	0,14	200	0,16	200	0,16	200
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	0,12	160	0,14	160	0,14	160
H	15.0	1400		hardened steels < 45 HRC		–		–		–	
H	16.0	1800		hardened steels > 45 HRC		–		–		–	

* Cutting values shown are maximum values relating on the nominal diameter of the drill head using the respective central drill bit.

Patent applied for inside and outside Germany

for better chip control

ØD	Indexable insert -03 -13 Order No.	ISO code	for workpiece material P M K N S H
80 – 99	**W29 34130.048425**	WOEX 06T304-13 BK8425	◐
	W29 34030.046425	WOEX 06T304-03 BK6425	◐ ◑
	W29 34130.0479	WOEX 06T304-13 BK79	◑
100 – 119	**W29 42130.048425**	WOEX 080404-13 BK8425	◐
	W29 42030.046425	WOEX 080404-03 BK6425	◐ ◑
	W29 42130.0479	WOEX 080404-13 BK79	◑
120 – 144	**W29 34130.048425**	WOEX 06T304-13 BK8425	◐
	W29 34030.046425	WOEX 06T304-03 BK6425	◐ ◑
	W29 34130.0479	WOEX 06T304-13 BK79	◑
145 – 159	**W29 42130.048425**	WOEX 080404-13 BK8425	◐
	W29 42030.046425	WOEX 080404-03 BK6425	◐ ◑
	W29 42130.0479	WOEX 080404-13 BK79	◑

for higher cutting speed

ØD	Indexable insert -01 -11 -13 Order No.	ISO code	for workpiece material P M K N S H
80 – 99	**W29 34010.0472**	WOEX 06T304-01 BK72	◐
	W29 34110.0450	WOEX 06T304-11 BK50	◐
100 – 119	**W29 42010.0472**	WOEX 080404-01 BK72	◐
	W29 42110.0450	WOEX 080404-11 BK50	◐
120 – 144	**W29 34010.0472**	WOEX 06T304-01 BK72	◐
	W29 34110.0450	WOEX 06T304-11 BK50	◐
145 – 159	**W29 42010.0472**	WOEX 080404-01 BK72	◐
	W29 42110.0450	WOEX 080404-11 BK50	◐

for greater strength

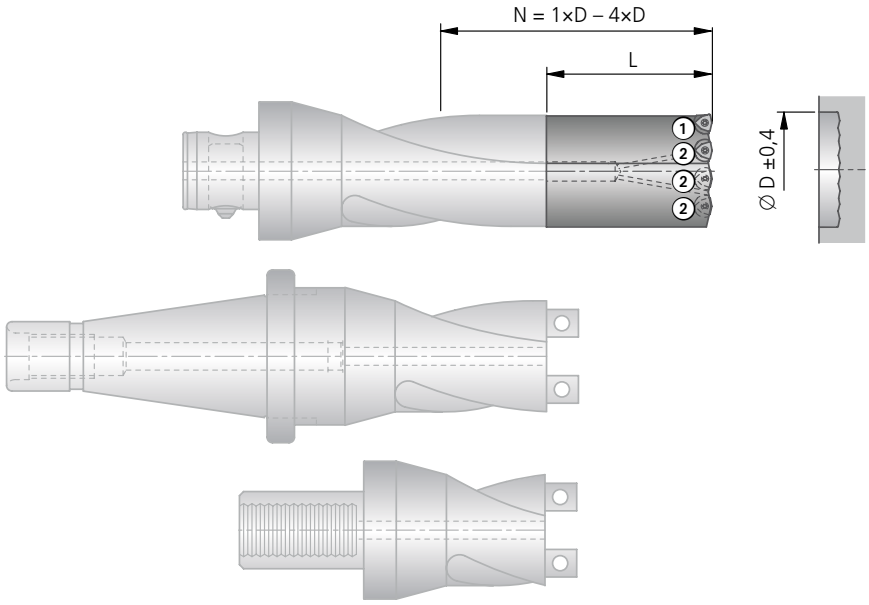
80 – 99	**W29 34010.047930**	WOEX 06T304-01 BK7930	◐
	W29 34010.0404	WOEX 06T304-01 P40	◑
	W29 34010.0421	WOEX 06T304-01 K10	◐
	W29 34110.0421	WOEX 06T304-11 K10	◐
100 – 119	**W29 42010.047930**	WOEX 080404-01 BK7930	◐
	W29 42010.0404	WOEX 080404-01 P40	◐ ◑
	W29 42010.0421	WOEX 080404-01 K10	◐
	W29 42110.0421	WOEX 080404-11 K10	◐
120 – 144	**W29 34010.047930**	WOEX 06T304-01 BK7930	◐
	W29 34010.0404	WOEX 06T304-01 P40	◐ ◑
	W29 34010.0421	WOEX 06T304-01 K10	◐
	W29 34110.0421	WOEX 06T304-11 K10	◐
145 – 159	**W29 42010.047930**	WOEX 080404-01 BK7930	◐
	W29 42010.0404	WOEX 080404-01 P40	◐ ◑
	W29 42010.0421	WOEX 080404-01 K10	◐
	W29 42110.0421	WOEX 080404-11 K10	◐

KOMET KUB® V50 Ø 83 – 128 mm

Drill head with ABS® connection, taper or VDI shank

The KUB® drill basic elements can be supplied on request for boring depths N 1×D to 4×D with ABS® connection (from ABS100) and with adaptors to DIN 69880 (VDI 3425 B/2) from NC50 and all ISO adaptors from ISO50.

To process the enquiry, we require details of the type and size of connection and required boring depth.



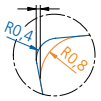
4×D	●	●	◐	○	○	○	○	○	><	><	><

Drill head				Insert seating					Basic recommendation	
Ø D	Order No.	for R0,8 L	kg	① Order No.	② Order No.	Location screw ③ Order No. Article	Cylindrical pin ④ Order No. Article	Clamping screw ⑤ Order No. Article	Insert -01 -11 Order No. · ISO code ▽▽ Size	for workpiece material P M K N S H
83	V50 30830	120	2,35	D50 55300	D50 55100	N00 55701 M3,5×5-8IP 2,25 Nm	N00 52000 1,8/2×4,5	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W29 34010.048425 WOEX 06T304-01 BK8425	●
88	V50 30880	120	2,56						W29 34010.047930 WOEX 06T304-01 BK7930 W29 34010.0462 WOEX 06T304-01 BK62 W29 34110.0477 WOEX 06T304-11 BK77	○ ● ● ●
93	V50 30930	120	2,88	D50 55310	D50 55110	N00 55821 M4,5×9-10IP 4,3 Nm	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm	W29 42010.048425 WOEX 080404-01 BK8425	●
98	V50 30980	120	3,22						W29 42010.047930 WOEX 080404-01 BK7930 W29 42010.0462 WOEX 080404-01 BK62 W29 42110.0477 WOEX 080404-11 BK77	○ ● ● ●
103	V50 31030	120	3,56							
108	V50 31080	120	3,94							
113	V50 31130	120	4,17	D50 55320	D50 55120	N00 55821 M4,5×9-10IP 4,3 Nm	N00 52010 3/4×5,5	N00 57531 S/M4,5×9-15IP 6,25 Nm	W29 50010.048425 WOEX 100504-01 BK8425	●
118	V50 31180	120	4,71						W29 50010.047930 WOEX 100504-01 BK7930 W29 50010.0462 WOEX 100504-01 BK62 W29 50110.0477 WOEX 100504-11 BK77	○ ● ● ●
123	V50 31230	120	5,11							
128	V50 31280	120	5,66							

Supply drill head includes: with insert seating ① and ②.

Supply insert seating ① and ② includes: with location screw ③, cylindrical pin ④ and clamping screw ⑤.

Please order indexalbe insert separately. Screwdriver see chapter 8.



Note re. insert radius:
The nominal dimension Ø is only achieved with the appropriate standardised insert radius.
Insert radii which deviate from this will alter the nominal dimension Ø (see Chapter 8)

● very good | ◐ good | ○ possible | >< not possible

Patent applied for inside and outside Germany

Guideline values for solid drilling						v_c	Max. f (mm/rev)		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	4×D		
							∅ 83 – 88	∅ 93 – 108	∅ 113 – 128
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	0,10	0,12	0,12
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	180	0,12	0,14	0,16
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	200	0,12	0,14	0,16
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	160	0,12	0,14	0,16
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	140	0,12	0,14	0,16
P	4.1			HSS		60	0,10	0,12	0,14
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		on request		
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		on request		
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	160	0,10	0,12	0,14
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	140	0,12	0,14	0,14
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	100	0,12	0,14	0,14
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	180	0,16	0,16	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	140	0,14	0,16	0,20
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	0,14	0,16	0,20
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	120	0,14	0,16	0,20
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	100	0,12	0,14	0,18
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	80	0,12	0,14	0,16
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	80	0,12	0,14	0,16
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	180	0,16	0,20	0,25
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	200	0,08	0,10	0,12
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	0,08	0,10	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	200	0,14	0,16	0,16
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	160	0,12	0,14	0,14
H	15.0	1400		hardened steels < 45 HRC		–	–	–	–
H	16.0	1800		hardened steels > 45 HRC		–	–	–	–

for better chip control

Ø D	Alternative indexable insert Order No. -03	-13	-01	-11	ISO code	for workpiece material P M K N S H
83 – 88	**W29 34130.048425**				WOEX 06T304-13 BK8425	◐
	W29 34030.046425				WOEX 06T304-03 BK6425	◐ ◑
	W29 34130.0479				WOEX 06T304-13 BK79	◑
93 – 108	**W29 42130.048425**				WOEX 080404-13 BK8425	◐
	W29 42030.046425				WOEX 080404-03 BK6425	◐ ◑
	W29 42130.0479				WOEX 080404-13 BK79	◑
113 – 128	**W29 50130.048425**				WOEX 100504-13 BK8425	◐
	W29 50030.046425				WOEX 100504-03 BK6425	◐ ◑
	W29 50130.0479				WOEX 100504-13 BK79	◑

for higher cutting speed

Ø D	Order No.	ISO code	for workpiece material P M K N S H
83 – 88	**W29 34010.0472**	WOEX 06T304-01 BK72	◐
	W29 34110.0450	WOEX 06T304-11 BK50	◐
93 – 108	**W29 42010.0472**	WOEX 080404-01 BK72	◐
	W29 42110.0450	WOEX 080404-11 BK50	◐
113 – 128	**W29 50010.0872**	WOEX 100508-01 BK72	◐
	W29 50110.0450	WOEX 100504-11 BK50	◐

for greater strength

Ø D	Order No.	ISO code	for workpiece material P M K N S H
83 – 88	**W29 34010.047930**	WOEX 06T304-01 BK7930	◐
	W29 34010.0404	WOEX 06T304-01 P40	◐ ◑
	W29 34010.0421	WOEX 06T304-01 K10	◐
	W29 34110.0421	WOEX 06T304-11 K10	◐
93 – 108	**W29 42010.047930**	WOEX 080404-01 BK7930	◐
	W29 42010.0404	WOEX 080404-01 P40	◐ ◑
	W29 42010.0421	WOEX 080404-01 K10	◐
	W29 42110.0421	WOEX 080404-11 K10	◐
113 – 128	**W29 50010.047930**	WOEX 100504-01 BK7930	◐
	W29 50010.0804	WOEX 100508-01 P40	◐ ◑
	W29 50010.0821	WOEX 100508-01 K10	◐
	W29 50110.0421	WOEX 100504-11 K10	◐

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET® V71 Ø 37 – 64 mm

Flat bottoming tool

Material P M K N S H | 3×D | ABS® | 

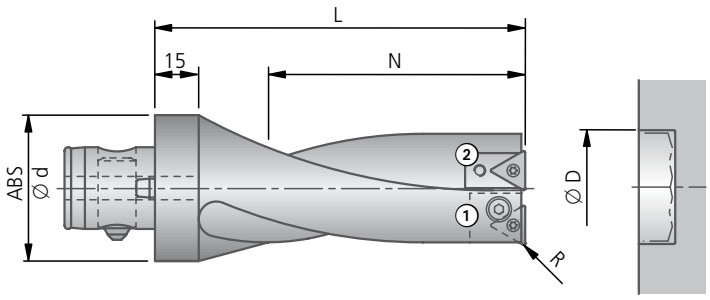
The adjustable flat bottoming tool is primarily used for flat bottoming the the bottom face in blind bores.

The external cutting edge is radially adjustable and the internal cutting edge axially adjustable for facing flat the bottom of the bore.

The flat bottoming tool will also remachine the bore diameter.

Rigid machine conditions are essential!

Please note! The flat bottoming tool must not be connected to the M01 (ABS-MV) adjustable device but only to adaptors, reducers or extensions.



3×D												
3×D	✕	◐	✕	✕	✕	✕	✕	✕	✕	✕	●	●

3×D							Insert seating		Basic recommendation		
Adjustment range Ø D	ABS Ø d	Order No.	R	N	L	kg	① Order No.	② Order No.	Indexable insert Order No. ▽▽ Size	ISO-Code	for workpiece material P M K N S H
37–43	50	V71 00200	0,5	111	161	1,18	D53 05310	D53 05110	W30 26660.058425 W30 26660.0503 W30 26660.0521 W30 26720.0521	TOHX 140305EN-G06 BK8425 TOHX 140305EN-G06 P25M TOHX 140305EN-G06 K10 TOHX140305FN-G12 K10	● ○ ● ●
43–48	50	V71 00210	0,5	129	179	1,49					
48–52	63	V71 00250	0,8	144	199	2,27	D53 05320	D53 05120	W30 44660.0803 W30 44660.0821 W30 44720.0821	TOHX22T308EN-G06 P25M TOHX22T308EN-G06 K10 TOHX22T308FN-G12 K10	● ○ ● ●
52–58	63	V71 00260	0,8	156	211	2,51					
58–64	80	V71 00330	0,8	174	229	4,12					

Insert seating ①				Insert seating ②			
① Order No.	Location screw ③ Order No. Article	Adjusting screw ④ Order No. Article	Clamping screw ⑤ Order No. Article	② Order No.	Location screw ⑥ Order No. Article	Adjusting screw ⑦ Order No. Article	Clamping screw ⑧ Order No. Article
D53 05310	55012 04008 M4×8	55051 03008 M3×8	N00 56201 S/M3,5×6,2-10IP 2,8 Nm	D53 05110	55012 04010 M4×10	L02 30300 VPS-M2,6×6	N00 56201 S/M3,5×6,2-10IP 2,8 Nm
D53 05320	55012 06012 M6×12	55051 04008 M4×8	N00 56401 S/M5×9,4-20IP 6,25 Nm	D53 05120	55012 06012 M6×12	55051 04008 M4×8	N00 56401 S/M5×9,4-20IP 6,25 Nm

Supply flat bottoming tool includes: with insert seating ① and ②.

Supply insert seating ① and ② includes: with location screw, adjusting screw and clamping screw.

Please order indexalbe insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Guideline values for flat bottoming							v_c	Max. f (mm/rev)	
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN		Cutting speed v_c (m/min)	3×D	
								Ø 37 – 48	Ø 48 – 64
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)		120	0,08	0,08
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)		120	0,08	0,08
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)		120	0,08	0,08
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)		90	0,06	0,08
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)		90	0,05	0,07
P	4.1			HSS			–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		–	–	–
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		–	–	–
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)		60	0,07	0,09
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)		60	0,07	0,09
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)		60	0,07	0,09
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		120	0,12	0,14
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		120	0,12	0,14
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)		90	0,10	0,12
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		90	0,10	0,12
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)		90	0,10	0,12
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		90	0,10	0,12
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		90	0,10	0,12
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)		180	0,12	0,14
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)		180	0,12	0,14
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		220	0,08	0,10
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		220	0,08	0,10
N	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		220	0,10	0,12
H	15.0	1400		hardened steels < 45 HRC			–	–	–
H	16.0	1800		hardened steels > 45 HRC			–	–	–

for better chip control			
Ø D	Alternative indexable insert Order No.	ISO code	for workpiece material P M K N S H
37 – 48	W30 26720.0503	TOHX 140305EN-G12 P25M	◐ ◑
48 – 64	–		
for higher cutting speed			
37 – 48	W30 26660.056425	TOHX 140305EN-G06 BK6425	◐ ◑
48 – 64	W30 44660.086425	TOHX 22T308EN-G06 BK6425	◐
for greater strength			
37 – 48	W30 26660.0503	TOHX 140605EN-G06 P25M	◐
48 – 64	–		

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

Core drill
for machining valuable materials



The KUB ® drill basic elements are available on request for drilling depths N 1×D to 3×D with ABS ® connection (ABS100, ABS125) and adaptors to SK 50 and cylindrical shank DIN 69880 from NC 50.

For administration purposes, please provide details of the type and size of connection and the required drilling depth with the enquiry.

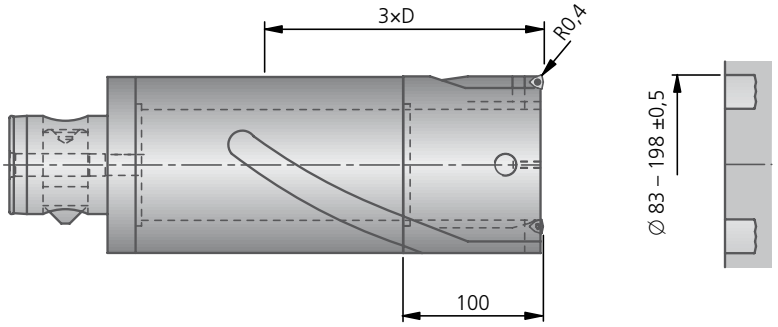
The KOMET ® trepanning tool is used to enable recycling of residue when cutting particulary expensive materials or using this for verification. Because the tool only removes a ring of material, the amount of power required is very low, making it suitable for machining larger holes on less powerful machine tools.

With central coolant supply.

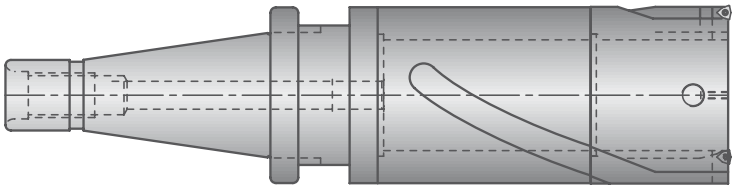
Please note:
Trepanning tool must be removed manually.
Cutting width 25 mm

available on request

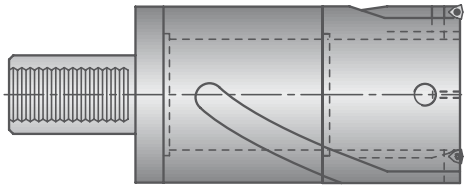
ABS ® Adaptor



Taper shank



Adaptor DIN 69880



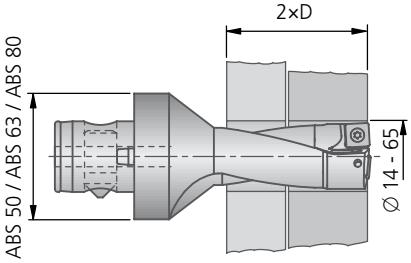
Stack drill
for complete machining at transitions to the next workpiece

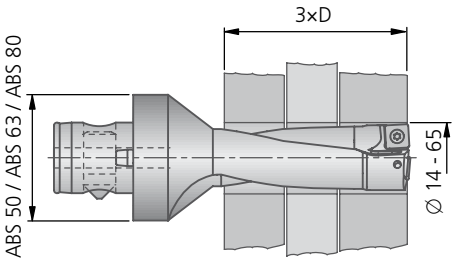
If workpieces are stacked close together, the disc produced would fall away during movement to the next workpiece and lie in front of the tool. This would destroy the inserts.

Because of the way their cutting edges are arranged, KUB ® drills cut the material right up to the changeover point to the next workpiece.

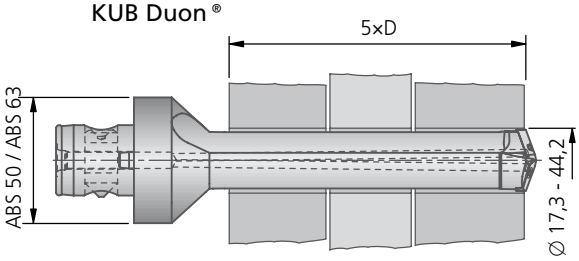


KUB Quatron ®

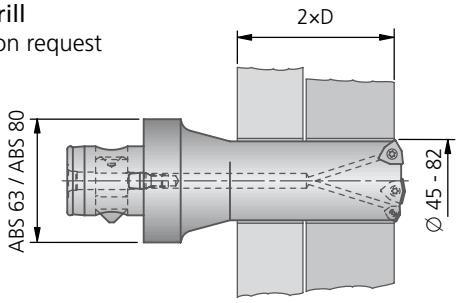


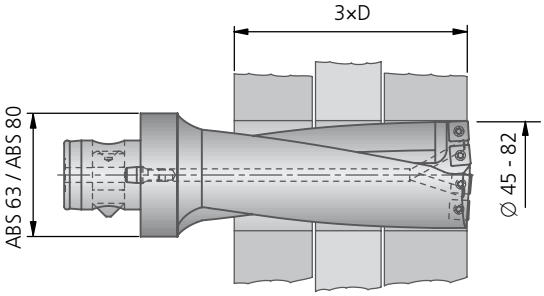


KUB Duon ®



KUB ® Drill
available on request





KOMET TwinKom® G01

Modules are the key!
The particular features of the innovative KOMET® twin cutter programme TwinKom® are a high level of efficiency and flexibility.
A large selection of different holders and inserts will solve every kind of application – even difficult machining tasks – with the right insert geometry.

BENEFITS for you:
- Axially adjustable insert holder for constant division of cut between the two cutting edges
- Radially adjustable insert holder for full twin cutter effect
- Radially adjustable insert holders allow conversion to stepped tool for larger depth
- Compact tool design
- For deep roughing operations chip removal is by means of the spiral flutes
- With ABS® connection
- Application range from 24 to 401 mm diameter





KOMET® PreciKom

Insert technology
for roughing and finishing in one step

BENEFITS for you:
- Two processes in one – roughing and finishing
- Uses economical inserts with four edges
- Interchangeability of the cutting heads reduces tool costs
- Precise adjustment with µm accuracy, thanks to the newly developed fine adjustment system for indexable inserts
- Maximum precision

KOMET TwinKom®

Lightweight dual cutter
Optimally designed for your machining requirement



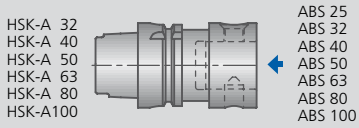
Index

	Page
Programme summary	198 – 199
Tool selection	200 – 201
KOMET TwinKom® G01	
Area of application	202 – 203
Construction	204
Technical informations	205
WOEX inserts $\varkappa$ = 90° / 80°	
Ø 24 – 215 mm	206 – 207
Ø 196 – 401 mm	209
Guideline values for roughing	212
Alternative inserts	213
SOEX inserts $\varkappa$ = 80°	
Ø 24 – 215 mm	206 – 207
Guideline values for roughing	214
Alternative inserts	215
CCMT inserts $\varkappa$ = 90°	
Ø 24 – 215 mm	206 – 207
Ø 196 – 401 mm	209
Guideline values for roughing	218
TOHX / TOGX inserts $\varkappa$ = 90°	
Ø 24 – 215 mm	206 – 207
Ø 196 – 401 mm	209
Guideline values for roughing	216
Alternative inserts	217
Technical informations	220
Problems → Causes → Solutions	221
KOMET TwinKom® G04	208
KOMET TwinKom® Ø > 365 mm	222 – 223
KOMET® PreciKom	224 – 225
Countersinking tool (KWZ)	226 – 227
Countersinking tool (KWS)	228 – 229

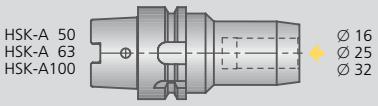
Programme summary – Roughing

5 Adaptors see chapter 5

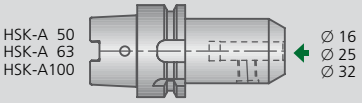
HSK-A Adaptors
with ABS® connection



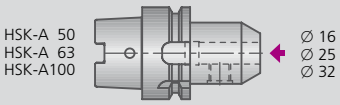
Expanding chuck



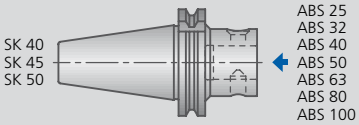
Adaptor sleeve Whistle Notch



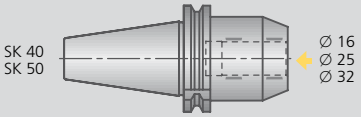
Adaptor sleeve Weldon



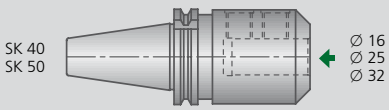
Taper shanks DIN 69871
with ABS® connection



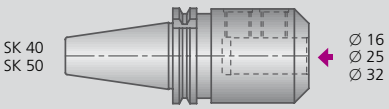
Expanding chuck



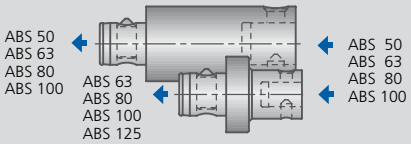
Adaptor sleeve Whistle Notch



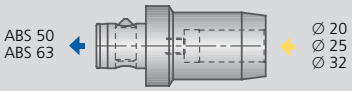
Adaptor sleeve Weldon



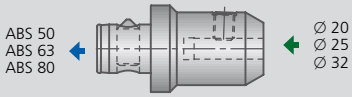
ABS® Adaptors
Extension / Reducer



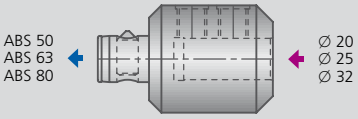
Expanding chuck



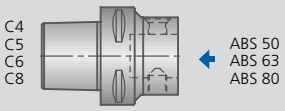
Adaptor sleeve Whistle Notch



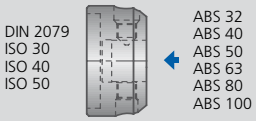
Adaptor sleeve Weldon



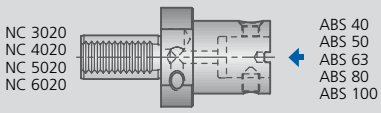
PSC Adaptor
with ABS® connection



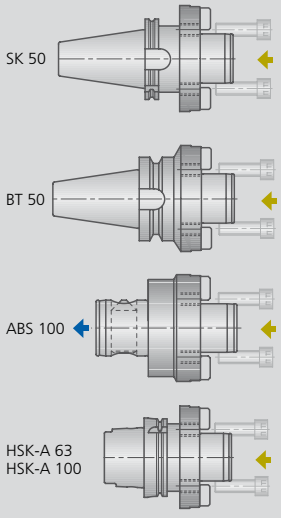
Spindle adaptor flange
with ABS® connection



VDI Adaptor
with ABS® connection



Adaptor

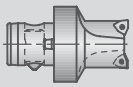


Further adaptors see chapter 5.

2 Tools for Roughing

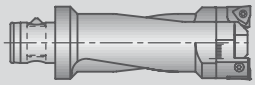
with ABS® connection

ABS 50



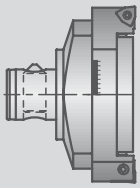
KOMET® Easy Special
∅ 14 – 44 mm
▸ Chapter 4

ABS 25
ABS 32
ABS 40
ABS 50
ABS 63
ABS 80
ABS 100



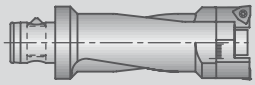
KOMET TwinKom® G01
∅ 24 – 215 mm
▸ 206 – 207

ABS 100

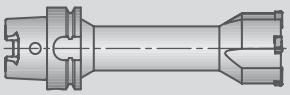


KOMET TwinKom® G01
∅ 196 – 401 mm
▸ 209

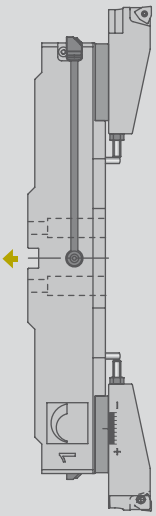
ABS 25
ABS 32
ABS 40
ABS 50
ABS 63
ABS 80
ABS 100



KOMET TwinKom® G04
∅ 30 – 204 mm
▸ 208



KOMET® PreciKom
∅ 32 – 101,99 mm
▸ 224 – 225



KOMET TwinKom®
∅ 365 – 2000 mm
▸ 222 – 223

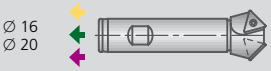
with cylindrical shank

∅ 16
∅ 25
∅ 32



Countersinking tool KWZ
∅ 10 – 48 mm
▸ 226 – 227

∅ 16
∅ 20



Countersinking tool KWS
∅ 16,5 – 37 mm
▸ 228 – 229

Key

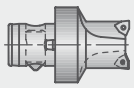
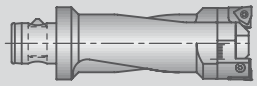
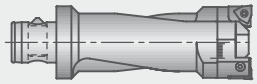
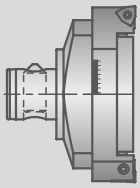
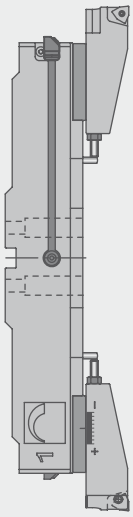
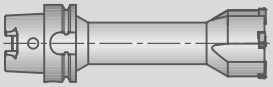
- ABS® connection
- Cylindrical connection
- Whistle Notch connection
- Weldon connection
- DIN 6357

KOMET® Tool selection

Help table for roughing

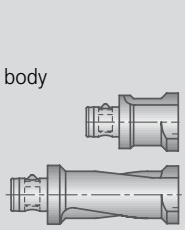
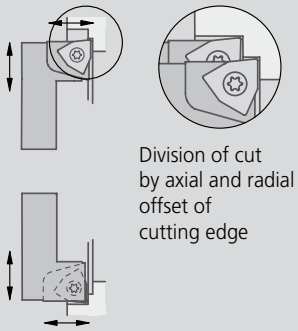
Ø (mm)	Machining									
	through hole 	blind hole 	uneven 	angled start and drilling out, interrupted cut 	convex 	cross bore 	divided cut 	large hole offset 	stack plate drilling $\varkappa$ = approach angle 	adjustable 
14 – 44	●	●	●	●	●	●		●	$\varkappa$ = 80°	●
24 – 215	●	●	●	●	●	●	●	●	$\varkappa$ = 80°	●
30 – 204	●	●	●	●	●	●		●	$\varkappa$ = 80°	●
196 – 401	●	●	●	●	●	●		●	$\varkappa$ = 80°	●
365 – 2000	●	●	●	●	●	●	●	●	$\varkappa$ = 80°	●
32 – 101,99 larger dia. on request	●	●	●	◐	◐	●		●		●
10 – 48	●	●	●	●	●	●		●		
16,5 – 37	 for producing the 90° and 60° countersinks			 for milling of trapezoidal slots		 for circular milling on machining centres		 for chamfering on machining centres		

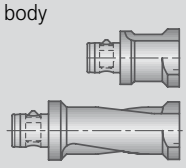
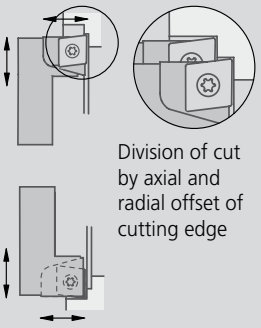
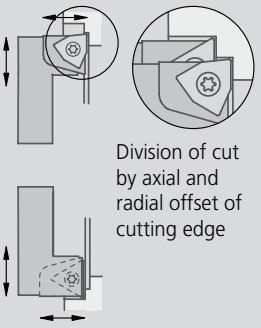
● very good ◐ good ○ possible: see technical notes

Coolant				Material						Tool	Page
Emulsion		MQL * for short boring depths		Mild steel/tool steel	Stainless and acid-resistant steel	Grey cast iron, spheroidal cast iron	Non-ferrous metals	Heat-resistant steels	Hardened tool steel		
internal	external	internal	external	P	M	K	N	S	H		
●	●		◐*							 KOMET® Easy Special	▸ Chapter 4
●	●			●	●	●	●			 KOMET TwinKom® G01	▸ 206 – 207
●	●			●	●	●	●			 KOMET TwinKom® G04	▸ 208
●	●			●	●	●	●			 KOMET TwinKom® G01	▸ 209
●	●			●	●	●	●	●	○	 KOMET TwinKom® Lightweight twin cutter tool	▸ 222 – 223
						●				 KOMET® PreciKom Roughing / finishing tool	▸ 224
●	●			●	●	●	●	●	○	 Countersinking tool KWZ	▸ 226 – 227
				●	●	●	●	●	○	 Countersinking tool KWS	▸ 228 – 229

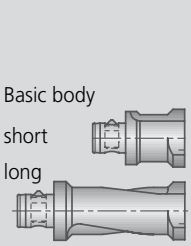
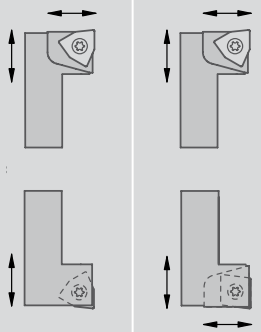
KOMET TwinKom® G01 – High performance and flexibility

Adaptors with the same approach angle can be combined among each other

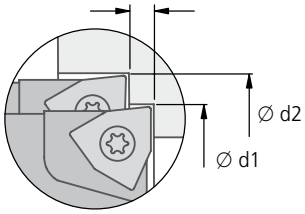
Machining	Roughing					Combination roughing
for machining allowance a_p Feed f	a_p = 1 - 9 mm 2 cutting edge f = 2×f_z					a_p = 2 - 18 mm 1+1 cutting edge f = f_z
ϰ = approach angle	90°	90°	80°	80°	90°	90°
Insert	WOEX	WOEX	WOEX	WOEX	SOEX	WOEX
adjustable	axially + radially	radially	axially + radially	radially	radially	axially + radially
Page	207	206	207	206	206	207
Basic body short long						 Division of cut by axial and radial offset of cutting edge
● 1st choice ◐ may be possible	Roughing with largemachining allowance and large axial offset					
	●	●	●	●	●	●
	Roughing with extremely large allowance and large axial offset					
	◐	◐	●	●	●	●
	Roughing with large allowance and long tool overhang					
	●	●	◐	◐	◐	●

Machining	Semi-finishing / Finishing				Combination Semi-Finishing	Combination Finishing
for machining allowance a_p Feed f	a_p = 0,7 - 3 mm 2 cutting edge f = 2×f_z		a_p = 0,1 - 2 mm 2 cutting edge f = 2×f_z		a_p = 1,4 - 6 mm 1+1 cutting edge f = f_z	a_p = 1,5 - 5 mm 1+1 cutting edge f = f_z
ϰ = approach angle	90°	90°	90°	90°	90°	90°
Insert	CCMT	CCMT	TOGX	TOGX	CCMT	WOEX + TOGX
adjustable	axially + radially	radially	axially + radially	radially	axially + radially	axially + radially
Page	207	206	207	206	207	207
Basic body short long					 Division of cut by axial and radial offset of cutting edge	 Division of cut by axial and radial offset of cutting edge
● 1st choice ◐ may be possible	Light roughing, Semi-finishing with large axial offset					
	◐	◐			●	
	Light roughing, Semi-finishing with slight axial offset					
	●	●			●	●
	Finishing with small to medium offset and slight axial offset					
	◐	◐	◐	◐		●
	Finishing with small allowance and no axial offset					
			●	●		●

Other possible combinations

$\varkappa$ = approach angle	90°	90°	90°	90°	80°	90°	90°
Insert	WOEX	WOEX	WOEX	WOEX	WOEX	CCMT	CCMT
adjustable	axially + radially	axially + radially	axially + radially	axially + radially	axially + radially	axially + radially	axially + radially
Page	207	207	207	207	207	207	207
Basic body short long							
$\varkappa$ = approach angle	90°	90°	90°	90°	80°	90°	90°
Insert	WOEX	CCMT	CCMT	TOGX	WOEX	CCMT	TOGX
adjustable	radially	axially + radially	radially	axially + radially	radially	radially	axially + radially
Page	206	206	206	206	206	206	206

Combination roughing / Combination finishing



With combination roughing and combination finishing, division of the whole cutting width is produced by offsetting the cutting edge axially and radially. This should allow the ensuing cutting forces to be better distributed and produce an even cutting result.

With the roughing operation, this allows double the cutting width
(using only a single feed rate $f=f_Z$)

With the finishing operation, the cutting width is divided so that some of the intermediate machining can be omitted.

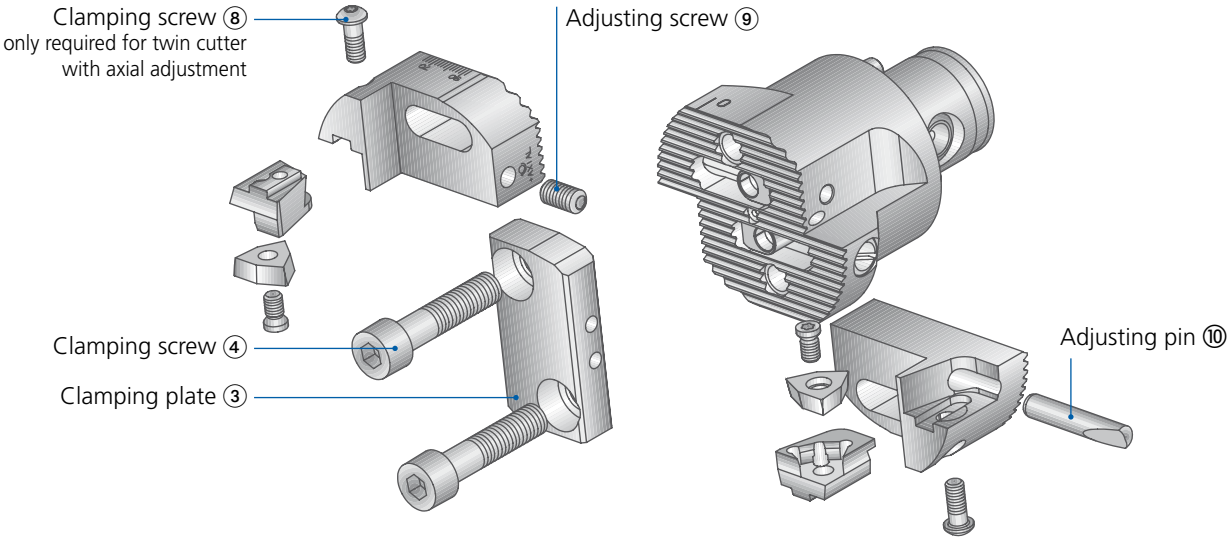
With long chipping materials, improved chip control is achieved by means of division between axial and radial cutting.

With long projection lengths, great operational smoothness is achieved.

- Axially adjustable insert holder for constant division of cut between the two cutting edges.
- Radially adjustable insert holder for full twin cutter effect.
- Radially adjustable insert holders allow conversion to stepped tool for larger depth.
- Compact tool design.
- For deep roughing operations chip removal is by means of the spiral flutes.
- With ABS® connection.
- Application range from 24 to 215 mm diameter.

KOMET TwinKom® G01

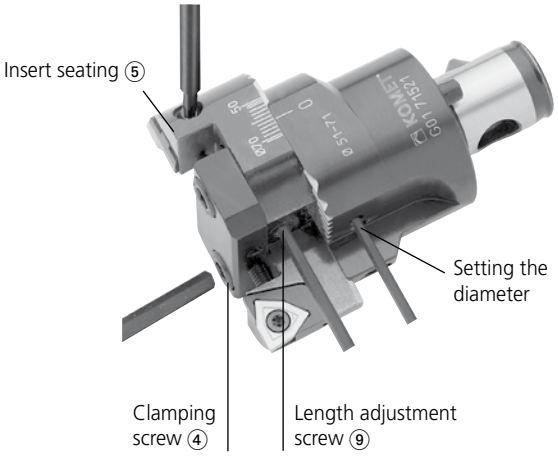
Assembly parts and construction



For further assembly parts see pages 206 - 207.

Boring range	Assembly parts								
	Clamping plate ③	Clamping screw DIN 912 ④		Clamping screw ⑧			Adjusting screw DIN 913 ⑨		Adjusting pin ⑩
Ø D min - max	Order No.	Article	Order No.	Article	Order No.	Nm	Article	Order No.	Order No.
24 - 32	G01 71050.12	M3×16	55011 03016	M2×4,5 / Tx6	N10 11200	0,62	M2,5×5 / SW1,3	55051 02505	G03 70010.11
30 - 41	G01 70521.12	M4×20	55011 04020	M2,5×5,3 /Tx8	N10 11300	1,25	M2,5×5 / SW1,3	55051 02505	G03 70020.11
39 - 53	G01 71011.12	M5×25	55011 05025	M2,5×7 / Tx8	N10 11310	1,25	M4×8 / SW2	55051 04008	G03 70030.11
51 - 71	G01 71511.12	M6×30	55011 06030	M3,5×9,4 / Tx10	N10 11400	2,1	M4×10 / SW2	55051 04010	G03 70040.11
64 - 91	G01 72011.12	M8×35	55011 08035	M4,5×10,5 / Tx15	N10 11500 for D54 60450	4	M6×12 / SW3	55051 06012	G03 70060.11
				M4,5×11,5 / Tx15	N10 11510	4			
83 - 124	G01 72511.12	M8×45	55011 08045	M5×12 / SW4	55011 05012	9	M6×20 / SW3	55051 06020	G03 70070.11
109 - 167	G01 73011.12	M10×50	55011 10050	M5×16 / SW4	55011 05016	9	M8×20 / SW4	55051 08020	G03 70080.11
139 - 215	G01 73511.12	M12×60	55011 12060	M6×20 / SW5	55011 06020	15	M10×20 / SW5	55051 10020	G03 70090.11

Handling



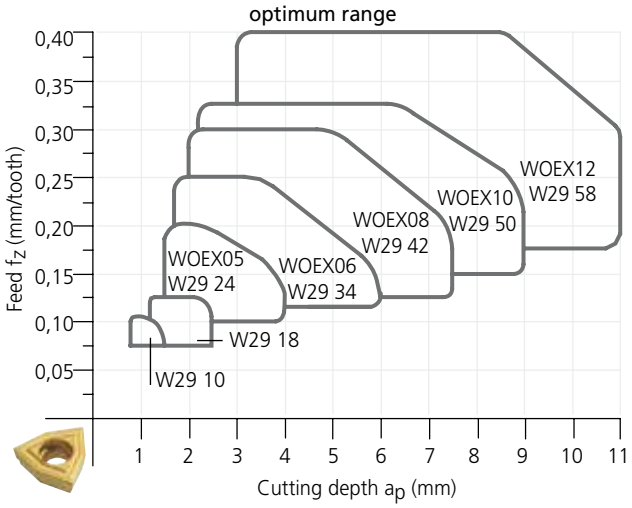
Setting the diameter
Loosen the clamping screw ④ on one side only.
Set the diameter and tighten clamping screw ④ again.
Repeat the same procedure on the second side.

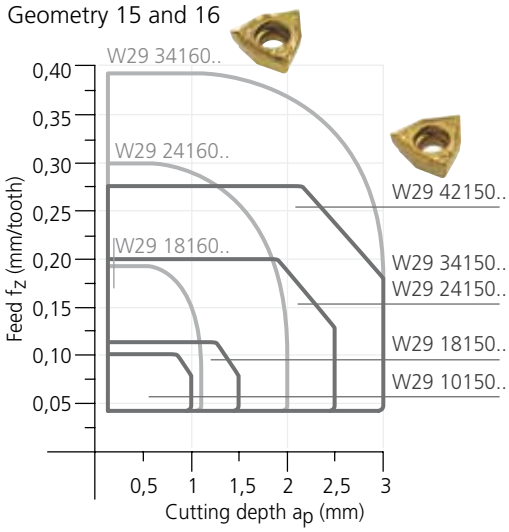
Length adjustment
Loosen insert seating ⑤ and then tighten again slightly.
Set length to 0.02 mm
in front of required dimension using length adjustment screw ⑨, tighten insert seating ⑤ and set to required height with length adjustment screw ⑨.
Repeat the same procedure on the second side.

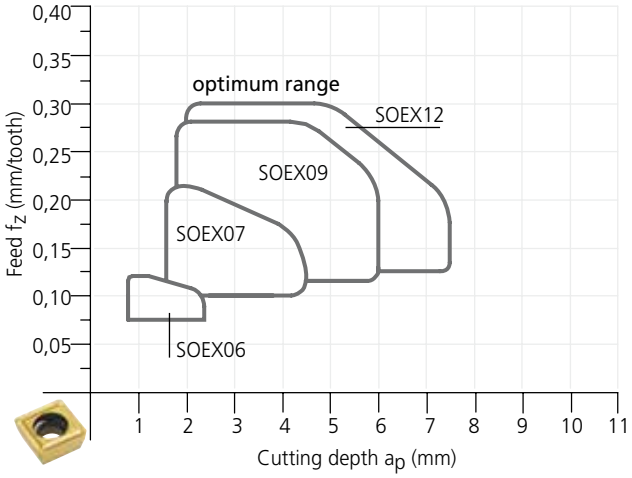
For performance calculation, see chapter 8

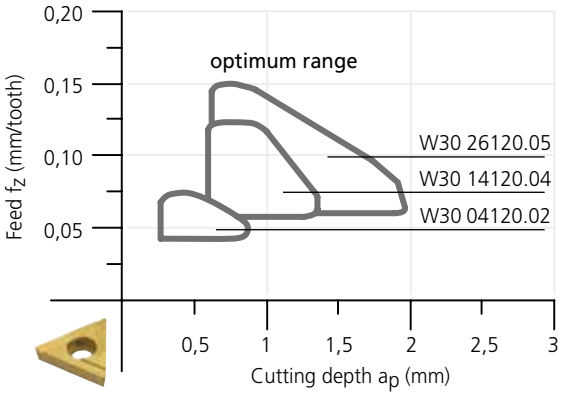
Optimum cutting depth range

Guideline values for medium strength steels







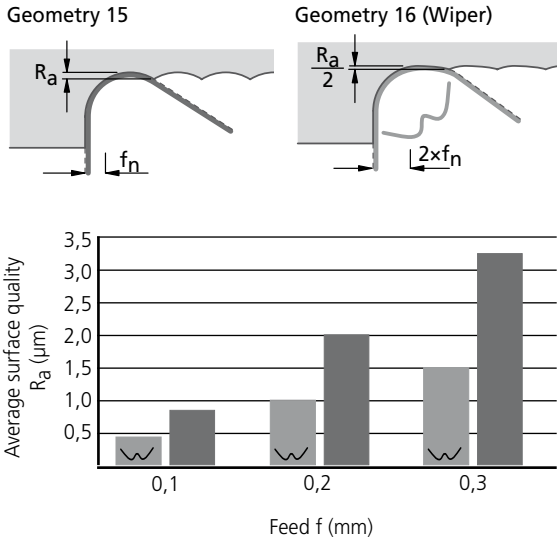


Chip formation from various insert geometries

Tool: TwinKom® G01 twin cutter ∅ 40 mm
Material: 42CrMo4V 1100 N/mm²
Cutting data: v_c = 140 m/min f = 0,35 mm/rev

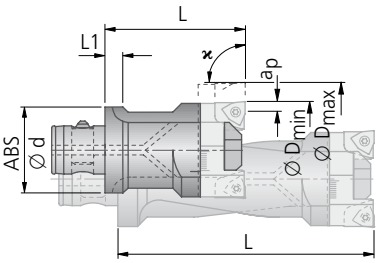


Comparison of surface quality results for "Wiper" R04 for ϰ = 90° (in X40Cr13 / 1.4034)

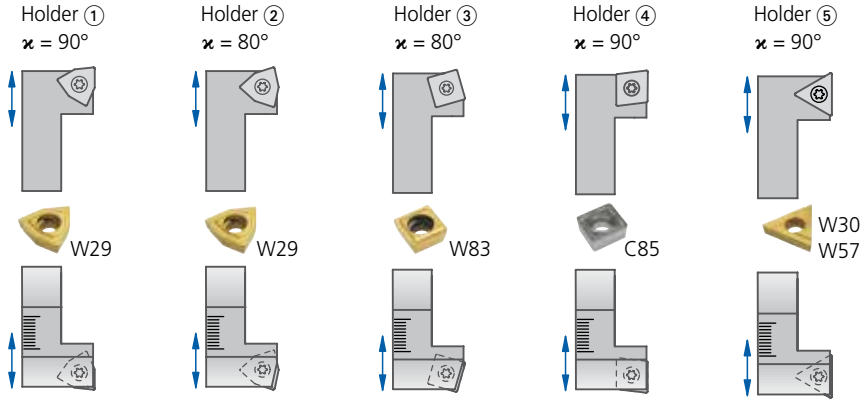


KOMET TwinKom® G01 Ø 24 – 215 mm

Twin cutter with ABS® connection, ϰ = 90° / 80°



Basic body short
Basic body long



	Basic body				without axial adjustment					
					Holder ① ϰ = 90°	Holder ② ϰ = 80°	Holder ③ ϰ = 80°	Holder ④ ϰ = 90°	Holder ⑤ ϰ = 90°	
Ø D min-max	Order No.	ABS Ø d	L	L1	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert	
24 - 32	G01 70551 0,11	25	45	6	G03 70330 0,012 N00 57553 S/M2,2×5,5-6IP 1,01Nm W29 18...	G03 80310 0,012 N00 57553 S/M2,2×5,5-6IP 1,01Nm W29 18...	G03 80030 0,010 N00 57553 S/M2,2×5,5-6IP 1,01Nm W83 18...	G03 70150 0,011 N00 57221 S2553-7IP 0,9Nm C85 18...	G03 70210 0,012 N00 56031 S/M2×4,9-6IP 0,62Nm W30 04 / W57 04	
	G01 71071 0,21	32	70	7						
30 - 41	G01 70561 0,114	25	50	–	G03 70141 0,017 N00 57511 S/M2,5×7,2-8IP 1,28Nm W29 24...	G03 80021 0,018 N00 57511 S/M2,5×7,2-8IP 1,28Nm W29 24...	G03 80040 0,017 N00 57571 S/M2,5×6,3-8IP 1,28Nm W83 23...	G03 70160 0,018 N00 57221 S2553-7IP 0,9Nm C85 18...	G03 70220 0,018 N00 56111 S/M2,6×6,2-8IP 1,28Nm W30 14 / W57 14	
	G01 71131 0,293	32	85	7,5						
39 - 53	G01 71021 0,286	32	60	–	G03 70230 0,039 N00 57511 S/M2,5×7,2-8IP 1,28Nm W29 24...	G03 80090 0,038 N00 57511 S/M2,5×7,2-8IP 1,28Nm W29 24...	G03 80050 0,036 N00 57261 S3575-15IP 2,8Nm W83 32...	G03 70170 0,036 N00 57261 S3575-15IP 2,8Nm C85 32...		
	G01 71621 0,676	40	120	8						
51 - 71	G01 71521 0,44	40	60	–	G03 70240 0,077 N00 57521 S/M3,5×7,3-10IP 2,8Nm W29 34...	G03 80100 0,076 N00 57521 S/M3,5×7,3-10IP 2,8Nm W29 34...	G03 80060 0,072 N00 57261 S3575-15IP 2,8Nm W83 32...	G03 70180 0,073 N00 57261 S3575-15IP 2,8Nm C85 32...		
	G01 72121 1,238	50	135	10						
64 - 91	G01 72021 0,824	50	70	–	G03 70250 0,145 N00 57531 S/M4,5×9-15IP 6,25Nm W29 42...	G03 80110 0,143 N00 57531 S/M4,5×9-15IP 6,25Nm W29 42...	G03 80070 0,136 N00 57301 S45100-20IP 6,25Nm W83 44...	G03 70190 0,138 N00 57301 S45100-20IP 6,25Nm C85 44...		
	G01 72621 2,25	63	155	13						
83 - 124	G01 72521 1,351	63	70	–	G03 70260 0,277 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	G03 80120 0,272 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	G03 80080 0,268 N00 57301 S45100-20IP 6,25Nm W83 44...	G03 70200 0,268 N00 57301 S45100-20IP 6,25Nm C85 44...		
	G01 73121 3,805	80	155	16,5						
109 - 167	G01 73031 3,055	80	90	–						
	G01 73041 6,21	80	175	–						
139 - 215	G01 73561 6,47	100	125	–						
	G01 73571 13,25	100	240	–						

Supply includes basic body:
Clamping plate with adjusting screw and clamping screw.

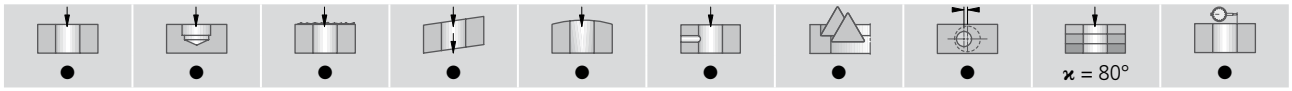
Supply includes insert seating/holder: with clamping screw.

Please order insert separately. Screwdriver see chapter 8.

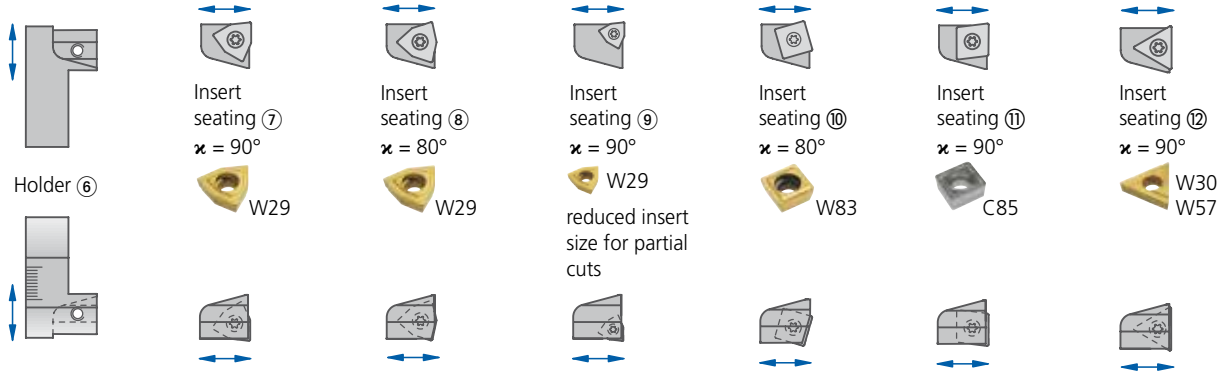
Order example:

Basic body short	G01 70551
Holder 2×	G03 70011
Insert seating 90° 2×	D54 60510
Insert 2×	W29 10010.048425

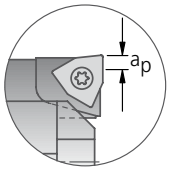
Patent applied for inside and outside Germany



● very good | ◐ good | ○ possible: see technical notes, page 220 | ✕ not possible



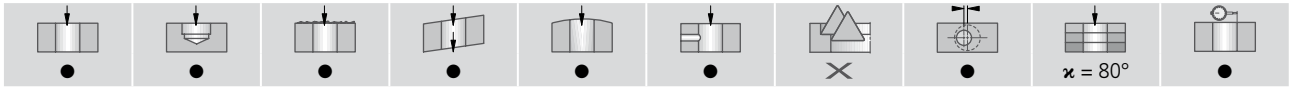
	with axial adjustment					
Holder ⑥	Insert seating ⑦ κ = 90°	Insert seating ⑧ κ = 80°	Insert seating ⑨ κ = 90°	Insert seating ⑩ κ = 80°	Insert seating ⑪ κ = 90°	Insert seating ⑫ κ = 90°
Order No.	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert	Order No. Clamping screw / insert
G03 70011 0,01	D54 60510 0,002 N00 56041 S/M2×4,3-6IP 0,62Nm W29 10...	D54 60610 0,002 N00 56041 S/M2×4,3-6IP 0,62Nm W29 10...				
G03 70021 0,016	D54 60520 0,002 N00 57553 S/M2,2×5,5-6IP 1,01Nm W29 18...	D54 60620 0,002 N00 57553 S/M2,2×5,5-6IP 1,01Nm W29 18...				
G03 70031 0,035	D54 60030 0,004 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...	D54 60130 0,004 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...		D54 60730 0,004 N00 57553 S/M2,2×5,5-6IP 1,01Nm W83 18...	D54 60430 0,005 N00 57221 S2553-7IP 0,9Nm C85 18...	D54 60330 0,005 N00 56111 S/M2,6×6,2-8IP 1,28Nm W30 14 / W57 14
G03 70041 0,067	D54 60040 0,008 N00 57611 S/M3,5×6,6-10IP 2,8Nm W29 34...	D54 60140 0,008 N00 57611 S/M3,5×6,6-10IP 2,8Nm W29 34...	D54 60540 0,008 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...		D54 60440 0,008 N00 57261 S3575-15IP 2,8Nm C85 32...	D54 60340 0,008 N00 56201 S/M3,5×6,2-10IP 2,8Nm W30 26 / W57 26
G03 70061 0,128	D54 60050 0,014 N00 57531 S/M4,5×9-15IP 6,25Nm W29 42...	D54 60150 0,014 N00 57531 S/M4,5×9-15IP 6,25Nm W29 42...	D54 60550 0,017 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...		D54 60450 0,016 N00 57261 S3575-15IP 2,8Nm C85 32...	
G03 70071 0,247	D54 60060 0,026 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	D54 60160 0,026 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	D54 60560 0,033 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...	D54 60760 0,024 N00 57301 S45100-20IP 6,25Nm W83 44...	D54 60460 0,024 N00 57301 S45100-20IP 6,25Nm C85 44...	D54 60360 0,032 N00 56201 S/M3,5×6,2-10IP 2,8Nm W30 26 / W57 26
G03 70081 0,486	D54 60060 0,026 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	D54 60160 0,026 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	D54 60560 0,033 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...	D54 60760 0,024 N00 57301 S45100-20IP 6,25Nm W83 44...	D54 60460 0,024 N00 57301 S45100-20IP 6,25Nm C85 44...	D54 60360 0,032 N00 56201 S/M3,5×6,2-10IP 2,8Nm W30 26 / W57 26
G03 70091 1,082	D54 60070 0,049 N00 57531 S/M5,5×11-20IP 6,25Nm W29 58...	D54 60170 0,049 N00 57531 S/M5,5×11-20IP 6,25Nm W29 58...	D54 60570 0,062 N00 57571 S/M2,5×6,3-8IP 1,28Nm W29 24...	D54 60770 0,024 N00 57301 S45100-20IP 6,25Nm W83 44...	D54 60470 0,055 N00 57301 S45100-20IP 6,25Nm C85 44...	D54 60370 0,056 N00 56401 S/M5×9,4-20IP 6,25Nm W30 44...



Note!
For optimum cutting in the D_{min} area the cutting depth a_p should be reduced.
a_p see pages 210-211: Basic recommendation inserts.

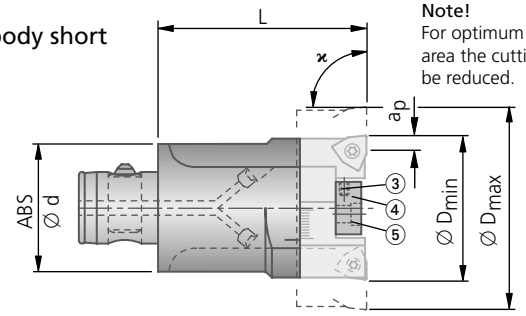
KOMET TwinKom® G04 — Ø 30 – 204 mm

Twin cutter with ABS® connection, ϰ = 90° / 80°



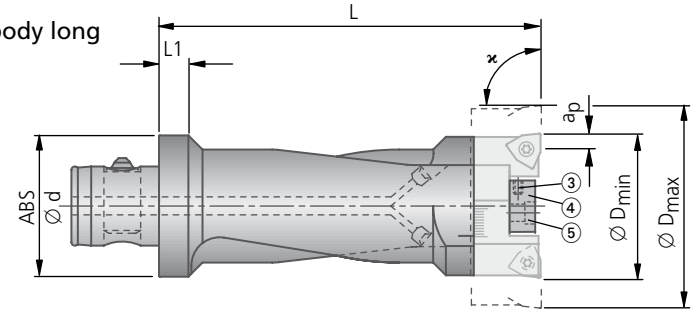
● very good | ◐ good | ○ possible | ✕ not possible

Basic body short

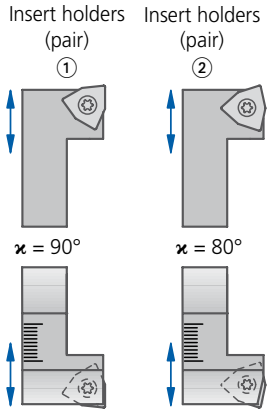


Note!
For optimum cutting in the D_{min} area the cutting depth a_p should be reduced.

Basic body long



without axial adjustment



Basic body								Pair of insert holders	
Ø D min-max	Order No.	ABS Ø d	L	L1	Adjusting screw ③ DIN912 Order No. Article	Clamping plate ④ Order No.	Clamping screw ⑤ DIN912 Order No. Article	① ϰ=90° Order No. Clamping screw / insert	② ϰ=80° Order No. Clamping screw / insert
30 – 41	G04 00500 0,13	25	50	–	55051 03010 M3×10	G04 01000.12	55011 04020 M4×20	G03 60510 0,035 N00 57511 S/M2,5×7,2-8IP 1,28Nm W29 24...	G03 50510 0,035 N00 57511 S/M2,5×7,2-8IP 1,28Nm W29 24...
	G04 01000 0,287	32	85	7,5					
39 – 51	G04 01010 0,287	32	60	–	55051 04010 M4×10	G04 01500.12	55011 05025 M5×25	G03 60520 0,078 N00 57521 S/M3,5×7,3-10IP 2,8Nm W29 34...	G03 50520 0,078 N00 57521 S/M3,5×7,3-10IP 2,8Nm W29 34...
	G04 01500 0,664	40	120	8,5					
49 – 71	G04 01510 0,428	40	60	–	55051 04016 M4×16	G04 01510.12	55011 06025 M6×25	G03 60530 0,154 N00 57521 S/M3,5×7,3-10IP 2,8Nm W29 34...	G03 50530 0,154 N00 57521 S/M3,5×7,3-10IP 2,8Nm W29 34...
	G04 02000 1,224	50	135	10,5					
64 – 91	G04 02010 0,81	50	70	–	55051 05025 M5×25	G04 02010.12	55011 08030 M8×30	G03 60540 0,29 N00 57531 S/M4,5×9-15IP 6,25Nm W29 42...	G03 50540 0,29 N00 57531 S/M4,5×9-15IP 6,25Nm W29 42...
	G04 02020 2,225	50	135	–					
83 – 121	G04 02500 1,337	63	70	–	55051 08035 M8×35	G04 02500.12	55011 10035 M10×35	G03 60550 0,554 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	G03 50550 0,554 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...
	G04 02510 3,795	63	155	–					
109 – 157	G04 03000 3,035	80	90	–	55051 08055 M8×55	G04 03000.12	55011 12045 M12×45	G03 60560 1,024 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...	G03 50560 1,01 N00 57531 S/M4,5×9-15IP 6,25Nm W29 50...
	G04 03010 6,05	80	175	–					
139 – 204	G04 03500 6,22	100	125	–	55051 10080 M10×80	G04 03500.12	55011 16055 M16×55	G03 60570 2,262 N00 57531 S/M5,5×11-20IP 6,25Nm W29 58...	G03 50570 2,252 N00 57531 S/M5,5×11-20IP 6,25Nm W29 58...

Supply includes basic body:
Clamping plate with adjusting screw and clamping screw.

Supply includes pair of insert holders: with clamping screw.

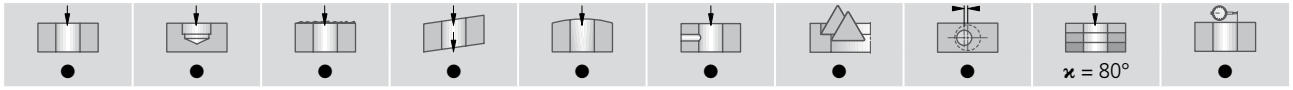
Please order insert separately. Screwdriver see chapter 8.

Order example:

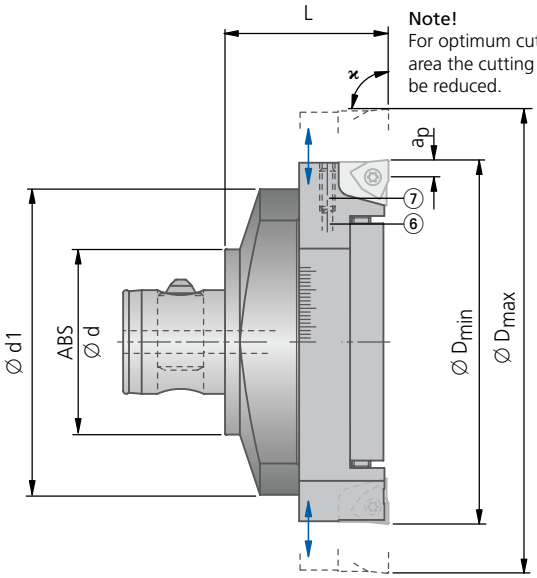
Basic body short	G04 00500
Pair of insert holders 90°	G03 60510
Insert 2×	W29 24010.048425

Patent applied for inside and outside Germany

Twin cutter with ABS® connection, ϰ = 90° / 80°

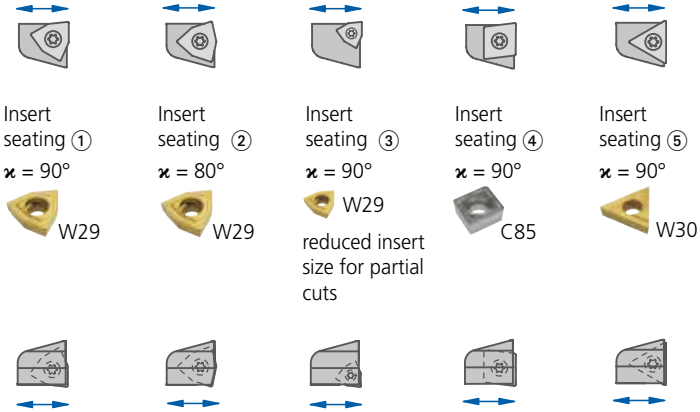


● very good | ◐ good | ○ possible: see technical notes, page 220 | ✕ not possible



Note!
For optimum cutting in the D_{min} area the cutting depth a_p should be reduced.

with axial adjustment



Twin cutter										Allen key
Ø D min-max	Basic body & pair of holders Order No.	ABS Ø d	Ø d1	L	kg	Holder Order No.	kg	Axial adjustment pin ⑥ Order No.	Threaded pin ⑦ DIN913 Order No. Article	Order No. Article
196 – 271	**G01 63531**	100	165	88	9,15	**G03 10281**	1,335	**G03 10281.13**	**55051 05020** M5×20	**18050 35050** SW5
261 – 335	**G01 63541**	100	230	88	11,04	**G03 10291**	1,733	**G03 10281.13**	**55051 05020** M5×20	**18050 35050** SW5
326 – 401	**G01 63551**	100	295	88	13,94	**G03 10301**	1,983	**G03 10281.13**	**55051 05020** M5×20	**18050 35050** SW5

Insert seating				
① ϰ=90°	② ϰ=80°	③ ϰ=90°	④ ϰ=90°	⑤ ϰ=90°
Order No. Clamping screw / appropriate insert	**Order No.** Clamping screw / appropriate insert	**Order No.** Clamping screw / appropriate insert	**Order No.** Clamping screw / appropriate insert	**Order No.** Clamping screw / appropriate insert
D54 60070 0,049 N00 57531 S/M5,5x11-20IP 6,25Nm W29 58...	**D54 60170** 0,049 N00 57531 S/M5,5x11-20IP 6,25Nm W29 58...	**D54 60570** 0,062 N00 57571 S/M2,5x6,3-8IP 1,28Nm W29 24...	**D54 60470** 0,055 N00 57301 S45100-20IP 6,25Nm C85 44...	**D54 60370** 0,056 N00 56401 S/M5x9,4-20IP 6,25Nm W30 44...

- The 90° design has radially arranged cutters and can therefore be operated with the same cutting edge overhang with double feed rate (feed distribution).
- The 80° design offers greater cutting widths through arrow-shaped cutter arrangement and particularly good tool guidance. Connection, excluding extensions, where possible only directly onto taper shank or spindle adaptor flange.
- The tool has internal coolant supply to each cutter.

Supply includes twin cutter tool:
Basic body & pair of holders, clamping plate, adjusting screw and clamping screw, axial adjustment pin and threaded pin.

Supply includes insert seating: with clamping screw.

Please order insert separately.
Screwdriver see chapter 8.

Order example:

Twin cutter tool	G01 63531
Insert seating 90° 2×	D54 60070
Insert 2×	W29 58010.088425

Guideline values for roughing: pages 212-218 / basic recommendation inserts: pages 210-211.

KOMET TwinKom® G01 / G04

Basic recommendation inserts

W29

Indexable insert  -00 -01 -11 Order No. · ISO-Code ▽▽ size	for workpiece material P M K N S H	max. cutting depth a_p
W29 10... **W29 10010.048425** WOEX 030204-01 BK8425	P	1,5
W29 10010.047930 WOEX 030204-01 BK7930	M	1,0
W29 10010.047615 WOEX 030204-01 BK7615	K	1,5
W29 10110.0477 WOEX 030204-11 BK77	N S	2,0
W29 18... **W29 18010.048425** WOEX 040304-01 BK8425	P	2,5
W29 18010.047930 WOEX 040304-01 BK7930	M	1,5
W29 18010.047615 WOEX 040304-01 BK7615	K	3,0
W29 18110.0477 WOEX 040304-11 BK77	N S	3,0
W29 24... **W29 24010.048425** WOEX 05T304-01 BK8425	P	4,5
W29 24010.047930 WOEX 05T304-01 BK7930	M	3,5
W29 24010.047615 WOEX 05T304-01 BK7615	K	5,0
W29 24110.0477 WOEX 05T304-11 BK77	N S	5,0
W29 34... **W29 34010.048425** WOEX 06T304-01 BK8425	P	6,0
W29 34010.047930 WOEX 06T304-01 BK7930	M	4,0
W29 34010.047615 WOEX 06T304-01 BK7615	K	6,0
W29 34110.0477 WOEX 06T304-11 BK77	N S	6,0
W29 42... **W29 42010.048425** WOEX 080404-01 BK8425	P	7,5
W29 42010.047930 WOEX 080404-01 BK7930	M	6,0
W29 42010.047615 WOEX 080404-01 BK7615	K	7,5
W29 42110.0477 WOEX 080404-11 BK77	N S	7,5
W29 50... **W29 50010.088425** WOEX 100508-01 BK8425	P	9,0
W29 50010.047930 WOEX 100504-01 BK7930	M	9,0
W29 50010.087615 WOEX 100508-01 BK7615	K	9,0
W29 50110.0477 WOEX 100504-11 BK77	N S	9,0
W29 58... **W29 58010.088425** WOEX 120608-01 BK8425	P	9,0
W29 58010.087930 WOEX 120608-01 BK7930	M	9,0
W29 58010.087615 WOEX 120608-01 BK7615	K	9,0
W29 58000.0821 WOEX 120608-00 K10	N S	9,0

Alternative inserts: page 213.

W83

Indexable insert  Order No. · ISO-Code ▽▽ size	for workpiece material P M K N S H	max. cutting depth a_p	
W83 13... **W83 13010.048425** SOEX 050204-01 BK8425	P	2,5	
W83 13010.047935 SOEX 050204-01 BK7935	M	1,5	
W83 13010.047615 SOEX 050204-01 BK7615	K	3,0	
W83 13010.048425 SOEX 050204-01 BK8425	N S	3,0	
W83 18... **W83 18010.068425** SOEX 060306-01 BK8425	P	2,5	
W83 18010.067935 SOEX 060306-01 BK7935	M	1,5	
W83 18010.067615 SOEX 060306-01 BK7615	K	3,0	
W83 18010.068425 SOEX 060306-01 BK8425	N S	3,0	
W83 23... **W83 23010.088425** SOEX 07T308-01 BK8425	P	4,5	
W83 23010.087935 SOEX 07T308-01 BK7935	M	3,5	
W83 23010.087615 SOEX 07T308-01 BK7615	K	5,0	
W83 23010.088425 SOEX 07T308-01 BK8425	N S	5,0	
W83 32... **W83 32010.088425** SOEX 090408-01 BK8425	P	Ø 39-53 4,5	Ø 51-71 6,0
W83 32010.087935 SOEX 090408-01 BK7935	M	3,5	4,0
W83 32010.087615 SOEX 090408-01 BK7615	K	5,0	6,0
W83 32010.088425 SOEX 090408-01 BK8425	N S	5,0	6,0
W83 44... **W83 44010.088425** SOEX 120508-01 BK8425	P	Ø 64-91 7,5	Ø 83-124 9,0
W83 44010.087935 SOEX 120508-01 BK7935	M	6,0	9,0
W83 44010.087615 SOEX 120508-01 BK7615	K	7,5	9,0
W83 44010.088425 SOEX 120508-01 BK8425	N S	7,5	9,0

Alternative inserts: page 215.

C85

	Indexable insert -05 Order No. · ISO-Code ▽▽size	for workpiece material P M K N S H	max. cutting depth a_p
C85 18...	**C85 18010.047525** CCMT 060204-01 BK7525	●	1,0
	C85 18010.047525 CCMT 060204-01 BK7525	●	0,7
	C85 18050.047610 CCMT 060204-05 BK7610	●	1,5
	C85 18120.0423 CCGT 060204-12 K10	●	1,5
C85 32...	**C85 32010.047525** CCMT 09T304-01 BK7525	●	1,5
	C85 32010.047525 CCMT 09T304-01 BK7525	●	1,0
	C85 32050.047610 CCMT 09T304-05 BK7610	●	2,0
	C85 32120.0423 CCGT 09T304-12 K10	●	2,0
C85 44...	**C85 44010.047525** CCMT 120404-01 BK7525	●	2,5
	C85 44010.047525 CCMT 120404-01 BK7525	●	2,0
	C85 44050.047610 CCMT 120404-05 BK7610	●	3,0
	C85 44120.0423 CCGT 120404-12 K10	●	3,0

W30 | W57

	Indexable insert W30 -12 -14 Order No. · ISO-Code ▽▽size	for workpiece material P M K N S H	max. cutting depth a_p
W30 04 / W57 04...	**W57 04140.028430** TOGX 06T102EN-14 BK8430	● ●	0,15
	W30 04060.037615 TOHX 06T103EL-G06 BK7615	●	0,1
	W57 04120.0223 TOGX 06T102FN-12 K10	● ●	0,4
W30 14 / W57 14...	**W57 14140.028430** TOGX 090202EN-14 BK8430	● ●	0,4
	W30 14060.047615 TOHX 090204EL-G06 BK7615	●	0,3
	W57 14120.0423 TOGX 090204FN-12 K10	● ●	0,5
W30 26 / W57 26...	**W57 26140.028430** TOGX 140302EN-14 BK8430	● ●	0,6
	W30 26060.047615 TOHX 140304EL-G06 BK7615	●	0,6
	W57 26120.0423 TOGX 140304FN-12 K10	● ●	1,0
W30 44...	**W30 44060.088425** TOHX 22T308EL-G06 BK8425	● ●	1,0
	W30 44600.087615 TOHX 22T308EN BK7615	●	0,8

Alternative inserts: page 217.

KOMET TwinKom® G01 / G04

Recommended application areas



Guideline values for roughing						v_c	Max. feed f_z (mm/tooth)								
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Ø 24 – 32	Ø 30 – 41	Ø 39 – 53	Ø 51 – 71	Ø 64 – 91	Ø 83 – 124	Ø 109 – 167	Ø 139 – 215	Ø 196 – 401
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,30	0,30
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	200	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,30	0,30
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	180	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,30	0,30
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,30	0,30
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	120	0,06	0,10	0,12	0,15	0,20	0,20	0,25	0,25	0,25
P	4.1			HSS		–	–	–	–	–	–	–	–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,05	0,08	0,10	0,12	0,12	0,15	0,15	0,20	0,20
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	50	0,06	0,08	0,10	0,12	0,12	0,15	0,15	0,20	0,20
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	120	0,07	0,09	0,12	0,12	0,15	0,20	0,20	0,20	0,20
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	120	0,07	0,09	0,12	0,12	0,15	0,20	0,20	0,20	0,20
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	90	0,05	0,07	0,10	0,10	0,12	0,15	0,15	0,15	0,15
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	180	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	140	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	120	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,35	0,35
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	100	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,35	0,35
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	100	0,10	0,12	0,15	0,20	0,25	0,30	0,30	0,35	0,35
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	90	0,12	0,15	0,25	0,30	0,30	0,35	0,35	0,35	0,35
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	250	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	250	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	250	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	250	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	200	0,12	0,15	0,25	0,25	0,30	0,35	0,35	0,35	0,35
H	15.0	1400		hardened steels < 45 HRC		–	–	–	–	–	–	–	–	–	–
H	16.0	1800		hardened steels > 45 HRC		–	–	–	–	–	–	–	–	–	–

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

for better chip control

	a_p	Order No.	ISO code	P	M	K	N	S	H
	Alternative indexable insert -02 -03 -13 -15 W01			for workpiece material					
W29 10...	< 0,8	**W29 10150.048430**	WOGX030204-15 BK8430	◐					
	0,8-2,5	**W29 10030.048425**	WOEX030204-03 BK8425	◐					
	0,8-2,5	**W29 10130.048425**	WOEX030204-13 BK8425	◐					
	0,8-1,5	**W29 10130.0479**	WOEX030204-13 BK79		◑				
	...1,5	**W01 10120.0421**	WOHX030204FL-G12 K10			◐	◑	◑	
W29 18...	< 0,8	**W29 18150.048430**	WOGX040304-15 BK8430	◐					
	0,8-2,5	**W29 18030.048425**	WOEX040304-03 BK8425	◐					
	0,8-2,5	**W29 18130.048425**	WOEX040304-13 BK8425	◐					
	0,8-1,5	**W29 18130.0479**	WOEX040304-13 BK79		◑				
	...1,5	**W01 18120.0421**	WOHX040304FL-G12 K10			◐	◑	◑	
W29 24...	<1,5	**W29 24150.048430**	WOGX05T304-15 BK8430	◐					
	1,0-4,5	**W29 24030.048425**	WOEX05T304-03 BK8425	◐					
	1,0-4,5	**W29 24020.046440**	WOEX05T304-02 BK6440	◐					
	1,5-4,5	**W29 24130.048425**	WOEX05T304-13 BK8425	◐					
	1,0-3,5	**W29 24130.0479**	WOEX05T304-13 BK79		◑				
	...5,0	**W01 24120.0421**	WOHX05T304FL-G12 K10			◐	◑	◑	
W29 34...	<1,5	**W29 34150.048430**	WOGX06T304-15 BK8430	◐					
	1,0-6,0	**W29 34030.048425**	WOEX06T304-03 BK8425	◐					
	1,0-6,0	**W29 34020.046440**	WOEX06T304-02 BK6440	◐					
	2,5-6,0	**W29 34130.048425**	WOEX06T304-13 BK8425	◐					
	1,5-4,0	**W29 34130.0479**	WOEX06T304-13 BK79		◑				
	...6,0	**W01 34120.0421**	WOHX06T304FL-G12 K10			◐	◑	◑	
W29 42...	<1,5	**W29 42150.048430**	WOGX080404-15 BK8430	◐					
	1,0-6,0	**W29 42030.048425**	WOEX080404-03 BK8425	◐					
	1,0-6,0	**W29 42020.046440**	WOEX080404-02 BK6440	◐					
	2,5-6,0	**W29 42130.048425**	WOEX080404-13 BK8425	◐					
	1,5-4,0	**W29 42130.0479**	WOEX080404-13 BK79		◑				
	...6,0	**W01 42120.0421**	WOHX080404FL-G12 K10			◐	◑	◑	
W29 50...	2,5-9,0	**W29 50030.048425**	WOEX100504-03 BK8425	◐					
	2,5-9,0	**W29 50020.046440**	WOEX100504-02 BK6440	◐					
	2,5-9,0	**W29 50130.048425**	WOEX100504-13 BK8425	◐					
	2,5-9,0	**W29 50130.0479**	WOEX100504-13 BK79		◑				
	...7,5	**W01 50120.0421**	WOHX100504FL-G12 K10			◐	◑	◑	
W29 58...	3,0-9,0	**W29 58030.088425**	WOEX120608-03 BK8425	◐					
	3,0-9,0	**W29 58020.086440**	WOEX120608-02 BK6440	◐					
	3,0-9,0	**W29 58130.0879**	WOEX120608-13 BK79		◑				

⚠ For cutting depths a_p < 3.0 mm use smaller cartridge D54 60170

for greater strength

	Order No.	ISO code	P	M	K	N	S	H
W29 10...	**W29 10010.047930**	WOEX030204-01 BK7930	◐	◑				
	W29 10010.0404	WOEX030204-01 P40	◐	◑				
	W29 10010.0421	WOEX030204-01 K10			◐			
	W29 10110.0421	WOEX030204-11 K10				◐	◑	
	W01 10120.0421	WOHX030204FL-G12 K21				◐	◑	
W29 18...	**W29 18010.047930**	WOEX040304-01 BK7930	◐	◑				
	W29 18010.0404	WOEX040304-01 P40	◐	◑				
	W29 18010.0421	WOEX040304-01 K10			◐			
	W29 18110.0421	WOEX040304-11 K10				◐	◑	
	W01 18120.0421	WOHX040304FL-G12 K21				◐	◑	
W29 24...	**W29 24010.047930**	WOEX05T304-01 BK7930	◐	◑				
	W29 24010.0404	WOEX05T304-01 P40	◐	◑				
	W29 24010.0421	WOEX05T304-01 K10			◐			
	W29 24110.0421	WOEX05T304-11 K10				◐	◑	
	W01 24120.0421	WOHX05T304FL-G12 K21				◐	◑	
W29 34...	**W29 34010.047930**	WOEX06T304-01 BK7930	◐	◑				
	W29 34010.0404	WOEX06T304-01 P40	◐	◑				
	W29 34010.0421	WOEX06T304-01 K10			◐			
	W29 34110.0421	WOEX06T304-11 K10				◐	◑	
	W01 34120.0421	WOHX06T304FL-G12 K21				◐	◑	
W29 42...	**W29 42010.047930**	WOEX080404-01 BK7930	◐	◑				
	W29 42010.0404	WOEX080404-01 P40	◐	◑				
	W29 42010.0421	WOEX080404-01 K10			◐			
	W29 42110.0421	WOEX080404-11 K10				◐	◑	
	W01 42120.0421	WOHX080404FL-G12 K21				◐	◑	
W29 50...	**W29 50010.047930**	WOEX100504-01 BK7930	◐	◑				
	W29 50010.0404	WOEX100504-01 P40	◐	◑				
	W29 50010.0421	WOEX100504-01 K10			◐			
	W29 50110.0421	WOEX100504-11 K10				◐	◑	
	W01 50120.0421	WOHX100504FL-G12 K21				◐	◑	
W29 58	**W29 58010.087930**	WOEX120608-01 BK7930	◐	◑				
	W29 58010.0804	WOEX120608-01 P40	◐	◑				
	W29 58010.0821	WOEX120608-01 K10			◐			

for higher cutting speed

	Order No.	ISO code	P	M	K	N	S	H
	Alternative indexable insert -01 -02 -11 -13 -15		for workpiece material					
W29 10...	**W29 10130.047325**	WOEX030204-13 BK7325	◐	◑				
	W29 10150.0473	WOGX030204-15 BK73	◐	◑				
	W29 10010.0472	WOEX030204-01 BK72	◐	◑				
	W29 10010.046115	WOEX030204-01 BK6115			◐			
	W29 10110.0450	WOEX030204-11 BK50				◐		
W29 18...	**W29 18130.047325**	WOEX040304-13 BK7325	◐	◑				
	W29 18150.0473	WOGX040304-15 BK73	◐	◑				
	W29 18010.0472	WOEX040304-01 BK72	◐	◑				
	W29 18010.046115	WOEX040304-01 BK6115			◐			
	W29 18110.0450	WOEX040304-11 BK50				◐		
W29 24...	**W29 24130.047325**	WOEX05T304-13 BK7325	◐	◑				
	W29 24150.0473	WOGX05T304-15 BK73	◐	◑				
	W29 24010.0472	WOEX05T304-01 BK72	◐	◑				
	W29 24010.046115	WOEX05T304-01 BK6115	◐	◑	◐			
	W29 24020.046425	WOEX05T304-02 BK6425	◐					
	W01 24940.0457	WOGX05T304F CBN57			◐			
	W01 24940.045510	WOGX05T304F PKD5510				◐		
	W29 24110.0450	WOEX05T304-11 BK50				◐		
W29 34...	**W29 34130.047325**	WOEX06T304-13 BK7325	◐	◑				
	W29 34150.0473	WOGX06T304-15 BK73	◐	◑				
	W29 34010.0472	WOEX06T304-01 BK72	◐	◑				
	W29 34010.046115	WOEX06T304-01 BK6115	◐	◑	◐			
	W29 34020.046425	WOEX06T304-02 BK6425	◐					
	W01 34940.0457	WOGX06T304F CBN57			◐			
	W01 34940.045510	WOGX06T304F PKD5510				◐		
	W29 34110.0450	WOEX06T304-11 BK50				◐		
W29 42...	**W29 42130.047325**	WOEX080404-13 BK7325	◐	◑				
	W29 42150.0473	WOGX080404-15 BK73	◐	◑				
	W29 42010.0472	WOEX080404-01 BK72	◐	◑				
	W29 42010.046115	WOEX080404-01 BK6115	◐	◑	◐			
	W01 42940.0457	WOGX080404F CBN57			◐			
	W01 42940.045510	WOGX080404F PKD5510				◐		
	W29 42110.0450	WOEX080404-11 BK50				◐		
W29 50...	**W29 50130.047325**	WOEX100504-13 BK7325	◐	◑				
	W29 50010.0472	WOEX100504-01 BK72	◐	◑				
	W29 50010.046115	WOEX100504-01 BK6115	◐	◑	◐			
	W29 50110.0450	WOEX100504-11 BK50				◐		
W29 58...	**W29 58130.0879**	WOEX120608-13 BK79		◑				
	W29 58010.0872	WOEX120608-01 BK72		◑				

for better surface finish

	Order No.	ISO code	P	M	K	N	S	H
W29 18...	**W29 18160.048430**	WOGX040304-16 BK8430	◐					
	W29 18160.0473	WOGX040304-16 BK73		◑				
	W29 18160.0460	WOGX040304-16 BK60			◐			
W29 24...	**W29 24160.048430**	WOGX05T304-16 BK8430	◐					
	W29 24160.0473	WOGX05T304-16 BK73		◑				
	W29 24160.0460	WOGX05T304-16 BK60			◐			
W29 34...	**W29 34160.048430**	WOGX06T304-16 BK8430	◐					
	W29 34160.0473	WOGX06T304-16 BK73		◑				
	W29 34160.0460	WOGX06T304-16 BK60			◐			

KOMET TwinKom® G01

Recommended application areas



Guideline values for roughing							v_C	Max. feed f_Z (mm/tooth)							
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN		Cutting speed v_C (m/min)	Ø 24 – 32	Ø 30 – 41	Ø 39 – 53	Ø 51 – 71	Ø 64 – 91	Ø 83 – 124	Ø 109 – 167	Ø 139 – 215
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)		200	0,12	0,14	0,20	0,25	0,30	0,35	0,40	0,40
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)		200	0,12	0,14	0,20	0,25	0,30	0,35	0,40	0,40
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)		180	0,12	0,14	0,20	0,25	0,30	0,35	0,40	0,40
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)		140	0,12	0,14	0,20	0,25	0,30	0,35	0,40	0,40
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)		120	0,10	0,12	0,15	0,20	0,25	0,25	0,30	0,30
P	4.1			HSS			–	–	–	–	–	–	–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		–	–	–	–	–	–	–	–	–
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		–	–	–	–	–	–	–	–	–
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)		120	0,10	0,12	0,15	0,20	0,25	0,25	0,30	0,30
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)		120	0,10	0,12	0,15	0,20	0,25	0,25	0,30	0,30
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)		90	0,10	0,12	0,15	0,20	0,25	0,25	0,30	0,30
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		140	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)		140	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		120	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)		100	0,12	0,15	0,20	0,20	0,25	0,30	0,40	0,40
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		100	0,12	0,15	0,20	0,20	0,25	0,30	0,40	0,40
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		90	0,15	0,20	0,20	0,25	0,30	0,35	0,40	0,40
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)		250	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)		250	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		250	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		250	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		200	0,15	0,20	0,25	0,30	0,35	0,40	0,50	0,50
H	15.0	1400		hardened steels < 45 HRC			–	–	–	–	–	–	–	–	–
H	16.0	1800		hardened steels > 45 HRC			–	–	–	–	–	–	–	–	–

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

for better chip control

	Indexable insert Order No.	ISO code	for workpiece material P M K N S H
W83 13...	**W83 13130.048425**	SOEX 050204-13 BK8425	◐
	W83 13210.047935	SOEX 050204-21 BK7935	◐ ◑
	W83 13130.047935	SOEX 050204-13 BK7935	◑
	W83 13210.047710	SOEX 050204-21 BK7710	◐ ◐
W83 18...	**W83 18130.068425**	SOEX 060306-13 BK8425	◐
	W83 18210.067935	SOEX 060306-21 BK7935	◐ ◑
	W83 18130.067935	SOEX 060306-13 BK7935	◑
	W83 18210.067710	SOEX 060306-21 BK7710	◐ ◐
W83 23...	**W83 23130.088425**	SOEX 07T308-13 BK8425	◐
	W83 23210.087935	SOEX 07T308-21 BK7935	◐ ◑
	W83 23130.087935	SOEX 07T308-13 BK7935	◑
	W83 23210.087710	SOEX 07T308-21 BK7710	◐ ◐
W83 32...	**W83 32130.088425**	SOEX 090408-13 BK8425	◐
	W83 32210.087935	SOEX 090408-21 BK7935	◐ ◑
	W83 32130.087935	SOEX 090408-13 BK7935	◑
	W83 32210.087710	SOEX 090408-21 BK7710	◐ ◐
W83 44...	**W83 44130.088425**	SOEX 120508-13 BK8425	◐
	W83 44210.087935	SOEX 120508-21 BK7935	◐ ◑
	W83 44130.087935	SOEX 120508-13 BK7935	◑
	W83 44210.087710	SOEX 120508-21 BK7710	◐ ◐

for higher cutting speed

	Indexable insert Order No.	ISO code	for workpiece material P M K N S H
W83 13...	**W83 13010.046420**	SOEX 050204-01 BK6420	◐
	W83 13000.0174	SOEX 050204-01 BK74	◑
	W83 13000.016115	SOEX 050204-01 BK6115	◐
W83 18...	**W83 18010.066420**	SOEX 060306-01 BK6420	◐
	W83 18000.0974	SOEX 060306-01 BK74	◑
	W83 18000.096115	SOEX 060306-01 BK6115	◐
W83 23...	**W83 23010.086420**	SOEX 07T308-01 BK6420	◐
	W83 23000.0174	SOEX 07T308-01 BK74	◑
	W83 23000.016115	SOEX 07T308-01 BK6115	◐
W83 32...	**W83 32010.086420**	SOEX 090408-01 BK6420	◐
	W83 32000.1574	SOEX 090408-01 BK74	◑
	W83 32000.156115	SOEX 090408-01 BK6115	◐
W83 44...	**W83 44010.086420**	SOEX 120508-01 BK6420	◐
	W83 44000.1874	SOEX 120508-01 BK74	◑
	W83 44000.186115	SOEX 120508-01 BK6115	◐

for greater strength

W83 13...	**W83 13010.047935**	SOEX 050204-01 BK7935	◐
	W83 13010.046420	SOEX 050204-01 BK6420	◐
W83 18...	**W83 18010.067935**	SOEX 060306-01 BK7935	◐
	W83 18010.066420	SOEX 060306-01 BK6420	◐
W83 23...	**W83 23010.087935**	SOEX 07T308-01 BK7935	◐
	W83 23010.086420	SOEX 07T308-01 BK6420	◐
W83 32...	**W83 32010.087935**	SOEX 090408-01 BK7935	◐
	W83 32010.086420	SOEX 090408-01 BK6420	◐
W83 44...	**W83 44010.087935**	SOEX 120508-01 BK7935	◐
	W83 44010.086420	SOEX 120508-01 BK6420	◐

KOMET TwinKom® G01

TOGX



Recommended application areas

Guideline values for roughing							v_c	Max. feed f_z (mm/tooth)								
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN		Cutting speed v_c (m/min)	Ø 24 – 32	Ø 30 – 41	Ø 39 – 53	Ø 51 – 71	Ø 64 – 91	Ø 83 – 124	Ø 109 – 167	Ø 139 – 215	Ø 196 – 401
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)		200	0,06	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)		200	0,06	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)		180	0,07	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)		140	0,07	0,10	0,10	0,12	0,12	0,12	0,12	0,15	0,15
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)		120	0,05	0,08	0,08	0,08	0,08	0,08	0,08	0,15	0,15
P	4.1			HSS			90	0,04	0,04	0,04	0,08	0,08	0,08	0,08	0,15	0,15
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		–	–	–	–	–	–	–	–	–	–
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		–	–	–	–	–	–	–	–	–	–
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)		120	0,06	0,08	0,08	0,10	0,10	0,10	0,10	0,15	0,15
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)		120	0,06	0,08	0,08	0,10	0,10	0,10	0,10	0,15	0,15
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)		90	0,05	0,06	0,06	0,08	0,08	0,08	0,08	0,15	0,15
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		140	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)		140	0,07	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		120	0,07	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)		100	0,07	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		100	0,07	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		90	0,08	0,10	0,10	0,15	0,15	0,15	0,15	0,20	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)		250	0,12	0,15	0,15	0,25	0,25	0,25	0,25	0,30	0,30
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)		250	0,12	0,15	0,15	0,25	0,25	0,25	0,25	0,30	0,30
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		250	0,10	0,15	0,15	0,25	0,25	0,25	0,25	0,30	0,30
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		250	0,10	0,15	0,15	0,25	0,25	0,25	0,25	0,30	0,30
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		200	0,10	0,15	0,15	0,25	0,25	0,25	0,25	0,30	0,30
H	15.0	1400		hardened steels < 45 HRC			–	–	–	–	–	–	–	–	–	–
H	16.0	1800		hardened steels > 45 HRC			–	–	–	–	–	–	–	–	–	–

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

for better chip control

	Order No.	ISO code	for workpiece material P M K N S H
W57 04 / W30 04	**W30 04120.3232**	TOHX 06T102EL-US12 CK32	◐ ◑
	W30 04120.306425	TOHX 06T100EL-G12 BK6425	◐ ◑
	W57 04120.0223	TOGX 06T102FN-12 K10	◐ ◐
W57 14 / W30 14	**W30 14120.3232**	TOHX 090202EL-US12 CK32	◐ ◑
	W30 14120.306425	TOHX 090200EL-G12 BK6425	◐ ◑
	W57 14120.0423	TOGX 090204FN-12 K10	◐ ◐
W57 26 / W30 26	**W30 26120.3232**	TOHX 140302EL-US12 CK32	◐ ◑
	W57 26120.0423	TOGX 140304FN-12 K10	◐ ◐
W30 44...	–		

for higher cutting speed

	Order No.	ISO code	for workpiece material P M K N S H
W57 04 / W30 04	**W57 04140.023210**	TOGX 06T102EN-14 CK3210	◐ ◑
	W57 04140.0260	TOGX 06T102EN-14 BK60	◐ ◑
	W30 04990.0357	TOGX 06T103TN CBN57	◐
	W30 04990.035510	TOGX 06T103FN PKD5510	◐
W57 14 / W30 14	**W30 14120.3232**	TOHX 090202EL-US12 CK32	◐ ◑
	W30 14120.306425	TOHX 090200EL-G12 BK6425	◐ ◑
	W57 14120.0423	TOGX 090204FN-12 K10	◐ ◐
W57 26 / W30 26	**W30 26120.3232**	TOHX 140302EL-US12 CK32	◐ ◑
	W57 26120.0423	TOGX 140304FN-12 K10	◐ ◐
W30 44...	**W30 44600.0821**	TOHX 22T308 EN K10	◐

for greater strength

	Order No.	ISO code	for workpiece material P M K N S H
W57 04 / W30 04	**W30 04120.316425**	TOHX 06T102EL-UF12 BK6425	◐ ◑
	W30 04990.0357	TOGX 06T103TN CBN57	◐
	W30 04990.035510	TOGX 06T103FN PKD5510	◐
	W30 04990.0240	TOGX 06T103TN CBN40	◑
W57 14 / W30 14	**W30 14120.316425**	TOHX 090202EL-UF12 BK6425	◐ ◑
	W30 14120.306425	TOHX 090200EL-G12 BK6425	◐ ◑
	W57 14120.0423	TOGX 090204FN-12 K10	◐ ◐
	W30 14990.0440	TOGX 090204TN CBN40	◑
W57 26 / W30 26	**W30 26120.316425**	TOHX140302EL-UF12 BK6425	◐ ◑
	W57 26120.0423	TOGX140304FN-12 K10	◐ ◐
	W30 26990.0440	TOGX140304TN CBN40	◑
W30 44...	–		

KOMET TwinKom® G01

Recommended application areas

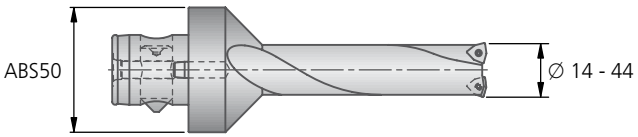


Guideline values for roughing							v_c	Max. feed f_z (mm/tooth)								
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN		Cutting speed v_c (m/min)	Ø 24 – 32	Ø 30 – 41	Ø 39 – 53	Ø 51 – 71	Ø 64 – 91	Ø 83 – 124	Ø 109 – 167	Ø 139 – 215	Ø 196 – 401
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)		200	0,08	0,08	0,08	0,10	0,10	0,15	0,15	0,15	0,15
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)		200	0,08	0,08	0,08	0,10	0,10	0,15	0,15	0,15	0,15
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)		180	0,08	0,08	0,08	0,10	0,10	0,15	0,15	0,15	0,15
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)		140	0,07	0,07	0,07	0,08	0,08	0,12	0,12	0,12	0,12
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)		120	0,07	0,07	0,07	0,08	0,08	0,10	0,10	0,10	0,10
P	4.1			HSS			90	0,05	0,05	0,05	0,06	0,06	0,10	0,10	0,10	0,10
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		–	–	–	–	–	–	–	–	–	–
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		–	–	–	–	–	–	–	–	–	–
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)		120	0,07	0,07	0,07	0,08	0,08	0,12	0,12	0,12	0,12
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)		120	0,06	0,06	0,06	0,07	0,07	0,12	0,12	0,12	0,12
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)		90	0,05	0,05	0,05	0,06	0,06	0,10	0,10	0,10	0,10
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	0,10	0,10	0,10	0,15	0,15	0,25	0,25	0,25	0,25
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		140	0,10	0,10	0,10	0,15	0,15	0,25	0,25	0,25	0,25
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)		140	0,10	0,10	0,10	0,15	0,15	0,25	0,25	0,25	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		120	0,10	0,10	0,10	0,15	0,15	0,25	0,25	0,25	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)		100	0,07	0,07	0,07	0,10	0,10	0,20	0,20	0,20	0,20
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		100	0,08	0,08	0,08	0,10	0,10	0,20	0,20	0,20	0,20
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		90	0,10	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,20
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)		250	0,15	0,15	0,15	0,20	0,20	0,30	0,30	0,30	0,30
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)		250	0,15	0,15	0,15	0,20	0,20	0,30	0,30	0,30	0,30
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		250	0,15	0,15	0,15	0,20	0,20	0,30	0,30	0,30	0,30
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		250	0,15	0,15	0,15	0,20	0,20	0,30	0,30	0,30	0,30
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		200	0,15	0,15	0,15	0,20	0,20	0,30	0,30	0,30	0,30
H	15.0	1400		hardened steels < 45 HRC			–	–	–	–	–	–	–	–	–	–
H	16.0	1800		hardened steels > 45 HRC			–	–	–	–	–	–	–	–	–	–

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Easy Special tool

Diameter range from 14-44 mm
(also intermediate sizes)
for boring depths 2×D, 3×D and 4×D
in ABS 50
see chapter 4



Special tools set standards

Special tools with KOMET's comprehensive knowledge and experience for economic cutting.

The advantages of our Easy Special tools are obvious:

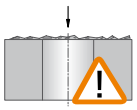
- High tech tools from planning to productive use
- Shortest delivery times – available within 3 weeks
- Parameters set for different tool models
- Optimum production tolerances
- Fixed prices at standard price level

In short: time costs money.

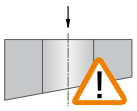
Patent applied for inside and outside Germany

KOMET TwinKom® G01

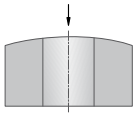
Technical Informations

1. 

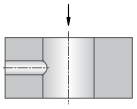
Starting on uneven surfaces (cast surfaces)
- subject to the starting angle, the feed must be reduced when starting the bore. Rule of thumb: 3° = 30%; 10° = 40%; 25° = 60%
- use tough insert
- use stable corner radius

2. 

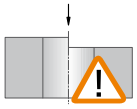
Angled bore exit
- from wear cut is interrupted reduce feed rate up to 50%
- use tough insert
- use stable corner radius

3. 

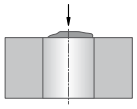
Starting on cambered surfaces
- no problems
- reduce feed rate if necessary

4. 

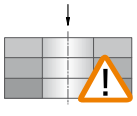
Roughing through a cross bore
- reduce feed rate 50% if necessary
- watch for chip jamming around tool
- use tough insert
- use stable corner radius

5. 

Starting on an edge
- reduce feed rate by 50%
- use tough insert
- use stable corner radius

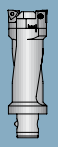
6. 

Starting on a welded seam
- reduce feed rate
- use max. 3×D tools

7. 

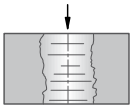
Roughing through stacked plates
- use holder with 80° approach angle
- good workpiece clamping required
- max. gap = 1 mm





Long chips
- not optimum geometry

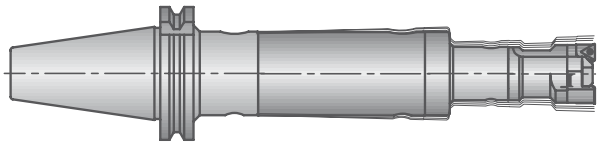
→ select correct cutting depth
→ select correct cutting values



Bad surface finish
- feed rate too high → improve cutting parameters: increase cutting speed, reduce feed
- long chips



Vibrations
- feed rate too high
- cutting speed too high
- geometry too obtuse
- check axial / radial setting
- check tool assembly
- if required, use a damping element adaptor



KOMET TwinKom®

Lightweight dual cutter

Optimally designed for your machining requirement

A typical example of the ongoing further development of the KOMET® cutting tool range can be seen in the improved concept of the KOMET TwinKom® lightweight dual cutters – a concept which enables particularly cost-effective machining. The tools are extremely rigid, provide high transmissible torques and offer high cutting efficiency. KOMET TwinKom® dual cutters can be used for a variety of operations – as a dual cutter for roughing, with a single cutting edge for finishing, as a follow-on cutting tool and, by means of an adaptor, as a stepped tool. The tools are modular in design and are suitable for diameters from 365 to 2000 mm. The adjustment range is ± 40 mm (or 80 mm) in relation to the diameter.

The size of the replaceable bridge is application-oriented and adapted to suit the hole diameter to be cut, which is why the bridge is made according to customer requirement. Due to standardisation, delivery times are relatively short.

The indexable insert holders can be easily exchanged, which allows a variety of different approach angles and the use of indexable inserts of various different shapes, sizes and geometries.

The tool blocks for roughing can be adjusted radially and axially, both for dual cutter use and for cut distribution. For finishing, the fine adjustment insert can be applied to the workpiece directly without clamping. Fine adjustment of 2 µm by vernier is possible. A stop guarantees a high level of positional accuracy for the tool blocks. The measurements set after the first cut are maintained even after repeatedly exchanging the tool blocks.

Once diameters have been established, they are maintained even when the tool blocks are repositioned, and need not be established again. One and the same tool block can be used for roughing and finishing throughout all diameter ranges. When designing the adaptor plates for the tool blocks, sufficient space was allowed for attaching the magnetic holder of a dial gauge.

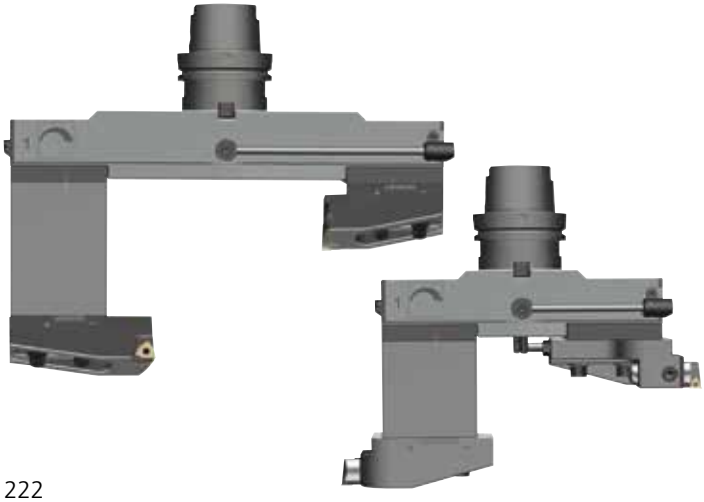
An internal coolant supply can be used on all replaceable bridges. An adjustable jet guarantees positionally accurate cooling of the cutting edge. Because DIN mill adaptors are used on the machine side to connect the tools, they can be adapted for all commonly used spindles.

BENEFITS for you:

- High rigidity
- High cutting efficiency through double-sided roughing
- High transmissible torques
- Exchangeable tool blocks for roughing and finishing
- Can be used as a follow-on cutting tool and, by means of an adaptor, as a stepped tool
- External machining can also be performed with the standard components
- High level of flexibility thanks to modular design of system components
- Internal coolant supply
- Tool connection with standard mill adaptor according to DIN standard
- Cost-effective cutting thanks to the use of stock-type standard tool blocks and indexable inserts
- Wide selection of various indexable inserts, cutting tool materials and cutting geometries
- Easy-to-replace indexable insert holders
- Tool blocks can be exchanged without losing measurement settings
- Dial gauge can be fitted using a magnetic holder
- Optimised heat cycle, even when dry machining

Stepped tool

Can be used as a follow-on cutting tool and, by means of an adaptor, as a stepped tool.
External machining can also be performed with the standard components.

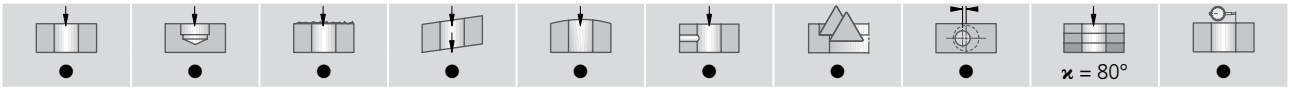


KOMET ABS® Adapter

Thanks to the new ABS® adapter, KOMET® standard tools, for example the MicroKom *BluFlex*® fine adjustment head, show more of what they can really do. The ABS® adapter is available on request.



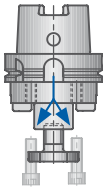
Patent applied for inside and outside Germany



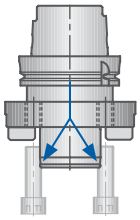
Adaptors

HSK-A adaptor ISO 12164-1 | taper shank DIN 69871, JIS B 6339 (MAS 403 BT) | ABS® adaptor

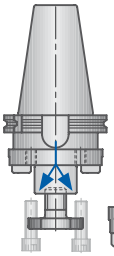
HSK-A63-FA40 (A06 33942)
HSK-A100-FA40 (A06 53942)



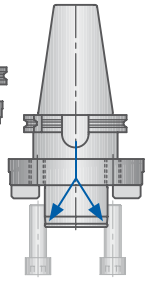
HSK-A100-FA60
(A06 53961)



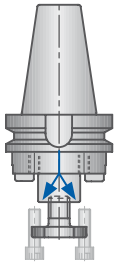
SK50-FA40
(A51 14240)



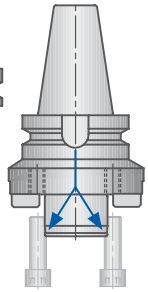
SK50-FA60
(A51 14250)



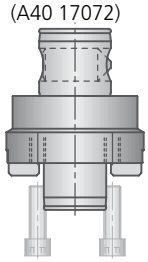
BT50-FA40
(A51 15240)



BT50-FA60
(A51 15250)

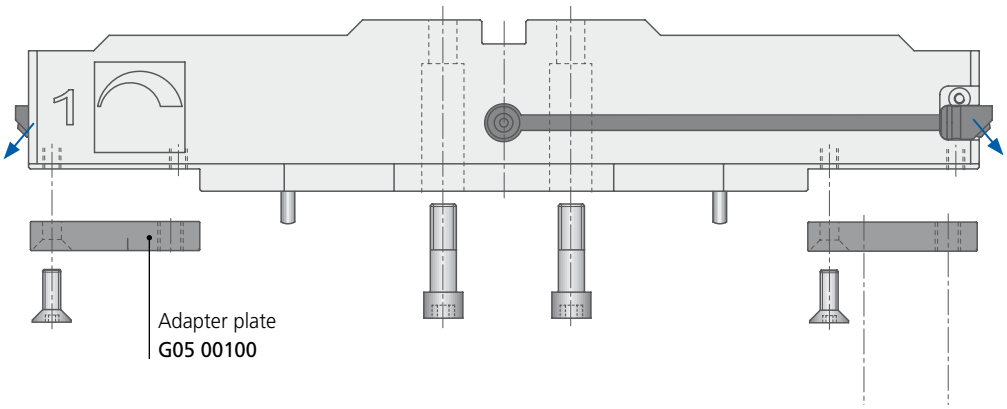


ABS100-FAM40
(A40 17062)
ABS100-FAM60
(A40 17072)



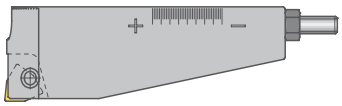
Replaceable bridge Ø 365 - 2000 mm

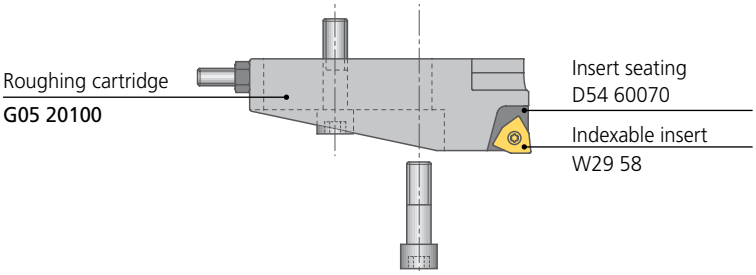
Produced to customer requirement, FA40 / FAM40 connection up to ∅ 399 mm



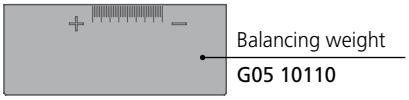
Replaceable bridge with roughing tool or finishing tool	
Diameter	Weight
∅ 400 mm	~ 13 kg
∅ 600 mm	~ 22 kg
∅ 800 mm	~ 29 kg
∅ 1000 mm	~ 35 kg

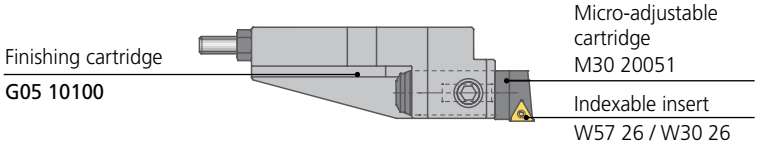
Roughing tool as dual cutter

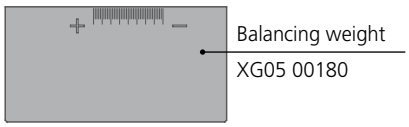


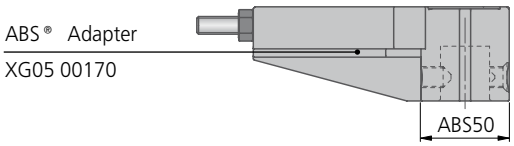


Single-edged finishing tool









● very good | ◐ good | ○ possible | ✕ not possible

KOMET® PreciKom Ø 32 – 101,99 mm

Insert technology for roughing and finishing in one step

The challenge which must be met by tools enabling roughing and finishing in a single process is to achieve the required roundness and concentricity, taking account of the high cutting performance and the associated forces. For this reason, such tools are normally fitted with guide pads; however, these can lead to problems during machining.

The newly developed roughing/finishing tools are based on an innovation in indexable insert technology, which makes it possible not only to bore, but to finish as well using economical, multi-bladed indexable inserts. Thanks to an innovative cutting head geometry with support land, previously commonplace guide rails are a thing of the past.

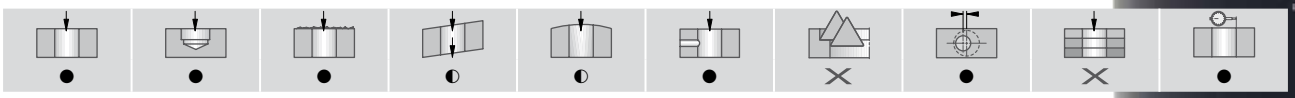
Due to the innovative fine adjustment of indexable inserts, it is possible to easily adjust every single indexable insert with µm accuracy.

The tools are specially manufactured for each application, with four to six cutting edges on a main body and for diameter ratios up to 3×D. With various cutting tool material/coating variants, they can also be ideally adapted to customer requirements for specific materials. For example, in GGG50 the new machine tools work to cutting depths from three to four millimetres (a_p) whereby, bore tolerances to IT8 are possible.



BENEFITS for you:

- Two processes in one – roughing and finishing
- Uses economical inserts with four edges
- Interchangeability of the cutting heads reduces tool costs
- Precise adjustment with µm accuracy, thanks to the newly developed fine adjustment system for indexable inserts
- Maximum precision



Basic recommendation							
Indexable insert			for workpiece material		Clamping screw	Wedge	
Ø D	ISO Code	Order No. (P M K) enter carbide code	● BK 6110	● BK 2710	Order No. Article	Order No.	
32 – 34,99	LNHX 09T310-01	H80 32000.01....	6110	2710	N00 57251 S3076-8IP 2,25 Nm	L02 31990	
35 – 37,49	LNHX 09T310-01	H80 35000.01....					
37,5 – 39,99	LNHX 09T310-01	H80 37500.01....					
40 – 41,99	LNHX 09T310-01	H80 40000.01....					
42 – 43,99	LNHX 120510-01	H80 42000.01....	6110	2710	N00 57411 S40101-15IP 4,3 Nm	L02 32000	
44 – 45,99	LNHX 120510-01	H80 44000.01....					
46 – 47,99	LNHX 120510-01	H80 46000.01....					
48 – 49,99	LNHX 120510-01	H80 48000.01....					
50 – 51,99	LNHX 120510-01	H80 50000.01....					
52 – 53,99	LNHX 120510-01	H80 52000.01....					
54 – 55,99	LNHX 120510-01	H80 54000.01....					
56 – 57,99	LNHX 120510-01	H80 56000.01....					
58 – 59,99	LNHX 120510-01	H80 58000.01....					
60 – 61,99	LNHX 120510-01	H80 60000.01....					
62 – 66,99	LNHX 120510-01	H80 62000.01....					
67 – 71,99	LNHX 120510-01	H80 67000.01....					
72 – 76,99	LNHX 120510-01	H80 72000.01....					
77 – 81,99	LNHX 120510-01	H80 77000.01....					
82 – 86,99	LNHX 120510-01	H80 82000.01....					
87 – 91,99	LNHX 120510-01	H80 87000.01....					
92 – 96,99	LNHX 120510-01	H80 92000.01....					
97 – 101,99	LNHX 120510-01	H80 97000.01....					

Supply includes: Basic body with clamping screw and wedge.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Inquiry Fax to +49 7143 373233

KOMET® PreciKom

Design your own tool!

Unique: Indexable insert technology for roughing and finishing in one step!
The tools are specially manufactured for each application, with four to six cutting edges on a basic body and for length/ diameter ratios up to 3×D.
We check you specifications for technical feasibility and you receive a prompt reply.

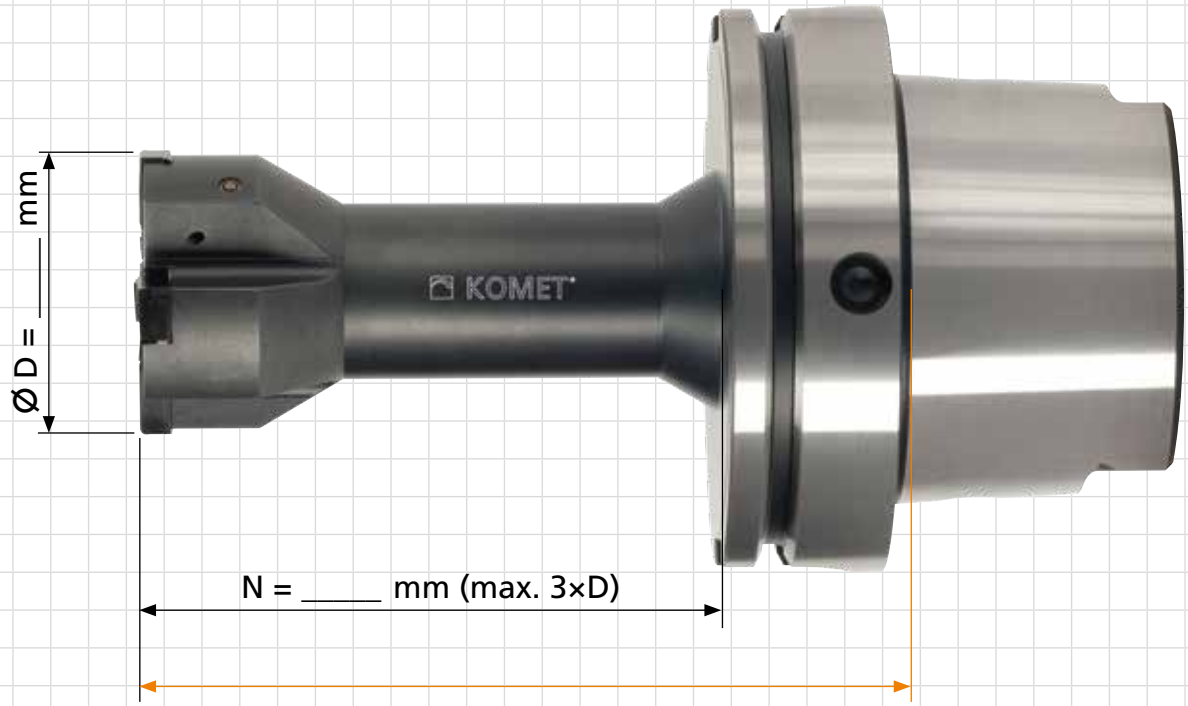
Company: Contact:

Department: E-Mail:

Telephone: Customer-No.:

Fax: Distributor:

Date:



Material to be machined:

Machining method ☐ through hole ☐ blind hole

Length of bore:

Interrupted cut ☐ yes ☐ no

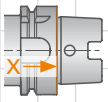
Tolerance:

Required surface:

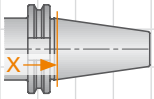
Allowance in Ø:

Required cutting material ☐ BK6110 ☐ BK2710

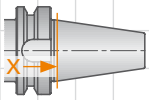
Holder / Adaptor (Type and size)



☐ HSK _____
DIN 69893 A



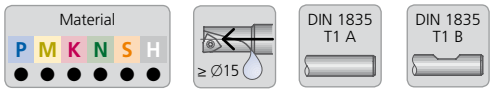
☐ SK _____
DIN 69871 AD/B



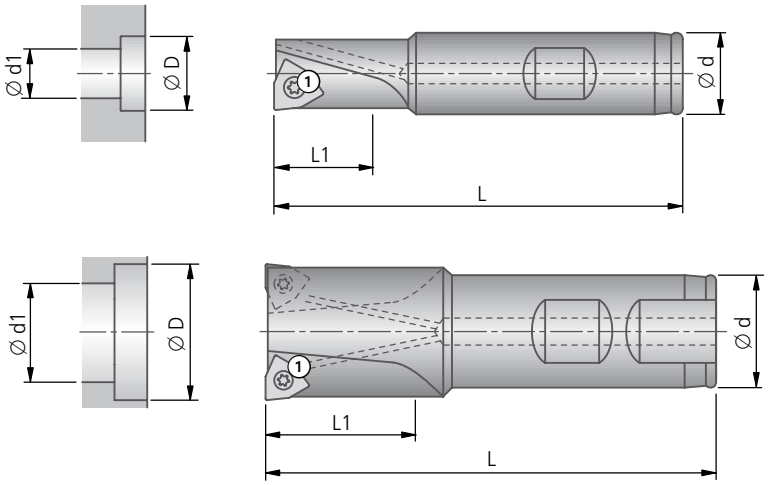
☐ SK _____
JIS B 6339 AD/B
(MAS 403 BT)

other adaptors on request

Countersinking tool KWZ



for producing 90° counterbores to DIN 974 T1 for cap head screws



Y = number of inserts
Z = effective number of teeth for calculating v_f

KWZ										Basic recommendation		
Ø D	Order No. Article	Rough bore Ø Ød1 min	Ød	L	Counter-sink depth L1 max	Y	Z	kg	Clamping screw ① Order No. Article	Indexable insert Order No. ▽▽ size	ISO-Code	for workpiece material P M K N S H
10	**F10 10021** KWZ-M5K1	5,3	16	80	10	1	1	0,09	**N00 56041** S/M2×4,3-6IP 0,62 Nm	**W29 10010.048425** **W29 10010.0421**	WOEX 030204-01 BK8425 WOEX 030204-01 K10	● ○ ● ● ○
11	**F10 10031** KWZ-M6K1	6,4	16	80	11	1	1	0,10				
15	**F10 10040** KWZ-M8K1	8,4	16	80	15	1	1	0,10	**N00 55581** M2,5×4,5-8IP 1,28 Nm	**W29 24010.048425** **W29 24010.0421**	WOEX 05T304-01 BK8425 WOEX 05T304-01 K10	● ○ ● ● ○
18	**F10 10050** KWZ-M10K1	10,4	16	80	18	1	1	0,11	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	**W29 24010.048425** **W29 24010.0421**	WOEX 05T304-01 BK8425 WOEX 05T304-01 K10	● ○ ● ● ○
20	**F10 10060** KWZ-M12K1	13	25	100	20	1	1	0,28				
24	**F10 11070** KWZ-M14K2	15	25	100	24	2	2	0,29				
26	**F10 11080** KWZ-M16K2	17	25	100	26	2	2	0,31				
30	**F10 11090** KWZ-M18K2	19	25	100	30	2	2	0,34	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**W29 34010.048425** **W29 34010.0421**	WOEX 06T304-01 BK8425 WOEX 06T304-01 K10	● ○ ● ● ○
33	**F10 11100** KWZ-M20K2	21	25	100	33	2	2	0,36	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**W29 42010.048425** **W29 42010.0421**	WOEX 080404-01 BK8425 WOEX 080404-01 K10	● ○ ● ● ○
36	**F10 11110** KWZ-M22K2	21	25	100	36	2	2	0,39				
40	**F10 11120** KWZ-M24K2	25	25	100	40	2	2	0,45				
48	**F10 11130** KWZ-M30K2	28	32	120	48	2	2	0,85	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**W29 50010.048425** **W29 50010.0421**	WOEX 100504-01 BK8425 WOEX 100504-01 K10	● ○ ● ● ○

Supply includes: Countersinking tool with clamping screw ①.
Please order inserts separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Recommended application areas

Guideline values for countersinking						v_c	Max. f (mm/rev)			
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed Ø 10 – 15	Ø 18 – 20	Ø 24 – 30	Ø 33 – 48
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	180-240	0,06-0,12	0,12-0,20	0,15-0,25	0,20-0,30
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	180-240	0,06-0,12	0,12-0,20	0,25-0,40	0,25-0,40
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	160	0,06-0,12	0,20	0,20-0,30	0,20-0,40
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	0,06-0,10	0,18	0,20-0,35	0,25-0,40
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	120	0,04-0,08	0,15	0,20-0,30	0,20-0,35
P	4.1			HSS		–	–	–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	30	0,05	0,10	0,12	0,15
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,05	0,10	0,12	0,15
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	120	0,08	0,15	0,16	0,18
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	120	0,08	0,15	0,16	0,18
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	100	0,05	0,10	0,10	0,12
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	160	0,15	0,30	0,40	0,60
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	140	0,15	0,25	0,30	0,40
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	0,15	0,25	0,30	0,35
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	120	0,12	0,20	0,25	0,35
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120	0,10	0,18	0,25	0,30
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	120	0,10	0,18	0,20	0,30
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	100	0,10	0,15	0,20	0,25
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,05	0,10	0,12	0,15
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,05	0,10	0,12	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	0,05	0,12	0,15	0,20
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	250	0,06	0,16	0,20	0,25
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	200	0,10	0,20	0,25	0,30
H	15.0	1400		hardened steels < 45 HRC		50	0,05	0,10	0,15	0,20
H	16.0	1800		hardened steels > 45 HRC		50	0,05	0,10	0,15	0,20

for better chip control												
Ø D	Alternative indexable insert -01 -03 -11 Order No.	ISO code	for workpiece material P	M	K	N	S	H
10 – 11	W29 10030.046425 W29 10110.0477	WOEX 030204-03 BK6425 WOEX 030204-11 BK77	●	●		●	◐	◑
15 – 26	W29 24030.046425 W29 24110.0477	WOEX 05T304-03 BK6425 WOEX 05T304-11 BK77	●	●		●	◐	◑
30	W29 34030.046425 W29 34110.0477	WOEX 06T304-03 BK6425 WOEX 06T304-11 BK77	●	●		●	◐	◑
33 – 40	W29 42030.046425 W29 42110.0477	WOEX 080404-03 BK6425 WOEX 080404-11 BK77	●	●		●	◐	◑
48	W29 50030.046425 W29 50110.0477	WOEX 100504-03 BK6425 WOEX 100504-11 BK77	●	●		●	◐	◑
for higher cutting speed								
10 – 11	–							
15 – 26	W29 24010.046425 W29 24010.047615	WOEX 05T304-01 BK6425 WOEX 05T304-01 BK7615	●		●			
30	W29 34010.0460 W29 34010.0461	WOEX 06T304-01 BK60 WOEX 06T304-01 BK61	●		●			
33 – 40	W29 42010.0460 W29 42010.0461	WOEX 080404-01 BK60 WOEX 080404-01 BK61	●		●			
48	W29 50010.0460 W29 50010.0461	WOEX 100504-01 BK60 WOEX 100504-01 BK61	●		●			
for greater strength								
10 – 11	W29 10010.047930	WOEX 05T304-01 BK7930	●	●	●		●	○
15 – 26	W29 24010.047930	WOEX 05T304-01 BK7930	●	●	●		●	○
30	W29 34010.047930	WOEX 06T304-01 BK7930	●	●	●		●	○
33 – 40	W29 42010.047930	WOEX 080404-01 BK7930	●	●	●		●	○
48	W29 50010.047930	WOEX 100504-01 BK7930	●	●	●		●	○

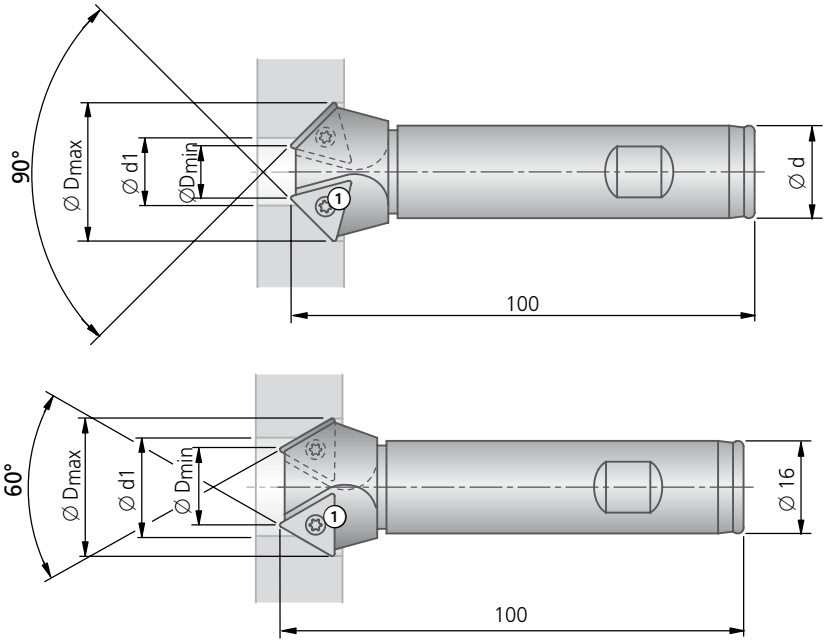
Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET® Countersinking and chamfering tools

Countersinking tool KWS 90° | 60°





Y = number of inserts
Z = effective number of teeth for calculating v_f

for producing the 90° | 60° countersinks to DIN 74, page 1, Form A, fine

for milling of trapezoidal slots

for circular milling on machining centres

for chamfering on machining centres

KWS 90°									Basic recommendation		
Ø D max	Ø D min	Order No. Article	Rough bore Ø Ø d1 min	Ø d	Y	Z	kg	Clamping screw ① Order No. Article	Indexable insert Order No. ▽▽size	ISO-Code	for workpiece material P M K N S H
19	7	**F10 00051** KWS-M10	9,5	16	2	2		**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14660.338425** **W30 14660.3321**	TOHX 090204EN-U8.77 BK8425 TOHX 090204EN-U8.77 K10	● ◐ ● ● ○
23	11	**F10 00061** KWS-M12	12	16	2	2					
26	11	**F10 00071** KWS-M14	12	16	2	1		**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14720.048425** **W30 14720.0421**	TOHX 090204EN-G12 BK8425 TOHX 090204FN-G12 K10	● ◐ ● ● ○
30	12	**F10 00081** KWS-M16	13	20	2	2		**N00 56211** S/M3,5×7,3-10IP 2,8 Nm	**W30 26720.0560** **W30 26720.0521**	TOHX 140305EN-G12 BK60 TOHX 140305FN-G12 K10	● ◐ ● ● ○
34	16	**F10 00091** KWS-M18	17	20	2	2					
37	19	**F10 00101** KWS-M20	20	20	2	2					

KWS 60°								Basic recommendation		
Ø D max	Ø D min	Order No. Article	Rough bore Ø Ø d1 min	Y	Z	kg	Clamping screw ① Order No. Article	Indexable insert Order No. ▽▽size	ISO-Code	for workpiece material P M K N S H
16,5	8,1	**F10 00350** KWS-M10/12-60	8,5	1	1	0,14	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W30 14660.338425** **W30 14660.3321**	TOHX 090204EN-U8.77 BK8425 TOHX 090204EN-U8.77 K10	● ◐ ● ● ○
20	11,6	**F10 00370** KWS-M14-60	12	2	2	0,14				
22	13,6	**F10 00380** KWS-M16-60	14	2	2	0,15				
23,5	15,1	**F10 00390** KWS-M18-60	15,5	2	2	0,15	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14720.048425** **W30 14720.0421**	TOHX 090204EN-G12 BK8425 TOHX 090204FN-G12 K10	● ◐ ● ● ○
25,5	17,1	**F10 00400** KWS-M20-60	17,5	2	2	0,16				

Supply includes: Countersinking tool with clamping screw ①.
Please order inserts separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for countersinking							v_c	Max. f (mm/rev)
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed	
							∅ 16,5 – 37	
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	250	0,16	
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	200	0,20	
	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	250	0,30	
	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	150	0,20	
	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	120	0,15	
	4.1			HSS		100	0,18	
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,12	
	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	100	0,20	
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	160	0,15	
	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	120	0,15	
	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	100	0,15	
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	150	0,40	
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	120	0,30	
	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	120	0,30	
	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	100	0,30	
	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	100	0,20	
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	80	0,20	
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	50	0,20	
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	250	0,30	
	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	250	0,20	
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	250	0,20	
	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	150	0,30	
	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	120	0,25	
H	15.0	1400		hardened steels < 45 HRC		50	0,15	
	16.0	1800		hardened steels > 45 HRC		25	0,10	

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET® – Fine boring

Modern batch production is characterised by the shortest machining times and the highest quality requirements.

To meet these demands, highly developed tools need to be used with the latest cutting materials and efficient coatings.



The KOMET GROUP offer excellent tools solutions for the fine boring area.



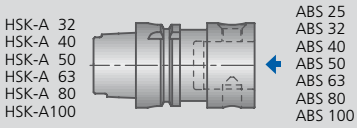
Index

	Page
Programme summary	232 – 233
Tool selection	234 – 235
Insert geometry selection	236 – 237
MicroKom® *hi.flex* Micro-adjustable head	238 – 257
MicroKom *BluFlex*® Micro-adjustable head	258 – 275
MicroKom® Micro-adjustable head M04 | M02	278 – 287
Boring bars with cylindrical shank	
Boring bar ∅ 0,5 – 9,0 mm	289
Boring bar B001 / B003 ∅ 5,6 – 24 mm	290
Low-vibration boring bar ∅ 5,6 – 26 mm	292
UniTurn®	
Copying tool ∅ 3 – 8 mm	295
Boring tool ∅ 3 – 8 mm	296
Boring tool with CBN ∅ 2,7 – 7,5 mm	297
Boring bars with ABS® connection	
Boring bar B002 ∅ 8 – 28 mm	298
Boring bar G10 ∅ 11,9 – 30 mm	300
Boring bar B300 ∅ 28 – 44 mm	302
MicroKom® Boring bar M10	304
MicroKom® Micro-adjustable head FZ / FF	306 – 311
MicroKom® Micro-adjustable head M03Speed	312 – 323
TwinKom® Twin cutter tool	324 – 327
KomTronic® U-Axis system	328 – 329

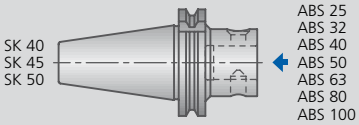
Programme summary – Fine boring

5 Adaptors see chapter 5

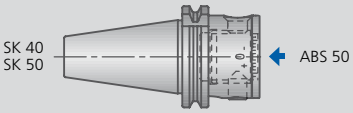
HSK-A Adaptors
with ABS® connection



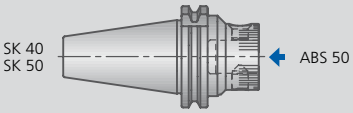
Taper shanks DIN 69871
with ABS® connection



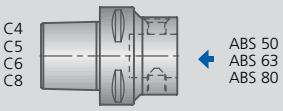
Eccentric adjusting device with ABS® connection



Torsional dampener with ABS® connection

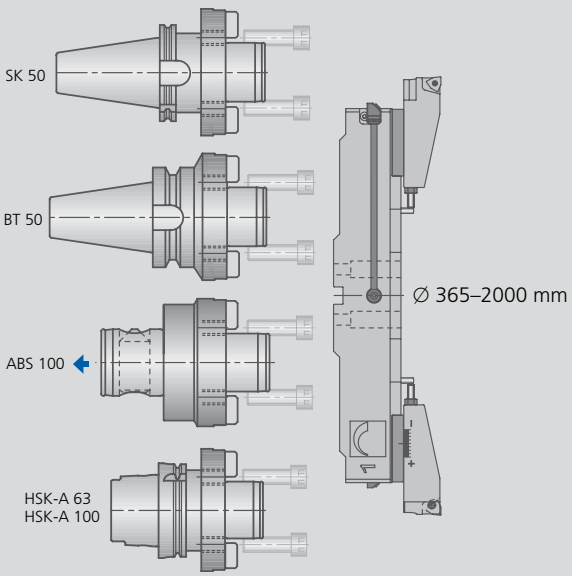


PSC Adaptor
with ABS® connection



3 Fine boring tools

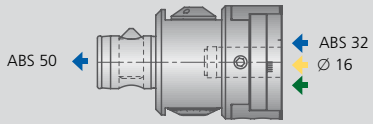
TwinKom®
▸ 326



3 Fine boring tools

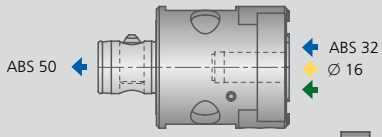
MicroKom® *hi.flex*
Micro-adjustable head

▸ 242

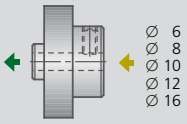


MicroKom *BluFlex*®

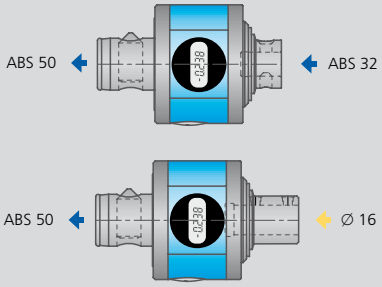
▸ 262



▸ 256 | 276 Adaptor

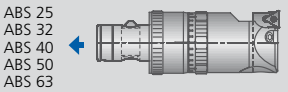


MicroKom® M04
Micro-adjustable head
▸ 282



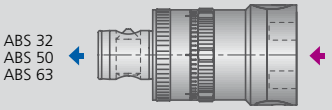
MicroKom® M03Speed
Micro-adjustable head

▸ 314



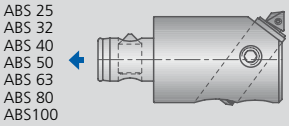
Ø 28,4 – 103 mm

▸ 316



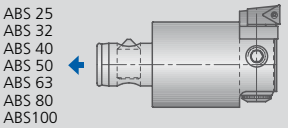
Micro-adjustable head

▸ 306



Ø 20 – 175 mm

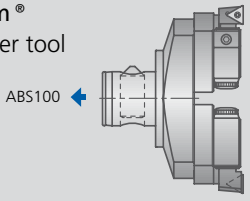
▸ 310



Ø 29,5 – 199 mm

TwinKom®
Twin cutter tool

▸ 324



Ø 196 – 401 mm

Further adaptors see chapter 5.

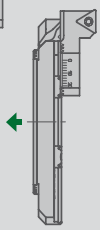
3 Fine boring tools

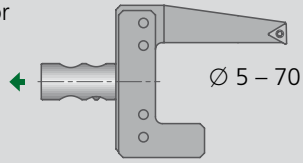
MicroKom® *hi.flex* | MicroKom *BluFlex*®

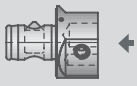
Boring bar
▸ 244
▸ 264
Ø 16  Ø 6 – 25 mm

Serrated body + Insert holder
▸ 245
▸ 265
Ø 16  Ø 25 – 63 mm

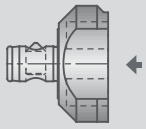
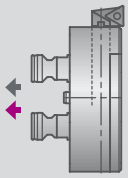
Insert holder
▸ 246 | 266
 Ø 63 – 93 mm

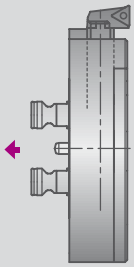
Bridge + Insert holder
▸ 247 | 267
 Ø 90 – 365 mm

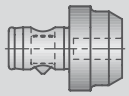
Mounting bridge for external machining
▸ 257 | 277
 Ø 5 – 70 mm

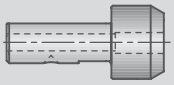
Adaptor
▸ 283
ABS 32 

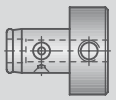
Replaceable bridge
 Ø 38 – 63 mm
▸ 284 | 319

▸ 283
ABS 32 
 Ø 62 – 103 mm
▸ 284 | 319

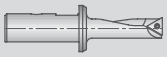
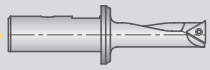
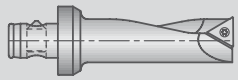
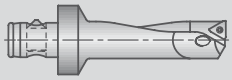
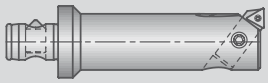
 Ø 100 – 206 mm
▸ 321

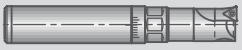
UniTurn® Adaptor
▸ 294
ABS 32  Ø 4 Ø 8

▸ 294
Ø 16  Ø 4 Ø 8

Adaptor
▸ 288
ABS 32  Ø 6 Ø 8

▸ 288
Ø 16  Ø 4 Ø 6 Ø 8 Ø 10 Ø 12

Boring bars
▸ 289 Ø 4  Ø 0,5 – 2,0 mm
▸ 289 Ø 8  Ø 3,0 – 9,0 mm
▸ 292 Ø 6  Ø 5,6 mm Ø 6,9 mm
▸ 290 Ø 8  Ø 5,6 – 12 mm
▸ 290 Ø 16  Ø 8 – 24 mm
▸ 292 Ø 8 Ø 10  Ø 9 mm Ø 11 mm
▸ 292 Ø 12  Ø 13 – 17 mm
▸ 292 Ø 16  Ø 17 – 26 mm
▸ 298 ABS 25 ABS 32 ABS 40  Ø 8 – 28 mm
▸ 300 ABS 32  Ø 11,9 – 30 mm
▸ 302 ABS 32  Ø 28 – 44 mm

MicroKom® Boring bar
▸ 304 Ø 16  Ø 15,9 – 26 mm

UniTurn®
Copying tool
▸ 295
Ø 4 Ø 8  Ø 3 – 8 mm

Boring tool
▸ 296
Ø 4 Ø 8  Ø 3 – 8 mm

with CBN
▸ 297
Ø 8  Ø 2,7 – 7,5 mm

Key

- ABS® connection
- Cylindrical connection
- MicroKom® *hi.flex* | MicroKom *BluFlex*®
- MicroKom® M03Speed connection
- Adaptor connection
- UniTurn® connection

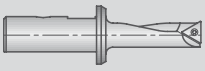
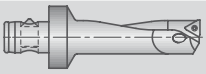
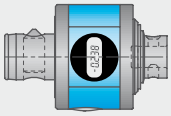
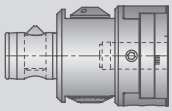
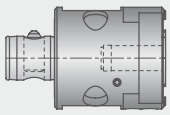
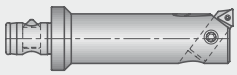
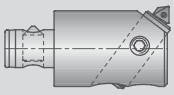
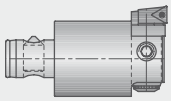
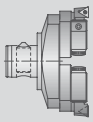
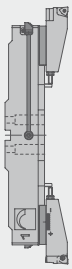
KOMET® Tool selection

Help table for fine boring

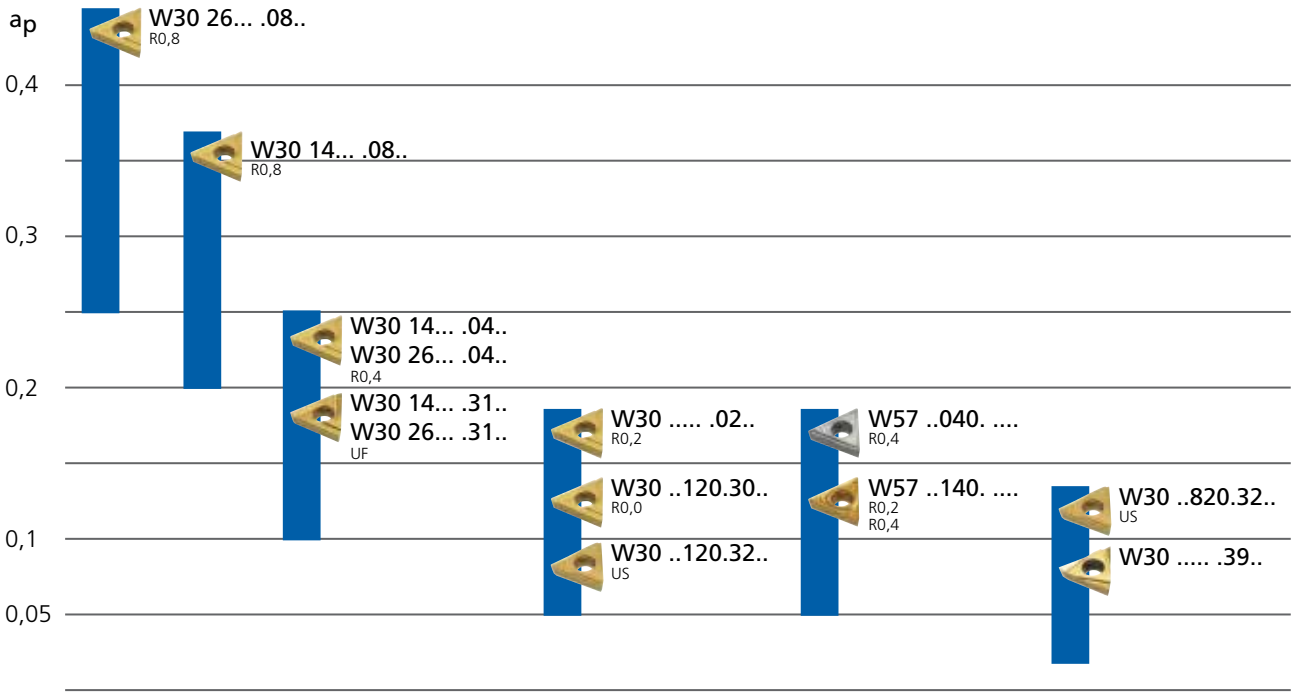
Ø (mm)	L / D	Machining							
	Length/ diameter ratio	through hole	blind hole	angled start and drilling out, interrupted cut	cross bore	reverse machining	HRC > 54 through hole	HRC > 54 blind hole	vibration dampening
0,5 – 9,0	> 3,5×D	●	●	◐	◐				●
3,0 – 8,0	> 3,5×D	●	●	◐	◐				●
4,0 – 8,0	3×D	●	●	◐	◐		●	●	●
5,6 – 24,0	3,5×D	●	●	◐	◐		●	●	
7,9 – 44,0	3,5×D	●	●	◐	◐		●	●	
11,9 – 30,0	3,5×D	●	●	◐	◐		●	●	
15,9 – 26,0	3×D	●	●	◐	◐		●	●	
5,6 – 26,0	> 3,5×D	●	●	◐	◐		○	○	●
0,5 – 103,0	3 – 6×D	●	●	◐	◐	●	◐	◐	
6,0 – 365,0	3,5×D	●	●	◐	◐		◐	◐	
6,0 – 365,0	3,5×D	●	●	◐	◐		◐	◐	
24,8 – 206,0	> 3,5×D	●	●	◐	◐	●	●	●	●
28,0 – 44,0	3,5×D	●	●	◐	◐		●	●	●
20,0 – 175,0	> 3,5×D	●	●	◐	◐		●	●	●
29,5 – 199,0	> 3,5×D	●	●	◐	◐		●	●	●
196,0 – 401,0	3,5×D	●	●	◐	◐		●	●	
365 – 2000		●	●	●	●				

● very good ◐ good ○ possible: see technical notes

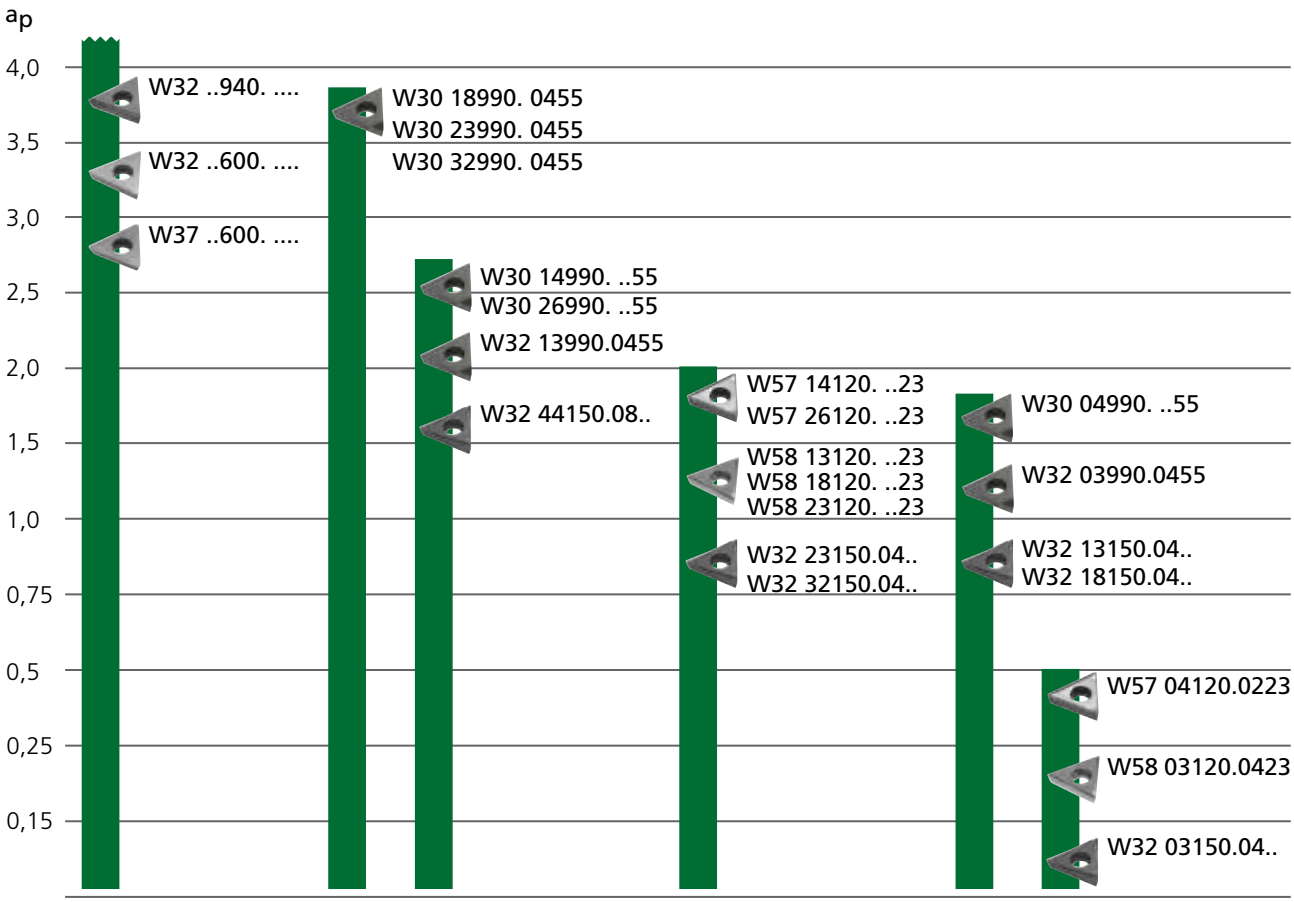
Help table for fine boring

Coolant				IT area	Tool		Page
Emulsion		MQL					
internal	external	internal	external				
	◐			subject to mounting in micro-adjustable head		Boring bar	▸289
●	●			subject to mounting in micro-adjustable head		**UniTurn®**	▸295 – 296
	●	◐	○	subject to mounting in micro-adjustable head		**UniTurn®** with CBN	▸297
●	●	◐	○	subject to mounting in micro-adjustable head		Boring bar	▸290 – 291
●	●	◐	○	subject to mounting in micro-adjustable head		Boring bar	▸298 – 299
●	●	◐	○	subject to mounting in micro-adjustable head		Boring bar	▸300 – 301
●	●	◐	○	IT 7		**MicroKom® M10** Boring bar	▸304 – 305
●	●	◐	○	subject to mounting in micro-adjustable head		Low-vibration boring bar	▸292 – 293
●	●	●	●	< IT 7		**MicroKom® M04** Micro-adjustable head	▸282 – 287
●	●			> IT 7		**MicroKom® *hi.flex*** Micro-adjustable head	▸242 – 255
●	●			> IT 7		**MicroKom *BluFlex®*** Micro-adjustable head	▸262 – 275
●	●	●	●	< IT 7		**MicroKom® M03Speed** Micro-adjustable head	▸314 – 322
●	●	●	●	> IT 7		Micro-adjustable head	▸302 – 303
●	●	●	●	> IT 7		Micro-adjustable head (FZ)	▸306 – 309
●	●	●	●	> IT 7		Micro-adjustable head (FF)	▸310 – 311
●	●	●	●	< IT 7		**TwinKom® G01** Twin cutter tool	▸324 – 325
●	●			< IT 7		**TwinKom®** Lightweight twin cutter tool	▸326 – 327

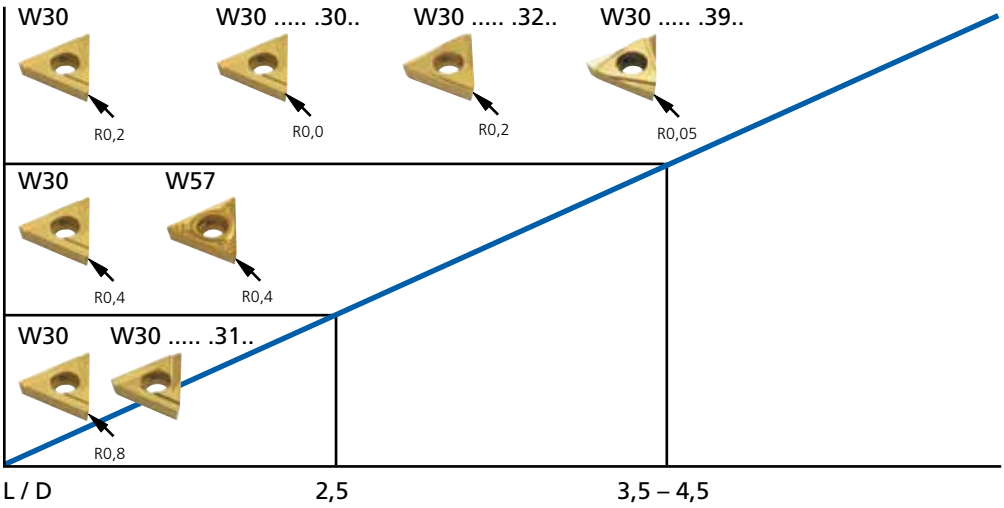
subject to cutting depth a_p in the radius – machining steel

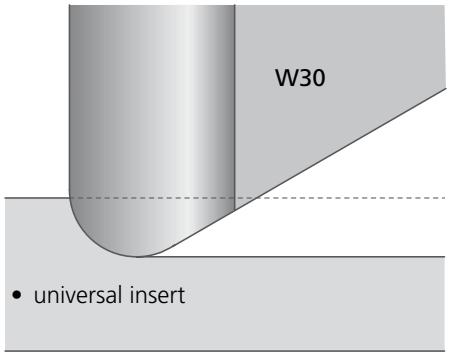


subject to cutting depth a_p in the radius – machining aluminium



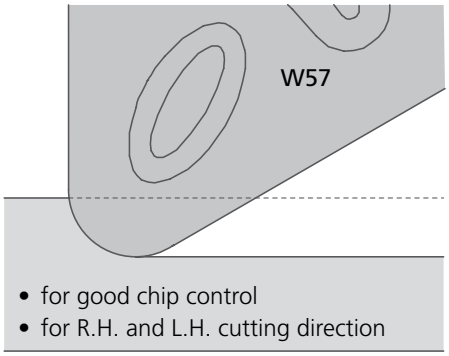
subject to length:diameter ratio L/D





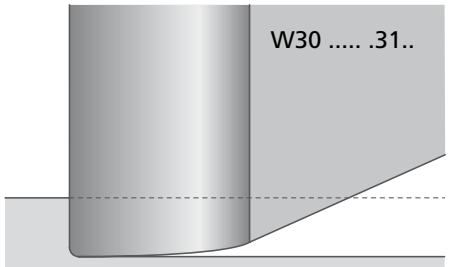
- universal insert

surface structure produced



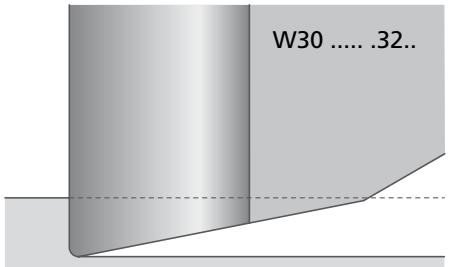
- for good chip control
- for R.H. and L.H. cutting direction

surface structure produced



- very good surface quality at high feed rates
- subject to stable conditions (max. 2×D)
- for interrupted cut

surface structure produced



- for large cut outs
- for good chip control

surface structure produced

KOMET MicroKom® *hi.flex*

Fine adjustment system for diameters 3 to 365 mm



With the new MicroKom® *hi.flex* system KOMET® has extended the range of products for MicroKom® micro-adjustable heads. The system is particularly notable for high flexibility and covers diameter ranges from 6 to 365 mm fully with just one adjustable head, various boring bars and intelligently designed adaptor solutions.

The adjustable head offers an adjustment accuracy of 0.01 mm per graduation on an easy-to-read disc scale and 0.002 mm from a vernier, with an adjustment path of up to 5 mm. The system is balanced in zero position and provides an internal coolant supply directly onto the cutting edge for all diameter ranges.



The standard set includes four boring bars for diameters 6 to 25 mm. According to the individual combination, a serrated body, a bridge and two different holders for inserts provide for diameters up to 125 mm.

The MicroKom® *hi.flex* is compatible with existing ABS® and cylindrical shank fine boring components. The set can be extended with established boring tools and UniTurn® products, for which the turning range starts at 3 mm. Variable overhang lengths and a single key for clamping, adjusting and mounting bridges and insert holders illustrate how easy the new system is to handle.

KOMET MicroKom® *hi.flex*

	Page
Fine boring set	
Micro-adjustable head with ABS® connection	242
Boring bar ∅ 6 - 25 mm	244
Serrated body ∅ 25 - 63 mm	245
Insert holder ∅ 63 - 93 mm	246
Bridge / iInsert holder ∅ 90 - 365 mm	247
Mounting bridge for external machining	257
Recommended cutting data	254
Alternative inserts	255
Adaptor	
MicroKom® *hi.flex* Adaptor	256
ABS® Adaptor	288
UniTurn® Adaptor	294
Boring bar with cylindrical shank	
∅ 3,0 - 9,0 mm	289
∅ 5,6 - 24 mm	290
∅ 5,6 - 26 mm, low-vibration	292
Boring bar with ABS® connection	
∅ 8 - 28 mm	298
∅ 11,9 - 30 mm	300
∅ 28 - 44 mm	302

KOMET MicroKom® *hi.flex*

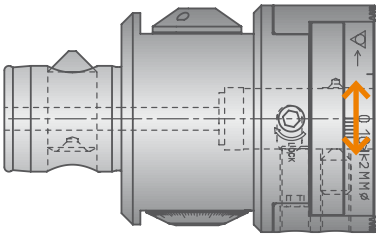
Variation options

UniTurn® Adaptor | copying tool | boring tool
Ø 3 – 8 mm

Adaptor | boring bar
Ø 3 – 9 mm

Adaptor | boring bar, low-vibration
Ø 5,6 – 26 mm

Micro-adjustable head



4 Boring bars for diameter range
Ø 6 – 25 mm

Serrated body

2 Insert holder for diameter range
Ø 25 – 63 mm

Serrated body

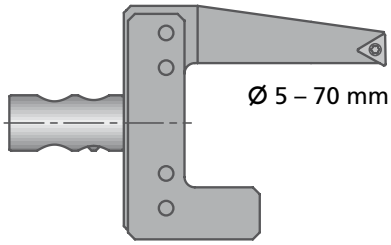
2 Adaptor | insert holder
for diameter range
Ø 31 – 66 mm

Insert holder for diameter range
Ø 63 – 93 mm

Adaptor | insert holder
for diameter range
Ø 66 – 94 mm

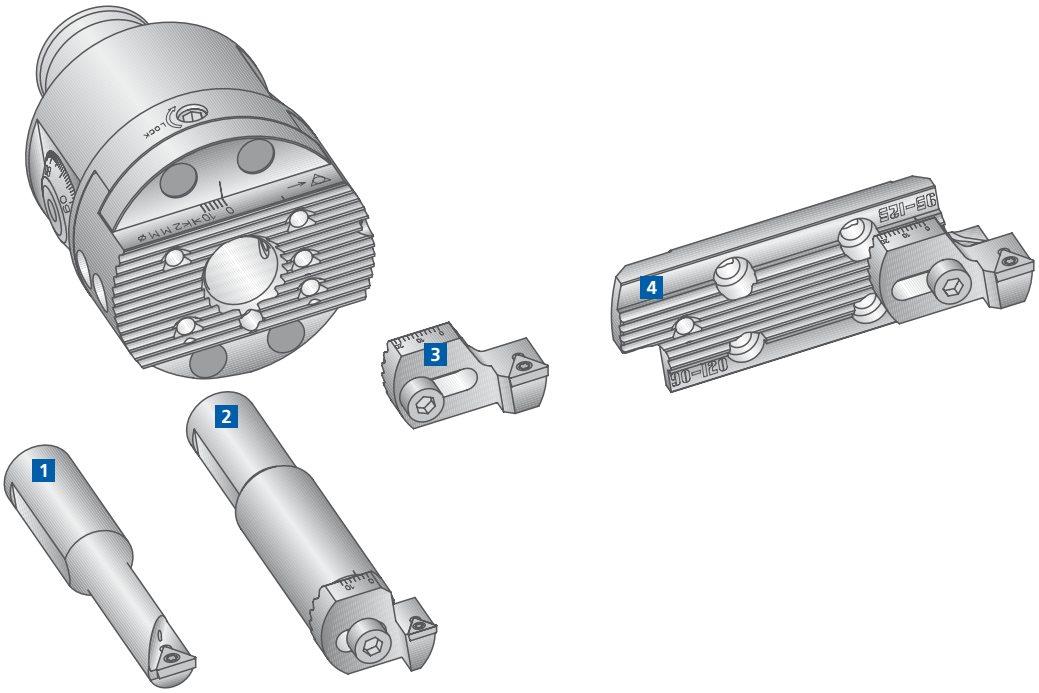
9 Bridges | insert holder
for diameter range
Ø 90 – 365 mm

Mounting bridge for
external machining



Ø 5 – 70 mm

9 Bridges | adaptor | insert holder
for diameter range
Ø 90 – 365 mm



Fine adjustment system for diameters 6 to 365 mm:

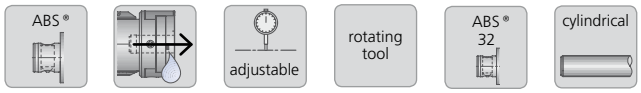
1	**Ø 6 – 25 mm**	achievable with 4 different boring bars
2	**Ø 25 – 63 mm**	achievable with serrated body and 2 different insert holders
3	**Ø 63 – 93 mm**	achievable with insert holder
4	**Ø 90 – 365 mm**	achievable with bridge and insert holder

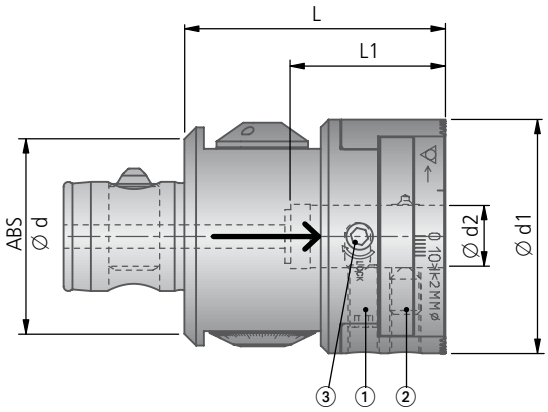
Features:

- Diameter range 0.5-365 mm with existing KOMET® standard tools
- Large adjustment range from -0.5 to +10 mm on dia.
- Easy to use
- Adjustment per graduation = 0.01 mm ∅
- Adjustment accuracy 0.002 mm ∅ with vernier
- Easy-to-read disc scale
- Use of existing ABS32 tools possible
- Internal coolant supply over whole range
- Combined tool interface with ABS32 and ∅ 16 mm cylindrical shank
- ABS32 spindle connection for easy adjustment on any machine with standard tool adaptors
- Head diameter: 60 mm

KOMET MicroKom® *hi.flex*

Micro-adjustable head





Micro-adjustable head										
Order No. Article	ABS Ø d	Ø d1	Ø d2	Adjust-ment S	L	L1	kg	Clamping screw ① DIN913 Order No. Article	Clamping screw ② Order No. Article	Gripper screw ③ DIN913 Order No. Article
M05 01000 ABS50/16	50	60	ABS32 Ø 16	5	67	39,7	1,225	55051 08120 M8×1×20	N00 02062 ABS32-F1.1	55051 08008 M8×8

The micro-adjustable drilling head is balanced in the zero position.
Adjustment must be in line with cutting parameters and spindle speed.

Supply includes micro-adjustable head: with screws ①, ② and ③.

Patent applied for inside and outside Germany

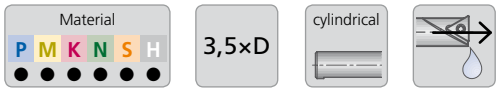


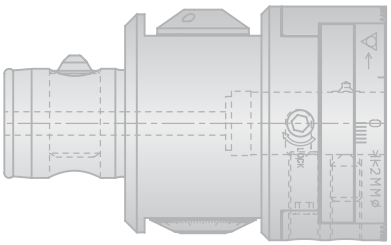
Fine boring set Ø 6 – 125 mm
Order No. M05 00010

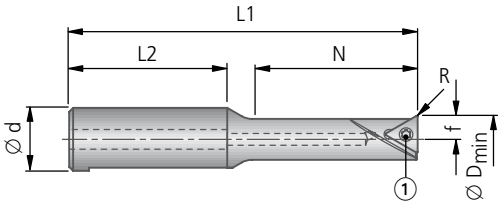
Contents of case			
	Order No.	Qty.	Article
①	M05 01000	1	Micro-adjustable head
②	M05 20101	1	Insert holder Ø 25-44
③	M05 20151	1	Insert holder Ø 44-125
④	M05 80101	1	Bridge
⑤	M05 90100	1	Serrated body
⑥	M05 90501	1	Packing piece
⑦	B05 20100	1	Boring bar Ø 6-8
⑧	B05 20120	1	Boring bar Ø 8-12
⑨	B05 20160	1	Boring bar Ø 12-18
⑩	B05 20220	1	Boring bar Ø 18-25
⑪	18050 10040	1	Allen key SW4
⑫	L05 01110	1	Flag key 5IP
	L05 01120	1	Flag key 6IP
	L05 01240	1	Flag key 8IP
	55011 05016	5	Cylindrical screw M5×16
⑬	W57 04140.0260	4	Insert BK60
	W57 14140.0460	4	Insert BK60
	W00 04120.0164	2	Insert BK64

KOMET MicroKom® *hi.flex* Ø 6 – 25 mm

Boring bar





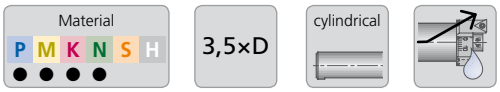


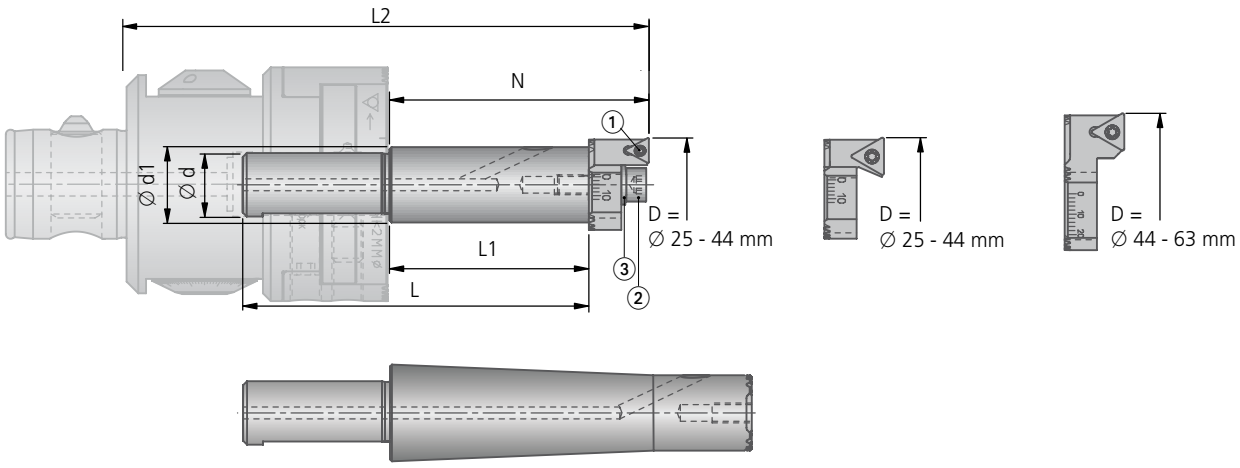
3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	◐	◐	✕

Boring bar										Basic recommendation		
Ø D	Order No.	Ød	L1	L2	N	f	R	kg	Clamping screw ① Order No. Article	Indexable insert W00 W57..14 W57..12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
6	**B05 20100**	16	71,7	40	21	3	0,1	0,06	**N00 56011** S/M1,8×2,9-5IP 0,38 Nm	**W00 04120.018440** **W00 04120.012710** **W00 04120.0121**	WOHX 02T001EL-G12 BK8440 WOHX 02T001EL-G12 BK2710 WOHX02T001FL-G12 K10	● ● ● ● ○
8	**B05 20120**	16	77,4	40	28	4	0,2	0,07	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**W57 04140.0260** **W30 04060.032710** **W30 04060.036110** **W57 04120.0223** **W30 04990.0240**	TOGX 06T102EN-14 BK60 TOHX 06T103EL-G06 BK2730 TOHX 06T103EL-G06 BK6110 TOGX 06T102FN-12 K10 TOGX 06T102TN CBN40	● ● ● ● ● <52 HRC ○
12	**B05 20160**	16	88,2	40	42	6	0,2	0,08	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** **W30 14060.042710** **W30 14060.046110** **W57 14120.0423** **W30 14990.0440**	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK6110 TOGX 090204FN-12 K10 TOGX 090204TN CBN40	● ● ● ● ● <52 HRC ○
18	**B05 20220**	16	100	40	60	9	0,2	0,14				

Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

Patent applied for inside and outside Germany





3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	◐	◐	✕

Serrated body

Order No.	d	d1	N	L	L1	L2	kg	Location screw ② Order No. Article	Cup spring ③ Order No. Article
M05 90100	16	19	65	88,5	51,5	130,73	0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3
M05 90110	16	24	105	129,12	92,12	172	0,296		

Supply includes serrated body: with location screw ② and cup spring ③.

Insert holder				Basic recommendation		
Ø D	Order No.	kg	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
25 – 44	M05 20101	0,019	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260 W30 04060.032710 W30 04060.037615 W57 04120.0223	TOGX 06T102EN-14 BK60 TOHX 06T103EL-G06 BK2730 TOHX 06T103EL-G06 BK7615 TOGX 06T102FN-12 K10	● ○ ● ●
25 – 44	M05 20110	0,019	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W57 14140.0460 W30 14060.042710 W30 14060.047615 W57 14120.0423	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10	● ○ ● ●
44 – 63	M05 20151	0,026				

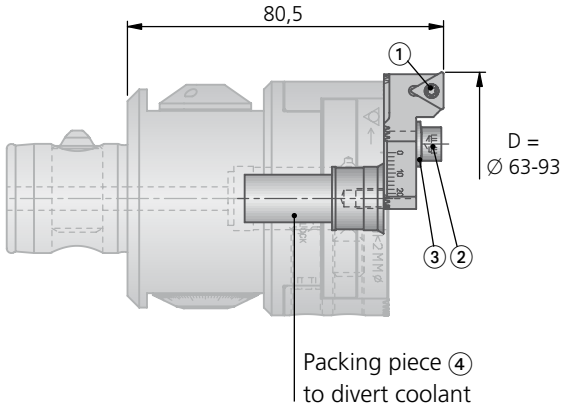
Supply includes insert holder: with with clamping screw ①.
Supply includes insert holder M05 20110: with with clamping screw ① and location screw L02 30180 (M5x16)
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 254 – 255.

Insert holder





3,5×D	●	●	◐	◐	✕	◐ HRC > 54	◐ HRC > 54	✕

Insert holder				Basic recommendation		
Ø D	Order No.	kg	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
63 – 93	**M05 20151**	0,026	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W57 14140.0460**	TOGX 090204EN-14 BK60	●
				W30 14060.042710	TOHX 090204EL-G06 BK2710	○
				W30 14060.047615	TOHX 090204EL-G06 BK7615	●
				W57 14120.0423	TOGX 090204FN-12 K10	●

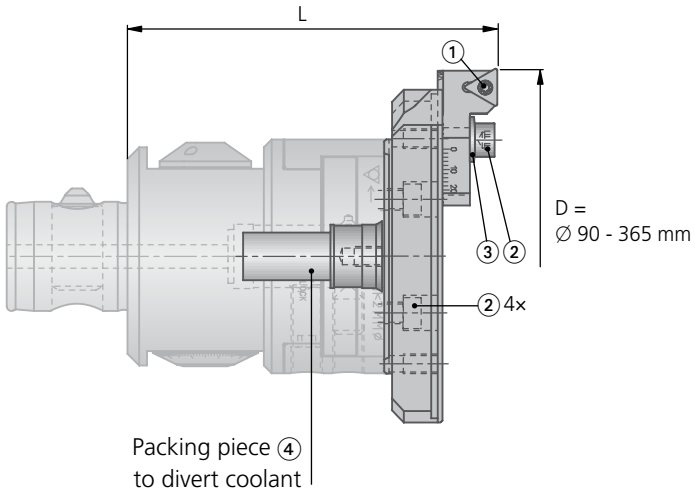
Supply includes insert holder: with with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.
Screwdriver see chapter 8.

Accessories		
Location screw ② Order No. Article	Cup spring ③ Order No.	Packing piece ④ Order No.
55011 05016 M5×16 ISO 4762	**56771 10053**	**M05 90501**

Patent applied for inside and outside Germany

Material P M K N S H ● ● ● ●

3,5×D



3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	◐	◐	✕

		Bridge	Insert holder		Basic recommendation	
Ø D	L	Order No.	Order No.	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ISO Code ▽▽ size	for workpiece material P M K N S H
90 - 125	94,62	M05 80101 0,147	M05 20151 0,026	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14060.042710 TOHX 090204EL-G06 BK2710 W30 14060.047615 TOHX 090204EL-G06 BK7615 W57 14120.0423 TOGX 090204FN-12 K10	● ● ● ●
120 - 155	96,62	M05 80200 0,107				
150 - 185	98,62	M05 80300 0,152				
180 - 215	101,62	M05 80400 0,229				
210 - 245	101,62	M05 80500 0,306				
240 - 275	101,62	M05 80510 0,349				
270 - 305	101,62	M05 80520 0,394				
300 - 335	101,62	M05 80530 0,435				
330 - 365	101,62	M05 80540 0,478				

Supply includes insert holder: with with clamping screw ①. Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.
Screwdriver see chapter 8.

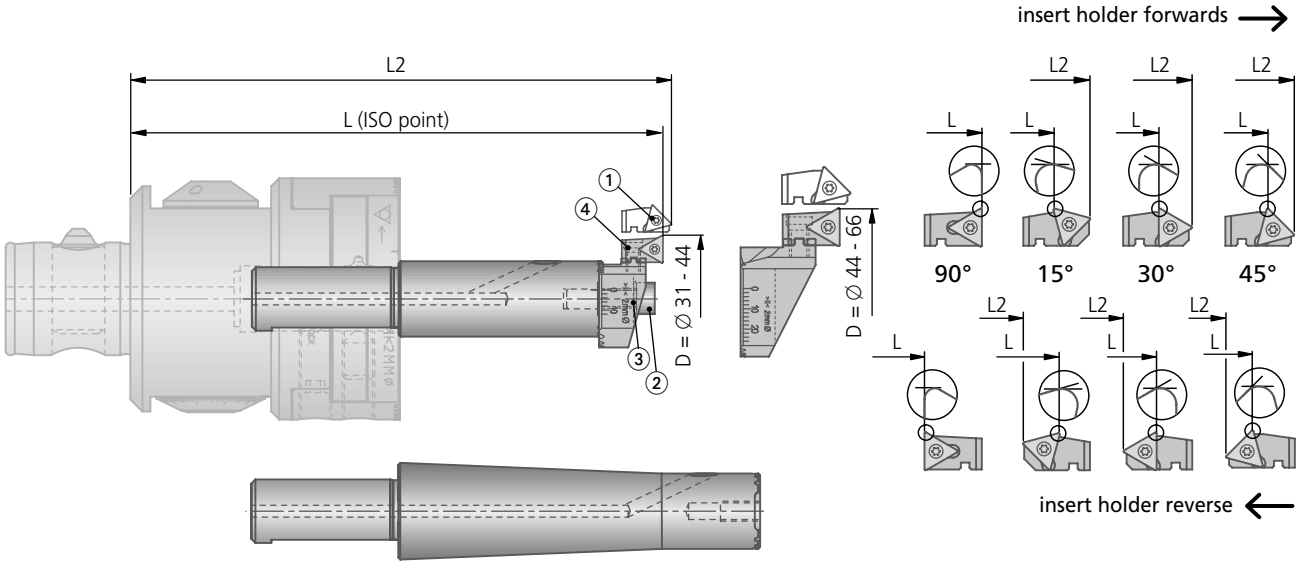
Accessories		
Location screw ② Order No. Article	Cup spring ③ Order No.	Packing piece ④ Order No.
55011 05016 M5×16 ISO 4762	56771 10053 D10×5,2×0,3	M05 90501

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 254 – 255.

KOMET MicroKom® *hi.flex* Ø 31 – 66 mm

Serrated body | Adaptor | Insert holder



	Serrated body			Adaptor		→ Insert holder forwards					
		Location screw ②	Cup spring ③		Location screw ④	90°			15°		
Ø D mm *inch*	Order No.	Order No. Article	Order No. Article	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
31 - 44	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21100	N00 56211 S/M3,5×7,3-10IP	M03 10033	131,8	–	M03 11120	127,3	138
	M05 90110 0,296						173,12	–		168,62	174,81
44 - 66	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21150	N00 56211 S/M3,5×7,3-10IP	M03 10043	140,7	–	M03 11130	134,2	142,6
	M05 90110 0,296						182,02	–		175,52	183,89

	Serrated body			Adaptor		← Insert holder reverse					
		Location screw ②	Cup spring ③		Location screw ④	90°			15°		
Ø D mm *inch*	Order No.	Order No. Article	Order No. Article	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
31 - 44	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21100	N00 56211 S/M3,5×7,3-10IP	M03 12020	117,6	–	M03 12120	122,2	116
	M05 90110 0,296						158,92	–		163,52	157,32
44 - 66	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21150	N00 56211 S/M3,5×7,3-10IP	M03 12030	120,7	–	M03 12130	127,2	118,8
	M05 90110 0,296						162,02	–		168,52	160,14

Patent applied for inside and outside Germany

						HRC > 54	HRC > 54	
> 3,5×D	●	●	◐	◐	●	●	●	●

Supply includes serrated body: with location screw ② and cup spring ③.
Supply includes adaptor: with location screw ④.
Supply includes insert holder: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

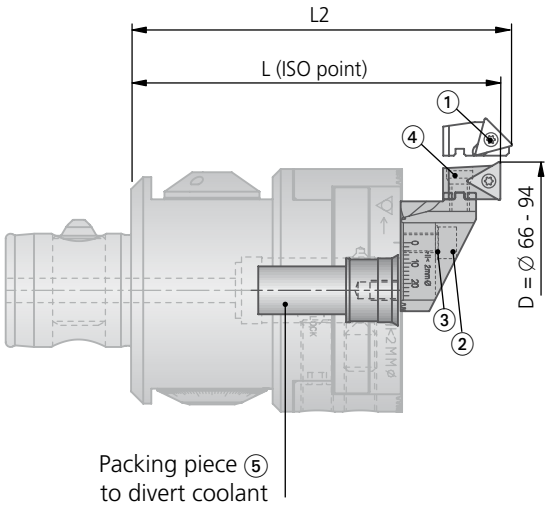
	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	Order No.	L	L2	kg	Order No. Article	Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
	M03 11220	128,3	138,3	M03 11320	129,3	138,3	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	**W57 04140.0260** TOGX 06T102EN-14 BK60 **W30 04060.032710** TOHX 06T103EL-G06 BK2710 **W30 04060.037615** TOHX 06T103EL-G06 BK7615 **W57 04120.0223** TOGX06T102FN-12 K10	● ● ● ●
		169,62	179,16		170,62	175,14				
	M03 11230	135,2	142,7	M03 11330	137,5	143,6	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14060.042710** TOHX 090204EL-G06 BK2710 **W30 14060.047615** TOHX 090204EL-G06 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10	● ● ● ●
		176,52	184,01		178,82	184,93				

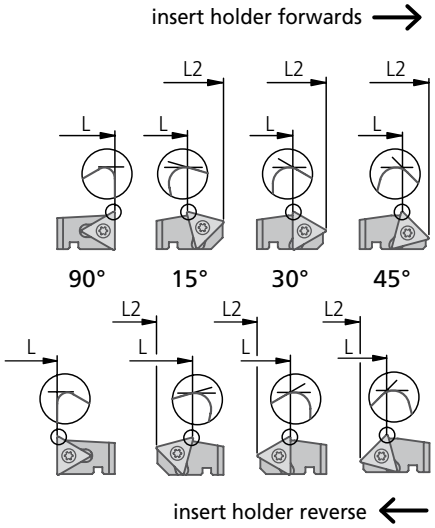
	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	Order No.	L	L2	kg	Order No. Article	Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
	M03 12220	121,2	115,7	M03 12320	120,2	115,7	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	**W57 04140.0260** TOGX 06T102EN-14 BK60 **W30 04420.038425** TOHX 06T103ER-G12 BK8425 **W57 04120.0223** TOGX 06T102FN-12 K10 **W30 04990.0240** TOGX 06T102TN CBN40	● ● ● ● ● ● <52 HRC >52 HRC
		162,52	156,97		161,52	156,99				
	M03 12230	126,2	118,7	M03 12330	123,7	117,6	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14420.047615** TOHX 090204ER-G12 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10 **W30 14990.0440** TOGX 090204TN CBN40	● ● ● ● ● ● <52 HRC >52 HRC
		167,52	160,02		165,02	158,90				

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 254 – 255.

Adaptor | Insert holder





	Adaptor		→ Insert holder forwards					
Ø D	Order No.	Location screw ④ Order No. Article	90° Order No.	L	L2	15° Order No.	L	L2
66 - 94	M05 21150	N00 56211 S/M3,5×7,3-10IP	M03 10043	90,7	–	M03 11130	84,2	92,6

	Adaptor		← Insert holder reverse					
Ø D	Order No.	Location screw ④ Order No. Article	90° Order No.	L	L2	15° Order No.	L	L2
66 - 94	M05 21150	N00 56211 S/M3,5×7,3-10IP	M03 12030	70,7	–	M03 12130	77,2	68,8

Patent applied for inside and outside Germany

> 3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	●	●	●	●

Supply includes adaptor: with location screw ④.
Supply includes insert holder: with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and packing piece ⑤ separately.
Screwdriver see chapter 8.

Accessories		
Location screw ②	Cup spring ③	Packing piece ⑤
Order No. Article	**Order No.**	**Order No.**
55011 05016 M5×16 ISO 4762	**56771 10053**	**M05 90501**

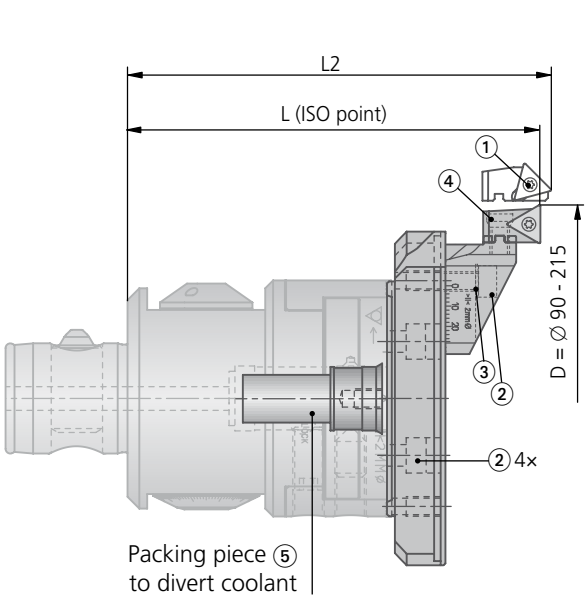
	30°			45°					Basic recommendation	
	Order No.	L	L2	**Order No.**	L	L2	kg	Clamping screw ① **Order No.** Article	Indexable insert -14 -12 W30 **Order No.** ISO code ▽▽ size	for workpiece material P M K N S H
	M03 11230	85,2	92,7	**M03 11330**	87,5	93,6	0,005	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14060.042710** TOHX 090204EL-G06 BK2710 **W30 14060.047615** TOHX 090204EL-G06 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10	

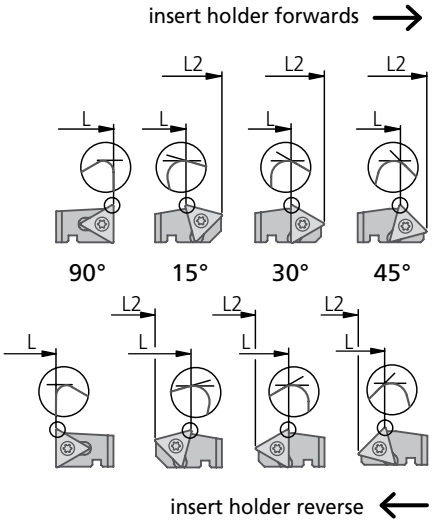
	30°			45°					Basic recommendation	
	Order No.	L	L2	**Order No.**	L	L2	kg	Clamping screw ① **Order No.** Article	Indexable insert -14 -12 W30 **Order No.** ISO code ▽▽ size	for workpiece material P M K N S H
	M03 12230	76,2	68,7	**M03 12330**	73,7	67,6	0,005	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14420.047615** TOHX 090204ER-G12 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10 **W30 14990.0440** TOGX 090204TN CBN40	<52 HRC >52 HRC

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 254 – 255.

Bridge | Adaptor | Insert holder





	Bridge		Adaptor		→ Insert holder forwards					
				Location screw ④	90°			15°		
Ø D	Order No.	kg	Order No.	Order No. Article	Order No.	L	L2	Order No.	L	L2
90 - 125	M05 80101	0,147	M05 21150	N00 56211 S/M3,5×7,3-10IP	M03 10043	104,7	–	M03 11130	98,2	106,6
120 - 155	M05 80200	0,107				106,7	–		100,2	108,6
150 - 185	M05 80300	0,152				108,7	–		102,2	110,6
180 - 215	M05 80400	0,229				111,7	–		105,2	113,6
210 - 245	M05 80500	0,306								
240 - 275	M05 80510	0,349								
270 - 305	M05 80520	0,394								
300 - 335	M05 80530	0,435								
330 - 365	M05 80540	0,478								

	Bridge		Adaptor		← Insert holder reverse					
				Location screw ④	90°			15°		
Ø D	Order No.	kg	Order No.	Order No. Article	Order No.	L	L2	Order No.	L	L2
90 - 125	M05 80101	0,147	M05 21150	N00 56211 S/M3,5×7,3-10IP	M03 12030	84,7	–	M03 12130	90,2	81,8
120 - 155	M05 80200	0,107				86,7	–		93,2	84,8
150 - 185	M05 80300	0,152				88,7	–		95,2	86,8
180 - 215	M05 80400	0,229				91,7	–		98,2	89,8
210 - 245	M05 80500	0,306								
240 - 275	M05 80510	0,349								
270 - 305	M05 80520	0,394								
300 - 335	M05 80530	0,435								
330 - 365	M05 80540	0,478								

Patent applied for inside and outside Germany

> 3,5×D	●	●	◐	◐	●	● HRC > 54	● HRC > 54	●

Supply includes adaptor: with location screw ④.
Supply includes insert holder: with clamping screw ①.
Please order insert, 5× location screw ②, cup spring ③ and packing piece ⑤ separately.
Screwdriver see chapter 8.

Accessories		
Location screw ②	Cup spring ③	Packing piece ⑤
Order No. Article	**Order No.**	**Order No.**
55011 05016 M5×16 ISO 4762	**56771 10053**	**M05 90501**

	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	Order No.	L	L2	kg	Order No. Article	Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
	M03 11230	99,2	106,7	M03 11330	101,5	107,6	0,009	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60	●
		101,2	108,7		103,5	109,6				
		103,2	110,7		105,5	111,6			**W30 14060.042710** TOHX 090204EL-G06 BK2710	●
		106,2	113,7		108,5	114,6			**W30 14060.047615** TOHX 090204EL-G06 BK7615	●
									W57 14120.0423 TOGX 090204FN-12 K10	●

	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	Order No.	L	L2	kg	Order No. Article	Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
	M03 12230	91,2	81,7	M03 12330	86,7	80,6	0,009	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60	● ○
		92,2	84,7		89,7	83,6				
		94,2	86,7		91,7	85,6			**W30 14420.047615** TOHX 090204ER-G12 BK7615	● <52 HRC
		97,2	89,7		94,7	88,6			**W57 14120.0423** TOGX 090204FN-12 K10	● ●
									W30 14990.0440 TOGX 090204TN CBN40	>52 HRC

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 254 – 255.

Recommended cutting data

Guideline values for fine boring						v_c	f (mm/rev)					
							max. feed 3,5×D					
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code DIN	Cutting speed v_c (m/min)	Ø 6 – 7,9	Ø 8 – 11,9	Ø 12 – 25	Ø 25 – 44	Ø 44 – 94	Ø 90 – 365
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,04	0,07	0,10	0,08	0,10	0,10
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,04	0,06	0,12	0,08	0,12	0,12
	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	300	0,04	0,07	0,12	0,10	0,15	0,15
	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,03	0,06	0,10	0,08	0,10	0,10
	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	200	0,03	0,05	0,10	0,06	0,10	0,10
	4.1			HSS		120	0,02	0,04	0,08	0,06	0,08	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,01	0,04	0,08	0,06	0,08	0,08
	5.1	400		titanium,titanium alloys	3.7115 (TiAl5Sn2.5)	30	0,01	0,04	0,08	0,06	0,08	0,08
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200	0,01	0,05	0,10	0,08	0,10	0,10
	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	180	0,01	0,05	0,10	0,06	0,10	0,10
	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120	0,01	0,04	0,08	0,06	0,10	0,10
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,05	0,10	0,15	0,15	0,20	0,20
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,05	0,10	0,15	0,15	0,20	0,20
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,04	0,08	0,15	0,10	0,15	0,15
	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,04	0,08	0,15	0,10	0,15	0,15
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,04	0,08	0,15	0,10	0,15	0,15
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,03	0,07	0,12	0,10	0,15	0,15
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,03	0,10	0,15	0,10	0,15	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,02	0,04	0,08	0,10	0,15	0,15
	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,05	0,08	0,15	0,10	0,15	0,15
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,02	0,06	0,10	0,08	0,12	0,12
	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,05	0,08	0,12	0,10	0,15	0,15
	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,05	0,08	0,12	0,10	0,15	0,15
H	15.0	1400		hardened steels < 45 HRC		80	–	0,05	0,08	0,08	0,08	0,08
	16.0	1800		hardened steels > 45 HRC		60	–	0,05	0,08	0,06	0,08	0,08

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

for better chip control

Insert size	Indexable insert .32.. / .39.. / W57..18 Order No.	ISO-Code	for workpiece material P M K N S H
W..04...	→ only for forward machining:		
	W30 04120.3232	TOHX 06T102EL-US12 CK32	
	W30 04120.3977	TOHX 06T1ZZEL-39G12 BK77	
W..14...	→ only for forward machining:		
	W30 14120.3232	TOHX 090202EL-US12 CK32	
	W30 14120.3977	TOHX 0902ZZEL-39G12 BK77	
W..26...	→ only for forward machining:		
	W30 26120.3232	TOHX 140304-US12 CK32	
	W30 26120.3977	TOHX 1403ZZEL-39G12 BK77	

for higher cutting speed

Insert size	Indexable insert W30 / W57 / PKD CBN W30 / .32.. / .39.. Order No.	ISO-Code	for workpiece material P M K N S H
W..04...	W57 04140.023210	TOGX 06T102EN-14 CK3210	only 0.6025 (EN-GJL-250)
	W30 04990.0257	TOGX 06T102TN CBN57	
	W30 04990.025510	TOGX 06T102FN PKD5510	
	W57 04120.027710	TOGX 06T102FN-12 BK7710	
	→ only for forward machining:		
	W30 04120.0238	TOHX 06T102EL-G12 CK38	
W..14...	W57 14140.043210	TOGX 090204EN-14 CK3210	only 0.6025 (EN-GJL-250)
	W30 14990.0457	TOGX 090204TN CBN57	
	W30 14990.045510	TOGX 090204FN PKD5510	
	W57 14120.047710	TOGX 090204FN-12 BK7710	
	→ only for forward machining:		
	W30 14120.0238	TOHX 090202EL-G12 CK38	
W..26...	W57 26140.043210	TOGX 140304EN-14 CK3210	only 0.6025 (EN-GJL-250)
	W30 26990.0457	TOGX 140304TN CBN57	
	W30 26990.045510	TOGX 140304FN PKD5510	
	W57 26120.047710	TOGX 140304FN-12 BK7710	
	→ only for forward machining:		
	W30 26120.0438	TOHX 140304EL-G12 CK38	

for better surface

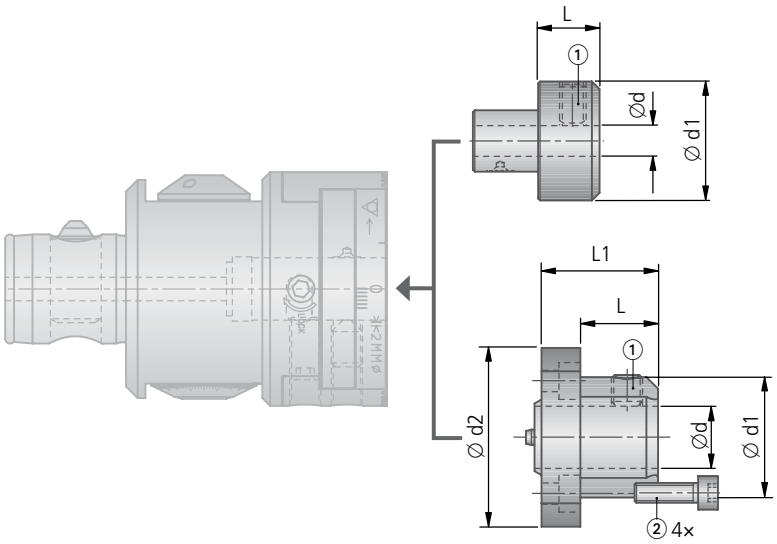
Insert size	Order No.	ISO-Code	for workpiece material P M K N S H
W..04...	W57 04180.048430	TOGX 060104 EN-18 BK8430	
	W57 04180.0432	TOGX 060104 EN-18 CK32	
W..14...	W57 14180.048430	TOGX 090204 EN-18 BK8430	
	W57 14180.0432	TOGX 090204 EN-18 CK32	
W..26...	W57 26180.048430	TOGX 140304 EN-18 BK8430	
	W57 26180.0432	TOGX 140304 EN-18 CK32	

for greater strength

Insert size	Order No.	ISO-Code	for workpiece material P M K N S H
W..04...	W57 04140.023210	TOGX 06T102EN-14 CK3210	
	W30 04990.025510	TOGX 06T102FN PKD5510	
	→ only for forward machining:		
	W30 04060.036110	TOHX 06T103EL-G06 BK6110	
	W30 04200.0321	TOHX 06T103FL-G20 K10	
W..14...	W57 14140.043210	TOGX 090204EN-14 CK3210	
	W30 14990.025510	TOGX 090204FN PKD5510	
	→ only for forward machining:		
	W30 14060.046110	TOHX 090204EL-G06 BK6110	
	W30 14200.0421	TOHX 090204FL-G20 K10	
W..26...	W57 26140.043210	TOGX 140304EN-14 CK3210	
	W30 26990.045510	TOGX 140304FN PKD5510	
	→ only for forward machining:		
	W30 26060.046110	TOHX 140304EL-G06 BK6110	
	W30 26200.0521	TOHX 140305FL-G20 K10	

KOMET MicroKom® *hi.flex*

Adaptor for clamping vibration dampened fine boring bars



Boring bar



Ø 3,0 - 9,0
▸ 289

Boring bar, low-vibration



Ø 5,6 / 6,9
▸ 292



Ø 9 / 11
▸ 292



Ø 13 - 26
▸ 292

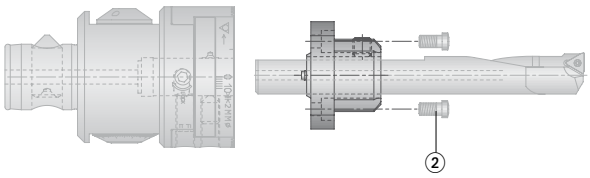
Adaptor									Accessories
							Clamping screw ① DIN913		Location screw ②
Order No.	Ø d	Ø d1	Ø d2	L	L1	kg	Article	Order No.	Order No.
M05 90200	6	31	–	16	–	0,112	M8×10	**55051 08010**	–
M05 90210	8	31	–	16	–	0,107	M8×10	**55051 08010**	
M05 90220	10	31	46	15	25	0,155	M8×10	**55051 08010**	**55011 05016** M5×16 ISO 4762
M05 90230	12	31	46	15	25	0,147	M8×10	**55051 08010**	
M05 90240	16	31	46	20	30	0,146	M8×8	**55051 08008**	

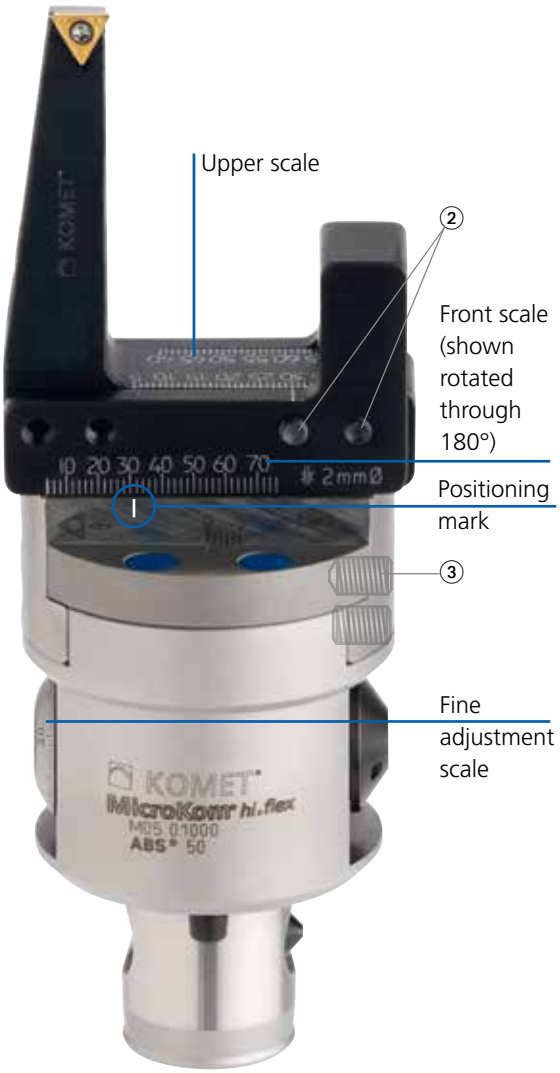
Supply includes: Adaptor with clamping screw ①. Please order location screw ② separately.



Instruction for adaptor M05 90240

Please note:
Before tightening the location screw ②, centre the adaptor with shank diameter for the boring bar on the micro-adjustable head.

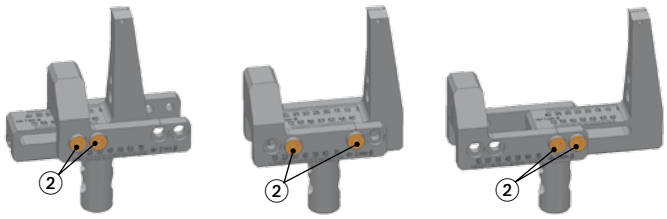




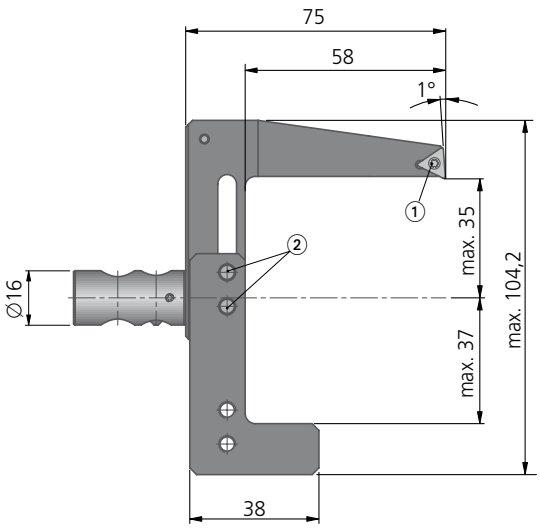
Setting the diameter

- Position the mounting bridge on the micro-adjustable head.
- Set the coarse position on the upper scale, tighten screw ②. **Important note: check position of screw ② for required Ø range!**

Ø 5 – 34 mm **Ø 33 – 44 mm** **Ø 43 – 70 mm**



- Align the front scale for the mounting bridge with the positioning mark on the adjustable head, tighten the gripper screw ③.
- Carry out fine adjustment on the setting device using the scale on the micro-adjustable head.



Mounting bridge				Basic recommendation		
		Clamping screw ①	Cylindrical screw ②	Indexable insert -12 -14 W30		for workpiece material
Ø D	Order No.	Order No. Article	Order No. Article	Order No. ▽▽ size	ISO Code	P M K N S H
5 – 70	**M05 90300** 0,377	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55011 05030** M5×30	**W57 14140.0460** **W30 14060.047615** **W57 14120.0423**	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10	● ● ● ●

Supply includes: Mounting bridge with clamping screw ① and cylindrical screw ②.
Please order insert separately. Screwdriver see chapter 8.

KOMET MicroKom *BluFlex*®

Precision boring system with Bluetooth® technology



Modern wireless networking is one of the benefits with which the new MicroKom *BluFlex*® fine adjustment head is equipped. Bluetooth® technology is developed for wirelessly networking devices over short distances. This technology has become standard for small mobile devices.

The introduction of Bluetooth® technology in the MicroKom *BluFlex*® tool system means that the display has been disconnected from the tool head, thereby making it easier and more convenient to read off the data. When adjusting the tool system, the user can move the display to suit the conditions on site, so that it is in his field of view. A specially designed adjustment key with integral Bluetooth® interface is part of the system.

With integral part balancing, the MicroKom *BluFlex*® can reach a rotational speed of up to 20,000 rpm.

The modular ABS® interface makes adjustment easier on both the spindle side and tool side.

BENEFITS for you:

- Higher speeds thanks to integral part balancing
- Universal ABS® interface
- External display makes reading off easier, thanks to the enlarged values
- The display and adjustment key can be used for any head
- As conventional batteries are used, this makes it easier to replace them
- The slide can be clamped in place

Finger on the pulse of time –
The clever alternative:
„MicroKom BluFlex“ APP for use as display unit in Google Play™ for Android™ smartphones.

Bluetooth® is a registered trademark of Bluetooth SIG, Inc.
Google Play™ and Android™ are registered trademarks of Google Inc.
Patent applied

KOMET MicroKom *BluFlex*®

	Page
Precision boring system	
Micro-adjustable head with ABS® connection	262
Boring bar ∅ 6 - 26 mm	264
Serrated body ∅ 25 - 66 mm	265
Insert holder ∅ 66 - 94 mm	266
Bridge / iInsert holder ∅ 90 - 365 mm	267
Mounting bridge for external machining	277
Recommended cutting data	274
Alternative inserts	275
Adaptor	
MicroKom *BluFlex*® Adaptor	256
ABS® Adaptor	288
UniTurn® Adaptor	294
Boring bar with cylindrical shank	
∅ 3,0 - 9,0 mm	289
∅ 5,6 - 24 mm	290
∅ 5,6 - 26 mm, low-vibration	292
Boring bar with ABS® connection	
∅ 8 - 28 mm	298
∅ 11,9 - 30 mm	300
∅ 28 - 44 mm	302

KOMET MicroKom *BluFlex*®

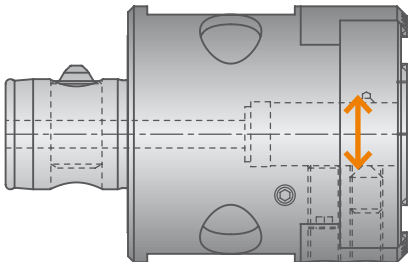
Variation options

1

2

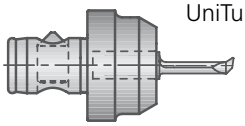
3

Micro-adjustable head



UniTurn® Adaptor | copying tool | boring tool

Ø 3 – 8 mm



Adaptor | boring bar

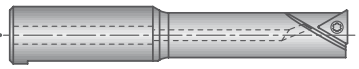
Ø 3 – 9 mm



Adaptor | boring bar, low-vibration

Ø 5,6 – 26 mm



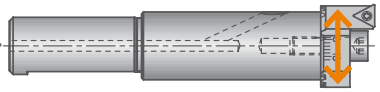


5 Boring bars for diameter range

Ø 6 – 26 mm

Ø 0.24 – 1.02 inch

Serrated body

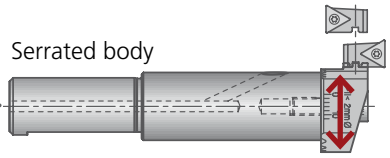


3 Insert holder for diameter range

Ø 25 – 66 mm

Ø 0.98 – 2.60 inch

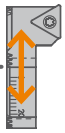
Serrated body



2 Adaptor | insert holder for diameter range

Ø 31 – 66 mm

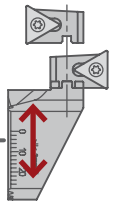
Ø 1.22 – 2.60 inch



Insert holder for diameter range

Ø 66 – 94 mm

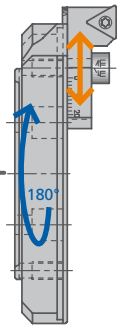
Ø 2.60 – 3.70 inch



Adaptor | insert holder for diameter range

Ø 66 – 94 mm

Ø 2.60 – 3.70 inch

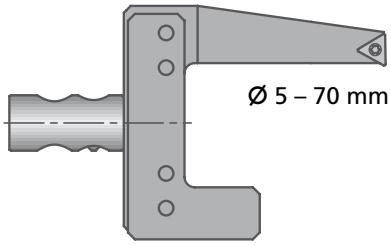


9 Bridges | insert holder for diameter range

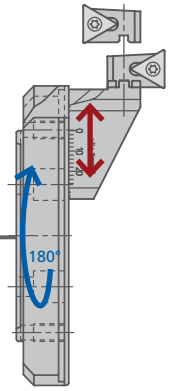
Ø 90 – 365 mm

Ø 3.54 – 14.370 inch

Mounting bridge for external machining



Ø 5 – 70 mm



9 Bridges | adaptor | insert holder for diameter range

Ø 90 – 365 mm

Ø 3.54 – 14.370 inch

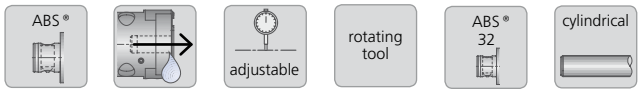
Features:

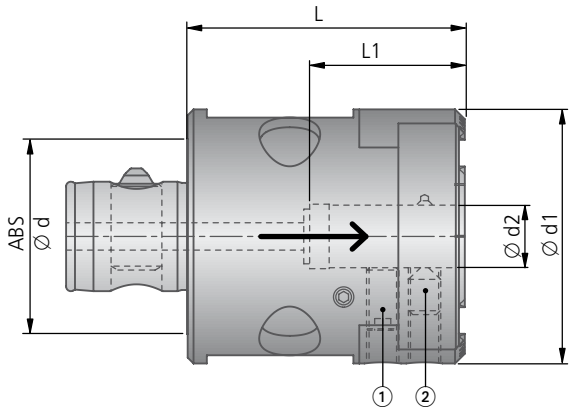
- Diameter range 3 - 365 mm with existing KOMET® standard tools
- Linearity range: -0.2 to +4.4 mm (-0.0079 to 0.1732“) in the diameter
- Easy to use
- Use of existing ABS32 tools possible
- Internal coolant supply over whole range
- ABS32 spindle connection and 16 mm cylindrical shank
- Can be adapted for any machine tool with standard tool adaptors
- Head diameter: 65 mm
- MQL-compatible
- Maximum spindle speed 20,000 min^{-1}
- Slider - can be clamped
- Display resolution: 0.002 mm (0.0001“) in diameter
- Display in mm or inches
- Can be switched between differential and absolute mode
- Energy saving function, automatically switches off after 30 seconds



KOMET MicroKom *BluFlex*®

Micro-adjustable head





Micro-adjustable head										
Article	Order No.	ABS Ø d	Ø d1	Ø d2	Adjust-ment S	L	L1	kg	Clamping screw ① DIN913 Order No. Article	Gripper screw ② Order No. Article
ABS50/6-215	**M04 10001**	50	65	ABS32 Ø 16	2,3	71	39,7	1,45	**55051 08120** M8×1×20	**N00 02062** ABS32-F1.1

Adjustment must be in line with cutting parameters and spindle speed.



Display unit	
Order No.	Rubber sleeve with clip ④ Order No.
E51 00000	**E51 00010**



Adjustment key	
Order No.	Sleeve ⑤ Order No.
E52 00000	**E52 00000.13**



Finger on the pulse of time – The clever alternative:
„MicroKom BluFlex" APP
for use as display unit in Google Play™
for Android™ smartphones.

Bluetooth® is a registered trademark of Bluetooth SIG, Inc.
Google Play™ and Android™ are registered trademarks of Google Inc.

Patent applied for inside and outside Germany



Basic set

Order No. M04 10010
Components:
1× Micro-adjustable head
1× Display unit
1× Adjustment key
1× Operating Instructions
6× Batteries

Tool set
Ø 6 – 125 mm

Order No. M04 10020

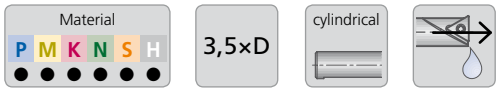


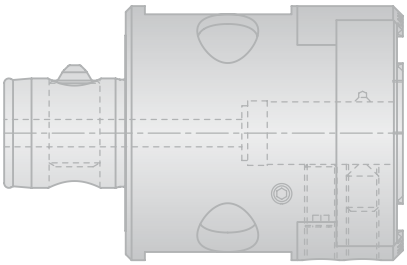
Components	Qty.	Article
M05 20101	1	Insert holder ∅ 25-44
M05 20151	1	Insert holder ∅ 44-125
M05 80101	1	Bridge ∅ 90-125
M05 90100	1	Serrated body
M05 90501	1	Packing piece
B05 20100	1	Boring bar ∅ 6-10
B05 20140	1	Boring bar ∅ 10-14
B05 20180	1	Boring bar ∅ 14-18
B05 20220	1	Boring bar ∅ 18-22
B05 20260	1	Boring bar ∅ 22-26
18050 10040	1	Allen key AF4
L05 01110	1	Flag key 5IP
L05 01120	1	Flag key 6IP
L05 01240	1	Flag key 8IP
L05 01260	1	Flag key 10IP
55011 05016	5	Cylindrical screw M5×16
W57 04140.0260	4	Insert BK60
W57 14140.0460	4	Insert BK60
W57 26140.0460	2	Insert BK60
W00 04120.018440	2	Insert BK8440

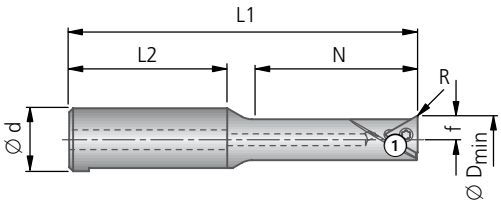
KOMET MicroKom *BluFlex*®

Ø 6 – 26 mm

Boring bar





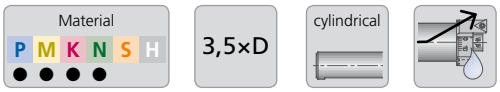


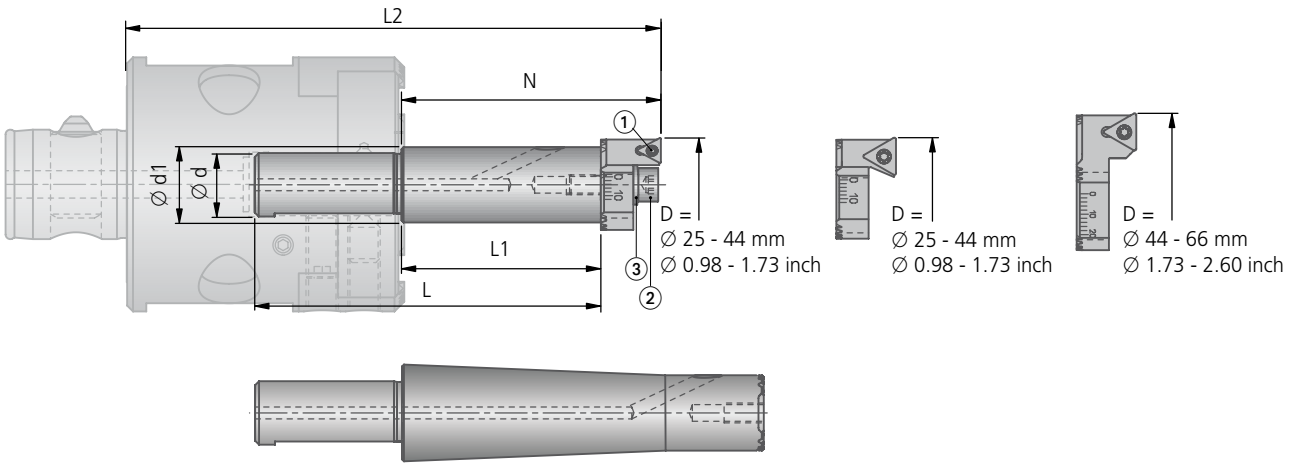
3,5×D	●	●	◐	◐	✕	◐ HRC > 54	◐ HRC > 54	✕

Boring bar										Basic recommendation		
Ø D mm *inch*	Order No.	Ød	L1	L2	N	f	R	kg	Clamping screw ① Order No. Article	Indexable insert W00 W57..14 W57..12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
6 *0.24*	**B05 20100**	16	71,7	40	21 *0.83*	3	0,1	0,06	**N00 56011** S/M1,8×2,9-5IP 0,38 Nm	**W00 04120.018440** **W00 04120.012710** **W00 04120.0121**	WOHX 02T001EL-G12 BK8440 WOHX 02T001EL-G12 BK2710 WOHX02T001FL-G12 K10	● ● ● ● ○
10 *0.39*	**B05 20140**	16	81,8	40	34 *1.34*	5	0,2	0,08	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** **W30 14060.042710** **W30 14060.046110** **W57 14120.0423** **W30 14990.0440**	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK6110 TOGX 090204FN-12 K10 TOGX 090204TN CBN40	● ● ● ● <52 HRC ○
14 *0.55*	**B05 20180**	16	94,4	40	50 *1.97*	7	0,2	0,10				
18 *0.71*	**B05 20220**	16	100	40	60 *2.36*	9	0,2	0,14				
22 *0.87*	**B05 20260**	16	108	36	68,5 *2.68*	11	0,2	0,21	**N00 56211** S/M3,5×7,3-10IP 2,8 Nm	**W57 26140.0460** **W30 26060.042710** **W30 26060.046110** **W57 26120.0423** **W30 26990.0440**	TOGX 140304EN-14 BK60 TOHX 140304EL-G06 BK2710 TOHX 140304EL-G06 BK6110 TOGX 140304FN-12 K10 TOGX 140304TN CBN40	● ● ● ● <52 HRC ○

Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

Patent applied for inside and outside Germany





3,5×D	●	●	◐	◐	✕	HRC > 54 ◐	HRC > 54 ◐	✕

Serrated body

Order No.	d	d1	N	L	L1	L2	kg	Location screw ② Order No. Article	Cup spring ③ Order No. Article
M05 90100	16	19	65	88,5	51,5	134,73	0,163	**55011 05016** M5×16 ISO4762	**56771 10053** D10×5,2×0,3
M05 90110	16	24	105	129,12	92,12	176	0,296		

Supply includes serrated body: with location screw ② and cup spring ③.

Insert holder				Basic recommendation		
Ø D mm *inch*	Order No.	kg	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
25 – 44	**M05 20101**	0,019	**N00 56031** S/M2×4,9-6IP 0,62 Nm	**W57 04140.0260** **W30 04060.032710** **W30 04060.037615** **W57 04120.0223**	TOGX 06T102EN-14 BK60 TOHX 06T103EL-G06 BK2730 TOHX 06T103EL-G06 BK7615 TOGX 06T102FN-12 K10	● ○ ○ ○
0.98 – 1.73	***M05 20601***					
25 – 44	**M05 20110**	0,019	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W57 14140.0460** **W30 14060.042710** **W30 14060.047615** **W57 14120.0423**	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10	● ○ ○ ○
0.98 – 1.73	***M05 20610***					
44 – 66	**M05 20151**	0,026				
1.73 – 2.60	***M05 20651***					

Supply includes insert holder: with with clamping screw ①.
Supply includes insert holder M05 20110 / M05 20610:
with with clamping screw ① and location screw L02 30180 (M5x16)
Please order insert separately. Screwdriver see chapter 8.

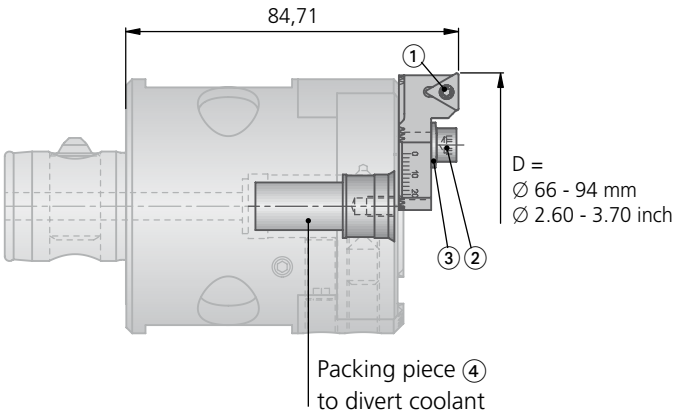
● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 274-275.

Insert holder

Material P M K N S H

3,5×D



3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	◐	◐	✕

Insert holder				Basic recommendation		
Ø D mm *inch*	Order No.	kg	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
66 – 94	M05 20151	0,026	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60	●
				W30 14060.042710	TOHX 090204EL-G06 BK2710	○
2.60 – 3.70	*M05 20651*			W30 14060.047615	TOHX 090204EL-G06 BK7615	●
				W57 14120.0423	TOGX 090204FN-12 K10	●

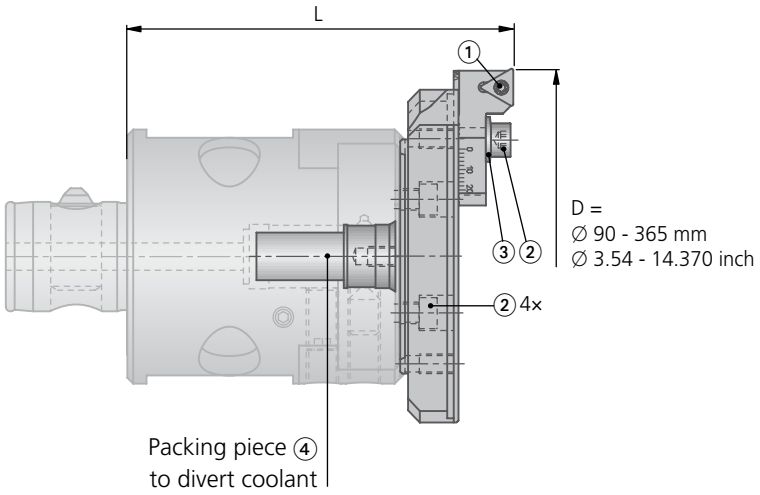
Supply includes insert holder: with with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.
Screwdriver see chapter 8.

Accessories		
Location screw ② Order No. Article	Cup spring ③ Order No.	Packing piece ④ Order No.
55011 05016 M5×16 ISO 4762	56771 10053 D10×5,2×0,3	M05 90501

Patent applied for inside and outside Germany

Material P M K N S H ● ● ● ●

3,5×D



3,5×D	●	●	◐	◐	✕	◐ HRC > 54	◐ HRC > 54	✕

		Bridge	Insert holder		Basic recommendation	
Ø D mm *inch*	L	Order No.	Order No. mm *inch*	Clamping screw 1 Order No. Article	Indexable insert -14 -12 W30 Order No. ISO Code ▽▽ size	for workpiece material P M K N S H
90 - 125 *3.54 - 4.92*	98,72	**M05 80101** 0,147	**M05 20151** ***M05 20651*** 0,026	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14060.042710** TOHX 090204EL-G06 BK2710 **W30 14060.047615** TOHX 090204EL-G06 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10	● ● ● ●
120 - 155 *4.72 - 6.10*	100,72	**M05 80200** 0,107				
150 - 185 *5.91 - 7.28*	102,72	**M05 80300** 0,152				
180 - 215 *7.09 - 8.46*	105,72	**M05 80400** 0,229				
210 - 245 *8.268 - 9.646*	105,72	**M05 80500** 0,306				
240 - 275 *9.449 - 10.827*	105,72	**M05 80510** 0,349				
270 - 305 *10.630 - 12.008*	105,72	**M05 80520** 0,394				
300 - 335 *11.811 - 13.189*	105,72	**M05 80530** 0,435				
330 - 365 *12.992 - 14.370*	105,72	**M05 80540** 0,478				

Supply includes insert holder: with with clamping screw 1. Please order insert, location screw 2, cup spring 3 and packing piece 4 separately.
Screwdriver see chapter 8.

Accessories		
Location screw 2 Order No. Article	Cup spring 3 Order No.	Packing piece 4 Order No.
55011 05016 M5×16 ISO 4762	**56771 10053** D10×5,2×0,3	**M05 90501**

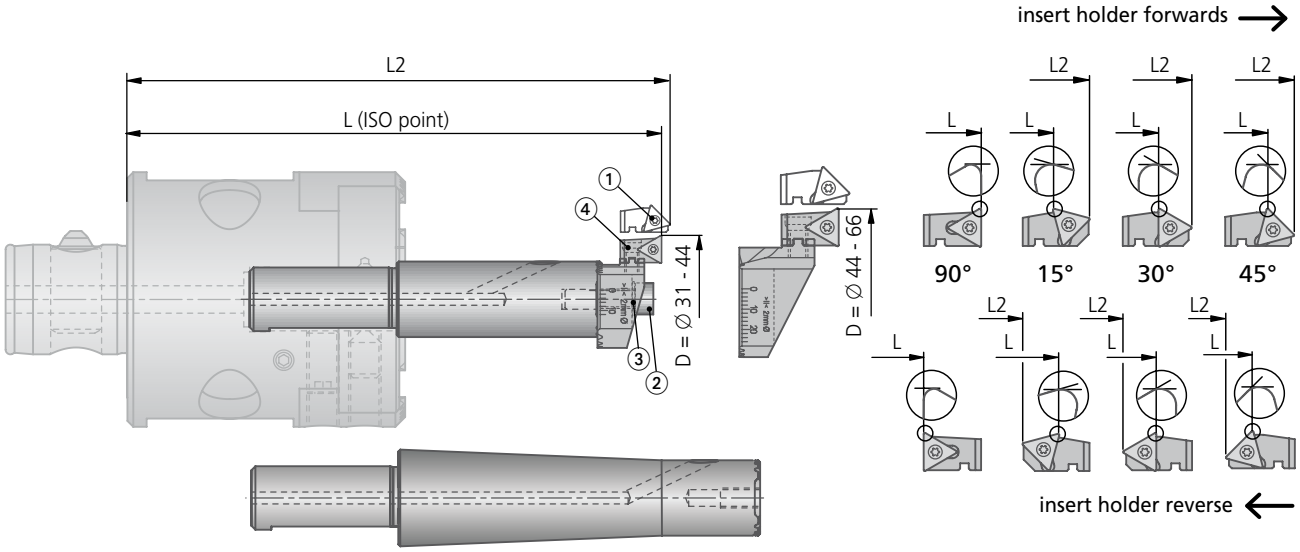
● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 274-275.

KOMET MicroKom *BluFlex*®

Ø 31 – 66 mm

Serrated body | Adaptor | Insert holder



	Serrated body			Adaptor		→ Insert holder forwards					
		Location screw ②	Cup spring ③		Location screw ④	90°			15°		
Ø D mm *inch*	Order No.	Order No. Article	Order No. Article	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
31 - 44 *1.22 - 1.73*	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21100 ***M05 21600***	N00 56211 S/M3,5×7,3-10IP	M03 10033	135,85	–	M03 11120	131,35	142,05
	M05 90110 0,296						177,12	–		172,62	178,81
44 - 66 *1.73 - 2.60*	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21150 ***M05 21650***	N00 56211 S/M3,5×7,3-10IP	M03 10043	144,75	–	M03 11130	138,25	146,65
	M05 90110 0,296						186,02	–		179,52	187,89

	Serrated body			Adaptor		← Insert holder reverse					
		Location screw ②	Cup spring ③		Location screw ④	90°			15°		
Ø D mm *inch*	Order No.	Order No. Article	Order No. Article	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
31 - 44 *1.22 - 1.73*	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21100 ***M05 21600***	N00 56211 S/M3,5×7,3-10IP	M03 12020	121,65	–	M03 12120	126,25	120,05
	M05 90110 0,296						162,92	–		167,52	161,32
44 - 66 *1.73 - 2.60*	M05 90100 0,163	55011 05016 M5×16 ISO4762	56771 10053 D10×5,2×0,3	M05 21150 ***M05 21650***	N00 56211 S/M3,5×7,3-10IP	M03 12030	124,75	–	M03 12130	131,25	122,85
	M05 90110 0,296						166,02	–		172,52	164,14

Patent applied for inside and outside Germany

						HRC > 54	HRC > 54	
> 3,5×D	●	●	◐	◐	●	●	●	●

Supply includes serrated body: with location screw ② and cup spring ③.
Supply includes adaptor: with location screw ④.
Supply includes insert holder: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

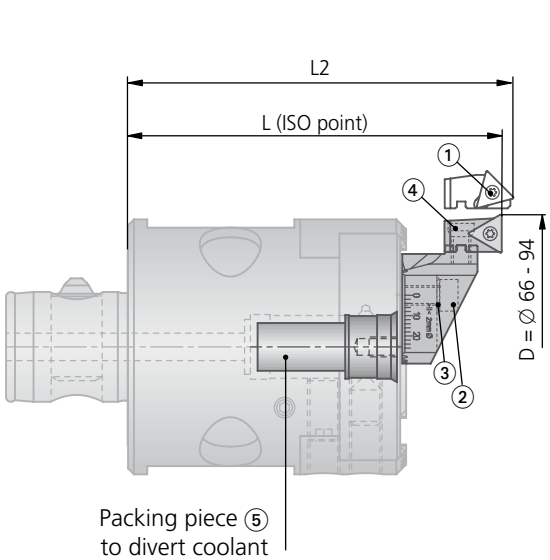
30° Order No.	L	L2	45° Order No.	L	L2	kg	Clamping screw ① Order No. Article	Basic recommendation: Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
M03 11220	132,35	142,35	M03 11320	133,35	142,35	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	**W57 04140.0260** TOGX 06T102EN-14 BK60 **W30 04060.032710** TOHX 06T103EL-G06 BK2710 **W30 04060.037615** TOHX 06T103EL-G06 BK7615 **W57 04120.0223** TOGX06T102FN-12 K10	● ● ● ●
	173,62	179,16		174,62	179,14				
M03 11230	139,25	146,75	M03 11330	141,55	147,65	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14060.042710** TOHX 090204EL-G06 BK2710 **W30 14060.047615** TOHX 090204EL-G06 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10	● ● ● ●
	180,52	188,01		182,82	188,93				

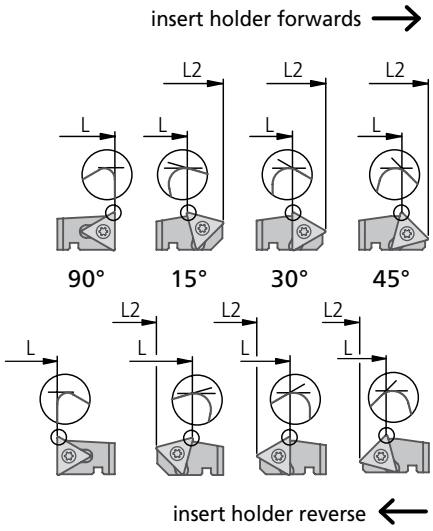
30° Order No.	L	L2	45° Order No.	L	L2	kg	Clamping screw ① Order No. Article	Basic recommendation: Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
M03 12220	125,25	119,75	M03 12320	124,25	119,75	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	**W57 04140.0260** TOGX 06T102EN-14 BK60 **W30 04420.038425** TOHX 06T103ER-G12 BK8425 **W57 04120.0223** TOGX 06T102FN-12 K10 **W30 04990.0240** TOGX 06T102TN CBN40	● ● ● ● ● <52 HRC >52 HRC
	166,52	160,97		165,52	160,99				
M03 12230	130,25	122,75	M03 12330	127,75	121,65	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14420.047615** TOHX 090204ER-G12 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10 **W30 14990.0440** TOGX 090204TN CBN40	● ● ● ● ● <52 HRC >52 HRC
	171,52	164,02		169,02	162,90				

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 274-275.

Adaptor | Insert holder





	Adaptor		→ Insert holder forwards					
		Location screw ④ 	90° 			15° 		
Ø D mm *inch*	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
66 - 94 *2.60 - 3.70*	M05 21150 ***M05 21650***	N00 56211 S/M3,5×7,3-10IP	M03 10043	94,73	–	M03 11130	88,23	96,63

	Adaptor		← Insert holder reverse					
		Location screw ④ 	90° 			15° 		
Ø D mm *inch*	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
66 - 94 *2.60 - 3.70*	M05 21150 ***M05 21650***	N00 56211 S/M3,5×7,3-10IP	M03 12030	74,73	–	M03 12130	81,23	72,83

Patent applied for inside and outside Germany

> 3,5×D	●	●	◐	◐	●	● HRC > 54	● HRC > 54	●

Supply includes adaptor: with location screw ④.
Supply includes insert holder: with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and packing piece ⑤ separately.
Screwdriver see chapter 8.

Accessories		
Location screw ②	Cup spring ③	Packing piece ⑤
Order No. Article	**Order No.**	**Order No.**
55011 05016 M5×16 ISO 4762	**56771 10053**	**M05 90501**

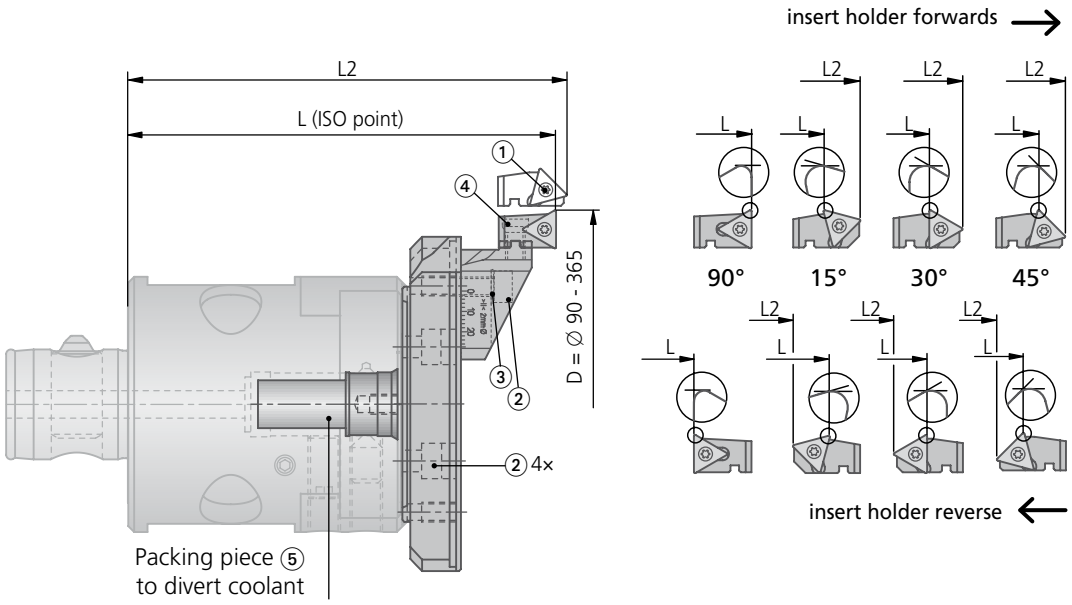
	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	**Order No.**	L	L2	kg	**Order No.** Article	Indexable insert -14 -12 W30 **Order No.** ISO code ▽▽ size	for workpiece material P M K N S H
	M03 11230	89,23	96,73	**M03 11330**	91,53	97,63	0,005	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14060.042710** TOHX 090204EL-G06 BK2710 **W30 14060.047615** TOHX 090204EL-G06 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10	

	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	**Order No.**	L	L2	kg	**Order No.** Article	Indexable insert -14 -12 W30 **Order No.** ISO code ▽▽ size	for workpiece material P M K N S H
	M03 12230	80,23	72,73	**M03 12330**	77,73	71,63	0,005	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60 **W30 14420.047615** TOHX 090204ER-G12 BK7615 **W57 14120.0423** TOGX 090204FN-12 K10 **W30 14990.0440** TOGX 090204TN CBN40	<52 HRC >52 HRC

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 274-275.

Bridge | Adaptor | Insert holder



	Bridge		Adaptor		Insert holder forwards					
				Location screw ④	90°			15°		
Ø D mm *inch*	Order No.	kg	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
90 - 125 *3.54 - 4.92*	M05 80101	0,147	M05 21150 *M05 21650*	N00 56211 S/M3,5×7,3-10IP	M03 10043	108,74	–	M03 11130	102,24	110,64
120 - 155 *4.72 - 6.10*	M05 80200	0,107				110,74	–		104,24	112,64
150 - 185 *5.91 - 7.28*	M05 80300	0,152				112,74	–		106,24	114,64
180 - 215 *7.09 - 8.46*	M05 80400	0,229				115,74	–		109,24	117,64
210 - 245 *8.268 - 9.646*	M05 80500	0,306								
240 - 275 *9.449 - 10.827*	M05 80510	0,349								
270 - 305 *10.630 - 12.008*	M05 80520	0,394								
300 - 335 *11.811 - 13.189*	M05 80530	0,435								
330 - 365 *12.992 - 14.370*	M05 80540	0,478								

	Bridge		Adaptor		Insert holder reverse					
				Location screw ④	90°			15°		
Ø D mm *inch*	Order No.	kg	Order No. mm · *inch*	Order No. Article	Order No.	L	L2	Order No.	L	L2
90 - 125 *3.54 - 4.92*	M05 80101	0,147	M05 21150 *M05 21650*	N00 56211 S/M3,5×7,3-10IP	M03 12030	88,74	–	M03 12130	94,24	85,84
120 - 155 *4.72 - 6.10*	M05 80200	0,107				90,74	–		97,24	88,84
150 - 185 *5.91 - 7.28*	M05 80300	0,152				92,74	–		99,24	90,84
180 - 215 *7.09 - 8.46*	M05 80400	0,229				95,74	–		102,24	93,84
210 - 245 *8.268 - 9.646*	M05 80500	0,306								
240 - 275 *9.449 - 10.827*	M05 80510	0,349								
270 - 305 *10.630 - 12.008*	M05 80520	0,394								
300 - 335 *11.811 - 13.189*	M05 80530	0,435								
330 - 365 *12.992 - 14.370*	M05 80540	0,478								

Patent applied for inside and outside Germany

> 3,5×D	●	●	◐	◐	●	HRC > 54 ●	HRC > 54 ●	●

Supply includes adaptor: with location screw ④.
Supply includes insert holder: with clamping screw ①.
Please order insert, 5× location screw ②, cup spring ③ and packing piece ⑤ separately.
Screwdriver see chapter 8.

Accessories		
Location screw ②	Cup spring ③	Packing piece ⑤
Order No. Article	**Order No.**	**Order No.**
55011 05016 M5×16 ISO 4762	**56771 10053**	**M05 90501**

	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	Order No.	L	L2	kg	Order No. Article	Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
	M03 11230	103,24	110,74	M03 11330	105,54	111,64	0,009	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60	●
		105,24	112,74		107,54	113,64				
		107,24	114,74		109,54	115,64			**W30 14060.042710** TOHX 090204EL-G06 BK2710	●
		110,24	117,74		112,54	118,64			**W30 14060.047615** TOHX 090204EL-G06 BK7615	●
									W57 14120.0423 TOGX 090204FN-12 K10	●

	30°			45°				Clamping screw ①	Basic recommendation	
	Order No.	L	L2	Order No.	L	L2	kg	Order No. Article	Indexable insert -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material P M K N S H
	M03 12230	93,24	85,74	M03 12330	90,74	84,64	0,009	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460** TOGX 090204EN-14 BK60	● ○
		96,24	88,74		93,74	87,64				
		98,24	90,74		95,74	89,64			**W30 14420.047615** TOHX 090204ER-G12 BK7615	● <52 HRC
		101,24	93,74		98,74	92,64			**W57 14120.0423** TOGX 090204FN-12 K10	● ●
									W30 14990.0440 TOGX 090204TN CBN40	>52 HRC

● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 274-275.

Recommended cutting data

Guideline values for fine boring						v_c	f (mm/rev)					
							max. feed 3,5×D					
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code DIN	Cutting speed v_c (m/min)	Ø 6 – 7,9	Ø 8 – 11,9	Ø 12 – 25	Ø 25 – 44	Ø 44 – 94	Ø 90 – 365
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,04	0,07	0,10	0,08	0,10	0,10
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,04	0,06	0,12	0,08	0,12	0,12
	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	300	0,04	0,07	0,12	0,10	0,15	0,15
	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,03	0,06	0,10	0,08	0,10	0,10
	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	200	0,03	0,05	0,10	0,06	0,10	0,10
	4.1			HSS		120	0,02	0,04	0,08	0,06	0,08	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,01	0,04	0,08	0,06	0,08	0,08
	5.1	400		titanium,titanium alloys	3.7115 (TiAl5Sn2.5)	30	0,01	0,04	0,08	0,06	0,08	0,08
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200	0,01	0,05	0,10	0,08	0,10	0,10
	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	180	0,01	0,05	0,10	0,06	0,10	0,10
	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120	0,01	0,04	0,08	0,06	0,10	0,10
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,05	0,10	0,15	0,15	0,20	0,20
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,05	0,10	0,15	0,15	0,20	0,20
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,04	0,08	0,15	0,10	0,15	0,15
	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,04	0,08	0,15	0,10	0,15	0,15
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,04	0,08	0,15	0,10	0,15	0,15
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,03	0,07	0,12	0,10	0,15	0,15
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,03	0,10	0,15	0,10	0,15	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,02	0,04	0,08	0,10	0,15	0,15
	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,05	0,08	0,15	0,10	0,15	0,15
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,02	0,06	0,10	0,08	0,12	0,12
	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,05	0,08	0,12	0,10	0,15	0,15
	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,05	0,08	0,12	0,10	0,15	0,15
H	15.0	1400		hardened steels < 45 HRC		80	–	0,05	0,08	0,08	0,08	0,08
	16.0	1800		hardened steels > 45 HRC		60	–	0,05	0,08	0,06	0,08	0,08

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

for better chip control

Insert size	Indexable insert .32.. / .39.. / W57..18 Order No.	ISO-Code	for workpiece material P M K N S H
W..04...	→ only for forward machining:		
	W30 04120.3232	TOHX 06T102EL-US12 CK32	
	W30 04120.3977	TOHX 06T1ZZEL-39G12 BK77	
W..14...	→ only for forward machining:		
	W30 14120.3232	TOHX 090202EL-US12 CK32	
	W30 14120.3977	TOHX 0902ZZEL-39G12 BK77	
W..26...	→ only for forward machining:		
	W30 26120.3232	TOHX 140304-US12 CK32	
	W30 26120.3977	TOHX 1403ZZEL-39G12 BK77	

for higher cutting speed

Insert size	Indexable insert W30 / W57 / PKD CBN W30 / .32.. / .39.. Order No.	ISO-Code	for workpiece material P M K N S H
W..04...	W57 04140.023210	TOGX 06T102EN-14 CK3210	only 0.6025 (EN-GJL-250)
	W30 04990.0257	TOGX 06T102TN CBN57	
	W30 04990.025510	TOGX 06T102FN PKD5510	
	W57 04120.027710	TOGX 06T102FN-12 BK7710	
	→ only for forward machining:		
	W30 04120.0238	TOHX 06T102EL-G12 CK38	
W..14...	W57 14140.043210	TOGX 090204EN-14 CK3210	only 0.6025 (EN-GJL-250)
	W30 14990.0457	TOGX 090204TN CBN57	
	W30 14990.045510	TOGX 090204FN PKD5510	
	W57 14120.047710	TOGX 090204FN-12 BK7710	
	→ only for forward machining:		
	W30 14120.0238	TOHX 090202EL-G12 CK38	
W..26...	W57 26140.043210	TOGX 140304EN-14 CK3210	only 0.6025 (EN-GJL-250)
	W30 26990.0457	TOGX 140304TN CBN57	
	W30 26990.045510	TOGX 140304FN PKD5510	
	W57 26120.047710	TOGX 140304FN-12 BK7710	
	→ only for forward machining:		
	W30 26120.0438	TOHX 140304EL-G12 CK38	

for better surface

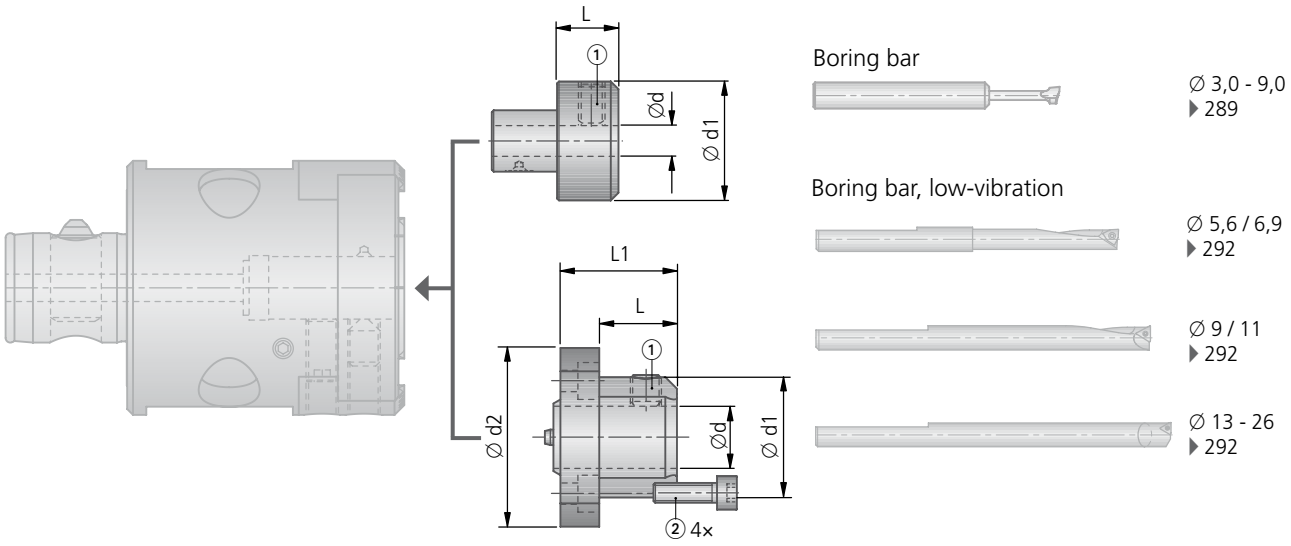
W..04...	W57 04180.048430	TOGX 060104 EN-18 BK8430	
	W57 04180.0432	TOGX 060104 EN-18 CK32	
W..14...	W57 14180.048430	TOGX 090204 EN-18 BK8430	
	W57 14180.0432	TOGX 090204 EN-18 CK32	
W..26...	W57 26180.048430	TOGX 140304 EN-18 BK8430	
	W57 26180.0432	TOGX 140304 EN-18 CK32	

for greater strength

W..04...	W57 04140.023210	TOGX 06T102EN-14 CK3210	
	W30 04990.025510	TOGX 06T102FN PKD5510	
	→ only for forward machining:		
	W30 04060.036110	TOHX 06T103EL-G06 BK6110	
	W30 04200.0321	TOHX 06T103FL-G20 K10	
W..14...	W57 14140.043210	TOGX 090204EN-14 CK3210	
	W30 14990.025510	TOGX 090204FN PKD5510	
	→ only for forward machining:		
	W30 14060.046110	TOHX 090204EL-G06 BK6110	
	W30 14200.0421	TOHX 090204FL-G20 K10	
W..26...	W57 26140.043210	TOGX 140304EN-14 CK3210	
	W30 26990.045510	TOGX 140304FN PKD5510	
	→ only for forward machining:		
	W30 26060.046110	TOHX 140304EL-G06 BK6110	
	W30 26200.0521	TOHX 140305FL-G20 K10	

KOMET MicroKom *BluFlex*®

Adaptor for clamping vibration dampened fine boring bars

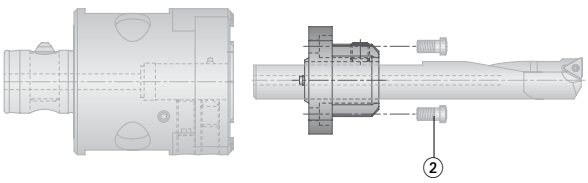


Adaptor									Accessories
							Clamping screw ① DIN913		Location screw ②
Order No.	Ø d	Ø d1	Ø d2	L	L1	kg	Article	Order No.	Order No.
M05 90200	6	31	–	16	–	0,112	M8×10	**55051 08010**	–
M05 90210	8	31	–	16	–	0,107	M8×10	**55051 08010**	
M05 90220	10	31	46	15	25	0,155	M8×10	**55051 08010**	**55011 05016** M5×16 ISO 4762
M05 90230	12	31	46	15	25	0,147	M8×10	**55051 08010**	
M05 90240	16	31	46	20	30	0,146	M8×8	**55051 08008**	

Supply includes: Adaptor with clamping screw ①. Please order location screw ② separately.

Instruction for adaptor M05 90240

Please note:
Before tightening the location screw ②, centre the adaptor with shank diameter for the boring bar on the micro-adjustable head.

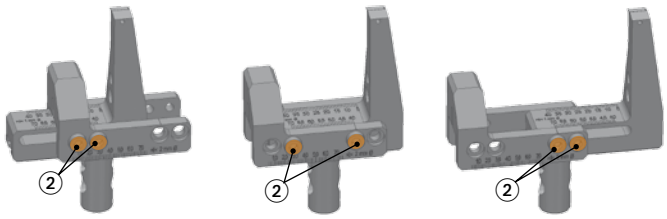




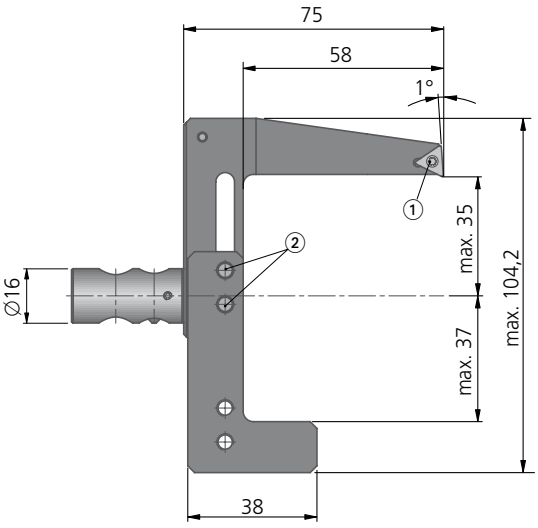
Setting the diameter

- Position the mounting bridge on the micro-adjustable head.
- Set the coarse position on the upper scale, tighten screw ②. **Important note: check position of screw ② for required Ø range!**

Ø 5 – 34 mm **Ø 33 – 44 mm** **Ø 43 – 70 mm**



- Set the coarse position of the diameter on the setting device, tighten screw ③.
- Carry out fine adjustment on the setting device using adjustment key and display unit.



Mounting bridge				Basic recommendation		
		Clamping screw ①	Cylindrical screw ②	Indexable insert -12 -14 W30		for workpiece material
Ø D	Order No.	Order No. Article	Order No. Article	Order No. ▽▽ size	ISO Code	P M K N S H
5 – 70	**M05 90300** 0,377	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55011 05030** M5×30	**W57 14140.0460** **W30 14060.047615** **W57 14120.0423**	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10	● ● ● ●

Supply includes: Mounting bridge with clamping screw ① and cylindrical screw ②.
Please order insert separately. Screwdriver see chapter 8.

KOMET MicroKom® M04

Micro-adjustable head with direct measuring system and digital display

1

2

3

Sturdy – Accurate – Easy to use

With the KOMET MicroKom® M04 micro-adjustable head, slide adjustment is still recorded directly by means of an electronic measurement system. The measurement result is evaluated by a microprocessor and displayed on an LCD display with a resolution of 1 µm. This reduces errors in adjustment and read-off to a minimum.

- Sturdy design
  By using new technology we have been able to make the KOMET MicroKom® M04 even sturdier. With its water and dustproof design (IP67), it is not affected by either chips or coolant.
- Direct measurement = accurate measurement
  Even with the most highly accurate translation of adjustment sequences, other micro-adjustable drilling heads only show the adjustment value indirectly. The KOMET MicroKom® M04 micro-adjustable head works directly in conjunction with the actual measurement process, making the operation considerably easier for the operator.
- Easy to use
  The head has been made even easier to use, switching from absolute to differential dimensions with only two keys and also allowing the differential to be set to zero.
  Concentricity or balanced position can be easily located again in the Absolute mode without need for a setting device.
- Extended setting range
  The adjustment value has been increased to 5 mm in the diameter.
- Replaceable bridges
  In conjunction with the new replaceable bridges it is possible to machine bores up to 103 mm. These replaceable bridges are in lightweight metal with hard surface coating and integral balancing.



1 Can be adapted for any machine tool with ABS® standard tool adaptors

2 Operating keys

3 Battery compartment

4 Digital display with position display energy saving function: Display automatically switches off after 30 seconds

5 ABS® 32 on tool side or 16 mm cylindrical shank connection

Adjustment is carried out manually with an hexagonal key; this allows the slide to be adjusted extremely accurately. One turn of the key equals to a diameter change of 70 µm.

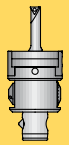


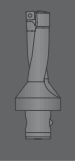
BENEFITS for you:

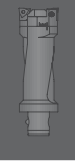
- Large adjustment range from -0.4 to +4.6 mm on dia.
- Easy to use with only 2 keys
- Waterproof and dustproof (IP67 standard)
- Direct measuring system on slide
- Display resolution 0.001 mm in the diameter
- Display in mm or inches
- Can be switched between differential and absolute mode
- Easy to read LCD display
- Energy saving function, i.e. M04 automatically switches off after 30 seconds
- Central coolant supply up to 50 bar
- ABS® 32 spindle connection – 16 mm cylindrical shank
- Can be adapted for any machine tool with standard tool adaptors
- Maximum spindle speed: 12,500 min^{-1} (in central slide position)
- Head diameter: 70 mm

KOMET MicroKom® M04

	Page
Micro-adjustable head with ABS® connection	
with cylindrical tool holder	282
with ABS® connection	282
with replaceable bridge	284
Set in case	286



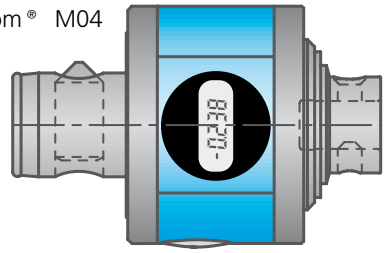


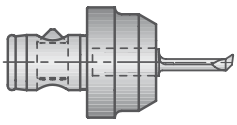


KOMET MicroKom® M04

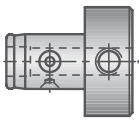
Variation options

Micro-adjustable head
KOMET MicroKom® M04





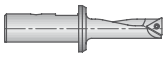
UniTurn® Adaptor | copying tool | boring tool
Ø 3 – 8 mm



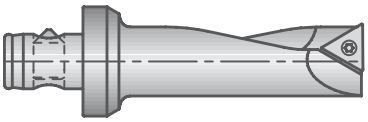
Boring bar
Ø 3 – 9 mm



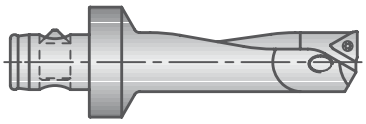
Boring bar, low-vibration
Ø 5,6 mm
Ø 6,9 mm
Ø 9 mm



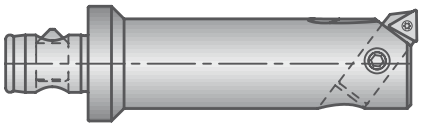
Boring bar
Ø 5,6 – 12 mm



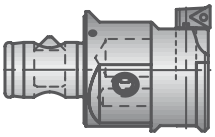
Boring bar
Ø 7,9 – 23,9 mm



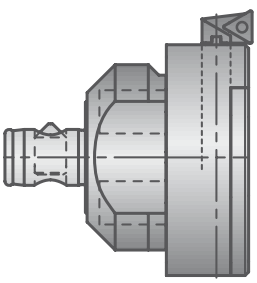
Boring bar
Ø 11,9 – 30 mm



Boring bar
Ø 28 – 44 mm

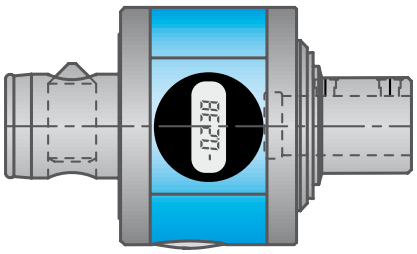


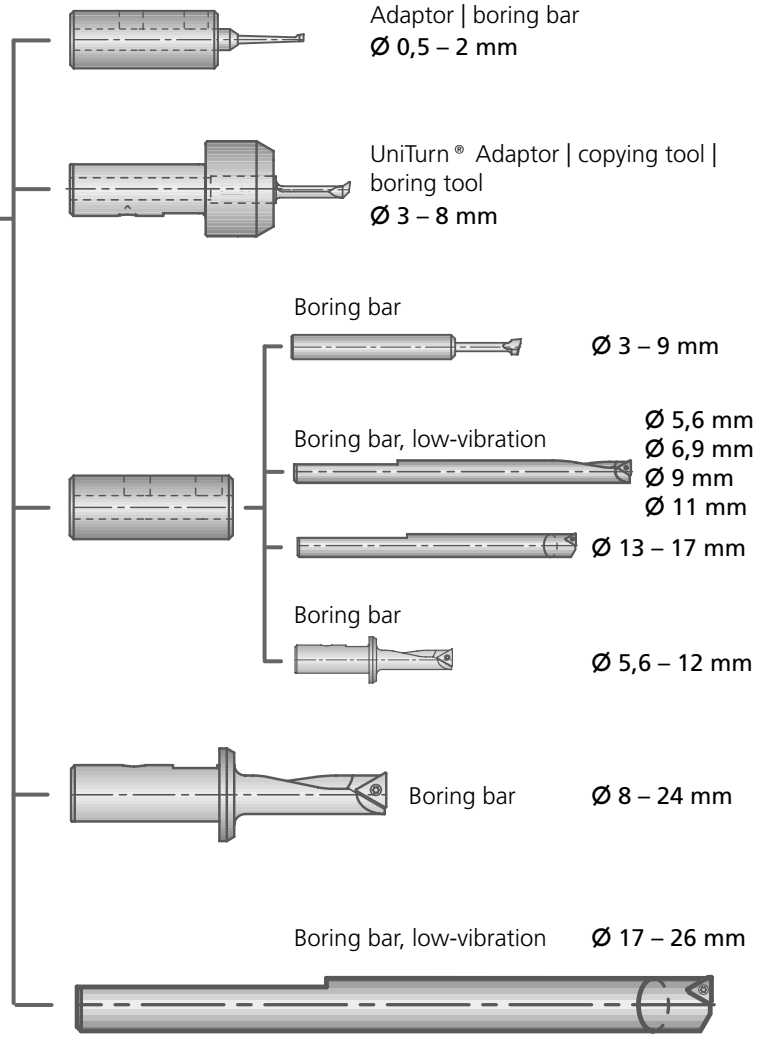
Adaptor | Replaceable bridge | Insert holder
Ø 38 – 63 mm



Adaptor | Replaceable bridge | Insert holder
Ø 62 – 103 mm

Micro-adjustable head
KOMET MicroKom® M04



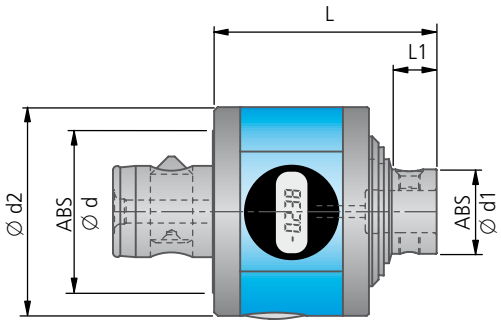


KOMET MicroKom® M04

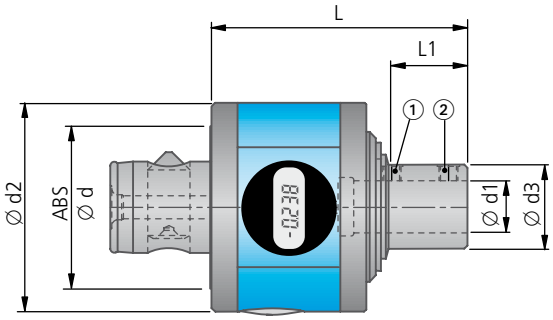
Micro-adjustable head



Display panel shown at 90° angle



with ABS® tool connection						
Order No.	ABS Ø d	ABS Ø d1	Ø d2	L	L1	kg
M04 00151	50	32	70	69	13,5	1,19

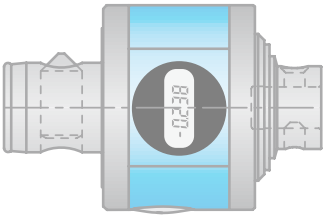


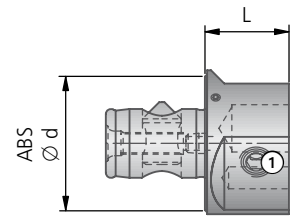
with cylindrical tool connection								
Order No.	ABS Ø d	Ø d1	Ø d2	Ø d3	Adjustment	L	L1	kg
M04 00201	50	16	70	26	2,5	82	25	1,1

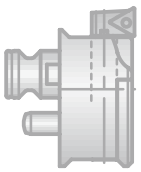
Assembly parts						
Battery Order No.	Battery spring Order No.	O-ring Order No.	Positioning pin Order No.	Battery cover Order No.	Clamping screw ① DIN914 Order No. Article	Clamping screw ② similar DIN916 Order No. Article
75000 12150	52710 00053	52914 01615	N00 05480	M04 00150.11	N00 70900 M6×8	N00 70190 M6×6

Note: The micro-adjustable drilling head is balanced in the zero position.

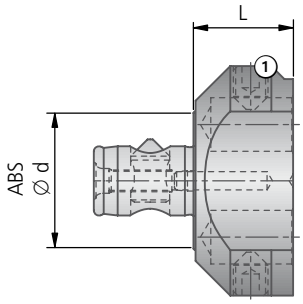
Patent applied for inside and outside Germany

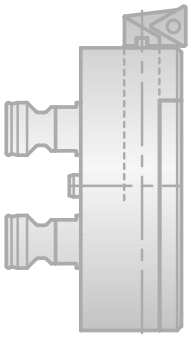






for Ø D
38 – 63 mm





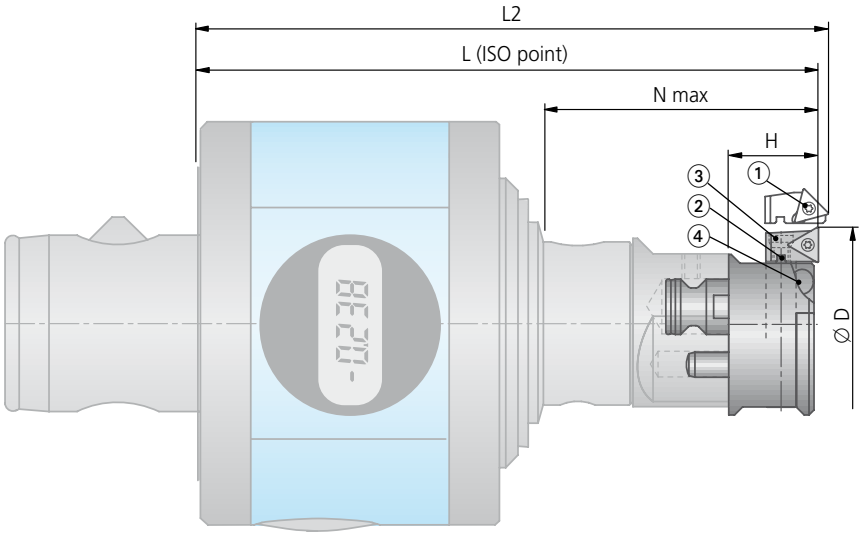
for Ø D
62 – 103 mm

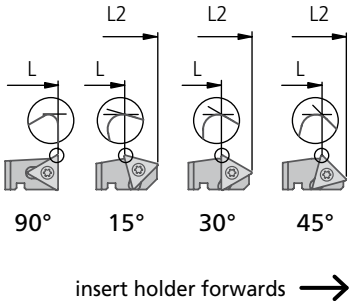
Adaptor					
for Ø D	Order No.	ABS Ø d	L	kg	Clamping screw ① Order No.
38 - 63	M04 01310	32	19,5	0,135	M03 20090.15
62 - 103	M04 01320	32	23	0,286	M03 20090.15

Supply includes:
Adaptor with clamping screw ① for replaceable bridge

KOMET MicroKom® M04 Ø 38 – 103 mm

Replaceable bridge | Insert holder





Replaceable bridge								
					Holder ②	Location screw ③ for insert holder		Clamping screw ④ for holder
Ø D min - max	Order No.	H	N max	kg	Order No.	Article	Order No.	Order No.
38 - 51	**M03 20180**	17,5	50	0,06	**M03 20180.16**	S/M3,5×7,3-10IP	**N00 56211**	**55051 04008**
50 - 63	**M03 20190**	17,5	50	0,08	**M03 20180.16**	S/M3,5×7,3-10IP	**N00 56211**	**55051 04008**
62 - 83	**M03 20150**	24	60	0,20	**M03 20150.16**	S/M3,5×7,3-10IP	**N00 56211**	**55051 04008**
82 - 103	**M03 20160**	24	60	0,24	**M03 20150.16**	S/M3,5×7,3-10IP	**N00 56211**	**55051 04008**

Supply includes:
Replaceable bridge with location screw ③, holder ② and clamping screw ④. Insert holder – please order as extra

3×D	●	●	◐	◐	●	◐ HRC > 54	◐ HRC > 54	✕

		→ Insert holder forwards						Basic recommendation		
							Clamping screw ①	Indexable insert -14 -12 W30		for workpiece material
Ø D	Replaceable bridge	Order No.	ϰ	L	L2	kg	Order No. Article	Order No. ▽▽ size	ISO Code	P M K N S H
38 – 63	M03 20180 M03 20190	**M03 10033**	90°	106	106	0,002	**N00 56031** S/M2×4,9-6IP 0,62 Nm	**W57 04140.0260**	TOGX 06T102EN-14 BK60	● ◐ ● ●
		M03 11120	15°	101,5	107,7			**W30 04060.032710**	TOHX 06T103EL-G06 BK2730	
		M03 11220	30°	102,5	108			**W30 04060.037615**	TOHX 06T103EL-G06 BK7615	
		M03 11320	45°	103,5	108			**W57 04120.0223**	TOGX 06T102FN-12 K10	
62 – 103	M03 20150 M03 20160	**M03 10043**	90°	116	116	0,005	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460**	TOGX 090204EN-14 BK60	● ◐ ● ●
		M03 11130	15°	109,5	117,9			**W30 14060.042710**	TOHX 090204EL-G06 BK2710	
		M03 11230	30°	110,5	118			**W30 14060.047615**	TOHX 090204EL-G06 BK7615	
		M03 11330	45°	112,8	118,9			**W57 14120.0423**	TOGX 090204FN-12 K10	

Supply includes insert holder: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

Further inserts and approach angles available on request.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed Ø 38 – 63	Feed Ø 62 – 103
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	300	0,08	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,08	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,10	0,15
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,08	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,06	0,10
P	4.1			HSS		120	0,06	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,06	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,06	0,08
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200	0,08	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	180	0,06	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120	0,06	0,10
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,15	0,20
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,15	0,20
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,10	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,10	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,10	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,10	0,15
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,10	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,10	0,15
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	270	0,10	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,08	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,10	0,15
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,15
H	15.0	1400		hardened steels < 45 HRC		120	0,08	0,08
H	16.0	1800		hardened steels > 45 HRC		90	0,06	0,08

for better chip control

Ø D	Alternative indexable insert: Order No. ▽▽ Size	ISO-Code	for workpiece material P M K N S H
38 – 63	**W30 04120.3232**	TOHX 06T102EL-US12 CK32	◐ ◑
	W30 04120.3060	TOHX 06T100EL-G12 BK60	◐ ◑
	W57 04120.0223	TOGX 06T102FN-12 K10	◐ ◐
62 – 103	**W30 14120.3232**	TOHX 090202EL-US12 CK32	◐ ◑
	W30 14120.3060	TOHX 090200EL-G12 BK60	◐ ◑
	W57 14120.0423	TOGX 090204FN-12 K10	◐ ◐

for higher cutting speed

38 – 63	**W57 04140.023210**	TOGX06T102EN-14 CK3210	◐ ◑
	W57 04140.0260	TOGX06T102EN-14 BK60	◐ ◑
	W30 04990.0357	TOGX06T103TN CBN57	◐
	W30 04990.035510	TOGX06T103FN PKD5510	◐
62 – 103	**W30 14120.3232**	TOHX 090202EL-US12 CK32	◐ ◑
	W30 14120.3060	TOHX 090200EL-G12 BK60	◐ ◑
	W57 14120.0423	TOGX 090204FN-12 K10	◐ ◐

for better surface

38 – 63	**W30 04120.3160**	TOHX 06T102EL-UF12 BK60	◐ ◑
	W30 04990.0357	TOGX 06T103TN CBN57	◐
	W30 04990.035510	TOGX 06T103FN PKD5510	◐
	W30 04990.0240	TOGX 06T103TN CBN40	◑
62 – 103	**W30 14120.3160**	TOHX 090202EL-UF12 BK60	◐ ◑
	W30 14120.3060	TOHX 090200EL-G12 BK60	◐ ◑
	W57 14120.0423	TOGX 090204FN-12 K10	◐ ◐
	W30 14990.0440	TOGX 090204TN CBN40	◑

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET MicroKom® M04

Set in case

A Ø 8 – 44 mm

Set in case complete
Order No. M04 01230



	Qty.	Article	Order No.
①	1	Micro-adjustable head M040	M04 00151
②	1	Boring bar ABS32 Ø 7,9-12,9	B00 25610
③	1	Boring bar ABS32 Ø 11,9-16,9	B00 25630
④	1	Boring bar ABS32 Ø 15,9-20,9	B00 25650
⑤	1	Boring bar ABS32 Ø 19,9-24,9	B00 25671
⑥	1	Boring bar ABS32 Ø 23,9-28,9	B00 25691
⑦	1	Boring bar ABS32 Ø 27,9-44,0	B30 02020
⑧	5	Insert BK8430	W57 04140.028430
	5	Insert BK8430	W57 14140.028430
⑨	1 optional	Adaptor DIN 69871 ISO40AD/B-ABS50	A50 55150
		Adaptor DIN 69871 ISO50AD/B-ABS50	A50 55350
		Adaptor HSK-A63 ABS50	A06 30150
⑩	1	Hexagonal wrench SW4	18050 10040

B Ø 38 – 103 mm

Set in case complete
Order No. M04 01240



	Qty.	Article	Order No.
①	1	Micro-adjustable head M040	M04 00151
②	1	Adaptor ABS32 Ø 38-63	M04 01310
③	1	Adaptor ABS32 Ø 62-103	M04 01320
④	1	Replaceable bridge Ø 38-51	M03 20180
⑤	1	Replaceable bridge Ø 50-63	M03 20190
⑥	1	Replaceable bridge Ø 62-83	M03 20150
⑦	1	Replaceable bridge Ø 82-103	M03 20160
⑧	2	Insert holder 90° forwards	M03 10033
⑨	2	Insert holder 90° forwards	M03 10043
⑩	5	Insert BK8430	W57 04140.028430
	5	Insert BK8430	W57 14140.028430
⑪	1 optional	Adaptor DIN 69871 ISO40AD/B-ABS50	A50 55150
		Adaptor DIN 69871 ISO50AD/B-ABS50	A50 55350
		Adaptor HSK-A63 ABS50	A06 30150
⑫	1	Hexagonal wrench SW4	18050 10040

Supply includes the case with foam lining and 5 inserts for each size

Patent applied for inside and outside Germany

The possible combinations can be supplied in various additional options. Please ask our representative.

B1

Basic set
for machining
Ø 38 - 63 mm
Set in case
Order No. M04 01241



Qty.	Article	Order No.
1	Micro-adjustable head M040	M04 00151
1	Adaptor ABS32 ∅ 38-63	M04 01310
1	Replaceable bridge ∅ 38-51	M03 20180
1	Replaceable bridge ∅ 50-63	M03 20190
2	Insert holder 90° forwards	M03 10033
1 optional	Adaptor DIN 69871 ISO40AD/B-ABS50	A50 55150
	Adaptor DIN 69871 ISO50AD/B-ABS50	A50 55350
	Adaptor HSK-A63 ABS50	A06 30150

B2

Basic set
for machining
Ø 62 - 103 mm
Set in case
Order No. M04 01242



Qty.	Article	Order No.
1	Micro-adjustable head M040	M04 00151
1	Adaptor ABS32 ∅ 62-103	M04 01320
1	Replaceable bridge ∅ 62-83	M03 20150
1	Replaceable bridge ∅ 82-103	M03 20160
2	Insert holder 90° forwards	M03 10043
1 optional	Adaptor DIN 69871 ISO40AD/B-ABS50	A50 55150
	Adaptor DIN 69871 ISO50AD/B-ABS50	A50 55350
	Adaptor HSK-A63 ABS50	A06 30150

B3

Extension set
for machining
Ø 38 - 63 mm
Set in case
Order No. M04 01243



Qty.	Article	Order No.
1	Adaptor ABS32 ∅ 38-63	M04 01310
1	Replaceable bridge ∅ 38-51	M03 20180
1	Replaceable bridge ∅ 50-63	M03 20190
2	Insert holder 90° forwards	M03 10033

B4

Extension set
for machining
Ø 62 - 103 mm
Set in case
Order No. M04 01244



Qty.	Article	Order No.
1	Adaptor ABS32 ∅ 62-103	M04 01320
1	Replaceable bridge ∅ 62-83	M03 20150
1	Replaceable bridge ∅ 82-103	M03 20160
2	Insert holder 90° forwards	M03 10043

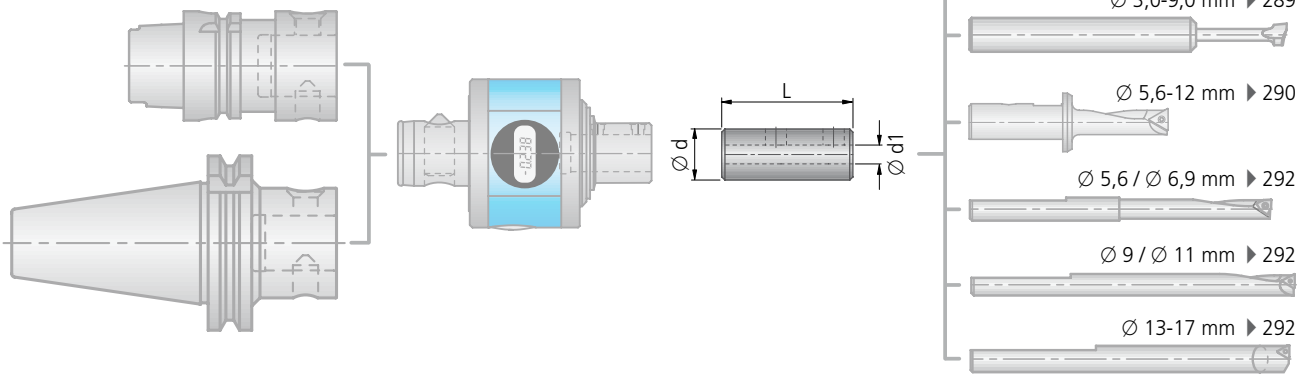
B5

Extension set
for machining
Ø 38 - 103 mm
Set in case
Order No. M04 01245



Qty.	Article	Order No.
1	Adaptor ABS32 ∅ 38-63	M04 01310
1	Adaptor ABS32 ∅ 62-103	M04 01320
1	Replaceable bridge ∅ 38-51	M03 20180
1	Replaceable bridge ∅ 50-63	M03 20190
1	Replaceable bridge ∅ 62-83	M03 20150
1	Replaceable bridge ∅ 82-103	M03 20160
2	Insert holder 90° forwards	M03 10033
2	Insert holder 90° forwards	M03 10043

Adaptor
with cylindrical connection

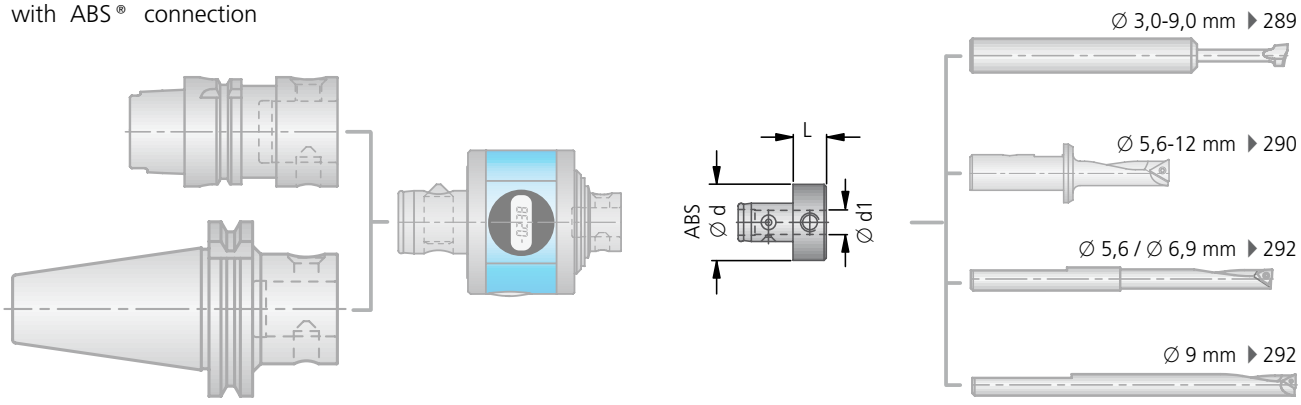


Adaptor with cylindrical connection								
					Clamping screw ① DIN 914		Clamping screw ② DIN 913	
Order No.	Ø d	Ø d1	L	kg	Article	Order No.	Article	Order No.
L01 10100	16	4	41	0,057	M6×12	55052 06012	M6×10	55051 06010
L01 10110	16	6	41	0,057	M6×12	55052 06012	M6×10	55051 06010
L01 10120	16	8	41	0,046	M6×12	55052 06012	M6×10	55051 06010
L01 10130	16	10	41	0,037	M6×10	55052 06010	M6×8	55051 06008
L01 10140	16	12	41	0,027	M6×10	55052 06010	M6×8	55051 06008

Note: To use reducing element L01 10100 - L01 10140 in micro-adjustable head M02 / M04, use the clamping screws ① and ②. Please order clamping screws separately.

Supply includes: Adaptor without clamping screws.

Adaptor
with ABS® connection

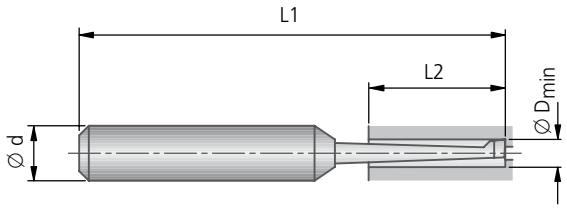


Adaptor with ABS® connection				
Order No.	ABS Ø d	Ø d1	L	kg
L01 10431	32	6	14	0,12
L01 10441	32	8	14	0,12

Patent applied for inside and outside Germany

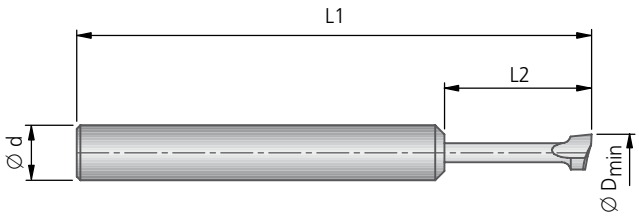
> 3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	✕	✕	●

with cylindrical shank
form F



							Basic recommendation	
Ø D min	Article	Order No.	Ø d	L1	L2	kg	Quality	for workpiece material P M K N S H
0,5	5K-F-K10	H15 11100.21	4	25	3	0,004	K10	◐ ● ● ●
0,8	8K-F-K10	H15 11110.21	4	25	4	0,004		
1,0	10K-F-K10	H15 11120.21	4	25	4	0,004		
1,2	12K-F-K10	H15 11130.21	4	25	6	0,004		
1,5	15K-F-K10	H15 11140.21	4	28	7	0,004		
1,7	17K-F-K10	H15 11150.21	4	28	7	0,004		
2,0	20K-F-K10	H15 11160.21	4	30	9	0,005		

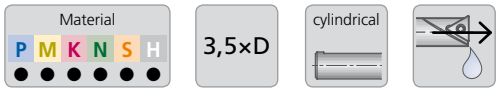
with cylindrical shank
form F

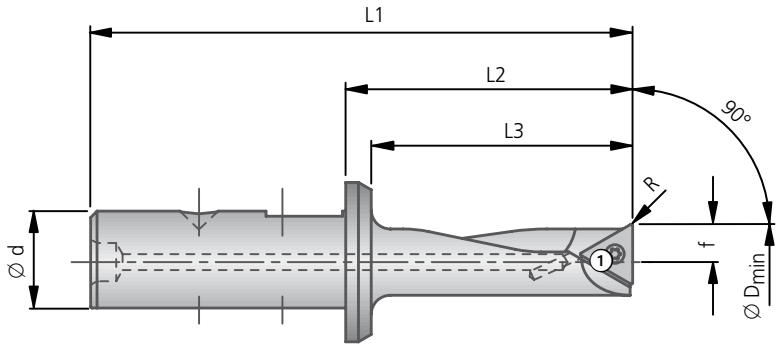


							Basic recommendation	
Ø D min	Article	Order No.	Ø d	L1	L2	kg	Quality	for workpiece material P M K N S H
3,0	B01F-P20	H15 21110.02	8	60	16	0,017	P20	● ○
	B01F-K10	H15 21110.21	8	60	16	0,017	K10	◐ ● ● ●
5,0	B02F-P20	H15 21120.02	8	60	19	0,018	P20	● ○
	B02F-K10	H15 21120.21	8	60	19	0,018	K10	◐ ● ● ●
7,0	B03F-P20	H15 21130.02	8	65	26	0,019	P20	● ○
	B03F-K10	H15 21130.21	8	65	26	0,019	K10	◐ ● ● ●
9,0	B04F-P20	H15 21140.02	8	70	45	0,026	P20	● ○
	B04F-K10	H15 21140.21	8	70	45	0,026	K10	◐ ● ● ●

● very good | ◐ good | ○ possible | ✕ not possible

KOMET® Boring bar B001 / B003 Ø 5,6 – 24 mm





3,5×D	●	●	◐	◐	✕	◐ HRC > 54	◐ HRC > 54	✕

Boring bar										Basic recommendation		
Ø D min.	Order No.	Ød	L1	L2	L3	f	R	kg	Clamping screw ① Order No. Article	Indexable insert W00 W57..14 W57..12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
5,6	B00 37010	8	48	26	22	2,75	0,1	0,04	N00 56011 S/M1,8×2,9-5IP 0,38 Nm	W00 04120.016440	WOHX 02T001EL-G12 BK6440	● ○ ● ● ●
6,5	B00 37020	8	52	30	26	3,20	0,1	0,03		W00 04120.0121	WOHX 02T001FL-G12 K10	
8	B00 15510	8	57	35	28	3,95	0,2	0,02	N00 56021 S/M2×3,8-6IP 0,62 Nm	W57 04140.028430 W30 04060.036110 W57 04120.0223 W30 04990.0240	TOGX 06T102EN-14 BK8430 TOHX 06T103EL-G06 BK6110 TOGX 06T102FN-12 K10 TOGX 06T102TN CBN40	● ○ ● ● ● ○ <52 HRC
	B00 15610	16	75	35	30	3,95	0,2	0,08				
10	B00 15620	16	80	40	35	4,95	0,2	0,08				
11	B00 15710	16	85	45	40	5,45	0,2	0,09	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.048430 W30 14060.046110 W57 14120.0423 W30 14990.0440	TOGX 090204EN-14 BK8430 TOHX 090204EL-G06 BK6110 TOGX 090204FN-12 K10 TOGX 090204TN CBN40	● ○ ● ● ● ○ <52 HRC
12	B00 15530	8	67	45	38	5,95	0,2	0,04				
	B00 15630	16	85	45	40	5,95	0,2	0,09				
14	B00 15640	16	90	50	45	6,95	0,2	0,11				
16	B00 15650	16	95	55	50	7,95	0,2	0,17				
18	B00 15661	16	100	60	55	8,95	0,2	0,14				
19	B00 15751	16	105	65	60	9,45	0,2	0,16				
20	B00 15671	16	105	65	60	9,90	0,2	0,22				
22	B00 15681	16	105	65	60	10,9	0,2	0,19				
24	B00 15691	16	105	65	60	11,9	0,2	0,21				

Further diameters on request.

Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Recommended application areas

Guideline values for fine boring						v_c	Max. f (mm/rev)		
							Feed		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Ø 5,6 – 6,5	Ø 8 – 10	Ø 11 – 24
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	300	0,04	0,07	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,04	0,06	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,04	0,07	0,12
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,03	0,06	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,03	0,05	0,10
P	4.1			HSS		120	0,02	0,04	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,01	0,04	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,01	0,04	0,08
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	200	0,01	0,05	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	180	0,01	0,05	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	120	0,01	0,04	0,08
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,05	0,10	0,15
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,05	0,10	0,15
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,04	0,08	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,04	0,08	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,04	0,08	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,03	0,07	0,12
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,03	0,10	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,02	0,04	0,08
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,05	0,08	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,02	0,06	0,10
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,05	0,08	0,12
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,05	0,08	0,12
H	15.0	1400		hardened steels < 45 HRC		80	–	0,05	0,08
H	16.0	1800		hardened steels > 45 HRC		60	–	0,05	0,08

for better chip control

Ø D	Alternative indexable insert W30 / W57 / PKD CBN W30 / .32.. / .39.. Order No.	ISO code	for workpiece material P M K N S H
5,6 – 6,5	–		
8 – 10	**W30 04120.3232** **W30 04120.3977**	TOHX 06T102EL-US12 CK32 TOHX 06T1ZZEL-39G12 BK77	
11 – 24	**W30 14120.3232** **W30 14120.3977**	TOHX 090202EL-US12 CK32 TOHX 0902ZZEL-39G12 BK77	

for higher cutting speed

Ø D	Order No.	ISO code	for workpiece material P M K N S H
5,6 – 6,5	–		
8 – 10	**W57 04140.023210** **W30 04120.0238** **W30 04990.0257** **W30 04990.025510**	TOGX 06T102EN-14 CK3210 TOHX 06T102EL-G12 CK38 TOGX 06T102TN CBN57 TOGX 06T102FN PKD5510	only 0.6025 (EN-GJL-250)
11 – 24	**W57 14140.043210** **W30 14120.0238** **W30 14990.0457** **W30 14990.045510**	TOGX 090204EN-14 CK3210 TOHX 090202EL-G12 CK38 TOGX 090204TN CBN57 TOGX 090204FN PKD5510	only 0.6025 (EN-GJL-250)

for better surface finish

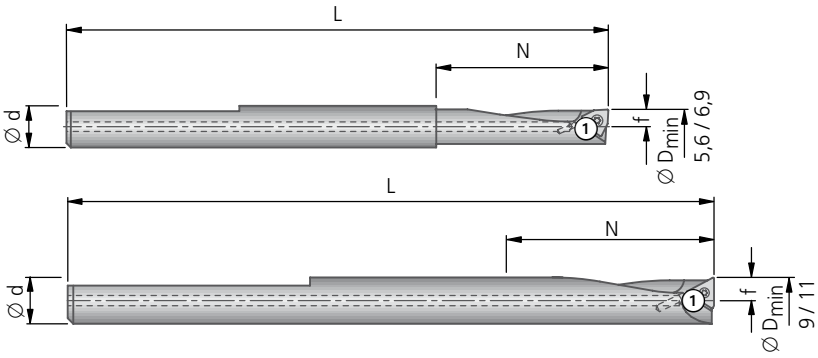
Ø D	Order No.	ISO code	for workpiece material P M K N S H
5,6 – 6,5	–		
8 – 10	**W57 04140.023210** **W30 04060.036110** **W30 04200.0321** **W30 04990.025510**	TOGX 06T102EN-14 CK3210 TOHX 06T103EL-G06 BK6110 TOHX 06T103FL-G20 K10 TOGX 06T102FN PKD5510	
11 – 24	**W57 14140.043210** **W30 14060.046110** **W30 14200.0421** **W30 04990.025510**	TOGX 090204EN-14 CK3210 TOHX 090204EL-G06 BK6110 TOHX 090204FL-G20 K10 TOGX 090204FN PKD5510	

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

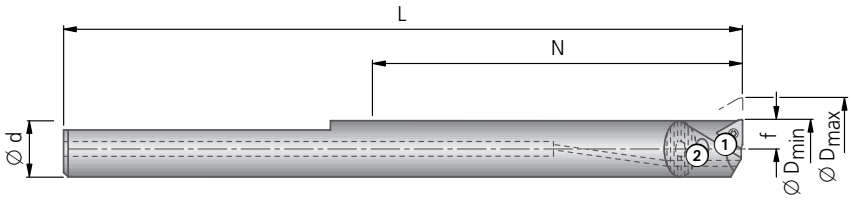
KOMET® Low-vibration boring bar Ø 5,6 – 26 mm

> 3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	○	○	●



Boring bar								Basic recommendation		
Ø D min.	Order No. *carbide version	Ø d	L	N max	f	kg	Clamping screw ① Order No. Article	Indexable insert W00 W57..14 W57..12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
5,6	**B00 30280**	6	65	22	2,8		**N00 56011** S/M1,8×2,9-5IP 0,38 Nm	**W00 04120.016440**	WOHX 02T001EL-G12 BK6440	● ● ● ● ●
6,9	**B00 30290***	6	80	36	3,45			**W00 04120.0121**	WOHX 02T001FL-G12 K10	
9	**B00 00680***	8	90	24	4,45		**N00 56031** S/M2×4,9-6IP 0,62 Nm	**W57 04140.028430** **W30 04060.036110**	TOGX 06T102EN-14 BK8430 TOHX 06T103EL-G06 BK6110	● ● ● ● ● <52 HRC
11	**B00 00690***	10	95	50	5,45			**W57 04120.0223** **W30 04990.0240**	TOGX 06T102FN-12 K10 TOGX 06T102TN CBN40	○

Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.



					Adaptor	Turning head			Basic recommendation	
Ø D	Ø d	L	N max	f	Order No.	Turning head Order No.	Location screw ② Order No.	Clamping screw ① Order No. Article	Indexable insert W30 W57 -12 W57 -14 Order No. ISO Code ▽▽ size	for workpiece material P M K N S H
13-15	12	120	75	6,45	**G10 12060** 0,14	**G10 12621** 0,02	**G10 10111.15** Tx10	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.048430** TOGX 090204EN-14 BK8430	● ● ● ● ● <52 HRC
15-17	12	120	75	8,45	**G10 12060** 0,14	**G10 12841** 0,02			**W30 14060.046110** TOHX 090204EL-G06 BK6110	
17-19	16	140	100	8,45	**G10 12070** 0,30	**G10 12711** 0,02	**G10 10131.15** Tx25	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14120.0423** TOGX 090204FN-12 K10	○
19-22	16	140	100	9,45	**G10 12070** 0,30	**G10 12861** 0,02			**W30 14990.0440** TOGX 090204TN CBN40	
22-26	16	140	100	10,95	**G10 12080** 0,30	**G10 12731** 0,02				

Supply turning head includes: with clamping screw ① and location screw ②.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Recommended application areas

Guideline values for fine boring						v_c	Max. f (mm/rev)		
							Feed		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Ø 5,6 – 6,9	Ø 9 – 11	Ø 13 – 26
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	120	0,04	0,07	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	150	0,04	0,06	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	150	0,04	0,07	0,12
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	90	0,03	0,06	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	90	0,03	0,05	0,10
P	4.1			HSS		70	0,02	0,04	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	30	0,01	0,04	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	20	0,01	0,04	0,08
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	70	0,01	0,05	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	70	0,01	0,05	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	70	0,01	0,04	0,08
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	180	0,05	0,10	0,15
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	160	0,05	0,10	0,15
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	160	0,04	0,08	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	140	0,04	0,08	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120	0,04	0,08	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	120	0,03	0,07	0,12
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	100	0,03	0,10	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	250	0,02	0,04	0,08
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	250	0,05	0,08	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	400	0,02	0,06	0,10
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	270	0,05	0,08	0,12
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	200	0,05	0,08	0,12
H	15.0	1400		hardened steels < 45 HRC		120	–	0,05	0,08
H	16.0	1800		hardened steels > 45 HRC		90	–	0,05	0,08

for better chip control

Ø D	Alternative indexable insert W30 / W57 / PKD CBN W30 / .32.. / .39.. Order No.	ISO code	for workpiece material P M K N S H
5,6 – 6,9	–		
9 – 11	**W30 04120.3232** **W30 04120.3977**	TOHX 06T102EL-US12 CK32 TOHX 06T1ZZEL-39G12 BK77	◐ ◑ / ◐
13 – 26	**W30 14120.3232** **W30 14120.3977**	TOHX 090202EL-US12 CK32 TOHX 0902ZZEL-39G12 BK77	◐ ◑ / ◐

for higher cutting speed

Ø D	Order No.	ISO code	for workpiece material P M K N S H
5,6 – 6,9	–		
9 – 11	**W57 04140.023210** **W30 04120.0238** **W30 04990.0257** **W30 04990.025510**	TOGX 06T102EN-14 CK3210 TOHX 06T102EL-G12 CK38 TOGX 06T102TN CBN57 TOGX 06T102FN PKD5510	◐ ◑ / ◐ ◑ / only 0.6025 (EN-GJL-250) ◐ / ◐
13 – 26	**W57 14140.043210** **W30 14120.0238** **W30 14990.0457** **W30 14990.045510**	TOGX 090204EN-14 CK3210 TOHX 090202EL-G12 CK38 TOGX 090204TN CBN57 TOGX 090204FN PKD5510	◐ ◑ / ◐ ◑ / only 0.6025 (EN-GJL-250) ◐ / ◐

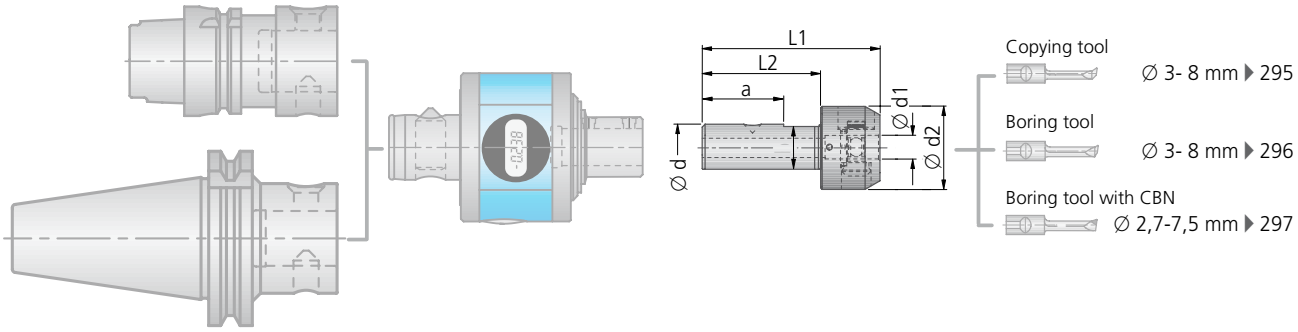
for better surface finish

Ø D	Order No.	ISO code	for workpiece material P M K N S H
5,6 – 6,9	–		
9 – 11	**W57 04140.023210** **W30 04060.036110** **W30 04200.0321** **W30 04990.025510**	TOGX 06T102EN-14 CK3210 TOHX 06T103EL-G06 BK6110 TOHX 06T103FL-G20 K10 TOGX 06T102FN PKD5510	◐ ◑ / ◐ / ◐ ◐ / ◐
13 – 26	**W57 14140.043210** **W30 14060.046110** **W30 14200.0421** **W30 04990.025510**	TOGX 090204EN-14 CK3210 TOHX 090204EL-G06 BK6110 TOHX 090204FL-G20 K10 TOGX 090204FN PKD5510	◐ ◑ / ◐ / ◐ ◐ / ◐

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

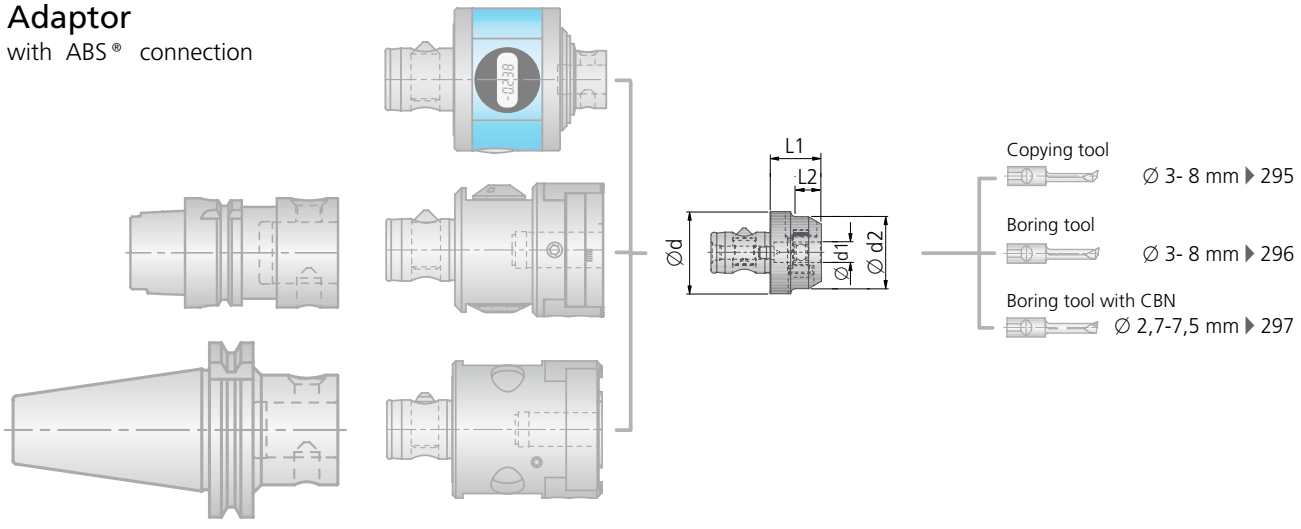
Important: See chapter 8 for more application details and safety notes!

Adaptor
with cylindrical connection



Adaptor with cylindrical connection								
Order No.	Ø d_{g6}	Ø d1	Ø d2	L1	L2	a	b	kg
H50 21640	16	4	28	60	40	27,5	14,4	0,15
H50 21680	16	8	28	60	40	27,5	14,4	0,13

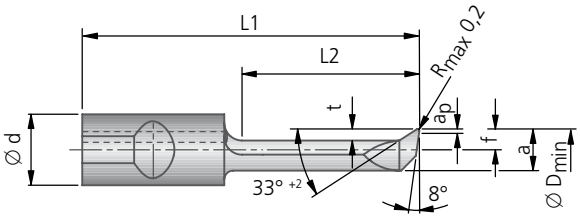
Adaptor
with ABS ® connection



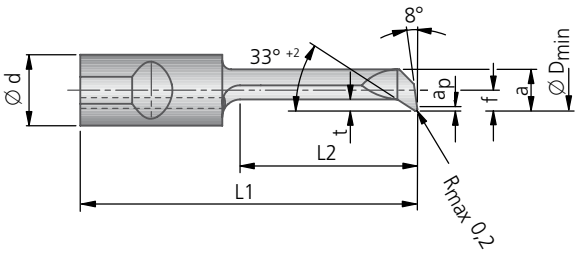
Adaptor with ABS ® connection						
Order No.	ABS Ø d	Ø d1	Ø d2	L1	L2	kg
H50 23240	32	4	28	20	12	0,15
H50 23280	32	8	28	20	12	0,12

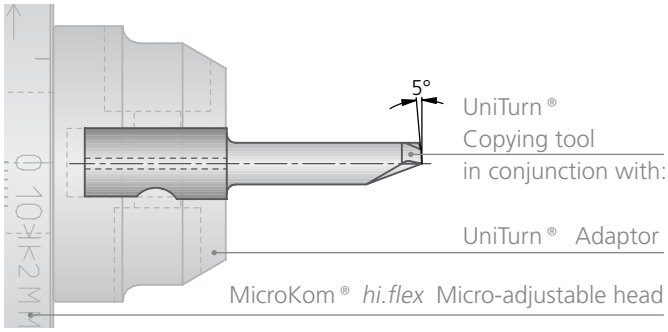
Patent applied for inside and outside Germany

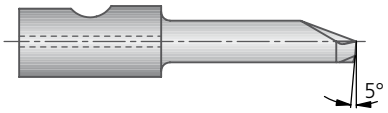
R.H. cutting form



L.H. cutting form







> 3,5×D	●	●	◐	◐	✕	✕ HRC > 54	✕ HRC > 54	●

	Cutting form										Basic recommendation	
Ø D min	R.H. Order No.	L.H. Order No.	a_p max	t max	f	a	d	L1	L2	kg	Quality	for workpiece material P M K N S H
3	H51 32100.0182	H51 31100.0182	0,2	0,7	1,25	2,7	4	28	10	0,0032		
	H51 32150.0182	H51 31150.0182	0,2	0,7	1,25	2,7	4	33	15	0,0035	BK82	● ◐ ● ◐
	H51 32200.0182	H51 31200.0182	0,2	0,7	1,25	2,7	4	38	20	0,0037		
4	H51 42100.0182	H51 41100.0182	0,3	0,8	1,75	3,7	4	28	10	0,0038		
	H51 42150.0182	H51 41150.0182	0,3	0,8	1,75	3,7	4	33	15	0,0043	BK82	● ◐ ● ◐
	H51 42200.0182	H51 41200.0182	0,3	0,8	1,75	3,7	4	38	20	0,0047		
	H51 42250.0182	H51 41250.0182	0,3	0,8	1,75	3,7	4	43	25	0,0052		
5	H51 52100.0282	H51 51100.0282	0,5	1,0	2,25	4,7	8	28	10	0,013		
	H51 52150.0282	H51 51150.0282	0,5	1,0	2,25	4,7	8	33	15	0,013		
	H51 52200.0282	H51 51200.0282	0,5	1,0	2,25	4,7	8	38	20	0,014	BK82	● ◐ ● ◐
	H51 52250.0282	H51 51250.0282	0,5	1,0	2,25	4,7	8	43	25	0,015		
	H51 52300.0282	H51 51300.0282	0,5	1,0	2,25	4,7	8	48	30	0,016		
6	H51 62150.0282	H51 61150.0282	0,5	1,8	2,75	5,7	8	33	15	0,014		
	H51 62200.0282	H51 61200.0282	0,5	1,8	2,75	5,7	8	38	20	0,015		
	H51 62250.0282	H51 61250.0282	0,5	1,8	2,75	5,7	8	43	25	0,016	BK82	● ◐ ● ◐
	H51 62300.0282	H51 61300.0282	0,5	1,8	2,75	5,7	8	48	30	0,017		
	H51 62350.0282	H51 61350.0282	0,5	1,8	2,75	5,7	8	53	35	0,018		
8	H51 82150.0282	H51 81150.0282	0,6	2,5	3,75	7,7	8	33	15	0,016		
	H51 82200.0282	H51 81200.0282	0,6	2,5	3,75	7,7	8	38	20	0,018		
	H51 82250.0282	H51 81250.0282	0,6	2,5	3,75	7,7	8	43	25	0,020	BK82	● ◐ ● ◐
	H51 82300.0282	H51 81300.0282	0,6	2,5	3,75	7,7	8	48	30	0,022		
	H51 82350.0282	H51 81350.0282	0,6	2,5	3,75	7,7	8	53	35	0,023		
	H51 82400.0282	H51 81400.0282	0,6	2,5	3,75	7,7	8	58	40	0,025		

Please note:
From $D_{min.}$ 5 mm, copying tools have internal coolant supply; for smaller diameters, coolant is passed over adaptor.

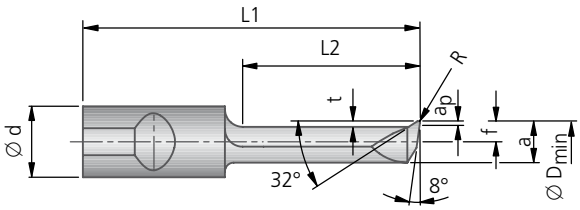
● very good | ◐ good | ○ possible | ✕ not possible

KOMET UniTurn®

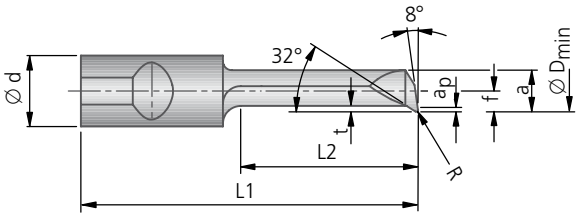
Boring tool

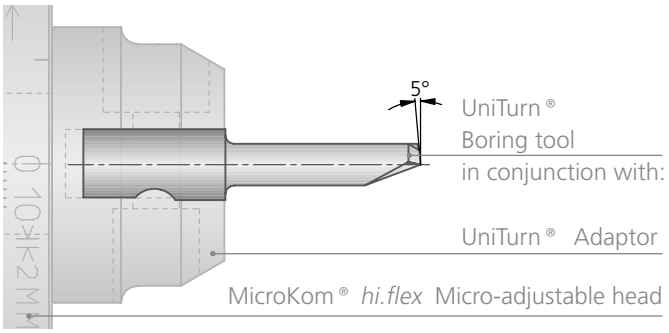
Ø 3 – 8 mm

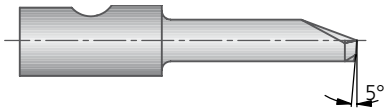
R.H. cutting form



L.H. cutting form







Guideline recommendation: feed f = 0.025-0.1 mm

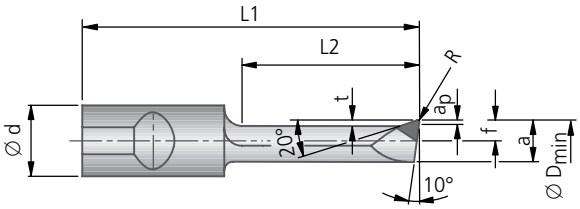
> 3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	✕	✕	●

	Cutting form										Basic recommendation	
Ø D min	R.H. Order No.	L.H. Order No.	a_p max	t max	f	a	Ø d	L1	L2	kg	Quality	for workpiece material P M K N S H
3	H55 32100.0182	H55 31100.0182	0,6	0,3	1,25	2,6	4	28	10	0,004	BK82	● ◐ ● ◐
	H55 32150.0182	–						33	15			
4	H55 42150.0182	–	0,8	0,3	1,75	3,6	4	33	15	0,005	BK82	● ◐ ● ◐
	H55 42200.0182	H55 41200.0182						38	20	0,006		
5	H55 52150.0282	H55 51150.0282	1,0	0,4	1,55	4,6	8	33	15	0,016	BK82	● ◐ ● ◐
	–	H55 51200.0282						38	20	0,018		
	H55 52250.0282	–						43	25	0,019		
6	H55 62200.0282	–	1,1	0,4	1,55	5,4	8	38	20	0,020	BK82	● ◐ ● ◐
	H55 62300.0282	H55 61300.0282						48	30	0,023		
8	–	H55 81200.0282	1,2	0,4	1,5	5,5	8	38	20	0,020	BK82	● ◐ ● ◐
	H55 82400.0282	–						58	40	0,027		

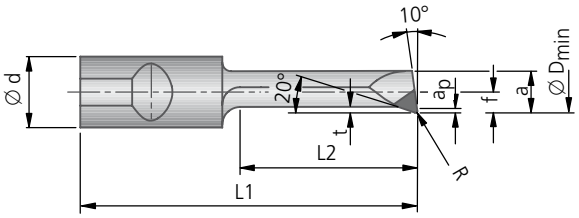
Please note:
From $D_{min.}$ 5 mm, boring tools have internal coolant supply; for smaller diameters, coolant is passed over adaptor.

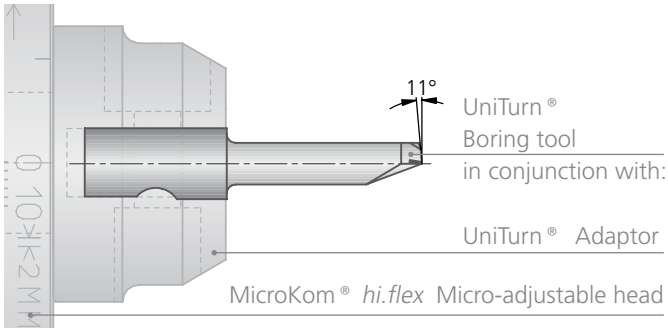
Patent applied for inside and outside Germany

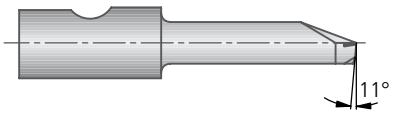
R.H. cutting form



L.H. cutting form







Guideline recommendations: a_p = 0.05-0.07 mm; f = 0.01-0.03 mm; v_c = 70-90 m/min

> 3,5×D	●	●	◐	◐	✕	● HRC > 54	● HRC > 54	●

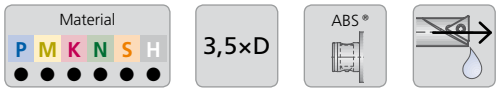
	Cutting form									Basic recommendation	
Ø D min	R.H. Order No.	L.H. Order No.	t	f	a	Ø d	L1	L2	kg	Quality	for workpiece material P M K N S H
2,7	H56 32100.0140	H56 31100.0140	0,2	1,35	2,5	4	27	9	0,004	CBN40	◐ ≥52 HRC
3,8	H56 42121.0140	H56 41121.0140	0,2	1,9	3,6	8	30	12	0,015	CBN40	◐ ≥52 HRC
4,8	H56 52151.0140	H56 51151.0140	0,25	2,4	4,55	8	33	15	0,016	CBN40	◐ ≥52 HRC
5,4	H56 62201.0140	H56 61201.0140	0,3	2,7	5,2	8	38	20	0,019	CBN40	◐ ≥52 HRC
7,5	H56 82251.0140	H56 81251.0140	0,5	3,8	7,3	8	43	25	0,024	CBN40	◐ ≥52 HRC

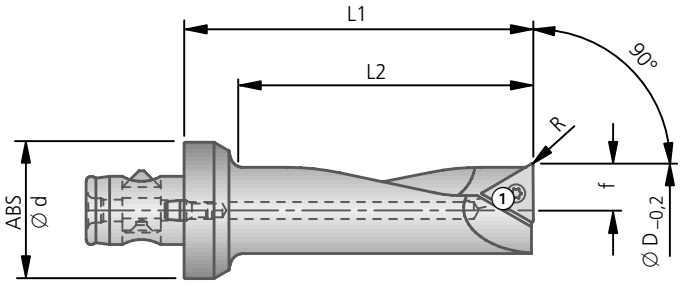
Please note:
Boring tools have internal coolant supply.

● very good | ◐ good | ○ possible | ✕ not possible

KOMET® Boring bar B002

Ø 8 – 28 mm





3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	●	●	✕

Boring bar									Basic recommendation		
Ø D min.	Order No.	ABS Ød	L1	L2	f	R	kg	Clamping screw ① Order No. Article	Indexable insert W30 W57 -12 W57 -14 W30 CBN Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
7,9	B00 25510	25	38	28	3,95	0,2	0,05	N00 56021 S/M2×3,8-6IP 0,62 Nm	W57 04140.028430	TOGX 06T102EN-14 BK8430	● ● ● ● ● ○ <52 HRC
	B00 25610	32	42	28	3,95	0,2	0,10		W30 04060.036110	TOHX 06T103EL-G06 BK6110	
	B00 25810	40	45	28	3,95	0,2	0,18		W57 04120.0223	TOGX 06T102FN-12 K10	
8,9	B00 25700	32	48	34	4,45	0,2	0,10		W30 04990.0240	TOGX 06T102TN CBN40	
9,9	B00 25620	32	48	34	4,95	0,2	0,11				
	B00 25820	40	51	34	4,95	0,2	0,19				
10,9	B00 25710	32	57	43	5,45	0,2	0,11	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.048430	TOGX 090204EN-14 BK8430	● ● ● ● ● ○ <52 HRC
11,9	B00 25530	25	53	43	5,95	0,2	0,07		W30 14060.046110	TOHX 090204EL-G06 BK6110	
	B00 25630	32	57	43	5,95	0,2	0,12		W57 14120.0423	TOGX 090204FN-12 K10	
	B00 25830	40	60	43	5,95	0,2	0,20		W30 14990.0440	TOGX 090204TN CBN40	
13,9	B00 25540	25	60	50	6,95	0,2	0,08				
	B00 25640	32	64	50	6,95	0,2	0,14				
	B00 25840	40	67	50	6,95	0,2	0,22				
15,9	B00 25650	32	72	58	7,95	0,2	0,15				
	B00 25850	40	75	58	7,95	0,2	0,24				
17,9	B00 25661	32	72	59	8,95	0,2	0,36				
	B00 25861	40	75	59	8,95	0,2	0,15				
19,9	B00 25671	32	82	70	9,9	0,2	0,21				
	B00 25871	40	85	70	9,9	0,2	0,30				
21,9	B00 25681	32	82	70	10,9	0,2	0,23				
23,9	B00 25691	32	82	70	11,9	0,2	0,26				
27,9	B00 25911	40	85	70	13,9	0,2	0,42				

Further diameters on request.

Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

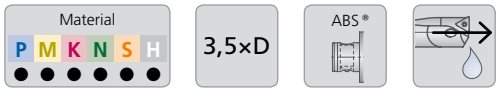
Guideline values for fine boring						v_c	Max. f (mm/rev)	
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed Ø 7,9 – 9,9	Feed Ø10,9–27,9
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	300	0,07	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,06	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,07	0,12
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,06	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,05	0,10
P	4.1			HSS		120	0,04	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,04	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,04	0,08
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200	0,05	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	180	0,05	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120	0,04	0,08
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,10	0,15
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,10	0,15
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,08	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,08	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,08	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,07	0,12
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,10	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,04	0,08
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,08	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,06	0,10
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,08	0,12
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,08	0,12
H	15.0	1400		hardened steels < 45 HRC		80	0,05	0,08
H	16.0	1800		hardened steels > 45 HRC		60	0,05	0,08

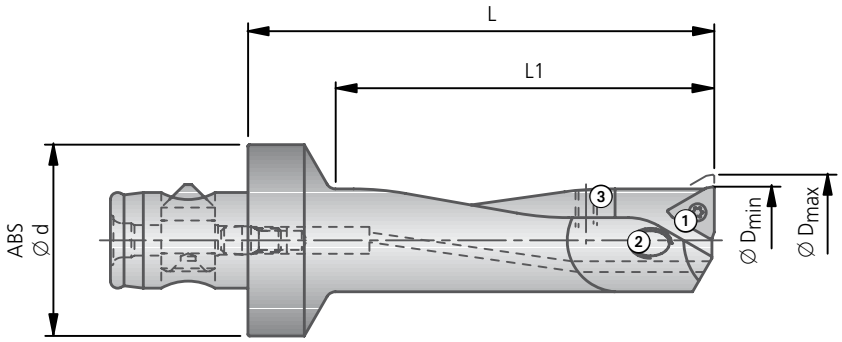
Ø D	Alternative indexable insert W30 W57 W30 .32.. .39.. Order No.	ISO code	for workpiece material P M K N S H
for better chip control			
7,9 – 9,9	**W30 04120.3232** **W30 04120.3977**	TOHX 06T102EL-US12 CK32 TOHX 06T1ZZEL-39G12 BK77	
10,9 – 27,9	**W30 14120.3232** **W30 14120.3977**	TOHX 090202EL-US12 CK32 TOHX 0902ZZEL-39G12 BK77	
for higher cutting speed			
7,9 – 9,9	**W57 04140.023210** **W30 04120.0238** **W30 04990.0257** **W30 04990.025510**	TOGX 06T102EN-14 CK3210 TOHX 06T102EL-G12 CK38 TOGX 06T102TN CBN57 TOGX 06T102FN PKD5510	only 0.6025 (EN-GJL-250)
10,9 – 27,9	**W57 14140.043210** **W30 14120.0238** **W30 14990.0457** **W30 14990.045510**	TOGX 090204EN-14 CK3210 TOHX 090202EL-G12 CK38 TOGX 090204TN CBN57 TOGX 090204FN PKD5510	only 0.6025 (EN-GJL-250)
for better surface finish			
7,9 – 9,9	**W57 04140.023210** **W30 04060.036110** **W30 04200.0321** **W30 04990.025510**	TOGX 06T102EN-14 CK3210 TOHX 06T103EL-G06 BK6110 TOHX 06T103FL-G20 K10 TOGX 06T102FN PKD5510	
10,9 – 27,9	**W57 14140.043210** **W30 14060.046110** **W30 14200.0421** **W30 04990.025510**	TOGX 090204EN-14 CK3210 TOHX 090204EL-G06 BK6110 TOHX 090204FL-G20 K10 TOGX 090204FN PKD5510	

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET® Boring bar G10 Ø 11,9 – 30 mm





3,5×D	●	●	◐	◐	✕	● HRC > 54	● HRC > 54	✕

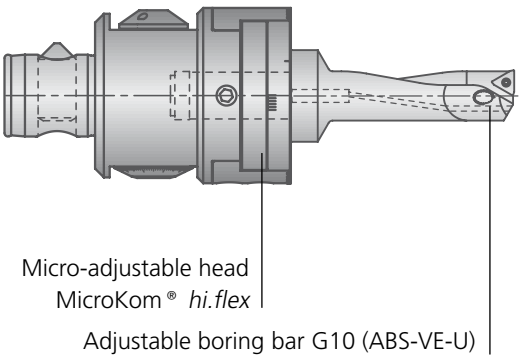
Boring bar										Basic recommendation	
Ø D	Order No.	ABS Ø d	L	L1	kg	Turning head Order No.	Adjusting screw ③ Order No.	Location screw ② Order No.	Clamping screw ① Order No. Article	Indexable insert Order No. ISO Code ▽▽ size	for workpiece material P M K N S H
11,9-14	G10 10111 ABS32-VE12U	32	57	43,3	0,13	G10 10611	N00 70080	G10 10111.15 Tx10	N00 56101 S/M2,6×5,2-8IP 1,28 Nm		
13,9-16	G10 10121 ABS32-VE14U	32	64	49	0,14	G10 10621	N00 70080	G10 10121.15 Tx20		W57 14140.048430 TOGX 090204EN-14 BK8430	● ●
15,9-18	G10 10131 ABS32-VE16U	32	71	56	0,16	G10 10631	N00 70090	G10 10131.15 Tx25		W30 14060.046110 TOHX 090204EL-G06 BK6110	● <52 HRC
17,9-20	G10 10141 ABS32-VE18U	32	78	63	0,19	G10 10641	N00 70140	G10 10141.15 Tx25		W57 14120.0423 TOGX 090204FN-12 K10	● ●
19,9-24	G10 10151 ABS32-VE20U	32	85	70	0,23	G10 10651	N00 70140	G10 10151.15 Tx25		W30 14990.0440 TOGX 090204TN CBN40	○
23,8-30	G10 10161 ABS32-VE24U	32	99	84	0,32	G10 10661	N00 70190	G10 10161.15 Tx30			

Note: When inserts with different centre radii are fitted, the D_{min}/D_{max} ranges alter.

Supply includes boring bar: Basic body with turning head and screws ①, ② and ③.
Please order insert separately. Screwdriver see chapter 8.

The adjustable boring bar G10 (ABS-VE-U) allows coarse adjustment with minimum dimensional deflection by means of precision adjustment with the micro-adjustable head.

For finish machining, the boring bar G10 (ABS-VE-U) is provided with a triangular insert.



● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Guideline values for fine boring						v_c	Max. f (mm/rev)
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed Ø 11,9 – 30
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,12
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,10
P	4.1			HSS		120	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,08
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	200	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	180	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	120	0,08
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,15
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,15
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,12
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,08
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,10
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,12
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,12
H	15.0	1400		hardened steels < 45 HRC		80	0,08
H	16.0	1800		hardened steels > 45 HRC		60	0,08

for better chip control

Ø D	Alternative indexable insert: W30 / W57 / W30 (PKD CBN) / .32.. / .39.. — Order No.	ISO code	for workpiece material P M K N S H
11,9 – 30	**W30 14120.3232**	TOHX 090202EL-US12 CK32	P, M
	W30 14120.3977	TOHX 0902ZZEL-39G12 BK77	S

for higher cutting speed

Ø D	Order No.	ISO code	for workpiece material P M K N S H
11,9 – 30	**W57 14140.043210**	TOGX 090204EN-14 CK3210	P, M
	W30 14120.0238	TOHX 090202EL-G12 CK38	P, M
	W30 14990.0457	TOGX 090204TN CBN57	K (only 0.6025 (EN-GJL-250))
	W30 14990.045510	TOGX 090204FN PKD5510	N

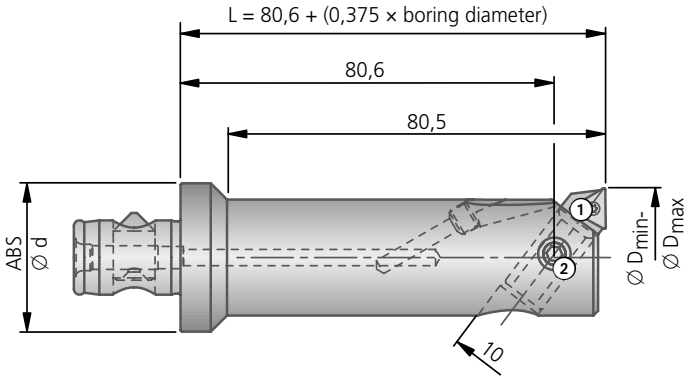
for better surface finish

Ø D	Order No.	ISO code	for workpiece material P M K N S H
11,9 – 30	**W57 14140.043210**	TOGX 090204EN-14 CK3210	P, M
	W30 14060.046110	TOHX 090204EL-G06 BK6110	K
	W30 14200.0421	TOHX 090204FL-G20 K10	N, S
	W30 04990.025510	TOGX 090204FN PKD5510	N

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

Material P M K N S H | 3,5×D | ABS ® | 



3,5×D	●	●	◐	◐	✕	HRC > 54 ○	HRC > 54 ○	✕

Boring bar							Basic recommendation	
Ø D min-max	Order No.	ABS Ø d	Fine boring cartridge Order No.	Clamping screw ② DIN 913 Order No. Article	Hexagonal key Order No. Article	Clamping screw ① Order No. Article	Indexable insert W30 W57 -12 W57 -14 Order No. ISO Code ▽▽ size	for workpiece material P M K N S H
28 - 44	B30 02020 0,368	32	D20 10620 0,06	55051 06008 M6×8	18591 10030 SW3	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.048430** TOGX 090204EN-14 BK8430 **W30 14060.046110** TOHX 090204EL-G06 BK6110 **W57 14120.0423** TOGX 090204FN-12 K10 **W30 14990.0440** TOGX 090204TN CBN40	● ● ● <52 HRC ● ● ○

Supply includes boring bar: with fine boring cartridge and screws ① and ② and hexagonal key.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Guideline values for fine boring						v_c	Max. f (mm/rev)
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed ∅ 11,9 – 30
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,12
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,10
P	4.1			HSS		120	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,08
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	200	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	180	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	120	0,08
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,15
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,15
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,12
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,08
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,10
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,12
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,12
H	15.0	1400		hardened steels < 45 HRC		80	0,08
H	16.0	1800		hardened steels > 45 HRC		60	0,08

for better chip control

∅ D	Alternative indexable insert W30 / W57 / PKD CBN W30 / .32.. / .39.. Order No.	ISO code	for workpiece material P M K N S H
28 – 44	**W30 14120.3232**	TOHX 090202EL-US12 CK32	
	W30 14120.3977	TOHX 0902ZZEL-39G12 BK77	

for higher cutting speed

∅ D	Order No.	ISO code	for workpiece material P M K N S H
28 – 44	**W57 14140.043210**	TOGX 090204EN-14 CK3210	
	W30 14120.0238	TOHX 090202EL-G12 CK38	
	W30 14990.0457	TOGX 090204TN CBN57	only 0.6025 (EN-GJL-250)
	W30 14990.045510	TOGX 090204FN PKD5510	

for better surface finish

∅ D	Order No.	ISO code	for workpiece material P M K N S H
28 – 44	**W57 14140.043210**	TOGX 090204EN-14 CK3210	
	W30 14060.046110	TOHX 090204EL-G06 BK6110	
	W30 14200.0421	TOHX 090204FL-G20 K10	
	W30 04990.025510	TOGX 090204FN PKD5510	

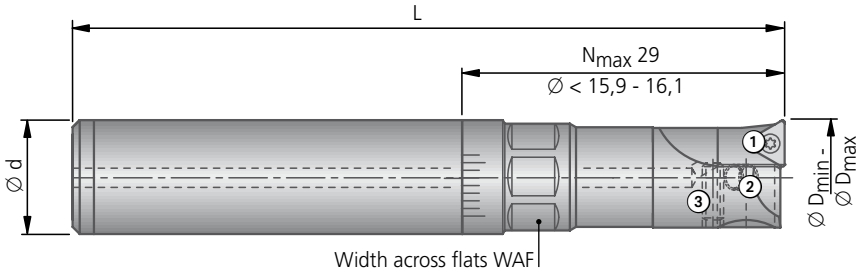
Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET MicroKom® Boring bar M10 Ø 15,9 – 26 mm



The smallest adjustment steps are 0.02 mm by: per graduation in the diameter.
For drilling diameter 15.9 – 16.1 mm the max. drilling depth is limited to 29 mm.



3×D	●	●	◐	◐	✕	● HRC > 54	● HRC > 54	✕

Boring bar										Basic recommendation	
Ø D min-max	Order No.	Ød	L	WAF	kg	Insert holder Order No.	Clamping screw ② Order No.	Adjusting screw ③ Order No.	Clamping screw ① Order No. Article	Indexable insert W30 W57 -12 W57 -14 Order No. ISO Code ▽▽ size	for workpiece material P M K N S H
15,9-20	M10 50011	16	100	14	0,13	M10 50010.15	M10 50010.16	M10 50010.18	N00 56021 S/M2×3,8-6IP 0,62 Nm	W57 14140.048430 TOGX 090204EN-14 BK8430	● ●
19-23	M10 50021	16	105	14	0,20	M10 50020.15	M10 50010.16	M10 50020.18		W30 14060.046110 TOHX 090204EL-G06 BK6110	● <52 HRC
22-26	M10 50031	16	110	18	0,23	M10 50030.15	M10 50010.16	M10 50030.18		W57 14120.0423 TOGX 090204FN-12 K10	● ●
										W30 14990.0440 TOGX 090204TN CBN40	○

Supply includes boring bar: with insert holder and screws ①, ② and ③.
Please order insert separately. Screwdriver see chapter 8.

BENEFITS for you:

- Three sizes for drilling diameters from 15.9 to 26 mm
- Internal coolant supply
- Suitable for high spindle speeds
- Fine adjustment range 0.3 mm in the diameter
- Extensive range of inserts with positive cutter geometry and wear-resistant coatings
- Inserts available with special cutter geometries to produce short, rolled chips for precision machining steel materials which produce long chips

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Recommended application areas

Guideline values for fine boring							v_c	Max. f (mm/rev)
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN		Cutting speed v_c (m/min)	Feed Ø 15,9 – 26
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)		300	0,07
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)		250	0,06
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)		300	0,07
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)		240	0,06
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)		200	0,05
P	4.1			HSS			120	0,04
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		50	0,04
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)		30	0,04
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)		200	0,05
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)		180	0,05
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)		120	0,04
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		240	0,10
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		200	0,10
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)		180	0,08
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		180	0,08
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)		160	0,08
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		140	0,07
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		120	0,10
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)		400	0,04
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)		300	0,08
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		500	0,06
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		350	0,08
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		300	0,08
H	15.0	1400		hardened steels < 45 HRC			120	0,05
H	16.0	1800		hardened steels > 45 HRC			90	0,05

for better chip control

Ø D	Order No.	ISO code	for workpiece material P M K N S H
15,9 – 26	**W30 14120.3232**	TOHX 090202EL-US12 CK32	
	W30 14120.3977	TOHX 0902ZZEL-39G12 BK77	

for higher cutting speed

Ø D	Order No.	ISO code	for workpiece material P M K N S H
15,9 – 26	**W57 14140.043210**	TOGX 090204EN-14 CK3210	
	W30 14120.0238	TOHX 090202EL-G12 CK38	
	W30 14990.0457	TOGX 090204TN CBN57	only 0.6025 (EN-GJL-250)
	W30 14990.045510	TOGX 090204FN PKD5510	

for better surface finish

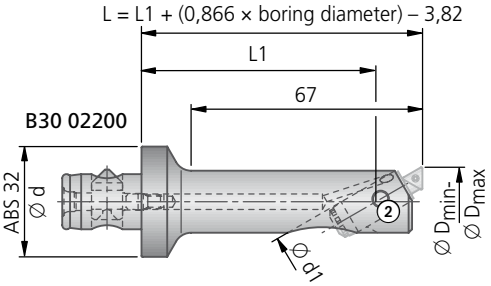
Ø D	Order No.	ISO code	for workpiece material P M K N S H
15,9 – 26	**W57 14140.043210**	TOGX 090204EN-14 CK3210	
	W30 14060.046110	TOHX 090204EL-G06 BK6110	
	W30 14200.0421	TOHX 090204FL-G20 K10	
	W30 04990.025510	TOGX 090204FN PKD5510	

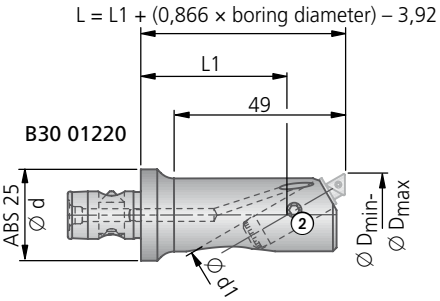
Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

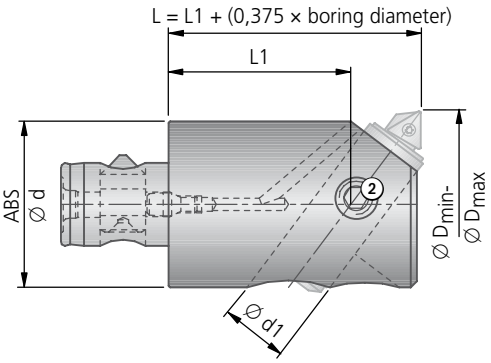
Important: See chapter 8 for more application details and safety notes!

BENEFITS for you:

- Fast, accurate setting of tool simply by using adjusting spindle
- Maximum setting accuracy by adjusting tool while clamped

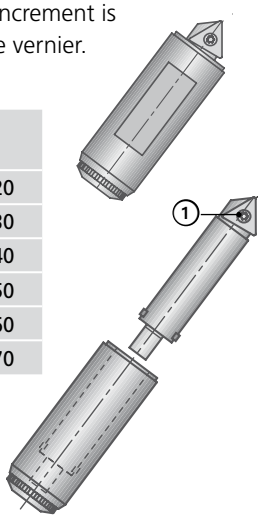






Fine boring cartridge with reduced reverse play < 0.03 mm and radial play < 0.04 mm.
The smallest adjustment increment is 0.002 mm in the ∅ above vernier.

Housing Boring tool	Locking key
FZ10.. | U10..	**L05 01020**
FZ12.. | U12..	**L05 01030**
FZ16.. | U16..	**L05 01040**
FZ20.. | U20..	**L05 01050**
FZ25.. | U25..	**L05 01060**
FZ32.. | U32..	**L05 01070**



Material P M K N S H | >3,5×D | ABS ®

Drilling range[1] ① Ø D min	② Ø D max	③ Ø D max	Boring bar Order No. Article	ABS Ø d	Ø d1	L1	kg	Clamping screw ② DIN 913 Order No. Article	Hexagonal key Order No. Article
20	22	26	**B30 02200** ABS32/20-FZ10-5	32	10	68	0,19	**55051 05005** M5×5	**18591 10025** SW 2,5
26	30	33	**B30 01220** ABS25-FZ10-5	25	10	39,7	0,13	**55051 05005** M5×5	**18591 10025** SW 2,5
28	34,4	38	**B30 01010** ABS25-FZ10-3	25	10	40	0,20	**55051 06008** M6×8	**18591 10030** SW 3
32	38,4	44							
36	44	48	**B30 02010** ABS32-FZ12-3	32	12	47	0,36	**55051 08010** M8×10	**18591 10040** SW 4
40	48	55							
45	54,6	60	**B30 03010** ABS40-FZ16-3	40	16	44	0,55	**55051 10012** M10×12	**18591 10050** SW 5
50	59,6	68							
56	68	78	**B30 04010** ABS50-FZ20-3	50	20	49,5	1,02	**55051 12016** M12×16	**18591 10060** SW 6
64	76	90							
72	88	100	**B30 05010** ABS63-FZ25-3	63	25	63,5	2,06	**55051 16020** M16×20	**18591 10080** SW 8
80	96	114							
90	114	126	**B30 06010** ABS80-FZ32-3	80	32	77	4,06	**55051 20020** M20×20	**18591 10100** SW 10
100	124	140							
110	134	150	**B30 07010** ABS100-FZ32-3	100	32	84,5	7,65	**55051 20025** M20×25	**18591 10100** SW 10
125	149	175							
for machining aluminium									
28	34,4	38	**B30 01010** ABS25-FZ10-3	25	10	40	0,20	**55051 06008** M6×8	**18591 10030** SW 3
32	38,4	44							
36	44	48	**B30 02010** ABS32-FZ12-3	32	12	47	0,36	**55051 08010** M8×10	**18591 10040** SW 4
40	48	55							
45	54,6	60	**B30 03010** ABS40-FZ16-3	40	16	44	0,55	**55051 10012** M10×12	**18591 10050** SW 5
50	59,6	68							

[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

> 3,5×D						HRC > 54	HRC > 54	
	●	●	◐	◐	✕	●	●	●

Fine boring cartridge	Housing	Boring tool		Basic recommendation		
complete (Housing + Boring tool)		Boring tool	Clamping screw ①	Indexable insert W30 W57 -12 W57 -14 W30 CBN		for workpiece material
Order No. Article	Order No. Article	Order No. Article	Order No. Article	Order No. ▽▽ size	ISO Code	P M K N S H
M30 04111 FZ10-20-5	M30 04011 FZ10-20-5	M30 54011 U10-Z5-803K	N00 56021 S/M2×3,8-6IP 0,62 Nm	W57 04140.028430 W30 04060.036110 W57 04120.0223 W30 04990.0240	TOGX 06T102EN-14 BK8430 TOHX 06T103EL-G06 BK6110 TOGX 06T102FN-12 K10 TOGX 06T102TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 04121 FZ10-31-5	M30 00031 FZ10-31-1	M30 54021 U10-Z5-803				
M30 02231 FZ10-28-3	M30 02031 FZ10-28-3	M30 52021 U10-Z3-803	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.028430 W30 04060.036110 W57 04120.0223 W30 04990.0240	TOGX 06T102EN-14 BK8430 TOHX 06T103EL-G06 BK6110 TOGX 06T102FN-12 K10 TOGX 06T102TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02241 FZ10-32-3	M30 02041 FZ10-32-3					
M30 02251 FZ12-36-3	M30 02051 FZ12-36-3	M30 52031 U12-Z3-803	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.028430 W30 04060.036110 W57 04120.0223 W30 04990.0240	TOGX 06T102EN-14 BK8430 TOHX 06T103EL-G06 BK6110 TOGX 06T102FN-12 K10 TOGX 06T102TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02261 FZ12-40-3	M30 02061 FZ12-40-3					
M30 02271 FZ16-45-3	M30 02071 FZ16-45-3	M30 52041 U16-Z3-804	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W57 14140.048430 W30 14060.046110 W57 14120.0423 W30 14990.0440	TOGX 090204EN-14 BK8430 TOHX 090204EL-G06 BK6110 TOGX 090204FN-12 K10 TOGX 090204TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02281 FZ16-50-3	M30 02081 FZ16-50-3					
M30 02291 FZ20-56-3	M30 02091 FZ20-56-3	M30 52051 U20-Z3-804	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W57 14140.048430 W30 14060.046110 W57 14120.0423 W30 14990.0440	TOGX 090204EN-14 BK8430 TOHX 090204EL-G06 BK6110 TOGX 090204FN-12 K10 TOGX 090204TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02301 FZ20-64-3	M30 02101 FZ20-64-3					
M30 02311 FZ25-72-3	M30 02111 FZ25-72-3	M30 52061 U25-Z3-805	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W57 26140.048430 W30 26060.046110 W57 26120.0423 W30 26990.0440	TOGX 140304EN-14 BK8430 TOHX 140304EL-G06 BK6110 TOGX 140304FN-12 K10 TOGX 140304TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02321 FZ25-80-3	M30 02121 FZ25-80-3					
M30 02331 FZ32-90-3	M30 02131 FZ32-90-3	M30 52071 U32-Z3-805	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W57 26140.048430 W30 26060.046110 W57 26120.0423 W30 26990.0440	TOGX 140304EN-14 BK8430 TOHX 140304EL-G06 BK6110 TOGX 140304FN-12 K10 TOGX 140304TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02341 FZ32-100-3	M30 02141 FZ32-100-3					
M30 02351 FZ32-110-3	M30 02151 FZ32-110-3	M30 52071 U32-Z3-805	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W57 26140.048430 W30 26060.046110 W57 26120.0423 W30 26990.0440	TOGX 140304EN-14 BK8430 TOHX 140304EL-G06 BK6110 TOGX 140304FN-12 K10 TOGX 140304TN CBN40	● ○ ● ● ● <52 HRC >52 HRC
M30 02361 FZ32-125-3	M30 02161 FZ32-125-3					
Insert tilt of +5° over cutting edge						
–	M30 02031 FZ10-28-3	M30 52421 U10-Z3-T06	N00 56021 S/M2×3,8-6IP 0,62 Nm	W58 03120.0423	TPGX 060104FN-12 K10	●
	M30 02041 FZ10-32-3					
–	M30 02051 FZ12-36-3	M30 52431 U12-Z3-T06	N00 56021 S/M2×3,8-6IP 0,62 Nm	W58 03120.0423	TPGX 060104FN-12 K10	●
	M30 02061 FZ12-40-3					
–	M30 02071 FZ16-45-3	M30 52441 U16-Z3-T09	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W58 13120.0423	TPGX 090204FN-12 K10	●
	M30 02081 FZ16-50-3					

Supply boring bar includes: with clamping screw ② and hexagonal key.
Supply fine boring cartridge complete includes: Housing and boring tool with clamping screw ①.
Supply boring tool includes: with clamping screw ①.
Please order locking key and insert separately. Screwdriver see chapter 8.

Guideline values for fine boring and alternative inserts: pages 308.

KOMET® Micro-adjustable head FZ

Ø 20 – 175 mm

Recommended application areas

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	v_c Cutting speed v_c (m/min)	Max. f (mm/rev) Feed Ø 20 – 48	Ø 45 – 76	Ø 72 – 149
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,08	0,10	0,15
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,08	0,12	0,20
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,10	0,15	0,25
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,08	0,10	0,20
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,06	0,10	0,15
P	4.1			HSS		120	0,06	0,08	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,06	0,08	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,06	0,08	0,10
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	200	0,08	0,10	0,15
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	180	0,06	0,10	0,15
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	120	0,06	0,10	0,15
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,15	0,20	0,30
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,15	0,20	0,30
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,10	0,15	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,10	0,15	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,10	0,15	0,25
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,10	0,15	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,10	0,15	0,25
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,10	0,15	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,10	0,15	0,20
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,08	0,12	0,15
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,15	0,20
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,15	0,20
H	15.0	1400		hardened steels < 45 HRC		120	0,08	0,08	0,10
H	16.0	1800		hardened steels > 45 HRC		90	0,06	0,08	0,10

for better chip control

Ø D	Alternative indexable insert W30 / W57 / PKD CBN W30 / .32.. / .39.. Order No.	ISO code	for workpiece material P M K N S H
20 – 48	**W30 04120.3232** **W57 04140.023210**	TOHX 06T102EL-US12 CK32 TOGX 06T102EN-14 CK3210	
45 – 76	**W30 14120.3232** **W57 14140.023210**	TOHX 090202EL-US12 CK32 TOGX 090202EN-14 CK3210	
72 – 149	**W30 26120.3232** **W57 26140.023210**	TOHX 140302EL-US12 CK32 TOGX 140302EN-14 CK3210	

for higher cutting speed

Ø D	Order No.	ISO code	for workpiece material P M K N S H
20 – 48	**W57 04140.023210** **W30 04120.0238** **W30 04990.0257**	TOGX 06T102EN-14 CK3210 TOHX 06T102EL-G12 CK38 TOGX 06T102TN CBN57	only 0.6025 (EN-GJL-250)
45 – 76	**W57 14140.043210** **W30 14120.0238** **W30 14990.0457**	TOGX 090204EN-14 CK3210 TOHX 090202EL-G12 CK38 TOGX 090204TN CBN57	only 0.6025 (EN-GJL-250)
72 – 149	**W57 26140.043210** **W30 26120.0238** **W30 26990.0457**	TOGX 140304EN-14 CK3210 TOHX 140302EL-G12 CK38 TOGX 140304TN CBN57	only 0.6025 (EN-GJL-250)

for better surface finish

Ø D	Order No.	ISO code	for workpiece material P M K N S H
20 – 48	**W30 04120.3130** **W30 04990.035510**	TOHX 06T102EL-UF12 CK30 TOGX 06T103FN PKD5510	
45 – 76	**W30 14120.3130** **W30 14990.045510**	TOHX 090202EL-UF12 CK30 TOGX 090204FN PKD5510	
72 – 149	**W30 26120.3130** **W30 14990.045510**	TOHX 140302EL-UF12 CK30 TOGX 140304FN PKD5510	

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

Recommended application areas for machining aluminium

Guideline values for fine boring						v_c	Max. f (mm/rev)	
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed Ø 28 – 48	Feed Ø 45 – 59,6
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	–	–	–
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	–	–	–
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	–	–	–
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	–	–	–
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	–	–	–
P	4.1			HSS		–	–	–
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	–	–	–
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	–	–	–
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	–	–	–
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	–	–	–
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	–	–	–
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	–	–	–
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	–	–	–
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	–	–	–
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	–	–	–
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	–	–	–
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	–	–	–
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	–	–	–
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	270	0,1	0,15
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	250	0,10	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	400	0,08	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,15
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,15
H	15.0	1400		hardened steels < 45 HRC		–	–	–
H	16.0	1800		hardened steels > 45 HRC		–	–	–

Ø D	Alternative indexable insert Order No.	ISO code	for workpiece material P M K N S H
for better chip control			
20 – 48	W32 03150.0421	TPHX 060104FL-P15 K10	◐
45 – 59,6	W32 13150.0421	TPHX 090204FL-P15 K10	◐
for higher cutting speed			
20 – 48	W32 03990.045510 W32 03150.0450	TPHB 060104FN PKD5510 TPHX 060104FL-P15 BK50	◐ ◐
45 – 59,6	W32 13990.045510	TPHB 090204FN PKD5510	◐
for better surface finish			
20 – 48	W32 03990.045510 W32 03150.0450	TPHB 060104FN PKD5510 TPHX 060104FL-P15 BK50	◐ ◐
45 – 59,6	W32 13990.045510	TPHB 090204FN PKD5510	◐

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

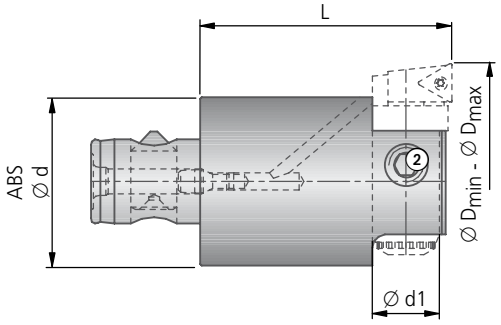
KOMET® Micro-adjustable head FF

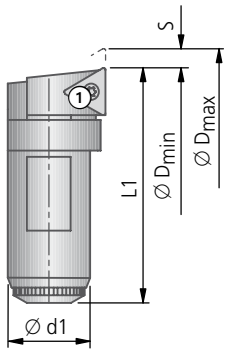
Ø 29,5 – 199 mm

Material P M K N S H | >3,5×D | ABS® | 

BENEFITS for you:

- Radial mounting of micro-adjustable cartridge
- Adjustment of cartridge while clamped, providing optimum setting accuracy
- The smallest adjustment increment is 0.002 mm in the diameter above vernier





> 3,5×D	●	●	◐	◐	✕	● HRC > 54	● HRC > 54	●

		Boring bar						Fine boring cartridge					Basic recommendation	
			ABS			Clamping screw ② DIN 913	Hexagonal key					Clamping screw ①	Indexable insert W30 W57 -12 W57 -14	for workpiece material
Ø D min-max	Ød1	Order No. Article	Ød	L	kg	Order No. Article	Order No. Article	Order No. Article	L1	S	kg	Order No. Article	Order No. ISO Code ▽▽ size	P M K N S H
29,5-36	10	B30 11010 ABS25-FF-29,5	25	50	0,17	55051 06006 M6×6	18591 10030 SW 3	M30 20011 FF10-30	28,5	3,5	0,06	N00 56021 S/M2×3,8-6IP 0,62 Nm	W57 04140.028430 TOGX 06T102EN-14 BK8430	● ●
35,5-42	10	B30 11020 ABS25-FF-35,5	25	50	0,18								W30 04060.036110 TOHX 06T103EL-G06 BK6110	● <52 HRC
39-45	12	B30 12010 ABS32-FF-39	32	60	0,35	55051 08008 M8×8	18591 10040 SW 4	M30 20021 FF12-39	37,5	3,5	0,03	N00 56021 S/M2×3,8-6IP 0,62 Nm	W57 04120.0223 TOGX 06T102FN-12 K10	● ●
44-50	12	B30 12020 ABS32-FF-44	32	60	0,35	55051 08010 M8×10							W30 04990.0240 TOGX 06T102TN CBN40	>52 HRC
47-57	16	B30 13010 ABS40-FF-47	40	60	0,52	55051 10010 M10×10	18591 10050 SW 5	M30 20031 FF16-47	45	5	0,06	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.048430 TOGX 090204EN-14 BK8430	● ●
56-66	16	B30 13020 ABS40-FF-56	40	60	0,53								W30 14060.046110 TOHX 090204EL-G06 BK6110	● <52 HRC
58-71	20	B30 14010 ABS50-FF-58	50	70	0,97	55051 12012 M12×12	18591 10060 SW 6	M30 20041 FF20-58	56	7	0,12	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W57 14120.0423 TOGX 090204FN-12 K10	● ●
70-83	20	B30 14020 ABS50-FF-70	50	70	1,00								W30 14990.0440 TOGX 090204TN CBN40	>52 HRC
79-94	25	B30 15010 ABS63-FF-79	63	70	1,58	55051 16016 M16×16	18591 10080 SW 8	M30 20051 FF25-79	77,5	8	0,27	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W57 26140.048430 TOGX 140304EN-14 BK8430	● ●
93-108	25	B30 15020 ABS63-FF-93	63	70	1,61								W30 26060.046110 TOHX 140304EL-G06 BK6110	● <52 HRC
100-121	32	B30 16010 ABS80-FF-100	80	90	3,33	55051 20020 M20×20	18591 10100 SW 10	M30 20061 FF32-100	97	11	0,55	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W57 26120.0423 TOGX 140304FN-12 K10	● ●
120-141	32	B30 16020 ABS80-FF-120	80	90	3,37								W30 26990.0440 TOGX 140304TN CBN40	>52 HRC
138-159	32	B30 17010 ABS100-FF-138	100	90	6,56	55051 20030 M20×30	18591 10100 SW 10	M30 20071 FF32-138	131	11	0,76	N00 56211 S/M3,5×7,3-10IP 2,8 Nm		
158-179	32	B30 17020 ABS100-FF-158	100	90	6,80	55051 20020 M20×20								
178-199	32	B30 17030 ABS100-FF-178	100	90	6,61									

Supply boring bar includes: with clamping screw ② and hexagonal key.
Supply boring fine boring cartridge: with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Recommended application areas

Guideline values for fine boring						v_c	Max. f (mm/rev)		
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed Ø 29,5 – 50	Feed Ø 47 – 83	Feed Ø 79 – 199
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	300	0,08	0,10	0,15
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,08	0,12	0,20
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,10	0,15	0,25
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,08	0,10	0,20
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,06	0,10	0,15
P	4.1			HSS		120	0,06	0,08	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,06	0,08	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,06	0,08	0,10
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200	0,08	0,10	0,15
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	180	0,06	0,10	0,15
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120	0,06	0,10	0,15
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,15	0,20	0,30
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,15	0,20	0,30
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,10	0,15	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,10	0,15	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,10	0,15	0,25
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,10	0,15	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,10	0,15	0,25
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,10	0,15	0,20
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,10	0,15	0,20
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,08	0,12	0,15
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,15	0,20
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,15	0,20
H	15.0	1400		hardened steels < 45 HRC		120	0,08	0,08	0,10
H	16.0	1800		hardened steels > 45 HRC		90	0,06	0,08	0,10

for better chip control

Ø D	Alternative indexable insert: W30 / W57 (Order No.)	W30 / .32.. / .39.. (ISO code)	for workpiece material P M K N S H
29,5 – 50	**W30 04120.3232** **W57 04140.023210**	TOHX 06T102EL-US12 CK32 TOGX 06T102EN-14 CK3210	◐ ◐ ◐ ◐
47 – 83	**W30 14120.3232** **W57 14140.023210**	TOHX 090202EL-US12 CK32 TOGX 090202EN-14 CK3210	◐ ◐ ◐ ◐
79 – 199	**W30 26120.3232** **W57 26140.023210**	TOHX 140302EL-US12 CK32 TOGX 140302EN-14 CK3210	◐ ◐ ◐ ◐

for higher cutting speed

Ø D	Alternative indexable insert: W30 / W57 (Order No.)	W30 / .32.. / .39.. (ISO code)	for workpiece material P M K N S H
29,5 – 50	**W57 04140.023210** **W30 04120.0238** **W30 04990.0257**	TOGX 06T102EN-14 CK3210 TOHX 06T102EL-G12 CK38 TOGX 06T102TN CBN57	◐ ◐ ◐ ◐ only 0.6025 (EN-GJL-250)
47 – 83	**W57 14140.043210** **W30 14120.0238** **W30 14990.0457**	TOGX 090204EN-14 CK3210 TOHX 090202EL-G12 CK38 TOGX 090204TN CBN57	◐ ◐ ◐ ◐ only 0.6025 (EN-GJL-250)
79 – 199	**W57 26140.043210** **W30 26120.0238** **W30 26990.0457**	TOGX 140304EN-14 CK3210 TOHX 140302EL-G12 CK38 TOGX 140304TN CBN57	◐ ◐ ◐ ◐ only 0.6025 (EN-GJL-250)

for better surface finish

Ø D	Alternative indexable insert: W30 / W57 (Order No.)	W30 / .32.. / .39.. (ISO code)	for workpiece material P M K N S H
29,5 – 50	**W30 04120.3130** **W30 04990.035510**	TOHX 06T102EL-UF12 CK30 TOGX 06T103FN PKD5510	◐ ◐ ◐
47 – 83	**W30 14120.3130** **W30 14990.045510**	TOHX 090202EL-UF12 CK30 TOGX 090204FN PKD5510	◐ ◐ ◐
79 – 199	**W30 26120.3130** **W30 14990.045510**	TOHX 140302EL-UF12 CK30 TOGX 140304FN PKD5510	◐ ◐ ◐

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET MicroKom® M03Speed

Micro-adjustable head for high-precision fine adjustment with balancing

The demands on fine boring tools are primarily increasing improvements to surface finishes and at the same time higher cutting speeds for short machining times.

Fine machining is a demanding bore machining operation. With MicroKom® M03Speed micro-adjustable heads KOMET® has provided a tried and tested tool system which, with its high precision adjustment mechanism, from the rough adjustment for the rotating clamping holder to the graduation collar on the external diameter, allows fine adjustment steps of up to 0.002 millimeters in the diameter.

The fine adjustment for wear compensation or after measurement is then carried out extremely accurately directly on the machine spindle. There is no need for clamping during and after this fine adjustment, which means that the dimension can be perfectly maintained.

Balancing: when the insert position is changed, there is an automatic balancing adjustment by means of a moveable balancing weight which lies diametrically opposite. This is a balancing operation on the adjustment plane for the insert.

This is based on six tool bodies to cover diameters from 24.8 to 206 millimeters. Maximum changeover accuracy is guaranteed with ABS® 25 | 32 | 40 | 50 | 63 connections.

Diameters from 38 to 206 are provided for by means of three adaptable and replaceable bridges.

Just like the whole production range, the bridges – which are in a lightweight material with a hard surface coating – allow high machining speeds to be achieved.

Flexibility with replaceable insert holders: the replaceable insert holders are special feature of the new product range.

The user has the facility to carry out forward and reverse machining with one tool with different approach angles. Using a specially designed connection, the changeover is fast, uncomplicated and safe.



Construction

1 Insert holder with KOMET® geometry
2 Holder
3 Connection insert holder – holder
4 Holding screw insert holder – holder
5 Holding screw holder – micro-adjustable head
6 Adjusting screw for coarse adjustment of insert holder
7 Slide with weight compensation
8 Internal coolant directed onto insert
9 All scales have matt chrome finish
10 High resolution gives easy read-off **without** vernier
11 ABS® connection for maximum changeover accuracy

BENEFITS for you:

- Unique: our micro-adjustable head with automatic balancing in the slide
- The setting accuracy is per division 0.002 mm in diameter
- Geometrically the same as previous M03Speed design – and therefore compatible
- Micro-adjustment without the need for clamping

The modular tool range

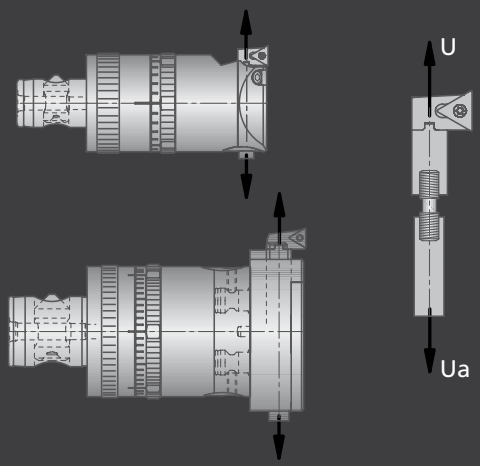
- For diameters over 206 millimeters KOMET® offers bridging tools.
- In a modular design, these consist of standard elements and elements adjusted to length to customer specification.



KOMET MicroKom® M03Speed

	Page
Micro-adjustable head with ABS® connection	
Micro-adjustable head and insert holder for	
∅ 24,8 - 39 mm	314 – 315
∅ 38,0 - 103 mm	316 – 317
Micro-adjustable head / replaceable bridge and insert holder for	
∅ 38,0 - 103 mm	318 – 319
∅ 100 - 206 mm	320 – 321
Technical notes	322
Guideline values for fine boring Alternative inserts	
Set in case	323

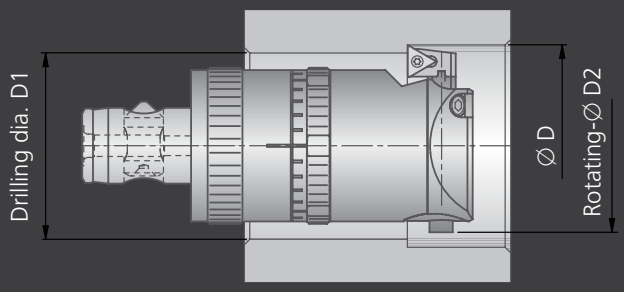
Dynamic weight balance on the slide guarantees optimum balance in any position



Calculation for reverse machining

D1 = Drilling dia.
D2 = Rotating dia.
D = Machining dia. generally

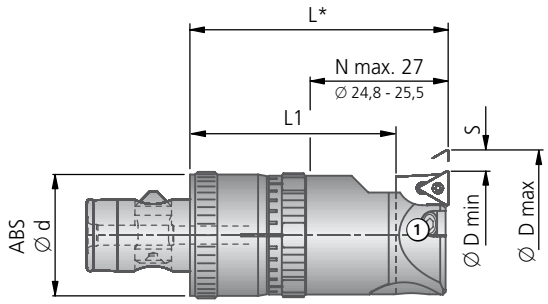
$$D1 = \frac{D2 + D}{2} + 0{,}5$$



KOMET MicroKom® M03Speed Ø 24,8 – 39,0 mm

Micro-adjustable head





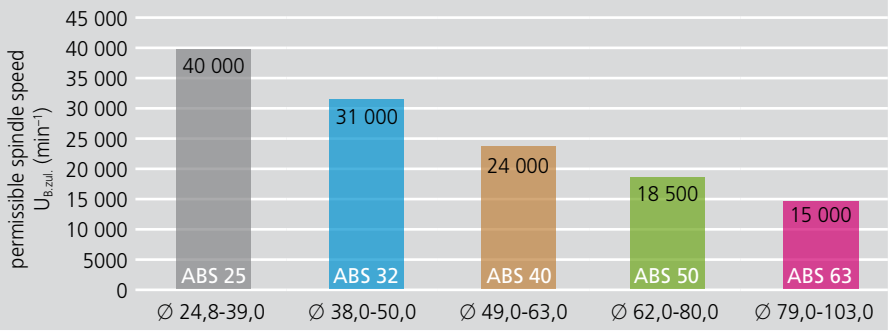
* dimension L see insert holder table on following page.

[1] **Note:** from 25.5 mm diameters, the effective length N corresponds to tool length L.

Micro-adjustable head									
Ø D[1] min - max	Rotating diameter Ø D2	Order No.	ABS Ø d	L1	Coarse adjustment path S	Fine adjustment in diameter	permissible spindle speed min^{-1}	kg	Clamping screw ① for holder Order No. Article
24,8 - 33,0	24,5	**M03 00115**	25	39,9	4,5	0,25	40 000	0,15	**55051 04504** M4×0,5×4
29,0 - 39,0	26,0	**M03 00515**	25	39,9	5,0	0,40	40 000	0,17	**55051 04504** M4×0,5×4

Supply includes:
Micro-adjustable drilling head with clamping screw ①. Please order insert holder and insert separately.

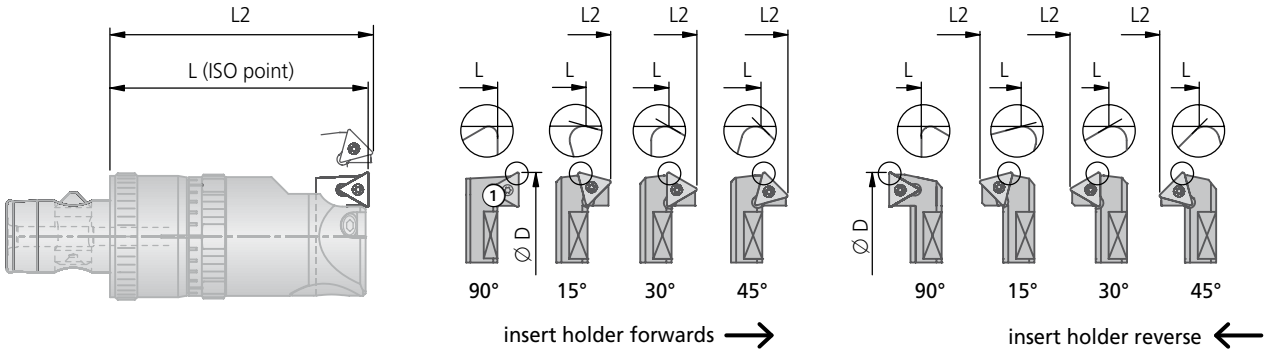
Maximum spindle speed
when using different ABS® sizes
Ø 24.8 - 103.0 mm
(MicroKom® M03Speed
without replaceable bridges)



Patent applied for inside and outside Germany

Material P M K N S H

3,5×D



> 3,5×D	●	●	◐	◐	●	● HRC > 54	● HRC > 54	●

		→ Insert holder forwards						Basic recommendation		
Ø D	Micro-adjustable head	Order No.	ϰ	L	L2	kg	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
24,8 – 33	M03 00115	M03 10011	90°	50	–	0,004	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 11110	15°	44,4	50,3			W30 04060.036110	TOHX 06T103EL-G06 BK6110	
		M03 11210	30°	45,4	50,7			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 11310	45°	46,4	50,7			W30 04990.0240	TOGX 06T102TN CBN40	
29 – 39	M03 00515	M03 10021	90°	50	–	0,005	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 11100	15°	44,4	50,3			W30 04060.036110	TOHX 06T103EL-G06 BK6110	
		M03 11200	30°	45,4	50,7			W57 04120.0223	TOGX 06T102FN-12 K10	
		–	45°	46,4	50,7			W30 04990.0240	TOGX 06T102TN CBN40	
		← Insert holder reverse								
30 – 33	M03 00115	–	90°	35,8	–	0,004	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 12110	15°	41,4	35,45			W30 04420.0362	TOHX 06T103ER-G12 BK62	
		M03 12210	30°	40,4	35,1			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 12310	45°	39,4	35,1			W30 04990.0240	TOGX 06T102TN CBN40	
34 – 39	M03 00515	M03 12000	90°	35,8	–	0,005	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 12100	15°	41,4	35,4			W30 04420.0362	TOHX 06T103ER-G12 BK62	
		–	30°	40,4	35,1			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 12300	45°	39,4	35,1			W30 04990.0240	TOGX 06T102TN CBN40	

Supply includes: Insert holder with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

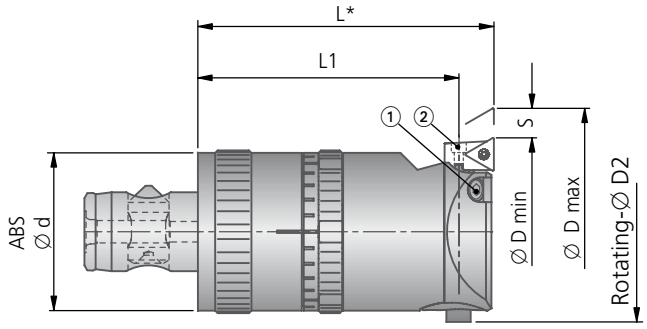
● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: page 322.

KOMET MicroKom® M03Speed Ø 38,0 – 103,0 mm

Micro-adjustable head



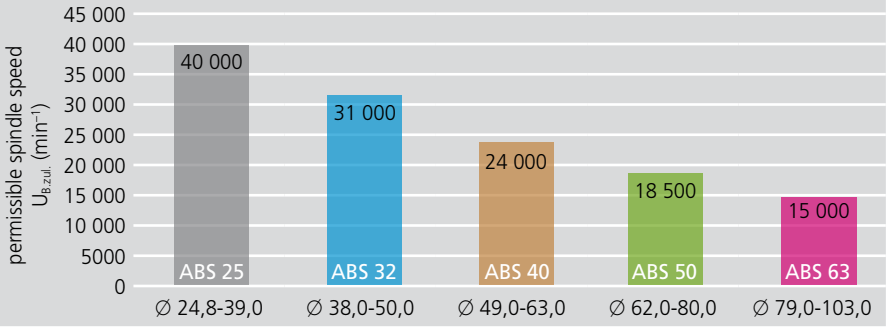


* dimension L see insert holder table on following page.

Micro-adjustable head										
Ø D min - max	Rotating diameter Ø D2	Order No.	ABS Ø d	L1	Coarse adjustment path S	Fine adjustment in diameter	permissible spindle speed min⁻¹	kg	Clamping screw ① for holder Order No. Article	Holding screw ② Order No. Article
38,0 - 42,0	33,0	M03 01025	32	52,9	6,0	0,40	31 000	0,35	55051 04504 M4×0,5×4	N00 56211 S/M3,5×7,3-10IP
42,0 - 50,0	Ø D – 8									
49,0 - 63,0	41,0	M03 01535	40	60	7,0	0,40	24 000	0,63	55051 05506 M5×0,5×6	N00 56211 S/M3,5×7,3-10IP
62,0 - 80,0	51,0	M03 02045	50	65	9,0	0,60	18 500	1,12		
79,0 - 95,0	65,0	M03 02555	63	66	12,0	0,60	15 000	1,91	55051 06008 M6×8	N00 56401 S/M5×9,4-20IP
95,0 - 103,0	Ø D – 30									

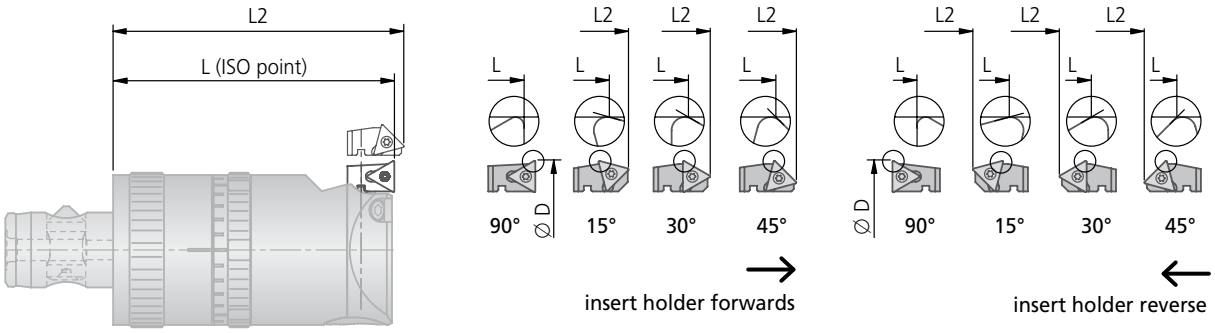
Supply includes:
Micro-adjustable drilling head with clamping screw ① and holder with holding screw ②.
Please order insert holder and insert separately.

Maximum spindle speed
when using different ABS® sizes
Ø 24.8 - 103.0 mm
(MicroKom® M03Speed
without replaceable bridges)



Patent applied for inside and outside Germany

Material P M K N S H | 3,5×D



> 3,5×D	●	●	◐	◐	●	● HRC > 54	● HRC > 54	●

Ø D	Micro-adjustable head	Order No.	ϰ	L	L2	kg	Clamping screw ① Order No. Article	Indexable insert Order No. ▽▽ size	Indexable insert ISO Code	for workpiece material P M K N S H
→ Insert holder forwards										
38 – 50	M03 01025 ABS 32	M03 10033	90°	60	–	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ●
		M03 11120	15°	55,5	61,7			W30 04060.036110	TOHX 06T103EL-G06 BK6110	
		M03 11220	30°	56,5	62			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 11320	45°	57,5	62			W30 04990.0240	TOGX 06T102TN CBN40	
49 – 63	M03 01535 ABS 40	M03 10043	90°	70	–	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60	● ● ● ● ● ●
		–	15°					W30 14060.046110	TOHX 090204EL-G06 BK6110	
		M03 11230	30°	64,5	72			W57 14120.0423	TOGX 090204FN-12 K10	
		M03 11330	45°	66,8	72,9			W30 14990.0440	TOGX 090204TN CBN40	
62 – 80	M03 02045 ABS 50	M03 10043	90°	75	–	0,005				
		M03 11130	15°	68,5	76,9					
		M03 11230	30°	69,5	77					
		M03 11330	45°	71,8	77,9					
79 – 103	M03 02555 ABS 63	M03 10063	90°	80	–	0,009				
		–	15°	71	79,7					
		M03 11250	30°	73	80,7					
		M03 11350	45°	75	81,3					
← Insert holder reverse										
42 – 50	M03 01025 ABS 32	M03 12020	90°	45,8	–	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ●
		M03 12120	15°	50,4	44,2			W30 04420.0362	TOHX 06T103ER-G12 BK62	
		M03 12220	30°	49,4	43,9			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 12320	45°	48,4	43,9			W30 04990.0240	TOGX 06T102TN CBN40	
49 – 63	M03 01535 ABS 40	M03 12030	90°	50	–	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60	● ● ● ● ● ●
		M03 12130	15°	56,5	48,1			W30 14420.0462	TOHX 090204ER-G12 BK62	
		M03 12230	30°	55,5	48			W57 14120.0423	TOGX 090204FN-12 K10	
		M03 12330	45°	53	46,9			W30 14990.0440	TOGX 090204TN CBN40	
62 – 80	M03 02045 ABS 50	M03 12030	90°	55	–	0,005				
		M03 12130	15°	61,5	53,1					
		M03 12230	30°	60,5	53					
		M03 12330	45°	58	51,9					
79 – 103	M03 02555 ABS 63	M03 12050	90°	52	–	0,009				
		–	15°	61	52,6					
		M03 12250	30°	59	51,5					
		M03 12350	45°	57	50,9					

Supply includes: Insert holder with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

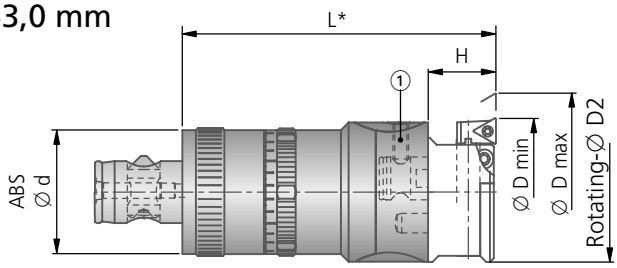
Guideline values for fine boring and alternative inserts: page 322.

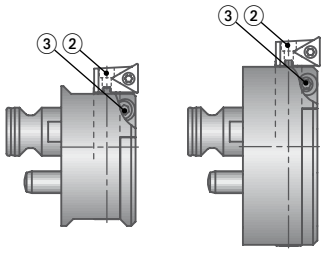
KOMET MicroKom® M03Speed — Ø 38,0 – 103,0 mm

Micro-adjustable head



Ø 38,0 – 63,0 mm

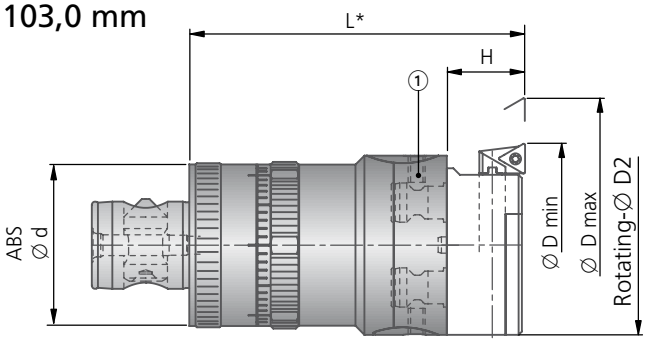


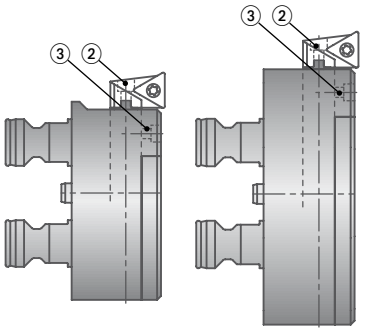


* dimension L see insert holder table on following page.

Micro-adjustable head				Replaceable bridge							
Order No.	ABS Ø d	kg	Clamping screw ① for replaceable bridge Order No. Article	Drilling diameter Ø D min - max	Rotating diameter Ø D2	Order No.	H	permissible spindle speed min⁻¹	kg	Location screw ② for insert holder Order No. Article	Clamping screw ③ for holder Order No. Article
M03 20170	32	0,35	M03 20090.15 M8×10	38,0 - 51,0	Ø D – 3,2	M03 20180	17,5	31 000	0,06	N00 56211 S/M3,5×7,3-10IP	55051 04008 M4×8 (1,5 Nm)
				50,0 - 63,0	Ø D – 3,5	M03 20190	17,5	24 000	0,08		

Ø 62,0 – 103,0 mm



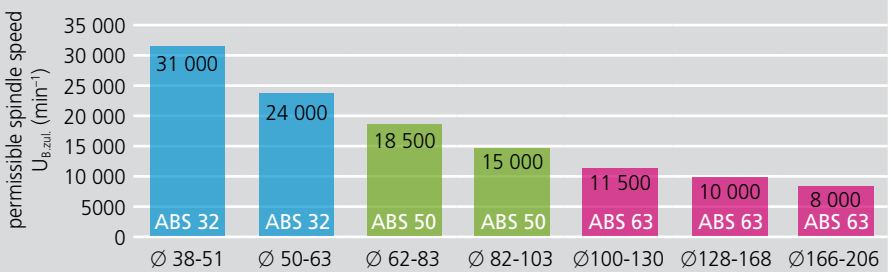


* dimension L see insert holder table on following page.

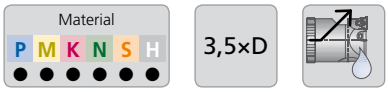
Micro-adjustable head				Replaceable bridge							
Order No.	ABS Ø d	kg	Clamping screw ① for replaceable bridge Order No. Article	Drilling diameter Ø D min - max	Rotating diameter Ø D2	Order No.	H	permissible spindle speed min⁻¹	kg	Location screw ② for insert holder Order No. Article	Clamping screw ③ for holder Order No. Article
M03 20140	50	1,3	M03 20090.15 M8×10	62,0 - 83,0	55	M03 20150	24	18 500	0,20	N00 56211 S/M3,5×7,3-10IP	55051 04008 M4×8 (1,5 Nm)
				82,0 - 103,0	71	M03 20160	24	15 000	0,24		

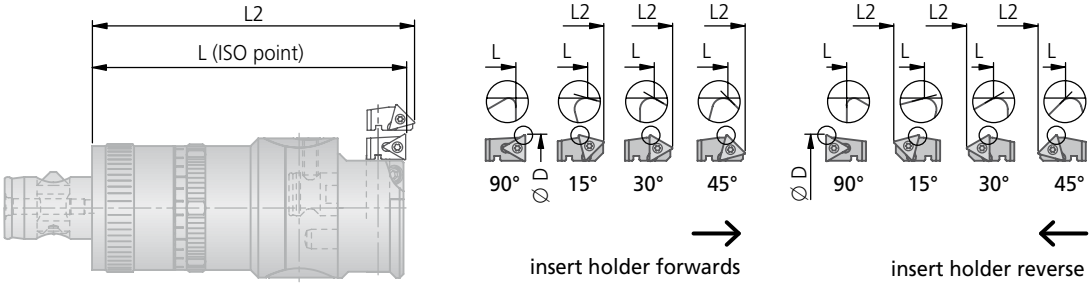
Supply includes micro-adjustable drilling head:
Micro-adjustable drilling head with clamping screw ①. Please order replaceable bridge separately.
Supply includes replaceable bridge:
Replaceable bridge with holding screw ② and clamping screw ③. Please order insert holder separately.

Maximum spindle speed
when using different ABS® sizes
Ø 24.8 - 103.0 mm
(MicroKom® M03Speed
with replaceable bridges)



Patent applied for inside and outside Germany





> 3,5×D	●	●	◐	◐	●	● HRC > 54	● HRC > 54	●

		→ Insert holder forwards						Basic recommendation		
Ø D	Micro-adjustable head	Order No.	ϰ	L	L2	kg	Clamping screw ① Order No. Article	Indexable insert Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
38 – 63	M03 20170 ABS 32	M03 10033	90°	81	–	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 11120	15°	76,5	82,7			W30 04060.036110	TOHX 06T103EL-G06 BK6110	
		M03 11220	30°	77,5	83			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 11320	45°	78,5	83			W30 04990.0240	TOGX 06T102TN CBN40	
62 – 103	M03 20140 ABS 50	M03 10043	90°	103	–	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		–	15°					W30 14060.046110	TOHX 090204EL-G06 BK6110	
		M03 11230	30°	97,5	105			W57 14120.0423	TOGX 090204FN-12 K10	
		M03 11330	45°	99,8	105,9			W30 14990.0440	TOGX 090204TN CBN40	
		← Insert holder reverse								
38 – 63	M03 20170 ABS 32	M03 12020	90°	66,8	–	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 12120	15°	71,4	65,2			W30 04420.0362	TOHX 06T103ER-G12 BK62	
		M03 12220	30°	70,4	64,9			W57 04120.0223	TOGX 06T102FN-12 K10	
		M03 12320	45°	69,4	64,9			W30 04990.0240	TOGX 06T102TN CBN40	
62 – 103	M03 20140 ABS 50	M03 12030	90°	83	–	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60	● ● ● ● ● ● <52 HRC >52 HRC
		M03 12130	15°	89,5	81,1			W30 14420.0462	TOHX 090204ER-G12 BK62	
		M03 12230	30°	88,5	81			W57 14120.0423	TOGX 090204FN-12 K10	
		M03 12330	45°	86	79,9			W30 14990.0440	TOGX 090204TN CBN40	

Supply includes: Insert holder with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

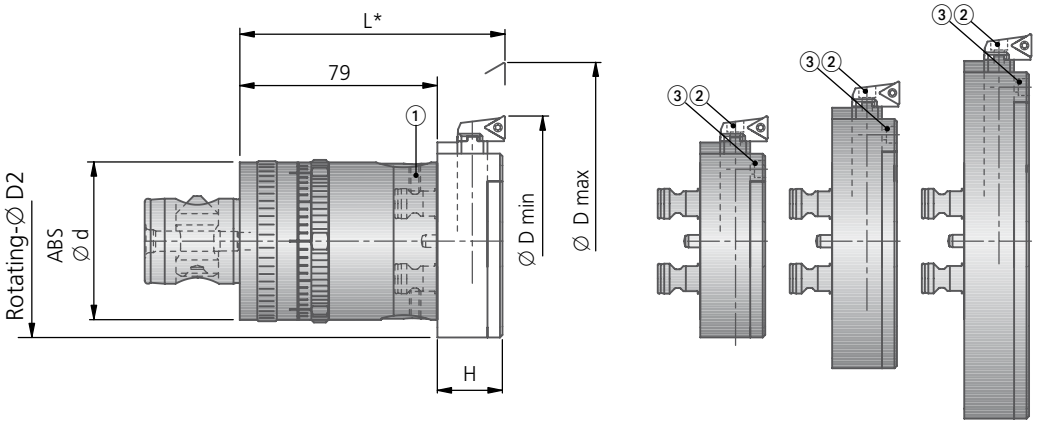
● very good | ◐ good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: page 322.

KOMET MicroKom® M03Speed Ø 100,0 – 206,0 mm

Micro-adjustable head



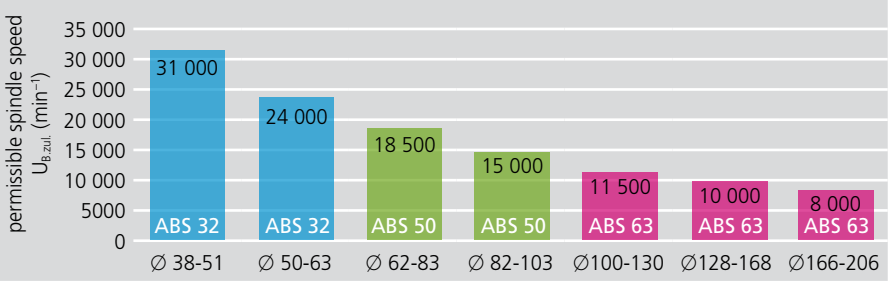


* dimension L see insert holder table on following page.

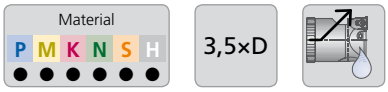
Micro-adjustable head				Replaceable bridge							
Order No.	ABS Ø d	kg	Clamping screw ① for replaceable bridge Order No. Article	Drilling diameter Ø D min - max	Rotating diameter Ø D2	Order No.	H	permissible spindle speed min⁻¹	kg	Location screw ② for insert holder Order No. Article	Clamping screw ③ for holder Order No. Article
M03 20090	63	1,82	M03 20090.15 M8×10	100 - 130	85	M03 20100	26	11 500	0,39	N00 56401 S/M5×9,4-20IP	55051 04008 M4×8 (1,5 Nm)
				128 - 168	109	M03 20110	26	10 000	0,49		
				166 - 206	146	M03 20120	26	8 000	0,59		

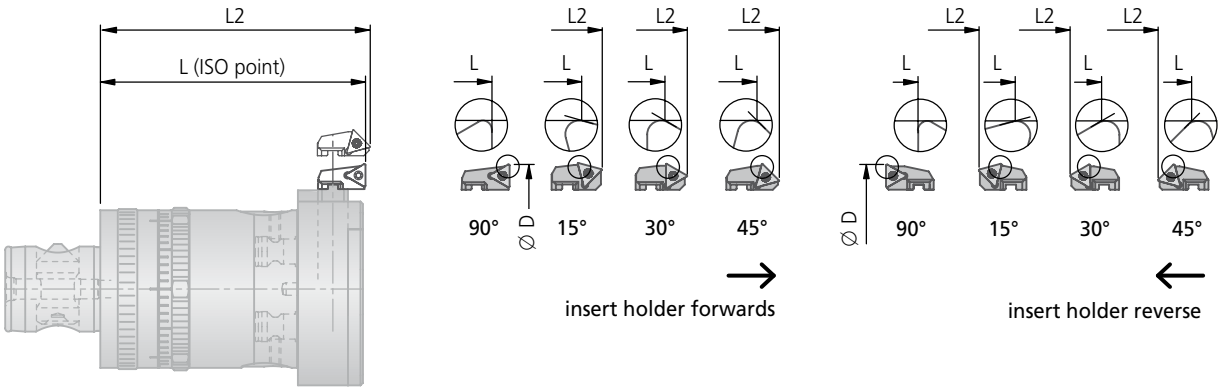
Supply includes micro-adjustable drilling head:
Micro-adjustable drilling head with clamping screw ①. Please order replaceable bridge separately.
Supply includes replaceable bridge:
Replaceable bridge with holding screw ② and clamping screw ③. Please order insert holder separately.

Maximum spindle speed
when using different ABS® sizes
Ø 24.8 - 103.0 mm
(MicroKom® M03Speed
with replaceable bridges)



Patent applied for inside and outside Germany





> 3,5×D							HRC > 54	HRC > 54	
	●	●	◐	◐	●	●	●	●	●

Ø D	Micro-adjustable head	Order No.	ϰ	L	L2	kg	Clamping screw ① Order No. Article	Indexable insert Order No. ▽▽ size	ISO Code	for workpiece material P M K N S H
→ Insert holder forwards										
100 – 206	M03 20090 ABS 63	**M03 10070**	90°	106	–	0,01	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460**	TOGX 090204EN-14 BK60	● ● <52 HRC ● ● >52 HRC
		–	15°	97	105,9			**W30 14060.046110**	TOHX 090204EL-G06 BK6110	
		M03 11260	30°	99	107			**W57 14120.0423**	TOGX 090204FN-12 K10	
		–	45°	101	107,5			**W30 14990.0440**	TOGX 090204TN CBN40	
← Insert holder reverse										
100 – 206	M03 20090 ABS 63	–	90°	80	–	0,01	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W57 14140.0460**	TOGX 090204EN-14 BK60	● ● <52 HRC ● ● >52 HRC
		M03 12160	15°	89	80,6			**W30 14420.0462**	TOHX 090204ER-G12 BK62	
		M03 12260	30°	87	79,5			**W57 14120.0423**	TOGX 090204FN-12 K10	
		M03 12360	45°	85	78,9			**W30 14990.0440**	TOGX 090204TN CBN40	

Supply includes: Insert holder with clamping screw ①.
Please order insert separately. Screwdriver see chapter 8.

Guideline values for fine boring and alternative inserts: page 322.

KOMET MicroKom® M03Speed

Recommended application areas

Guideline values for fine boring						v_c	Max. f (mm/rev)	
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_c (m/min)	Feed ① Ø 24,8–50 ② Ø 38–63	Feed ① Ø 49–103 ② Ø 62–206
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S275JR)	300	0,08	0,10
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,08	0,12
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,10	0,15
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,08	0,10
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,06	0,10
P	4.1			HSS		120	0,06	0,08
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,06	0,08
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,06	0,08
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	200	0,08	0,10
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	180	0,06	0,10
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	120	0,06	0,10
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,15	0,20
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,15	0,20
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,10	0,15
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,10	0,15
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,10	0,15
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,10	0,15
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,10	0,15
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,10	0,15
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	270	0,10	0,15
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,08	0,12
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,10	0,15
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,10	0,15
H	15.0	1400		hardened steels < 45 HRC		120	0,08	0,08
H	16.0	1800		hardened steels > 45 HRC		90	0,06	0,08

Ø D	Alternative indexable insert Order No. ▽▽ Size	ISO-Code	for workpiece material P M K N S H
for better chip control			
① Ø 24,8–50 | ② Ø 38–63	**W57 04140.023210**	TOGX 06T102EN-14 CK3210	
	→ only for forward machining:		
	W30 04120.3232	TOHX 06T102EL-US12 CK32	
① Ø 49–103 | ② Ø 62–206	**W57 14140.023210**	TOGX 090202EN-14 CK3210	
	→ only for forward machining:		
	W30 14120.3232	TOHX 090202EL-US12 CK32	
for higher cutting speed			
① Ø 24,8–50 | ② Ø 38–63	**W57 04140.023210**	TOGX 06T102EN-14 CK3210	
	W30 04990.0257	TOGX 06T102TN CBN57	only 0.6025 (EN-GJL-250)
	→ only for forward machining:		
	W30 04120.0238	TOHX 06T102EL-G12 CK38	
① Ø 49–103 | ② Ø 62–206	**W57 14140.043210**	TOGX 090204EN-14 CK3210	
	W30 14990.0457	TOGX 090204TN CBN57	only 0.6025 (EN-GJL-250)
	→ only for forward machining:		
	W30 14120.0238	TOHX 090202EL-G12 CK38	
for better surface			
① Ø 24,8–50 | ② Ø 38–63	**W30 04990.035510**	TOGX 06T103FN PKD5510	
	→ only for forward machining:		
	W30 04120.3130	TOHX 06T102EL-UF12 CK30	
① Ø 49–103 | ② Ø 62–206	**W30 14990.045510**	TOGX 090204FN PKD5510	
	→ only for forward machining:		
	W30 14120.3130	TOHX 090202EL-UF12 CK30	

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

A Ø 38 mm – Ø 63 mm, ABS® 32



Set in case complete
Order No. M03 20230

	Qty.	Article	Order No.
①	1	Replaceable brigde Ø 38-51	M03 20180
②	1	Replaceable brigde Ø 50-63	M03 20190
③	1	Micro-adjustable head ABS32	M03 20170
④	2	Insert holder 90° forwards	M03 10033
⑤	1	Allen key SW 4	18050 10040

B Ø 62 mm – Ø 103 mm, ABS® 50



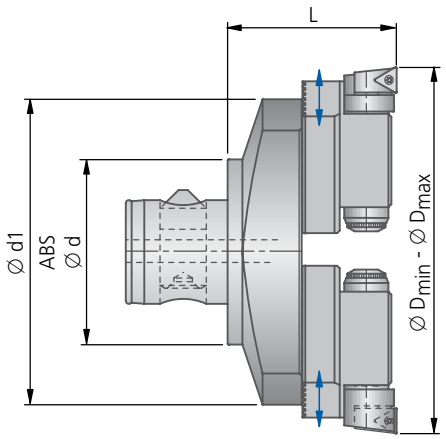
Set in case complete
Order No. M03 20240

	Qty.	Article	Order No.
①	1	Replaceable brigde Ø 62-83	M03 20180
②	1	Replaceable brigde Ø 82-103	M03 20190
③	1	Micro-adjustable head ABS50	M03 20170
④	2	Insert holder 90° forwards	M03 10033
⑤	1	Allen key SW 4	18050 10040

KOMET TwinKom® G01 Ø 196 – 401 mm

Twin cutter with ABS® connection, ϰ = 90°

						HRC > 54	HRC > 54	
3,5×D	●	●	◐	◐	✕	●	●	✕



Twin cutter						Pair of holders	Insert seating		Basic recommendation	
Ø D min-max	Order No. Article	ABS Ø d	Ø d1	L	kg	Order No. Article	Order No.	Clamping screw Order No. Article	Indexable insert W30 W57 -12 W57 -14 Order No. ISO Code ▽▽size	for workpiece material P M K N S H
196 - 271	**G01 23510** ABS100VDF165	100	165	88	7,7	**G01 23600** VDF165-295	**M30 20051**	**N00 56211** S/M3,5×7,3-10IP 2,8 Nm	**W57 26140.048430** TOGX 140304EN-14 BK8430	● ● <52 HRC
261 - 335	**G01 23520** ABS100VDF230	100	230	88	8,8				**W30 26060.046110** TOHX 140304EL-G06 BK6110	●
326 - 401	**G01 23530** ABS100VDF295	100	295	88	10,4				**W57 26120.0423** TOGX 140304FN-12 K10	● ●
									W30 26990.0440 TOGX 140304TN CBN40	○

Supply includes twin cutter tool: with pair of toolholder, insert seatings and clamping screws.
Supply includes pair of holders: with insert seatings and clamping screws.
Supply includes insert seating: with clamping screw.

Please order insert separately. Screwdriver see chapter 8.

Important features:

This tool not only halves the fine boring time and also the costs but guarantees good cylindrical shape even for long and large diameter bores. This is because by dividing the feed the contact time between cutter and workpiece is halved and the dimensional stability is guaranteed for the cutters to a better degree than with single cutter tools.

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Guideline values for fine boring						v_C	Max. f (mm/rev)
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Cutting speed v_C (m/min)	Feed Ø 196 – 401
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,15
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,20
P	2.1	<500		lead alloys	1.0718 (11SMn-Pb30)	300	0,25
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,20
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	200	0,15
P	4.1			HSS		120	0,12
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,10
S	5.1	400		titanium, titanium alloys	3.7115 (Ti-Al5Sn2.5)	30	0,10
M	6.0	≤600		stainless steels	1.4306 (X2Cr-Ni19-11) 1.4401 (X5CrNi-Mo17-12-2)	200	0,15
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNi-MoTi17-12-2)	180	0,15
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAl-Si7) 1.4862 (X8NiCr-Si38-18)	120	0,15
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,30
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,30
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,25
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,25
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,25
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,25
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,25
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZ-n36Pb3) 2.1182.01 (G-CuPb15Sn)	300	0,08
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZ-n40Al2) 2.0060 (E-Cu57)	300	0,20
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,15
N	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300	0,20
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	250	0,20
H	15.0	1400		hardened steels < 45 HRC		120	0,10
H	16.0	1800		hardened steels > 45 HRC		90	0,10

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See chapter 8 for more application details and safety notes!

KOMET TwinKom®

Lightweight dual cutter

Optimally designed for your machining requirement

A typical example of the ongoing further development of the KOMET® cutting tool range can be seen in the improved concept of the KOMET TwinKom® lightweight dual cutters – a concept which enables particularly cost-effective machining. The tools are extremely rigid, provide high transmissible torques and offer high cutting efficiency. KOMET TwinKom® dual cutters can be used for a variety of operations – as a dual cutter for roughing, with a single cutting edge for finishing, as a follow-on cutting tool and, by means of an adaptor, as a stepped tool. The tools are modular in design and are suitable for diameters from 365 to 2000 mm. The adjustment range is ± 40 mm (or 80 mm) in relation to the diameter.

The size of the replaceable bridge is application-oriented and adapted to suit the hole diameter to be cut, which is why the bridge is made according to customer requirement. Due to standardisation, delivery times are relatively short.

The indexable insert holders can be easily exchanged, which allows a variety of different approach angles and the use of indexable inserts of various different shapes, sizes and geometries.

The tool blocks for roughing can be adjusted radially and axially, both for dual cutter use and for cut distribution. For finishing, the fine adjustment insert can be applied to the workpiece directly without clamping. Fine adjustment of 2 µm by vernier is possible. A stop guarantees a high level of positional accuracy for the tool blocks. The measurements set after the first cut are maintained even after repeatedly exchanging the tool blocks.

Once diameters have been established, they are maintained even when the tool blocks are repositioned, and need not be established again. One and the same tool block can be used for roughing and finishing throughout all diameter ranges. When designing the adaptor plates for the tool blocks, sufficient space was allowed for attaching the magnetic holder of a dial gauge.

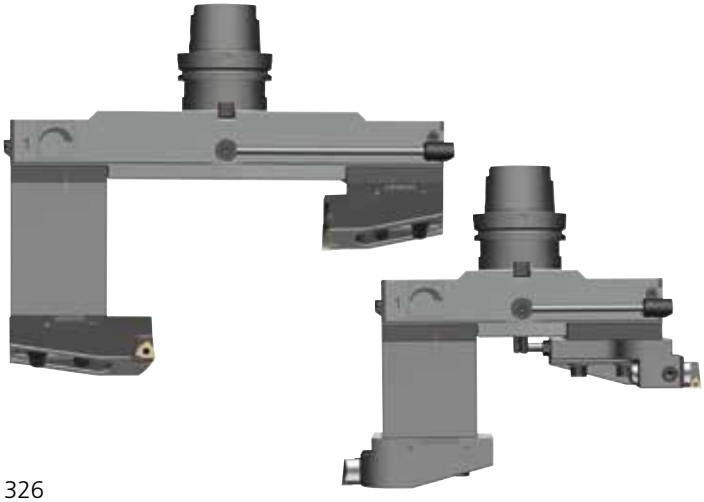
An internal coolant supply can be used on all replaceable bridges. An adjustable jet guarantees positionally accurate cooling of the cutting edge. Because DIN mill adaptors are used on the machine side to connect the tools, they can be adapted for all commonly used spindles.

BENEFITS for you:

- High rigidity
- High cutting efficiency through double-sided roughing
- High transmissible torques
- Exchangeable tool blocks for roughing and finishing
- Can be used as a follow-on cutting tool and, by means of an adaptor, as a stepped tool
- External machining can also be performed with the standard components
- High level of flexibility thanks to modular design of system components
- Internal coolant supply
- Tool connection with standard mill adaptor according to DIN standard
- Cost-effective cutting thanks to the use of stock-type standard tool blocks and indexable inserts
- Wide selection of various indexable inserts, cutting tool materials and cutting geometries
- Easy-to-replace indexable insert holders
- Tool blocks can be exchanged without losing measurement settings
- Dial gauge can be fitted using a magnetic holder
- Optimised heat cycle, even when dry machining

Stepped tool

Can be used as a follow-on cutting tool and, by means of an adaptor, as a stepped tool.
External machining can also be performed with the standard components.

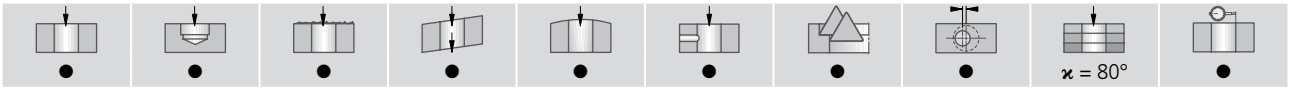


KOMET ABS® Adapter

Thanks to the new ABS® adapter, KOMET® standard tools, for example the MicroKom BluFlex® fine adjustment head, show more of what they can really do. The ABS® adapter is available on request.



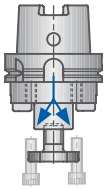
Patent applied for inside and outside Germany



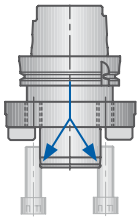
Adaptors

HSK-A adaptor ISO 12164-1 | taper shank DIN 69871, JIS B 6339 (MAS 403 BT) | ABS® adaptor

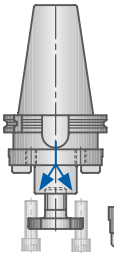
HSK-A63-FA40 (A06 33942)
HSK-A100-FA40 (A06 53942)



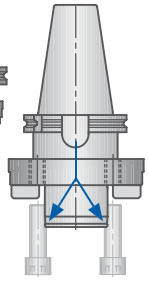
HSK-A100-FA60
(A06 53961)



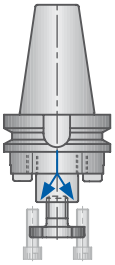
SK50-FA40
(A51 14240)



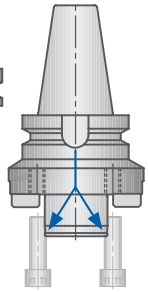
SK50-FA60
(A51 14250)



BT50-FA40
(A51 15240)

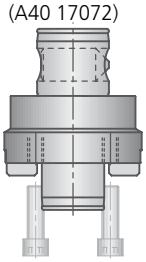


BT50-FA60
(A51 15250)



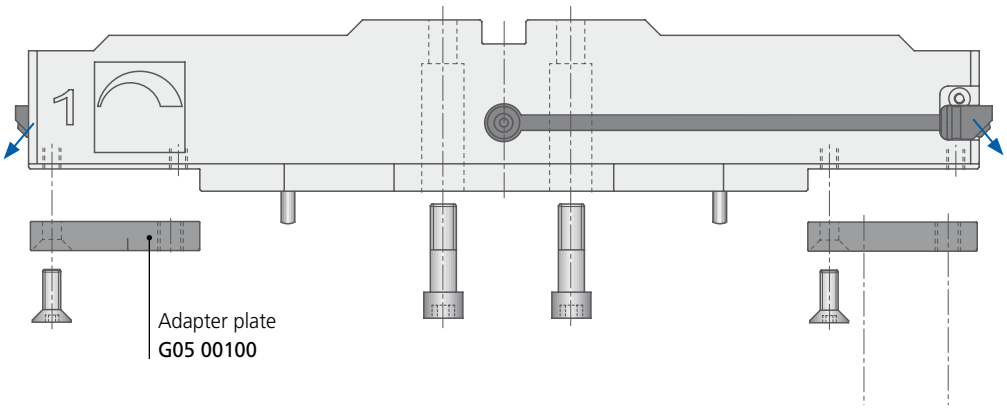
ABS100-FAM40
(A40 17062)

ABS100-FAM60
(A40 17072)



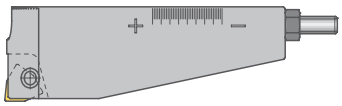
Replaceable bridge Ø 365 - 2000 mm

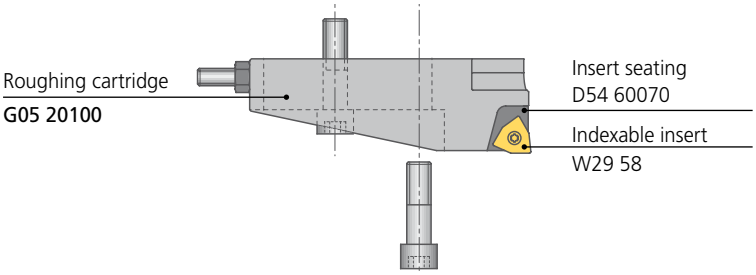
Produced to customer requirement, FA40 / FAM40 connection up to Ø 399 mm



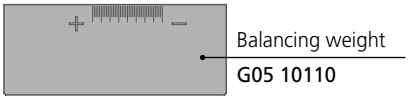
Replaceable bridge with roughing tool or finishing tool	
Diameter	Weight
Ø 400 mm	~ 13 kg
Ø 600 mm	~ 22 kg
Ø 800 mm	~ 29 kg
Ø 1000 mm	~ 35 kg

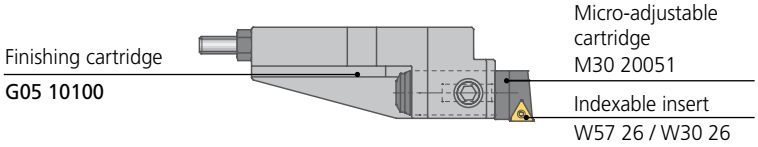
Roughing tool as dual cutter

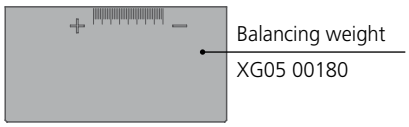


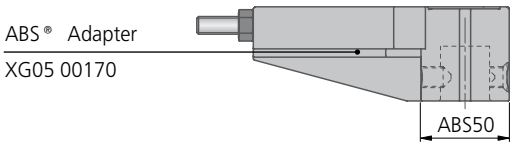


Single-edged finishing tool









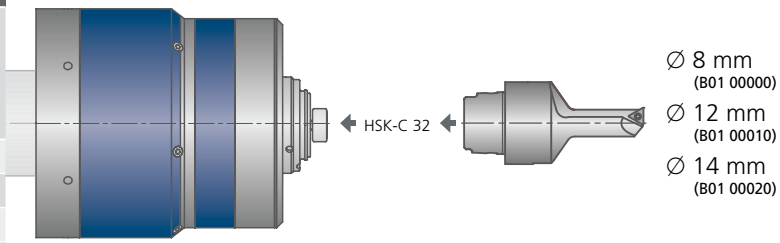
● very good | ◐ good | ○ possible | ✕ not possible

KOMET KomTronic®

Attachment tool range for U-axis

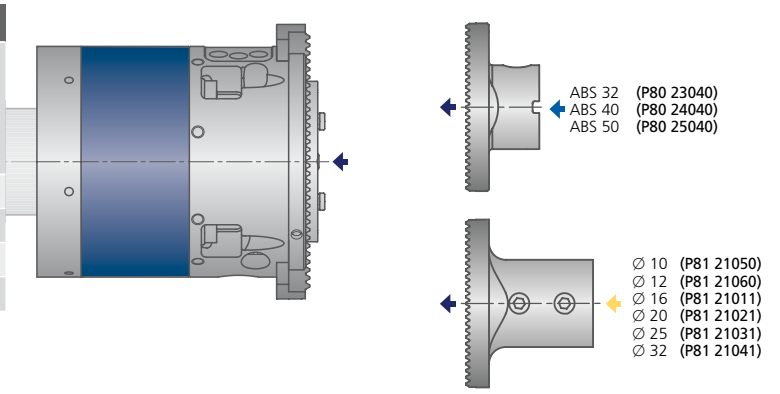
KomTronic® HPS 115

Connection	Article	Order No.
HSK 63	HPS-115-HSK63-U-HSK32-8-2	E32 20021
SK 40	HPS-115-SK40-U-HSK32-8-2	E32 22021
CAT 40	HPS-115-CAT40-U-HSK32-8-2	E32 24021
BT 40	HPS-115-BT40-U-HSK32-8-2	E32 26021



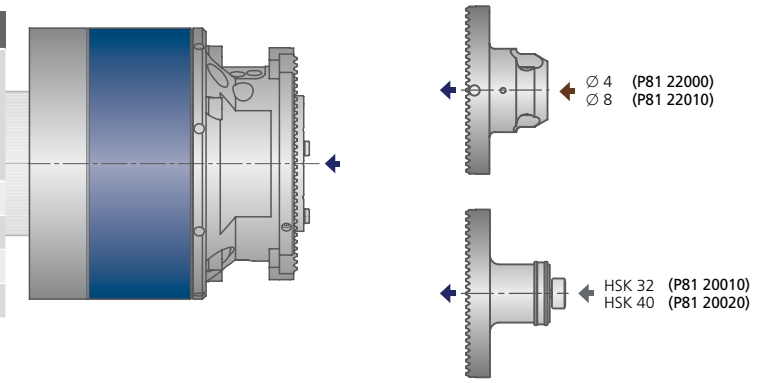
KomTronic® UAS-115-22

Connection	Article	Order No.
HSK 63	UAS-115-HSK63-E-Z-22-2	E21 20010
SK 40	UAS-115-SK40-E-Z-22-2	E21 22010
CAT 40	UAS-115-CAT40-E-Z-22-2	E21 24010
BT 40	UAS-115-BT40-E-Z-22-2	E21 26010



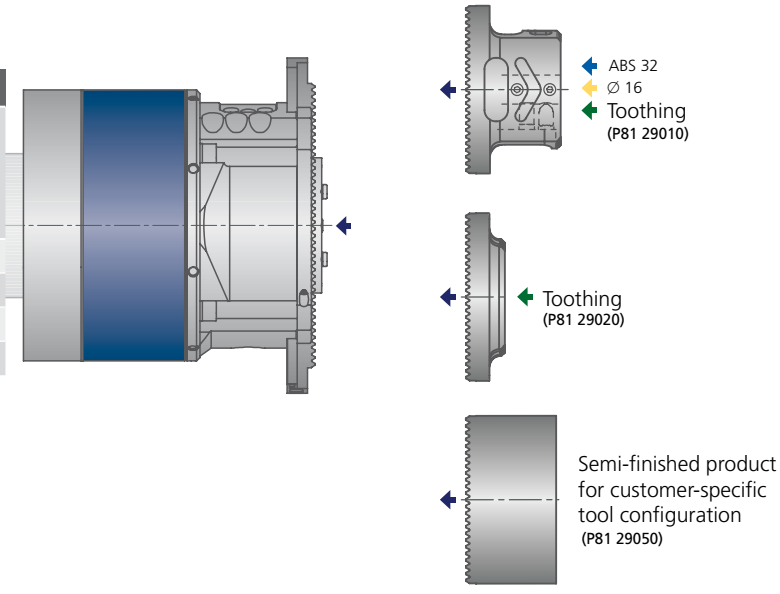
KomTronic® UAS-160-22

Connection	Article	Order No.
HSK 100	UAS-160-HSK100-E-Z-22-1	E21 31010
SK 50	UAS-160-SK50-E-Z-22-1	E21 33010
CAT 50	UAS-160-CAT50-E-Z-22-1	E21 35010
BT 50	UAS-160-BT50-E-Z-22-1	E21 37010



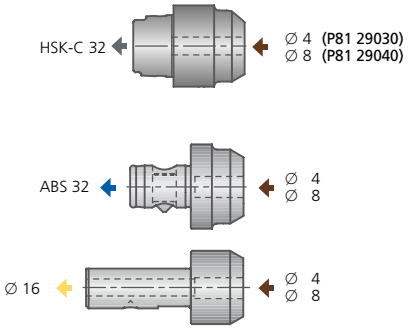
KomTronic® UAS-160-50

Connection	Article	Order No.
HSK 100	UAS-160-HSK100-E-Z-50-1	E21 31020
SK 50	UAS-160-SK50-E-Z-50-1	E21 33020
CAT 50	UAS-160-CAT50-E-Z-50-1	E21 35020
BT 50	UAS-160-BT50-E-Z-50-1	E21 37020

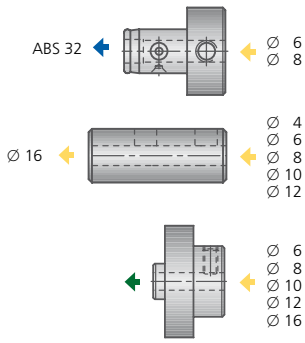


The functionality of the tool combinations depends on the L/D ratio, weight and cutting parameter.

UniTurn® Adaptor



Adaptor

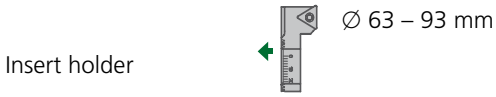


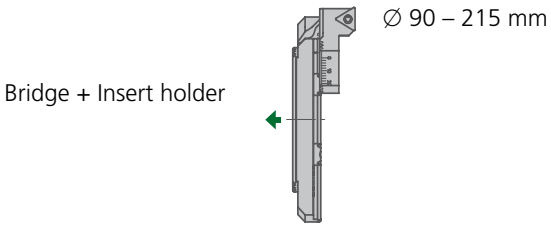
Boring bar



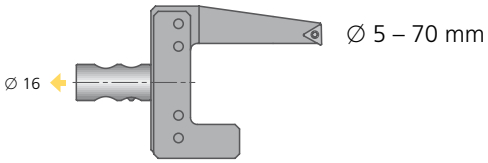
Serrated body + Insert holder



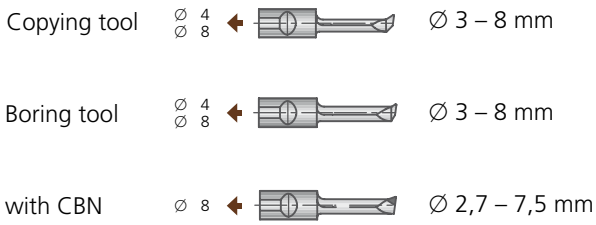




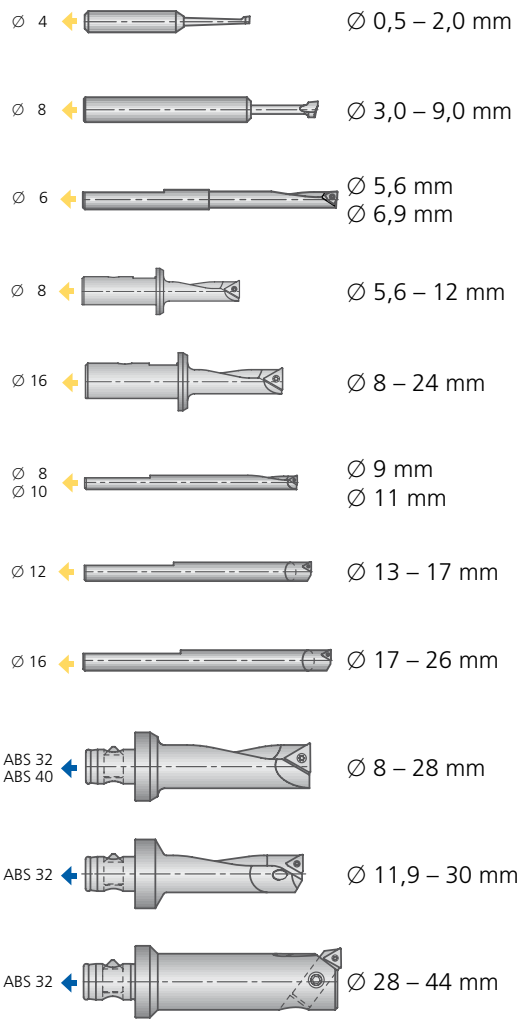
Mounting bridge for external machining



UniTurn®



Boring bars



Key

- ABS® connection
- Cylindrical connection
- Toothing
- HSK connection
- UniTurn® connection

KOMET® Easy Special – Special tools set standards

Design your own tool!

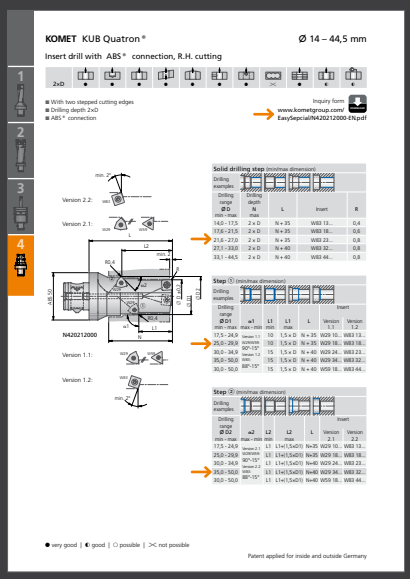
Is there no solution in the standard range? Are the dimensions not what you require? Easy Special makes it possible for you create your own combination of standard modules in the widest variety of dimensions. Select the basic type, define the effective length and choose the desired adapter for the tool. We check you specifications for technical feasibility and you receive a prompt reply.



BENEFITS for you:

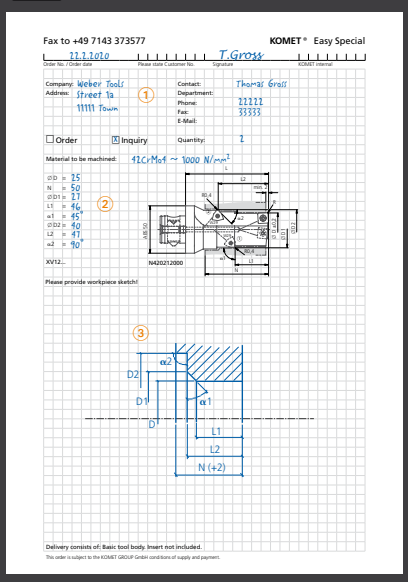
- High tech tools from planning to productive use
- Shortest delivery times – available within 3 weeks
- Parameters set for different tool models
- Optimum production tolerances
- Fixed prices at standard price level

In short: time costs money



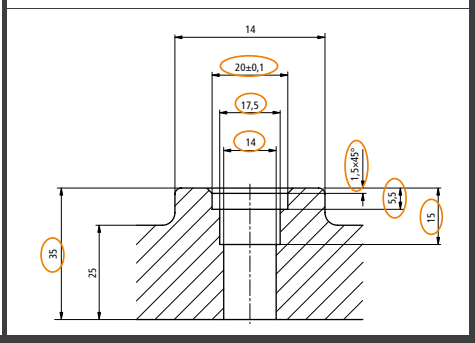
DOWNLOAD

Inquiry form
www.kometgroup.com/EasySpecial/



Example of a completed inquiry

① State sender/contact name
② Enter required dimensions
③ Component sketch or drawing section with dimensions marked

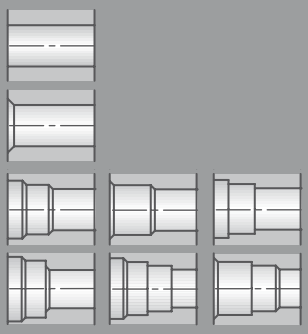


Possible applications

Solid drilling

Solid drilling and chamfering

Multistage solid drilling



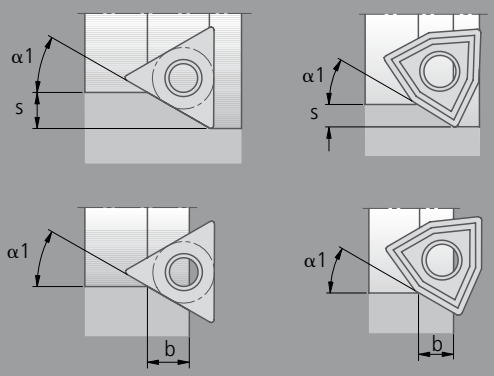
Roughing

Roughing and chamfering

Multistage roughing



Maximum cutting and chamfering widths



s_{max} = max. cutting width | b_{max} = max. chamfering width

Insert	α1 90°	α1 75°		α1 60°		α1 45°		α1 30°		α1 15°	
		s max	b max	s max	b max	s max	b max	s max	b max	s max	b max
W29 10...	3,0	2,8	0,6	2,5	1,2	2,1	1,6	1,5	2,0	0,7	2,3
W29 18...	4,0	3,8	0,8	3,4	1,6	2,8	2,3	2,0	2,8	1,0	3,1
W29 24...	5,0	4,8	1,1	4,3	2,1	3,5	3,0	2,5	3,7	1,2	4,1
W29 34...	6,2	5,9	1,5	5,3	2,8	4,3	4,0	3,1	4,9	1,6	5,5
W59 18...	10,0	9,6	2,3	8,6	4,5	7,0	6,3	5,0	7,7	2,5	8,6

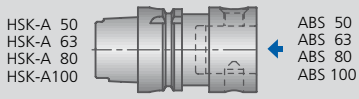
Index

	Page
Programme summary	332 – 333
Tool selection	334 – 335
Solid drilling Ø 12 – 44,5 mm	
KUB Quatron®	336 – 337
KUB Trigon®	342 – 343
KUB® drill	346 – 347
KUB Trigon® with chamfering insert	344 – 345
KUB Quatron® with a stepped cutting edge	338 – 339
KUB® drill with a stepped cutting edge	348 – 349
KUB Quatron® with 2 stepped cutting edges	340 – 341
KUB® drill with 2 stepped cutting edges	350 – 351
KUB® drill with 3 stepped cutting edges	352 – 353
Roughing Ø 14 – 50 mm	
TwinKom® Twin cutter	356 – 359
with chamfering insert	360 – 361
with a stepped cutting edge	362 – 363
with two stepped cutting edges	364 – 367
Fine boring Ø 8 – 40 mm	
with ABS® connection	
Boring bar	368
Boring bar with chamfering insert	370
with cylindrical shank	
Boring bar	369
Boring bar with chamfering insert	371
Adaptors	
with HSK-A	372
with taper shank	372
with ABS®	373

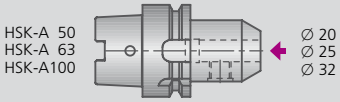
Programme summary – Easy Special

5 Adaptors see chapter 5

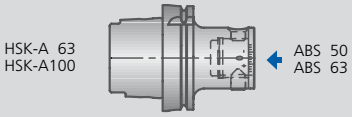
HSK-A Adaptors
with ABS® connection



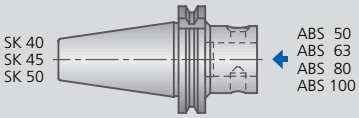
Adaptor sleeve Weldon



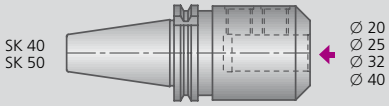
Eccentric adjusting device with ABS® connection



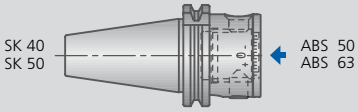
Taper shanks DIN 69871
with ABS® connection



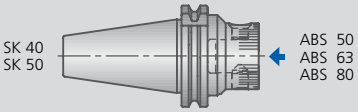
Adaptor sleeve Weldon / cylindrical shank (combination shank)



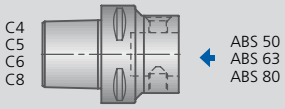
Eccentric Adjusting Device with ABS® connection



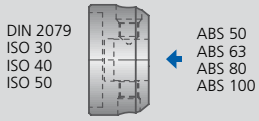
Torsional dampener with ABS® connection



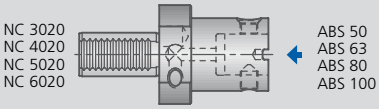
PSC Adaptor
with ABS® connection



Spindle adaptor flange
with ABS® connection

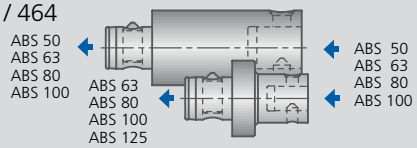


VDI Adaptor
with ABS® connection



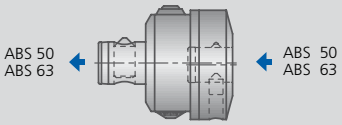
ABS® Adaptors
Extension / Reducer

▸ 466 / 464



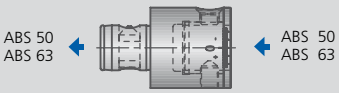
Adjustment device

▸ 461



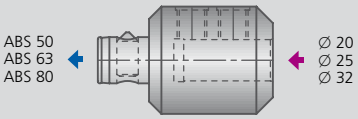
Eccentric adjusting device

▸ 462



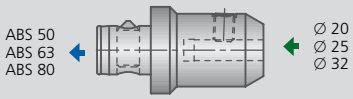
Adaptor sleeve Weldon

▸ 474



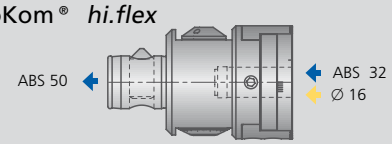
Adaptor sleeve Whistle Notch

▸ 472

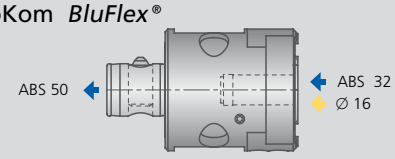


3 Adaptors see chapter 3

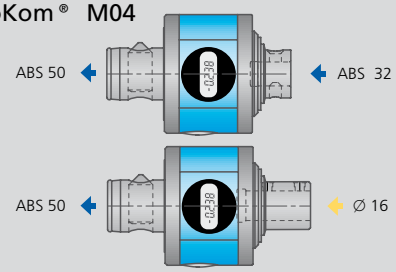
MicroKom® *hi.flex*



MicroKom *BluFlex*®



MicroKom® M04

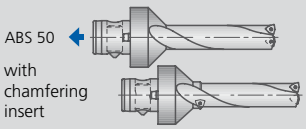


Further adaptors see chapter 5.

4 Easy Special tools

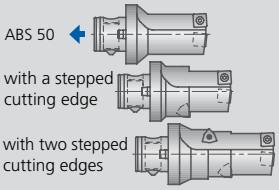
Solid drilling ∅ 12 - 44,5 mm

KUB Trigon ®



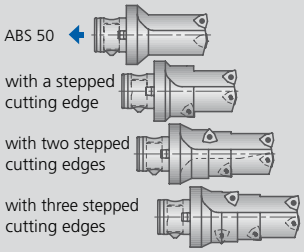
▸ 342
▸ 344

KUB Quatron ®



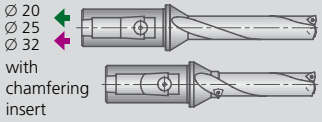
▸ 336
▸ 338
▸ 340

KUB ® Drill



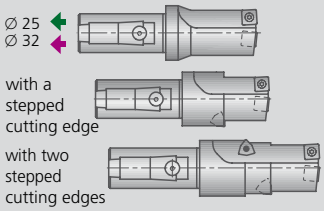
▸ 346
▸ 348
▸ 350
▸ 352

KUB Trigon ®



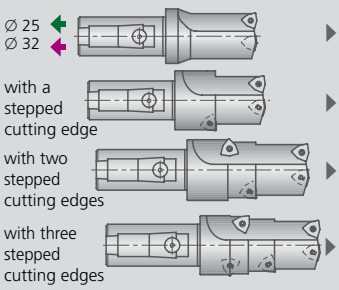
▸ 343
▸ 345

KUB Quatron ®



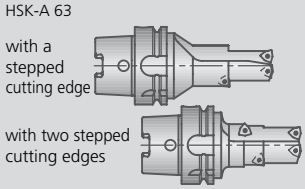
▸ 337
▸ 339
▸ 341

KUB ® Drill



▸ 347
▸ 349
▸ 351
▸ 353

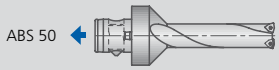
HSK-A 63



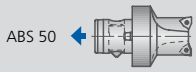
▸ 354
▸ 355

Roughing ∅ 14 - 50 mm

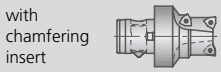
TwinKom ®



▸ 356



▸ 358



▸ 360



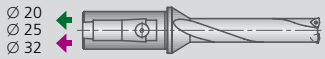
▸ 362



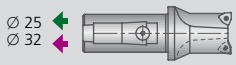
▸ 364



▸ 366



▸ 357



▸ 359



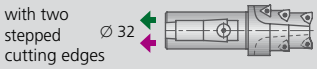
▸ 361



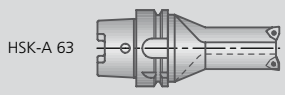
▸ 363



▸ 365



▸ 367



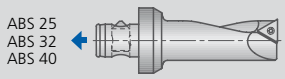
▸ 358

Key

- ABS ® connection
- Cylindrical connection
- Whistle Notch connection
- Weldon connection

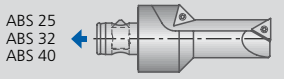
Fine boring ∅ 8 - 40 mm

Boring bars for machining steel



▸ 368

with chamfering insert



▸ 370



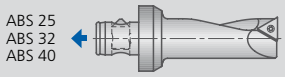
▸ 369

with chamfering insert



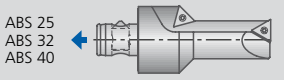
▸ 371

Boring bars for machining aluminium

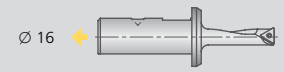


▸ 368

with chamfering insert

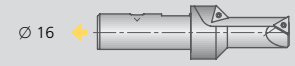


▸ 370



▸ 369

with chamfering insert

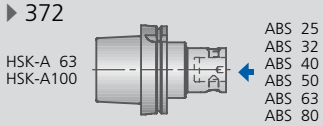


▸ 371

Adaptors

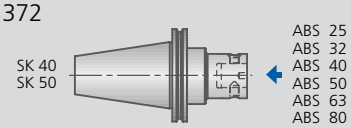
HSK-A Adaptors with ABS ® connection

▸ 372



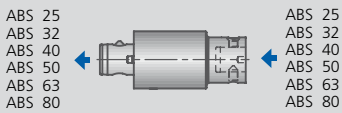
Taper shanks DIN 69871 with ABS ® connection

▸ 372



ABS ® Adaptors Extension / Reducer

▸ 373



KOMET® Tool selection

Help table for solid drilling, roughing and fine boring with Easy Special

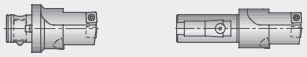
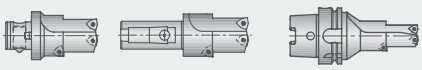
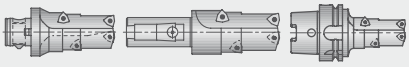
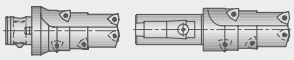
Solid drilling Ø (mm)	L / D Length/ diameter ratio	Machining: solid drilling	blind hole	forge/ casting skin, interface	angled start and drilling out, inter-rupted cut	convex	cross bore	centering bore, seam	chamber	stack plate drilling	rough boring	adjustable
14,0 – 44,5 ±0,2	2×D	●	●	●	●	●	●	●	●	●	◐	◐
14,0 – 44,5 ±0,2	2×D	●	●	●	●	●	●	●		●	◐	◐
14,0 – 44,5 ±0,2	2×D	●	●	●	●	●	●	●		●	◐	◐
12,0 – 44,0 ±0,1	2×D	●	●	●	●	●	◐	◐	●		◐	●
12,0 – 44,0 ±0,1	3×D	●	●	●	●	◐	◐	◐	◐		○	●
12,0 – 44,0 ±0,1	4×D	●	●	◐	○	○	○	○	○			◐
14,0 – 44,0 ±0,1	2×D	●	●	●	●	●	●	●	●		●	◐
14,0 – 44,0 ±0,1	2×D	●	●	●	●	●	●	●	●		◐	◐
14,0 – 44,0 ±0,1	2×D	●	●	●	●	●	●	●	●		◐	◐
14,0 – 44,0 ±0,1	2×D	●	●	●	●	●	●	●	●		◐	◐

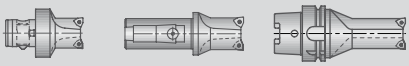
Roughing Ø (mm)	L / D	through hole	blind hole	uneven	angled start and drilling out, inter-rupted cut	convex	cross bore	divided cut	large hole offset	stack plate drilling α = approach angle	adjustable
14,0 – 50,0 ±0,1	2 – 4×D	●	●	●	●	●	●		●	α = 80°	
14,0 – 50,0 ±0,1	2×D	●	●	●	●	●	●		●	α = 80°	
14,0 – 50,0 ±0,1	2×D	●	●	●	●	●	●		●	α = 80°	
14,0 – 50,0 ±0,1	2×D	●	●	●	●	●	●		●	α = 80°	
14,0 – 50,0 ±0,1	2×D	●	●	●	●	●	●		●	α = 80°	
14,0 – 50,0 ±0,1	2×D	●	●	●	●	●	●		●	α = 80°	

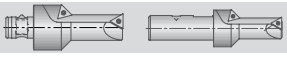
Fine boring Ø (mm)	L / D	through hole	blind hole	angled start and drilling out, interrupted cut	cross bore	reverse machining	HRC > 54 through hole	HRC > 54 blind hole	vibration dampening
8,0 – 40,0 -0,1	4×D	●	●	◐	◐				●
8,0 – 24,0 -0,1	4×D	●	●	◐	◐				●
8,0 – 40,0 -0,1	3×D	●	●	◐	◐		●	●	●
8,0 – 24,0 -0,1	3,5×D	●	●	◐	◐		●	●	

● very good ◐ good ○ possible

Help table for solid drilling, roughing and fine boring with Easy Special

Coolant				Material						Tool	Page
Emulsion		MQL		Mild steel/tool steel	Stainless and acid-resistant steel	Grey cast iron, spheroidal cast iron	Non-ferrous metals	Heat-resistant steels	Hardened tool steel		
internal	external	internal	external	P	M	K	N	S	H		
●	◐		◐	●	○	●	●	●	○	 **KUB Quatron®** ABS® connection Cylindrical shank (combination shank)	▸ 336 ▸ 337
●	◐		◐	●	○	●	●	●	○	 **KUB Quatron®** with a stepped cutting edge ABS® connection Cylindrical shank (combination shank)	▸ 338 ▸ 339
●	◐		◐	●	○	●	●	●	○	 **KUB Quatron®** with two stepped cutting edges ABS® connection Cylindrical shank (combination shank)	▸ 340 ▸ 341
●	◐		◐	●	○	●	●	●	○	 **KUB Trigon®** ABS® connection Cylindrical shank (combination shank)	▸ 342 ▸ 343
●	◐		○	●	○	●	●	●	○		
●	○		○	●	○	●	●	●	○	 **KUB Trigon®** with chamfering insert ABS® connection Cylindrical shank (combination shank)	▸ 344 ▸ 345
●	◐		◐	●	○	●	●	●	○	 **KUB® drill** ABS® connection Cylindrical shank (combination shank)	▸ 346 ▸ 347
●	◐		○	●	○	●	●	●	○	 **KUB® drill** with a stepped cutting edge ABS® connection Cylindrical shank (combination shank) HSK-A connection	▸ 348 ▸ 349 ▸ 354
●	◐		○	●	○	●	●	●	○	 **KUB® drill** with two stepped cutting edges ABS® connection Cylindrical shank (combination shank) HSK-A connection	▸ 350 ▸ 351 ▸ 355
●	◐		○	●	○	●	●	●	○	 **KUB® drill** with three stepped cutting edges ABS® connection Cylindrical shank (combination shank)	▸ 352 ▸ 353

Coolant				Material						Tool	Page
Emulsion		MQL									
internal	external	internal	external								
●	◐		◐	●	○	●	●	●	○	 **TwinKom®** ABS® connection Cylindrical shank (combination shank)	▸ 356 ▸ 357
●	◐		◐	●	○	●	●	●	○	 **TwinKom®** ABS® connection Cylindrical shank (combination shank) HSK-A connection	▸ 358 ▸ 359 ▸ 358
●	◐		◐	●	○	●	●	●	○	 **TwinKom® with chamfering insert** ABS® connection Cylindrical shank (combination shank)	▸ 360 ▸ 361
●	◐		◐	●	○	●	●	●	○	 **TwinKom® with a stepped cutting edge** ABS® connection Cylindrical shank (combination shank)	▸ 362 ▸ 363
●	◐		◐	●	○	●	●	●	○	 **TwinKom® with two stepped cutting edges** ABS® connection Cylindrical shank (combination shank)	▸ 364 ▸ 365
●	◐		○	●	○	●	●	●	○	 **TwinKom® with two stepped cutting edges** ABS® connection Cylindrical shank (combination shank)	▸ 366 ▸ 367

Coolant				Material						Tool	Page
Emulsion		MMS									
internal	external	internal	external								
●	◐		◐	●	○	●	●	●	○	 **Boring bar** for machining steel	▸ 368 – 369
●	◐		◐	●	○	●	●	●	○	 **Boring bar with chamfering insert** for machining steel	▸ 370 – 371
●	◐		◐				●			 **Boring bar** for machining aluminium	▸ 368 – 369
●	◐		◐				●			 **Boring bar with chamfering insert** for machining aluminium	▸ 370 – 371

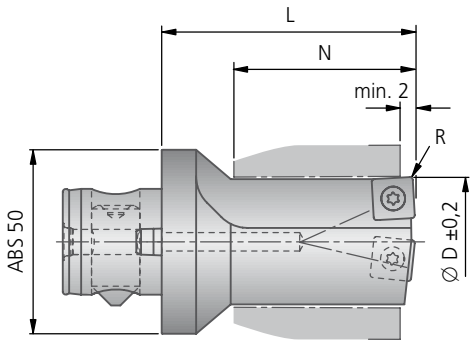
KOMET KUB Quatron® Easy Special Ø 14 – 44,5 mm

Insert drill with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	●	●	●	●	◐	◐

Inquiry form
www.kometgroup.com/EasySpecial/N420270000-EN.pdf

- Drilling depth 2×D
- ABS® connection



N420270000

Solid drilling step (min/max dimension)				
Drilling examples				
Drilling range Ø D min - max	Drilling depth N max	L	Insert	R
14,0 - 17,5	2 × D	N + 35	W83 13...	0,4
17,6 - 21,5	2 × D	N + 35	W83 18...	0,6
21,6 - 27,0	2 × D	N + 35	W83 23...	0,8
27,1 - 33,0	2 × D	N + 35	W83 32...	0,8
33,1 - 44,5	2 × D	N + 35	W83 44...	0,8

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

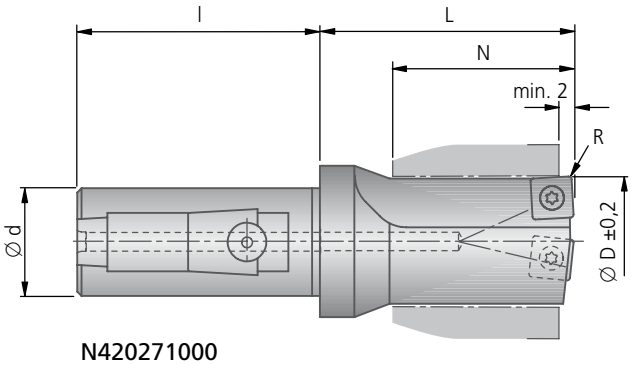
Insert drill with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	●	●	●	●	◐	◐	

Inquiry form
www.kometgroup.com/EasySpecial/N420271000-EN.pdf

DOWNLOAD

Drilling depth 2×D ■
Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420271000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N max	L	Insert	R	Cylindrical shank Ø d × l 25×56	32×60
14,0 - 17,5	2 × D	N + 24	W83 13...	0,4	•	•
17,6 - 21,5	2 × D	N + 24	W83 18...	0,6	•	•
21,6 - 27,0	2 × D	N + 29	W83 23...	0,8	•	•
27,1 - 33,0	2 × D	N + 29	W83 32...	0,8		•
33,1 - 44,5	2 × D	N + 29	W83 44...	0,8		•

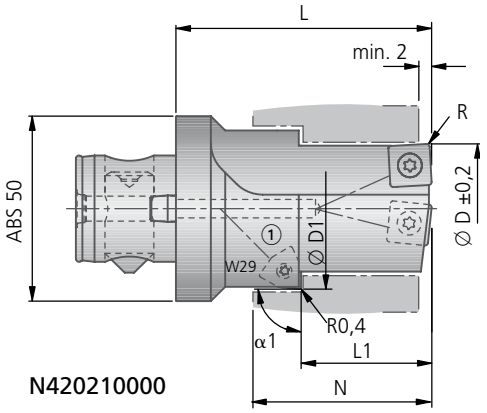
KOMET KUB Quatron® Easy Special Ø 14 – 44,5 mm

Insert drill with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	●	●	✕	●	◐	◐

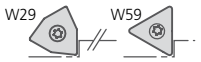
Inquiry form
www.kometgroup.com/EasySpecial/N420210000-EN.pdf

- With a stepped cutting edge
- Drilling depth 2×D
- ABS® connection

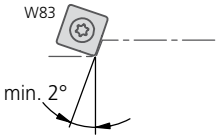


N420210000

Version 1:

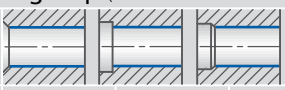


Version 2:



Solid drilling step (min/max dimension)

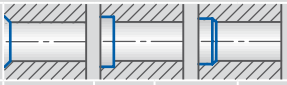
Drilling examples



Drilling range Ø D min - max	Drilling depth N max	L	Insert	R
14,0 - 17,5	2 × D	N + 35	W83 13...	0,4
17,6 - 21,5	2 × D	N + 35	W83 18...	0,6
21,6 - 27,0	2 × D	N + 35	W83 23...	0,8
27,1 - 33,0	2 × D	N + 40	W83 32...	0,8
33,1 - 44,5	2 × D	N + 40	W83 44...	0,8

Step ① (min/max dimension)

Drilling examples



Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert Version 1	Insert Version 2
17,5 - 24,9	Version 1 W29/W59: 90°-15° Version 2 W83: 88°-15°	10	1,5 × D	N + 35	W29 10...	W83 13...
25,0 - 29,9		10	1,5 × D	N + 35	W29 18...	W83 18...
30,0 - 34,9		15	1,5 × D	N + 40	W29 24...	W83 23...
35,0 - 50,0		15	1,5 × D	N + 40	W29 34...	W83 32...
30,0 - 50,0		15	1,5 × D	N + 40	W59 18...	W83 44...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

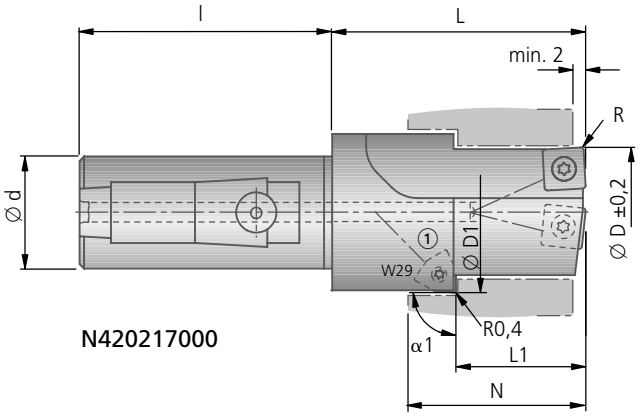
Insert drill with cylindrical shank (combination shank), R.H. cutting

2×D											
	●	●	●	●	●	●	●	✕	●	◐	◐

Inquiry form
www.kometgroup.com/EasySpecial/N420217000-EN.pdf

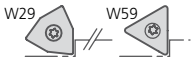
DOWNLOAD

- With a stepped cutting edge ■
- Drilling depth 2×D ■
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■

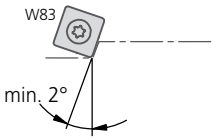


N420217000

Version 1:

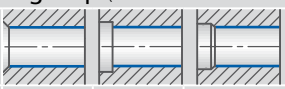


Version 2:



Solid drilling step (min/max dimension)

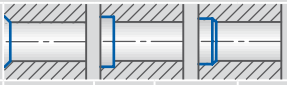
Drilling examples



Drilling range Ø D min - max	Drilling depth N max	L	Insert	R	Cylindrical shank Ø d x l 25×56	32×60
14,0 - 17,5	2 x D	N + 24	W83 13...	0,4	•	•
17,6 - 21,5	2 x D	N + 24	W83 18...	0,6	•	•
21,6 - 27,0	2 x D	N + 29	W83 23...	0,8	•	•
27,1 - 33,0	2 x D	N + 29	W83 32...	0,8		•
33,1 - 44,5	2 x D	N + 29	W83 44...	0,8		•

Step ① (min/max dimension)

Drilling examples



Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert Version 1	Version 2
17,5 - 24,9	Version 1 W29/W59: 90°-15° Version 2 W83: 88°-15°	10	1,5 x D	N + 35	W29 10...	W83 13...
25,0 - 29,9		10	1,5 x D	N + 35	W29 18...	W83 18...
30,0 - 34,9		15	1,5 x D	N + 40	W29 24...	W83 23...
35,0 - 50,0		15	1,5 x D	N + 40	W29 34...	W83 32...
30,0 - 50,0		15	1,5 x D	N + 40	W59 18...	W83 44...

Note! On exit of the drill risk of accident by detached parts of workpiece ● . Please arrange suitable guarding.

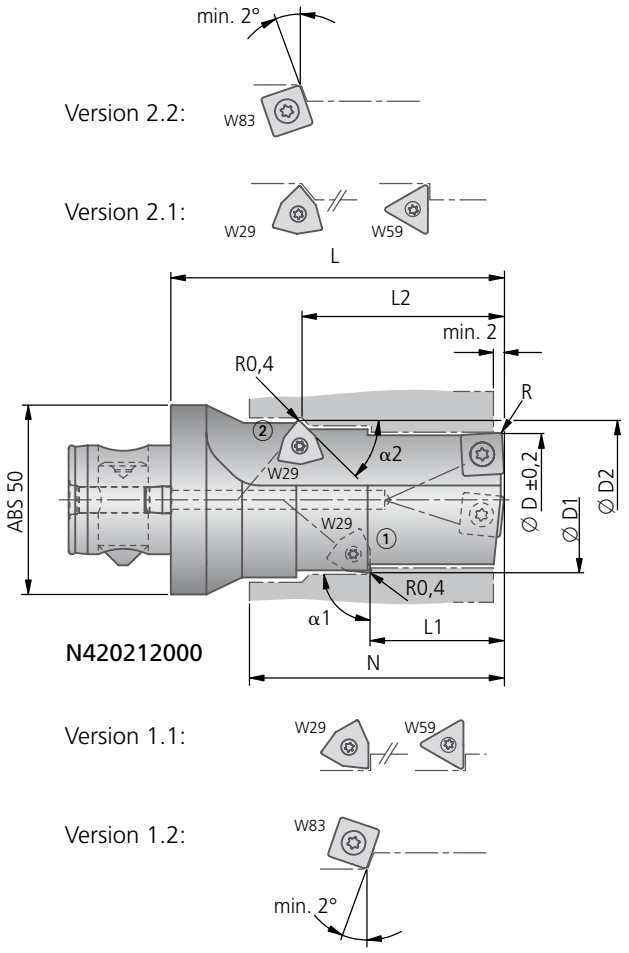
KOMET KUB Quatron® Easy Special Ø 14 – 44,5 mm

Insert drill with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	●	●	✕	●	◐	◐

Inquiry form
www.kometgroup.com/EasySpecial/N420212000-EN.pdf

- With two stepped cutting edges
- Drilling depth 2×D
- ABS® connection



Solid drilling step (min/max dimension)

Drilling examples				
Drilling range Ø D min - max	Drilling depth N max	L	Insert	R
14,0 - 17,5	2 × D	N + 35	W83 13...	0,4
17,6 - 21,5	2 × D	N + 35	W83 18...	0,6
21,6 - 27,0	2 × D	N + 35	W83 23...	0,8
27,1 - 33,0	2 × D	N + 40	W83 32...	0,8
33,1 - 44,5	2 × D	N + 40	W83 44...	0,8

Step ① (min/max dimension)

Drilling examples						
Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert Version 1.1	Insert Version 1.2
17,5 - 24,9	Version 1.1 W29/W59: 90°-15° Version 1.2 W83: 88°-15°	10	1,5 × D	N + 35	W29 10...	W83 13...
25,0 - 29,9		10	1,5 × D	N + 35	W29 18...	W83 18...
30,0 - 34,9		15	1,5 × D	N + 40	W29 24...	W83 23...
35,0 - 50,0		15	1,5 × D	N + 40	W29 34...	W83 32...
30,0 - 50,0		15	1,5 × D	N + 40	W59 18...	W83 44...

Step ② (min/max dimension)

Drilling examples						
Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max	L	Insert Version 2.1	Insert Version 2.2
17,5 - 24,9	Version 2.1 W29/W59: 90°-15° Version 2.2 W83: 88°-15°	L1	L1+(1,5×D1)	N+35	W29 10...	W83 13...
25,0 - 29,9		L1	L1+(1,5×D1)	N+35	W29 18...	W83 18...
30,0 - 34,9		L1	L1+(1,5×D1)	N+40	W29 24...	W83 23...
35,0 - 50,0		L1	L1+(1,5×D1)	N+40	W29 34...	W83 32...
30,0 - 50,0		L1	L1+(1,5×D1)	N+40	W59 18...	W83 44...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

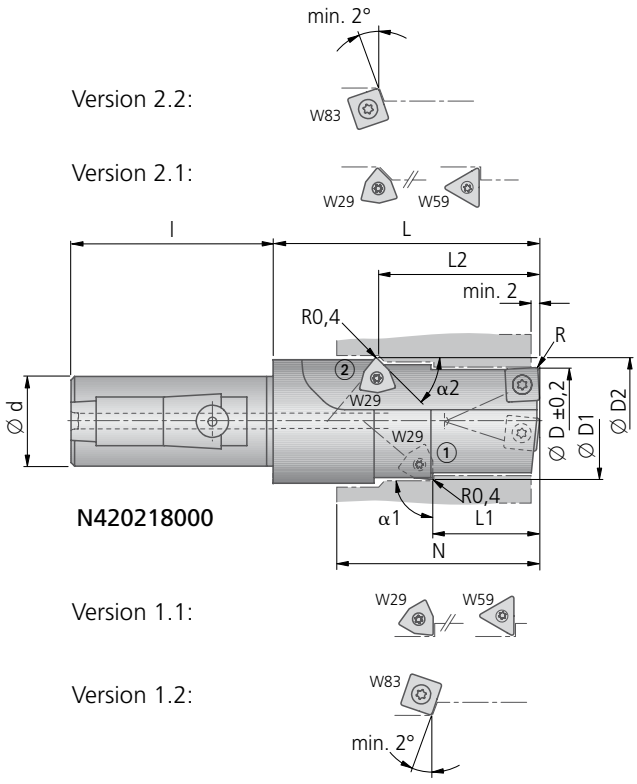
Insert drill with cylindrical shank (combination shank), R.H. cutting

2×D											
	●	●	●	●	●	●	●	✕	●	◐	◐

Inquiry form
www.kometgroup.com/EasySpecial/N420218000-EN.pdf

DOWNLOAD

- With two stepped cutting edges ■
- Drilling depth 2×D ■
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



Solid drilling step (min/max dimension)

Drilling examples						
Drilling range Ø D min - max	Drilling depth N max	L	Insert	R	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 17,5	2 × D	N + 24	W83 13...	0,4	•	•
17,6 - 21,5	2 × D	N + 24	W83 18...	0,6	•	•
21,6 - 27,0	2 × D	N + 29	W83 23...	0,8	•	•
27,1 - 33,0	2 × D	N + 29	W83 32...	0,8		•
33,1 - 44,5	2 × D	N + 29	W83 44...	0,8		•

Step ① (min/max dimension)

Drilling examples						
Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert Version 1.1	Insert Version 1.2
17,5 - 24,9	Version 1.1 W29/W59: 90°-15° Version 1.2 W83: 88°-15°	10	1,5 × D	N + 35	W29 10...	W83 13...
25,0 - 29,9		10	1,5 × D	N + 35	W29 18...	W83 18...
30,0 - 34,9		15	1,5 × D	N + 40	W29 24...	W83 23...
35,0 - 50,0		15	1,5 × D	N + 40	W29 34...	W83 32...
30,0 - 50,0		15	1,5 × D	N + 40	W59 18...	W83 44...

Step ② (min/max dimension)

Drilling examples						
Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max	L	Insert Version 2.1	Insert Version 2.2
17,5 - 24,9	Version 2.1 W29/W59: 90°-15° Version 2.2 W83: 88°-15°	L1	L1+(1,5×D1)	N+35	W29 10...	W83 13...
25,0 - 29,9		L1	L1+(1,5×D1)	N+35	W29 18...	W83 18...
30,0 - 34,9		L1	L1+(1,5×D1)	N+40	W29 24...	W83 23...
35,0 - 50,0		L1	L1+(1,5×D1)	N+40	W29 34...	W83 32...
30,0 - 50,0		L1	L1+(1,5×D1)	N+40	W59 18...	W83 44...

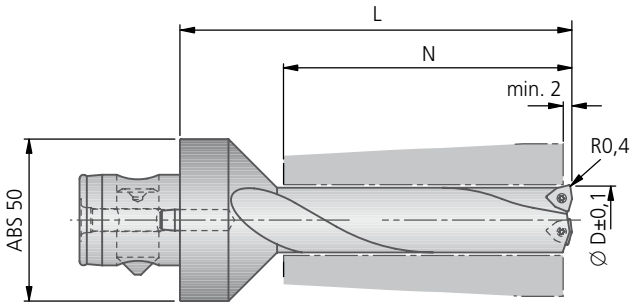
KOMET KUB Trigon® Easy Special Ø 14 – 44 mm

Insert drill with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	◐	◐	●	✕	◐	●
3×D	●	●	●	●	◐	◐	◐	◐	✕	○	●
4×D	●	●	◐	○	○	○	○	○	✕	✕	◐

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420001000-EN.pdf

- Drilling depth 2×D, 3×D, 4×D
- ABS® connection



N420001000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N 2×D	3×D	4×D	L	Insert
14,0 - 19,9	•	•		N + 35	W29 10...
20,0 - 24,9	•	•	•	N + 35	W29 18...
25,0 - 29,9	•	•	•	N + 35	W29 24...
30,0 - 36,9	•	•	•	N + 40	W29 24...
37,0 - 44,0	•	•	•	N + 50	W29 34...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

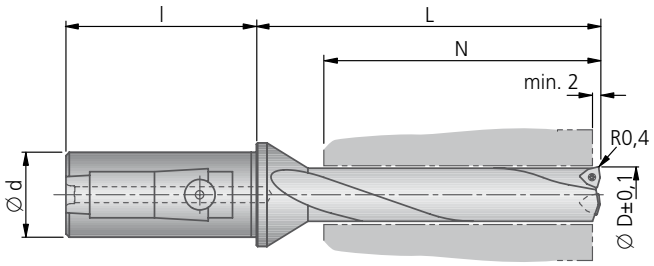
Insert drill with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	◐	◐	●	✕	◐	●
3×D	●	●	●	●	◐	◐	◐	◐	✕	○	●
4×D	●	●	◐	○	○	○	○	○	✕	✕	◐

Inquiry form
www.kometgroup.com/EasySpecial/N420002000-EN.pdf

DOWNLOAD

Drilling depth 2×D, 3×D, 4×D ■
Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420002000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N 2×D	3×D	4×D	L	Insert	Cylindrical shank Ø d × l 20×50	25×56	32×60
12,0 - 13,9	•	•		N + 24	W29 04...	•		
14,0 - 19,9	•	•	•	N + 24	W29 10...	•	•	•
20,0 - 24,9	•	•	•	N + 24	W29 18...	•	•	•
25,0 - 29,9	•	•	•	N + 24	W29 24...		•	•
30,0 - 36,9	•	•	•	N + 29	W29 24...			•
37,0 - 44,0	•	•	•	N + 39	W29 34...			•

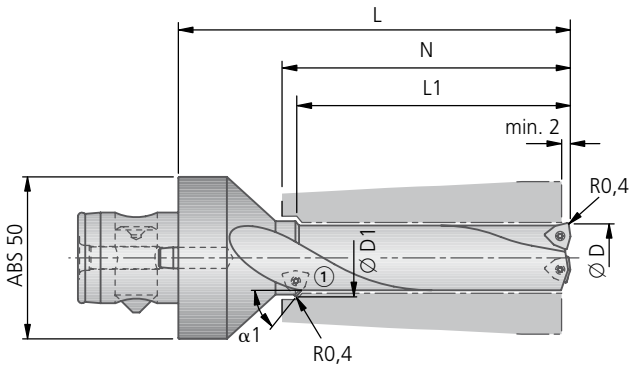
KOMET KUB Trigon® Easy Special Ø 14 – 44 mm

Insert drill with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	◐	◐	●	✕	◐	●
3×D	●	●	●	●	◐	◐	◐	◐	✕	○	●
4×D	●	●	◐	○	○	○	○	○	✕	✕	◐

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420005000-EN.pdf

- With chamfering insert
- Drilling depth 2×D, 3×D, 4×D
- ABS® connection



N420005000

Solid drilling step (min/max dimension)		
Drilling examples		
Drilling range Ø D min - max	L	Insert
14,0 - 19,9	N + 40	W29 10...
20,0 - 24,9	N + 40	W29 18...
25,0 - 29,9	N + 40	W29 24...
30,0 - 36,9	N + 45	W29 24...
37,0 - 44,0	N + 55	W29 34...

Chamfering step ① (min/max dimension)							
Drilling examples							
Drilling range Ø D1 min - max	α1 max - min	L1 2×D	L1 3×D	L1 4×D	Drilling depth N min	Drilling depth N max	Insert
20,0 - 24,9	90° - 15°	•	•	•	L1	L1+5	W29 10...
25,0 - 29,9	90° - 15°	•	•	•	L1	L1+5	W29 24...
30,0 - 36,9	90° - 15°	•	•	•	L1	L1+5	W29 24...
37,0 - 44,0	90° - 15°	•	•	•	L1	L1+5	W29 34...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

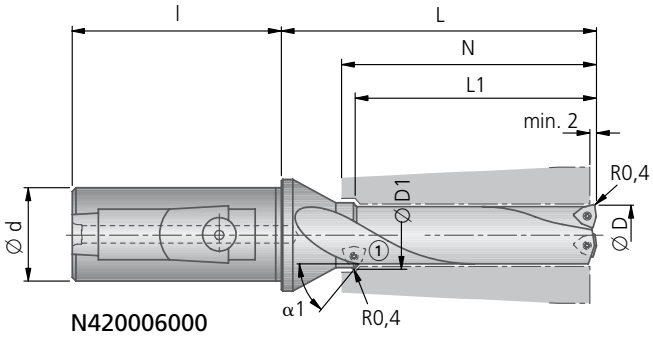
Insert drill with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	◐	◐	●	✕	◐	●
3×D	●	●	●	●	◐	◐	◐	◐	✕	○	●
4×D	●	●	◐	○	○	○	○	○	✕	✕	◐

Inquiry form
www.kometgroup.com/EasySpecial/N420006000-EN.pdf

DOWNLOAD

With chamfering insert ■
Drilling depth 2×D, 3×D, 4×D ■
Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420006000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	L	Insert	Cyl. shank Ø d × l 20×50	25×56	32×60
14,0 - 19,9	N + 29	W29 10...	•	•	•
20,0 - 24,9	N + 29	W29 18...	•	•	•
25,0 - 29,9	N + 29	W29 24...		•	•
30,0 - 36,9	N + 34	W29 24...			•
37,0 - 44,0	N + 44	W29 34...			•

Chamfering step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 2×D	3×D	4×D	Drilling depth N min	N max	Insert
20,0 - 24,9	90° - 15°	•	•	•	L1	L1+5	W29 10...
25,0 - 29,9	90° - 15°	•	•	•	L1	L1+5	W29 24...
30,0 - 36,9	90° - 15°	•	•	•	L1	L1+5	W29 24...
37,0 - 44,0	90° - 15°	•	•	•	L1	L1+5	W29 34...

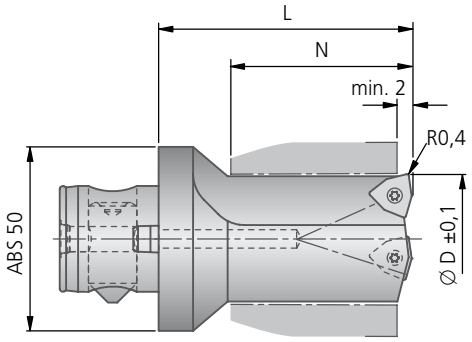
KOMET KUB® Easy Special Ø 14 – 44 mm

Insert drill with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	●	●	●	✕	◐	●

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420070000-EN.pdf

- Drilling depth 2×D
- ABS® connection



N420070000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range D min - max	Drilling depth N min	Drilling depth N max	L	Insert
14,0 - 19,9	15	2 × D	N + 35	W29 10...
20,0 - 24,9	15	2 × D	N + 35	W29 18...
25,0 - 29,9	15	2 × D	N + 35	W29 24...
30,0 - 36,9	20	2 × D	N + 40	W29 24...
37,0 - 44,0	20	2 × D	N + 40	W29 34...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

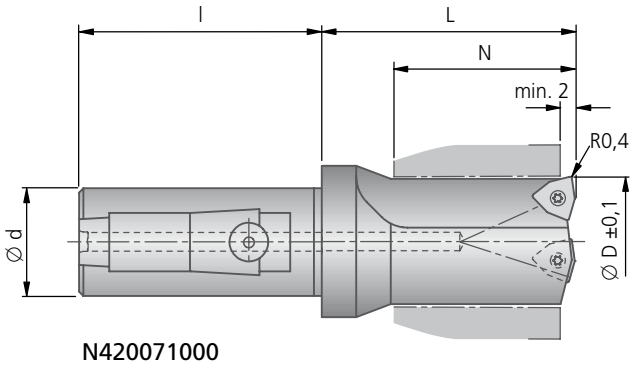
Insert drill with cylindrical shank (combination shank), R.H. cutting

2×D												
	●	●	●	●	●	●	●	●	✕	◐	●

Inquiry form
www.kometgroup.com/EasySpecial/N420071000-EN.pdf

DOWNLOAD

Drilling depth 2×D ■
Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420071000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	L	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	10	2 × D	N + 24	W29 10...	•	•
20,0 - 24,9	10	2 × D	N + 24	W29 18...	•	•
25,0 - 29,9	10	2 × D	N + 29	W29 24...	•	•
30,0 - 36,9	15	2 × D	N + 29	W29 24...		•
37,0 - 44,0	15	2 × D	N + 29	W29 34...		•

KOMET KUB® Easy Special

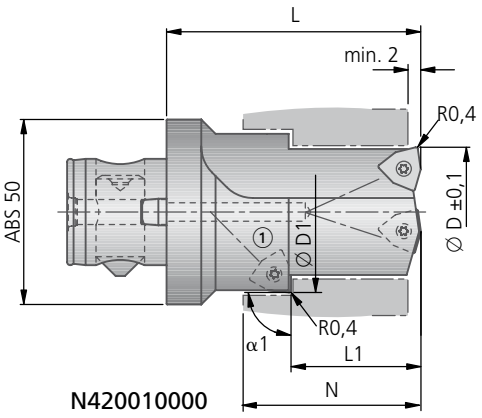
Ø 14 – 44 mm

Insert drill with ABS® connection, R.H. cutting

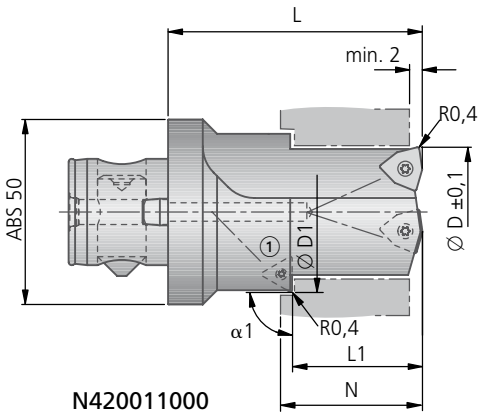
2×D	●	●	●	●	●	●	●	●	✕	◐	●	

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420010000-EN.pdf
www.kometgroup.com/EasySpecial/N420011000-EN.pdf

- With a stepped cutting edge
- Drilling depth 2×D
- ABS® connection

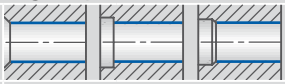


N420010000



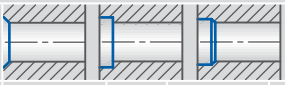
N420011000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert
14,0 - 19,9	15	L1+(1,5×D1)	W29 10...
20,0 - 24,9	15	L1+(1,5×D1)	W29 18...
25,0 - 29,9	20	L1+(1,5×D1)	W29 24...
30,0 - 36,9	20	L1+(1,5×D1)	W29 24...
37,0 - 44,0	20	L1+(1,5×D1)	W29 34...

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	N + 35	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	N + 35	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	N + 40	W29 24...
35,0 - 50,0	90°-15°	15	1,5 × D	N + 40	W29 34...
30,0 - 50,0	90°-15°	15	1,5 × D	N + 40	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

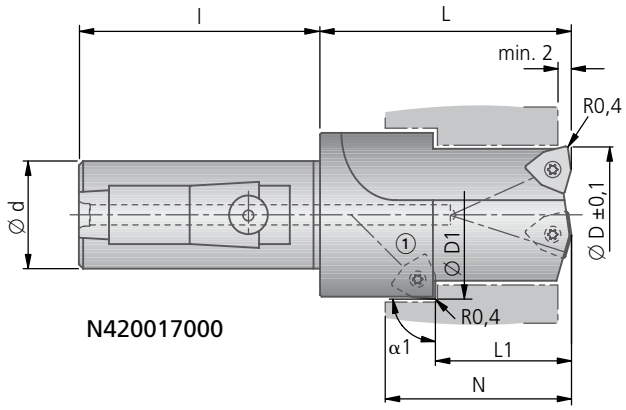
Patent applied for inside and outside Germany

Insert drill with cylindrical shank (combination shank), R.H. cutting

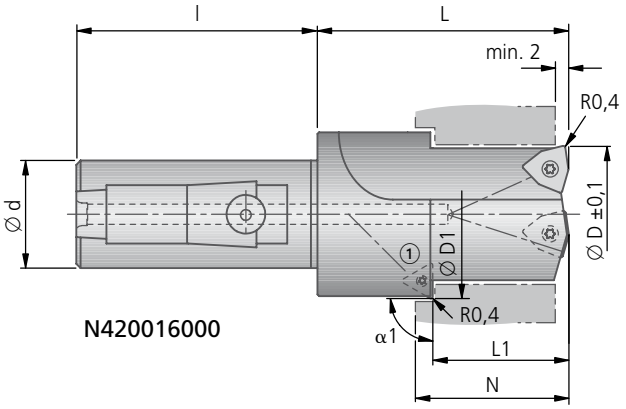
2×D												
	●	●	●	●	●	●	●	●	✕	◐	●	

Inquiry form
www.kometgroup.com/EasySpecial/N420017000-EN.pdf
www.kometgroup.com/EasySpecial/N420016000-EN.pdf

- With a stepped cutting edge ■
- Drilling depth 2×D ■
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■

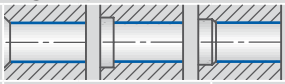


N420017000



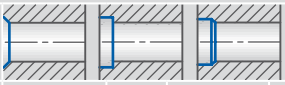
N420016000

Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	15	L1+(1,5×D1)	W29 10...	•	•
20,0 - 24,9	15	L1+(1,5×D1)	W29 18...	•	•
25,0 - 29,9	20	L1+(1,5×D1)	W29 24...	•	•
30,0 - 36,9	20	L1+(1,5×D1)	W29 24...		•
37,0 - 44,0	20	L1+(1,5×D1)	W29 34...		•

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	N + 24	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	N + 24	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	N + 29	W29 24...
35,0 - 44,0	90°-15°	15	1,5 × D	N + 29	W29 34...
30,0 - 44,0	90°-15°	15	1,5 × D	N + 29	W59 18...

Note! On exit of the drill risk of accident by detached parts of workpiece . Please arrange suitable guarding.

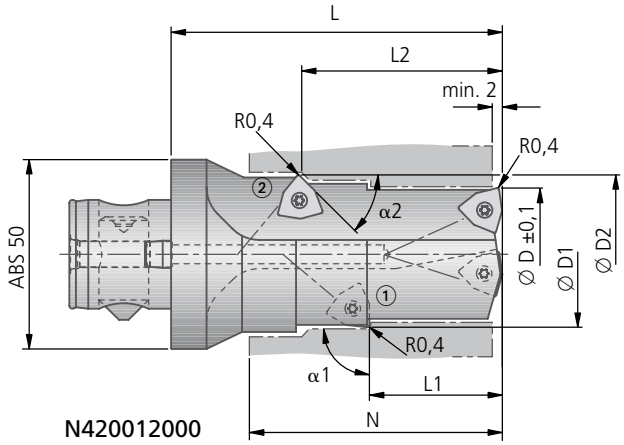
KOMET KUB® Easy Special — Ø 14 – 44 mm

Insert drill with ABS® connection, R.H. cutting

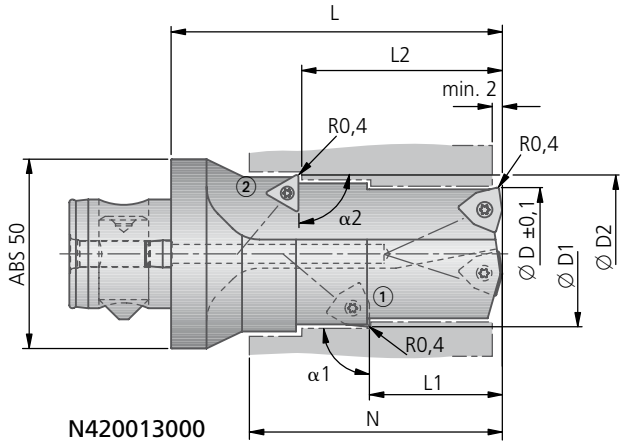
2×D	●	●	●	●	●	●	●	●	✕	◐	●

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420012000-EN.pdf
www.kometgroup.com/EasySpecial/N420013000-EN.pdf

- With two stepped cutting edges
- Drilling depth 2×D
- ABS® connection



N420012000



N420013000

Solid drilling step (min/max dimension)

Drilling examples			
Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert
14,0 - 19,9	15	L2 + (1,5×D2)	W29 10...
20,0 - 24,9	15	L2 + (1,5×D2)	W29 18...
25,0 - 29,9	20	L2 + (1,5×D2)	W29 24...
30,0 - 36,9	20	L2 + (1,5×D2)	W29 24...
37,0 - 44,0	20	L2 + (1,5×D2)	W29 34...

Step ① (min/max dimension)

Drilling examples					
Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	N + 54	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	N + 54	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	N + 59	W29 24...
35,0 - 50,0	90°-15°	15	1,5 × D	N + 59	W29 34...

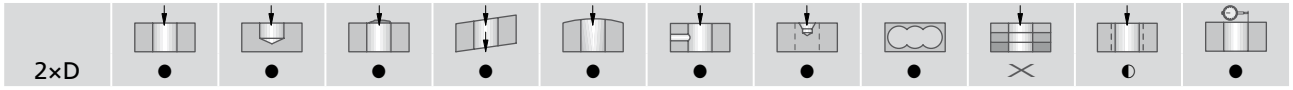
Step ② (min/max dimension)

Drilling examples					
Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max	L	Insert
17,5 - 24,9	90°-15°	L1	L1+(1,5×D1)	N+35	W29 10...
25,0 - 29,9	90°-15°	L1	L1+(1,5×D1)	N+35	W29 18...
30,0 - 34,9	90°-15°	L1	L1+(1,5×D1)	N+40	W29 24...
35,0 - 50,0	90°-15°	L1	L1+(1,5×D1)	N+40	W29 34...
30,0 - 50,0	90°-15°	L1	L1+(1,5×D1)	N+40	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

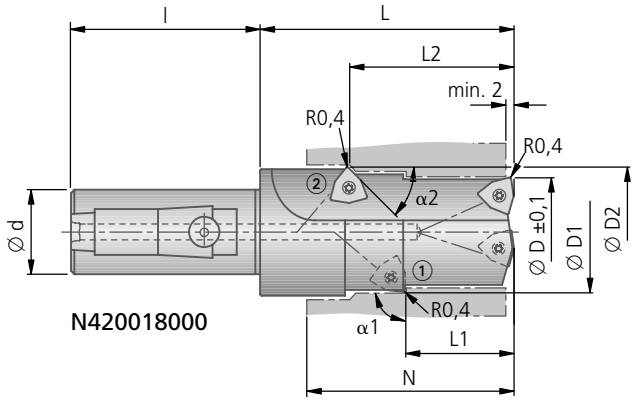
Patent applied for inside and outside Germany

Insert drill with cylindrical shank (combination shank), R.H. cutting

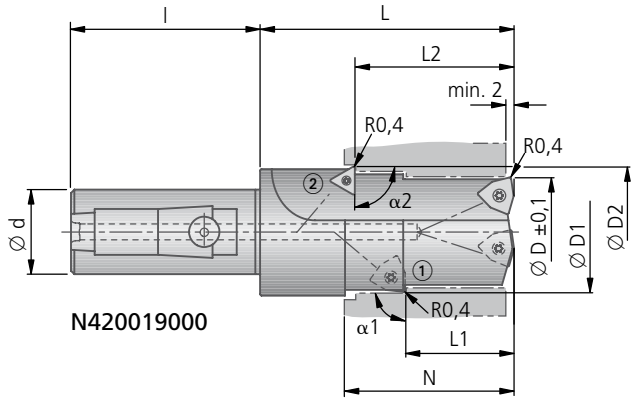


Inquiry form
www.kometgroup.com/EasySpecial/N420018000-EN.pdf
www.kometgroup.com/EasySpecial/N420019000-EN.pdf

- With two stepped cutting edges
- Drilling depth 2×D
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595

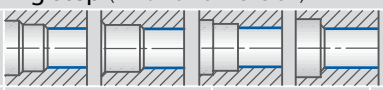


N420018000



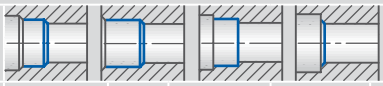
N420019000

Solid drilling step (min/max dimension)



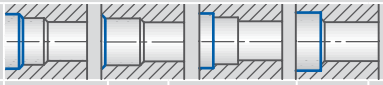
Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	15	L2+(1,5×D2)	W29 10...	•	•
20,0 - 24,9	15	L2+(1,5×D2)	W29 18...	•	•
25,0 - 29,9	20	L2+(1,5×D2)	W29 24...	•	•
30,0 - 36,9	20	L2+(1,5×D2)	W29 24...		•
37,0 - 44,0	20	L2+(1,5×D2)	W29 34...		•

Step ① (min/max dimension)



Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	N + 54	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	N + 54	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	N + 59	W29 24...
35,0 - 50,0	90°-15°	15	1,5 × D	N + 59	W29 34...

Step ② (min/max dimension)



Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max	L	Insert
17,5 - 24,9	90°-15°	L1	L1+(1,5×D1)	N+35	W29...
25,0 - 29,9	90°-15°	L1	L1+(1,5×D1)	N+35	W29...
30,0 - 34,9	90°-15°	L1	L1+(1,5×D1)	N+40	W29...
35,0 - 50,0	90°-15°	L1	L1+(1,5×D1)	N+40	W29...
30,0 - 50,0	90°-15°	L1	L1+(1,5×D1)	N+40	W59 18...

Note! On exit of the drill risk of accident by detached parts of workpiece. Please arrange suitable guarding.

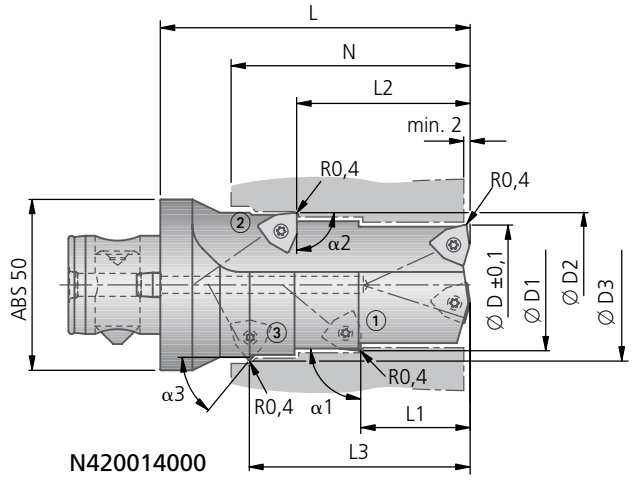
KOMET KUB® Easy Special Ø 14 – 44 mm

Insert drill with ABS® connection, R.H. cutting

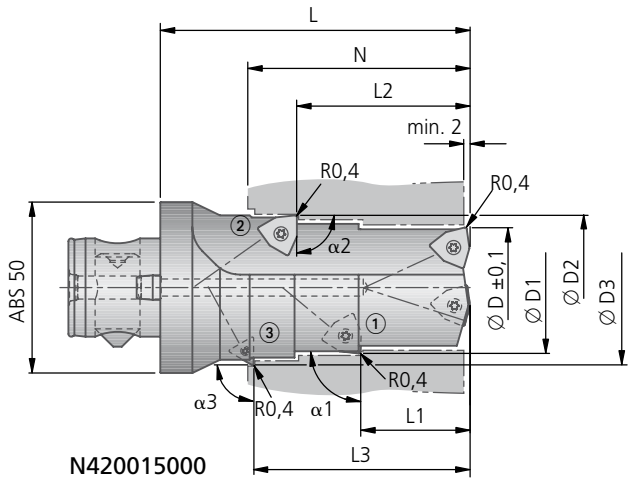
2×D	●	●	●	●	●	●	●	●	✕	◐	●

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420014000-EN.pdf
www.kometgroup.com/EasySpecial/N420015000-EN.pdf

- With three stepped cutting edges
- Drilling depth 2×D
- ABS® connection



N420014000



N420015000

Solid drilling step (min/max dimension)

Drilling examples					
Drilling range Ø D min - max	N min	Drilling depth N max			Insert
14,0 - 19,9	30	L3 + (1,5×D3)			W29 10...
20,0 - 24,9	30	L3 + (1,5×D3)			W29 18...
25,0 - 29,9	40	L3 + (1,5×D3)			W29 24...
30,0 - 36,9	40	L3 + (1,5×D3)			W29 24...
37,0 - 44,0	40	L3 + (1,5×D3)			W29 34...

Step ① (min/max dimension)

Drilling examples					
Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max		Insert
17,5 - 24,9	90°-15°	10	1,5 × D		W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D		W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D		W29 24...
35,0 - 50,0	90°-15°	15	1,5 × D		W29 34...

Step ② (min/max dimension)

Drilling examples					
Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max		Insert
17,5 - 24,9	90°-15°	L1	L1 + (1,5×D1)		W29...
25,0 - 29,9	90°-15°	L1	L1 + (1,5×D1)		W29...
30,0 - 34,9	90°-15°	L1	L1 + (1,5×D1)		W29...
35,0 - 50,0	90°-15°	L1	L1 + (1,5×D1)		W29...

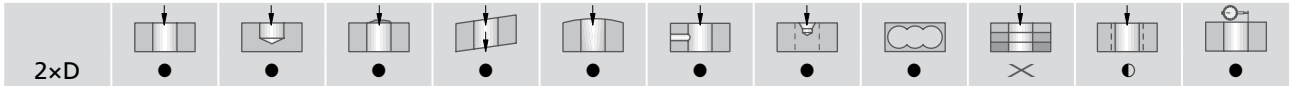
Step ③ (min/max dimension)

Drilling examples					
Drilling range Ø D3 min - max	α3 max - min	L3 min	L2 max	L	Insert
17,5 - 24,9	90°-15°	L2	L2+(1,5×D2)	N+35	W29...
25,0 - 29,9	90°-15°	L2	L2+(1,5×D2)	N+35	W29...
30,0 - 34,9	90°-15°	L2	L2+(1,5×D2)	N+40	W29...
35,0 - 50,0	90°-15°	L2	L2+(1,5×D2)	N+40	W29...
30,0 - 50,0	90°-15°	L2	L2+(1,5×D2)	N+40	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

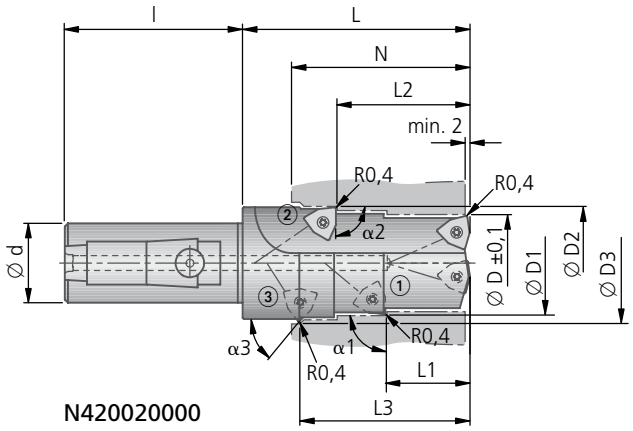
Patent applied for inside and outside Germany

Insert drill with cylindrical shank (combination shank), R.H. cutting

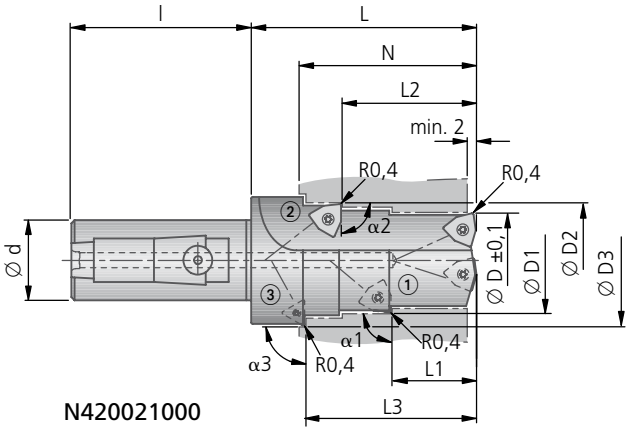


Inquiry form
www.kometgroup.com/EasySpecial/N420020000-EN.pdf
www.kometgroup.com/EasySpecial/N420021000-EN.pdf

- With three stepped cutting edges
- Drilling depth 2×D
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595



N420020000



N420021000

Solid drilling step (min/max dimension)

Drilling examples						
Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	15	L3+(1,5×D3)	W29 10...	•	•
20,0 - 24,9	15	L3+(1,5×D3)	W29 18...	•	•
25,0 - 29,9	20	L3+(1,5×D3)	W29 24...	•	•
30,0 - 36,9	20	L3+(1,5×D3)	W29 24...		•
37,0 - 44,0	20	L3+(1,5×D3)	W29 34...		•

Step ① (min/max dimension)

Drilling examples				
Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	W29 24...
35,0 - 44,0	90°-15°	15	1,5 × D	W29 34...

Step ② (min/max dimension)

Drilling examples				
Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max	Insert
17,5 - 24,9	90°-15°	L1	L1 + (1,5×D1)	W29...
25,0 - 29,9	90°-15°	L1	L1 + (1,5×D1)	W29...
30,0 - 34,9	90°-15°	L1	L1 + (1,5×D1)	W29...
35,0 - 44,0	90°-15°	L1	L1 + (1,5×D1)	W29...

Step ③ (min/max dimension)

Drilling examples					
Drilling range Ø D3 min - max	α3 max - min	L3 min	L2 max	L	Insert
17,5 - 24,9	90°-15°	L2	L2+(1,5×D2)	N+24	W29...
25,0 - 29,9	90°-15°	L2	L2+(1,5×D2)	N+24	W29...
30,0 - 34,9	90°-15°	L2	L2+(1,5×D2)	N+29	W29...
35,0 - 44,0	90°-15°	L2	L2+(1,5×D2)	N+29	W29...
30,0 - 44,0	90°-15°	L2	L2+(1,5×D2)	N+29	W59 18...

Note! On exit of the drill risk of accident by detached parts of workpiece. Please arrange suitable guarding.

KOMET KUB® Easy Special

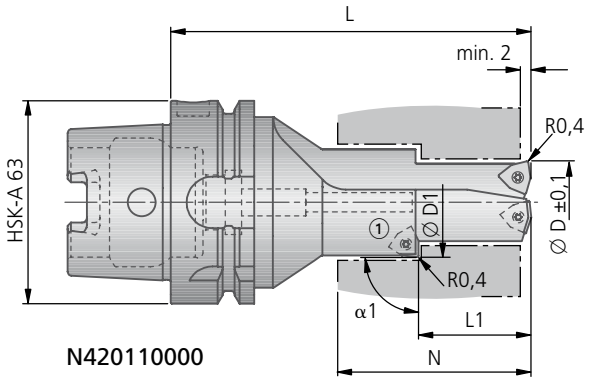
Ø 14 – 44 mm

Insert drill with HSK-A connection, R.H. cutting

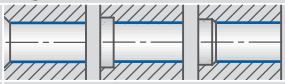
2×D	●	●	●	●	●	●	●	●	✕	◐	●

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420110000-EN.pdf

- With a stepped cutting edge
- Drilling depth 2×D
- HSK-A connection to ISO 12164-1

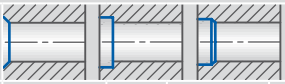


Solid drilling step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert
14,0 - 19,9	15	L1+(1,5×D1)	W29 10...
20,0 - 24,9	15	L1+(1,5×D1)	W29 18...
25,0 - 29,9	20	L1+(1,5×D1)	W29 24...
30,0 - 36,9	20	L1+(1,5×D1)	W29 24...
37,0 - 44,0	20	L1+(1,5×D1)	W29 34...

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	N + 54	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	N + 54	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	N + 59	W29 24...
35,0 - 50,0	90°-15°	15	1,5 × D	N + 59	W29 34...
30,0 - 50,0	90°-15°	15	1,5 × D	N + 59	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

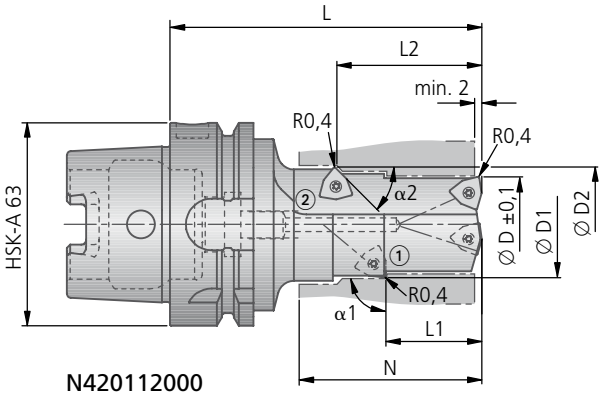
Insert drill with HSK-A connection, R.H. cutting

2×D												
	●	●	●	●	●	●	●	●	✕	◐	●	

Inquiry form
www.kometgroup.com/EasySpecial/N420112000-EN.pdf

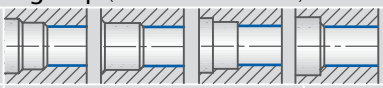
DOWNLOAD

- With two stepped cutting edges ■
- Drilling depth 2×D ■
- HSK-A connection to ISO 12164-1 ■



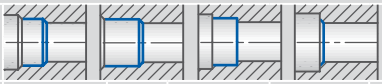
N420112000

Solid drilling step (min/max dimension)

Drilling examples 

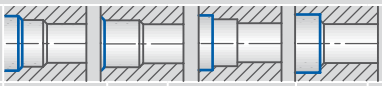
Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	Insert
14,0 - 19,9	15	L2 + (1,5×D2)	W29 10...
20,0 - 24,9	15	L2 + (1,5×D2)	W29 18...
25,0 - 29,9	20	L2 + (1,5×D2)	W29 24...
30,0 - 36,9	20	L2 + (1,5×D2)	W29 24...
37,0 - 44,0	20	L2 + (1,5×D2)	W29 34...

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1 max	L	Insert
17,5 - 24,9	90°-15°	10	1,5 × D	N + 54	W29 10...
25,0 - 29,9	90°-15°	10	1,5 × D	N + 54	W29 18...
30,0 - 34,9	90°-15°	15	1,5 × D	N + 59	W29 24...
35,0 - 50,0	90°-15°	15	1,5 × D	N + 59	W29 34...

Step ② (min/max dimension)

Drilling examples 

Drilling range Ø D2 min - max	α2 max - min	L2 min	L2 max	L	Insert
17,5 - 24,9	90°-15°	L1	L1+(1,5×D1)	N+54	W29...
25,0 - 29,9	90°-15°	L1	L1+(1,5×D1)	N+54	W29...
30,0 - 34,9	90°-15°	L1	L1+(1,5×D1)	N+59	W29...
35,0 - 50,0	90°-15°	L1	L1+(1,5×D1)	N+59	W29...

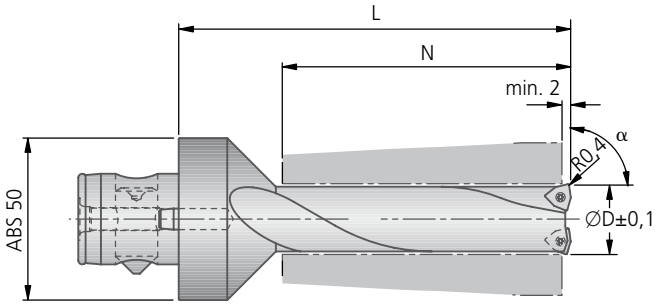
KOMET TwinKom® Easy Special Ø 14 – 44 mm

Twin cutter with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	●	✕	●	α = 80°	✕
3×D	●	●	●	●	●	●	✕	●	α = 80°	✕
4×D	●	●	●	●	●	●	✕	●	α = 80°	✕

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420022000-1-EN.pdf

- Drilling depth 2×D, 3×D, 4×D
- ABS® connection



N420022000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N 2×D	3×D	4×D	L	α max - min	Insert
14,0 - 19,9	•	•	•	N + 35	90° - 15°	W29 10...
20,0 - 24,9	•	•	•	N + 35	90° - 15°	W29 18...
25,0 - 29,9	•	•	•	N + 35	90° - 15°	W29 24...
30,0 - 36,9	•	•	•	N + 40	90° - 15°	W29 24...
37,0 - 44,0	•	•	•	N + 50	90° - 15°	W29 34...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

KOMET TwinKom® Easy Special

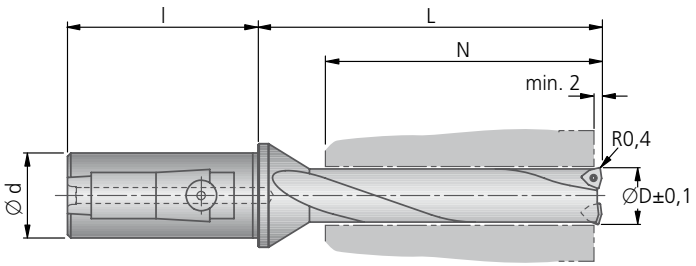
Twin cutter with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	●	×	●	α = 80°	×
3×D	●	●	●	●	●	●	×	●	α = 80°	×
4×D	●	●	●	●	●	●	×	●	α = 80°	×

Inquiry form
www.kometgroup.com/EasySpecial/N420023000-1-EN.pdf

DOWNLOAD

Drilling depth 2×D, 3×D, 4×D ■
Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420023000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N 2×D	3×D	4×D	L	Insert	Cylindrical shank Ø d × l 20×50	25×56	32×60
14,0 - 19,9	•	•	•	N + 24	W29 10...	•	•	•
20,0 - 24,9	•	•	•	N + 24	W29 18...	•	•	•
25,0 - 29,9	•	•	•	N + 24	W29 24...		•	•
30,0 - 36,9	•	•	•	N + 29	W29 24...			•
37,0 - 44,0	•	•	•	N + 39	W29 34...			•

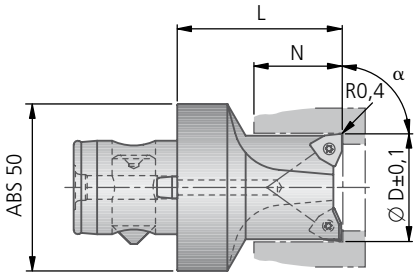
KOMET TwinKom® Easy Special Ø 14 – 50 mm

Twin cutter with ABS® or HSK-A connection, R.H. cutting

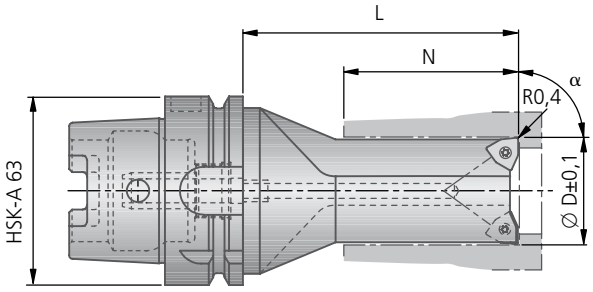
2×D	●	●	●	●	●	●	✕	●	α = 80°	✕

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420022000-EN.pdf
www.kometgroup.com/EasySpecial/N420122000-EN.pdf

- Drilling depth 2×D
- ABS® connection or HSK-A connection to ISO 12164-1

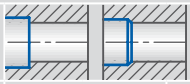


N420022000



N420122000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	ABS L	HSK L	Insert
14,0 - 19,9	5	2 × D	N + 35	N + 54	W29 10...
20,0 - 24,9	5	2 × D	N + 35	N + 54	W29 18...
25,0 - 29,9	5	2 × D	N + 35	N + 54	W29 24...
30,0 - 50,0	5	2 × D	N + 40	N + 59	W29 34...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

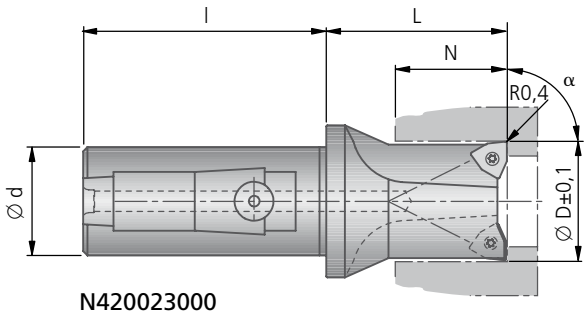
Twin cutter with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	●	✕	●	α = 80°	✕

Inquiry form
www.kometgroup.com/EasySpecial/N420023000-EN.pdf

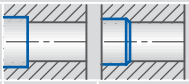
DOWNLOAD

Drilling depth 2×D ■
Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420023000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	α max - min	Drilling depth N min	Drilling depth N max	L	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	90°-15°	5	2 × D	N + 24	W29 10...	•	•
20,0 - 24,9	90°-15°	5	2 × D	N + 24	W29 18...	•	•
25,0 - 29,9	90°-15°	5	2 × D	N + 24	W29 24...	•	•
30,0 - 44,0	90°-15°	5	2 × D	N + 29	W29 34...		•

KOMET TwinKom® Easy Special

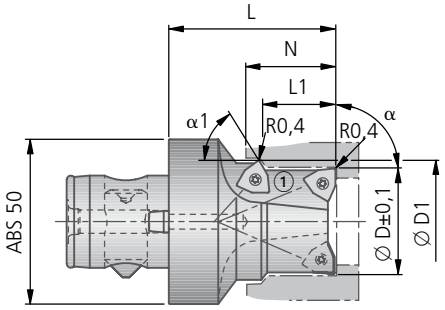
Ø 14 – 50 mm

Twin cutter with ABS® connection, R.H. cutting

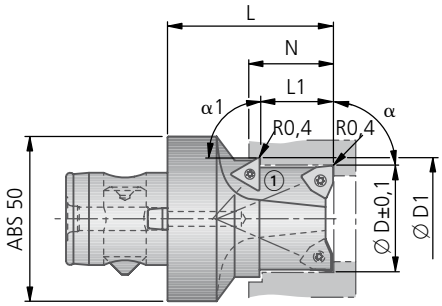
2×D	●	●	●	●	●	●	✕	●	α = 80°	✕

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420025000-EN.pdf
www.kometgroup.com/EasySpecial/N420027000-EN.pdf

- With chamfering insert
- Drilling depth 2×D
- ABS® connection

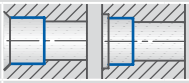


N420025000



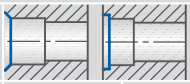
N420027000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth for N420025000 N min	N420027000 N min	N max	α max - min	Insert
14,0 - 19,9	10	L1	2 × D	90° - 15°	W29 10...
20,0 - 24,9	10	L1	2 × D	90° - 15°	W29 18...
25,0 - 29,9	10	L1	2 × D	90° - 15°	W29 24...
30,0 - 50,0	10	L1	2 × D	90° - 15°	W29 34...

Chamfering step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	L	Insert
17,0 - 22,9	75° - 15°	10	≦ N	N + 35	W29 10...
23,0 - 29,9	75° - 15°	10	≦ N	N + 35	W29 24...
30,0 - 34,9	75° - 15°	15	≦ N	N + 40	W29 24...
35,0 - 50,0	75° - 15°	15	≦ N	N + 40	W29 34...
30,0 - 50,0	90° - 15°	15	2×D	N + 40	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

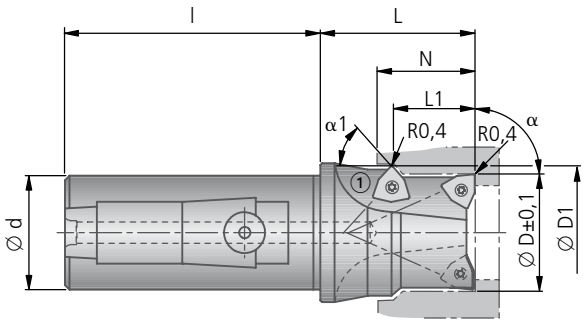
KOMET TwinKom® Easy Special

Twin cutter with cylindrical shank (combination shank), R.H. cutting

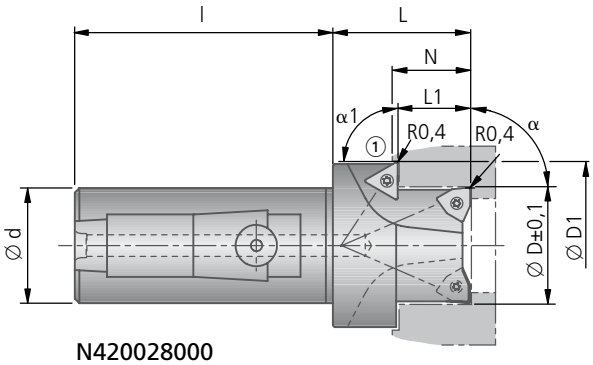
2×D	●	●	●	●	●	●	×	●	α = 80°	×

Inquiry form
www.kometgroup.com/EasySpecial/N420026000-EN.pdf
www.kometgroup.com/EasySpecial/N420028000-EN.pdf

- With chamfering insert ■
- Drilling depth 2×D ■
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■

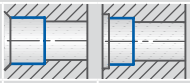


N420026000



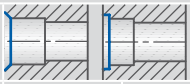
N420028000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	α max - min	Drilling depth N min	Drilling depth N max	L	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	90°-15°	10	2 × D	N + 24	W29 10...	•	•
20,0 - 24,9	90°-15°	10	2 × D	N + 24	W29 18...	•	•
25,0 - 29,9	90°-15°	10	2 × D	N + 24	W29 24...	•	•
30,0 - 44,0	90°-15°	10	2 × D	N + 29	W29 34...		•

Chamfering step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	L	Insert
17,0 - 22,9	75° - 15°	10	≦ N	N + 35	W29 10...
23,0 - 29,9	75° - 15°	10	≦ N	N + 35	W29 24...
30,0 - 34,9	75° - 15°	15	≦ N	N + 40	W29 24...
35,0 - 50,0	75° - 15°	15	≦ N	N + 40	W29 34...
30,0 - 50,0	90° - 15°	15	2×D	N + 40	W59 18...

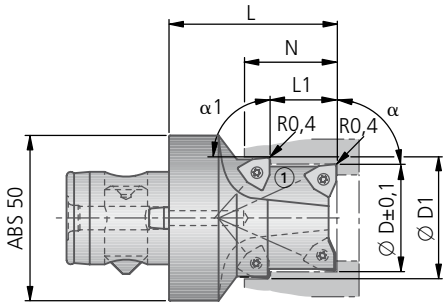
KOMET TwinKom® Easy Special Ø 14 – 50 mm

Twin cutter with ABS® connection, R.H. cutting

2×D	●	●	●	●	●	●	✕	●	α = 80°	✕

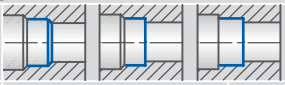
DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420060000-EN.pdf

- With a stepped cutting edge
- Drilling depth 2×D
- ABS® connection



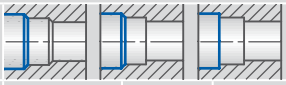
N420060000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	Drilling depth N min	N max	α max - min	Insert
14,0 - 19,9	> L1	2 × D	90° - 15°	W29 10...
20,0 - 24,9	> L1	2 × D	90° - 15°	W29 18...
25,0 - 29,9	> L1	2 × D	90° - 15°	W29 24...
30,0 - 50,0	> L1	2 × D	90° - 15°	W29 34...

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	L	Insert
17,0 - 22,9	90° - 15°	10	≦ N	N + 35	W29 10...
23,0 - 29,9	90° - 15°	10	≦ N	N + 35	W29 24...
30,0 - 34,9	90° - 15°	15	≦ N	N + 40	W29 24...
35,0 - 50,0	90° - 15°	15	≦ N	N + 40	W29 34...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

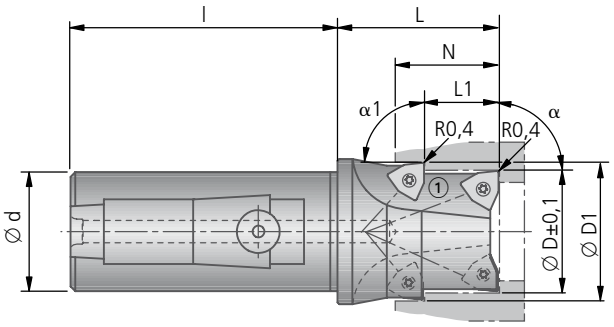
Twin cutter with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	●	×	●	α = 80°	×

Inquiry form
www.kometgroup.com/EasySpecial/N420061000-EN.pdf

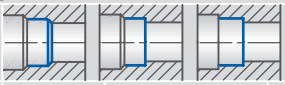
DOWNLOAD

- With a stepped cutting edge ■
- Drilling depth 2×D ■
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



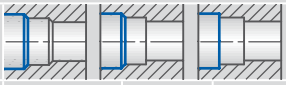
N420061000

Roughing step (min/max dimension)

Drilling examples 

Drilling range Ø D min - max	α max - min	Drilling depth N min	Drilling depth N max	Insert	Cylindrical shank Ø d × l 25×56	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	90° - 15°	> L1	2 × D	W29 10...	•	•
20,0 - 24,9	90° - 15°	> L1	2 × D	W29 18...	•	•
25,0 - 29,9	90° - 15°	> L1	2 × D	W29 24...	•	•
30,0 - 44,0	90° - 15°	> L1	2 × D	W29 34...		•

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	L	Insert
17,0 - 22,9	90° - 15°	10	< N	N + 24	W29 10...
23,0 - 29,9	90° - 15°	10	< N	N + 24	W29 24...
30,0 - 34,9	90° - 15°	15	< N	N + 29	W29 24...
35,0 - 44,0	90° - 15°	15	< N	N + 29	W29 34...

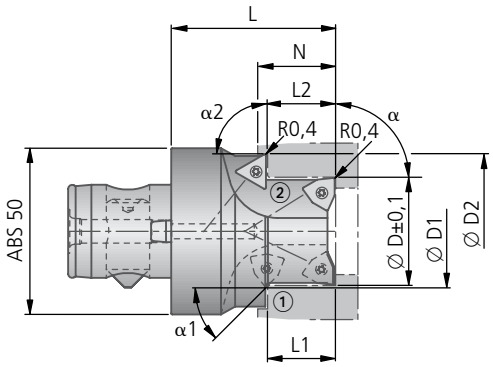
KOMET TwinKom® Easy Special Ø 14 – 50 mm

Twin cutter with ABS® connection, R.H. cutting

2×D									α = 80°	
	●	●	●	●	●	●	✕	●		✕

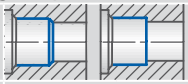
Inquiry form
www.kometgroup.com/EasySpecial/N420029000-EN.pdf

- With two stepped cutting edges
- Drilling depth 2×D
- ABS® connection



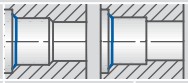
N420029000

Roughing step (min/max dimension)

Drilling examples 

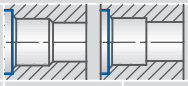
Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	α max - min	Insert
14,0 - 19,9	L2	L2 + 2	90° - 15°	W29 10...
20,0 - 24,9	L2	L2 + 2	90° - 15°	W29 18...
25,0 - 29,9	L2	L2 + 2	90° - 15°	W29 24...
30,0 - 50,0	L2	L2 + 2	90° - 15°	W29 34...

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	Insert
17,0 - 22,9	90° - 15°	10	≦ L2	W29 10...
23,0 - 29,9	90° - 15°	10	≦ L2	W29 24...
30,0 - 34,9	90° - 15°	15	≦ L2	W29 24...
35,0 - 50,0	90° - 15°	15	≦ L2	W29 34...

Step ② (min/max dimension)

Drilling examples 

Drilling range Ø D2 min - max	α2 max - min	L2 min	L2	L	Insert
30,0 - 50,0	90° - 15°	L1	2 × D	N + 40	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

KOMET TwinKom® Easy Special

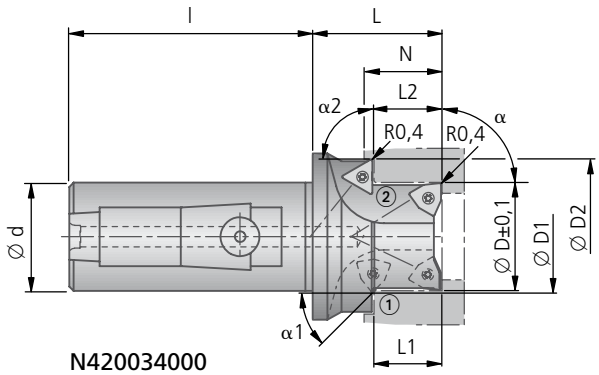
Twin cutter with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	●	×	●	α = 80°	×

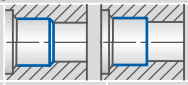
Inquiry form
www.kometgroup.com/EasySpecial/N420034000-EN.pdf

DOWNLOAD

- With two stepped cutting edges
- Drilling depth 2×D
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595

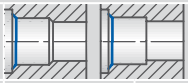


Roughing step (min/max dimension)

Drilling examples 

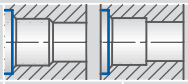
Drilling range Ø D min - max	α max - min	Drilling depth N min	Drilling depth N max	Insert	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	90° - 15°	L2	L2 + 2	W29 10...	•
20,0 - 24,9	90° - 15°	L2	L2 + 2	W29 18...	•
25,0 - 29,9	90° - 15°	L2	L2 + 2	W29 24...	•
30,0 - 44,0	90° - 15°	L2	L2 + 2	W29 34...	•

Step ① (min/max dimension)

Drilling examples 

Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	Insert
17,0 - 22,9	90° - 15°	10	≦ L2	W29 10...
23,0 - 29,9	90° - 15°	10	≦ L2	W29 24...
30,0 - 34,9	90° - 15°	15	≦ L2	W29 24...
35,0 - 44,0	90° - 15°	15	≦ L2	W29 34...

Step ② (min/max dimension)

Drilling examples 

Drilling range Ø D2 min - max	α2 max - min	L2 min	L2	L	Insert
30,0 - 44,0	90° - 15°	L1	2 × D	N + 29	W59 18...

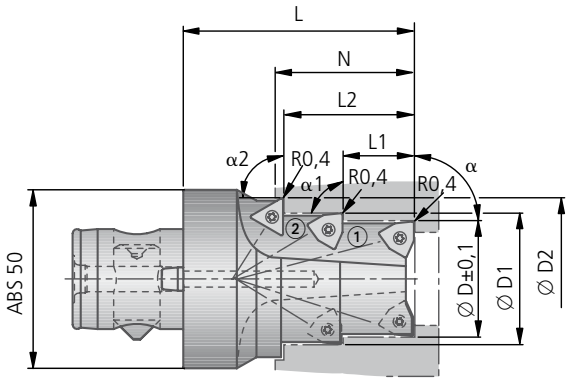
KOMET TwinKom® Easy Special Ø 14 – 50 mm

Twin cutter with ABS® connection, R.H. cutting

2×D									α = 80°	
	●	●	●	●	●	●	✕	●		✕

Inquiry form
www.kometgroup.com/EasySpecial/N420062000-EN.pdf

- With two stepped cutting edges
- Drilling depth 2×D
- ABS® connection



N420062000

Roughing step (min/max dimension)				
Drilling examples				
Drilling range Ø D min - max	Drilling depth N min	N max	α max - min	Insert
14,0 - 19,9	> L2	L2 + 2	90° - 15°	W29 10...
20,0 - 24,9	> L2	L2 + 2	90° - 15°	W29 18...
25,0 - 29,9	> L2	L2 + 2	90° - 15°	W29 24...
30,0 - 50,0	> L2	L2 + 2	90° - 15°	W29 34...

Step ① (min/max dimension)				
Drilling examples				
Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	Insert
17,0 - 22,9	90° - 15°	10	L2 – 10	W29 10...
23,0 - 29,9	90° - 15°	10	L2 – 10	W29 24...
30,0 - 34,9	90° - 15°	15	L2 – 10	W29 24...
35,0 - 50,0	90° - 15°	15	L2 – 10	W29 34...

Step ② (min/max dimension)					
Drilling examples					
Drilling range Ø D2 min - max	α2 max - min	L2 min	L2	L	Insert
30,0 - 50,0	90° - 15°	L1 + 15	2 × D	N + 40	W59 18...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

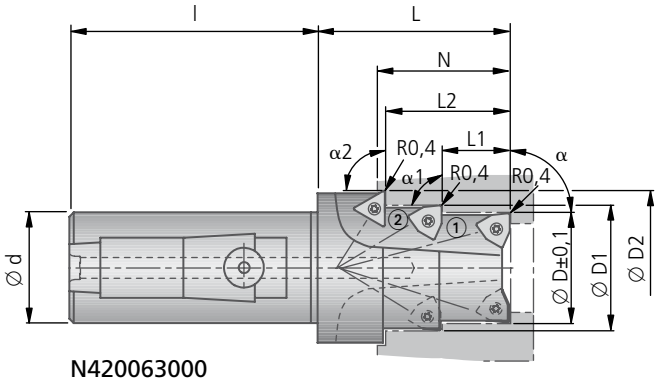
Twin cutter with cylindrical shank (combination shank), R.H. cutting

2×D	●	●	●	●	●	●	×	●	α = 80°	×

Inquiry form
www.kometgroup.com/EasySpecial/N420063000-EN.pdf

DOWNLOAD

- With two stepped cutting edges ■
- Drilling depth 2×D ■
- Cylindrical shank (combination shank) DIN 6535 HE (similar 1835 E) and 6595 ■



N420063000

Roughing step (min/max dimension)

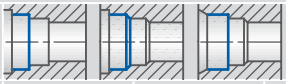
Drilling examples



Drilling range Ø D min - max	α max - min	Drilling depth N min	Drilling depth N max	Insert	Cylindrical shank Ø d × l 32×60
14,0 - 19,9	90° - 15°	> L2	L2 + 2	W29 10...	•
20,0 - 24,9	90° - 15°	> L2	L2 + 2	W29 18...	•
25,0 - 29,9	90° - 15°	> L2	L2 + 2	W29 24...	•
30,0 - 44,0	90° - 15°	> L2	L2 + 2	W29 34...	•

Step ① (min/max dimension)

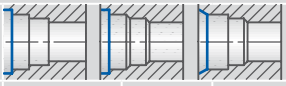
Drilling examples



Drilling range Ø D1 min - max	α1 max - min	L1 min	L1	Insert
17,0 - 22,9	90° - 15°	10	L2 – 10	W29 10...
23,0 - 29,9	90° - 15°	10	L2 – 10	W29 24...
30,0 - 34,9	90° - 15°	15	L2 – 10	W29 24...
35,0 - 44,0	90° - 15°	15	L2 – 10	W29 34...

Step ② (min/max dimension)

Drilling examples



Drilling range Ø D2 min - max	α2 max - min	L2 min	L2	L	Insert
30,0 - 44,0	90° - 15°	L1 + 15	2 × D	N + 29	W59 18...

KOMET® Easy Special

Ø 8 – 40 mm

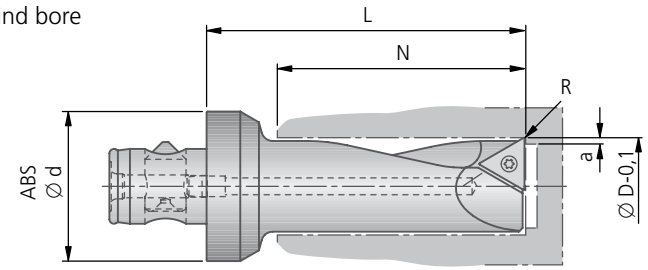
Boring bar with ABS® connection, R.H. cutting

4×D						HRC > 54	HRC > 54	
	●	●	●	●	✕	● ≤ 2×D	● ≤ 2×D	✕

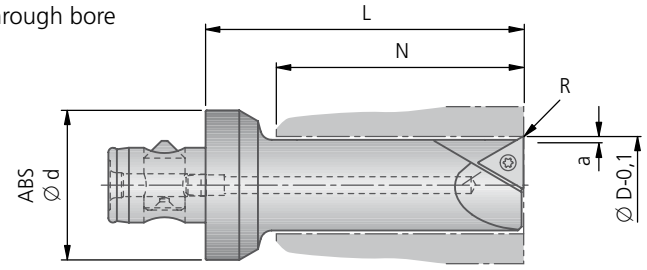
DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420030000-EN.pdf

- **For machining steel / machining aluminium**
- Drilling depth 4×D
- Use with micro-adjustable heads MicroKom® M02, MicroKom® M04 and MicroKom® *hi.flex*, MicroKom *BluFlex*®

Blind bore



Through bore



N420030000

Fine boring step (min/max dimension)

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	L	a max	ABS Ø d	Insert P	Insert N
8,0 - 11,9	15	4 × D	N + 17	0,3	25	W30 04...	W32 03...
12,0 - 14,0						W30 14...	W32 13...
8,0 - 11,9	15	4 × D	N + 17	0,3	32	W30 04...	W32 03...
12,0 - 32,0						W30 14...	W32 13...
8,0 - 11,9	15	4 × D	N + 20	0,3	40	W30 04...	W32 03...
12,0 - 40,0						W30 14...	W32 13...

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

Boring bar with cylindrical shank (KFK-UJ), R.H. cutting

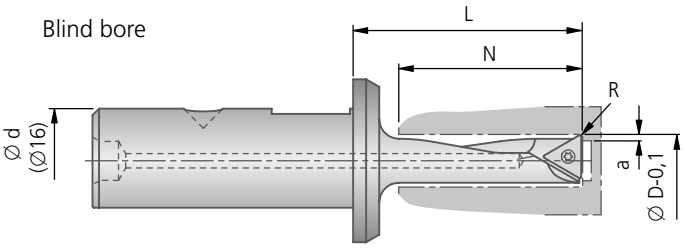
4×D	●	●	●	●	×	● HRC > 54 ≤ 2×D	● HRC > 54 ≤ 2×D	×

Inquiry form
www.kometgroup.com/EasySpecial/N420031000-EN.pdf

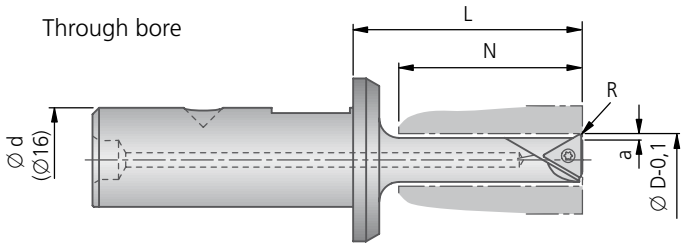
DOWNLOAD

For machining steel / machining aluminium ■
Drilling depth 4×D ■
Use with micro-adjustable heads MicroKom® M02, MicroKom® M04 and ■
MicroKom® *hi.flex*, MicroKom *BluFlex*® (with adaptor M05 90240)

Blind bore



Through bore



N420031000

Fine boring step (min/max dimension)							
Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	L	a max	Ø d	Insert P	Insert N
8,0 - 11,9	15	4 × D	N + 9	0,3	16	W30 04...	W32 03...
12,0 - 24,0						W30 14...	W32 13...

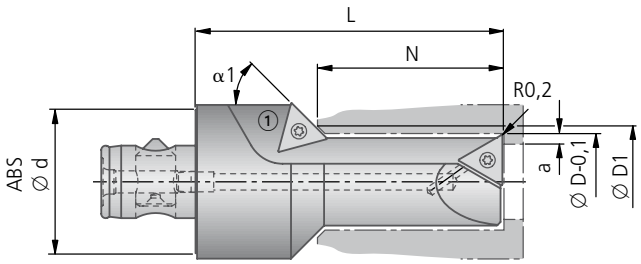
KOMET® Easy Special Ø 8 – 28 mm

Boring bar with ABS® connection, R.H. cutting

4×D						HRC > 54	HRC > 54	
	●	●	●	●	✕	● ≤ 2×D	● ≤ 2×D	✕

DOWNLOAD Inquiry form
www.kometgroup.com/EasySpecial/N420032000-EN.pdf

- **For machining steel / machining aluminium**
- Drilling depth 4×D
- Use with micro-adjustable heads MicroKom® M02, MicroKom® M04 and MicroKom® *hi.flex*, MicroKom *BluFlex*®



N420032000

Fine boring step (min/max dimension)

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	L	a max	ABS Ø d	Insert P	Insert N
8,0 - 11,9	15	4 × D	N + 17	0,3	25	W30 04...	W32 03...
12,0 - 14,0						W30 14...	W32 13...
8,0 - 11,9	15	4 × D	N + 17	0,3	32	W30 04...	W32 03...
12,0 - 24,0						W30 14...	W32 13...
8,0 - 11,9	15	4 × D	N + 20	0,3	40	W30 04...	W32 03...
12,0 - 28,0						W30 14...	W32 13...

Step ① can only be used for chamfering the rough boring step.

Chamfering step ① (min/max dimension)

Drilling range Ø D1 min - max	α1 max - min	Drilling depth N min	Drilling depth N max	L	Insert P	Insert N
8,0 - 9,9	75° - 50°	15	4×D	N + 27	W30 04...	W32 03...
10,0 - 14,9	75° - 45°					
15,0 - 18,9	75° - 30°					
19,0 - 28,0	75° - 15°					

Drilling range Ø 8 – 28 mm

α1	75°	60°	45°	30°	15°
s_{max}	1,3	1,2	1,0	0,6	0,3
b_{max}	0,3	0,6	1,0	1,2	1,3

s_{max} = max. cutting width b_{max} = max. chamfering width

● very good | ◐ good | ○ possible | ✕ not possible

Patent applied for inside and outside Germany

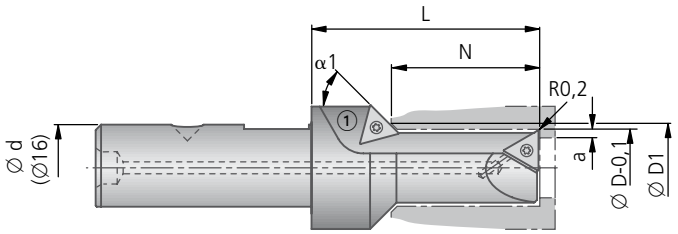
Boring bar with cylindrical shank (KFK-UJ), R.H. cutting

4×D						HRC > 54	HRC > 54	
	●	●	●	●	×	● ≤ 2×D	● ≤ 2×D	×

Inquiry form
www.kometgroup.com/EasySpecial/N420033000-EN.pdf

DOWNLOAD

For machining steel / machining aluminium ■
Drilling depth 4×D ■
Use with micro-adjustable heads MicroKom® M02, MicroKom® M04 and ■
MicroKom® *hi.flex*, MicroKom *BluFlex*® (with adaptor M05 90240)



N420033000

Fine boring step (min/max dimension)

Drilling range Ø D min - max	Drilling depth N min	Drilling depth N max	L	a max	Ø d	Insert P	Insert N
8,0 - 11,9	15	4 × D	N + 9	0,3	16	W30 04...	W32 03...
12,0 - 24,0						W30 14...	W32 13...

Step ① can only be used for chamfering the rough boring step.

Chamfering step ① (min/max dimension)

Drilling range Ø D1 min - max	α1 max - min	Drilling depth N min	Drilling depth N max	L	Insert P	Insert N
8,0 - 9,9	75° - 50°	15	4×D	N + 27	W30 04...	W32 03...
10,0 - 14,9	75° - 45°					
15,0 - 18,9	75° - 30°					
19,0 - 28,0	75° - 15°					

Drilling range Ø 8 – 28 mm

α1	75°	60°	45°	30°	15°
s_{max}	1,3	1,2	1,0	0,6	0,3
b_{max}	0,3	0,6	1,0	1,2	1,3

s_{max} = max. cutting width b_{max} = max. chamfering width

KOMET® Easy Special

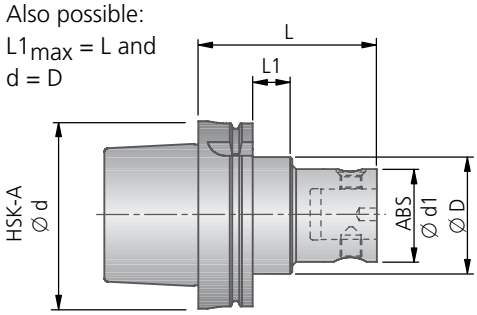
HSK-A Adaptor with ABS® connection



Inquiry form
www.kometgroup.com/EasySpecial/N410004-EN.pdf
www.kometgroup.com/EasySpecial/N410001-EN.pdf

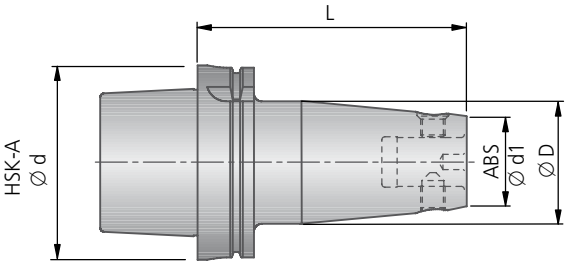
For facing for HSK gripper collar see standard sheet HSK DIN 69893 A.

Also possible:
$L1_{max}$ = L and
d = D



N410004...

conical version



N410001...

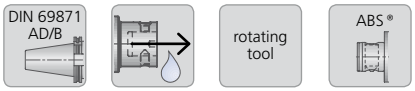
Adaptor (min/max dimension)

No.	HSK Ø d	ABS Ø d1	Ø D max	L min	L max
N41 0004000	63	25 · 32 · 40 · 50 · 63	84	1×D	185
N41 0004100	100	25 · 32 · 40 · 50 · 63 · 80	100	1×D	200

Adaptor (min/max dimension)

No.	HSK Ø d	ABS Ø d1	Ø D max	L min	L max
N41 0001000	63	25 · 32 · 40 · 50 · 63	84	1×D	190
N41 0001100	100	25 · 32 · 40 · 50 · 63 · 80	100	1×D	200

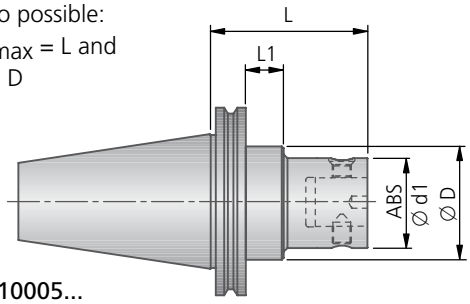
Taper shank with ABS® connection



Inquiry form
www.kometgroup.com/EasySpecial/N410005-EN.pdf
www.kometgroup.com/EasySpecial/N410002-EN.pdf

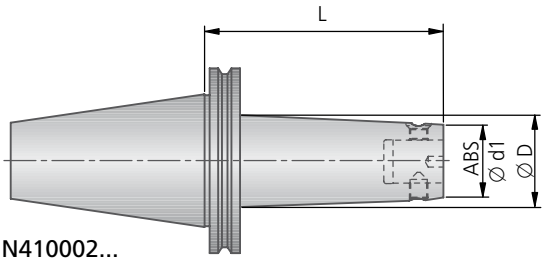
For facing for gripper groove see standard sheet DIN 69871 AD/B.

Also possible:
$L1_{max}$ = L and
d = D



N410005...

conical version



N410002...

Adaptor (min/max dimension)

No.	ISO	ABS Ø d1	Ø D max	L min	L max
N41 0005000	40	25 · 32 · 40 · 50 · 63	63	1×D	180
N41 0005100	50	25 · 32 · 40 · 50 · 63 · 80	80	1×D	200

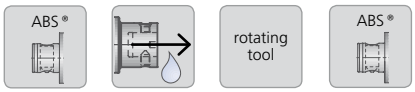
Adaptor (min/max dimension)

No.	ISO	ABS Ø d1	Ø D max	L min	L max
N41 0002000	40	25 · 32 · 40 · 50 · 63	63	1×D	180
N41 0002100	50	25 · 32 · 40 · 50 · 63 · 80	80	1×D	200

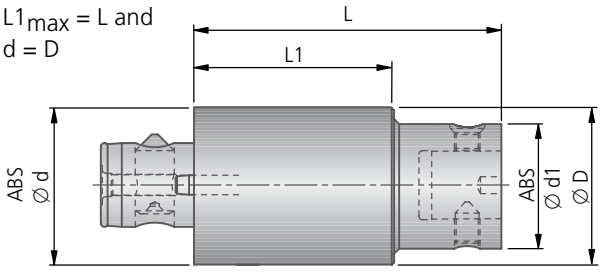
Patent applied for inside and outside Germany

Extension / Reducer with ABS® Connection

Inquiry form
www.kometgroup.com/EasySpecial/N410006-EN.pdf
www.kometgroup.com/EasySpecial/N410003-EN.pdf

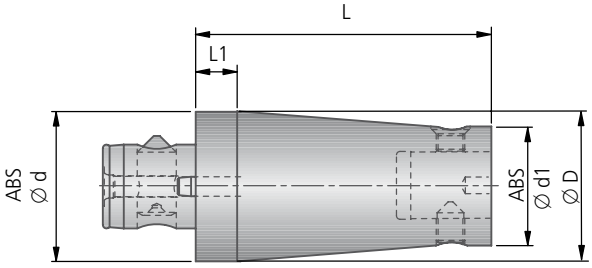


Also possible:
$L1_{max}$ = L and
d = D



N410006...

conical version



N410003...

Adaptor (min/max dimension)

No.	ABS Ø d	ABS Ø d1	Ø D max	L1 min	L max
N41 0006000	25	25	34	10	105
N41 0006100	32	25 · 32	49	12	115
N41 0006200	40	25 · 32 · 40	59	12	120
N41 0006300	50	25 · 32 · 40 · 50	74	15	175
N41 0006400	63	25 · 32 · 40 · 50 · 63	84	20	180
N41 0006500	80	25 · 32 · 40 · 50 · 63 · 80	84	25	200

Adaptor (min/max dimension)

No.	ABS Ø d	ABS Ø d1	Ø D max	L1 min	L max
N41 0003000	25	25	34	10	105
N41 0003100	32	25 · 32	49	12	115
N41 0003200	40	25 · 32 · 40	59	12	120
N41 0003300	50	25 · 32 · 40 · 50	74	15	175
N41 0003400	63	25 · 32 · 40 · 50 · 63	84	20	180
N41 0003500	80	25 · 32 · 40 · 50 · 63 · 80	84	25	200

Intermediate sizes for ABS® tool adaptors and ABS® extensions can be supplied with a larger external diameter than the ABS® external diameter.

KOMET® Adaptors

Perfecting the connection

With our comprehension programme of tool adaptors we have the right answer for every requirement. Adaptors with connections specified by manufacturers available on request.

BENEFITS for you:

- Maximum tool change accuracy
- Perfect static rigidity
- High radial rigidity
- Short tool change times
- Ideal dimensions
- Low weight



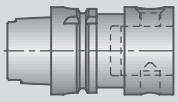
KOMET® Adaptors	Page
HSK-A Adaptors ISO 12164-1	380 – 407
Taper shanks	408 – 439
ABS® Adaptors	440 – 469
PSC Adaptors	471
Adaptors with cylindrical shank	472 – 473
VDI Adaptors	474 – 476
Shrink fit technology ThermoGrip®	478 – 495
Easy Special Adaptors	Chapter 4

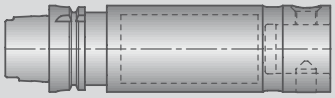


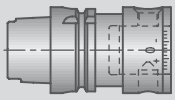
Symbols	
DIN 69871 AD/B, HSK-A ISO 12164-1	**Machine adaptor** Connection on machine side
pre-balanced G6,3 10.000 min^{-1}	**Balancing note (chapter 8)** Balance as despatched
	Coolant supply
concentricity ≦ 5 µm	**Concentricity**
	Lightweight
	Vibration dampening torsion damping | bending vibration
	adjustable radially | axially
ABS®, DIN 6535 HA	**Tool holder** Connection on tool side

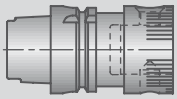
Programme summary – Adaptors

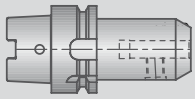
5 HSK-A Adaptors ISO 12164-1

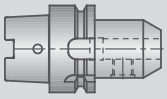
with ABS® connection
▸ 382
HSK-A 32 HSK-A 63 HSK-A 80 HSK-A 50 HSK-A100

ABS 25 ABS 63 ABS 32 ABS 80 ABS 40 ABS 100 ABS 50

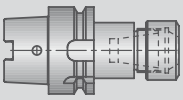
Lightweight adaptor with ABS® connection
▸ 383
HSK-A 63 HSK-A 80 HSK-A100

ABS 63 ABS 80 ABS 100

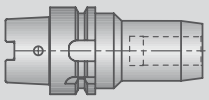
Eccentric adjusting device with ABS® connection
▸ 384
HSK-A 63 HSK-A100

ABS 50 ABS 63

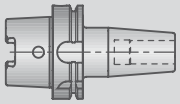
Torsional dampener with ABS® connection
▸ 385
HSK-A 63 HSK-A100

ABS 50 ABS 63 ABS 80

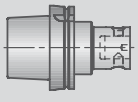
Adaptor sleeve Whistle Notch
▸ 386 – 387
HSK-A 50 HSK-A 63 HSK-A100

Ø 6 – Ø 32

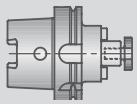
Adaptor sleeve Weldon
▸ 388 – 389
HSK-A 50 HSK-A 63 HSK-A100

Ø 6 – Ø 32

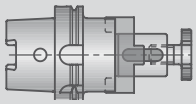
Collet holder
▸ 390
HSK-A 50 HSK-A 63 HSK-A100


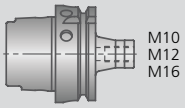
Expanding chuck
▸ 392 – 393
HSK-A 50 HSK-A 63 HSK-A100

Ø 6 – Ø 32

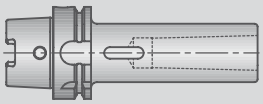
Thermal expansion chuck ThermoGrip®
▸ 480 – 483
HSK-A 32 HSK-A 40 HSK-A 50 HSK-A 63 HSK-A100

Ø 3 – Ø 32

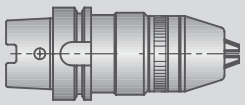
Easy Special
▸ Chapter 4
HSK-A 63 HSK-A100

ABS 25 ABS 50 ABS 32 ABS 63 ABS 40 ABS 80

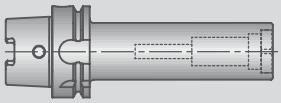
Milling cutter arbor
▸ 394 – 395
HSK-A 63 HSK-A100


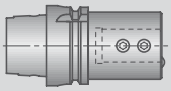
Combination milling cutter arbor
▸ 396
HSK-A 50 HSK-A 63 HSK-A100


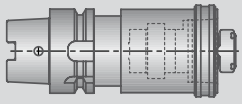
Adaptor for screw-on tools
▸ 397
HSK-A 63 HSK-A100

M10 M12 M16

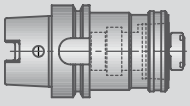
Morse taper
▸ 398
HSK-A 63

MK 2 MK 3 MK 4

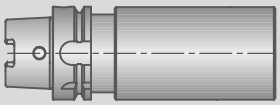
Short drill chuck
▸ 399
HSK-A 50 HSK-A 63

Ø 0,5 – Ø 16

Test arbor
▸ 400
HSK-A 50 HSK-A 63 HSK-A100


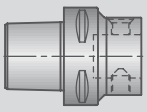
Boring bar holder
▸ 401
HSK-A 63

Ø 10 – Ø 32

Extension with KomLoc® HSK clamping system
▸ 402
HSK-A 63

HSK-A 63

Reducer with KomLoc® HSK clamping system
▸ 403
HSK-A 63 HSK-A100

HSK-A 50 HSK-A 63 HSK-A 80

Semi-finished head
▸ Chapter 6
HSK-A 63 HSK-A100


5 PSC Adaptors ISO 26623

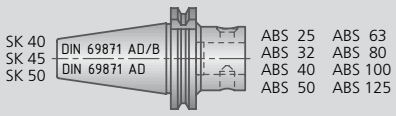
PSC interface with ABS® connection
▸ 471
C4 C5 C6 C8

ABS 50 ABS 63 ABS 80

ThermoGrip® is a registered trademark of Bilz Werkzeugfabrik GmbH & Co. KG

5 Taper shanks

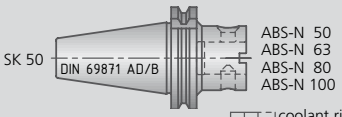
DIN 69871

ABS ®
▸ 410 / 411

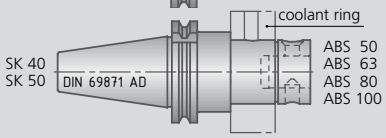


BIG-PLUS ®
▸ 416

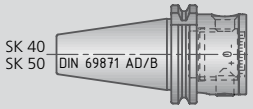
ABS ® N
▸ 412



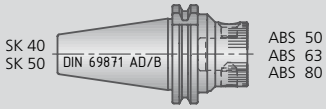
ABS ®
▸ 413



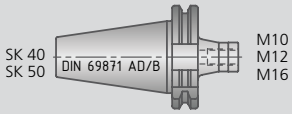
Eccentric adjusting device
▸ 414



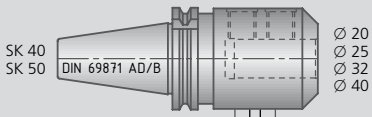
Torsional dampener
▸ 415



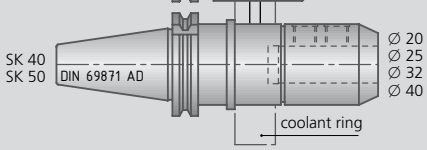
Adaptor for screw-on tools
▸ 417



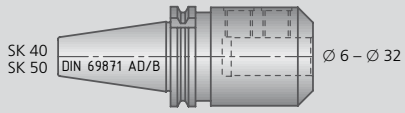
for KUB ® drill
▸ 418



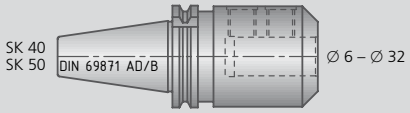
▸ 419



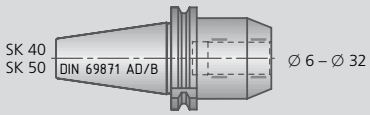
Adaptor sleeve Whistle Notch
▸ 420



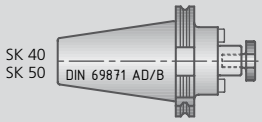
Adaptor sleeve Weldon
▸ 421



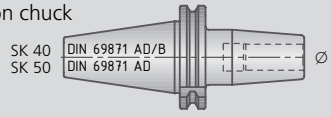
Expanding chuck
▸ 422



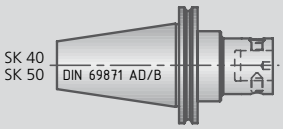
Milling cutter arbor
▸ 424 – 425



Thermal expansion chuck ThermoGrip ®
▸ 486 – 489

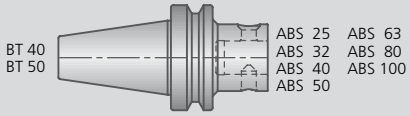


Easy Special
▸ Chapter 4



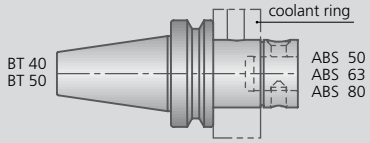
JIS B 6339 (MAS 403 BT)

ABS ® / ABS ® N
▸ 426 – 427

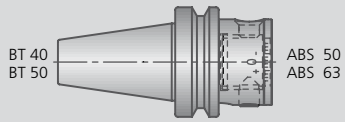


BIG-PLUS ®
▸ 429

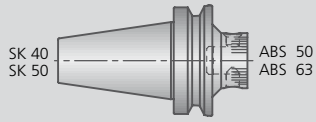
ABS ®
▸ 428



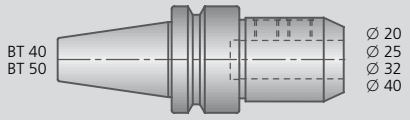
Eccentric adjusting device
▸ 430



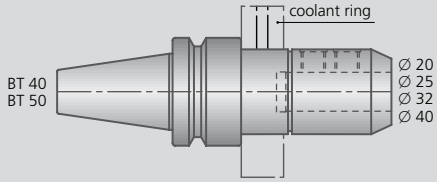
Torsional dampener
▸ 431



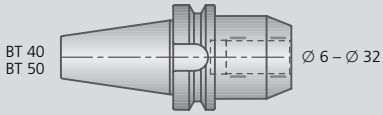
for KUB ® drill
▸ 432



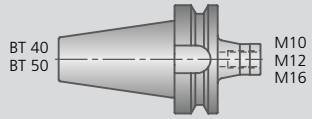
for KUB ® drill
▸ 433



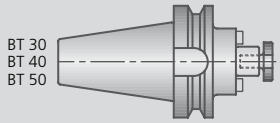
Expanding chuck
▸ 434



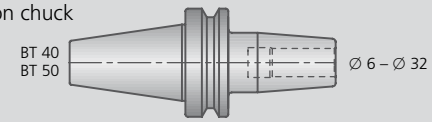
Adaptor for screw-on tools
▸ 435



Milling cutter arbor
▸ 436 – 437

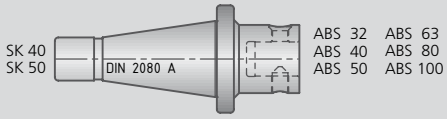


Thermal expansion chuck ThermoGrip ®
▸ 490 – 491

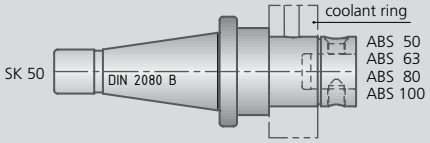


DIN 2080

ABS ®
▸ 438



ABS ®
▸ 439



Programme summary – Adaptors

5 Spindle adaptor flanges

Spindle adaptor flange with ABS® connection
▸ 468

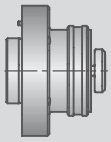
Spindle head DIN 2079



ABS 32
ABS 40
ABS 50
ABS 63
ABS 80
ABS 100

Spindle adaptor flange with KomLoc® HSK clamping system
▸ 404 – 405

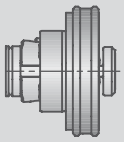
Machine spindle



HSK-A 50
HSK-A 63
HSK-A 80

Built-in flange with KomLoc® HSK clamping system
▸ 406 – 407

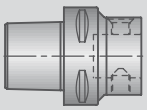
Short spindle DIN 69002



HSK-A 63
HSK-A125

PSC adaptor with ABS® connection
▸ 471

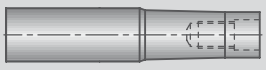
C5
C6
C8



ABS 50
ABS 63
ABS 80

Adaptor for screw-on tools
▸ 472

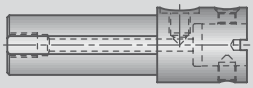
Ø 12 Ø 25
Ø 16 Ø 32
Ø 20 Ø 36



M 5
M 8
M 10
M 12
M 16

TC adaptor with ABS® connection
▸ 473

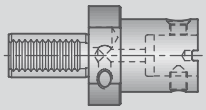
Ø 40
Ø 50
Ø 60
Ø 80



ABS 50
ABS 63
ABS 80
ABS 100

VDI adaptor with ABS® N connection
▸ 474

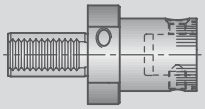
NC 3020
NC 4020
NC 5020
NC 6020



ABS-N 40
ABS-N 50
ABS-N 63
ABS-N 80
ABS-N 100

VDI torsional dampener with ABS® connection
▸ 475

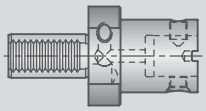
NC 4020
NC 5020



ABS 50
ABS 63
ABS 80

VDI adaptor with ABS® N connection
▸ 476

NC 3010
NC 4010
NC 5010
NC 6010

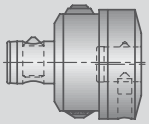


ABS-N 40
ABS-N 50
ABS-N 63
ABS-N 80

5 ABS® Adaptors

Adjustment device
▸ 469

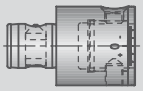
ABS 50
ABS 63



ABS 50
ABS 63

Eccentric adjusting device
▸ 446

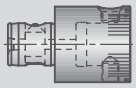
ABS 50
ABS 63



ABS 50
ABS 63

Torsional dampener
▸ 447

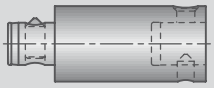
ABS 50
ABS 63
ABS 80



ABS 50
ABS 63
ABS 80

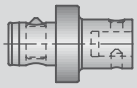
Extension / Reducer
▸ 442 – 445

ABS 25 ABS 63
ABS 32 ABS 80
ABS 40 ABS 100
ABS 50 ABS 125



ABS 25 ABS 63
ABS 32 ABS 80
ABS 40 ABS 100
ABS 50 ABS 125

ABS 32 ABS 80
ABS 40 ABS 100
ABS 50 ABS 125
ABS 63



ABS 25 ABS 63
ABS 32 ABS 80
ABS 40 ABS 100
ABS 50

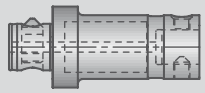
Lightweight Extension / Reducer
▸ 448 – 449

ABS 63
ABS 80
ABS100



ABS 63
ABS 80
ABS100

ABS 80
ABS 100



ABS 63
ABS 80

Damping element
▸ 450 – 451

ABS 40
ABS 50
ABS 63
ABS 80



ABS 40
ABS 50
ABS 63
ABS 80

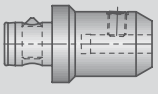
Ø 25
Ø 32



ABS 25
ABS 32

Adaptor sleeve Whistle Notch
▸ 452 – 453

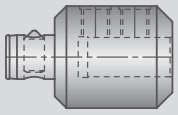
ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80



Ø 6 – Ø 32

Adaptor sleeve Weldon
▸ 454 – 455

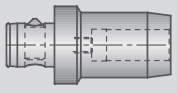
ABS 50
ABS 63
ABS 80



Ø 6 – Ø 32

Expanding chuck
▸ 462

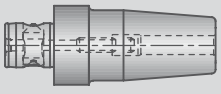
ABS 40
ABS 50
ABS 63



Ø 6 – Ø 32

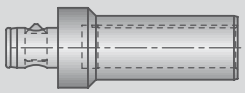
Thermal expansion chuck ThermoGrip®
▸ 492

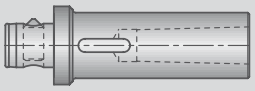
ABS 32
ABS 40
ABS 50
ABS 63

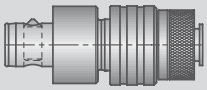


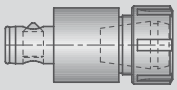
Ø 6 – Ø 32

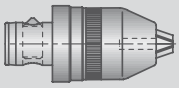
5 ABS® Adaptors

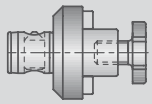
Adaptor HTR
▸ 456
ABS 63

Ø 28
Ø 36

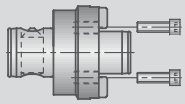
Adaptor HMK
▸ 457
ABS 50
ABS 63

MK 1
MK 2
MK 3
MK 4

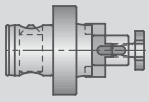
Tapping chuck GWF
▸ 458
ABS 32 ABS 63
ABS 40 ABS 80
ABS 50 ABS 100


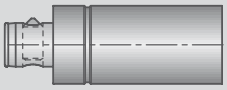
Collet holder SZV
▸ 460
ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80


Short drill chuck NCB
▸ 467
ABS 50

Ø 0,5 – Ø 16

Milling cutter arbor FA
▸ 464
ABS 50
ABS 63
ABS 80
ABS 100


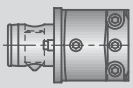
Milling cutter arbor FAM
▸ 464
ABS 80
ABS 100


Combination milling cutter arbor FAK
▸ 466
ABS 50
ABS 63
ABS 80


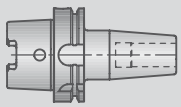
Semi-finished head
▸ Chapter 6
ABS 25 ABS 63
ABS 32 ABS 80
ABS 40 ABS 100
ABS 50


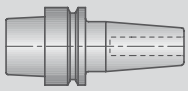
Easy Special
▸ Chapter 4
ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80

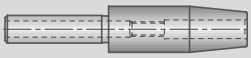
ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80

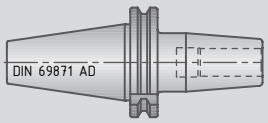
Adaptor for turning tool
▸ 477
ABS 40
ABS 50
ABS 63
ABS 80
ABS 100


5 Shrink fit technology ThermoGrip®

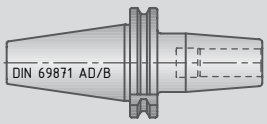
HSK-A Adaptor
▸ 480 – 483
HSK-A 32 HSK-A 63
HSK-A 40 HSK-A100
HSK-A 50

Ø 3 – Ø 32

HSK-E Adaptor
▸ 484
HSK-E 32 HSK-E 50
HSK-E 40 HSK-E 63

Ø 3 – Ø 20

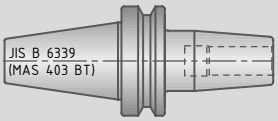
Extension / Reducer
▸ 485
Ø 12
Ø 16
Ø 20

Ø 3 – Ø 16

Taper shank DIN 69871-1 AD
▸ 486 – 487
SK 40


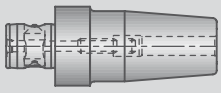
Ø 3 – Ø 25

Taper shank DIN 69871-1 AD/B
▸ 488 – 489
SK 40
SK 50


Ø 6 – Ø 32

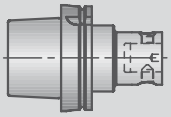
Taper shank JIS B 6339 (MAS 403 BT)
▸ 490 – 491
BT 40
BT 50


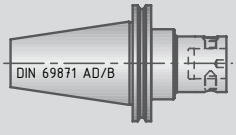
Ø 6 – Ø 32

ABS® Adaptor
▸ 492
ABS 32
ABS 40
ABS 50
ABS 63

Ø 6 – Ø 32

4 Easy Special Adaptors

▸ Chapter 4

HSK-A adaptor
HSK-A 63
HSK-A100

ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80

Taper shank
SK 40
SK 50


ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80

ABS® adaptor
ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80

ABS 25 ABS 50
ABS 32 ABS 63
ABS 40 ABS 80

KOMET ®

HSK-A Adaptors to ISO 12164-1



BENEFITS for you:

- The modern connection between machine spindle and tool is the hollow taper shank system (HSK)
- HSK is standardised under ISO 12164
- The HSK-A version is used for automatic tool change on machining centres, turning/milling centres, milling machines and other machine tools
- HSK-A can also be used on machines with manual tool change
- Other HSK versions can of course be supplied by KOMET® on request (see chapter 8)
- Chip bore 10×4.5 included in the standard

The main feature of HSK is the taper and face connection.

This gives important advantages:

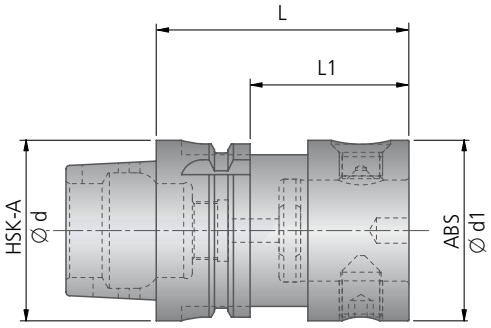
- maximum tool change accuracy
- high static rigidity
- high radial rigidity
- small dimensions
- low weights
- use at high spindle speeds
- shorter tool change times because of lower weights
- higher machine acceleration

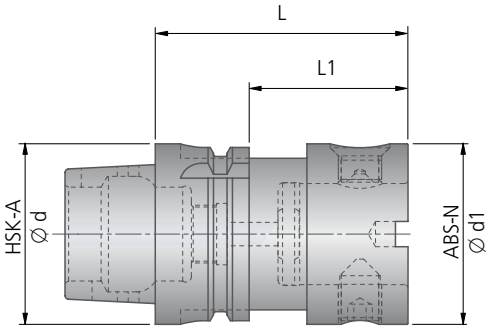
KOMET® HSK-A Adaptors	Page
with ABS® / ABS® N connection	382
Lightweight adaptor	383
Eccentric adjusting device	384
Torsional dampener	385
Adaptor sleeve Whistle Notch	386 – 387
Adaptor sleeve Weldon	388 – 389
Collet holder	390 – 391
Expanding chuck	392 – 393
Milling cutter arbor FA	394 – 395
Combination milling cutter arbor FAK	396
Adaptor for screw-on milling cutter	397
Morse taper	398
Short drill chuck NCB	399
Test arbor	400
Boring bar holder	401
KomLoc® HSK clamping system	
Extension	402
Reducer	403
Adaptor flange	404 – 405
Built-in flange	406 – 407

KOMET® ISO 12164-1

HSK-A Adaptor with ABS® / ABS® N connection







HSK-A DIN 69893 T1 ABS®

Article	Order No.	HSK-A Ø d	ABS Ø d1	L	L1	kg
HSK-A32-ABS25	**A06 00120**	32	25	40	20	0,16
HSK-A32-ABS32	**A06 00130**	32	32	55	35	0,25
HSK-A40-ABS25	**A06 10120**	40	25	45	25	0,25
HSK-A40-ABS40	**A06 10140**	40	40	55	–	0,40
HSK-A50-ABS25	**A06 20121**	50	25	50	24	0,45
HSK-A50-ABS32	**A06 20131**	50	32	50	24	0,50
HSK-A50-ABS40	**A06 20141**	50	40	60	34	0,64
HSK-A50-ABS50	**A06 20151**	50	50	70	–	0,79
HSK-A63-ABS25	**A06 30120**	63	25	50	24	0,70
HSK-A63-ABS32	**A06 30130**	63	32	50	24	0,75
HSK-A63-ABS40	**A06 30140**	63	40	60	34	1,00
HSK-A63-ABS50	**A06 30150**	63	50	70	44	1,22
HSK-A63-ABS50*	**A06 30220**	63	50	42	–	0,77
HSK-A63-ABS63	**A06 30160**	63	63	80	–	1,64
HSK-A63-ABS80	**A06 30170**	63	80	100	–	2,50
HSK-A80-ABS50	**A06 40150**	80	50	75	49	1,60
HSK-A100-ABS25	**A06 50120**	100	25	60	31	2,20
HSK-A100-ABS32	**A06 50130**	100	32	60	31	2,30
HSK-A100-ABS40	**A06 50140**	100	40	80	51	2,45
HSK-A100-ABS50	**A06 50150**	100	50	80	51	2,68
HSK-A100-ABS63	**A06 50160**	100	63	80	51	3,01
HSK-A100-ABS80	**A06 50170**	100	80	90	61	3,70
HSK-A100-ABS100	**A06 50180**	100	100	100	–	4,75

HSK-A DIN 69893 T1 ABS® N

Article	Order No.	HSK-A Ø d	ABS-N Ø d1	L	L1	kg
HSK-A63-ABS50N	**A06 30050**	63	50	70	44	1,22
HSK-A63-ABS80N	**A06 30070**	63	80	100	–	2,50
HSK-A100-ABS50N	**A06 50050**	100	50	80	51	2,68
HSK-A100-ABS63N	**A06 50060**	100	63	80	51	3,01
HSK-A100-ABS80N	**A06 50070**	100	80	90	61	3,70

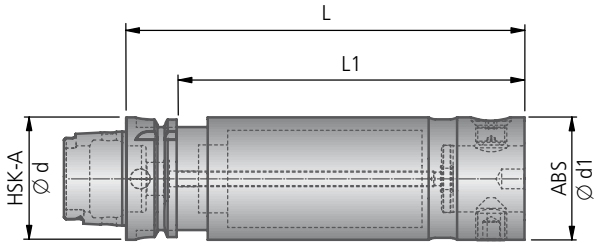
* for fineboring only

Supply includes:
Adaptor fitted complete. Please order coolant supply connection and key separately (chapter 8).

Patent applied for inside and outside Germany

HSK-A Lightweight adaptor with ABS® connection





HSK-A DIN 69893 T1 ABS®						
Article	Order No.	HSK-A Ø d	ABS Ø d1	L	L1	kg
HSK-A63-ABS63-LB	**A06 30360**	63	63	205	–	3,00
HSK-A100-ABS63-LB	**A06 50360**	100	63	205	176	4,20
HSK-A100-ABS80-LB	**A06 50370**	100	80	215	186	5,90
HSK-A100-ABS100-LB	**A06 50380**	100	100	260	–	8,90

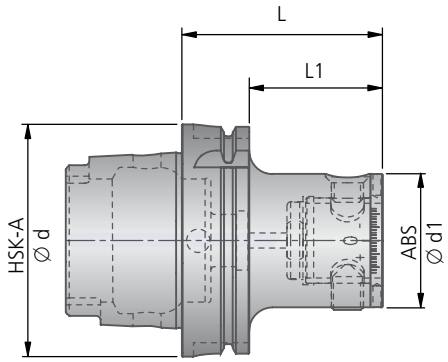
Supply includes:
Adaptor fitted complete. Please order coolant supply connection and key separately (chapter 8).

KOMET® ISO 12164-1

HSK-A Eccentric adjusting device with ABS® connection



■ adjustment path ± 0.25 mm in the diameter

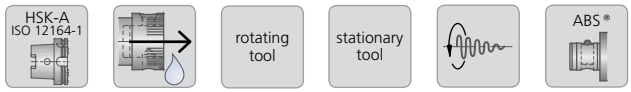


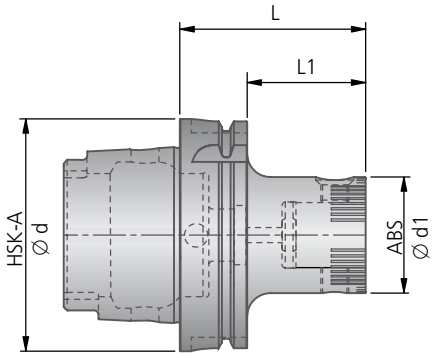
HSK-A DIN 69893 T1 ABS® EXZ						
Article	Order No.	HSK-A Ø d	ABS Ø d1	L	L1	kg
HSK-A63 ABS50 EXZ	**A06 36730**	63	50	70	39,5	1,13
HSK-A100 ABS50 EXZ	**A06 56730**	100	50	80	46,5	2,60
HSK-A100 ABS63 EXZ	**A06 56740**	100	63	80	51	2,80

Supply includes:
Adaptor with adjusting key ∅2,8. Please order coolant supply connection and key separately (see chapter 8).

Patent applied for inside and outside Germany

HSK-A Torsional dampener with ABS® connection





HSK-A DIN 69893 T1 ABS® TSD							
Article	Order No.	HSK-A Ø d	ABS Ø d1	L	L1	kg	ABS Sealing plate Order No.
HSK-A63-ABS50-TSD	**A06 30251**	63	50	70	44	1,10	**L01 02041**
HSK-A63-ABS63-TSD	**A06 30261**	63	63	80	–	1,45	**L01 02051**
HSK-A63-ABS80-TSD	**A06 30270**	63	80	100	–	2,34	**L01 02061**
HSK-A100-ABS50-TSD	**A06 50251**	100	50	80	51	2,70	**L01 02041**
HSK-A100-ABS63-TSD	**A06 50261**	100	63	80	51	2,85	**L01 02051**
HSK-A100-ABS80-TSD	**A06 50270**	100	80	90	61	3,64	**L01 02061**

Supply includes:
Adaptor fitted complete. Please order coolant supply connection and key separately (see chapter 8).

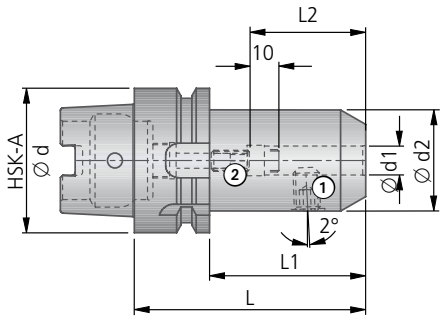
The torsional dampeners are designed for solid drills in line with the torque which is produced.
Recommended use:
...-ABS50-TSD for drill ∅ 14 - 44 mm
...-ABS63-TSD for drill ∅ 45 - 54 mm
...-ABS80-TSD for drill ∅ 55 - 81 mm
For drill heads V464 with larger diameters we recommend the use of appropriate reducers (available on request).

KOMET® ISO 12164-1

HSK-A Adaptor sleeve Whistle Notch

HSK-A ISO 12164-1 | location DIN 69882-5 | pre-balanced G6,3 10.000 min-1 | concentricity ≦ 5 µm | rotating tool | stationary tool | DIN 6535 HE | DIN 1835 T1 E

- short design
- the 2° tilt of the clamping screws prevents the tool from pulling out



HSK-A DIN 69893 T1 FWD											
									Clamping screw ①		Adjusting screw ②
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	L	L1	L2	kg	Order No.	Piece	Order No.
HSK-A50-FWD06	A06 20601	50	6	25	80	54	36	0,80	51050 06010	1	N00 71000
HSK-A50-FWD08	A06 20801	50	8	28	80	54	36	0,90	51050 08010	1	N00 71050
HSK-A50-FWD10	A06 21001	50	10	35	80	54	40	0,90	51050 10012	1	51049 08016
HSK-A50-FWD12	A06 21201	50	12	42	90	64	45	1,00	51050 12016	1	51049 10020
HSK-A50-FWD14	A06 21401	50	14	44	90	64	45	1,04	51050 12016	1	51049 10020
HSK-A50-FWD16	A06 21601	50	16	48	90	64	48	1,12	51050 14016	1	51049 12025
HSK-A50-FWD18	A06 21801	50	18	50	90	64	48	1,12	51050 14016	1	51049 12025
HSK-A50-FWD20	A06 22001	50	20	52	100	74	50	1,28	51050 16016	1	51049 16025
HSK-A63-FWD06	A06 30600	63	6	25	80	54	36	0,82	51050 06010	1	N00 71000
HSK-A63-FWD08	A06 30800	63	8	28	80	54	36	0,90	51050 08010	1	N00 71050
HSK-A63-FWD10	A06 31000	63	10	35	80	54	40	0,99	51050 10012	1	N00 71120
HSK-A63-FWD12	A06 31200	63	12	42	90	64	45	1,20	51050 12016	1	N00 71270
HSK-A63-FWD14	A06 31400	63	14	44	90	64	45	1,20	51050 12016	1	N00 71270
HSK-A63-FWD16	A06 31600	63	16	48	100	74	48	1,56	51050 14016	1	N00 71420
HSK-A63-FWD18	A06 31800	63	18	50	100	74	48	1,60	51050 14016	1	N00 71420
HSK-A63-FWD20	A06 32000	63	20	52	100	74	50	1,67	51050 16016	1	N00 71510
HSK-A63-FWD25	A06 32500	63	25	65	110	84	56	2,30	51050 18220	2	N00 71510
HSK-A63-FWD32	A06 33200	63	32	72	110	84	60	2,32	51050 20220	2	N00 71510
HSK-A100-FWD06	A06 50600	100	6	25	90	61	36	2,18	51050 06010	1	N00 71000
HSK-A100-FWD08	A06 50800	100	8	28	90	61	36	2,24	51050 08010	1	N00 71050
HSK-A100-FWD10	A06 51000	100	10	35	90	61	40	2,45	51050 10012	1	N00 71120
HSK-A100-FWD12	A06 51200	100	12	42	100	71	45	2,70	51050 12016	1	N00 71270
HSK-A100-FWD14	A06 51400	100	14	44	100	71	45	2,70	51050 12016	1	N00 71270
HSK-A100-FWD16	A06 51600	100	16	48	100	71	48	2,86	51050 14016	1	N00 71420
HSK-A100-FWD18	A06 51800	100	18	50	100	71	48	2,90	51050 14016	1	N00 71420
HSK-A100-FWD20	A06 52000	100	20	52	110	81	50	2,95	51050 16016	1	N00 71510
HSK-A100-FWD25	A06 52500	100	25	65	120	91	56	3,85	51050 18220	2	N00 71510
HSK-A100-FWD32	A06 53200	100	32	72	120	91	60	4,32	51050 20220	2	N00 71510

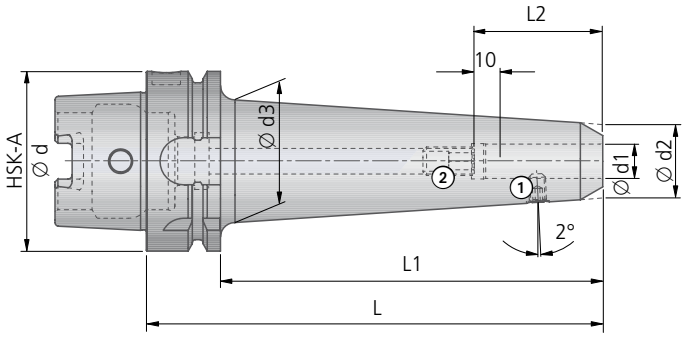
Further HSK-sizes on request

Supply includes: Adaptor sleeve complete with clamping screw and adjusting screw. Please order coolant supply connection and key separately (chapter 8).

HSK-A Adaptor sleeve Whistle Notch

HSK-A ISO 12164-1 | pre-balanced G6,3 10.000 min-1 | rotating tool | stationary tool | DIN 6535 HE | DIN 1835 T1 E

long design ■
the 2° tilt of the clamping screws prevents the tool from pulling out ■



HSK-A DIN 69893 T1 FWD										Clamping screw ①		Adjusting screw ②
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	L2	kg	Order No.	Piece	Order No.
HSK-A63-FWD06-160	**A06 34060**	63	6	22	33	160	134	36	1,30	**N00 70200**	1	**N00 71000**
HSK-A63-FWD08-160	**A06 34080**	63	8	24	35	160	134	36	1,34	**51050 06010**	1	**N00 71050**
HSK-A63-FWD10-160	**A06 34100**	63	10	25	39	160	134	40	1,44	**51050 06010**	1	**N00 71120**
HSK-A63-FWD12-160	**A06 34120**	63	12	26	43	160	134	45	1,60	**51050 06010**	1	**N00 71270**
HSK-A63-FWD14-160	**A06 34140**	63	14	28	44	160	134	45	1,60	**51050 08010**	1	**N00 71270**
HSK-A63-FWD16-160	**A06 34160**	63	16	30	45	160	134	48	1,70	**51050 08010**	1	**N00 71420**
HSK-A63-FWD18-160	**A06 34180**	63	18	32	46	160	134	48	1,70	**51050 08010**	1	**N00 71420**
HSK-A63-FWD20-160	**A06 34200**	63	20	34	50	160	134	50	1,90	**51050 08010**	1	**N00 71510**
HSK-A63-FWD25-160	**A06 34250**	63	25	65	65	160	134	56	3,65	**51050 18220**	2	**N00 71510**
HSK-A63-FWD32-160	**A06 34320**	63	32	72	72	160	134	60	4,24	**51050 20220**	2	**N00 71510**
HSK-A100-FWD06-160	**A06 54060**	100	6	22	33	160	131	36	2,60	**N00 70200**	1	**N00 71000**
HSK-A100-FWD08-160	**A06 54080**	100	8	24	35	160	131	36	2,60	**51050 06010**	1	**N00 71050**
HSK-A100-FWD10-160	**A06 54100**	100	10	25	39	160	131	40	2,80	**51050 06010**	1	**N00 71120**
HSK-A100-FWD12-160	**A06 54120**	100	12	26	43	160	131	45	2,83	**51050 06010**	1	**N00 71270**
HSK-A100-FWD14-160	**A06 54140**	100	14	28	44	160	131	45	2,90	**51050 08010**	1	**N00 71270**
HSK-A100-FWD16-160	**A06 54160**	100	16	30	45	160	131	48	2,97	**51050 08010**	1	**N00 71420**
HSK-A100-FWD18-160	**A06 54180**	100	18	32	46	160	131	48	3,10	**51050 08010**	1	**N00 71420**
HSK-A100-FWD20-160	**A06 54200**	100	20	34	50	160	131	50	3,20	**51050 08010**	1	**N00 71510**
HSK-A100-FWD25-160	**A06 54250**	100	25	65	65	160	131	56	4,98	**51050 18220**	2	**N00 71510**
HSK-A100-FWD32-160	**A06 54320**	100	32	72	72	160	131	60	5,60	**51050 20220**	2	**N00 71510**

Further HSK-sizes on request

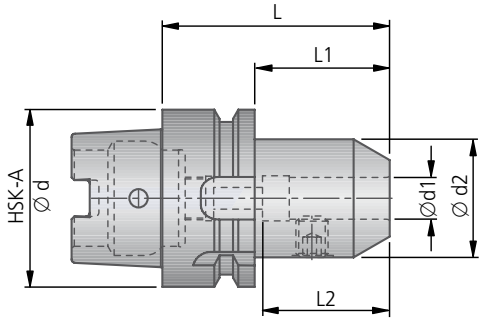
Supply includes: Adaptor sleeve complete with clamping screw and adjusting screw. Please order coolant supply connection and key separately (chapter 8).

KOMET® ISO 12164-1

HSK-A Adaptor sleeve Weldon

HSK-A ISO 12164-1 | location DIN 69882-4 | pre-balanced G6,3 10.000 min-1 | concentricity ≦ 5 µm | rotating tool | stationary tool | DIN 6535 HB | DIN 1835 T1 B

■ short design



HSK-A DIN 69893 T1 HWD										
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	L	L1	L2	kg	Clamping screw Order No.	Piece
HSK-A50-HWD06	**A06 23301**	50	6	25	65	39	37	0,50	**51050 06010**	1
HSK-A50-HWD08	**A06 23311**	50	8	28	65	39	37	0,55	**51050 08010**	1
HSK-A50-HWD10	**A06 23321**	50	10	35	65	39	41	0,62	**51050 10012**	1
HSK-A50-HWD12	**A06 23331**	50	12	42	80	54	46	0,89	**51050 12016**	1
HSK-A50-HWD14	**A06 23341**	50	14	44	80	54	46	0,91	**51050 12016**	1
HSK-A50-HWD16	**A06 23351**	50	16	48	80	54	49	0,97	**51050 14016**	1
HSK-A50-HWD18	**A06 23361**	50	18	50	80	54	49	0,99	**51050 14016**	1
HSK-A50-HWD20	**A06 23371**	50	20	52	80	54	51	1,00	**51050 16016**	1
HSK-A63-HWD06	**A06 33300**	63	6	25	65	39	40	0,58	**51050 06010**	1
HSK-A63-HWD08	**A06 33310**	63	8	28	65	39	40	0,63	**51050 08010**	1
HSK-A63-HWD10	**A06 33320**	63	10	35	65	39	45	0,73	**51050 10012**	1
HSK-A63-HWD12	**A06 33330**	63	12	42	80	54	49	1,03	**51050 12016**	1
HSK-A63-HWD14	**A06 33340**	63	14	44	80	54	49	1,03	**51050 12016**	1
HSK-A63-HWD16	**A06 33350**	63	16	48	80	54	52	1,12	**51050 14016**	1
HSK-A63-HWD18	**A06 33360**	63	18	50	80	54	52	1,12	**51050 14016**	1
HSK-A63-HWD20	**A06 33370**	63	20	52	80	54	54	1,21	**51050 16016**	1
HSK-A63-HWD25	**A06 33380**	63	25	65	110	84	59	2,28	**51050 18220**	2
HSK-A63-HWD32	**A06 33390**	63	32	72	110	84	63	2,55	**51050 20220**	2
HSK-A100-HWD06	**A06 53300**	100	6	25	80	51	40	2,13	**51050 06010**	1
HSK-A100-HWD08	**A06 53310**	100	8	28	80	51	40	2,20	**51050 08010**	1
HSK-A100-HWD10	**A06 53320**	100	10	35	80	51	45	2,50	**51050 10012**	1
HSK-A100-HWD12	**A06 53330**	100	12	42	80	51	49	2,50	**51050 12016**	1
HSK-A100-HWD14	**A06 53340**	100	14	44	80	51	49	2,50	**51050 12016**	1
HSK-A100-HWD16	**A06 53350**	100	16	48	100	71	52	2,88	**51050 14016**	1
HSK-A100-HWD18	**A06 53360**	100	18	50	100	71	52	3,00	**51050 14016**	1
HSK-A100-HWD20	**A06 53370**	100	20	52	100	71	54	3,00	**51050 16016**	1
HSK-A100-HWD25	**A06 53380**	100	25	65	100	71	59	3,43	**51050 18220**	2
HSK-A100-HWD32	**A06 53390**	100	32	72	100	71	63	3,77	**51050 20220**	2

Further HSK sizes on request

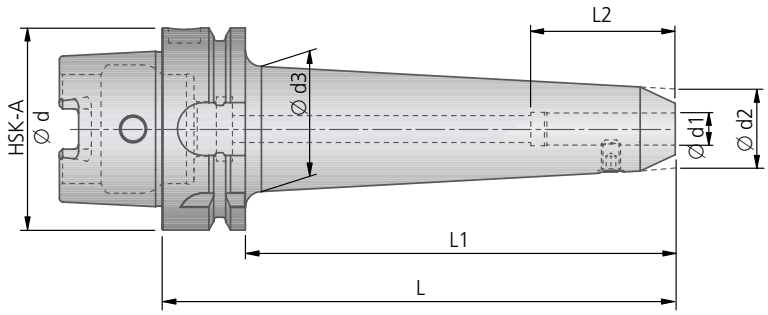
Supply includes:

Adaptor sleeve complete with clamping screw. Please order coolant supply connection and key separately (chapter 8).

HSK-A Adaptor sleeve Weldon

HSK-A ISO 12164-1 | pre-balanced G6,3 10.000 min-1 | rotating tool | stationary tool | DIN 6535 HB | DIN 1835 T1 B

long design ■



HSK-A DIN 69893 T1 HWD											
										Clamping screw	
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	L2	kg	Order No.	Piece
HSK-A63-HWD06-160	**A06 34400**	63	6	22	33	160	134	40	1,23	**51050 06010**	1
HSK-A63-HWD08-160	**A06 34410**	63	8	24	35	160	134	40	1,30	**51050 06010**	1
HSK-A63-HWD10-160	**A06 34420**	63	10	25	39	160	134	45	1,42	**51050 06010**	1
HSK-A63-HWD12-160	**A06 34430**	63	12	26	43	160	134	49	1,56	**51050 06010**	1
HSK-A63-HWD14-160	**A06 34440**	63	14	28	44	160	134	49	1,62	**51050 08010**	1
HSK-A63-HWD16-160	**A06 34450**	63	16	30	45	160	134	52	1,68	**51050 08010**	1
HSK-A63-HWD18-160	**A06 34460**	63	18	32	46	160	134	52	1,75	**51050 08010**	1
HSK-A63-HWD20-160	**A06 34470**	63	20	34	50	160	134	54	1,92	**51050 08010**	1
HSK-A63-HWD25-160	**A06 34480**	63	25	65	65	160	134	59	3,56	**51050 18220**	2
HSK-A63-HWD32-160	**A06 34490**	63	32	72	72	160	134	63	4,26	**51050 20220**	2
HSK-A100-HWD06-160	**A06 54400**	100	6	22	33	160	131	40	2,60	**51050 06010**	1
HSK-A100-HWD08-160	**A06 54410**	100	8	24	35	160	131	40	2,60	**51050 06010**	1
HSK-A100-HWD10-160	**A06 54420**	100	10	25	39	160	131	45	2,80	**51050 06010**	1
HSK-A100-HWD12-160	**A06 54430**	100	12	26	43	160	131	49	2,80	**51050 06010**	1
HSK-A100-HWD14-160	**A06 54440**	100	14	28	44	160	131	49	2,90	**51050 08010**	1
HSK-A100-HWD16-160	**A06 54450**	100	16	30	45	160	131	52	3,00	**51050 08010**	1
HSK-A100-HWD18-160	**A06 54460**	100	18	32	46	160	131	52	3,10	**51050 08010**	1
HSK-A100-HWD20-160	**A06 54470**	100	20	34	50	160	131	54	3,20	**51050 08010**	1
HSK-A100-HWD25-160	**A06 54480**	100	25	65	65	160	131	59	4,96	**51050 18220**	2
HSK-A100-HWD32-160	**A06 54490**	100	32	72	72	160	131	63	5,60	**51050 20220**	2

Further HSK-sizes on request

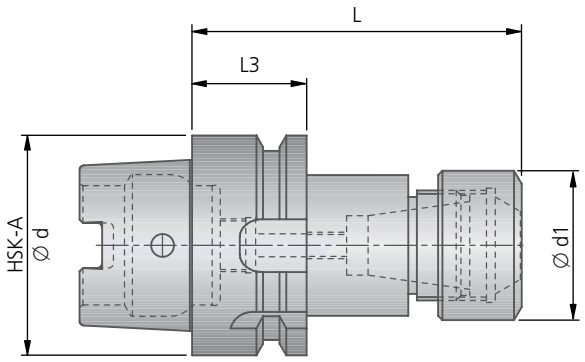
Supply includes:
Adaptor sleeve complete with clamping screw. Please order coolant supply connection and key separately (chapter 8).

KOMET® ISO 12164-1

HSK-A Collet holder

HSK-A ISO 12164-1 | location DIN 69882-6 | pre-balanced G6,3 10.000 min-1 | concentricity ≦ 5 µm | rotating tool | stationary tool | cylindrical shank

- high concentricity with ground thread on holder and clamping nut
- axial adjustment



HSK-A DIN 69893 T1 SZV								Accessory			
								Hook spanner	Adjusting screw		
Article	Order No.	HSK-A Ø d	Ø d1	L	L3	Clamping range for collet	kg	Order No.	Article	with hole Order No.	without hole Order No.
HSK-A50-SZV/ER16	**A06 23401**	50	SW25	96,4–100	26	0,5 – 10,0	0,5	SW 25	M16×20	**51049 16025**	**51050 16016**
HSK-A50-SZV/ER32	**A06 23431**	50	50	96,5–100	26	2,0 – 20,0	1,2	**L05 02050**	M16×20	**51049 16025**	**51050 16016**
HSK-A63-SZV/ER16	**A06 33400**	63	SW25	96,4–100	26	0,5 – 10,0	1,2	SW 25	M5×8	**N00 71900**	**N00 71910**
HSK-A63-SZV/ER20	**A06 33410**	63	35	96,5–100	26	1,0 – 13,0	0,87	**L05 02030**	M6×12	**N00 71070**	**N00 71940**
HSK-A63-SZV/ER25	**A06 33420**	63	42	96,5–100	26	1,0 – 16,0	1,03	**L05 02040**	M8×1×14	**N00 71970**	**N00 71980**
HSK-A63-SZV/ER32	**A06 33430**	63	50	96,5–100	26	2,0 – 20,0	1,36	**L05 02050**	M10×1×14	**N00 71280**	**N00 71240**
HSK-A63-SZV/ER40	**A06 33440**	63	63	116,5–120	26	3,0 – 26,0	1,76	**L05 02060**	M12×1×18	**N00 71330**	**N00 71340**
HSK-A63-SZV/ER16-160	**A06 34500**	63	SW25	156,4–160	26	0,5 – 10,0	1,15	SW 25	M5×8	**N00 71900**	**N00 71910**
HSK-A63-SZV/ER25-160	**A06 34520**	63	42	156,5–160	26	1,0 – 16,0	1,37	**L05 02040**	M8×1×14	**N00 71970**	**N00 71980**
HSK-A100-SZV/ER16	**A06 53400**	100	SW25	96,4–100	29	0,5 – 10,0	2,00	SW 25	M5×8	**N00 71900**	**N00 71910**
HSK-A100-SZV/ER20	**A06 53410**	100	35	96,5–100	29	1,0 – 13,0	2,19	**L05 02030**	M6×12	**N00 71070**	**N00 71940**
HSK-A100-SZV/ER25	**A06 53420**	100	42	96,5–100	29	1,0 – 16,0	2,35	**L05 02040**	M8×1×14	**N00 71970**	**N00 71980**
HSK-A100-SZV/ER32	**A06 53430**	100	50	96,5–100	29	2,0 – 20,0	2,50	**L05 02050**	M10×1×14	**N00 71280**	**N00 71240**
HSK -A100-SZV/ER40	**A06 53440**	100	63	116,5–120	29	3,0 – 26,0	3,00	**L05 02060**	M12×1×18	**N00 71330**	**N00 71340**
HSK-A100-SZV/ER16-160	**A06 54500**	100	SW25	156,4–160	29	0,5 – 10,0	2,40	SW 25	M5×8	**N00 71900**	**N00 71910**
HSK-A100-SZV/ER25-160	**A06 54520**	100	42	156,5–160	29	1,0 – 16,0	2,66	**L05 02040**	M8×1×14	**N00 71970**	**N00 71980**

	Assembly parts	Accessories		
	Collet nut ①	Collet nut ② for washer	Collet nut ③ with friction bearings	Collet nut ④ with friction bearings for washer
for size	Order No.	Order No.	Order No.	Order No.
ER16	**51200 00316**	**51200 00416**	**52807 03016**	**52807 01016**
ER20	**51200 00320**	**51200 00420**	**52807 03020**	**52807 01020**
ER25	**51200 00325**	**51200 00425**	**52807 03025**	**52807 01025**
ER32	**51200 00332**	**51200 00432**	**52807 03032**	**52807 01032**
ER40	**51200 00340**	**51200 00440**	**52807 03040**	**52807 01040**

Washer for collet nuts ② and ④

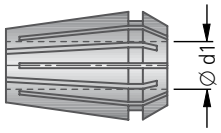


Article	Order No.	optional from Ø d1	Clamping range increasing by
DS/ER 16...	**52806 16...**	3 – 10	0,5 mm
DS/ER 20...	**52806 20...**	3 – 13	0,5 mm
DS/ER 25...	**52806 25...**	3 – 16	0,5 mm
DS/ER 32...	**52806 32...**	3 – 20	0,5 mm
DS/ER 40...	**52806 33...**	3 – 26	0,5 mm

Please state diameter required d1, e.g. : ▲
035 → Ø 3,5 mm≙d1 3,5–3,0 mm
090 → Ø 9,0 mm≙d1 9,0–8,5 mm
260 → Ø 26,0 mm≙d1 26,0–25,5 mm

Supply includes:
Collet holder complete with collet nut ①.
Please order separately: accessory and coolant supply connection and key (chapter 8).

Note: The washers can be used up to a coolant pressure of 100 bar.



Note:
[1] Tool shank diameter d1 must not be greater than collet nominal dimension d1 (risk of fracture)

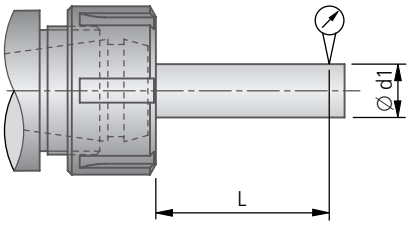
for collet holder	Order No.	[1] optional from Ø d1	Clamping range
HSK...A-SZV/ER16	**A33 52000...**	3 – 10	1 mm
HSK...A-SZV/ER20	**A33 53000...**	3 – 13	1 mm
HSK...A-SZV/ER25	**A33 54000...**	3 – 16	1 mm
HSK...A-SZV/ER32	**A33 55000...**	3 – 20	1 mm
HSK...A-SZV/ER40	**A33 56000...**	3 – 26	1 mm

Please state diameter ▲
required d1, e. g.: **0300** for Ø 3,0 mm
2600 for Ø 26,0 mm

high precision			
for collet holder	Order No.	[1] optional from Ø d1	Clamping range
HSK...A-SZV/ER16	**A33 52010...**	3 – 10	from diameter 3 mm in 0.5 mm stages
HSK...A-SZV/ER20	**A33 53010...**	3 – 13	
HSK...A-SZV/ER25	**A33 54010...**	3 – 16	
HSK...A-SZV/ER32	**A33 55010...**	3 – 20	
HSK...A-SZV/ER40	**A33 56010...**	3 – 26	

Please state diameter ▲
required d1, e. g.: **0300** for Ø 3,0 mm
2650 for Ø 26,5 mm

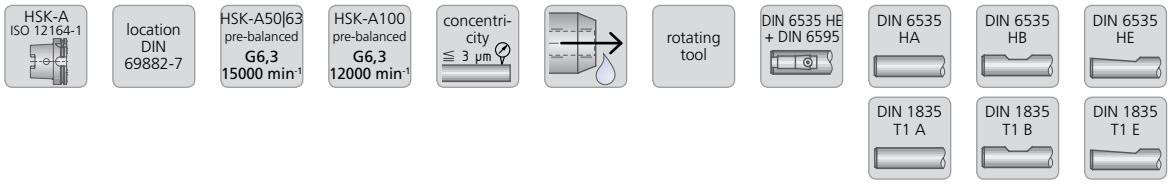
Concentricity of collets



L	Ø d1	Accuracy of concentricity to collets and collet holder	Accuracy of concentricity (higher precision) to collets and collet holder
6	1,0 – 1,6	0,015	0,010
10	1,6 – 3,0	0,015	0,010
16	3,0 – 6,0	0,015	0,010
25	6,0 – 10,0	0,015	0,010
40	10,0 – 18,0	0,020	0,015
50	18,0 – 26,0	0,020	0,015

KOMET® ISO 12164-1

HSK-A Expanding chuck



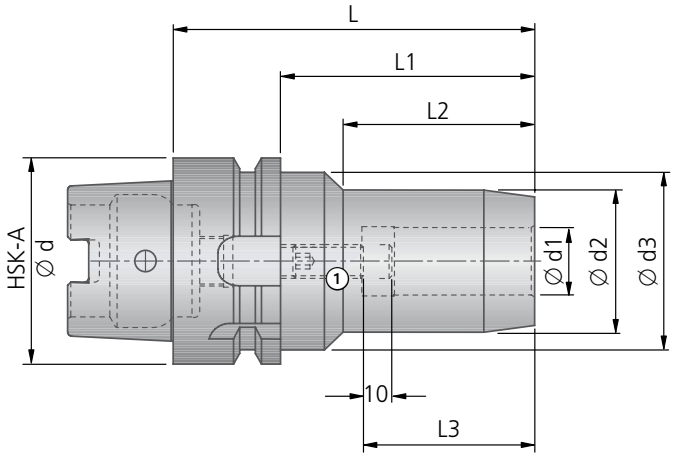
Admissible radial force F at the toolholder at an overhang of 50 mm

Ø d1	F (N)
Expanding chuck	
6	225
8	370
10	540
12	650
14	900
16	1410
18	1580
20	1860
25	4400
32	6500
Expanding chuck KS	
12	975
16	2115
20	2790
32	9750

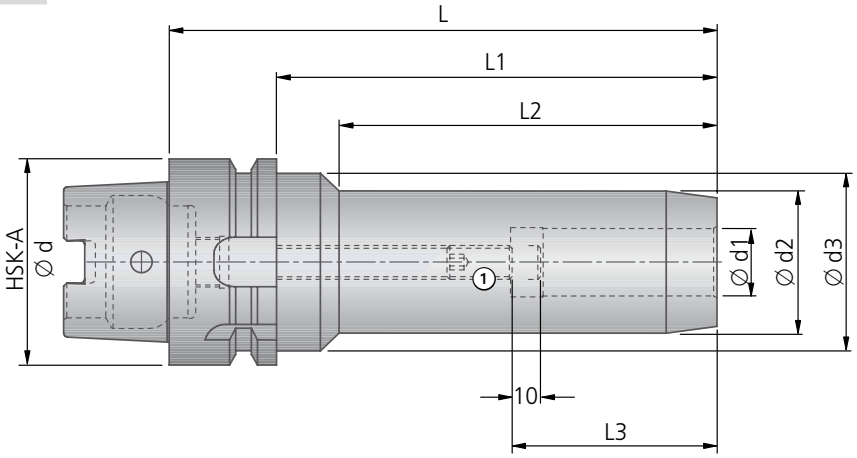
Expanding chuck &

Expanding chuck KS

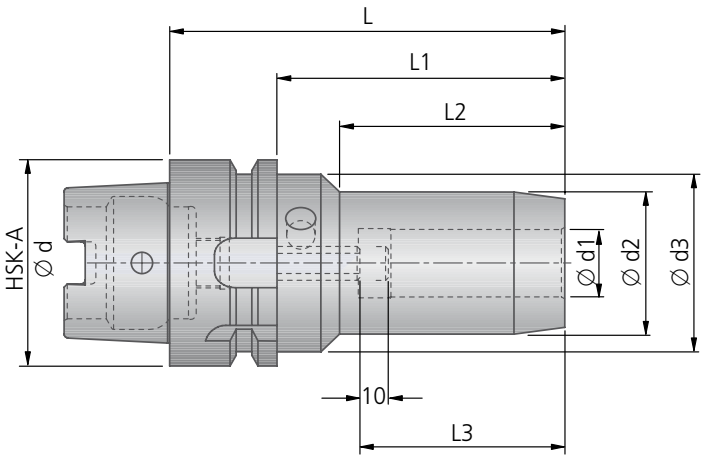
Torque Ø 32 mm: **2000 Nm**



Expanding chuck
long version



Expanding chuck
radial length adjustment



Accessories expanding chuck:

Adaptor sleeve


▸ 423

HSK-A DIN 69893 T1 Expanding chuck												
											Adjusting screw ①	
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	L2	L3	kg	Article	Order No.
HSK-A50-D12	**A06 23530**	50	12	32	40	85	59	44	46	0,80	M10×1×12	**N00 71800**
HSK-A50-D20	**A06 23570**	50	20	42	60	90	64	29	51	1,10	M16×1×14	**N00 71550**
HSK-A63-D6	**A06 33500**	63	6	26	50	70	44	24	37	0,74	M5×12	**N00 71020**
HSK-A63-D8	**A06 33510**	63	8	28	50	70	44	25	37	0,83	M6×12	**N00 71070**
HSK-A63-D10	**A06 33520**	63	10	30	50	80	54	35	41	0,83	M8×1×12	**N00 71730**
HSK-A63-D12	**A06 33530**	63	12	32	50	85	59	40	46	1,14	M10×1×12	**N00 71800**
HSK-A63-D14	**A06 33540**	63	14	34	50	85	59	40	46	0,83	M10×1×12	**N00 71800**
HSK-A63-D16	**A06 33550**	63	16	38	50	90	64	46	49	1,05	M12×1×12	**N00 71860**
HSK-A63-D18	**A06 33560**	63	18	40	50	90	64	47	49	0,91	M12×1×12	**N00 71860**
HSK-A63-D20	**A06 33570**	63	20	42	50	90	64	48	51	1,15	M16×1×14	**N00 71550**
HSK-A63-D25	**A06 33580**	63	25	57	63	120	94	59	57	2,3	M16×1×14	**N00 71550**
HSK-A63-D32	**A06 33590**	63	32	64	75	125	99	63	61	2,9	M16×1×14	**N00 71550**
HSK-A100-D6	**A06 53500**	100	6	26	50	75	46	26	37	2,28	M5×12	**N00 71020**
HSK-A100-D8	**A06 53510**	100	8	28	50	75	46	26	37	2,28	M6×12	**N00 71070**
HSK-A100-D10	**A06 53520**	100	10	30	50	90	61	42	41	2,40	M8×1×12	**N00 71730**
HSK-A100-D12	**A06 53530**	100	12	32	50	95	66	47	46	2,29	M10×1×12	**N00 71800**
HSK-A100-D14	**A06 53540**	100	14	34	50	95	66	47	46	2,45	M10×1×12	**N00 71800**
HSK-A100-D16	**A06 53550**	100	16	38	50	100	71	53	49	2,59	M12×1×12	**N00 71860**
HSK-A100-D18	**A06 53560**	100	18	40	50	100	71	53	49	2,61	M12×1×12	**N00 71860**
HSK-A100-D20	**A06 53570**	100	20	42	50	105	76	59	51	3,07	M16×1×14	**N00 71550**
HSK-A100-D25	**A06 53580**	100	25	57	63	110	81	62	57	3,54	M16×1×14	**N00 71550**
HSK-A100-D32	**A06 53590**	100	32	64	75	110	81	62	61	2,80	M16×1×14	**N00 71550**
HSK-A DIN 69893 T1 Expanding chuck KS												
HSK-A63 D12 KS	**A06 37530**	63	12	42	52,5	80	54	34	46		M8×1×12	**N00 71730**
HSK-A63 D16 KS	**A06 37550**	63	16	52,5	–	80	54	–	51		M8×1×12	**N00 71730**
HSK-A63 D20 KS	**A06 37570**	63	20	52,5	–	80	54	–	51		M8×1×12	**N00 71730**
HSK-A100 D20 KS	**A06 57570**	100	20	52,5	–	90	61,05	–	51		M8×1×12	**N00 71730**
HSK-A100 D32 KS	**A06 57590**	100	32	72	–	100	71,05	–	61		M8×1×12	**N00 71730**
HSK-A DIN 69893 T1 Expanding chuck – long version												
HSK-A63-D6 L-200	**A06 34900**	63	6	26	50	200	174	153	37	1,6	M5×12	**N00 71020**
HSK-A63-D8 L-200	**A06 34910**	63	8	28	50	200	174	154	37	1,6	M6×12	**N00 71070**
HSK-A63-D10 L-200	**A06 34920**	63	10	30	50	200	174	154	41	1,7	M8×1×12	**N00 71730**
HSK-A63-D12 L-200	**A06 34930**	63	12	32	50	200	174	155	46	1,8	M10×1×12	**N00 71800**
HSK-A63-D14 L-200	**A06 34940**	63	14	34	50	200	174	155	46	1,9	M10×1×12	**N00 71800**
HSK-A63-D16 L-200	**A06 34950**	63	16	38	50	200	174	156	49	2,2	M12×1×12	**N00 71860**
HSK-A63-D18 L-200	**A06 34960**	63	18	40	50	200	174	157	49	2,3	M12×1×12	**N00 71860**
HSK-A63-D20 L-200	**A06 34970**	63	20	42	50	200	174	158	51	2,4	M16×1×14	**N00 71550**
HSK-A DIN 69893 T1 Expanding chuck – radial length adjustment												
HSK-A63-D6 RL	**A06 34800**	63	6	26	50	80	54	33	37	1,1		–
HSK-A63-D8 RL	**A06 34810**	63	8	28	50	80	54	33	37	1,1		–
HSK-A63-D10 RL	**A06 34820**	63	10	30	50	85	59	38	41	1,1		–
HSK-A63-D12 RL	**A06 34830**	63	12	32	50	90	64	40	46	1,2		–
HSK-A63-D14 RL	**A06 34840**	63	14	34	50	90	64	46	46	1,2		–
HSK-A63-D16 RL	**A06 34850**	63	16	38	50	95	69	51	49	1,3		–
HSK-A63-D18 RL	**A06 34860**	63	18	40	50	95	69	52	49	1,3		–
HSK-A63-D20 RL	**A06 34870**	63	20	42	50	100	74	51	51	1,4		–
HSK-A63-D25 RL	**A06 34880**	63	25	57	63	120	94	54,5	57	2,2		–
HSK-A63-D32 RL	**A06 34890**	63	32	64	75	125	99	57,5	61	2,7		–

Tool shank tolerance: h6 for Ø 6 - 32 mm

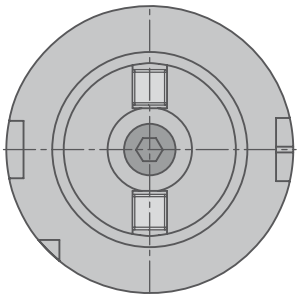
Supply includes: Expanding chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

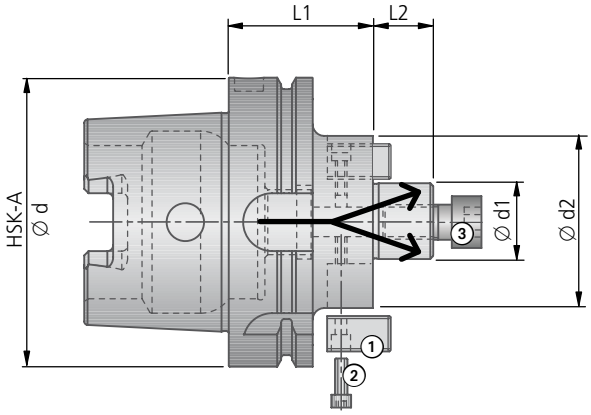
further HSK-size on request

KOMET® ISO 12164-1

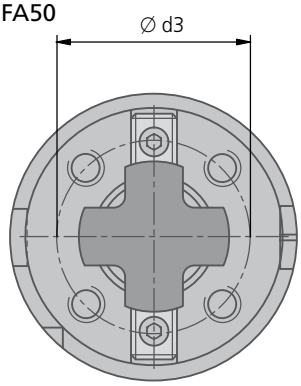
HSK-A Milling cutter arbor FA

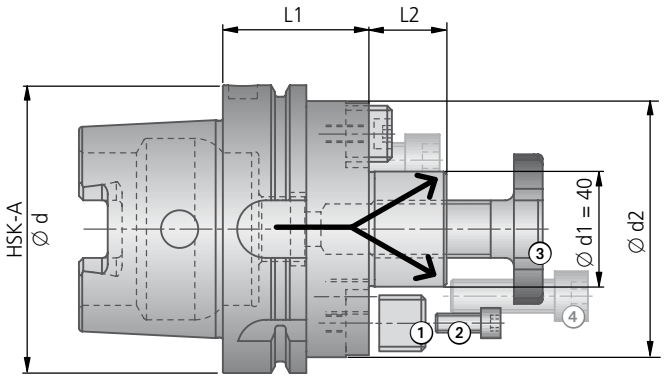
HSK-A ISO 12164-1 | location DIN 6357 | pre-balanced G2,5 15.000 min-1 | rotating tool | ...FA.. DIN 6358 | ...FA40 / 50 DIN 6358 | ...FA40 / 50 DIN 6357 | ...FA60 DIN 6357



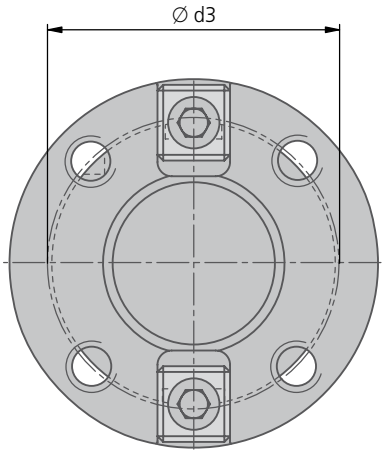


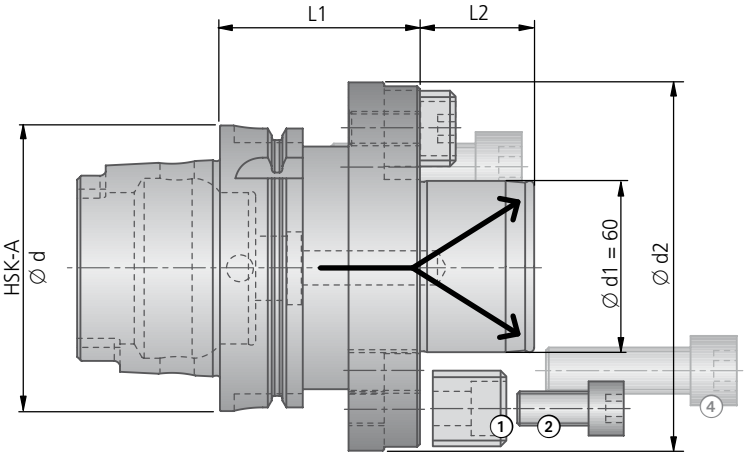
...FA40 / FA50





...FA60





HSK-A FA											Screws ④ for cutter heads with internal bore location
Order No. Article	HSK-A Ø d	Ø d1	Ø d2	Bolt circle Ø d3	L1	L2	kg	Key block ① Order No. Article	Cylindrical screw ② DIN 912 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article	Order No. Article
A06 33902 HSK-A63-FA16-50	63	16	38	–	50	17	1,1	**N12 20340** 8×8×14	**55011 03008** M3×8	**55011 08020** M8×20	–
A06 33912 HSK-A63-FA22-50	63	22	48	–	50	19	1,1	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A06 33922 HSK-A63-FA27-60	63	27	58	–	60	21	1,3	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A06 33932 HSK-A63-FA32-60	63	32	78	–	60	24	1,4	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A06 33942 HSK-A63-FA40-60*	63	40	88	66,7	60	27	1,9	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A06 53902 HSK-A100-FA16-50	100	16	38	–	50	17	2,3	**N12 20340** 8×8×14	**55011 03008** M3×8	**55011 08020** M8×20	–
A06 53912 HSK-A100-FA22-50	100	22	48	–	50	19	2,5	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A06 53922 HSK-A100-FA27-50	100	27	58	–	50	21	2,7	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A06 53932 HSK-A100-FA32-50	100	32	78	–	50	24	2,8	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A06 53942 HSK-A100-FA40-60*	100	40	88	66,7	60	27	3,8	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A06 53951 HSK-A100-FA50-70*	100	50	95	101,6	70	30		**N12 20400** 18×18×27	**55011 08020** M8×20	**55062 00024** M24 DIN6367	**55011 16050** M16×50
A06 53961 HSK-A100-FA60-70*	100	60	129	101,6	70	40	6,0	**N12 20390** 25,4×25×31	**55011 12025** M12×25	–	**55011 16050** M16×50

*** FA40, 50 and 60 with 4 additional screw-in threads for cutter heads with tool clamping to DIN 2079.**

Supply includes ...FA..: Milling cutter arbor with cutter clamping screw ③, key block ① and cylindrical screw ②.

Supply includes ...FA40/FA50: Milling cutter arbor with cutter clamping screw ③, key block ① and cylindrical screw ②.

Supply includes ...FA60: Milling cutter arbor with key block ① and cylindrical screw ②.

Please order screws ④ for mounting the cutter heads separately.
Please order coolant supply connection and key separately (chapter 8).

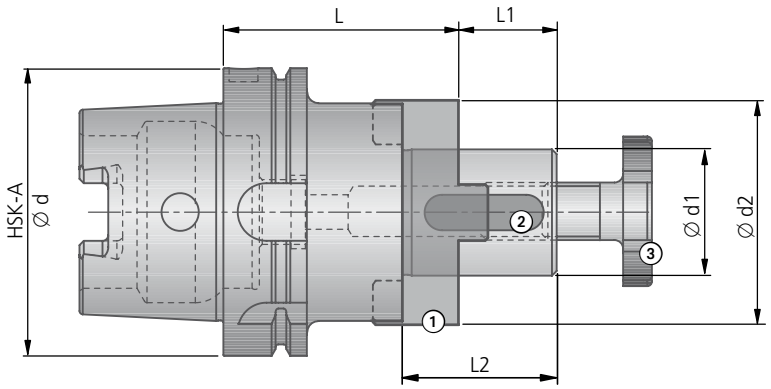
DIN 6368 Key on request (chapter 8).

KOMET® ISO 12164-1

HSK-A Combination milling cutter arbor

HSK-A ISO 12164-1 | location DIN 69882-2 | pre-balanced G6,3 15.000 min^{-1} | rotating tool | DIN 6358

for milling cutters with longitudinal or cross slots

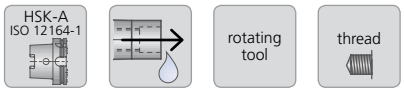


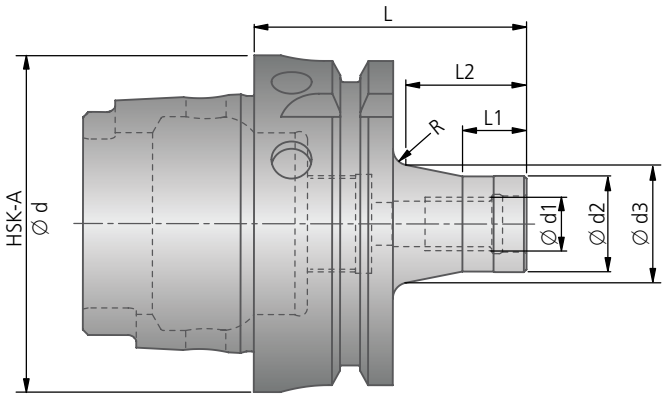
HSK-A FAK								Driving ring ① DIN 6366 Part 1	Feather key ② DIN 6885 Part 1	Cutter clamping screw ③ DIN 6367
Order No. Article	HSK-A Ø d	Ø d1	Ø d2	L	L1	L2	kg	Order No. Article	Order No. Article	Order No. Article
A06 23751 HSK-A50-FAK16	50	16	32	50	17	27	0,62	**55237 00016** 16×10	**51305 04020** A4×4×20	**55062 00008** M8
A06 23761 HSK-A50-FAK22	50	22	40	50	19	31	0,60	**55237 00022** 22×12	**51305 06025** A6×6×25	**55062 00010** M10
A06 23771 HSK-A50-FAK27	50	27	48	65	21	33	1,05	**55237 00027** 27×12	**51305 07025** A7×7×25	**55062 00012** M12
A06 23781 HSK-A50-FAK32	50	32	58	65	24	38	1,25	**55237 00032** 32×14	**51305 08028** A8×7×28	**55062 00016** M16
A06 33750 HSK-A63-FAK16	63	16	32	60	17	27	0,96	**55237 00016** 16×10	**51305 04020** A4×4×20	**55062 00008** M8
A06 33760 HSK-A63-FAK22	63	22	40	60	19	31	1,10	**55237 00022** 22×12	**51305 06025** A6×6×25	**55062 00010** M10
A06 33770 HSK-A63-FAK27	63	27	48	60	21	33	1,22	**55237 00027** 27×12	**51305 07025** A7×7×25	**55062 00012** M12
A06 33780 HSK-A63-FAK32	63	32	58	60	24	38	1,45	**55237 00032** 32×14	**51305 08028** A8×7×28	**55062 00016** M16
A06 33790 HSK-A63-FAK40	63	40	70	70	27	41	2,10	**55237 00040** 40×14	**51305 10032** A10×8×32	**55062 00020** M20
A06 53750 HSK-A100-FAK16	100	16	32	60	17	27	2,20	**55237 00016** 16×10	**51305 04020** A4×4×20	**55062 00008** M8
A06 53760 HSK-A100-FAK22	100	22	40	60	19	31	2,48	**55237 00022** 22×12	**51305 06025** A6×6×25	**55062 00010** M10
A06 53770 HSK-A100-FAK27	100	27	48	60	21	33	2,55	**55237 00027** 27×12	**51305 07025** A7×7×25	**55062 00012** M12
A06 53780 HSK-A100-FAK32	100	32	58	60	24	38	2,80	**55237 00032** 32×14	**51305 08028** A8×7×28	**55062 00016** M16
A06 53790 HSK-A100-FAK40	100	40	70	70	27	41	3,55	**55237 00040** 40×14	**51305 10032** A10×8×32	**55062 00020** M20
A06 53800 HSK-A100-FAK50	100	50	90	80	30	46	5,00	**55237 00050** 50×16	**51305 12036** A12×8×36	**55062 00024** M24

Supply includes: Milling cutter adaptor with driving ring ①, feather key ② and cutter clamping screw ③.
Please order coolant supply connection and key separately (chapter 8).

DIN 6368 Key on request (chapter 8).

HSK-A Adaptor for screw-on tools





HSK-A										
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	L2	R	kg
HSK-A63-M10/51	**A06 35100**	63	M10	18	22,0	51	12	22,6	3	
HSK-A63-M10/76	**A06 35110**	63	M10	18	24,5	76	12	47,3	3	
HSK-A63-M10/126	**A06 35120**	63	M10	18	34,5	126	12	97,3	3	
HSK-A63-M10/176	**A06 35130**	63	M10	18	44,5	176	12	147,3	3	
HSK-A63-M12/51	**A06 35140**	63	M12	21	23,4	51	12	22,4	3	
HSK-A63-M12/76	**A06 35150**	63	M12	21	29,4	76	12	47,4	3	
HSK-A63-M12/126	**A06 35160**	63	M12	21	37,5	126	12	97,3	3	
HSK-A63-M12/176	**A06 35170**	63	M12	21	44,5	176	12	147,3	3	
HSK-A63-M16/51	**A06 35180**	63	M16	29	–	51	12	23,0	2	
HSK-A63-M16/76	**A06 35190**	63	M16	29	33,7	76	12	48,1	2	
HSK-A63-M16/126	**A06 35200**	63	M16	29	39,8	126	12	98,1	2	
HSK-A63-M16/176	**A06 35210**	63	M16	29	47,7	176	12	148,1	2	
HSK-A100-M10/79	**A06 55100**	100	M10	18	23,3	79	12	40,9	10	
HSK-A100-M10/129	**A06 55110**	100	M10	18	33,2	129	12	90,9	10	
HSK-A100-M10/179	**A06 55120**	100	M10	18	43,2	179	12	140,9	10	
HSK-A100-M12/79	**A06 55130**	100	M12	21	27,9	79	12	41,2	10	
HSK-A100-M12/129	**A06 55140**	100	M12	21	36,2	129	12	90,9	10	
HSK-A100-M12/179	**A06 55150**	100	M12	21	43,3	179	12	140,9	10	
HSK-A100-M16/79	**A06 55160**	100	M16	29	32,7	79	12	40,7	10	
HSK-A100-M16/129	**A06 55170**	100	M16	29	38,8	129	12	90,6	10	
HSK-A100-M16/179	**A06 55180**	100	M16	29	46,7	179	12	140,7	10	

Please order coolant supply connection and key separately (chapter 8).

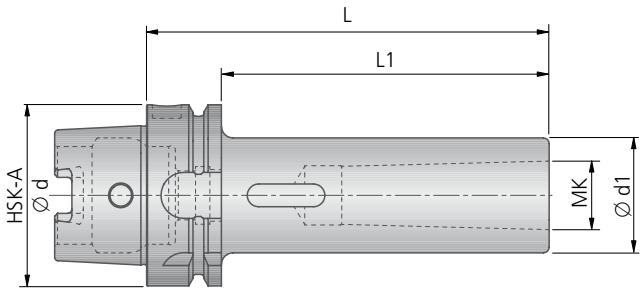
KOMET® ISO 12164-1

HSK-A Morse taper

HSK-A ISO 12164-1

rotating tool

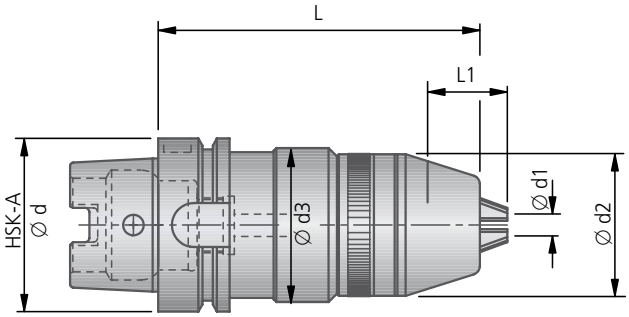
for holding tools with morse taper with tangs to DIN 228, Part 2 Form D



HSK-A DIN 69893 T1 Morse taper							
Article	**Order No.**	**HSK-A Ø d**	Taper size **MK**	**Ø d1**	**L**	**L1**	kg
HSK-A63-MK2	**A06 34020**	63	MK 2	32	120	94	1,08
HSK-A63-MK3	**A06 34030**	63	MK 3	40	140	114	1,81
HSK-A63-MK4	**A06 34040**	63	MK 4	48	160	134	2,33

HSK-A Short drill chuck





HSK-A DIN 69893 T1 NCB									
Article		Order No.	HSK-A Ø d	Clamping range Ø d1	Ø d2	Ø d3	L	Clamping depth L1	kg
HSK-A 50 NCB	0,5-13	**A06 23620**	50	0,5-13	49,5	56	117	29	1,47
HSK-A 50 NCB	3-16	**A06 23610**	50	3-16	52,0	56	117	29	1,54
HSK-A 63 NCB	0,5-13	**A06 33620**	63	0,5-13	49,5	56	117	29	1,82
HSK-A 63 NCB	3-16	**A06 33610**	63	3-16	52,0	56	117	29	1,89

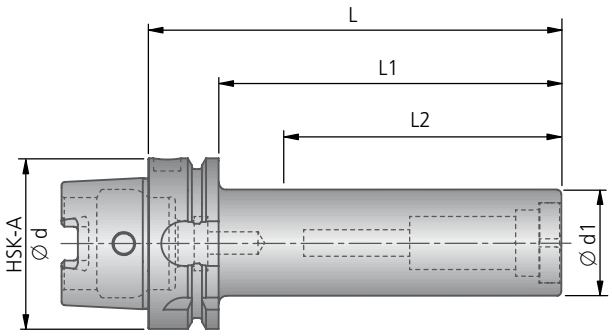
Supply includes:
Adaptor fitted complete. Please order coolant supply connection and key separately (chapter 8).

KOMET® ISO 12164-1

HSK-A Test arbor

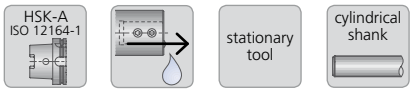


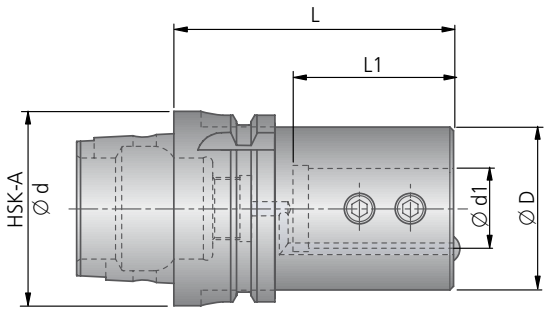
measuring arbors for checking machine geometry and concentricity of spindle.



HSK-A DIN 69893 T1 Test arbor							
Article	Order No.	HSK-A Ø d	Ø d1	L	L1	useable length L2	kg
HSK-A 50-D32/L200	**A06 23480**	50	32	236	210	200	1,90
HSK-A 63-D40/L300	**A06 33480**	63	40	346	320	300	2,98
HSK-A 100-D40/L300	**A06 53480**	100	40	349	320	300	4,70

HSK-A Boring bar holder



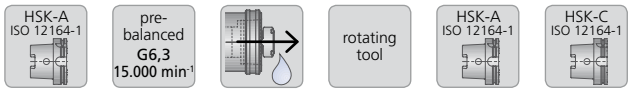


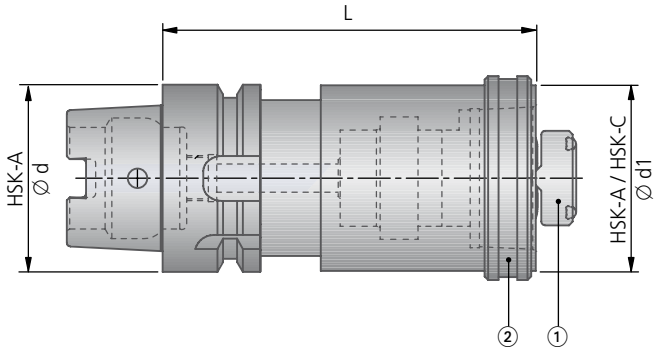
HSK-A DIN 69893 T1 BA							
Article	Order No.	HSK-A Ø d	Ø d1	Ø D	L	L1	kg
HSK-A63-BA10	**A06 34610**	63	10	38	51	22	0,84
HSK-A63-BA12	**A06 34620**	63	12	40	56	27	0,90
HSK-A63-BA16	**A06 34630**	63	16	44	64	35	1,03
HSK-A63-BA20	**A06 34640**	63	20	53	71	41	1,30
HSK-A63-BA25	**A06 34650**	63	25	57	81	50	1,48
HSK-A63-BA32	**A06 34660**	63	32	70	96	66	2,10

Supply includes:
Boring bar holder mounted complete. Please order coolant supply connection and key separately (chapter 8).

KOMET KomLoc®

HSK-A Extension KomLoc® HSK clamping system K



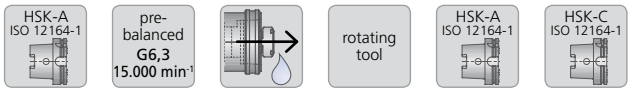


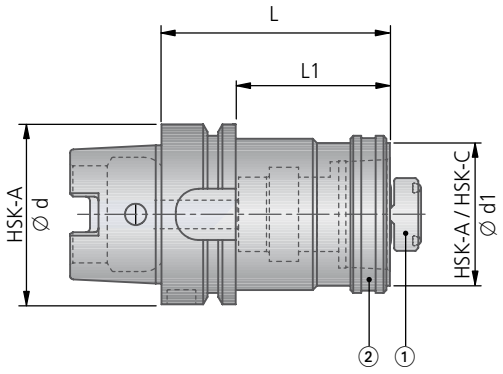
HSK-A DIN 69893 T1 Extension KomLoc®							
Article	Order No.	HSK-A Ø d	HSK-A HSK-C Ø d1	L	kg	Clamping device KomLoc® ① Order No.	Sealing ring, shifting ② Order No.
HSK-A63-V100	**A06 34700**	63	63	100	1,87	**L07 01060**	**L07 01460**
HSK-A63-V140	**A06 34710**	63	63	140	2,93	**L07 01060**	**L07 01460**

Supply includes:
Extension fitted complete. Please order coolant supply connection and key separately (chapter 8).

Patent applied for inside and outside Germany

HSK-A Reducing adaptor KomLoc® HSK clamping system K





HSK-A DIN 69893 T1 Reducing Adaptor KomLoc®								
Article	Order No.	HSK-A Ø d	HSK-A HSK-C Ø d1	L	L1	kg	Clamping device KomLoc® ① Order No.	Sealing ring, shifting ② Order No.
HSK-A63-HSK50	**A06 34770**	63	50	80	54	1,30	**L07 01050**	**L07 01450**
HSK-A100-HSK80	**A06 54790**	100	80	120	91	4,89	**L07 01070**	**L07 01470**

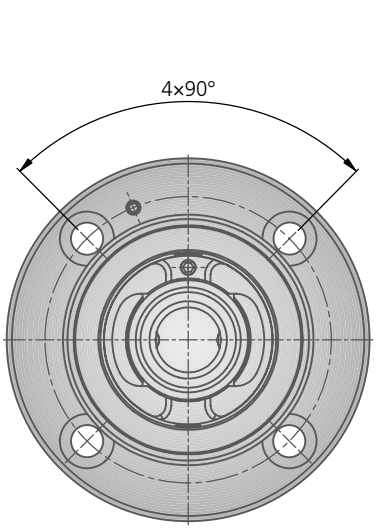
Supply includes:
Reducing fitted complete. Please order coolant supply connection and key separately (chapter 8).

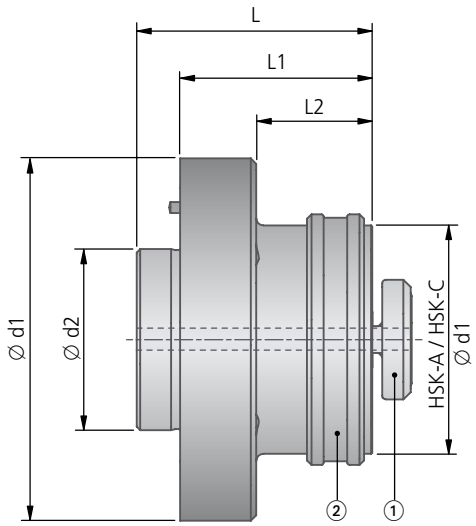
KOMET KomLoc®

HSK-RVF Adaptor flange KomLoc® HSK clamping system K



can be radially adjusted on the machine spindle with adjusting screws

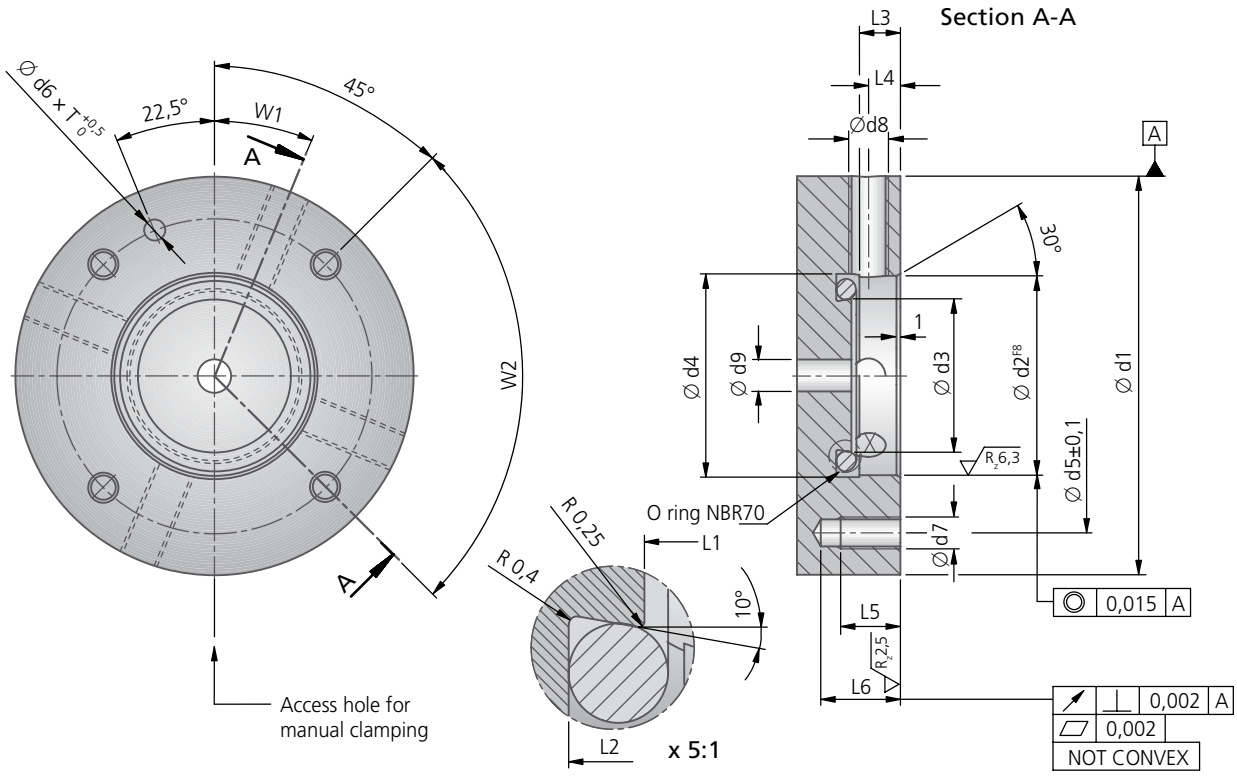




HSK-RVF												
Article	Order No.	HSK-A HSK-C Ø d	Ø d1	Ø d2	L	L1	L2	kg	Clamping device KomLoc® ① Order No.	Sealing ring, shifting ② Order No.	Clamping screw DIN 912 Article	Order No.
HSK-50 RVF	**A08 61031**	50	80	40	53	43	26	0,97	**L07 01050**	**L07 01450**	M6×20-12,9	–
HSK-63 RVF	**A08 71031**	63	100	50	65	53	32	1,84	**L07 01060**	**L07 01460**	M8×25-12,9	–
HSK-80 RVF	**A08 81030**	80	117	60	84,8	72,8	45	3,62	**L07 01070**	**L07 01470**	M8×35-12,9	**55011 08035**

Supply includes:
Adaptor flange complete with KomLoc® clamping device and sealing ring.

Patent applied for inside and outside Germany



Connection dimensions																			
for adaptor flange	Ø d1	Ø d2	Ø d3	Ø d4	Ø d5 min	Ø d6	Ø d7	Ø d8	Ø d9	L1	L2	L3 min	L4	L5	L6	T	W1	W2	O ring
A08 61031	80	40	30,5	41	63	5	M6	M8×1	6,0	10,3	13,3	8,3	7,0	14	18	3,5	0°	4×90°	30×4
A08 71031	100	50	38,5	51	79	5	M8	M10×1	8,0	12,3	16,1	10,3	8,0	15	20	3,5	0°	4×90°	38×5
A08 81030	117	60	47,5	61	96	6	M8	M10×1	10,2	12,3	16,1	10,3	8,0	18	22	4,5	0°	4×90°	47×5

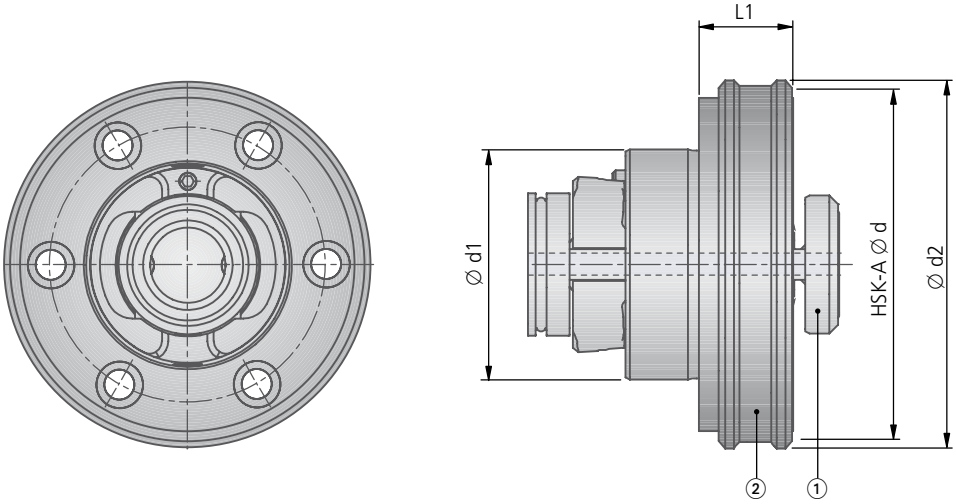
Please ask for current KOMET drawing No. N49 13470 for spindle production.

KOMET KomLoc®

HSK-REF Built-in flange KomLoc® HSK clamping system K



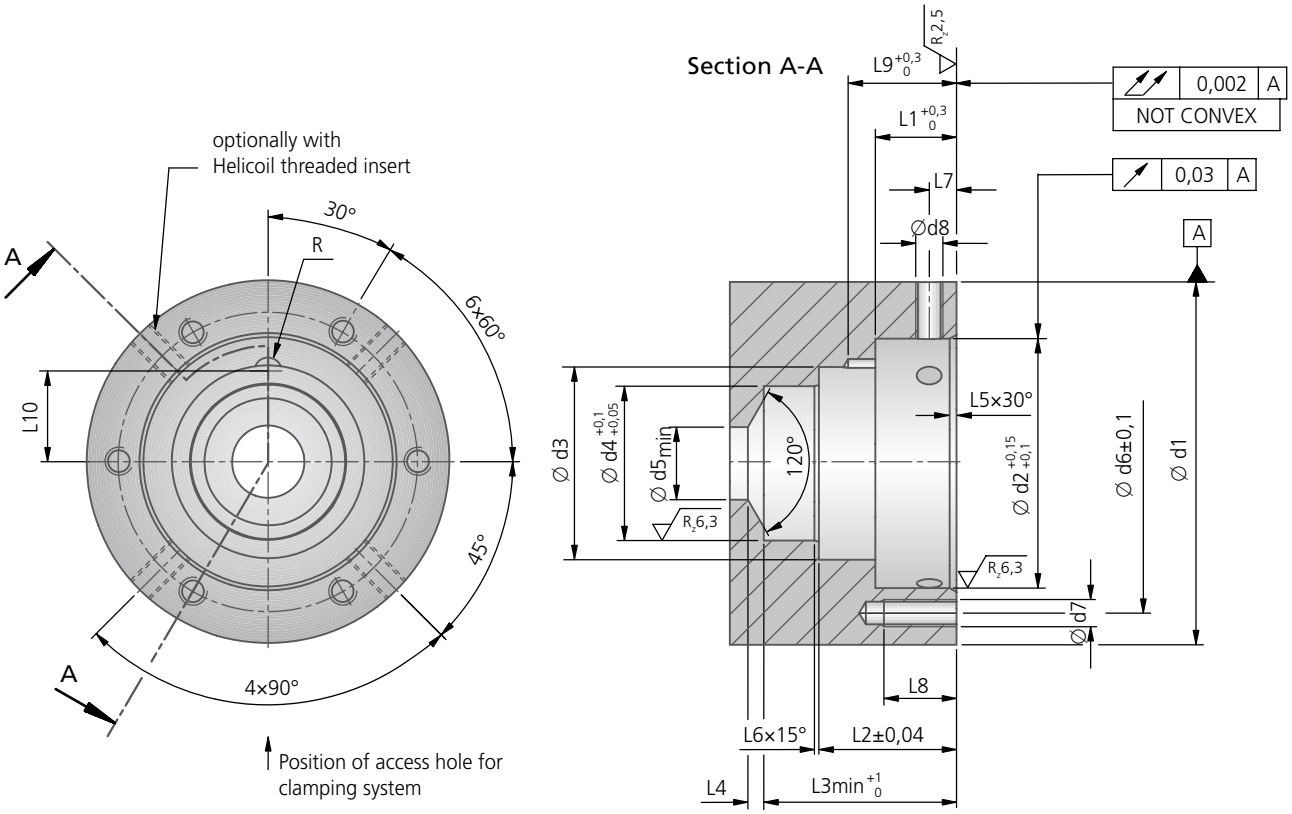
can be radially adjusted on the machine spindle with adjusting screw



HSK-REF												
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	L1	kg	Clamping device KomLoc® ① Order No.	Sealing ring, turning ② Order No.	Ball pressure screw Order No.	Clamping screw DIN 912 Article	Order No.
HSK-50 REF	**A08 61060**	63	42	69,2	17,5	0,54	**L07 01050**	**L07 01761**	**N10 30739**	M5×20 12.9	**55011 05020**
HSK-100 REF	**A08 91060**	125	88	137	30	4,10	**L07 01080**	**L07 01790**	**N10 30742**	M10×1×40 12.9	**55011 10042**

Supply includes:
Built-in flange complete with KomLoc® clamping device, sealing ring and ball pressure screw.

Patent applied for inside and outside Germany



Connection dimensions																			
for built-in flange	Ø d1	Ø d2	Ød3$^{+0,5}$	Ø d4	Ø d5 min	Ø d6	Ø d7	Ø d8	L1	L2	L3 min	L4	L5	L6	L7	L8	L9	L10	R
A08 81060	100	68	52,8	42	16	82	M8	M8	24,3	40,2	57,3	4	2	1,5	8	18	32,9	24,8	3,5
A08 91060	125	88	66	53	20	106	M10×1	M8	34,4	54,4	76	4,5	2	2	8	25	42,4	31,4	4,5

Please ask for current KOMET drawing No. N49 13460 for spindle production.

KOMET ®

Taper shanks



BENEFITS for you:

- The steep taper is the standardised form of a tool taper for clamping tools in the main spindle of a machine tool
- The steep taper is standardised in DIN 69871 part 1
- No self-locking (in contrast with the Morse taper), thereby making tool changes easier without clamping. This is particularly significant with automatic tool changes
- Small clamping travel, thereby short clamping time
- High torsional rigidity due to the short distance between the cutting edge and spindle bearing (short overall length)

KOMET® Taper shanks

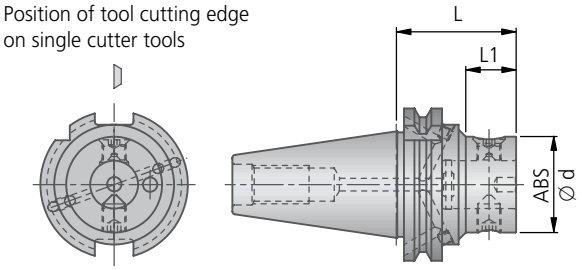
	Page
DIN 69871 AD/B	
with ABS® connection	410
with ABS® N connection	412
Eccentric adjusting device	414
Torsional dampener	415
Adaptor for screw-on tools	417
Adaptor sleeve for KUB® drill	418
Adaptor sleeve Whistle Notch	420
Adaptor sleeve Weldon	421
Expanding chuck	422
Milling cutter arbor FA	424 – 425
DIN 68971 AD	
with ABS® connection	411
with ABS® connection (coolant ring)	413
BIG-PLUS® with ABS® connection	416
Adaptor sleeve for KUB® drill (coolant ring)	419
JIS B 6339 (MAS 403 BT)	
with ABS® / ABS® N connection	426 – 427
with ABS® connection (coolant ring)	428
Eccentric adjusting device	430
Torsional dampener	431
BIG-PLUS® with ABS® connection	429
Adaptor sleeve for KUB® drill	432
Adaptor sleeve for KUB® drill (coolant ring)	433
Expanding chuck	434
Adaptor for screw-on tools	435
Milling cutter arbor FA	436 – 437
DIN 2080 A	
with ABS® connection	438
DIN 2080 B	
with ABS® connection (coolant ring)	439

BIG-PLUS® is a registered trademark of BIG Daishowa Seiki Co., Ltd.

KOMET® DIN 69871 AD/B

Taper shank with ABS® connection





DIN 69871 AD/B (≙ ISO 7388/1) ABS®							
SK	Article	Order No.	ABS Ø d	L	L1	kg	Conversion kit Order No.
40	ABS25SK-AD/B40	**A50 55120**	25	50	19	0,99	**L02 30920**
40	ABS32SK-AD/B40	**A50 55130**	32	50	19	1,05	**L02 30920**
40	ABS40SK-AD/B40	**A50 55140**	40	50	19	1,07	**L02 30920**
40	ABS50SK-AD/B40	**A50 55150**	50	50	30	1,10	**L02 30920**
40	ABS63SK-AD/B40	**A50 55160**	63	90	70	2,05	**L02 30920**
45	ABS50SK-AD/B45	**A50 55250**	50	60	25	2,10	**L02 30930**
45	ABS63SK-AD/B45	**A50 55260**	63	60	40	2,25	**L02 30930**
50	ABS25SK-AD/B50	**A50 55320**	25	60	20	3,17	**L02 30940**
50	ABS32SK-AD/B50	**A50 55330**	32	60	20	3,24	**L02 30940**
50	ABS40SK-AD/B50	**A50 55340**	40	60	20	3,30	**L02 30940**
50	ABS50SK-AD/B50	**A50 55350**	50	60	22	3,30	**L02 30940**
50	ABS63SK-AD/B50	**A50 55360**	63	60	29	3,37	**L02 30940**
50	ABS80SK-AD/B50	**A50 55370**	80	70	50	3,91	**L02 30940**
50	ABS100SK-AD/B50	**A50 55380**	100	115	95	6,72	**L02 30940**

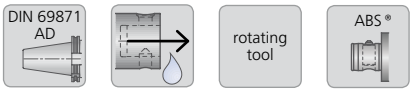
Supply includes:
Taper shank in form B complete with seal, conversion kit (for form AD). Pull studs not included (chapter 8).

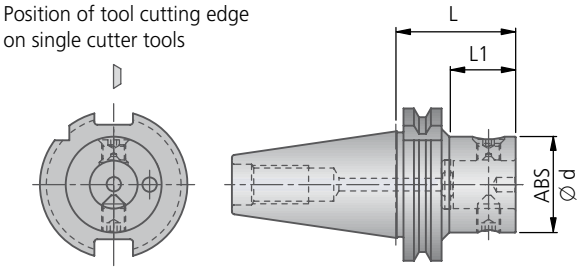
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

Patent applied for inside and outside Germany

KOMET® DIN 69871 AD

Taper shank with ABS® connection





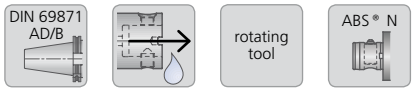
DIN 69871 AD (≙ ISO 7388/1) ABS®						
SK	Article	Order No.	ABS Ø d	L	L1	kg
40	ABS 25 ISO400200	**A50 00120**	25	50	23	0,93
40	ABS 32 ISO400200	**A50 00130**	32	50	23	0,99
40	ABS 40 ISO400200	**A50 00140**	40	50	30	1,03
40	ABS 50 ISO400200	**A50 00150**	50	50	30	1,15
40	ABS 63 ISO400200	**A50 00160**	63	90	70	2,04
50	ABS 25 ISO500200	**A50 00320**	25	60	31	2,81
50	ABS 32 ISO500200	**A50 00330**	32	60	31	2,91
50	ABS 40 ISO500200	**A50 00340**	40	60	31	3,02
50	ABS 50 ISO500200	**A50 00350**	50	60	40	3,18
50	ABS 63 ISO500200	**A50 00360**	63	60	40	3,35
50	ABS 80 ISO500200	**A50 00370**	80	70	50	4,05
50	ABS100 ISO500200	**A50 00380**	100	115	95	7,05
50	ABS125 ISO500200	**A50 00390**	125	145	–	11,54

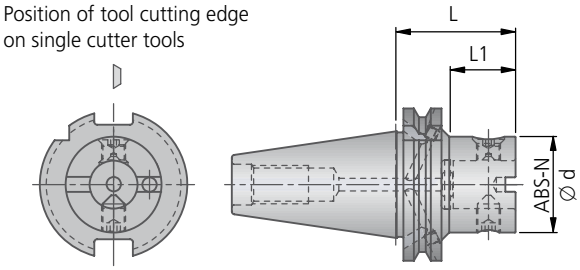
Supply includes:
Taper shank complete. Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

Taper shank with ABS® N connection





DIN 69871 AD/B ABS® N						
SK	Article	Order No.	ABS-N Ø d	L	L1	kg
50	ABS 50N-AD/B 50	**A50 76350**	50	60	22	3,32
50	ABS 63N-AD/B 50	**A50 76360**	63	60	29	3,39
50	ABS 80N-AD/B 50	**A50 76370**	80	70	50	3,92
50	ABS 100N ISO500200	**A50 00380.4000***	100	115	95	7,05

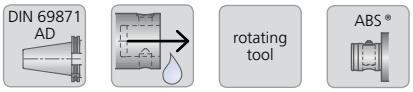
* **Please note:** Coolant supply AD (central)

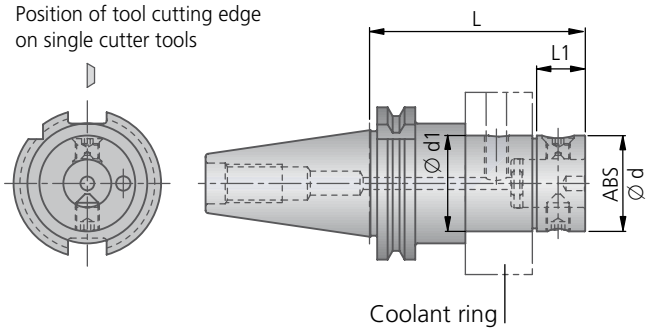
Supply includes:
Taper shank complete.
Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

Patent applied for inside and outside Germany

Taper shank with ABS® connection for coolant ring





DIN 69871 AD (≙ ISO 7388/1) ABS®							
SK	Article	Order No.	ABS Ø d	Coolant ring Ø d1	L	L1	kg
40	ABS50 ISO400200KR	**A50 00650**	50	50	95	25	1,70
50	ABS50 ISO500200KR	**A50 00850**	50	50	100	28	3,84
50	ABS63 ISO500200KR	**A50 00860**	63	70	110	37	5,05
50	ABS80 ISO500200KR	**A50 00870**	80	80	110	37	5,60
50	ABS100 ISO500200KR	**A50 00880**	100	100	115	42	6,67

Supply includes:
Taper shank complete.
Pull studs not included (chapter 8).

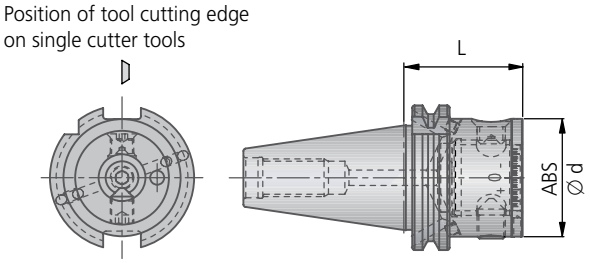
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

Eccentric adjusting device with ABS® connection



■ adjustment path ± 0.25 mm in the diameter



DIN 69871 AD/B ABS® EXZ						
SK	Article	Order No.	ABS Ø d	L	kg	Conversion kit Order No.
40	ABS50-SK AD/B40 EXZ.	**A50 56150**	50	50	1,10	**L02 30920**
40	ABS63-SK AD/B40 EXZ.	**A50 56160**	63	90	2,03	**L02 30920**
50	ABS50-SK AD/B50 EXZ.	**A50 56350**	50	60	3,33	**L02 30940**
50	ABS63-SK AD/B50 EXZ.	**A50 56360**	63	60	3,36	**L02 30940**

Supply includes:
Taper shank in form B complete with seal, conversion kit (for form AD). Pull studs not included (chapter 8).

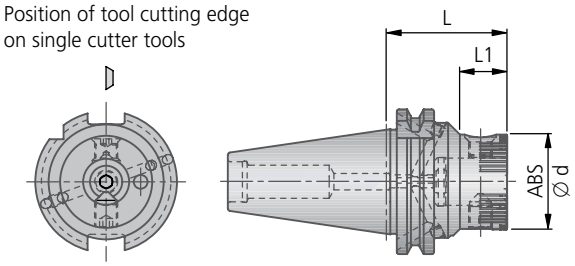
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

Patent applied for inside and outside Germany

KOMET® DIN 69871 AD/B

Torsional dampener with ABS® connection





DIN 69871 AD/B ABS® TSD							
SK	Article	Order No.	ABS Ø d	L	L1	kg	Conversion kit Order No.
40	ABS50-ISO40-TSD	**A50 01351**	50	50	30	1,07	**L02 30920**
40	ABS63-ISO40-TSD	**A50 01361**	63	90	–	2,00	**L02 30930**
50	ABS50-ISO50-TSD	**A50 01451**	50	60	40	3,30	**L02 30920**
50	ABS63-ISO50-TSD	**A50 01461**	63	60	40	3,40	**L02 30930**
50	ABS80-ISO50-TSD	**A50 01470**	80	70	50	3,84	**L02 30940**

Supply includes:
Taper shank in form B complete with seal, conversion kit (for form AD). Pull studs not included (chapter 8).

The torsional dampeners are designed for solid drills in line with the torque which is produced.

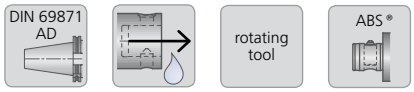
Recommended use: ...-ABS50-TSD for drill ∅ 14 - 44 mm
...-ABS63-TSD for drill ∅ 45 - 54 mm
...-ABS80-TSD for drill ∅ 55 - 81 mm

For drill heads V464 with larger diameters we recommend the use of appropriate reducers (available on request).

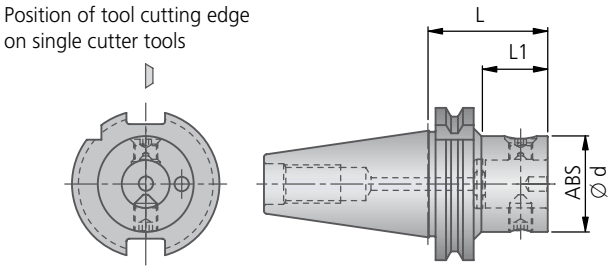
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD

BIG-PLUS® Taper shank with ABS® connection



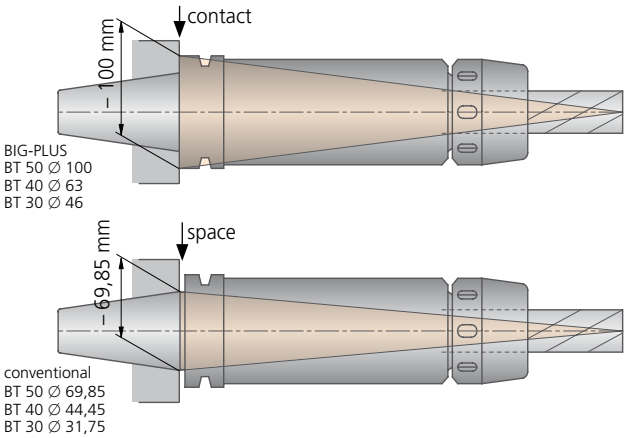




DIN 69871 AD ABS®						
SK	Article	Order No.	ABS Ø d	L	L1	kg
40	ISO40 DIN69871AD-BIG PLUS-ABS50	**A50 57151**	50	50	30	1,15
40	ISO40 DIN69871AD-BIG PLUS-ABS63	**A50 57161**	63	90	70	2,04
50	ISO50 DIN69871AD-BIG PLUS-ABS50	**A50 57351**	50	60	40	3,18
50	ISO50 DIN69871AD-BIG PLUS-ABS63	**A50 57361**	63	60	40	3,35
50	ISO50 DIN69871AD-BIG PLUS-ABS80	**A50 57371**	80	70	50	4,05

Supply includes:
Taper shank complete. Pull studs not included (chapter 8).

Increased contact diameter



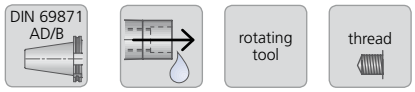
BIG-PLUS® Spindle System

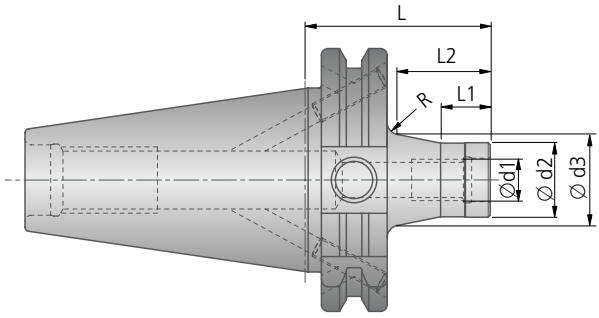
- The BIG-PLUS® Spindle System offers simultaneous dual contact between the machine spindle face and toolholder flange face, as well as the machine spindle taper and long toolholder taper shank. This system is based on the most currently available standards for JIS-BT, DIN 69871 and CAT-V flange tooling.
- By having all tolerances strictly controlled by high tolerance gauges and measuring equipment, simultaneous dual contact of the face and taper is thus assured.
- In this way, the BIG-PLUS® Spindle System skillfully utilizes the elastic deformation of the machine spindle to control the gauge line accuracy, which thus insures that dual contact of the face and taper is achieved.
- Existing accessories such as presetters, tooling fixtures and tooling storage systems can be used.
- The results in greatly extending the life of both the machine spindle and the toolholder.
- As a result of the dual contact which precisely positions the toolholder within 1 micron.

BIG-PLUS® is a registered trademark of BIG Daishowa Seiki Co., Ltd.

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

Patent applied for inside and outside Germany





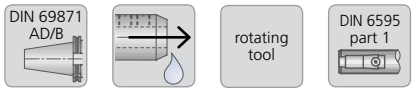
DIN 69871 AD/B										
SK	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	L2	R	kg
40	SK40-AD/B-M10/44	**A51 14500**	M10	18	22,0	44	12	22,5	3	
40	SK40-AD/B-M10/69	**A51 14510**	M10	18	24,5	69	12	47,2	3	
40	SK40-AD/B-M10/94	**A51 14520**	M10	18	29,5	94	12	72,2	3	
40	SK40-AD/B-M10/119	**A51 14530**	M10	18	34,5	119	12	97,2	3	
40	SK40-AD/B-M10/169	**A51 14540**	M10	18	44,8	169	12	149,0	1	
40	SK40-AD/B-M12/44	**A51 14550**	M12	21	22,9	44	12	20,5	5	
40	SK40-AD/B-M12/69	**A51 14560**	M12	21	29,4	69	12	47,3	3	
40	SK40-AD/B-M12/94	**A51 14570**	M12	21	34,4	94	12	72,2	3	
40	SK40-AD/B-M12/119	**A51 14580**	M12	21	37,5	119	12	97,2	3	
40	SK40-AD/B-M12/169	**A51 14590**	M12	21	47,8	169	12	149,2	0,8	
40	SK40-AD/B-M16/44	**A51 14600**	M16	29	–	44	12	21,9	3	
40	SK40-AD/B-M16/69	**A51 14610**	M16	29	33,6	69	12	47,1	3	
40	SK40-AD/B-M16/94	**A51 14620**	M16	29	34,7	94	12	72,0	3	
40	SK40-AD/B-M16/119	**A51 14630**	M16	29	39,6	119	12	97,1	3	
40	SK40-AD/B-M16/169	**A51 14640**	M16	29	47,9	169	12	149,2	0,8	
50	SK50-AD/B-M10/69	**A51 14700**	M10	18	24,1	69	12	45,4	5	
50	SK50-AD/B-M10/119	**A51 14710**	M10	18	34,1	119	12	95,4	5	
50	SK50-AD/B-M10/169	**A51 14720**	M10	18	44,5	169	12	147,2	3	
50	SK50-AD/B-M12/69	**A51 14730**	M12	21	28,3	69	12	42,9	8	
50	SK50-AD/B-M12/119	**A51 14740**	M12	21	36,6	119	12	92,7	8	
50	SK50-AD/B-M12/169	**A51 14750**	M12	21	50,4	169	12	142,8	8	
50	SK50-AD/B-M16/69	**A51 14760**	M16	29	33,4	69	12	45,2	5	
50	SK50-AD/B-M16/119	**A51 14770**	M16	29	39,4	119	12	95,2	5	
50	SK50-AD/B-M16/169	**A51 14780**	M16	29	47,4	169	12	145,2	5	

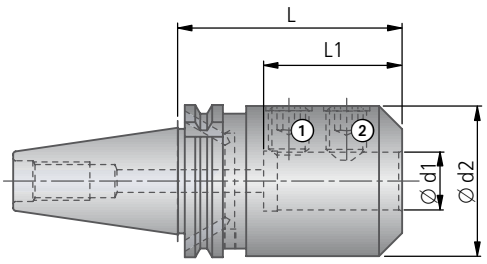
Taper shank in form B complete with conversion kit (for form AD). Please order pull stud separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

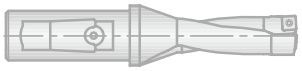
Taper shank for KUB® drill (combination shank)



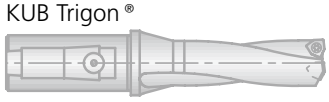


Tools with combination shank p.ex.:

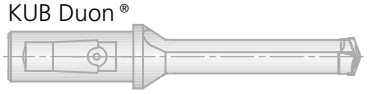
KUB Quatron®



KUB Trigon®



KUB Duon®



DIN 69871 AD/B								
SK	Order No.	Ø d1	Ø d2	L	L1	kg	Clamping screw ① Order No. Article	Clamping screw ② Order No. Article
40	**A05 13140**	20	40	65	54	1,10	**55051 10111** M10×1×10	**N00 60400** M10×1×12
40	**A05 13151**	25	45	70	60	1,17	**55051 12112** M12×1×12	**N00 60410** M12×1×12
40	**A05 13161**	32	52	75	64	1,27	**55051 12112** M12×1×12	**N00 60410** M12×1×12
50	**A05 13340**	20	40	65	54	2,87	**55051 10111** M10×1×10	**N00 60400** M10×1×12
50	**A05 13351**	25	45	70	60	2,94	**55051 12112** M12×1×12	**N00 60410** M12×1×12
50	**A05 13361**	32	52	70	64	2,98	**55051 12112** M12×1×12	**N00 60410** M12×1×12
50	**A05 13370**	40	65	80	73	3,38	**55051 16112** M16×1×12	**N00 60430** M16×1×16

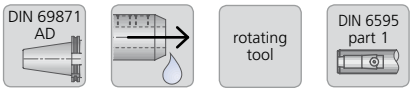
Supply includes:
Taper shank with screws ① and ②.
Pull studs not included (chapter 8).

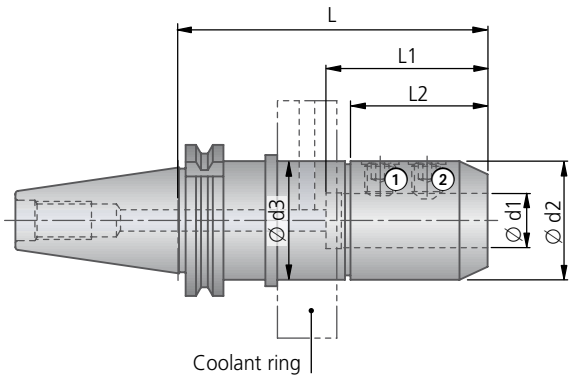
Because the threaded pin is offset against the tapered hole in cylindrical shank DIN 6595 Part 1, the solid drill shank is clamped against the contact surface of the toolholder.

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD

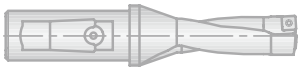
Taper shank for KUB® drill (combination shank) for coolant ring



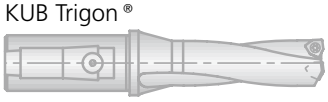


Tools with combination shank p.ex.:

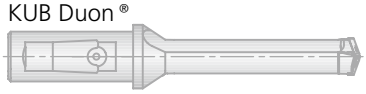
KUB Quatron®



KUB Trigon®



KUB Duon®



DIN 69871 AD										
SK	Order No.	Ø d1	Ø d2	Coolant ring Ø d3	L	L1	L2	kg	Clamping screw ① Order No. Article	Clamping screw ② Order No. Article
40	**A05 03140**	20	50	50	115	65	43		**55051 10112** M10×1×12	**N00 60400** M10×1×12
40	**A05 03150**	25	50	50	130	65	58	2,23	**55051 12112** M12×1×12	**L02 30350** M12×1×16
40	**A05 03160**	32	50	50	130	65	58	2,05	**55051 12112** M12×1×12	**L02 30350** M12×1×16
50	**A05 03340**	20	50	50	115	65	43		**55051 10112** M10×1×12	**N00 60400** M10×1×12
50	**A05 03350**	25	50	50	130	65	58	4,18	**55051 12112** M12×1×12	**L02 30350** M12×1×16
50	**A05 03360**	32	50	50	130	65	58	4,05	**55051 12112** M12×1×12	**L02 30350** M12×1×16
50	**A05 03370**	40	70	70	140	73	67,5	5,63	**55051 16112** M16×1×12	**N00 60430** M16×1×16

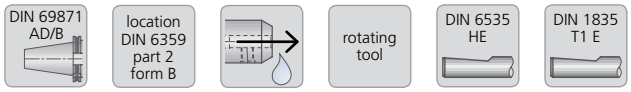
Supply includes:
Taper shank with screws ① and ②.
Coolant ring and pull studs not included (chapter 8).

Because the threaded pin is offset against the tapered hole in cylindrical shank DIN 6595 Part 1, the solid drill shank is clamped against the contact surface of the toolholder.

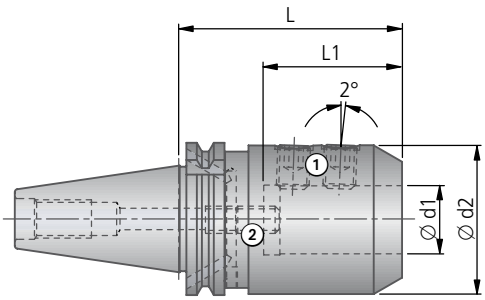
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

Taper shank Whistle Notch



- the robust and highly accurate location also enables solid carbide drills to be clamped
- the 2° tilt of the clamping screws prevents the tool from pulling out



DIN 69871 AD/B FWD									
							Clamping screw ①		Adjusting screw ②
SK	Order No.	Ø d1	Ø d2	L	L1	kg	Order No.	Qty.	Order No.
40	A05 12071	6	25	50	36	0,98	51050 06010	1	N00 71000
40	A05 12081	8	28	50	36	1,00	51050 08010	1	N00 71050
40	A05 12091	10	35	50	40	1,05	51050 10012	1	51049 08016
40	A05 12101	12	42	50	45	1,13	51050 12016	1	51049 10020
40	A05 12111	14	44	50	45	1,15	51050 12016	1	51049 10020
40	A05 12121	16	48	63	48	1,35	51050 14016	1	51049 12025
40	A05 12131	18	50	63	48	1,40	51050 14016	1	51049 12025
40	A05 12141	20	52	63	50	1,10	51050 16016	1	51049 16025
40	A05 12151	25	65	100	56	2,20	51050 18220	2	51049 20035
40	A05 12161	32	72	100	60	2,50	51050 20220	2	51049 20035
50	A05 12271	6	25	63	36	2,75	51050 06010	1	N00 71000
50	A05 12281	8	28	63	36	2,80	51050 08010	1	N00 71050
50	A05 12291	10	35	63	40	2,90	51050 10012	1	51049 08016
50	A05 12301	12	42	63	45	3,05	51050 12016	1	51049 10020
50	A05 12311	14	44	63	45	3,10	51050 12016	1	51049 10020
50	A05 12321	16	48	63	48	3,15	51050 14016	1	51049 12025
50	A05 12331	18	50	63	48	3,20	51050 14016	1	51049 12025
50	A05 12341	20	52	63	50	3,20	51050 16016	1	51049 16025
50	A05 12351	25	65	80	56	3,95	51050 18220	2	51049 20035
50	A05 12361	32	72	100	60	4,70	51050 20220	2	51049 20035

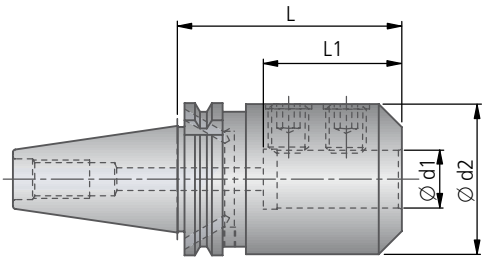
Supply includes:
Taper shank with screws ① and ②.
Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

Taper shank Weldon





DIN 69871 AD/B HWD								
							Clamping screw	
SK	Order No.	Ø d1	Ø d2	L	L1	kg	Order No.	Piece
40	**A05 24070**	6	25	50	37	0,98	**51050 06010**	1
40	**A05 24080**	8	28	50	37	1,00	**51050 08010**	1
40	**A05 24090**	10	35	50	41	1,05	**51050 10012**	1
40	**A05 24100**	12	42	50	46	1,13	**51050 12016**	1
40	**A05 24110**	14	44	50	46	1,15	**51050 12016**	1
40	**A05 24120**	16	48	63	49	1,35	**51050 14016**	1
40	**A05 24130**	18	50	63	49	1,40	**51050 14016**	1
40	**A05 24140**	20	52	63	51	1,31	**51050 16016**	1
40	**A05 24150**	25	65	100	59	2,20	**51050 18220**	2
40	**A05 24160**	32	72	100	63	2,50	**51050 20220**	2
50	**A05 24270**	6	25	63	37	2,75	**51050 06010**	1
50	**A05 24280**	8	28	63	37	2,80	**51050 08010**	1
50	**A05 24290**	10	35	63	41	2,90	**51050 10012**	1
50	**A05 24300**	12	42	63	46	3,05	**51050 12016**	1
50	**A05 24310**	14	44	63	46	3,10	**51050 12016**	1
50	**A05 24320**	16	48	63	49	3,15	**51050 14016**	1
50	**A05 24330**	18	50	63	49	3,20	**51050 14016**	1
50	**A05 24340**	20	52	63	51	3,20	**51050 16016**	1
50	**A05 24350**	25	65	80	59	3,95	**51050 18220**	1
50	**A05 24360**	32	72	100	63	4,70	**51050 20220**	2
50	**A05 24370**	40	80	100	73	4,90	**51050 20220**	2

Supply includes:
Taper shank with screws ①.
Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

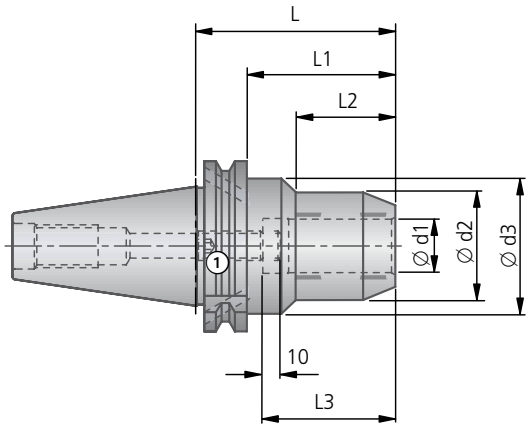
Expanding chuck



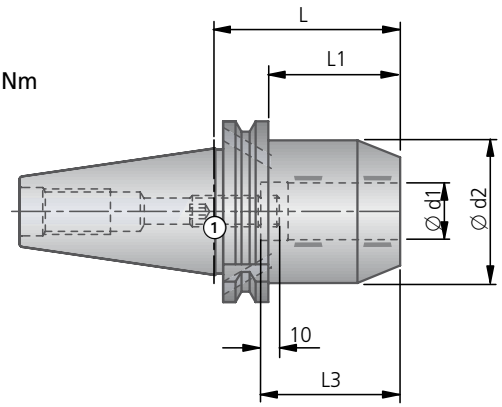
Admissible radial force F at the toolholder at an overhang of 50 mm

Ø d1	F (N)
Expanding chuck	
6	225
8	370
10	540
12	650
14	900
16	1410
18	1580
20	1860
25	4400
32	6500
Expanding chuck KS	
12	975
16	2115
20	2790
32	9750

Expanding chuck



Expanding chuck KS
Torque ∅ 32 mm: **2000 Nm**



DIN 69871 AD/B Expanding chuck

SK	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	L2	L3	kg	Adjusting screw ① Article	Adjusting screw ① Order No.
40	ISO40 DIN69871AD/B-D12	**A05 92090**	12	32	49,5	80,5	61,5	31,5	46	1,4	M10×1×12	**N00 71800**
40	ISO40 DIN69871AD/B-D16	**A05 92100**	16	38	49,5	80,5	61,5	33	49	1,4	M12×1×12	**N00 71860**
40	ISO40 DIN69871AD/B-D25	**A05 92120**	25	55	66	80,5	61,5	22	57	1,8	M16×1×14	**N00 71550**
DIN 69871 AD/B Expanding chuck KS												
40	ISO40 DIN69871AD/B-D12-KS	**A05 97530**	12	42	–	50	31	–	46		M8×1×12	**N00 71730**
40	ISO40 DIN69871AD/B-D16-KS	**A05 97550**	16	49,25	–	64,5	45,45	–	51		M8×1×12	**N00 71730**
40	ISO40 DIN69871AD/B-D20-KS	**A05 97570**	20	49,25	–	64,5	45,5	–	51		M8×1×12	**N00 71730**
50	ISO50 DIN69871AD/B-D12-KS	**A05 97630**	12	42	–	50	31	–	46		M8×1×12	**N00 71730**
50	ISO50 DIN69871AD/B-D20-KS	**A05 97670**	20	49,25	–	64,5	45,5	–	51		M8×1×12	**N00 71730**
50	ISO50 DIN69871AD/B-D32-KS	**A05 97690**	32	72	–	81	62	–	61		M8×1×12	**N00 71730**

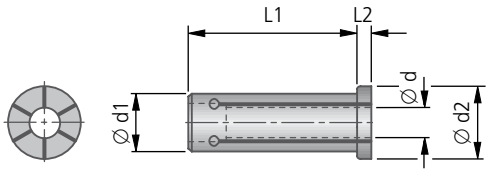
Tool shank tolerance: h6 for Ø 6 - 32 mm

Supply includes: Expanding chuck fitted complete.
Taper shank in form B complete with conversion kit (for form AD). Please order pull stud separately (chapter 8).

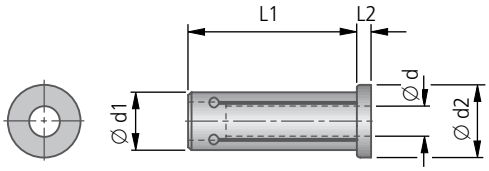
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® Adaptor sleeve

for expanding chuck



with slotted collar
for peripheral cooling



with closed collar
for internal coolant supply

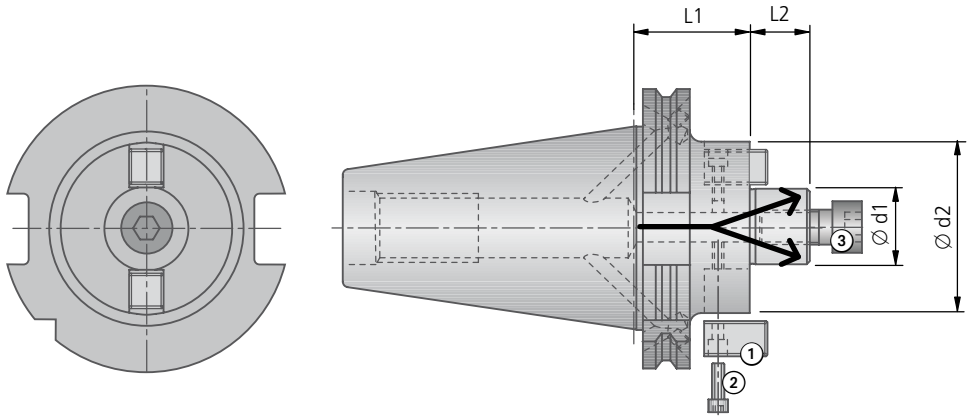
Adaptor sleeve						
Order No.	Ø d	Ø d1	Ø d2	L1	L2	kg
L01 13291	3	12	19	45	2	0,1
L01 13301	4					
L01 13311	5					
L01 13321	6					
L01 13331	8					
L01 13261	3	20	29	50,5	2	0,1
L01 13271	4					
L01 13281	5					
L01 13201	6					
L01 13211	8					
L01 13221	10					
L01 13231	12					
L01 13241	14					
L01 13251	16					
L01 13500	6	32	39	60,5	3	0,3
L01 13511	8					
L01 13520	10					
L01 13531	12					
L01 13540	14					
L01 13551	16					
L01 13561	18					
L01 13571	20					
L01 13581	25					

Adaptor sleeve						
Order No.	Ø d	Ø d1	Ø d2	L1	L2	kg
L01 14291	3	12	19	45	2	0,1
L01 14301	4					
L01 14311	5					
L01 14321	6					
L01 14331	8					
L01 14261	3	20	29	50,5	2	0,1
L01 14271	4					
L01 14281	5					
L01 14201	6					
L01 14211	8					
L01 14221	10					
L01 14231	12					
L01 14241	14					
L01 14251	16					
L01 14400	6	25	29	55	2	0,1
L01 14410	8					
L01 14420	10					
L01 14430	12					
L01 14440	14					
L01 14450	16					
L01 14460	18					
L01 14470	20					
L01 14501	6	32	39	60,5	3	0,3
L01 14511	8					
L01 14521	10					
L01 14531	12					
L01 14540	14					
L01 14551	16					
L01 14561	18					
L01 14571	20					
L01 14581	25					

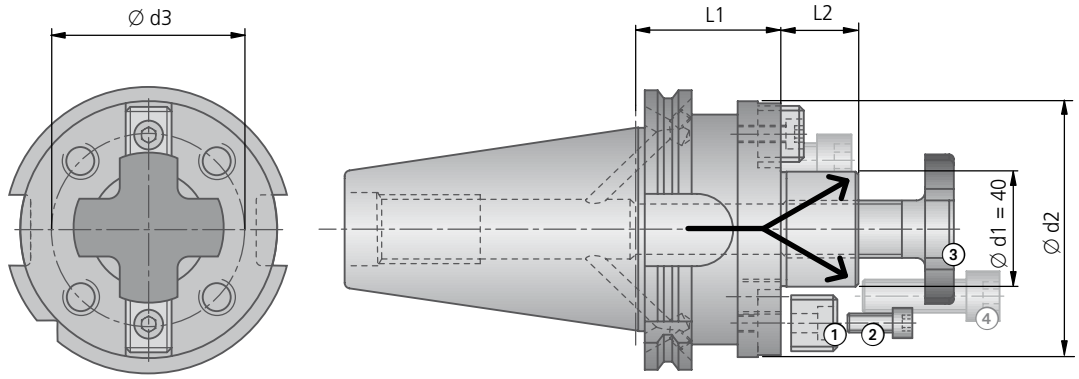
KOMET® DIN 69871 AD/B

Taper shank with milling cutter arbor FA

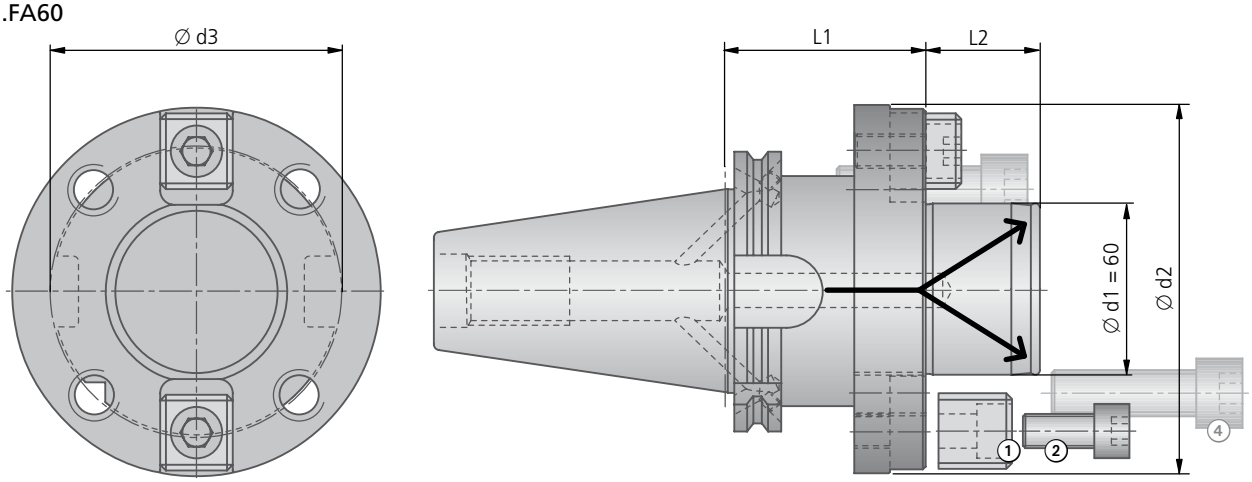




...FA40



...FA60



Taper shank in form B complete with conversion kit (for form AD). Please order pull stud separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole.
To close off central coolant hole, use pull stud without through hole.

DIN 69871 AD/B FA											
Order No. Article	SK	Ø d1	Ø d2	Bolt circle Ø d3	L1	L2	kg	Key block ① Order No. Article	Cylindrical screw ② DIN 912 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article	Screws ④ for cutter heads with internal bore location Order No. Article
A51 14100 SK40-FA16-35	40	16	38	–	35	17	1,0	**N12 20340** 8×8×14	**55011 03008** M3×8	**55011 08020** M8×20	–
A51 14110 SK40-FA22-35	40	22	48	–	35	19	1,0	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 14120 SK40-FA27-40	40	27	58	–	40	21	1,1	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 14130 SK40-FA32-50	40	32	78	–	50	24	1,3	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 14140 SK40-FA40-50*	40	40	88	66,7	50	27	1,6	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 14210 SK50-FA22-44	50	22	48	–	44	19	3,0	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 14220 SK50-FA27-44	50	27	58	–	44	21	3,2	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 14230 SK50-FA32-40	50	32	78	–	40	24	4,0	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 14240 SK50-FA40-50*	50	40	88	66,7	50	27	4,2	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 14250 SK50-FA60-70*	50	60	129	101,6	70	40	4,8	**N12 20390** 25,4×25×31	**55011 12025** M12×25	–	**55011 16050** M16×50

DIN 69871 AD/B FA..-160											
Order No. Article	SK	Ø d1	Ø d2	Bolt circle Ø d3	L1	L2	kg	Key block ① Order No. Article	Cylindrical screw ② DIN 912 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article	Screws ④ for cutter heads with internal bore location Order No. Article
A51 14300 SK40-FA16-160	40	16	38	–	160	17	2,1	**N12 20340** 8×8×14	**55011 03008** M3×8	**55062 00008** M8×20	–
A51 14310 SK40-FA22-160	40	22	48	–	160	19	2,7	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 14320 SK40-FA27-160	40	27	58	–	160	21	3,7	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 14330 SK40-FA32-160	40	32	78	–	160	24	5,8	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 14340 SK40-FA40-160*	40	40	88	66,7	160	27	6,6	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 14410 SK50-FA22-160	50	22	48	–	160	19	4,2	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 14420 SK50-FA27-160	50	27	58	–	160	21	5,3	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 14430 SK50-FA32-160	50	32	78	–	160	24	7,2	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 14440 SK50-FA40-160*	50	40	88	66,7	160	27	8,8	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 14450 SK50-FA60-160*	50	60	129	101,6	160	40		**N12 20390** 25,4×25×31	**55011 12025** M12×25	–	**55011 16050** M16×50

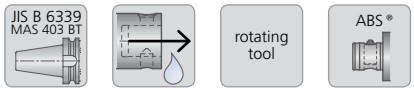
*** FA40 and 60 with 4 additional screw-in threads for cutter heads with tool clamping to DIN 2079.**

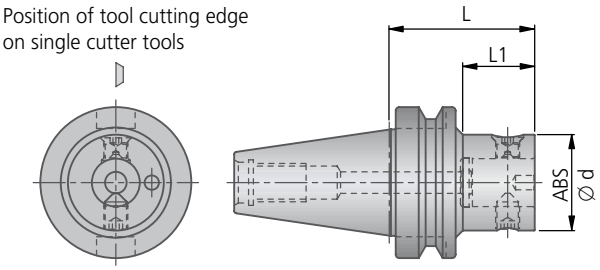
Supply includes ...FA..: Milling cutter arbor with cutter clamping screw ③, key block ① and cylindrical screw ②.
Supply includes ...FA40: Milling cutter arbor with cutter clamping screw ③, key block ① and cylindrical screw ②.
Supply includes ...FA60: Milling cutter arbor with key block ① and cylindrical screw ②.
Please order screws ④ for mounting the cutter heads separately.

DIN 6368 Key on request (chapter 8).

KOMET® JIS B 6339 (MAS 403 BT)

Taper shank with ABS® connection





JIS B 6339 AD ABS®						
BT	Article	Order No.	ABS Ø d	L	L1	kg
40	ABS 25 ISO401500	**A55 00120**	25	60	25	1,09
40	ABS 32 ISO401500	**A55 00130**	32	60	33	1,13
40	ABS 40 ISO401500	**A55 00140**	40	60	33	1,21
40	ABS 50 ISO401500	**A55 00150**	50	60	33	1,29
40	ABS 63 ISO401500	**A55 00160**	63	70	43	1,68
50	ABS 32 ISO501500	**A55 00330**	32	70	24	3,76
50	ABS 40 ISO501500	**A55 00340**	40	70	24	3,86
50	ABS 50 ISO501500	**A55 00350**	50	70	24	4,07
50	ABS 63 ISO501500	**A55 00360**	63	80	37	4,33
50	ABS 80 ISO501500	**A55 00370**	80	100	62	5,42
50	ABS100 ISO501500	**A55 00380**	100	110	72	6,85

Supply includes:
Taper shank complete.
Pull studs not included (chapter 8).

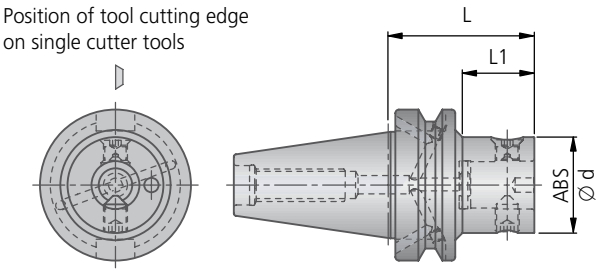
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

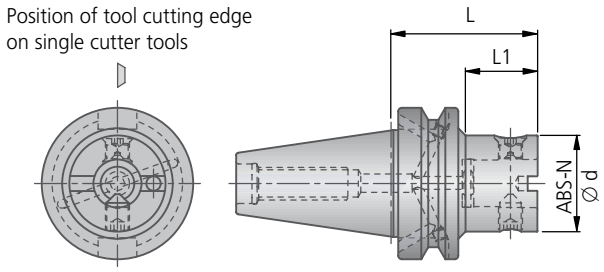
Patent applied for inside and outside Germany

KOMET® JIS B 6339 (MAS 403 BT)

Taper shank with ABS® / ABS® N connection







JIS B 6339 AD/B ABS®							
BT	Article	Order No.	ABS Ø d	L	L1	kg	Conversion kit Order No.
40	ABS50 JIS B6339 BT40 AD/B	**A55 55150**	50	60	33	1,3	**L02 30920**
40	ABS63 JIS B6339 BT40 AD/B	**A55 55160**	63	70	–	1,7	**L02 30920**
50	ABS50 JIS B6339 BT50 AD/B	**A55 55350**	50	70	24	4,0	**L02 30940**
50	ABS63 JIS B6339 BT50 AD/B	**A55 55360**	63	80	37	4,3	**L02 30940**
50	ABS80 JIS B6339 BT50 AD/B	**A55 55370**	80	100	60	5,4	**L02 30940**
50	ABS100 JIS B6339 BT50 AD/B	**A55 55380**	100	110	–	6,8	**L02 30940**

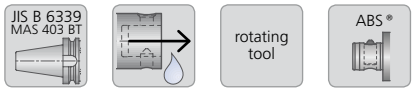
JIS B 6339 AD/B ABS® N							
BT	Article	Order No.	ABS-N Ø d	L	L1	kg	Conversion kit Order No.
50	ABS50N JIS B6339 BT50 AD/B	**A55 50350**	50	70	24	4,0	**L02 30940**
50	ABS63N JIS B6339 BT50 AD/B	**A55 50360**	63	80	37	4,3	**L02 30940**
50	ABS80N JIS B6339 BT50 AD/B	**A55 50370**	80	100	60	5,4	**L02 30940**

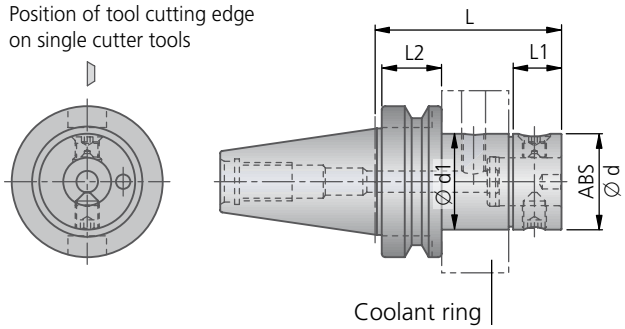
Supply includes:
Taper shank in form B complete with seal, conversion kit (for form AD).
Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® JIS B 6339 (MAS 403 BT)

Taper shank with ABS® connection for coolant ring



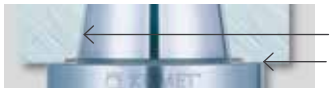


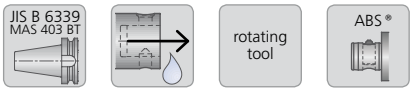
JIS B 6339 AD ABS®								
BT	Article	Order No.	ABS Ø d	Ø d1	L	L1	L2	kg
40	ABS50 ISO401510KR	**A55 10650**	50	50	105	33	40	3,84
50	ABS50 ISO501510KR	**A55 10850**	50	50	105	24	35	5,05
50	ABS63 ISO501510KR	**A55 10860**	63	70	115	29	35	5,60
50	ABS80 ISO501510KR	**A55 10870**	80	80	120	38	35	6,67

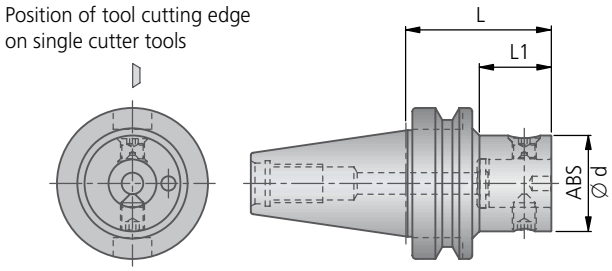
Supply includes:
Taper shank complete.
Coolant ring and pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

Patent applied for inside and outside Germany



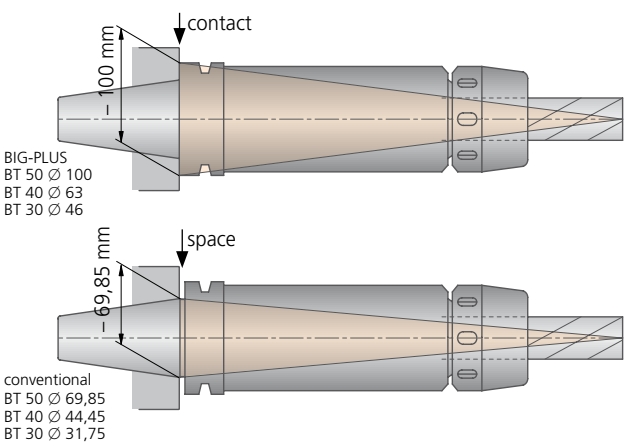




JIS B 6339 AD ABS®						
BT	Article	Order No.	ABS Ø d	L	L1	kg
40	ISO40 JIS B6339-BIG PLUS-ABS25	A55 57121	25	60	25	1,09
40	ISO40 JIS B6339-BIG PLUS-ABS32	A55 57131	32	60	33	1,13
40	ISO40 JIS B6339-BIG PLUS-ABS40	A55 57141	40	60	33	1,21
40	ISO40 JIS B6339-BIG PLUS-ABS50	A55 57151	50	60	33	1,29
40	ISO40 JIS B6339-BIG PLUS-ABS63	A55 57161	63	70	43	1,68
50	ISO50 JIS B6339-BIG PLUS-ABS32	A55 57331	32	70	24	3,76
50	ISO50 JIS B6339-BIG PLUS-ABS40	A55 57341	40	70	24	3,86
50	ISO50 JIS B6339-BIG PLUS-ABS50	A55 57351	50	70	24	4,07
50	ISO50 JIS B6339-BIG PLUS-ABS63	A55 57361	63	80	37	4,33
50	ISO50 JIS B6339-BIG PLUS-ABS80	A55 57371	80	100	62	5,42
50	ISO50 JIS B6339-BIG PLUS-ABS100	A55 57381	100	110	72	6,85

Supply includes:
Taper shank complete. Pull studs not included (chapter 8).

Increased contact diameter (example of BT 50)



BIG-PLUS® Spindle System

- The BIG-PLUS® Spindle System offers simultaneous dual contact between the machine spindle face and toolholder flange face, as well as the machine spindle taper and long toolholder taper shank. This system is based on the most currently available standards for JIS-BT, DIN 69871 and CAT-V flange tooling.
- By having all tolerances strictly controlled by high tolerance gauges and measuring equipment, simultaneous dual contact of the face and taper is thus assured.
- In this way, the BIG-PLUS® Spindle System skillfully utilizes the elastic deformation of the machine spindle to control the gauge line accuracy, which thus insures that dual contact of the face and taper is achieved.
- Existing accessories such as presetters, tooling fixtures and tooling storage systems can be used.
- The results in greatly extending the life of both the machine spindle and the toolholder.
- As a result of the dual contact which precisely positions the toolholder within 1 micron.

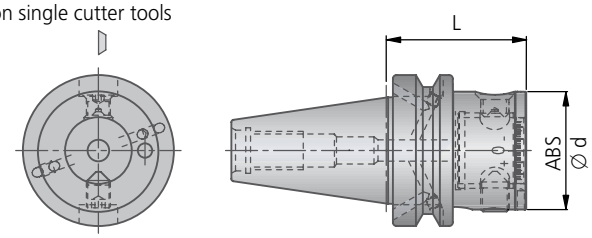
KOMET® JIS B 6339 (MAS 403 BT)

Eccentric adjusting device with ABS® connection



adjustment path ± 0.25 mm in the diameter

Position of tool cutting edge on single cutter tools



JIS B 6339 AD/B ABS® EXZ						
BT	Article	Order No.	ABS Ø d	L	kg	Conversion kit Order No.
40	ABS50 JIS B 6339 AD/B 40 EXZ.	**A55 56150**	50	60	1,28	**L02 30920**
50	ABS50 JIS B 6339 AD/B 50 EXZ.	**A55 56350**	50	70	3,94	**L02 30940**

JIS B 6339 AD ABS® EXZ					
BT	Article	Order No.	ABS Ø d	L	kg
40	ABS63 JIS B 6339 AD 40 EXZ.	**A55 56160**	63	70	1,67
50	ABS63 JIS B 6339 AD 50 EXZ.	**A55 56360**	63	80	4,30

Supply includes:
Taper shank ABS50 in form B complete with seal, conversion kit (for form AD).
Taper shank ABS63 in form AD.
Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

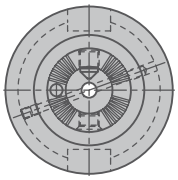
Patent applied for inside and outside Germany

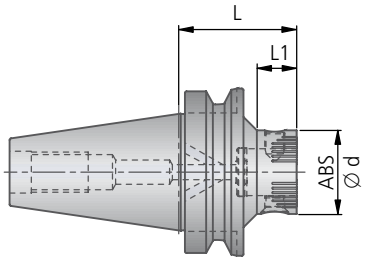
KOMET® JIS B 6339 (MAS 403 BT)

Torsional dampener with ABS® connection



Position of tool cutting edge on single cutter tools





JIS B 6339 AD/B ABS® TSD							
BT	Article	Order No.	ABS Ø d	L	L1	kg	Conversion kit Order No.
40	ISO40-ABS50-TSD	**A55 02150**	50	60	33	1,2	**L02 30920**
40	ISO40-ABS63-TSD	**A55 02160**	63	70	–	1,6	**L02 30920**
50	ISO50-ABS50-TSD	**A55 02350**	50	70	24	3,9	**L02 30940**
50	ISO50-ABS63-TSD	**A55 02360**	63	80	37	4,2	**L02 30940**

Supply includes:
Taper shank in form B complete with seal, conversion kit (for form AD). Pull studs not included (chapter 8).

The torsional dampeners are designed for solid drills in line with the torque which is produced.

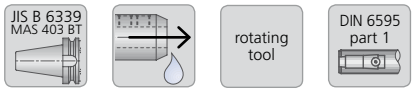
Recommended use: ...-ABS50-TSD for drill ∅ 14 - 44 mm
...-ABS63-TSD for drill ∅ 45 - 54 mm
...-ABS80-TSD for drill ∅ 55 - 81 mm

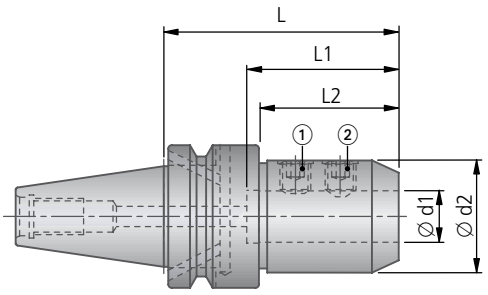
For drill heads V464 with larger diameters we recommend the use of appropriate reducers (available on request).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® JIS B 6339 (MAS 403 BT)

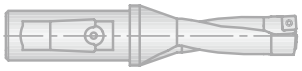
Taper shank for KUB® drill (combination shank)



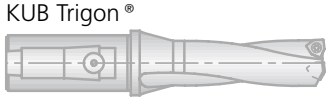


Tools with combination shank p.ex.:

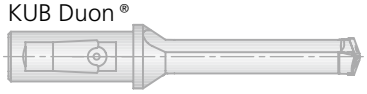
KUB Quatron®



KUB Trigon®



KUB Duon®



JIS B 6339 AD/B									
BT	Order No.	Ø d1	Ø d2	L	L1	L2	kg	Clamping screw ① Order No. Article	Clamping screw ② Order No. Article
40	**A05 16140**	20	40	70	54	43	1,22	**55051 10111** M10×1×10	**N00 60400** M10×1×12
40	**A05 16150**	25	45	75	59	48	1,29	**55051 12112** M12×1×12	**N00 60410** M12×1×12
40	**A05 16160**	32	52	80	64	53	1,40	**55051 12112** M12×1×12	**N00 60410** M12×1×12
50	**A05 16340**	20	40	80	54	42	3,80	**55051 10111** M10×1×10	**N00 60400** M10×1×12
50	**A05 16350**	25	45	85	59	47	3,88	**55051 12112** M12×1×12	**N00 60410** M12×1×12
50	**A05 16360**	32	52	90	64	52	3,98	**55051 12112** M12×1×12	**N00 60410** M12×1×12
50	**A05 16370**	40	65	100	73	62	4,38	**55051 16112** M16×1×12	**N00 60430** M16×1×16

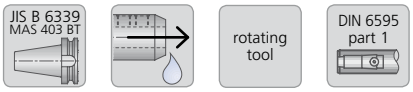
Supply includes:
Taper shank with screws ① and ②.
Pull studs not included (chapter 8).

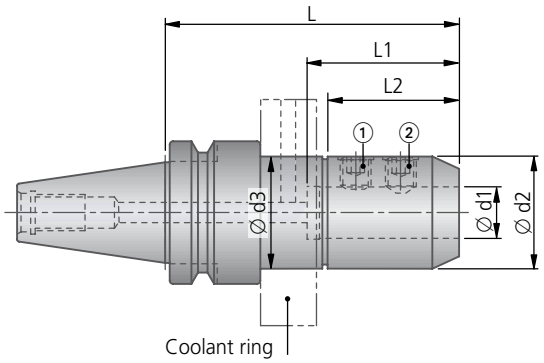
Because the threaded pin is offset against the tapered hole in cylindrical shank DIN 6595 Part 1, the solid drill shank is clamped against the contact surface of the toolholder.

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® JIS B 6339 (MAS 403 BT)

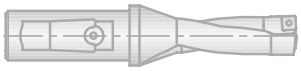
Taper shank for KUB® drill (combination shank) for coolant ring



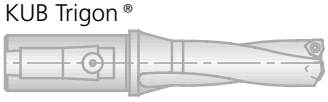


Tools with combination shank p.ex.:

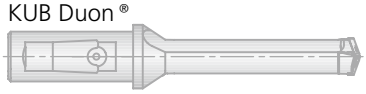
KUB Quatron®



KUB Trigon®



KUB Duon®



JIS B 6339 AD										
BT	Order No.	Ø d1	Ø d2	Coolant ring Ø d3	L	L1	L2	kg	Clamping screw ① Order No. Article	Clamping screw ② Order No. Article
40	**A05 06140**	20	50	50	115	65	43		**55051 10112** M10×1×12	**N00 60400** M10×1×12
40	**A05 06150**	25	50	50	130	65	58	2,38	**55051 12112** M12×1×12	**L02 30350** M12×1×16
40	**A05 06160**	32	50	50	130	66	58	2,23	**55051 12112** M12×1×12	**L02 30350** M12×1×16
50	**A05 06340**	20	50	50	125	66	44		**55051 10112** M10×1×12	**N00 60400** M10×1×12
50	**A05 06350**	25	50	50	140	66	59	5,60	**55051 12112** M12×1×12	**L02 30350** M12×1×16
50	**A05 06360**	32	50	50	140	66	59	5,68	**55051 12112** M12×1×12	**L02 30350** M12×1×16
50	**A05 06370**	40	70	70	145	73	63,5	6,42	**55051 16112** M16×1×12	**N00 60430** M16×1×16

Supply includes:
Taper shank with screws ① and ②.
Coolant ring and pull studs not included (chapter 8).

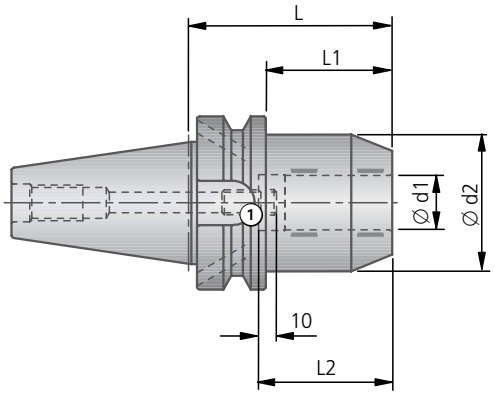
Because the threaded pin is offset against the tapered hole in cylindrical shank DIN 6595 Part 1, the solid drill shank is clamped against the contact surface of the toolholder.

KOMET® JIS B 6339 (MAS 403 BT)

Expanding chuck



Expanding chuck KS
Torque ∅ 32 mm: **2000 Nm**



Adaptor sleeve
▸ 423

JIS B 6339 AD/B Expanding chuck KS

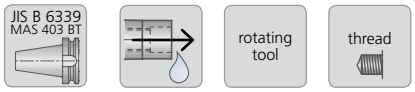
Article	Order No.	BT	Ø d1	Ø d2	L	L1	L2	kg	Adjusting screw ① Article	Adjusting screw ① Order No.
MAS BT40-D12-KS	**A05 97730**	40	12	42	58	31	46		M8×1×12	**N00 71730**
MAS BT40-D16-KS	**A05 97750**	40	16	49,25	72,5	45,5	51		M8×1×12	**N00 71730**
MAS BT40-D20-KS	**A05 97770**	40	20	49,25	72,5	45,5	51		M8×1×12	**N00 71730**
MAS BT50-D20-KS	**A05 97870**	50	20	49,25	83,5	45,5	51		M8×1×12	**N00 71730**
MAS BT50-D32-KS	**A05 97890**	40	32	72	90	52	61		M8×1×12	**N00 71730**

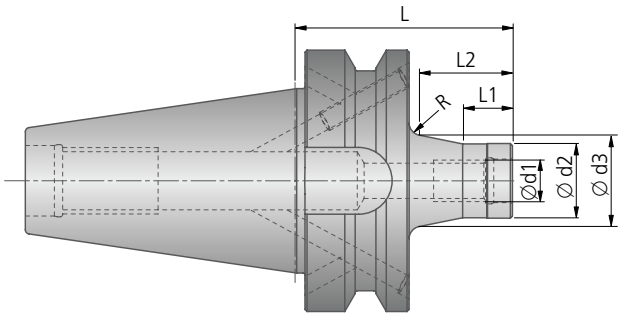
Tool shank tolerance: h6 for Ø 6 - 32 mm

Supply includes: Expanding chuck fitted complete.
Taper shank in form B complete with conversion kit (for form AD). Please order pull stud separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

Taper shank for screw-on tools





JIS B 6339 AD/B										
Article	Order No.	BT	Ø d1	Ø d2	Ø d3	L	L1	L2	R	kg
JIS B6339-40M10/52	**A51 15500**	40	M10	18	22,0	52	12	22,5	3	
JIS B6339-40M10/77	**A51 15510**	40	M10	18	24,5	77	12	47,2	3	
JIS B6339-40M10/102	**A51 15520**	40	M10	18	24,7	102	12	72,1	3	
JIS B6339-40M12/52	**A51 15530**	40	M12	21	23,3	52	12	22,3	3	
JIS B6339-40M12/77	**A51 15540**	40	M12	21	35	77	12	49,9	–	
JIS B6339-40M12/102	**A51 15550**	40	M12	21	37,4	102	12	72,6	3	
JIS B6339-40M12/127	**A51 15560**	40	M12	21	38,0	127	12	99,9	–	
JIS B6339-40M16/52	**A51 15570**	40	M16	29	–	52	12	21,9	3	
JIS B6339-40M16/77	**A51 15580**	40	M16	29	33,6	77	12	47,1	3	
JIS B6339-40M16/102	**A51 15590**	40	M16	29	34,7	102	12	72,0	3	
JIS B6339-40M16/127	**A51 15600**	40	M16	29	39,6	127	12	97,1	3	
JIS B6339-40M16/152	**A51 15610**	40	M16	29	39,7	152	12	122,4	3	
JIS B6339-40M16/177	**A51 15620**	40	M16	29	42,5	177	12	149,9	–	
JIS B6339-50M12/88	**A51 15700**	50	M12	21	27,6	88	12	47,1	3	
JIS B6339-50M12/138	**A51 15710**	50	M12	21	37,4	138	12	97,1	3	
JIS B6339-50M12/188	**A51 15720**	50	M12	21	47,2	188	12	147,1	3	
JIS B6339-50M16/88	**A51 15730**	50	M16	29	32,3	88	12	46,9	3	
JIS B6339-50M16/113	**A51 15740**	50	M16	29	34,7	113	12	71,9	3	
JIS B6339-50M16/138	**A51 15750**	50	M16	29	37,2	138	12	96,9	3	
JIS B6339-50M16/188	**A51 15760**	50	M16	29	42,2	188	12	146,9	3	

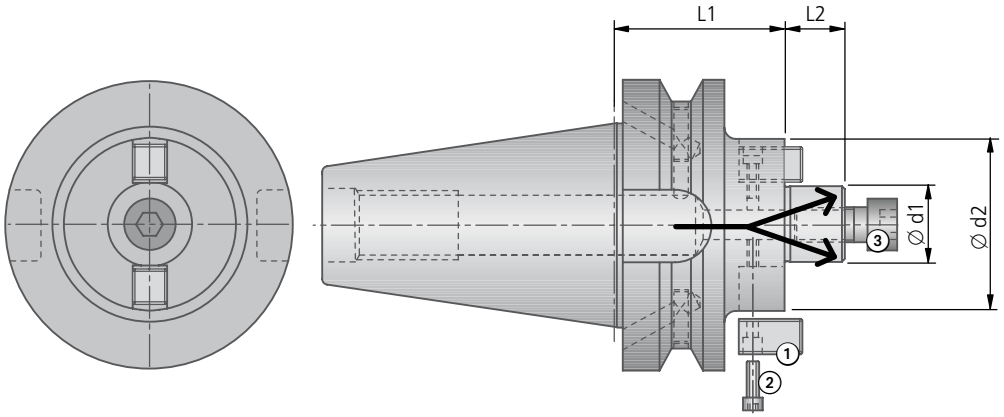
Taper shank in form B complete with conversion kit (for form AD). Please order pull stud separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

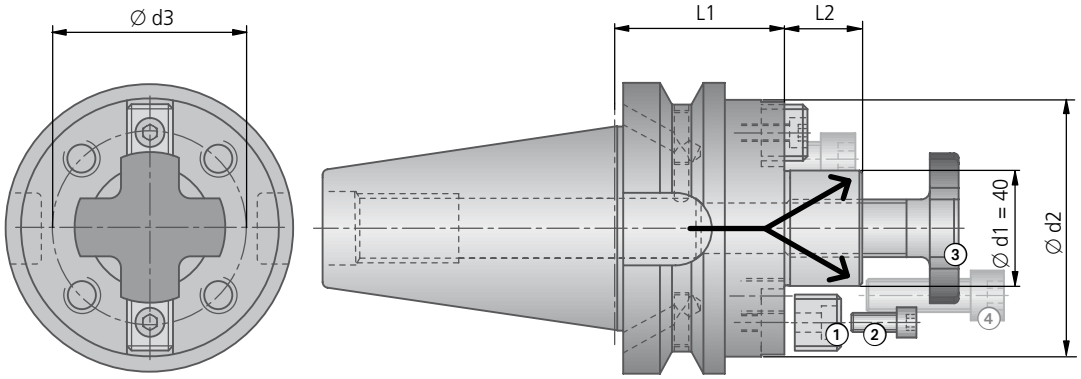
KOMET® JIS B 6339 (MAS 403 BT)

Taper shank with milling cutter arbor FA

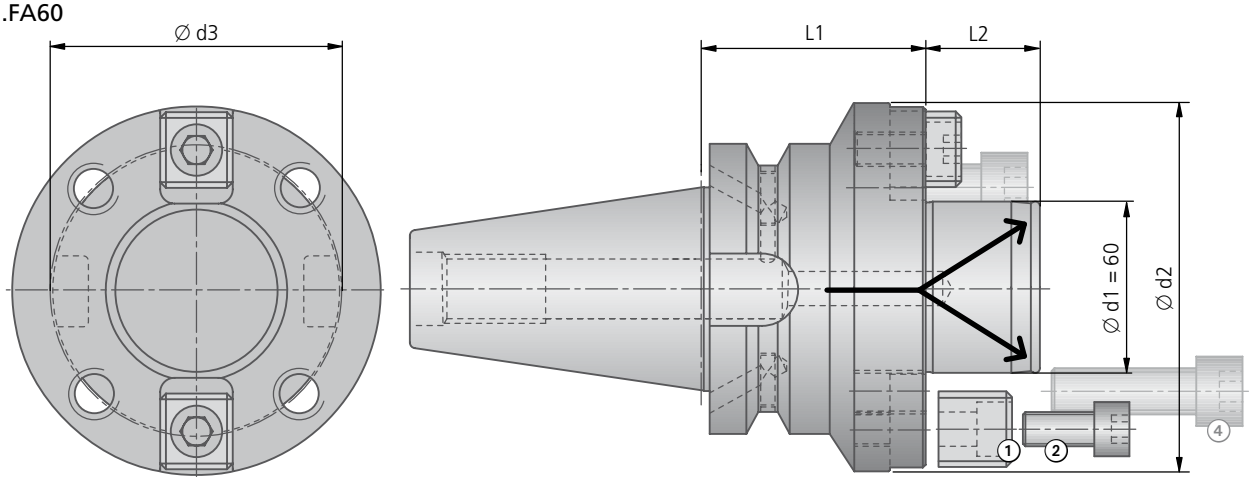




...FA40



...FA60



Taper shank in form B complete with conversion kit (for form AD). Please order pull stud separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole.
To close off central coolant hole, use pull stud without through hole.

JIS B 6339 AD/B FA											Screws ④ for cutter heads with internal bore location
Order No. Article	BT	Ø d1	Ø d2	Bolt circle Ø d3	L1	L2	kg	Key block ① Order No. Article	Cylindrical screw ② DIN 912 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article	Order No. Article
A51 15000 BT30-FA16-40	30	16	38	–	40	17	0,7	**N12 20340** 8×8×14	**55011 03008** M3×8	**55011 08020** M8×20	–
A51 15010 BT30-FA22-40	30	22	48	–	40	19	0,9	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 15020 BT30-FA27-40	30	27	58	–	40	21	1,0	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 15030 BT30-FA32-50	30	32	78	–	50	24	1,8	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 15100 BT40-FA16-40	40	16	38	–	40	17	1,1	**N12 20340** 8×8×14	**55011 03008** M3×8	**55011 08020** M8×20	–
A51 15110 BT40-FA22-40	40	22	48	–	40	19	1,1	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 15120 BT40-FA27-40	40	27	58	–	40	21	1,2	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 15130 BT40-FA32-50	40	32	78	–	50	24	1,4	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 15140 BT40-FA40-50*	40	40	88	66,7	50	27	1,7	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 15210 BT50-FA22-63	50	22	48	–	63	19	3,5	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 15220 BT50-FA27-63	50	27	58	–	63	21	3,7	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 15230 BT50-FA32-60	50	32	78	–	60	24	3,6	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 15240 BT50-FA40-60*	50	40	88	66,7	60	27	3,7	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 15250 BT50-FA60-80*	50	60	129	101,6	80	40	8,5	**N12 20390** 25,4×25×31	**55011 12025** M12×25	–	**55011 16050** M16×50

JIS B 6339 AD/B FA..-160											Screws ④ for cutter heads with internal bore location
Order No. Article	BT	Ø d1	Ø d2	Bolt circle Ø d3	L1	L2	kg	Key block ① Order No. Article	Cylindrical screw ② DIN 912 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article	Order No. Article
A51 15300 BT40-FA16-160	40	16	38	–	160	17	2,2	**N12 20340** 8×8×14	**55011 03008** M3×8	**55011 08020** M8×20	–
A51 15310 BT40-FA22-160	40	22	48	–	160	19	3,0	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 15320 BT40-FA27-160	40	27	58	–	160	21	3,8	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 15330 BT40-FA32-160	40	32	78	–	160	24	4,6	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 15340 BT40-FA40-160*	40	40	88	66,7	160	27	6,9	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 15410 BT50-FA22-160	50	22	48	–	160	19	4,3	**N12 20350** 10×10×17	**55011 04008** M4×8	**55011 10030** M10×30	–
A51 15420 BT50-FA27-160	50	27	58	–	160	21	6,0	**N12 20360** 12×14×20	**55011 04012** M4×12	**55011 12035** M12×35	–
A51 15430 BT50-FA32-160	50	32	78	–	160	24	8,0	**N12 20370** 14×14×22	**55011 05012** M5×12	**55011 16040** M16×40	–
A51 15440 BT50-FA40-160*	50	40	88	66,7	160	27	9,0	**N12 20380** 15,9×16×21	**55011 06016** M6×16	**55062 00020** M20 DIN6367	**55011 12040** M12×40
A51 15450 BT50-FA60-160*	50	60	129	101,6	160	40		**N12 20390** 25,4×25×31	**55011 12025** M12×25	–	**55011 16050** M16×50

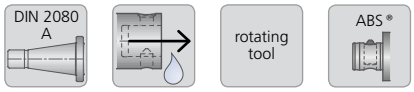
*** FA40 and 60 with 4 additional screw-in threads for cutter heads with tool clamping to DIN 2079.**

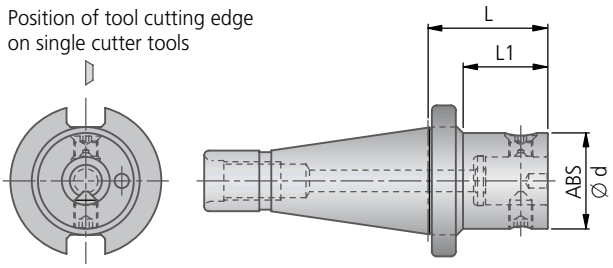
Supply includes ...FA..: Milling cutter arbor with cutter clamping screw ③, key block ① and cylindrical screw ②.
Supply includes ...FA40: Milling cutter arbor with cutter clamping screw ③, key block ① and cylindrical screw ②.
Supply includes ...FA60: Milling cutter arbor with key block ① and cylindrical screw ②.
Please order screws ④ for mounting the cutter heads separately.

DIN 6368 Key on request (chapter 8).

KOMET® DIN 2080 A

Taper shank with ABS® connection





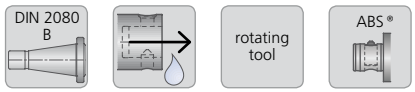
DIN 2080 A ABS®						
ISO	Article	Order No.	ABS Ø d	L	L1	kg
40	ABS 40 ISO400000	**A54 00140**	40	50	38	1,04
40	ABS 50 ISO400000	**A54 00150**	50	50	38	1,15
40	ABS 63 ISO400000	**A54 00160**	63	70	58	1,81
50	ABS 32 ISO500000	**A54 00330**	32	60	44	2,92
50	ABS 40 ISO500000	**A54 00340**	40	60	44	3,03
50	ABS 50 ISO500000	**A54 00350**	50	60	44	3,19
50	ABS 63 ISO500000	**A54 00360**	63	60	44	3,46
50	ABS 80 ISO500000	**A54 00370**	80	80	68	4,64
50	ABS100 ISO500000	**A54 00380**	100	100	84	6,58

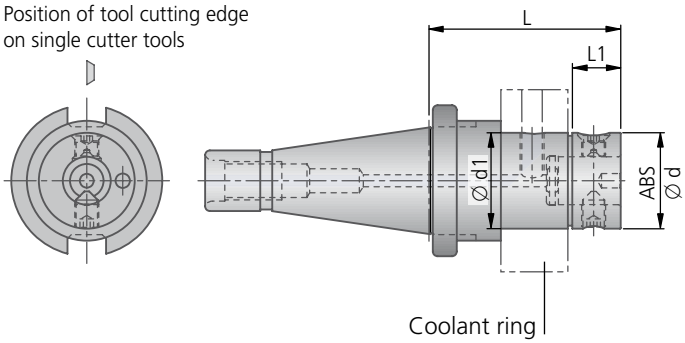
Supply includes:
Taper shank complete.

Patent applied for inside and outside Germany

KOMET® DIN 2080 B

Taper shank with ABS® connection for coolant ring





DIN 2080 B ABS®							
ISO	Article	Order No.	ABS Ø d	Ø d1	L	L1	kg
50	ABS 50 ISO500010KR	**A54 10850**	50	50	95	25	3,85
50	ABS 63 ISO500010KR	**A54 10860**	63	70	105	35	5,01
50	ABS 80 ISO500010KR	**A54 10870**	80	80	110	40	5,75
50	ABS100 ISO500010KR	**A54 10880**	100	100	125	55	7,73

Supply includes:
Taper shank complete.
Coolant ring not included (chapter 8).



In tooling systems, the tool adapter is an important element between the tool and machine. It must be able to transfer the machining forces safely. Moreover, tool adapters greatly influence the quality of the machining result. They also contribute to a cost efficient machining process.

KOMET ABS® connections form a modular coupling system for rotating and stationary tools. The interface system is designed according to the modular principle. In this way, users can quickly and cheaply make use of modular metal cutting tools, extensions or adaptors.

Since its launch by KOMET® in 1981, the system has become established globally. It has fully developed components for each requirement.

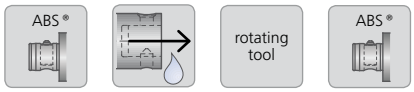
BENEFITS for you:
- Better transmission of power
- Optimum machining result
- Achieves better cutting values
- Less noise during production

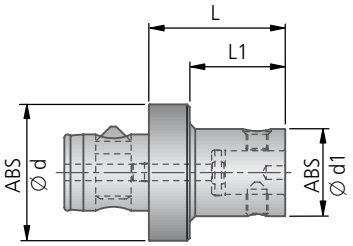
KOMET ABS®

	Page
ABS® adaptor	
Reducer	442 – 443
Extension	444 – 445
Eccentric adjusting device	446
Torsional dampener	447
Lightweight Extension / Reducer	448 – 449
Damping element HMD	450
Adaptor sleeve Whistle Notch	452 – 453
Adaptor sleeve Weldon	454 – 455
Adaptor HTR	456
Adaptor HMK	457
Tapping chuck	458 – 459
Collet holder	460 – 461
Expanding chuck	462
Milling cutter arbor FA | FAM	464 – 465
Combination milling cutter arbor FAK	466
Short drill chuck NCB	467
Spindle adaptor flange	468
Adjustment device MV	469
PSC adaptor	471
Cylindrical adaptor	
Adaptor for screw-on tools	472
TC adaptor	473
Damping element HMD	451
VDI adaptor	
NC..20 with ABS® N connection	474
NC..20 Torsional dampener	475
NC..10 with ABS® N connection	476
Adaptor for turning tools	
with ABS® N connection	477

KOMET ABS®

Reducer with ABS® connection





ABS® R						
Article	Order No.	ABS Ø d	ABS Ø d1	L	L1	kg
ABS 32-R 25	A20 10120	32	25	40	30	0,18
ABS 40-R 32	A20 10230	40	32	40	28	0,30
ABS 40-R 25	A20 10220	40	25	40	28	0,26
ABS 50-R 40	A20 10340	50	40	50	35	0,62
ABS 50-R 32	A20 10330	50	32	50	35	0,53
ABS 50-R 25	A20 10320	50	25	50	35	0,47
ABS 63-R 50	A20 10450	63	50	60	40	1,15
ABS 63-R 40	A20 10440	63	40	60	40	1,05
ABS 63-R 32	A20 10430	63	32	60	40	0,94
ABS 63-R 25	A20 10420	63	25	60	40	0,86
ABS 80-R 63	A20 10560	80	63	60	35	2,01
ABS 80-R 50	A20 10550	80	50	60	35	1,85
ABS 80-R 40	A20 10540	80	40	60	35	1,76
ABS 80-R 32	A20 10530	80	32	60	35	1,67
ABS100-R 80	A20 10670	100	80	80	50	4,11
ABS100-R 63	A20 10660	100	63	80	50	3,70
ABS100-R 50	A20 10650	100	50	80	50	3,35
ABS125-R100	A20 10780	125	100	100	50	8,56
ABS125-R 80	A20 10770	125	80	100	50	8,01

Supply includes:
Reducer mounted complete.

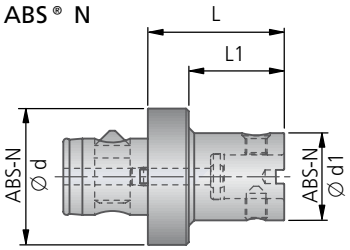
Other lengths available on request

Patent applied for inside and outside Germany

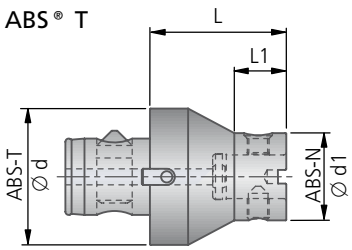
Reducer with ABS® N / ABS® T connection



ABS® N



ABS® T



ABS® N R						
Article	Order No.	ABS-N Ø d	ABS-N Ø d1	L	L1	kg
ABS 50N-R 40	**A20 20340**	50	40	50	35	0,62
ABS 50N-R 32	**A20 20330**	50	32	50	35	0,53
ABS 63N-R 50	**A20 20450**	63	50	60	40	1,15
ABS 80N-R 63	**A20 20560**	80	63	60	35	2,01
ABS 80N-R 50	**A20 20550**	80	50	60	35	1,85
ABS100N-R 80	**A20 20670**	100	80	80	50	4,11
ABS100N-R 50	**A20 20650**	100	50	80	50	3,35

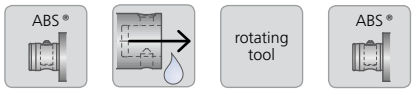
ABS® T R						
Article	Order No.	ABS-T Ø d	ABS-N Ø d1	L	L1	kg
ABS 63T-R50	**A20 21450**	63	50	60	21	
ABS 80T-R63	**A20 21560**	80	63	60	22	

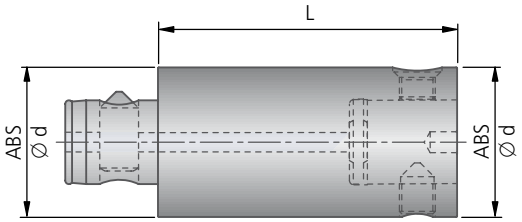
Supply includes:
Reducer mounted complete.

Other lengths available on request

KOMET ABS®

Extension with ABS® connection





ABS® V				
Article	Order No.	ABS Ø d	L	kg
ABS 25-V60	A20 00220	25	60	0,22
ABS 25-V45	A20 00020	25	45	0,16
ABS 32-V70	A20 00230	32	70	0,42
ABS 32-V50	A20 00030	32	50	0,29
ABS 32-V35	A20 00530	32	35	0,20
ABS 40-V90	A20 00240	40	90	0,84
ABS 40-V60	A20 00040	40	60	0,52
ABS 40-V40	A20 00540	40	40	0,36
ABS 50-V150	A20 00150	50	150	2,22
ABS 50-V100	A20 00250	50	100	1,46
ABS 50-V65	A20 00050	50	65	0,94
ABS 50-V50	A20 00550	50	50	0,71
ABS 63-V190	A20 00160	63	190	4,47
ABS 63-V125	A20 00260	63	125	2,94
ABS 63-V85	A20 00060	63	85	1,97
ABS 63-V60	A20 00560	63	60	1,37
ABS 80-V240	A20 00170	80	240	9,18
ABS 80-V125	A20 00270	80	125	4,71
ABS 80-V85	A20 00070	80	85	3,15
ABS 80-V70	A20 00570	80	70	2,58
ABS100-V160	A20 00280	100	160	9,47
ABS100-V125	A20 00080	100	125	7,36
ABS100-V85	A20 00580	100	85	4,95
ABS125-V200	A20 00290	125	200	18,96
ABS125-V160	A20 00090	125	160	15,13

Supply includes:
Extension mounted complete.

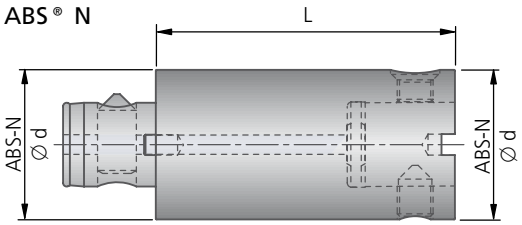
Patent applied for inside and outside Germany

KOMET ABS® N | ABS® T

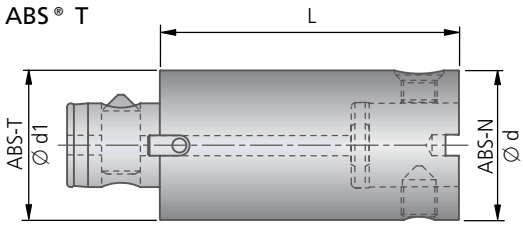
Extension with ABS® N / ABS® T connection



ABS® N



ABS® T



ABS® N V				
Article	Order No.	ABS-N Ø d	L	kg
ABS 40N-V90	**A20 05640**	40	90	0,84
ABS 40N-V40	**A20 05840**	40	40	0,36
ABS100N-V160	**A20 05680**	100	160	9,47
ABS100N-V125	**A20 05480**	100	125	7,36
ABS100N-V85	**A20 05880**	100	85	4,95

Supply includes:
Extension mounted complete.

ABS® T V					
Article	Order No.	ABS-T Ø d1	ABS-N Ø d	L	kg
ABS 50T-V150	**A20 05751**	50	50	150	2,22
ABS 50T-V100	**A20 05652**	50	50	100	1,46
ABS 50T-V65	**A20 05451**	50	50	65	0,94
ABS 50T-V50	**A20 05851**	50	50	50	0,71
ABS 63T-V190	**A20 05760**	63	63	190	4,47
ABS 63T-V125	**A20 05661**	63	63	125	2,94
ABS 63T-V85	**A20 05461**	63	63	85	1,97
ABS 63T-V60	**A20 05861**	63	63	60	1,37
ABS 80T-V240	**A20 05770**	80	80	240	9,18
ABS 80T-V125	**A20 05671**	80	80	125	4,71
ABS 80T-V85	**A20 05471**	80	80	85	3,15
ABS 80T-V70	**A20 05871**	80	80	70	2,58

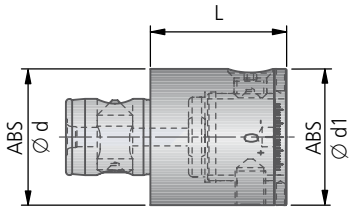
Note:
For optimum torque drive we recommend the use of ABS® T extensions.

KOMET ABS®

Eccentric adjusting device with ABS® connection



■ adjustment path ± 0.25 mm in the diameter



ABS® EXZ					
Article	Order No.	ABS Ø d	ABS Ø d1	L	kg
ABS50-V50 EXZ.	A20 00620	50	50	50	0,71
ABS63-V60 EXZ.	A20 00630	63	63	60	1,33

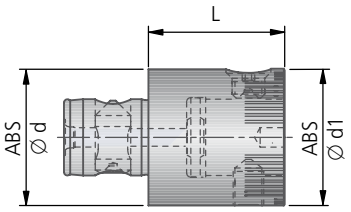
Supply includes:
Eccentric adjusting device with adjusting key ∅2,8.

Patent applied for inside and outside Germany

KOMET ABS® TSD

Torsional dampener with ABS® connection





ABS® TSD					
Article	Order No.	ABS Ø d	ABS Ø d1	L	kg
ABS50-V50-TSD	A20 00651	50	50	50	0,69
ABS63-V60-TSD	A20 00661	63	63	60	1,32
ABS80-V70-TSD	A20 00670	80	80	70	2,5

Supply includes:
Torsional dampener with sealing disc (chapter 8)

The torsional dampeners are designed for solid drills in line with the torque which is produced.
Recommended use:

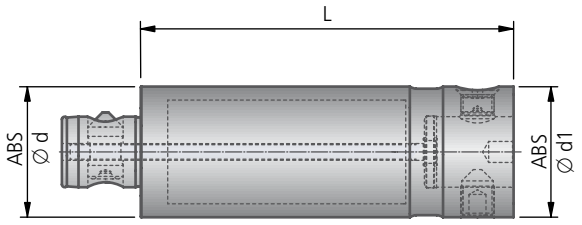
...-ABS50-TSD for drill ∅ 14 - 44 mm
...-ABS63-TSD for drill ∅ 45 - 54 mm
...-ABS80-TSD for drill ∅ 55 - 81 mm

For drill heads V464 with larger diameters we recommend the use of appropriate reducers (available on request).

KOMET ABS® V LB

Lightweight extension with ABS® connection





ABS® V LB					
Article	Order No.	ABS Ø d	ABS Ø d1	L	kg
ABS63-V125-LB	**A20 01060**	63	63	125	1,90
ABS63-V190-LB	**A20 01160**	63	63	190	2,60
ABS80-V170-LB	**A20 01070**	80	80	170	4,00
ABS80-V240-LB	**A20 01170**	80	80	240	5,30
ABS100-V200-LB	**A20 01080**	100	100	200	7,30
ABS100-V300-LB	**A20 01180**	100	100	300	9,70

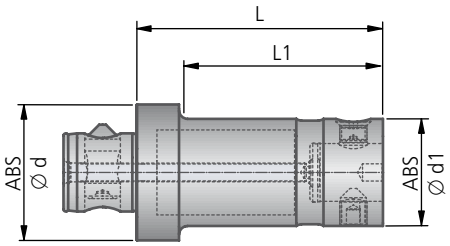
Supply includes:
Extension mounted complete.

Patent applied for inside and outside Germany

KOMET ABS® R LB

Lightweight reducer with ABS® connection



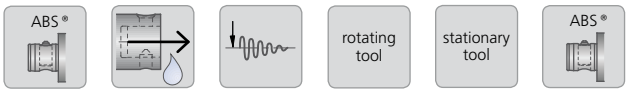


ABS® R LB						
Article	Order No.	ABS Ø d	ABS Ø d1	L	L1	kg
ABS80-R63-LB	**A20 11560**	80	63	145	120	2,80
ABS100-R80-LB	**A20 11670**	100	80	160	130	5,00

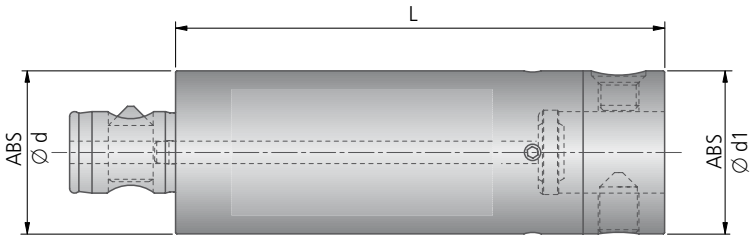
Supply includes:
Reducer mounted complete.

KOMET ABS® V HMD

Damping element with ABS® connection



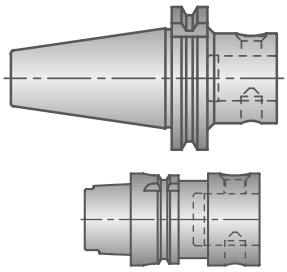
■ reduction in undesirable vibration in the tool



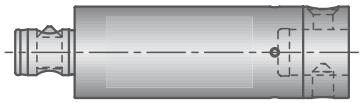
ABS® V HMD					
Article	Order No.	ABS Ø d	ABS Ø d1	L	kg
ABS 40-V120-HMD	A20 01240	40	40	120	1,5
ABS 50-V150-HMD	A20 01250	50	50	150	2,8
ABS 63-V190-HMD	A20 01260	63	63	190	5,8
ABS 80-V240-HMD	A20 01270	80	80	240	11,6

Supply includes:
Extension mounted complete.

Please note:
HMD extension not suitable for continuous drilling.

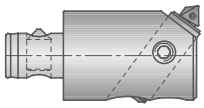


ABS40
ABS50
ABS63
ABS80



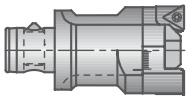
Adjustable Head

ABS40
ABS50
ABS63
ABS80



TwinKom® G01

ABS40
ABS50
ABS63
ABS80



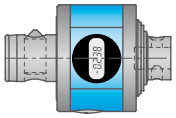
MicroKom® M03Speed

ABS40
ABS50
ABS63



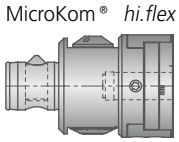
MicroKom® M04

ABS50



MicroKom® *hi.flex*

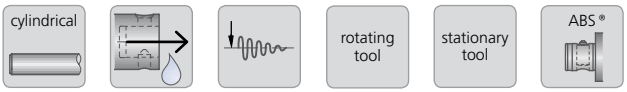
ABS50



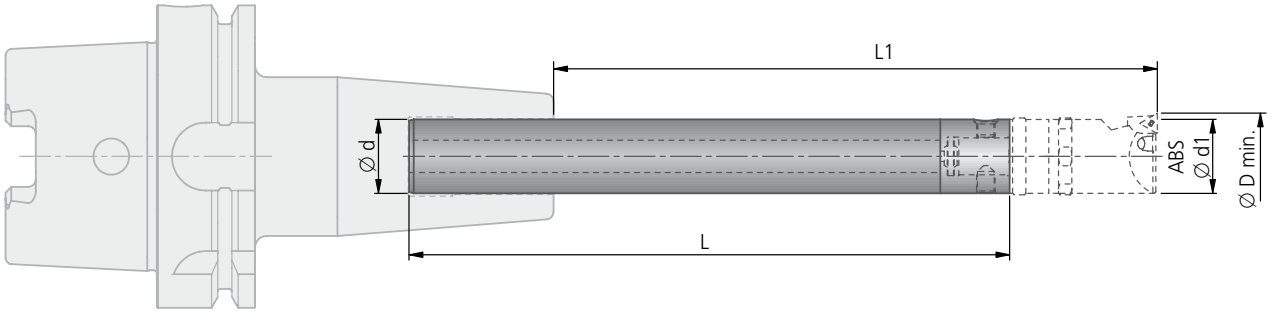
Patent applied for inside and outside Germany

KOMET ABS® V HMD

Damping element with ABS® connection



reduction in undesirable vibration in the tool ■
suitable for shrink fits ■



ABS® V HMD							
Article	Order No.	Cylindrical shank Ø d	ABS Ø d1	Ø $D_{min.}$	L	L1	kg
ABS 25-V150-HMD	**A20 01220**[*1]	25	25	26	160	150 *	0,84
ABS 25-V175-HMD	**A20 01320**[*2]	25	25	26	185	175 *	0,98
ABS 25-V200-HMD	**A20 01420**[*3]	25	25	26	210	200 *	1,13
ABS 32-V200-HMD	**A20 01230**[*1]	32	32	38	200	200 *	1,74
ABS 32-V230-HMD	**A20 01330**[*2]	32	32	38	230	230 *	2,03
ABS 32-V260-HMD	**A20 01430**[*3]	32	32	38	260	260 *	2,31

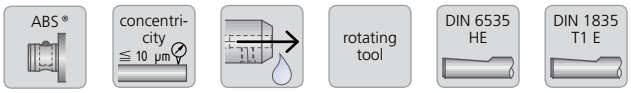
Supply includes:
Extension mounted complete.

* dimension inclusive of M03..... or B30.... Boring heads
*1 suitable for steel, cast and non ferrous metals
*2 suitable for cast and non ferrous metals
*3 only for non ferrous metals

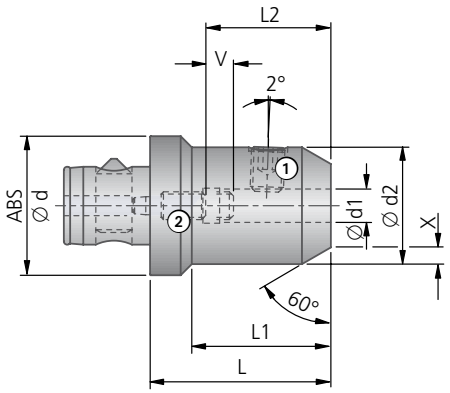
Please note:
HMD extension not suitable for continuous drilling.

KOMET ABS® FWD

Adaptor sleeve Whistle Notch



■ the 2° tilt of the clamping screws prevents the tool from pulling out



Tool restriction X for:
Ø 6 = 5 mm Ø 12 = 6 mm
Ø 8 = 4 mm Ø 16 = 6 mm
Ø 10 = 5 mm Ø 20 = 6 mm

ABS® FWD										Clamping screw ①		Adjusting screw ②
Article	Order No.	ABS Ø d	Ø d1	Ø d2	L	L1	L2	V	kg	Order No.	Qty.	Order No.
ABS25 FWD6	A30 10601	25	6	25	55	–	36	10	0,21	51050 06010	1	N00 71000
ABS25 FWD...*	A30 10 ..1	25	6,1–6,4	25	55	–	36	10	0,21	51050 06010	1	N00 71000
ABS25 FWD...*	A30 10 ..1	25	6,5–7,9	25	55	–	36	10	0,21	51050 06010	1	N00 71050
ABS25 FWD8	A30 10801	25	8	28	55	–	36	10	0,25	51050 08010	1	N00 71050
ABS25 FWD...*	A30 10 ..1	25	8,1–8,4	28	55	–	36	10	0,25	51050 08010	1	N00 71050
ABS25 FWD...*	A30 10 ..1	25	8,5–9,9	28	55	–	36	10	0,25	51050 08010	1	N00 71100
ABS25 FWD10	A30 11001	25	10	35	60	–	40	10	0,41	51050 10012	1	N00 71100
ABS25 FWD...*	A30 1 ... 1	25	10,1–10,4	35	60	–	40	8	0,41	51050 10012	1	N00 71100
ABS25 FWD...*	A30 1 ... 1	25	10,5–11,9	35	60	–	40	8	0,41	51050 10012	1	N00 71200
ABS32 FWD6	A30 20601	32	6	25	55	40	36	10	0,25	51050 06010	1	N00 71000
ABS32 FWD...*	A30 20 ..1	32	6,1–6,4	25	55	40	36	10	0,25	51050 06010	1	N00 71000
ABS32 FWD...*	A30 20 ..1	32	6,5–7,9	25	55	40	36	10	0,25	51050 06010	1	N00 71050
ABS32 FWD8	A30 20801	32	8	28	55	40	36	10	0,29	51050 08010	1	N00 71050
ABS32 FWD...*	A30 20 ..1	32	8,1–8,4	28	55	40	36	10	0,29	51050 08010	1	N00 71050
ABS32 FWD...*	A30 20 ..1	32	8,5–9,9	28	55	40	36	10	0,29	51050 08010	1	N00 71110
ABS32 FWD10	A30 21001	32	10	35	60	–	40	10	0,43	51050 10012	1	N00 71110
ABS32 FWD...*	A30 2 ... 1	32	10,1–10,4	35	60	–	40	10	0,43	51050 10012	1	N00 71110
ABS32 FWD...*	A30 2 ... 1	32	10,5–11,9	35	60	–	40	10	0,43	51050 10012	1	N00 71210
ABS32 FWD12	A30 21201	32	12	42	65	–	45	10	0,65	51050 12016	1	N00 71210
ABS32 FWD...*	A30 2 ... 1	32	12,1–12,4	42	65	–	45	10	0,65	51050 12016	1	N00 71210
ABS32 FWD...*	A30 2 ... 1	32	12,5–14	42	65	–	45	10	0,65	51050 12016	1	N00 71300
ABS40 FWD6	A30 30601	40	6	25	55	35	36	10	0,34	51050 06010	1	N00 71000
ABS40 FWD...*	A30 30 ..1	40	6,1–6,4	25	55	35	36	10	0,34	51050 06010	1	N00 71000
ABS40 FWD...*	A30 30 ..1	40	6,5–7,9	25	55	35	36	10	0,34	51050 06010	1	N00 71050
ABS40 FWD8	A30 30801	40	8	28	55	35	36	10	0,38	51050 08010	1	N00 71050
ABS40 FWD...*	A30 30 ..1	40	8,1–8,4	28	55	35	36	10	0,38	51050 08010	1	N00 71050
ABS40 FWD...*	A30 30 ..1	40	8,5–9,9	28	55	35	36	10	0,38	51050 08010	1	N00 71120

▲

Please enter drilling diameter:
Example Ø 7,2 mm = A30 10**72**1
Ø 10,6 mm = A30 1**106**1

Please note:
For all adaptor sleeves marked with * the clamping diameter d1 varies from DIN 1835 E.
All dimensions corredpond to the next standardised clamping diameter d1 downwards.

Supply includes: Adaptor sleeve complete with clamping screw and adjusting screw.

Patent applied for inside and outside Germany

ABS® FWD												
										Clamping screw ①		Adjusting screw ②
Article	Order No.	ABS Ø d	Ø d1	Ø d2	L	L1	L2	V	kg	Order No.	Qty.	Order No.
ABS40 FWD10	A30 31001	40	10	35	60	45	40	10	0,48	51050 10012	1	N00 71120
ABS40 FWD...*	A30 3 ... 1	40	10,1–10,4	35	60	45	40	10	0,48	51050 10012	1	N00 71120
ABS40 FWD...*	A30 3 ... 1	40	10,5–11,9	35	60	45	40	10	0,48	51050 10012	1	N00 71220
ABS40 FWD12	A30 31201	40	12	42	65	–	45	10	0,68	51050 12016	1	N00 71220
ABS40 FWD...*	A30 3 ... 1	40	12,1–12,4	42	65	–	45	10	0,68	51050 12016	1	N00 71220
ABS40 FWD...*	A30 3 ... 1	40	12,5–15,9	42	65	–	45	10	0,68	51050 12016	1	N00 71310
ABS40 FWD16	A30 31601	40	16	48	70	–	48	10	0,91	51050 14016	1	N00 71400
ABS40 FWD...*	A30 3 ... 1	40	16,1–19,9	48	70	–	48	10	0,91	51050 14016	1	N00 71400
ABS50 FWD6	A30 40601	50	6	25	55	30	36	10	0,53	51050 06010	1	N00 71000
ABS50 FWD...*	A30 40 ..1	50	6,1–6,4	25	55	30	36	10	0,53	51050 06010	1	N00 71000
ABS50 FWD...*	A30 40 ..1	50	6,5–7,9	25	55	30	36	10	0,53	51050 06010	1	N00 71050
ABS50 FWD8	A30 40801	50	8	28	55	30	36	10	0,57	51050 08010	1	N00 71050
ABS50 FWD...*	A30 40 ..1	50	8,1–8,4	28	55	30	36	10	0,57	51050 08010	1	N00 71050
ABS50 FWD...*	A30 40 ..1	50	8,5–9,9	28	55	30	36	10	0,57	51050 08010	1	N00 71120
ABS50 FWD10	A30 41001	50	10	35	60	40	40	10	0,66	51050 10012	1	N00 71130
ABS50 FWD...*	A30 4 ... 1	50	10,1–10,4	35	60	40	40	10	0,66	51050 10012	1	N00 71130
ABS50 FWD...*	A30 4 ... 1	50	10,5–11,9	35	60	40	40	10	0,66	51050 10012	1	N00 71230
ABS50 FWD12	A30 41201	50	12	42	65	50	45	10	0,81	51050 12016	1	N00 71230
ABS50 FWD...*	A30 4 ... 1	50	12,1–12,4	42	65	50	45	10	0,81	51050 12016	1	N00 71230
ABS50 FWD...*	A30 4 ... 1	50	12,5–15,9	42	65	50	45	10	0,81	51050 12016	1	N00 71320
ABS50 FWD16	A30 41601	50	16	48	70	55	48	10	1,01	51050 14016	1	N00 71410
ABS50 FWD...*	A30 4 ... 1	50	16,1–19,9	48	70	55	48	10	1,01	51050 14016	1	N00 71410
ABS50 FWD20	A30 42002	50	20	52	75	–	50	10	1,20	51050 16016	1	N00 71500
ABS50 FWD...*	A30 4 ... 2	50	20,1–24,9	52	75	–	50	10	1,20	51050 16016	1	N00 71500
ABS50 FWD25*	A30 42502	50	25	52	75	–	50	10	1,13	51050 16016	1	N00 71500
ABS63 FWD10	A30 51001	63	10	35	60	35	40	10	0,96	51050 10012	1	N00 71130
ABS63 FWD...*	A30 5 ... 1	63	10,1–10,4	35	60	35	40	10	0,96	51050 10012	1	N00 71130
ABS63 FWD...*	A30 5 ... 1	63	10,5–11,9	35	60	35	40	10	0,96	51050 10012	1	N00 71230
ABS63 FWD12	A30 51201	63	12	42	65	45	45	10	1,08	51050 12016	1	N00 71230
ABS63 FWD...*	A30 5 ... 1	63	12,1–12,4	42	65	45	45	10	1,08	51050 12016	1	N00 71230
ABS63 FWD...*	A30 5 ... 1	63	12,5–15,9	42	65	45	45	10	1,08	51050 12016	1	N00 71320
ABS63 FWD16	A30 51601	63	16	48	70	50	48	10	1,27	51050 14016	1	N00 71410
ABS63 FWD...*	A30 5 ... 1	63	16,1–19,9	48	70	50	48	10	1,27	51050 14016	1	N00 71410
ABS63 FWD20	A30 52001	63	20	52	75	55	50	10	1,43	51050 16016	1	N00 71500
ABS63 FWD...*	A30 5 ... 1	63	20,1–24,9	52	75	55	50	10	1,43	51050 16016	1	N00 71500
ABS63 FWD25	A30 52501	63	25	65	80	–	56	10	2,00	51050 18220	2	N00 71500
ABS63 FWD...*	A30 5 ... 1	63	25,1–28	65	80	–	56	10	2,00	51050 18220	2	N00 71500
ABS80 FWD16	A30 61601	80	16	48	70	50	48	10	1,80	51050 14016	1	N00 71430
ABS80 FWD...*	A30 6 ... 1	80	16,1–19,9	48	70	50	48	10	1,80	51050 14016	1	N00 71430
ABS80 FWD20	A30 62001	80	20	52	75	52	50	10	1,98	51050 16016	1	N00 71520
ABS80 FWD...*	A30 6 ... 1	80	20,1–24,9	52	75	52	50	10	1,98	51050 16016	1	N00 71520
ABS80 FWD25	A30 62501	80	25	65	80	60	58	10	2,50	51050 18220	2	N00 71600
ABS80 FWD...*	A30 6 ... 1	80	25,1–28	65	80	60	58	10	2,50	51050 18220	2	N00 71600
ABS80 FWD...*	A30 6 ... 1	80	28,1–31,9	72	90	70	60	10	2,50	51050 20220	2	N00 71650
ABS80 FWD32	A30 63201	80	32	72	90	70	60	10	3,02	51050 20220	2	N00 71650

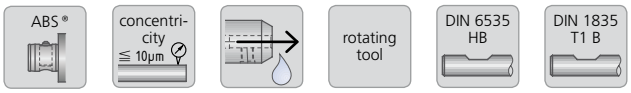
▲

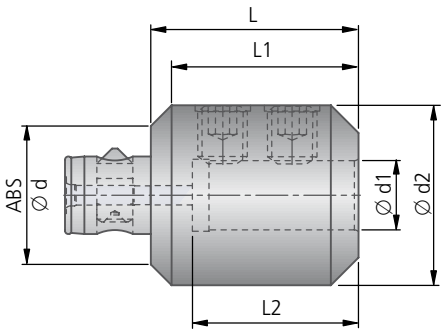
Please enter drilling diameter:
Example Ø 25,1 mm = A30 6**2511**
Ø 31,9 mm = A30 6**3191**

Please note:
For all adaptor sleeves marked with * the clamping diameter d1 varies from DIN 1835 E.
All dimensions corredpond to the next standardised clamping diameter d1 downwards.

KOMET ABS® HWD

Adaptor sleeve Weldon





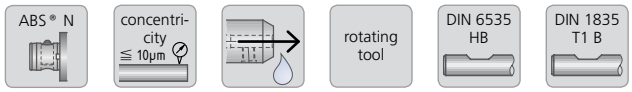
ABS® HWD										
Article	Order No.	ABS Ø d	Ø d1	Ø d2	L	L1	L2	kg	Clamping screw Order No.	Piece
ABS50-HWD6	A32 40010	50	6	25	45	27	40	0,51	51050 06010	1
ABS50-HWD8	A32 40020	50	8	28	45	27	40	0,49	51050 08010	1
ABS50-HWD10	A32 40030	50	10	35	55	37	44	0,62	51050 10012	1
ABS50-HWD12	A32 40040	50	12	42	65	50	49	0,81	51050 12016	1
ABS50-HWD14	A32 40080	50	14	44	65	50	49	0,85	51050 12016	1
ABS50-HWD16	A32 40050	50	16	48	65	50	52	0,94	51050 14016	1
ABS50-HWD18	A32 40090	50	18	50	65	–	52	0,98	51050 14016	1
ABS50-HWD20	A32 40060	50	20	52	65	–	54	1,03	51050 16016	1
ABS50-HWD25	A32 40070	50	25	65	75	–	60	1,70	51050 18220	2
ABS63-HWD12	A32 50040	63	12	42	65	50	49	1,02	51050 12016	1
ABS63-HWD14	A32 50100	63	14	44	65	50	49	1,06	51050 12016	1
ABS63-HWD16	A32 50050	63	16	48	65	50	52	1,15	51050 14016	1
ABS63-HWD18	A32 50110	63	18	50	65	50	52	1,21	51050 14016	1
ABS63-HWD20	A32 50060	63	20	52	65	45	54	1,26	51050 16016	1
ABS63-HWD25	A32 50070	63	25	65	75	–	60	1,86	51050 18220	2
ABS63-HWD32	A32 50080	63	32	72	80	–	64	2,25	51050 20220	2
ABS80-HWD20	A32 60060	80	20	52	65	45	54	1,84	51050 16016	1
ABS80-HWD25	A32 60070	80	25	65	75	55	60	2,41	51050 18220	2
ABS80-HWD32	A32 60080	80	32	72	80	66	64	2,62	51050 20220	2

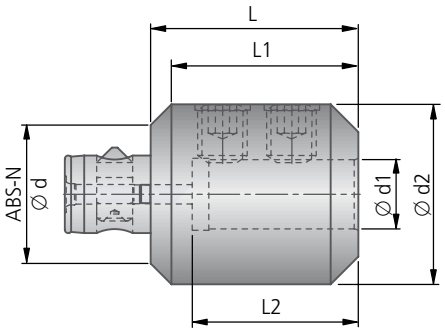
Supply includes: Adaptor sleeve complete with clamping screw.

Patent applied for inside and outside Germany

KOMET ABS® N HWD

Adaptor sleeve Weldon



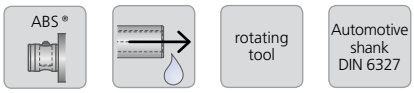


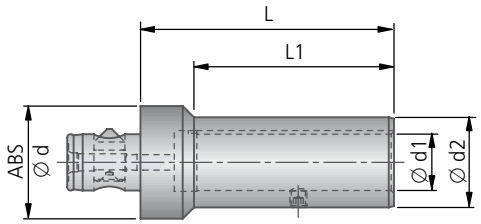
ABS® N HWD										
Article	Order No.	ABS-N Ø d	Ø d1	Ø d2	L	L1	L2	kg	Clamping screw Order No.	Piece
ABS50N-HWD16	**A32 40250**	50	16	48	65	50	52	0,94	**51050 14016**	1
ABS50N-HWD20	**A32 40260**	50	20	52	65	–	54	1,03	**51050 16016**	1
ABS50N-HWD25	**A32 40270**	50	25	65	75	–	60	1,70	**51050 18220**	2
ABS63N-HWD32	**A32 50280**	63	32	72	80	–	64	2,25	**51050 20220**	2

Supply includes: Adaptor sleeve complete with clamping screw.

KOMET ABS® HTR

Adaptor





ABS® HTR							
Article	Order No.	ABS Ø d	Ø d1	Ø d2	L	L1	kg
ABS63-HTR28	**A34 05030**	63	28	40	100	85	1,01
ABS63-HTR36	**A34 05040**	63	36	50	125	110	1,42

Supply includes:
Adaptor with clamping screw.

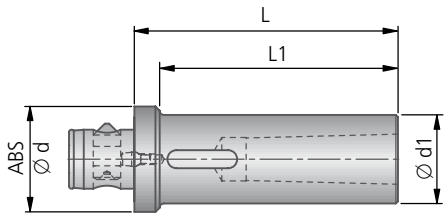
Patent applied for inside and outside Germany

KOMET ABS® HMK

Adaptor

ABS® | rotating tool | Morse taper DIN 228 B

without central coolant supply ■
adaptor sleeves with central coolant supply available on request ■

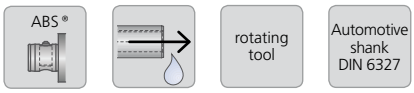


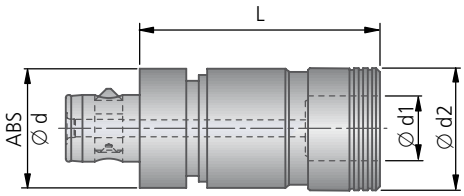
ABS® HMK							
Article	Order No.	ABS Ø d	Ø d1	Internal taper DIN 228	L	L1	kg
ABS50-HMK1	**A34 14020**	50	20	MK 1	90	78	0,45
ABS50-HMK2	**A34 14030**	50	30	MK 2	105	93	0,69
ABS50-HMK3	**A34 14040**	50	36	MK 3	125	113	0,96
ABS63-HMK4	**A34 15050**	63	48	MK 4	150	135	1,86

Supply includes:
Adaptor with assembly parts.

KOMET ABS® GWF

Tapping chuck





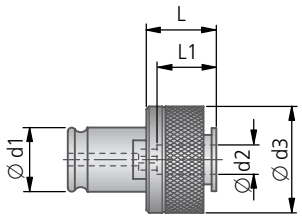
ABS® GWF							
Article	Order No.	ABS Ø d	Ø d1	Ø d2	L	Length compensation pressure and tension	kg
ABS 32-GWF19-IK	**A34 32060**	32	19	39	69	7,5	0,46
ABS 40-GWF19-IK	**A34 33060**	40	19	39	73	7,5	0,55
ABS 50-GWF19-IK	**A34 34060**	50	19	39	72	7,5	0,68
ABS 50-GWF31-IK	**A34 34070**	50	31	60	98	10,0	1,50
ABS 63-GWF31-IK	**A34 35070**	63	31	60	111	10,0	1,65
ABS 63-GWF48-IK	**A34 35080**	63	48	86	160	17,5	4,70
ABS100-GWF60-IK	**A34 37100**	100	60	107	195	20,0	10,00

Supply includes:
Tapping chuck with assembly parts.

Tapping chucks with tension adjustment on request.

Patent applied for inside and outside Germany

■ with safety coupling
■ for location of taps

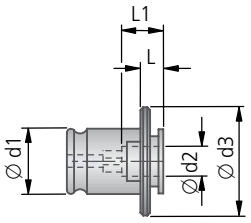


* Please state shank diameter d2 required
Example: tap M3.5 · shank d2 = **3,55** mm
Order No. A34 91110**0355**

Tap holder WES

for taps	Article	Order No.	d1	d3	L	L1
M 3	WES 1 B (M3)	**A34 91100..***	19	32	25	17
M 3,5	WES 1 B (M3,5)	**A34 91110..***	19	32	25	17
M 4	WES 1 B (M4)	**A34 91120..***	19	32	25	17
M 4,5	WES 1 B (M4,5)	**A34 91130..***	19	32	25	17
M 5	WES 1 B (M5)	**A34 91140..***	19	32	25	17
M 6	WES 1 B (M6)	**A34 91150..***	19	32	25	17
M 8	WES 1 B (M8)	**A34 91160..***	19	32	25	17
M 10	WES 1 B (M10)	**A34 91170..***	19	32	25	17
M 12	WES 1 B (M12)	**A34 91180..***	19	32	25	17
M 8	WES 2 B (M8)	**A34 92160..***	31	50	34	30
M 10	WES 2 B (M10)	**A34 92170..***	31	50	34	30
M 12	WES 2 B (M12)	**A34 92180..***	31	50	34	30
M 14	WES 2 B (M14)	**A34 92190..***	31	50	34	30
M 16	WES 2 B (M16)	**A34 92200..***	31	50	34	30
M 18	WES 2 B (M18)	**A34 92210..***	31	50	34	30
M 20	WES 2 B (M20)	**A34 92220..***	31	50	34	30
M 14	WES 3 B (M14)	**A34 93190..***	48	72	45	44
M 16	WES 3 B (M16)	**A34 93200..***	48	72	45	44
M 18	WES 3 B (M18)	**A34 93210..***	48	72	45	44
M 20	WES 3 B (M20)	**A34 93220..***	48	72	45	44
M 22	WES 3 B (M22)	**A34 93230..***	48	72	45	44
M 24	WES 3 B (M24)	**A34 93240..***	48	72	45	44
M 27	WES 3 B (M27)	**A34 93250..***	48	72	45	44
M 30	WES 3 B (M30)	**A34 93260..***	48	72	45	44
M 33	WES 3 B (M33)	**A34 93270..***	48	72	45	44
M 22	WES 4 B (M22)	**A34 94230..***	60	95	68	71
M 24	WES 4 B (M24)	**A34 94240..***	60	95	68	71
M 27	WES 4 B (M27)	**A34 94250..***	60	95	68	71
M 30	WES 4 B (M30)	**A34 94260..***	60	95	68	71
M 33	WES 4 B (M33)	**A34 94270..***	60	95	68	71
M 36	WES 4 B (M36)	**A34 94280..***	60	95	68	71
M 39	WES 4 B (M39)	**A34 94290..***	60	95	68	71
M 42	WES 4 B (M42)	**A34 94300..***	60	95	68	71
M 45	WES 4 B (M45)	**A34 94310..***	60	95	68	71
M 48	WES 4 B (M48)	**A34 94320..***	60	95	68	71

■ for location of taps



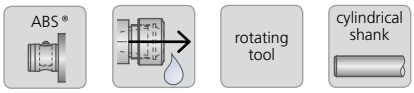
* Please state shank diameter d2 required
Example: tap M3.5 · shank d2 = **3,55** mm
Order No. A34 96110**0355**

Tap holder WE

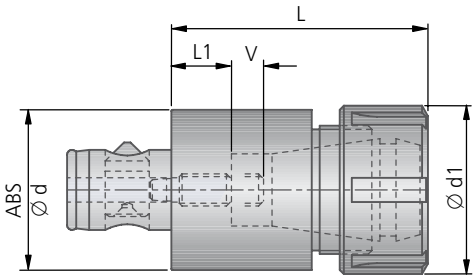
for taps	Article	Order No.	d1	d3	L	L1
M 3	WE 1 (M3)	**A34 96100..***	19	30	7	17
M 3,5	WE 1 (M3,5)	**A34 96110..***	19	30	7	17
M 4	WE 1 (M4)	**A34 96120..***	19	30	7	17
M 4,5	WE 1 (M4,5)	**A34 96130..***	19	30	7	17
M 5	WE 1 (M5)	**A34 96140..***	19	30	7	17
M 6	WE 1 (M6)	**A34 96150..***	19	30	7	17
M 8	WE 1 (M8)	**A34 96160..***	19	30	7	17
M 10	WE 1 (M10)	**A34 96170..***	19	30	7	17
M 12	WE 1 (M12)	**A34 96180..***	19	30	7	17
M 8	WE 2 (M8)	**A34 97160..***	31	48	11	30
M 10	WE 2 (M10)	**A34 97170..***	31	48	11	30
M 12	WE 2 (M12)	**A34 97180..***	31	48	11	30
M 14	WE 2 (M14)	**A34 97190..***	31	48	11	30
M 16	WE 2 (M16)	**A34 97200..***	31	48	11	30
M 18	WE 2 (M18)	**A34 97210..***	31	48	11	30
M 20	WE 2 (M20)	**A34 97220..***	31	48	11	30
M 14	WE 3 (M14)	**A34 98190..***	48	70	14	44
M 16	WE 3 (M16)	**A34 98200..***	48	70	14	44
M 18	WE 3 (M18)	**A34 98210..***	48	70	14	44
M 20	WE 3 (M20)	**A34 98220..***	48	70	14	44
M 22	WE 3 (M22)	**A34 98230..***	48	70	14	44
M 24	WE 3 (M24)	**A34 98240..***	48	70	14	44
M 27	WE 3 (M27)	**A34 98250..***	48	70	14	44
M 30	WE 3 (M30)	**A34 98260..***	48	70	14	44
M 33	WE 3 (M33)	**A34 98270..***	48	70	14	44
M 22	WE 4 (M22)	**A34 99230..***	60	92	42	71
M 24	WE 4 (M24)	**A34 99240..***	60	92	42	71
M 27	WE 4 (M27)	**A34 99250..***	60	92	42	71
M 30	WE 4 (M30)	**A34 99260..***	60	92	42	71
M 33	WE 4 (M33)	**A34 99270..***	60	92	42	71
M 36	WE 4 (M36)	**A34 99280..***	60	92	42	71
M 39	WE 4 (M39)	**A34 99290..***	60	92	42	71
M 42	WE 4 (M42)	**A34 99300..***	60	92	42	71
M 45	WE 4 (M45)	**A34 99310..***	60	92	42	71
M 48	WE 4 (M48)	**A34 99320..***	60	92	42	71

KOMET ABS® SZV

Collet holder



- high concentricity with ground thread on holder and clamping nut
- axial adjustment

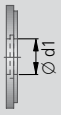


ABS® SZV							Accessories	Assembly parts			Accessories			
							Hook spanner	Adjusting screw ⑤ short with hole			Adjusting screw short without hole		long with hole	
Article	Order No.	ABS Ø d	Ø d1	Clamping range for collet L	L1	kg	Order No.	Article	Order No.	V	Order No.	V	Order No.	V
ABS25 SZV/ER16	A33 11120	25	28	36,5–40,1	9	0,12	L05 02020	M5	N00 71900	4	N00 71910	4	N00 71020	8
ABS32 SZV/ER20	A33 12130	32	34	49–52,5	14	0,26	L05 02030	M6	N00 71070	8	N00 71940	8	N00 71050	10
ABS40 SZV/ER25	A33 13141	40	42	58,5–62	16	0,50	L05 02040	M8×1	N00 71970	8	N00 71980	8	N00 71150	15
ABS50 SZV/ER32	A33 14151	50	50	65,8–69,3	18	0,86	L05 02050	M10×1	N00 71280	6	N00 71240	10	N00 71250	15
ABS63 SZV/ER40	A33 15161	63	63	74,8–78,3	23	1,58	L05 02060	M12×1	N00 71320	8	N00 71340	15	N00 71350	20
ABS80 SZV/ER50	A33 16171	80	78	92,3–99,3	27	3,22	L05 02070	M16×1	N00 71520	8	–		–	

	Assembly parts	Accessories		
	Collet nut ①	Collet nut ② for washer	Collet nut ③ with friction bearings	Collet nut ④ with friction bearings for washer
for size	Order No.	Order No.	Order No.	Order No.
ER16	51200 00316	51200 00416	52807 03016	52807 01016
ER20	51200 00320	51200 00420	52807 03020	52807 01020
ER25	51200 00325	51200 00425	52807 03025	52807 01025
ER32	51200 00332	51200 00432	52807 03032	52807 01032
ER40	51200 00340	51200 00440	52807 03040	52807 01040

Supply includes:
Collet holder with adjusting screw ⑤ and collet nut ①.
Please order accessories separately.

Washer
for collet nuts ② and ④



Article	Order No.	optional from Ø d1	Clamping range increasing by
DS/ER 16...	52806 16...	3 – 10	0,5 mm
DS/ER 20...	52806 20...	3 – 13	0,5 mm
DS/ER 25...	52806 25...	3 – 16	0,5 mm
DS/ER 32...	52806 32...	3 – 20	0,5 mm
DS/ER 40...	52806 33...	3 – 26	0,5 mm

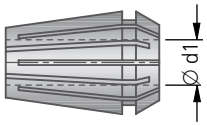
Please state diameter required d1 , e.g. : ▲
035 → Ø 3,5 mm≙d1 3,5–3,0 mm
090 → Ø 9,0 mm≙d1 9,0–8,5 mm
260 → Ø 26,0 mm≙d1 26,0–25,5 mm

Note: The washers can be used up to a coolant pressure of 100 bar.

Patent applied for inside and outside Germany

Note:

[1] Tool shank diameter d1 must not be greater than collet nominal dimension d1 (risk of fracture)



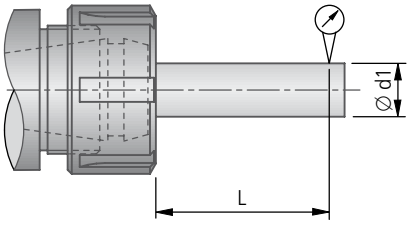
for collet holder	Order No.	[1] optional from Ø d1	Clamping range
ABS.. SZV/ER16	**A33 52000...**	3 – 10	1 mm
ABS.. SZV/ER20	**A33 53000...**	3 – 13	1 mm
ABS.. SZV/ER25	**A33 54000...**	3 – 16	1 mm
ABS.. SZV/ER32	**A33 55000...**	3 – 20	1 mm
ABS.. SZV/ER40	**A33 56000...**	3 – 26	1 mm

Please state diameter ▲
required d1, e. g.: **0300** for Ø 3,0 mm
2600 for Ø 26,0 mm

high precision			
for collet holder	Order No.	[1] optional from Ø d1	Clamping range
ABS.. SZV/ER16	**A33 52010...**	3 – 10	from diameter 3 mm in 0.5 mm stages
ABS.. SZV/ER20	**A33 53010...**	3 – 13	
ABS.. SZV/ER25	**A33 54010...**	3 – 16	
ABS.. SZV/ER32	**A33 55010...**	3 – 20	
ABS.. SZV/ER40	**A33 56010...**	3 – 26	

Please state diameter ▲
required d1, e. g.: **0300** for Ø 3,0 mm
2650 for Ø 26,5 mm

Concentricity of Collets

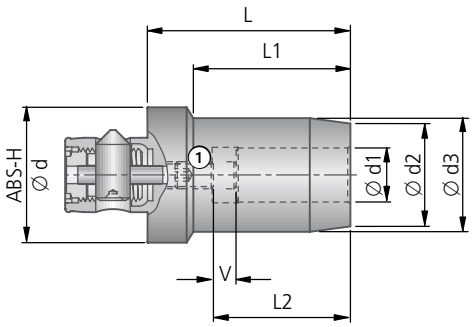


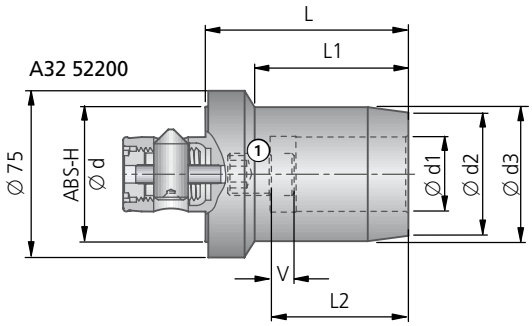
L	Ø d1	Accuracy of concentricity to collets and collet holder	Accuracy of concentricity (higher precision) to collets and collet holder
6	1,0 – 1,6	0,015	0,010
10	1,6 – 3,0	0,015	0,010
16	3,0 – 6,0	0,015	0,010
25	6,0 – 10,0	0,015	0,010
40	10,0 – 18,0	0,020	0,015
50	18,0 – 26,0	0,020	0,015

KOMET ABS® H

Expanding chuck







ABS® H Expanding chuck

Article	Order No.	ABS-H Ø d	Ø d1	Ø d2	Ø d3	L	L1	L2	kg	Adjusting screw ① Article	Adjusting screw ① Order No.
ABS40-H D8	**A32 32060**	40	8	24	28	60	42	37	0,42	M6×12	**N00 71070**
ABS40-H D10	**A32 32070**	40	10	26	30	65	47,5	41	0,46	M8×1×12	**N00 71730**
ABS40-H D12	**A32 32080**	40	12	28	32	65	48	46	0,43	M10×1×12	**N00 71800**
ABS50-H D6	**A32 42110**	50	6	22	26	55	33,5	37	0,53	M5×12	**N00 71020**
ABS50-H D8	**A32 42120**	50	8	24	28	55	34	37	0,60	M6×12	**N00 71070**
ABS50-H D10	**A32 42130**	50	10	26	30	65	45	41	0,56	M8×1×12	**N00 71730**
ABS50-H D12	**A32 42140**	50	12	28	32	65	45,5	46	0,61	M10×1×12	**N00 71800**
ABS50-H D14	**A32 42150**	50	14	30	34	65	46	46	0,60	M10×1×12	**N00 71800**
ABS50-H D16	**A32 42160**	50	16	34	38	70	52	49	0,80	M10×1×12	**N00 71800**
ABS50-H D18	**A32 42170**	50	18	36	40	70	52,5	49	0,85	M10×1×12	**N00 71800**
ABS50-H D20	**A32 42101**	50	20	38	42	75	58	51	0,90	M16×1×16	**N00 71540**
ABS63-H D20	**A32 52180**	63	20	38	42	78	56	51	1,15	M16×1×16	**N00 71540**
ABS63-H D25	**A32 52190**	63	25	53	57	85	60	57		M16×1×16	**N00 71540**
ABS63-H D32	**A32 52200**	63	32	60	64	90	61	61	2,10	M16×1×16	**N00 71540**

Tool shank tolerance: h6 for Ø 6 - 32 mm

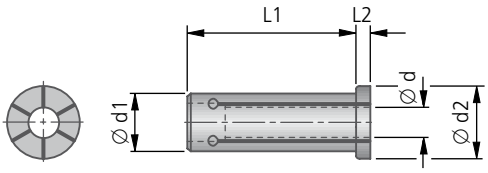
Supply includes: Expanding chuck fitted complete with adjusting screw.

- Axial adjustment: Adjustment is by means of the ABS® H spigot with an hexagonal key.
- ABS® H connection: ABS® H, the ABS® variation for use where greater concentricity is required, is fully compatible with the ABS® standard programme. During the clamping operation, the design of the ABS® H compensates for play in the connection.
- Spindle speed: from 15000 min-1 we recommend that the chuck be balanced before using with clamped tool.
- no maintenance

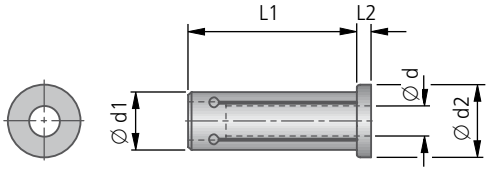
Patent applied for inside and outside Germany

KOMET® Adaptor sleeve

for expanding chuck



with slotted collar
for peripheral cooling



with closed collar
for internal coolant supply

Adaptor sleeve						
Order No.	Ø d	Ø d1	Ø d2	L1	L2	kg
L01 13291	3	12	19	45	2	0,1
L01 13301	4					
L01 13311	5					
L01 13321	6					
L01 13331	8					
L01 13261	3	20	29	50,5	2	0,1
L01 13271	4					
L01 13281	5					
L01 13201	6					
L01 13211	8					
L01 13221	10					
L01 13231	12					
L01 13241	14					
L01 13251	16					
L01 13500	6	32	39	60,5	3	0,3
L01 13511	8					
L01 13520	10					
L01 13531	12					
L01 13540	14					
L01 13551	16					
L01 13561	18					
L01 13571	20					
L01 13581	25					

Adaptor sleeve						
Order No.	Ø d	Ø d1	Ø d2	L1	L2	kg
L01 14291	3	12	19	45	2	0,1
L01 14301	4					
L01 14311	5					
L01 14321	6					
L01 14331	8					
L01 14261	3	20	29	50,5	2	0,1
L01 14271	4					
L01 14281	5					
L01 14201	6					
L01 14211	8					
L01 14221	10					
L01 14231	12					
L01 14241	14					
L01 14251	16					
L01 14400	6	25	29	55	2	0,1
L01 14410	8					
L01 14420	10					
L01 14430	12					
L01 14440	14					
L01 14450	16					
L01 14460	18					
L01 14470	20					
L01 14501	6	32	39	60,5	3	0,3
L01 14511	8					
L01 14521	10					
L01 14531	12					
L01 14540	14					
L01 14551	16					
L01 14561	18					
L01 14571	20					
L01 14581	25					

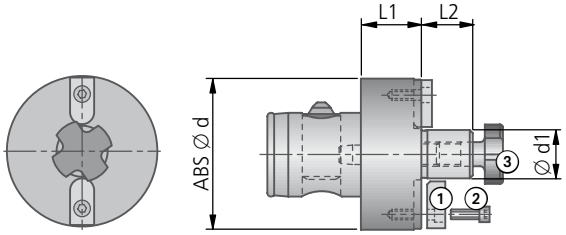
KOMET ABS®

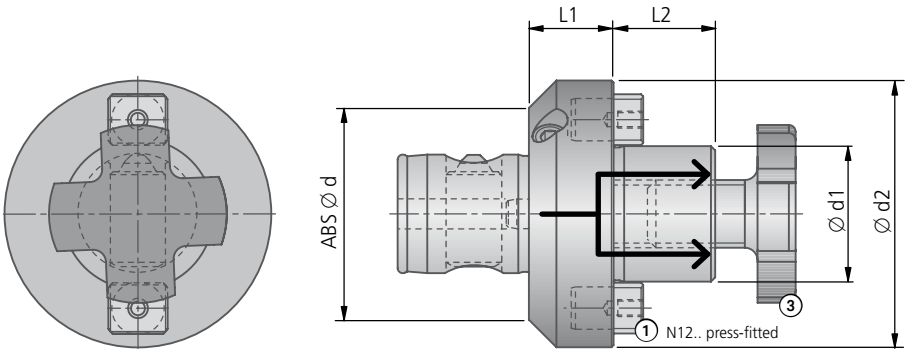
Milling cutter arbor FA / FAM



...FA:

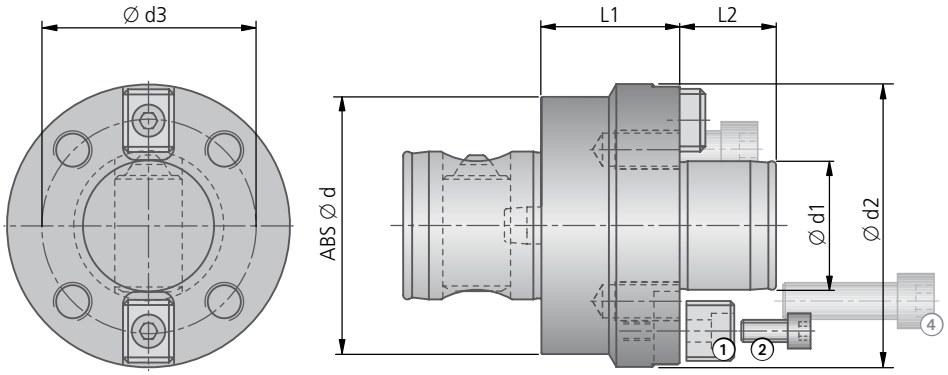
A40 24023 (ABS50 FA16)
without internal coolant supply





...FAM: Milling cutter adaptor with 4 screw-in threads for cutter heads with tool clamping to DIN 2079.

without internal coolant supply



Patent applied for inside and outside Germany

ABS® FA									
Order No. Article	ABS Ø d	Ø d1	Ø d2	L1	L2	kg	Drive key ① Key block Order No.	Cylindrical screw ② DIN 912 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article
A40 24023 ABS50 FA16	50	16	–	20	17	0,48	**A40 24020.12**	**55011 03010** M3×10	**55062 00008** M8
A40 24034 ABS50 FA22	50	22	50	20	19	0,51	**N12 20120**	–	**55062 00010** M10
A40 24043 ABS50 FA27	50	27	50	20	21	0,57	**N12 20140**	–	**55062 00012** M12
A40 24053 ABS50 FA32	50	32	63	20	24	0,80	**N12 20170**	–	**55062 00016** M16
A40 25032 ABS63 FA22	63	22	63	22	19	0,84	**N12 20120**	–	**55062 00010** M10
A40 25042 ABS63 FA27	63	27	63	22	21	0,90	**N12 20140**	–	**55062 00012** M12
A40 25052 ABS63 FA32	63	32	63	22	24	0,99	**N12 20170**	–	**55062 00016** M16
A40 25062 ABS63 FA40	63	40	80	22	27	1,41	**N12 20200**	–	**55062 00020** M20
A40 26042 ABS80 FA27	80	27	80	25	21	1,59	**N12 20140**	–	**55062 00012** M12
A40 26052 ABS80 FA32	80	32	80	25	24	1,68	**N12 20170**	–	**55062 00016** M16
A40 26062 ABS80 FA40	80	40	80	25	27	1,85	**N12 20200**	–	**55062 00020** M20
A40 27052 ABS100 FA32	100	32	100	25	24	2,10	**N12 20170**	–	**55062 00016** M16
A40 27062 ABS100 FA40	100	40	100	25	27	2,34	**N12 20200**	–	**55062 00020** M20

Supply includes:
Milling cutter adaptor ..FA with drive key/key block ①/cylindrical screw ② and cutter clamping screw ③.

ABS® FAM									Screws ④ for cutter heads with internal bore location
Order No. Article	ABS Ø d	Ø d1	Ø d2	Bolthole circle Ø d3	L1	L2	kg	Key block ① Order No. Article	Cylindrical screw ② DIN 912 Order No. Article	Order No. Article
A40 16062 ABS 80-FAM40	80	40	88	66,7	43	30	2,60	**56341 00001** A40	**55011 06016** M6×16	**55011 12040** M12×40
A40 17062 ABS100-FAM40	100	40	88	66,7	38	30	3,50	**56341 00001** A40	**55011 06016** M6×16	**55011 12040** M12×40
A40 17072 ABS100-FAM60	100	60	130	101,6	56	40	6,50	**56341 00003** A50	**55011 12025** M12×25	**55011 16050** M16×50

Supply includes:
Milling cutter adaptor ..FAM with key block ① and cylindrical screw ②.
Please order screws ④ for mounting the cutter heads separately.

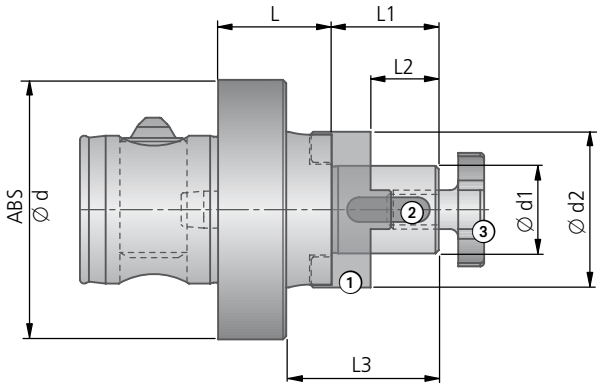
DIN 6368 Key on request (chapter 8).

KOMET ABS®

Combination milling cutter arbor

ABS® | rotating tool | DIN 6358

for milling cutters with longitudinal or cross slots



ABS® FAK											
Order No. Article	ABS Ø d	Ø d1	Ø d2	L	L1	L2	L3	kg	Driving ring ① DIN 6366 Part 1 Order No. Article	Feather key ② DIN 6885 Part 1 Order No. Article	Cutter clamping screw ③ DIN 6367 Order No. Article
A40 04022 ABS50 FAK16	50	16	32	22	27	17	39	0,46	**55237 00016** 16×10	**51305 04020** A4×4×20	**55062 00008** M8
A40 04032 ABS50 FAK22	50	22	40	22	31	19	43	0,59	**55237 00022** 22×12	**51305 06025** A6×6×25	**55062 00010** M10
A40 05021 ABS63 FAK16	63	16	32	26	27	17	42	1,0	**55237 00016** 16×10	**51305 04020** A4×4×20	**55062 00008** M8
A40 05031 ABS63 FAK22	63	22	40	26	31	19	46	1,15	**55237 00022** 22×12	**51305 06025** A6×6×25	**55062 00010** M10
A40 05041 ABS63 FAK27	63	27	48	26	33	21	48	1,25	**55237 00027** 27×12	**51305 07025** A7×7×25	**55062 00012** M12
A40 06031 ABS80 FAK22	80	22	40	33	31	19	51	1,8	**55237 00022** 22×12	**51305 06025** A6×6×25	**55062 00010** M10
A40 06041 ABS80 FAK27	80	27	48	33	33	21	53	1,9	**55237 00027** 27×12	**51305 07025** A7×7×25	**55062 00012** M12
A40 06051 ABS80 FAK32	80	32	58	33	38	24	58	2,3	**55237 00032** 32×14	**51305 08028** A8×7×28	**55062 00016** M16
A40 06061 ABS80 FAK40	80	40	70	33	41	27	61	2,75	**55237 00040** 40×14	**51305 10032** A10×8×32	**55062 00020** M20

Supply includes: Milling cutter adaptor with driving ring ①, feather key ② and cutter clamping screw ③.

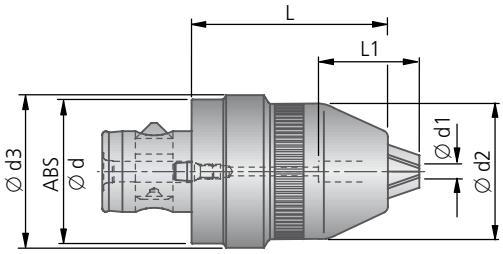
DIN 6368 Key on request (chapter 8).

Patent applied for inside and outside Germany

KOMET ABS® NCB

Short drill chuck





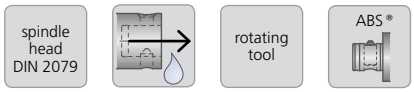
ABS® NCB								
Article	Order No.	ABS Ø d	Clamping range Ø d1	Ø d2	Ø d3	L	Clamping depth L1	kg
ABS50-NCB1	**A34 24030**	50	0,5-13	49	57,5	95	29	1,56
ABS50-NCB2	**A34 24040**	50	3-16	52	57,5	95	29	1,60

Supply includes:
Short drill chuck with Mimatic® key.

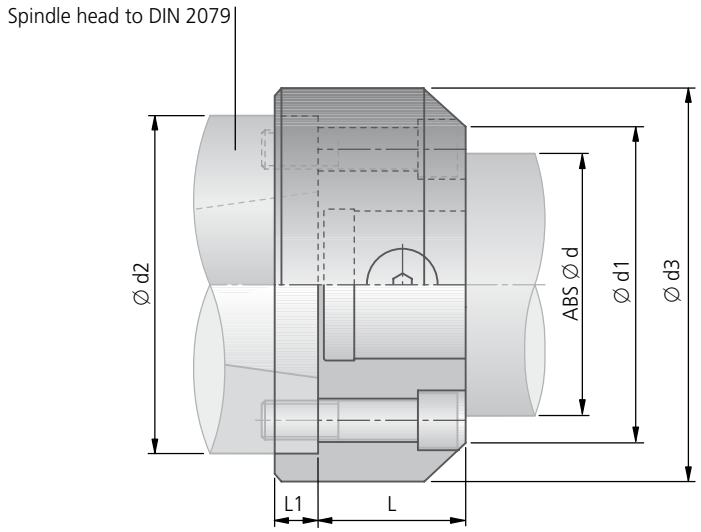
- clamping with original Mimatic® key only
- the maximum permissible spindle speed for short drill chuck is **6500 min^{-1}** for **pre-balanced** design
- on request: for **fine balanced** version (G2.5), the maximum spindle speed is **20 000 min^{-1}**
- higher clamping force (also suitable for milling)

KOMET ABS®

Spindle adaptor flange with ABS® connection



This adaptor flange does not have key slots. Drive keys on spindle head must be removed.



DIN 2079 ABS®									
ISO	Article	Order No.	ABS Ø d	Ø d1	Ø d2	Ø d3	L	L1	kg
30	ABS32 VFS30	**A01 01130**	32	70	69,83	90	24	11	1,14
30	ABS40 VFS30	**A01 01140**	40	70	69,83	90	28	11	1,24
30	ABS50 VFS30	**A01 01150**	50	70	69,83	90	32	11	1,42
30	ABS63 VFS30	**A01 01160**	63	70	69,83	90	40	11	1,71
40	ABS40 VFS40	**A01 01240**	40	80	88,88	110	28	12	2,02
40	ABS50 VFS40	**A01 01250**	50	80	88,88	110	32	12	2,15
40	ABS63 VFS40	**A01 01260**	63	80	88,88	110	40	12	2,60
40	ABS80 VFS40	**A01 01270**	80	100	88,88	110	44	12	2,74
50	ABS50 VFS50	**A01 01450**	50	120	128,57	150	32	17	4,57
50	ABS63 VFS50	**A01 01460**	63	120	128,57	150	40	17	5,22
50	ABS80 VFS50	**A01 01470**	80	120	128,57	150	44	17	5,65
50	ABS125 VFS50	**A01 01490**	125	140	128,57	160	72	17	9,24

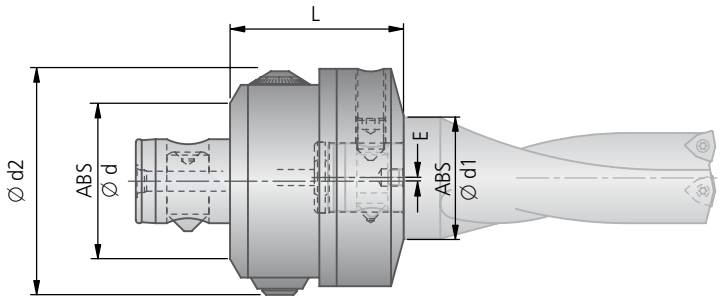
Supply includes:
Adaptor mounted complete.

Patent applied for inside and outside Germany

KOMET ABS® MV

Adjustment device with ABS® connection





ABS® MV							
Article	Order No.	ABS Ø d	ABS Ø d1	Ø d2	L	E	kg
ABS50 / 50-MV	**M01 00000**	50	50	70	57	1,5	1,49
ABS63 / 50-MV	**M01 00010**	63	50	88	70	1,5	3,01
ABS63 / 63-MV	**M01 00020**	63	63	88	70	1,5	2,89

- Accurate adjustment with micro-adjustable spindle.
- Maximum adjustment range 3 mm on diameter.
- Scale divisions 1 division 0.02 mm on diameter.
- Rigid clamping of head after adjustment achieved by means of 4 clamping screws on face.
- **Note:** A seal cannot be used in the ABS® hole with the M01 adjustment device.

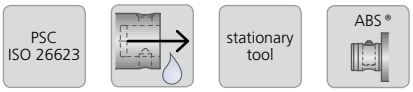
KOMET® ISO 26623

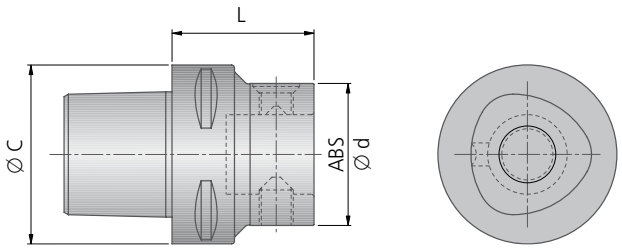
PSC Adaptor
with ABS® connection



KOMET® ISO 26623

PSC Adaptor with ABS® connection



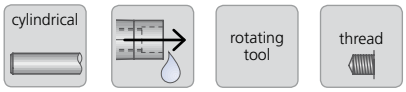


PSC ABS®					
Article	Order No.	Ø C	ABS Ø d	L	kg
C4-ABS50-50	**A69 04050**	40	50	50	0,54
C5-ABS50-50	**A69 05050**	50	50	50	0,95
C6-ABS50-50	**A69 06050**	63	50	50	1,00
C6-ABS63-60	**A69 06060**	63	63	60	1,34
C8-ABS50-50	**A69 08050**	80	50	50	1,76
C8-ABS63-60	**A69 08060**	80	63	60	2,11
C8-ABS80-80	**A69 08070**	80	80	80	2,99

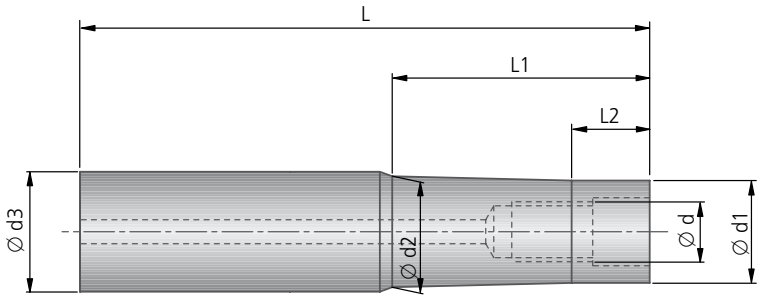
Other adaptors with connections for specific manufacturers can be supplied on request.

KOMET JEL®

Adaptor for screw-on tools



cylindrical shank for shrink fit chuck

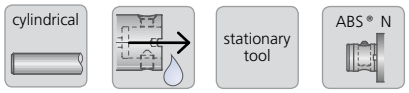


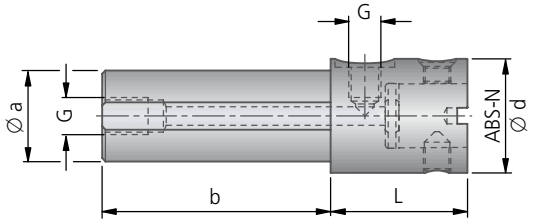
Order No.	Ø d	Ø d1	Ø d2	Cylindrical shank Ø d3	L	L1	L2	kg
58797012000065*	M5	9,5	11,5	12	65	20	7,8	0,054
58798012000085	M5	9,5	11,8	12	85	40	9	0,147
58798012000105	M5	9,5	11,8	12	105	60	9	0,166
58798012000125	M5	9,5	11,8	12	125	80	9	0,197
58797016000088*	M8	13,8	15,8	16	88	40	7,8	0,122
58798016000108	M8	14,2	15,8	16	108	60	9	0,333
58798016000128	M8	14,2	15,8	16	128	80	9	0,402
58798016000148	M8	14,2	15,8	16	148	100	9	0,451
58798016000168	M8	14,2	15,8	16	168	120	9	0,522
58798016000198	M8	14,2	15,8	16	198	150	9	0,678
58797020000095*	M10	18,0	19,8	20	95	45	7,8	0,208
58798020000110	M10	18,5	19,8	20	110	60	9	0,552
58798020000130	M10	18,5	19,8	20	130	80	9	0,654
58798020000150	M10	18,5	19,8	20	150	100	9	0,754
58798020000170	M10	18,5	19,8	20	170	120	9	0,850
58798020000190	M10	18,5	19,8	20	190	140	9	0,958
58797025000106*	M12	21,0	24,8	25	106	50	7,8	0,347
58798025000131	M12	23,0	24,8	25	131	75	9	1,022
58798025000156	M12	23,0	24,8	25	156	100	9	1,225
58798025000181	M12	23,0	24,8	25	181	125	9	1,417
58798025000206	M12	23,0	24,8	25	206	150	9	1,620
58798025000231	M12	23,0	24,8	25	231	175	9	1,822
58797032000110*	M16	29,0	31,9	32	110	50	7,8	0,619
58798032000160	M16	29,0	31,9	32	160	100	16	2,612
58798032000210	M16	29,0	31,9	32	210	150	16	3,310
58798032000260	M16	29,0	31,9	32	260	200	16	4,174
58798032000310	M16	29,0	31,9	32	310	250	16	4,955
58798036000160	M16	31,5	34,8	36	160	100	9	2,406
58798036000310	M16	31,5	34,8	36	310	250	9	

Variant: heavy metal, *steel

KOMET ABS® N TC

Adaptor with ABS® N connection



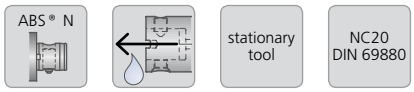


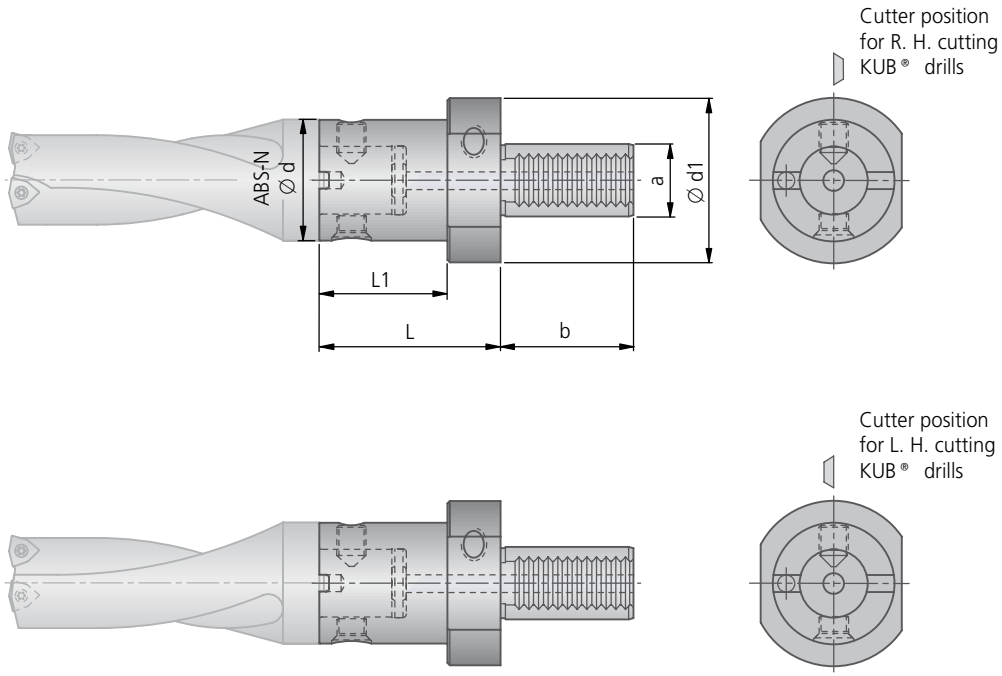
ABS® N TC							
Article	Order No.	ABS-N Ø d	L	Ø a	b	G	kg
ABS50N-TC40	A01 15450	50	60	40	100	G3/8"	1,67
ABS63N-TC40	A01 15460	63	65	40	100	G3/8"	2,25
ABS50N-TC50	A01 15550	50	60	50	120	G3/8"	2,50
ABS63N-TC50	A01 15560	63	65	50	120	G3/8"	3,10
ABS80N-TC50	A01 15570	80	70	50	120	G3/8"	3,94
ABS50N-TC60	A01 15650	50	60	60	120	G3/8"	3,35
ABS63N-TC60	A01 15660	63	65	60	120	G3/8"	3,87
ABS80N-TC60	A01 15670	80	70	60	120	G3/8"	4,84
ABS50N-TC80	A01 15750	50	60	80	160	G3/8"	6,87
ABS63N-TC80	A01 15760	63	65	80	160	G3/8"	7,41
ABS80N-TC80	A01 15770	80	70	80	160	G3/8"	8,25
ABS100N-TC80	A01 15780	100	90	80	160	G3/8"	10,38

We supply other shank versions on request.

KOMET ABS® N NC..20

VDI Adaptor with ABS® N connection





NC..20 ABS® N								
Article	Order No.	ABS-N Ø d	L	L1	a	b	Ø d1	kg
ABS50N-NC3020	A01 11152	50	60	38	30	55	68	1,33
ABS50N-NC4020	A01 11252	50	60	38	40	63	83	1,89
ABS63N-NC4020	A01 11262	63	70	48	40	63	83	2,35
ABS80N-NC4020	A01 11271	80	75	53	40	63	83	2,97
ABS50N-NC5020	A01 11352	50	65	35	50	78	98	3,06
ABS63N-NC5020	A01 11362	63	75	45	50	78	98	3,51
ABS80N-NC5020	A01 11372	80	75	45	50	78	98	3,86
ABS50N-NC6020	A01 11452	50	65	35	60	94	123	4,82
ABS63N-NC6020	A01 11462	63	75	45	60	94	123	5,24
ABS80N-NC6020	A01 11472	80	75	45	60	94	123	5,61
ABS100N-NC6020	A01 11482	100	90	60	60	94	123	7,00

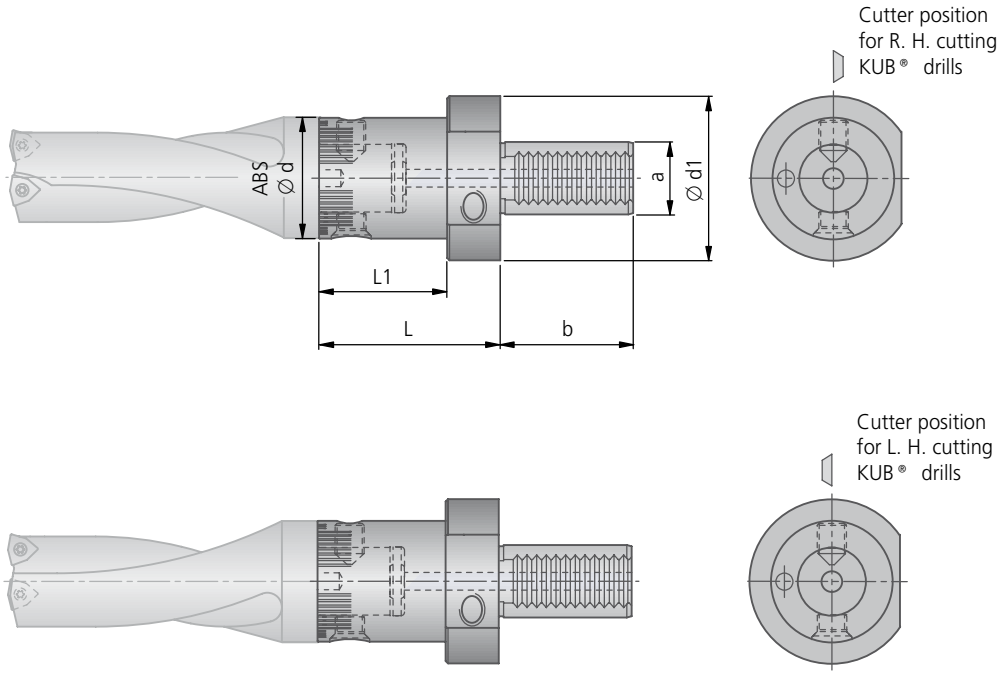
Note:
When adjusting the KUB® drill in + X direction, use this adaptor.

Patent applied for inside and outside Germany

KOMET ABS® NC..20 TSD

VDI Torsional dampener with ABS® connection





NC..20 ABS® TSD								
Article	Order No.	ABS Ø d	L	L1	a	b	Ø d1	kg
NC4020 ABS50-TSD	**A01 14251**	50	60	38	40	63	83	1,89
NC4020 ABS63-TSD	**A01 14261**	63	70	48	40	63	83	2,35
NC5020 ABS50-TSD	**A01 14351**	50	65	35	50	78	98	3,06
NC5020 ABS63-TSD	**A01 14361**	63	75	45	50	78	98	3,51
NC5020 ABS80-TSD	**A01 14370**	80	75	45	50	78	98	3,86

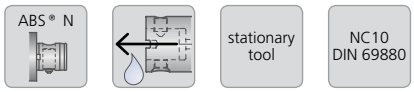
The torsional dampeners are designed for solid drills in line with the torque which is produced.
Recommended use:

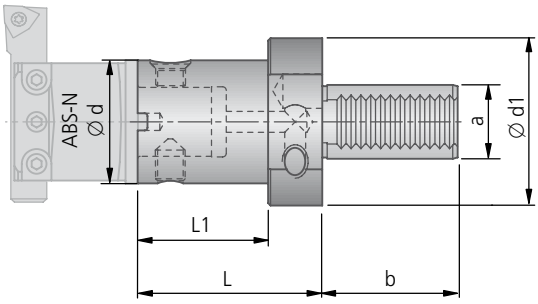
...-ABS50-TSD for drill ∅ 14 - 44 mm
...-ABS63-TSD for drill ∅ 45 - 54 mm
...-ABS80-TSD for drill ∅ 55 - 81 mm

For drill heads V464 with larger diameters we recommend the use of appropriate reducers (available on request).

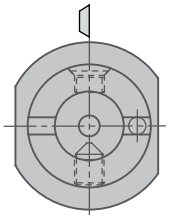
KOMET ABS® N NC..10

VDI Adaptor with ABS® N connection





Cutter position for
L. H. cutting turning tools



For using KUB® drills
we recommend the adaptor NC..20.

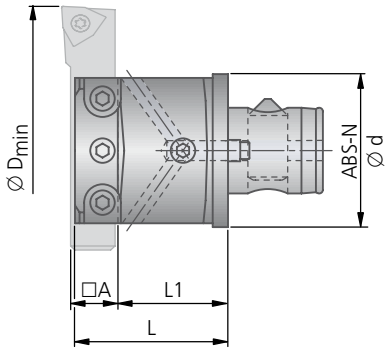
ABS® N NC..10								
Article	Order No.	ABS-N Ø d	L	L1	a	b	Ø d1	kg
ABS50N-NC3010	A01 10151	50	60	38	30	55	68	1,33
ABS40N-NC4010	A01 10241	40	50	25	40	63	83	1,67
ABS50N-NC4010	A01 10251	50	60	38	40	63	83	1,90
ABS63N-NC4010	A01 10261	63	70	48	40	63	83	2,40
ABS80N-NC4010	A01 10271	80	75	53	40	63	83	2,98
ABS50N-NC5010	A01 10351	50	65	35	50	78	98	3,06
ABS63N-NC5010	A01 10361	63	75	45	50	78	98	3,06
ABS80N-NC5010	A01 10371	80	75	45	50	78	98	3,87
ABS50N-NC6010	A01 10451	50	65	35	60	94	123	4,80
ABS63N-NC6010	A01 10461	63	75	45	60	94	123	5,24
ABS80N-NC6010	A01 10471	80	75	45	60	94	123	5,63

Patent applied for inside and outside Germany

KOMET ABS® N

Adaptor with ABS® N connection

Turning tool | stationary tool | ABS® N



ABS® N								
Order No.	ABS-N Ø d	Ø D min.	L	L1	□ A	kg	Threaded pin DIN 915 Article	Order No.
A36 33050	40	60	40	29	12		M6×12	55053 06012
A36 34050	50	75	50	36	16		M8×20	55053 08020
A36 35050	63	95	63	45	20		M10×20	55053 10020
A36 36050	80	120	80	58	25		M12×25	55053 12025
A36 37050	100	150	100	72	32		M16×30	55053 16030

Supply includes: Adaptor fitted complete, inclusive threaded pin.

KOMET ®

Shrink fit technology ThermoGrip ®



BENEFITS for you:

- Rapid thermal expansion and shrinkage
- Maximum clamping forces can be achieved
- Longer tool life and spindle life
- Good surfaces due to high rigidity produced by tool clamping
- Good bending and radial rigidity even with long overhangs
- Narrow chuck design
- Clamping for solid carbide and HSS tools for shank tolerance h6, < Ø 6 h5 to DIN 6335 and DIN 1835 possible with the same chucks
- By using a special heat resistant steel and a special heat treatment process the chucks have particularly good durability and stable form
- Chuck concentricity ≦ 3 µm
- Used for extremely high spindle speeds

KOMET® ThermoGrip®	Page
HSK-A adaptor	
short design	480 / 482
long design	481 / 483
HSK-E adaptor	484
Cylindrical adaptor	
Extension / Reducer	485
Taper shank	
DIN 69871-1 AD	486 – 487
DIN 69871-1 AD/B	488 – 489
JIS B 6339 (MAS 403 BT)	490 – 491
ABS® adaptor	492
Measuring adaptor	493
Technical information	494 – 495

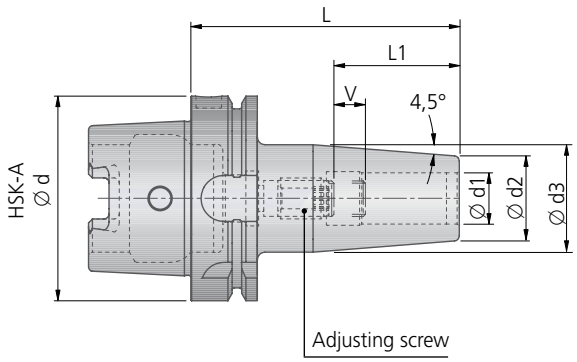
ThermoGrip® is a registered trademark of Bilz Werkzeugfabrik GmbH & Co. KG

KOMET® ISO 12164-1

HSK-A Thermal expansion chuck ThermoGrip®

HSK-A ISO 12164-1 | location DIN 69882-8 | pre-balanced G6,3 18.000 min^{-1} | rotating tool | DIN 6535 HA | DIN 6535 HB | DIN 6535 HE | DIN 1835 T1 A | DIN 1835 T1 B | DIN 1835 T1 E

■ short design

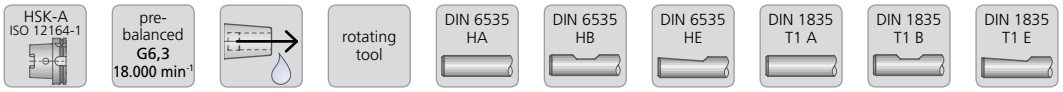


HSK-A DIN 69893 T1 | ThermoGrip®										Adjusting screw	
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
HSK-A32-T3	**A06 06010**	32	3	15	20	65	20	5		M6 / SW3	**55051 06008**
HSK-A32-T4	**A06 06020**	32	4	15	20	65	20	5		M6 / SW3	**55051 06008**
HSK-A32-T5	**A06 06030**	32	5	15	20	65	25	5		M6 / SW3	**55051 06008**
HSK-A32-T6	**A06 06040**	32	6	21	26	70	36	10		M5 / SW2,5	**N00 72000**
HSK-A32-T8	**A06 06050**	32	8	21	26	70	36	10		M6 / SW3	**N00 72010**
HSK-A32-T10	**A06 06061**	32	10	24	29	75	42	10		M8×1 / SW4	**N00 72050**
HSK-A32-T12	**A06 06071**	32	12	24	29	75	47	5		M10×1 / SW5	**N00 72060**
HSK-A40-T6	**A06 16040**	40	6	21	27	80	36	10	0,38	M5 / SW2,5	**N00 72000**
HSK-A40-T8	**A06 16050**	40	8	21	27	80	36	10	0,38	M6 / SW3	**N00 72010**
HSK-A40-T10	**A06 16061**	40	10	24	32	80	42	10	0,45	M8×1 / SW4	**N00 72050**
HSK-A40-T12	**A06 16071**	40	12	24	32	90	47	10	0,49	M10×1 / SW5	**N00 72060**
HSK-A40-T14	**A06 16081**	40	14	27	34	90	47	10		M10×1 / SW5	**N00 72060**
HSK-A40-T16	**A06 16091**	40	16	27	34	90	50	10	0,52	M12×1 / SW6	**N00 72070**
HSK-A50-T6	**A06 26040**	50	6	21	27	80	36	10	0,56	M5 / SW2,5	**N00 72000**
HSK-A50-T8	**A06 26050**	50	8	21	27	80	36	10		M6 / SW3	**N00 72010**
HSK-A50-T10	**A06 26061**	50	10	24	32	85	42	10	0,64	M8×1 / SW4	**N00 72050**
HSK-A50-T12	**A06 26071**	50	12	24	32	90	47	10	0,65	M10×1 / SW5	**N00 72060**
HSK-A50-T14	**A06 26081**	50	14	27	34	90	47	10		M10×1 / SW5	**N00 72060**
HSK-A50-T16	**A06 26091**	50	16	27	34	95	50	10		M12×1 / SW6	**N00 72070**
HSK-A50-T18	**A06 26101**	50	18	33	42	95	50	10		M12×1 / SW6	**N00 72070**
HSK-A50-T20	**A06 26111**	50	20	33	42	100	52	10		M16×1 / SW8	**N00 72080**
HSK-A63-T6	**A06 36040**	63	6	21	27	80	36	10	0,80	M5 / SW2,5	**N00 72000**
HSK-A63-T8	**A06 36050**	63	8	21	27	80	36	10	0,80	M6 / SW3	**N00 72010**
HSK-A63-T10	**A06 36061**	63	10	24	32	85	42	10	0,90	M8×1 / SW4	**N00 72050**
HSK-A63-T12	**A06 36071**	63	12	24	32	90	47	10	0,90	M10×1 / SW5	**N00 72060**
HSK-A63-T14	**A06 36081**	63	14	27	34	90	47	10	0,98	M10×1 / SW5	**N00 72060**
HSK-A63-T16	**A06 36091**	63	16	27	34	95	50	10	0,90	M12×1 / SW6	**N00 72070**
HSK-A63-T18	**A06 36101**	63	18	33	42	95	50	10	1,14	M12×1 / SW6	**N00 72070**
HSK-A63-T20	**A06 36111**	63	20	33	42	100	52	10	1,18	M16×1 / SW8	**N00 72080**
HSK-A63-T25	**A06 36121**	63	25	44	52,5	115	58	10	1,73	M16×1 / SW8	**N00 72080**
HSK-A63-T32	**A06 36131**	63	32	44	52,5	120	62	5	1,66	M16×1 / SW8	**N00 72080**

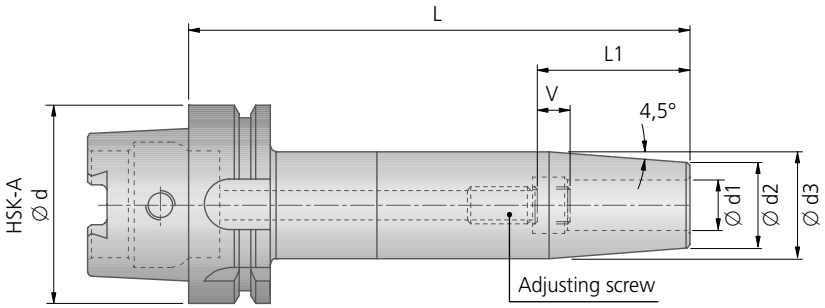
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

HSK-A Thermal expansion chuck ThermoGrip ®



long design ■



HSK-A DIN 69893 T1 | ThermoGrip ®											
										Adjusting screw	
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
HSK-A63-T6-120	**A06 36240**	63	6	21	27	120	36	10	1,09	M5/SW2,5	**N00 72000**
HSK-A63-T8-120	**A06 36250**	63	8	21	27	120	36	10	1,08	M6/SW3	**N00 72010**
HSK-A63-T10-120	**A06 36261**	63	10	24	32	120	42	10	1,20	M8×1/SW4	**N00 72050**
HSK-A63-T12-120	**A06 36271**	63	12	24	32	120	47	10	1,21	M10×1/SW5	**N00 72060**
HSK-A63-T14-120	**A06 36281**	63	14	27	34	120	47	10	1,25	M10×1/SW5	**N00 72060**
HSK-A63-T16-120	**A06 36291**	63	16	27	34	120	50	10	1,22	M12×1/SW6	**N00 72070**
HSK-A63-T6-160	**A06 36440**	63	6	21	32	160	36	10	1,37	M5/SW2,5	**N00 72000**
HSK-A63-T8-160	**A06 36450**	63	8	21	32	160	36	10	1,36	M6/SW3	**N00 72010**
HSK-A63-T10-160	**A06 36461**	63	10	24	34	160	42	10	1,49	M8×1/SW4	**N00 72050**
HSK-A63-T12-160	**A06 36471**	63	12	24	34	160	47	10	1,48	M10×1/SW5	**N00 72060**
HSK-A63-T14-160	**A06 36481**	63	14	27	42	160	47	10	1,72	M10×1/SW5	**N00 72060**
HSK-A63-T16-160	**A06 36491**	63	16	27	42	160	50	10	1,70	M12×1/SW6	**N00 72070**
HSK-A63-T18-160	**A06 36501**	63	18	33	51	160	50	10	1,87	M12×1/SW6	**N00 72070**
HSK-A63-T20-160	**A06 36511**	63	20	33	51	160	52	10	1,83	M16×1/SW8	**N00 72080**
HSK-A63-T25-160	**A06 36521**	63	25	44	52,5	160	58	10	2,50	M16×1/SW8	**N00 72080**
HSK-A63-T32-160	**A06 36531**	63	32	44	52,5	160	62	10	2,36	M16×1/SW8	**N00 72080**

Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

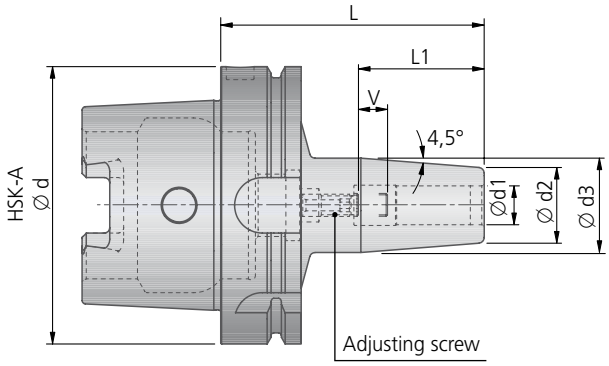
Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

KOMET® ISO 12164-1

HSK-A Thermal expansion chuck ThermoGrip®

HSK-A ISO 12164-1 | location DIN 69882-8 | pre-balanced G6,3 12.000 min-1 | rotating tool | DIN 6535 HA | DIN 6535 HB | DIN 6535 HE | DIN 1835 T1 A | DIN 1835 T1 B | DIN 1835 T1 E

■ short design

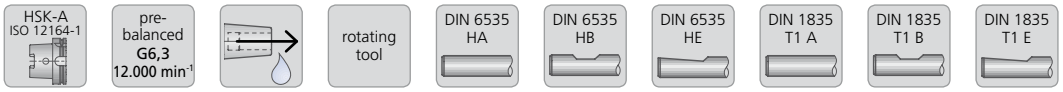


HSK-A DIN 69893 T1 | ThermoGrip®										Adjusting screw	
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
HSK-A100-T6	**A06 56040**	100	6	21	27	85	36	10	2,16	M5 / SW2,5	**N00 72000**
HSK-A100-T8	**A06 56050**	100	8	21	27	85	36	10	2,15	M6 / SW3	**N00 72010**
HSK-A100-T10	**A06 56061**	100	10	24	32	90	42	10	2,24	M8×1 / SW4	**N00 72050**
HSK-A100-T12	**A06 56071**	100	12	24	32	95	47	10	2,26	M10×1 / SW5	**N00 72060**
HSK-A100-T14	**A06 56081**	100	14	27	34	95	47	10	2,31	M10×1 / SW5	**N00 72060**
HSK-A100-T16	**A06 56091**	100	16	27	34	100	50	10	2,32	M12×1 / SW6	**N00 72070**
HSK-A100-T18	**A06 56101**	100	18	33	42	100	50	10	2,48	M12×1 / SW6	**N00 72070**
HSK-A100-T20	**A06 56111**	100	20	33	42	105	52	10	2,49	M16×1 / SW8	**N00 72080**
HSK-A100-T25	**A06 56121**	100	25	44	53	115	58	10	3,01	M16×1 / SW8	**N00 72080**
HSK-A100-T32	**A06 56131**	100	32	44	53	120	62	10	2,93	M16×1 / SW8	**N00 72080**

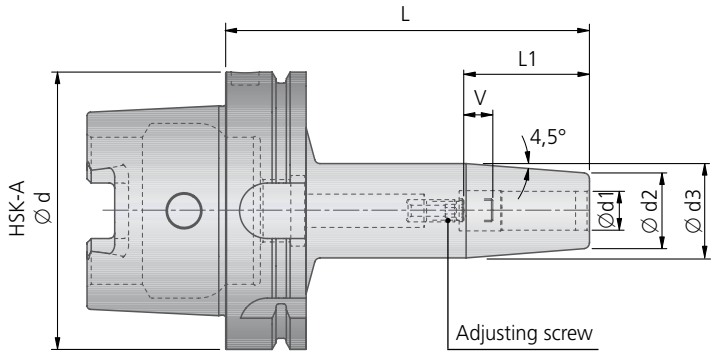
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

HSK-A Thermal expansion chuck ThermoGrip ®



long design ■



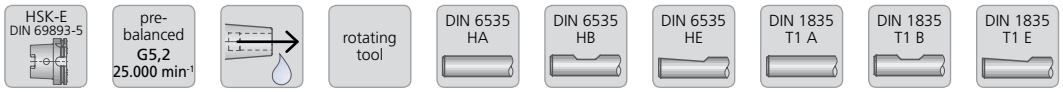
HSK-A DIN 69893 T1 | ThermoGrip ®											
										Adjusting screw	
Article	Order No.	HSK-A Ø d	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
HSK-A100-T6-120	**A06 56240**	100	6	21	27	120	36	10	2,33	M5/SW2,5	**N00 72000**
HSK-A100-T8-120	**A06 56250**	100	8	21	27	120	36	10	2,34	M6/SW3	**N00 72010**
HSK-A100-T10-120	**A06 56261**	100	10	24	32	120	42	10	2,50	M8×1/SW4	**N00 72050**
HSK-A100-T12-120	**A06 56271**	100	12	24	32	120	47	10	2,44	M10×1/SW5	**N00 72060**
HSK-A100-T14-120	**A06 56281**	100	14	27	34	120	47	10	2,50	M10×1/SW5	**N00 72060**
HSK-A100-T16-120	**A06 56291**	100	16	27	34	120	50	10	2,50	M12×1/SW6	**N00 72070**
HSK-A100-T6-160	**A06 56440**	100	6	21	32	160	36	10	2,60	M5/SW2,5	**N00 72000**
HSK-A100-T8-160	**A06 56450**	100	8	21	32	160	36	10	2,50	M6/SW3	**N00 72010**
HSK-A100-T10-160	**A06 56461**	100	10	24	34	160	42	10	2,70	M8×1/SW4	**N00 72050**
HSK-A100-T12-160	**A06 56471**	100	12	24	34	160	47	10	2,70	M10×1/SW5	**N00 72060**
HSK-A100-T14-160	**A06 56481**	100	14	27	42	160	47	10	3,00	M10×1/SW5	**N00 72060**
HSK-A100-T16-160	**A06 56491**	100	16	27	42	160	50	10	3,00	M12×1/SW6	**N00 72070**
HSK-A100-T18-160	**A06 56501**	100	18	33	51	160	50	10	3,10	M12×1/SW6	**N00 72070**
HSK-A100-T20-160	**A06 56511**	100	20	33	51	160	52	10	3,10	M16×1/SW8	**N00 72080**
HSK-A100-T25-160	**A06 56521**	100	25	44	60	160	58	10	3,80	M16×1/SW8	**N00 72080**
HSK-A100-T32-160	**A06 56531**	100	32	44	60	160	62	10	3,70	M16×1/SW8	**N00 72080**

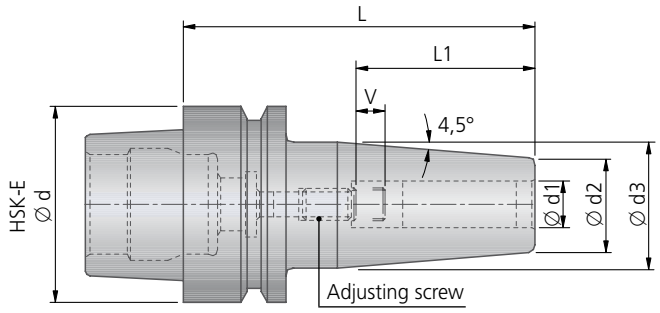
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

KOMET® DIN 69893 T5

HSK-E Thermal expansion chuck ThermoGrip®





HSK-E DIN 69893 T5 | ThermoGrip®											
										Adjusting screw	
Article	Order No.	HSK-E Ø d	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
HSK-E 32-T 3	A10 16010	32	3	15	20	60	20	5		M6/SW3	55051 06008
HSK-E 32-T 4	A10 16020	32	4	15	20	60	20	5		M6/SW3	55051 06008
HSK-E 32-T 6	A10 16040	32	6	21	26	70	36	10	0,28	M5/SW2,5	N00 72000
HSK-E 32-T 8	A10 16050	32	8	21	26	70	36	10		M6/SW3	N00 72010
HSK-E 32-T10	A10 16061	32	10	24	29	70	42	10		M8×1/SW4	N00 72050
HSK-E 32-T12	A10 16071	32	12	24	29	70	47	10		M10×1/SW5	N00 72060
HSK-E 40-T 3	A10 26010	40	3	15	20	60	20	5	0,24	M6/SW3	55051 06008
HSK-E 40-T 4	A10 26020	40	4	15	20	60	20	5		M6/SW3	55051 06008
HSK-E 40-T 6	A10 26040	40	6	21	27	80	36	10	0,39	M5/SW2,5	N00 72000
HSK-E 40-T 8	A10 26050	40	8	21	27	80	36	10	0,39	M6/SW3	N00 72010
HSK-E 40-T10	A10 26061	40	10	24	32	80	42	10	0,44	M8×1/SW4	N00 72050
HSK-E 40-T12	A10 26071	40	12	24	32	90	47	10	0,48	M10×1/SW5	N00 72060
HSK-E 40-T14	A10 26081	40	14	27	34	90	47	10		M10×1/SW5	N00 72060
HSK-E 40-T16	A10 26091	40	16	27	34	90	50	10		M12×1/SW6	N00 72070
HSK-E 50-T 3	A10 36010	50	3	15	20	80	20	5		M6/SW3	55051 06008
HSK-E 50-T 4	A10 36020	50	4	15	20	80	20	5		M6/SW3	55051 06008
HSK-E 50-T 5	A10 36030	50	5	15	20	80	20	5		M6/SW3	55051 06008
HSK-E 50-T 6	A10 36040	50	6	21	27	80	36	10	0,57	M5/SW2,5	N00 72000
HSK-E 50-T 8	A10 36050	50	8	21	27	80	36	10	0,66	M6/SW3	N00 72010
HSK-E 50-T10	A10 36061	50	10	24	32	85	42	10	0,68	M8×1/SW4	N00 72050
HSK-E 50-T12	A10 36071	50	12	24	32	90	47	10		M10×1/SW5	N00 72060
HSK-E 50-T14	A10 36081	50	14	27	34	90	47	10		M10×1/SW5	N00 72060
HSK-E 50-T16	A10 36091	50	16	27	34	95	50	10		M12×1/SW6	N00 72070
HSK-E 50-T18	A10 36101	50	18	33	42	95	50	10		M12×1/SW6	N00 72070
HSK-E 50-T20	A10 36111	50	20	33	42	100	52	10		M16×1/SW8	N00 72080
HSK-E 63-T 6	A10 46040	63	6	21	27	80	36	10		M5/SW2,5	N00 72000
HSK-E 63-T 8	A10 46050	63	8	21	27	80	36	10		M6/SW3	N00 72010
HSK-E 63-T10	A10 46060	63	10	24	32	85	42	10		M8×1/SW4	N00 72050
HSK-E 63-T12	A10 46070	63	12	24	32	90	47	10		M10×1/SW5	N00 72060
HSK-E 63-T14	A10 46080	63	14	27	34	90	47	10		M10×1/SW5	N00 72060
HSK-E 63-T16	A10 46090	63	16	27	34	95	50	10		M12×1/SW6	N00 72070
HSK-E 63-T20	A10 46110	63	20	33	42	100	52	10		M16×1/SW8	N00 72080

Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

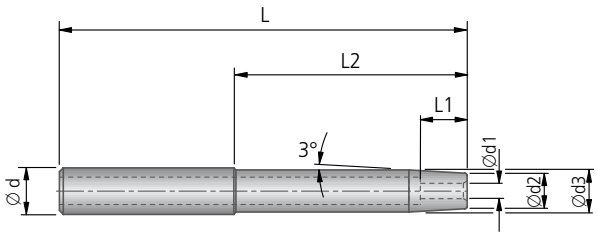
Supply includes:

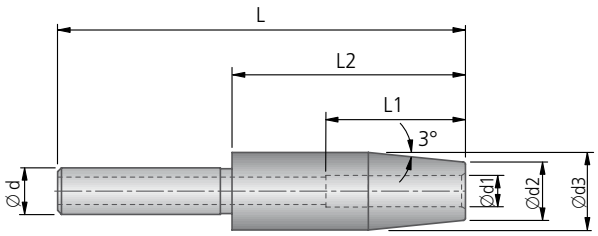
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

Extension / Reducer ThermoGrip ®



to extended and reduce to smaller diameters





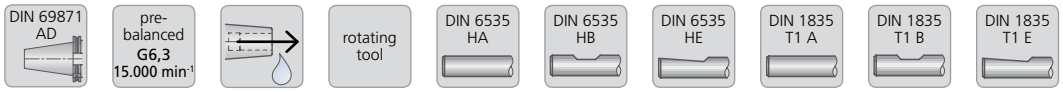
Extension / Reducer | ThermoGrip ®									
Article	Order No.	Ø d	Ø d1	Ø d2	Ø d3	L	L1	L2	kg
D12-T 3	A21 02001	12	3	9	11,8	110	20	63	
D12-T 4	A21 02011	12	4	10	11,8	110	20	63	
D12-T 5	A21 02021	12	5	11	11,8	110	25	63	
D12-T 6	A21 02031	12	6	12	17	110	36	63	
D12-T 8	A21 02041	12	8	14	19	110	36	63	
D16-T 3	A21 04001	16	3	9	13	110	20	60	
D16-T 4	A21 04011	16	4	10	14	110	20	60	
D16-T 5	A21 04021	16	5	11	15	110	25	60	
D16-T 6	A21 04031	16	6	12	15,8	110	36	60	
D16-T 8	A21 04041	16	8	14	19	110	36	60	
D20-T 3	A21 06001	20	3	9	13	110	20	58	
D20-T 4	A21 06011	20	4	10	14	110	20	58	
D20-T 5	A21 06021	20	5	11	15	110	25	58	
D20-T 6	A21 06031	20	6	12	16	110	36	58	
D20-T 8	A21 06041	20	8	14	19	110	36	58	
D20-T10	A21 06052	20	10	16	19,8	110	42	58	
D20-T12	A21 06062	20	12	18	19,8	110	47	58	

Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

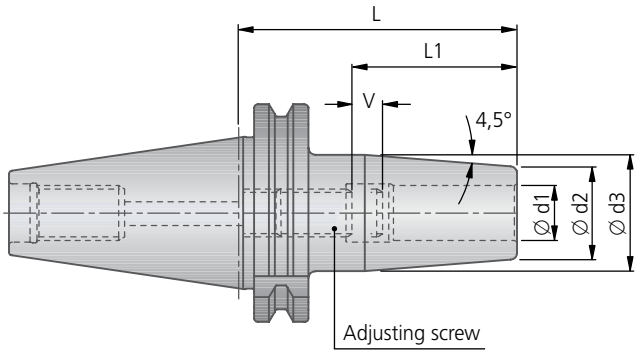
Supply includes:
Extension / Reducer with adjusting screw.

KOMET® DIN 69871 AD

Taper shank ThermoGrip®



■ short design

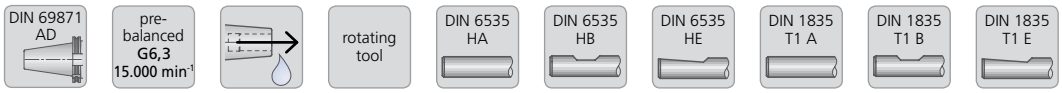


DIN 69871 AD | ThermoGrip®										Adjusting screw	
SK	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
40	ISO40 DIN69871AD-T3	**A25 06010**	3	15	20	80	20	5		M6/SW3	**55051 06008**
40	ISO40 DIN69871AD-T4	**A25 06020**	4	15	20	80	20	5		M6/SW3	**55051 06008**
40	ISO40 DIN69871AD-T5	**A25 06030**	5	15	20	80	25	5		M6/SW3	**55051 06008**
40	ISO40 DIN69871AD-T6	**A25 36040**	6	21	27	80	36	10	0,99	M5/SW2,5	**N00 72000**
40	ISO40 DIN69871AD-T8	**A25 36050**	8	21	27	80	36	10	0,98	M6/SW3	**N00 72010**
40	ISO40 DIN69871AD-T10	**A25 36061**	10	24	32	80	42	10	1,06	M8×1/SW4	**N00 72050**
40	ISO40 DIN69871AD-T12	**A25 36071**	12	24	32	80	47	10	1,05	M10×1/SW5	**N00 72060**
40	ISO40 DIN69871AD-T14	**A25 36081**	14	27	34	80	47	10	1,09	M10×1/SW5	**N00 72060**
40	ISO40 DIN69871AD-T16	**A25 36091**	16	27	34	80	50	10	1,07	M12×1/SW6	**N00 72070**
40	ISO40 DIN69871AD-T18	**A25 36101**	18	33	42	80	50	10	1,24	M12×1/SW6	**N00 72070**
40	ISO40 DIN69871AD-T20	**A25 36111**	20	33	42	80	52	10	1,18	M16×1/SW8	**N00 72080**
40	ISO40 DIN69871AD-T25	**A25 36121**	25	44	50	100	58	10	1,73	M16×1/SW8	**N00 72080**

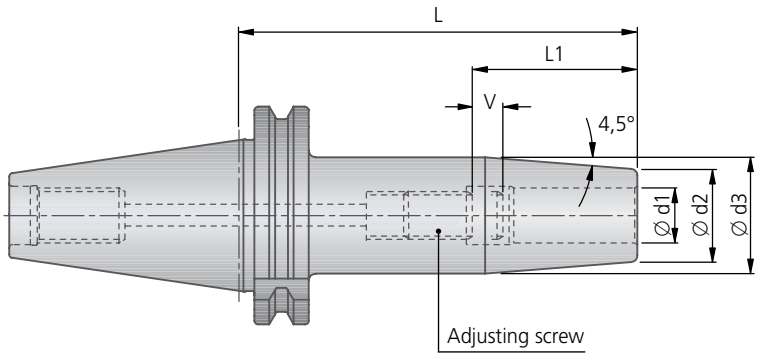
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Pull studs not included (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.



long design ■



DIN 69871 AD | ThermoGrip ®										Adjusting screw	
SK	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
40	ISO40 DIN69871AD-T6-160	**A25 36440**	6	21	32	160	36	10		M5/SW2,5	**N00 72000**
40	ISO40 DIN69871AD-T8-160	**A25 36450**	8	21	32	160	36	10		M6/SW3	**N00 72010**
40	ISO40 DIN69871AD-T10-160	**A25 36461**	10	24	34	160	42	10		M8×1/SW4	**N00 72050**
40	ISO40 DIN69871AD-T12-160	**A25 36471**	12	24	34	160	47	10		M10×1/SW5	**N00 72060**
40	ISO40 DIN69871AD-T14-160	**A25 36481**	14	27	42	160	47	10		M10×1/SW5	**N00 72060**
40	ISO40 DIN69871AD-T16-160	**A25 36491**	16	27	42	160	50	10		M12×1/SW6	**N00 72070**
40	ISO40 DIN69871AD-T18-160	**A25 36501**	18	33	50	160	50	10		M12×1/SW6	**N00 72070**
40	ISO40 DIN69871AD-T20-160	**A25 36511**	20	33	50	160	52	10		M16×1/SW8	**N00 72080**

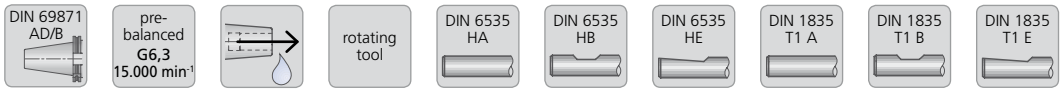
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Pull studs not included (chapter 8).

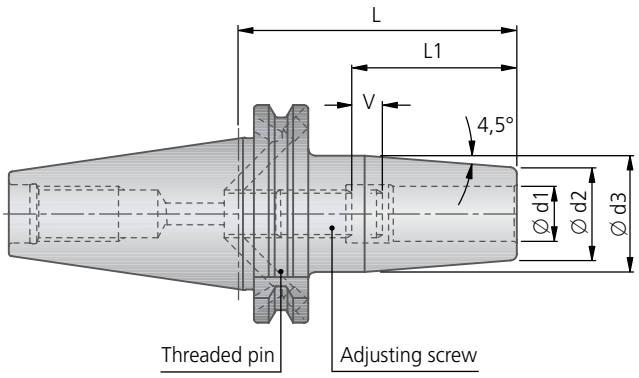
Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® DIN 69871 AD/B

Taper shank ThermoGrip®



■ short design

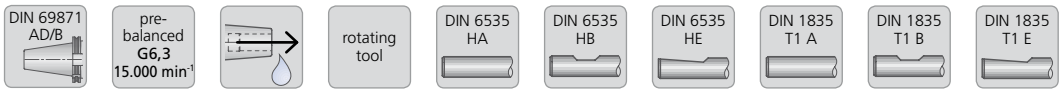


DIN 69871 AD/B | ThermoGrip®										Adjusting screw		Threaded pin
SK	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.	Order No. Article
40	ISO40 DIN69871AD/B-T6	**A25 06041**	6	21	27	80	36	10	1,01	M5 / SW2,5	**N00 72000**	N00 70140 M5×5
40	ISO40 DIN69871AD/B-T8	**A25 06051**	8	21	27	80	36	10	1,00	M6 / SW3	**N00 72010**	
40	ISO40 DIN69871AD/B-T10	**A25 06061**	10	24	32	80	42	10	1,07	M8×1 / SW4	**N00 72050**	
40	ISO40 DIN69871AD/B-T12	**A25 06071**	12	24	32	80	47	10	1,05	M10×1 / SW5	**N00 72060**	
40	ISO40 DIN69871AD/B-T14	**A25 06081**	14	27	34	80	47	10	1,10	M10×1 / SW5	**N00 72060**	
40	ISO40 DIN69871AD/B-T16	**A25 06091**	16	27	34	80	50	10	1,07	M12×1 / SW6	**N00 72070**	
40	ISO40 DIN69871AD/B-T18	**A25 06101**	18	33	42	80	50	10	1,21	M12×1 / SW6	**N00 72070**	
40	ISO40 DIN69871AD/B-T20	**A25 06111**	20	33	42	80	52	10	1,17	M16×1 / SW8	**N00 72080**	
40	ISO40 DIN69871AD/B-T25	**A25 06121**	25	44	50	100	58	10	1,73	M16×1 / SW8	**N00 72080**	
50	ISO50 DIN69871AD/B-T6	**A25 26040**	6	21	27	80	36	10	1,95	M5 / SW2,5	**N00 72000**	N00 70140 M5×5
50	ISO50 DIN69871AD/B-T8	**A25 26050**	8	21	27	80	36	10	2,80	M6 / SW3	**N00 72010**	
50	ISO50 DIN69871AD/B-T10	**A25 26061**	10	24	32	80	42	10	2,82	M8×1 / SW4	**N00 72050**	
50	ISO50 DIN69871AD/B-T12	**A25 26071**	12	24	32	80	47	10	2,85	M10×1 / SW5	**N00 72060**	
50	ISO50 DIN69871AD/B-T14	**A25 26081**	14	27	34	80	47	10	2,85	M10×1 / SW5	**N00 72060**	
50	ISO50 DIN69871AD/B-T16	**A25 26091**	16	27	34	80	50	10	2,85	M12×1 / SW6	**N00 72070**	
50	ISO50 DIN69871AD/B-T18	**A25 26101**	18	33	42	80	50	10	2,90	M12×1 / SW6	**N00 72070**	
50	ISO50 DIN69871AD/B-T20	**A25 26111**	20	33	42	80	52	10	2,95	M16×1 / SW8	**N00 72080**	
50	ISO50 DIN69871AD/B-T25	**A25 26121**	25	44	53	90	58	10	3,00	M16×1 / SW8	**N00 72080**	
50	ISO50 DIN69871AD/B-T32	**A25 26131**	32	44	53	90	62	10	3,33	M16×1 / SW8	**N00 72080**	

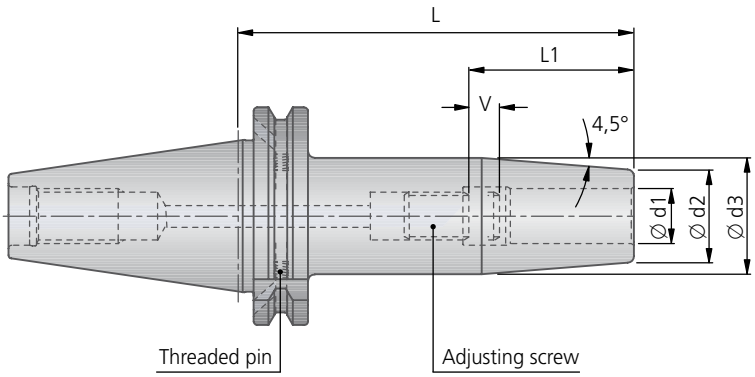
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.



long design ■



DIN 69871 AD/B | ThermoGrip ®											Adjusting screw		Threaded pin
SK	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	V	[kg]		Article	Order No.	Order No. Article
40	ISO40 DIN69871AD/B-T6-120	**A25 06240**	6	21	27	120	36	10			M5/SW2,5	**N00 72000**	
40	ISO40 DIN69871AD/B-T8-120	**A25 06250**	8	21	27	120	36	10			M6/SW3	**N00 72010**	
40	ISO40 DIN69871AD/B-T10-120	**A25 06261**	10	24	32	120	42	10			M8×1/SW4	**N00 72050**	
40	ISO40 DIN69871AD/B-T12-120	**A25 06271**	12	24	32	120	47	10			M10×1/SW5	**N00 72060**	**N00 70140** M5×5
40	ISO40 DIN69871AD/B-T14-120	**A25 06281**	14	27	34	120	47	10			M10×1/SW5	**N00 72060**	
40	ISO40 DIN69871AD/B-T16-120	**A25 06291**	16	27	34	120	50	10			M12×1/SW6	**N00 72070**	
40	ISO40 DIN69871AD/B-T18-120	**A25 06301**	18	33	42	120	50	10			M12×1/SW6	**N00 72070**	
40	ISO40 DIN69871AD/B-T20-120	**A25 06311**	20	33	42	120	52	10			M16×1/SW8	**N00 72080**	
50	ISO50 DIN69871AD/B-T6-120	**A25 26240**	6	21	27	120	36	10			M5/SW2,5	**N00 72000**	
50	ISO50 DIN69871AD/B-T8-120	**A25 26250**	8	21	27	120	36	10			M6/SW3	**N00 72010**	
50	ISO50 DIN69871AD/B-T10-120	**A25 26261**	10	24	32	120	42	10			M8×1/SW4	**N00 72050**	
50	ISO50 DIN69871AD/B-T12-120	**A25 26271**	12	24	32	120	47	10			M10×1/SW5	**N00 72060**	**N00 70140** M5×5
50	ISO50 DIN69871AD/B-T14-120	**A25 26281**	14	27	34	120	47	10			M10×1/SW5	**N00 72060**	
50	ISO50 DIN69871AD/B-T16-120	**A25 26291**	16	27	34	120	50	10			M12×1/SW6	**N00 72070**	
50	ISO50 DIN69871AD/B-T18-120	**A25 26301**	18	33	42	120	50	10			M12×1/SW6	**N00 72070**	
50	ISO50 DIN69871AD/B-T20-120	**A25 26311**	20	33	42	120	52	10			M16×1/SW8	**N00 72080**	

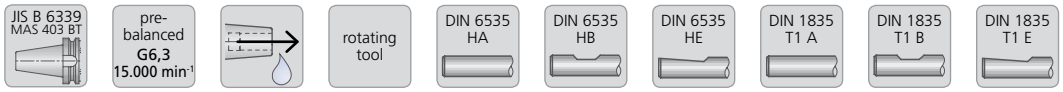
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

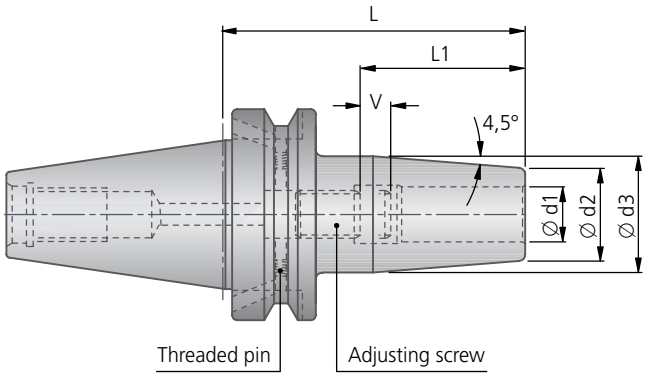
Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET® JIS B 6339 (MAS 403 BT)

Taper shank ThermoGrip®



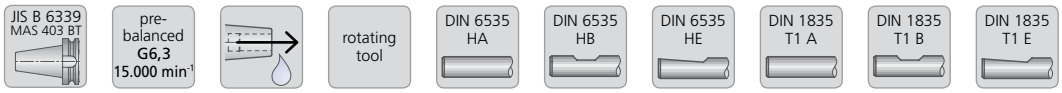


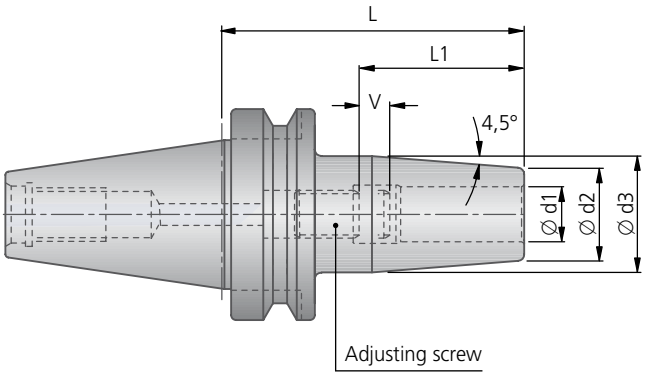
JIS B 6339 (MAS 403 BT) | ThermoGrip®										Adjusting screw		Threaded pin
BT	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.	Order No. Article
40	ISO40 JIS B 6339AD/B-T6	**A25 86040**	6	21	27	90	36	10	1,15	M5/SW2,5	**N00 72000**	
40	ISO40 JIS B 6339AD/B-T8	**A25 86050**	8	21	27	90	36	10	1,15	M6/SW3	**N00 72010**	
40	ISO40 JIS B 6339AD/B-T10	**A25 86061**	10	24	32	90	42	10	1,22	M8×1/SW4	**N00 72050**	
40	ISO40 JIS B 6339AD/B-T12	**A25 86071**	12	24	32	90	47	10	1,21	M10×1/SW5	**N00 72060**	
40	ISO40 JIS B 6339AD/B-T14	**A25 86081**	14	27	34	90	47	10	1,26	M10×1/SW5	**N00 72060**	**N00 70140** M5×5
40	ISO40 JIS B 6339AD/B-T16	**A25 86091**	16	27	34	90	50	10	1,23	M12×1/SW6	**N00 72070**	
40	ISO40 JIS B 6339AD/B-T18	**A25 86101**	18	33	42	90	50	10	1,38	M12×1/SW6	**N00 72070**	
40	ISO40 JIS B 6339AD/B-T20	**A25 86111**	20	33	42	90	52	10	1,35	M16×1/SW8	**N00 72080**	
40	ISO40 JIS B 6339AD/B-T25	**A25 86121**	25	44	53	100	58	10	1,79	M16×1/SW8	**N00 72080**	
40	ISO40 JIS B 6339AD/B-T32	**A25 86131**	32	44	53	100	62	10	1,7	M16×1/SW8	**N00 72080**	

Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.





JIS B 6339 (MAS 403 BT) | ThermoGrip ®										Adjusting screw	
BT	Article	Order No.	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
50	ISO50 JIS B 6339AD-T6-100	**A25 96040**	6	21	27	100	36	10		M5/SW2,5	**N00 72000**
50	ISO50 JIS B 6339AD-T8-100	**A25 96050**	8	21	27	100	36	10		M6/SW3	**N00 72010**
50	ISO50 JIS B 6339AD-T10-100	**A25 96061**	10	24	32	100	42	10		M8×1/SW4	**N00 72050**
50	ISO50 JIS B 6339AD-T12-100	**A25 96071**	12	24	32	100	47	10		M10×1/SW5	**N00 72060**
50	ISO50 JIS B 6339AD-T14-100	**A25 96081**	14	27	34	100	47	10		M10×1/SW5	**N00 72060**
50	ISO50 JIS B 6339AD-T16-100	**A25 96091**	16	27	34	100	50	10		M12×1/SW6	**N00 72070**
50	ISO50 JIS B 6339AD-T18-100	**A25 96101**	18	33	42	100	50	10		M12×1/SW6	**N00 72070**
50	ISO50 JIS B 6339AD-T20-100	**A25 96111**	20	33	42	100	52	10		M16×1/SW8	**N00 72080**

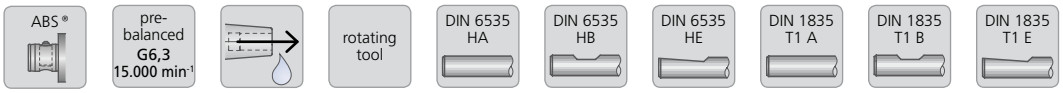
Tool shank tolerances: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

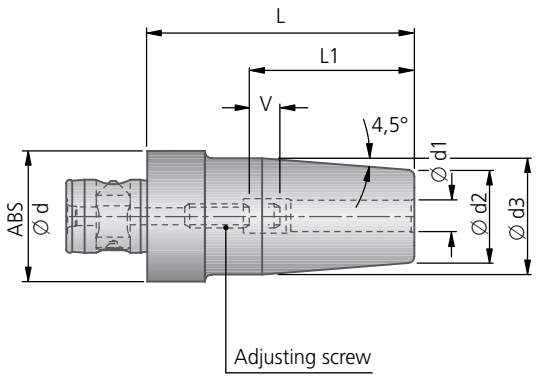
Supply includes:
Thermal expansion chuck fitted complete. Please order coolant supply connection and key separately (chapter 8).

Note: With coolant supply through spindle, use pull stud with through hole. To close off central coolant hole, use pull stud without through hole.

KOMET ABS®

Thermal expansion chuck ThermoGrip®





ABS® | ThermoGrip®										Adjusting screw	
Article	Order No.	ABS Ø d	Ø d1	Ø d2	Ø d3	L	L1	V	kg	Article	Order No.
ABS32-T8	A32 26050	32	8	21	27	70	36	10	0,30	M6 / SW3	N00 72010
ABS32-T10	A32 26061	32	10	24	32	70	42	10	0,37	M8×1 / SW4	N00 72050
ABS32-T12	A32 26071	32	12	24	32	80	47	10	0,40	M10×1 / SW5	N00 72060
ABS40-T8	A32 36050	40	8	21	27	70	36	10	0,39	M6 / SW3	N00 72010
ABS40-T10	A32 36061	40	10	24	32	70	42	10	0,44	M8×1 / SW4	N00 72050
ABS40-T12	A32 36071	40	12	24	32	80	47	10	0,48	M10×1 / SW5	N00 72060
ABS40-T16	A32 36091	40	16	27	34	90	50	10	0,58	M12×1 / SW6	N00 72070
ABS50-T6	A32 46040	50	6	21	27	75	36	10	0,64	M5 / SW2,5	N00 72000
ABS50-T8	A32 46050	50	8	21	27	75	36	10	0,63	M6 / SW3	N00 72010
ABS50-T10	A32 46061	50	10	24	32	80	42	10	0,70	M8×1 / SW4	N00 72050
ABS50-T12	A32 46071	50	12	24	32	80	47	10	0,68	M10×1 / SW5	N00 72060
ABS50-T14	A32 46081	50	14	27	34	80	47	10	0,73	M10×1 / SW5	N00 72060
ABS50-T16	A32 46091	50	16	27	34	85	50	10	0,71	M12×1 / SW6	N00 72070
ABS50-T18	A32 46101	50	18	33	42	85	50	10	0,89	M12×1 / SW6	N00 72070
ABS50-T20	A32 46111	50	20	33	42	90	52	10	0,90	M16×1 / SW8	N00 72080
ABS63-T14	A32 56081	63	14	27	34	85	47	10	1,07	M10×1 / SW5	N00 72060
ABS63-T18	A32 56101	63	18	33	42	90	50	10	1,25	M12×1 / SW6	N00 72070
ABS63-T20	A32 56111	63	20	33	42	90	52	10	1,21	M16×1 / SW8	N00 72080
ABS63-T25	A32 56121	63	25	44	53	95	58	10	1,61	M16×1 / SW8	N00 72080
ABS63-T32	A32 56131	63	32	44	53	95	58	10	1,44	M16×1 / SW8	N00 72080

Tool shank tolerance: h5 for shanks < ∅ 6 mm; h6 for shanks ≥ ∅ 6 mm

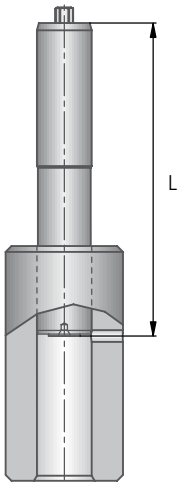
Supply includes: Thermal expansion chuck fitted complete.

Patent applied for inside and outside Germany

KOMET® Measuring adaptor

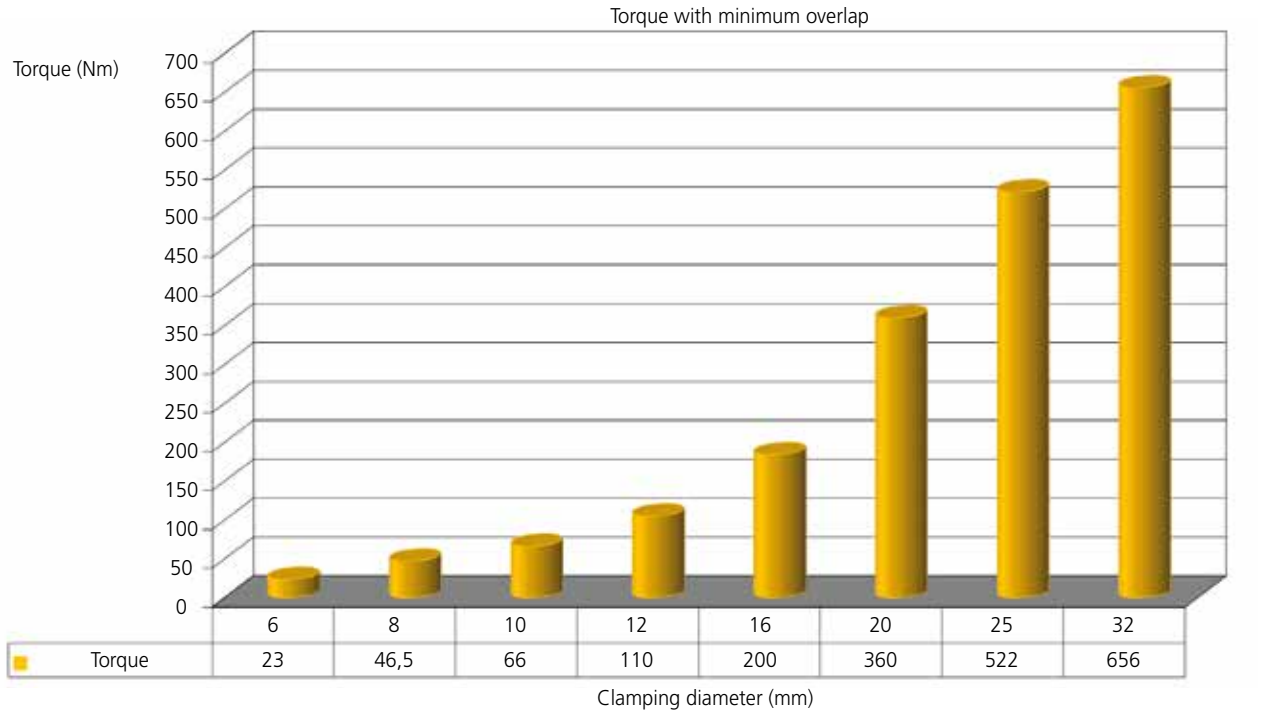
for thermal expansion chuck

for length setting in cold state



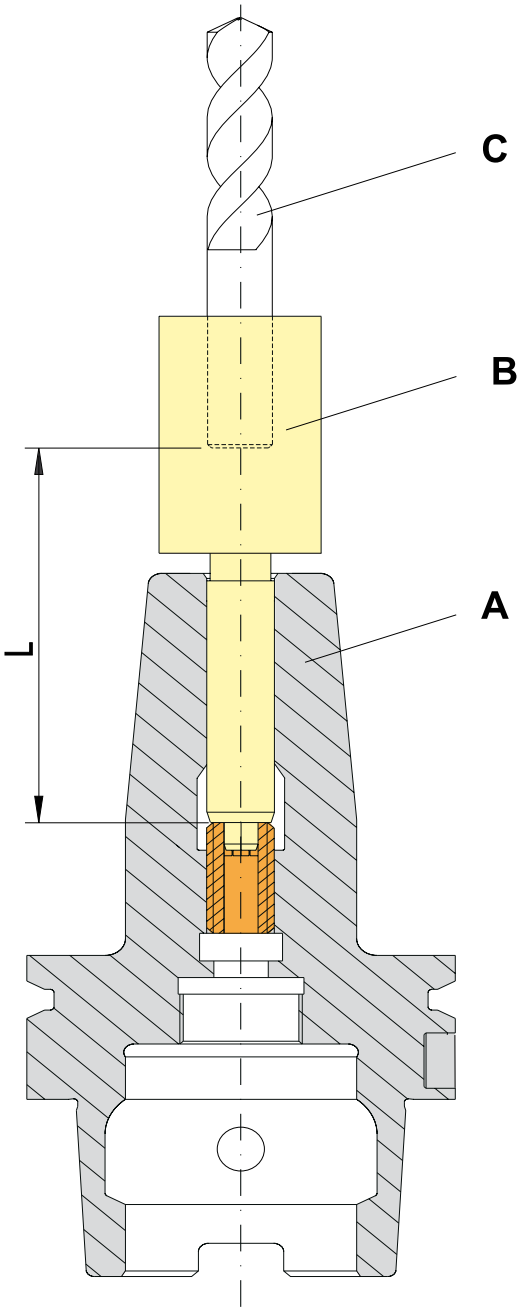
Article	Order No.	Description	SW	L
TM 6	**L05 09430**	Measuring adaptor TM 6	2,5	80
TM 8	**L05 09440**	Measuring adaptor TM 8	3	80
TM 10	**L05 09450**	Measuring adaptor TM 10	4	80
TM 12	**L05 09461**	Measuring adaptor TM 12	5	80
TM 14	**L05 09471**	Measuring adaptor TM 14	5	80
TM 16	**L05 09480**	Measuring adaptor TM 16	6	80
TM 18	**L05 09490**	Measuring adaptor TM 18	6	80
TM 20	**L05 09500**	Measuring adaptor TM 20	8	80
TM 25	**L05 09510**	Measuring adaptor TM 25	8	80
TM 32	**L05 09520**	Measuring adaptor TM 32	8	80

Torque transmission for thermal expansion connection



Length setting the tools

The length setting is carried out before the thermal expansion process using a measuring adaptor (B). This is inserted into the chuck (A) with the tool (C); by turning the adaptor, the tool length is defined with an adjustment screw, allowing for the dimension L. Finally the adaptor is removed and the tool fitted by thermal expansion.



KOMET Kometric®

Insert Seatings



You can obtain KOMET Kometric® seatings from us for fitting into tools.
The KOMET Kometric® system offers a tried and tested range of efficient and economic insert seatings and fine boring cartridges.

This chapter contains the necessary information for fitting these elements. They have been designed so that they are easy to fit, versatile to use and require minimum space.

BENEFITS for you:

- Uncomplicated installation and versatile use, even in the smallest areas
- The use of special tools makes it possible to combine several machining tasks in one work step
- The same quality at reduced production costs



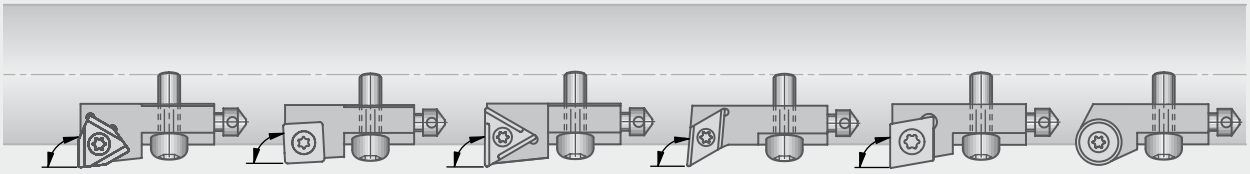
KOMET Kometric®	Page
Programme summary	498 – 499
Semi-finished head	500 – 501
Short clamp holder UKS	
for machining steel	502 – 529
for machining aluminium	572 – 574
Adjustable insert seating WVU, WVP	
for machining steel	532 – 539
Insert flat bed seating FLWE	
for machining steel	530 – 531
Boring tool UZV, UZ, UV	
for machining steel	546 – 559
Micro-adjustable cartridge FZ, FF	
for machining steel	562 – 567
for machining aluminium	576 – 577
Micro-adjustable cartridge M31	
for machining steel	560 – 561
for machining aluminium	578 – 579
Insert seating UWU, UWE	540 – 545
Indexable insert adjustment with set screw	570
Chamfering cartridge	571

Programme summary – Insert seatings Kometric®

for machining steel

Short clamp holder UKS

Page 504 – 513 | 514 | 515 – 520 | 521 – 523 | 525 | 524



κ = 93° · 90° · 75°
60° · 45° · 45°II
30° · 30° I
15° · 0°

κ = 87° · 75° · 45°

κ = 90° · 75° · 45°
30° · 15° · 0°

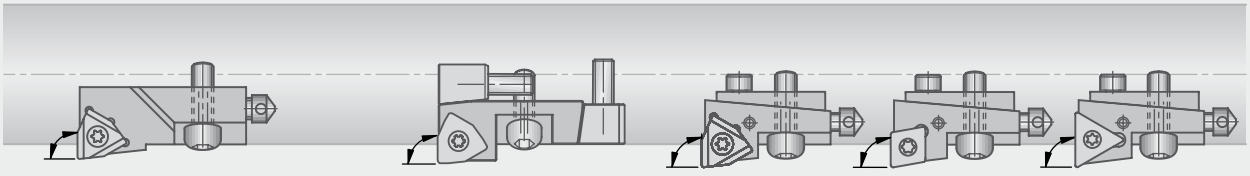
κ = 107,5°
95°
5°

κ = 90°

for round insert

Short clamp holder to ISO standard | with Power insert | with wedge adjustment

Page 526 | 527 | 528 – 529



κ = 90° · 45°

κ = 90°

κ = 90°

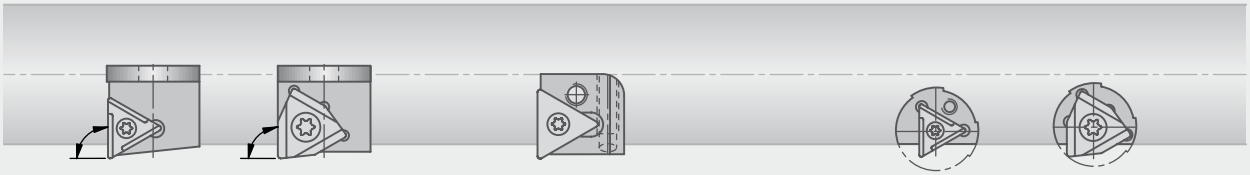
κ = 90°

κ = 90°

Adjustable insert seating | Insert flat bed seating | Insert seating

WVU | WVP | FLWE | UWU, UWE

Page 533 – 537 | 538 – 539 | 531 | 540 – 545



κ = 90° · 75° · 60°
45° · 30°

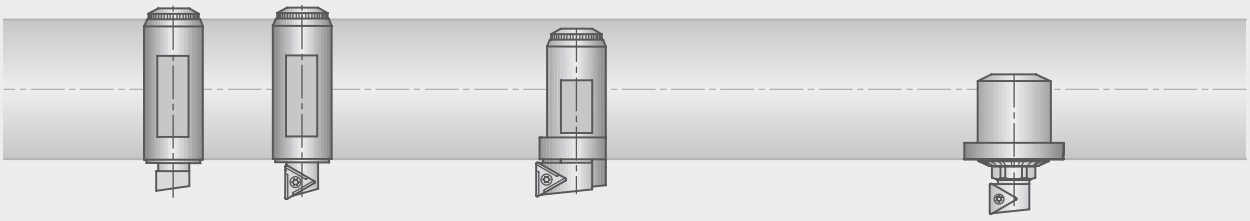
κ = 45° · 30°

κ = 90°

Micro-adjustable cartridge radial and angled mounting

FZ | FF | M31

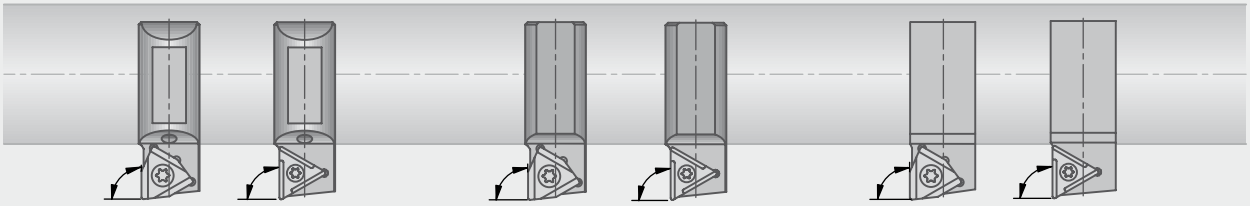
Page 562 – 566 | 567 | 560 – 561



Boring tool

UZV | UZ | UV

Page 546 – 553 | 554 – 557 | 558 – 559



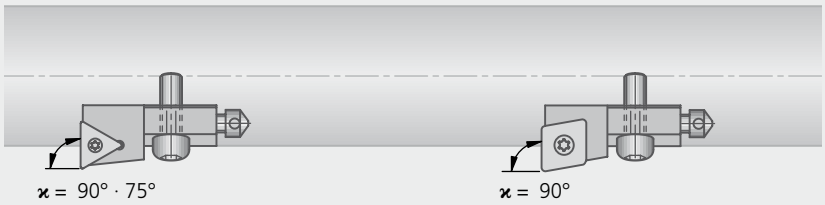
κ = 90° · 75° · 60°
45° · 30° · 15° · 0°

κ = 90° · 53° · 45°

κ = 90° · 53°

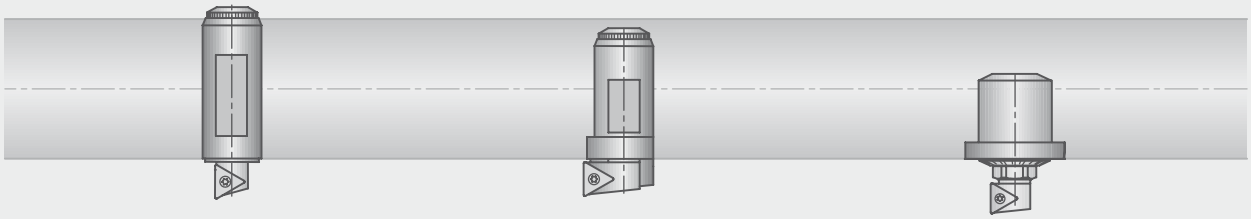
Short clamp holder UKS

Page 572 – 573 574



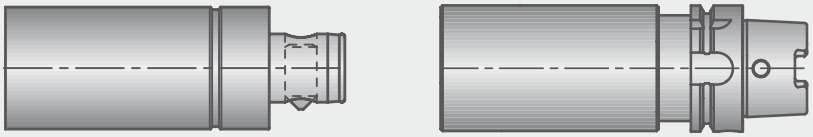
Micro-adjustable cartridge radial and angled mounting

	FZ	FF	M31
Page	576	577	578 – 579



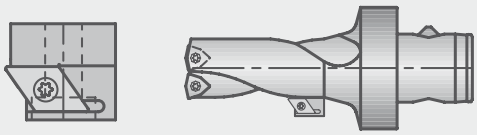
Semi-finished head

500 – 501



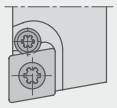
Chamfering cartridge

571



Indexable insert adjustment with set screw

570



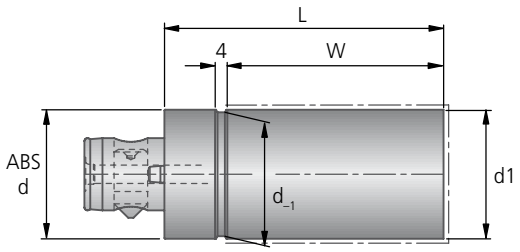
Boring bars with adjustable KOMET Kometric® insert seatings.



KOMET ABS® HK

ABS® Semi-finished heads

■ ABS® connection area hardened and ground



— · — · — soft zone for further machining

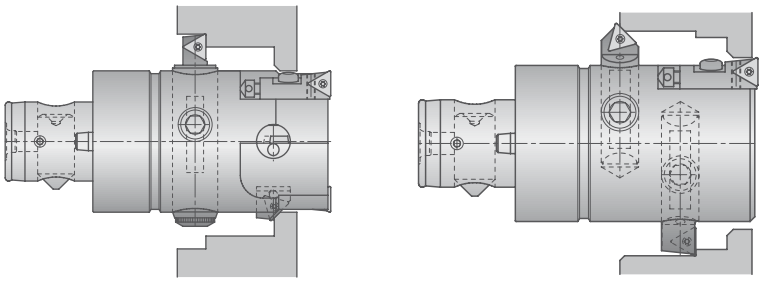
ABS® HK						
Article	Order No.	ABS Ø d	Ø d1	L	W	kg
ABS 25-HK	B10 01011	25	26	70	51	0,30
ABS 32-HK	B10 02011	32	33	80	61	0,57
ABS 40-HK	B10 03011	40	41	100	78	1,10
ABS 50-HK	B10 04011	50	51	120	95	2,02
ABS 63-HK	B10 05011	63	64	150	120	4,08
ABS 80-HK	B10 06011	80	81	180	141	7,76
ABS 100-HK	B10 07011	100	101	200	154	13,48

As all heavy-duty tools are completely hardened, semi-finished heads should only be used where there is no alternative. These semi-finished heads are hardened and ground on the connecting faces only and are soft at the front, i. e. not heat-treated. Further machining of semi-finished heads can only be carried out in the area marked W.

Note:
Subsequent hardening of semi-finished heads can cause distortion and deviations in the dimensions; under these circumstances function and quality cannot be guaranteed.

Fitting KOMET Kometric® insert seatings yourself

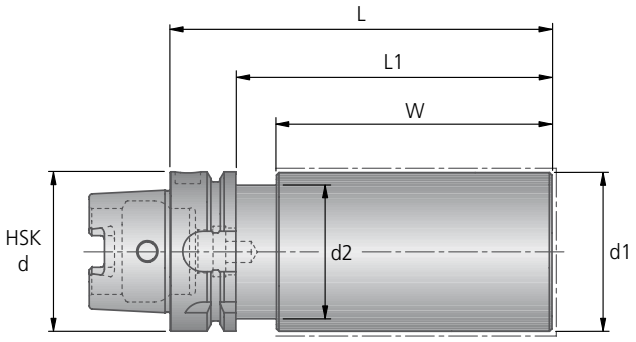
Example of semi-finished heads from ABS® HK in conjunction with Kometric® insert seatings



Patent applied for inside and outside Germany

HSK-A Semi-finished heads

HSK connection area hardened and ground ■



— · — · — soft zone for further machining

HSK-A DIN 69893 T1								
Article	Order No.	HSK Ø d	Ø d1	Ø d2	L	L1	W	kg
HSK-A63-63x200	**A06 33650**	63	63	53	200	174	158	4,87
HSK-A100-100x250	**A06 53650**	100	100	85	250	221	205	14,38

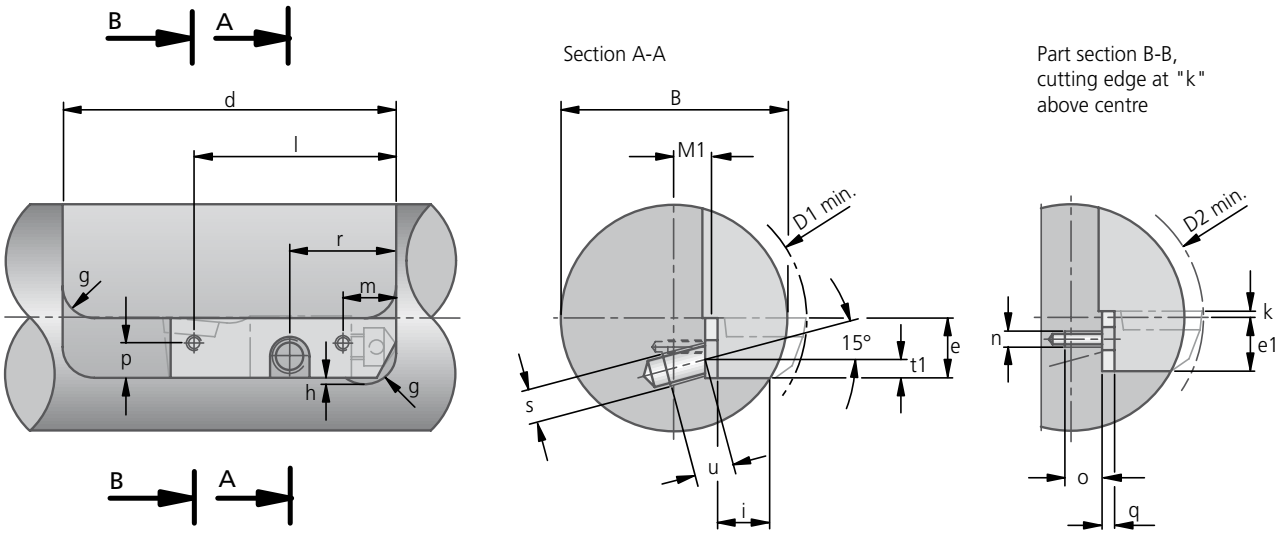
Supply includes:
Semi-finished head complete fitted. Please order coolant supply connection and key separately (see chapter 8).

As all heavy-duty tools are completely hardened, semi-finished heads should only be used where there is no alternative. These semi-finished heads are hardened and ground on the connecting faces only and are soft at the front, i. e. not heat-treated. Further machining of semi-finished heads can only be carried out in the area marked W.

Note:
Subsequent hardening of semi-finished heads can cause distortion and deviations in the dimensions; under these circumstances function and quality cannot be guaranteed.

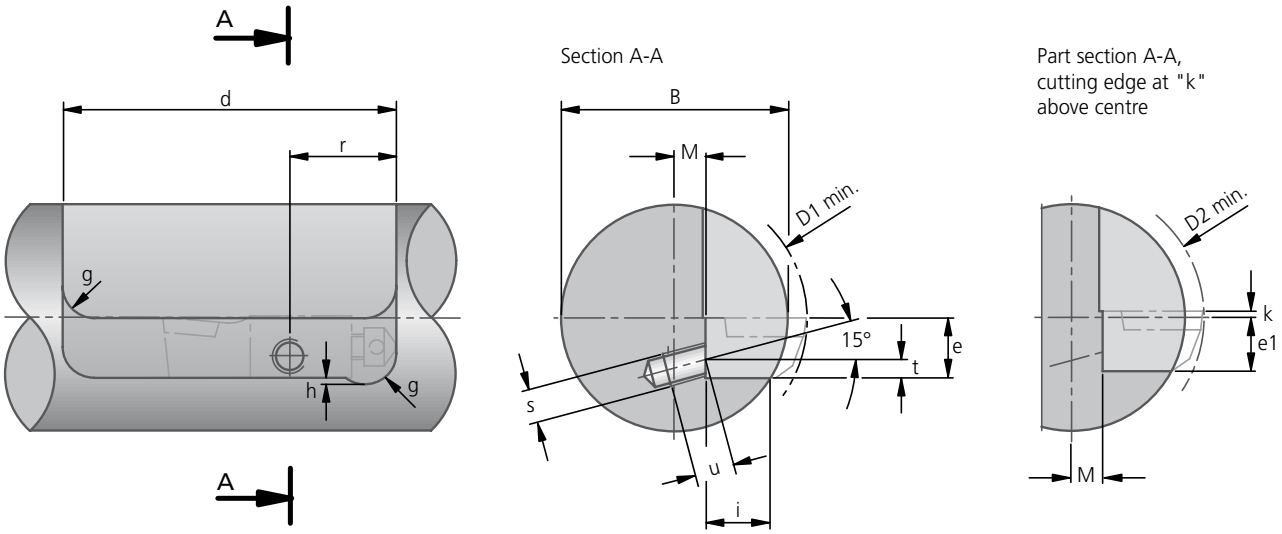
Mounting dimensions

Axial mounting with shim plate



$B = 2\sqrt{e^2 + (M1 + q + i)^2}$ $M1 = \frac{D}{2} - f - q$ (Dimension f: see following pages)

Axial mounting without shim plate

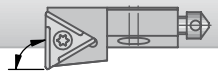


$B = 2\sqrt{e^2 + (M + i)^2}$ $M = \frac{D}{2} - f$ (Dimension f: see following pages)

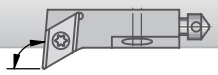
Mounting dimensions



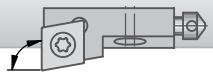
$\varkappa$ = 93° · 90° · 75°
60° · 45° · 45°II
30° · 30° I
15° · 0°



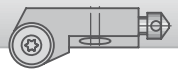
$\varkappa$ = 90° · 75°
60° · 45°
30° · 15° · 0°



$\varkappa$ = 107°
95°
5°



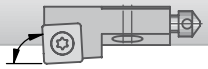
$\varkappa$ = 90°



for round insert

Short clamp holder size	Boring bar																										
	Ø D1 min. for													Ø D2 min. for													
	$\varkappa$ = 107°	$\varkappa$ = 95°	$\varkappa$ = 93°	$\varkappa$ = 90°	$\varkappa$ = 75°	$\varkappa$ = 60°	$\varkappa$ = 45°	$\varkappa$ = 45°II	$\varkappa$ = 30°	$\varkappa$ = 30°I	$\varkappa$ = 15°	$\varkappa$ = 5°	$\varkappa$ = 0°	round insert	$\varkappa$ = 107°	$\varkappa$ = 95°	$\varkappa$ = 93°	$\varkappa$ = 90°	$\varkappa$ = 75°	$\varkappa$ = 60°	$\varkappa$ = 45°	$\varkappa$ = 45°II	$\varkappa$ = 30°	$\varkappa$ = 30°I	$\varkappa$ = 15°	$\varkappa$ = 5°	$\varkappa$ = 0°	round insert
UKS6	24							20	20	24	20	24			16							16	16	16	16	16		
UKS8	33							22	24	33	26	33			25							18	20	25	22	25		
UKS10	36							26	26	36	36	36			28							22	22	28	32	28		
UKS16	56							56	64	56	60	56			40							46	52	40	40	40		
UKS20	68							74	78	68	80	68			52							52	58	52	52	52		

Short clamp holder size	Holder mounting							Location thread																			
								without shim plate					with shim plate														
													93° 45°II 30° 0°	Dimension l for $\varkappa$ = ...°							107° 95° 5°	round insert					
	d	e	e1	g	h	i	k	r	s	t	t1	u		90°	75°	60°	45°	30°I	15°			m	n	o	p	q
UKS6	33	5,8	4,8	3	0,5	4	1	12	M3	2,5	2	7	–	–	24	23,5	–	–	–	–	–	7	M2	6	3	2
UKS8-804/706	43	7,6	6,6	4	1	6	1	17	M4	3,2	2,7	6,5	28	28	28	32	28	28	28	–	–	7	M2	6	4	2
UKS8-802/708						7																				
UKS8-818																										
UKS8-8C1																										
UKS8-CC06																										
UKS10	53	9,6	8,6	5	1	8,4	1	17	M5	3,5	3	8,5	31,5	32	33,5	38	37,5	33,5	–	–	32,5	8,5	M2	6	5	2
UKS16	70	15,6	13,6	8	1	10,5	2	25	M6	6,5	6	10	44,5	45	46	50	49	46	–	–	43,5	14	M3	8	8	2
UKS20	82	19,6	17,1	10	1	13	2,5	27	M8	8,5	8	12	49	51,5	55	55	57	50	–	–	49	16	M3	8	10	2



$\varkappa$ = 87° · 75° · 45°

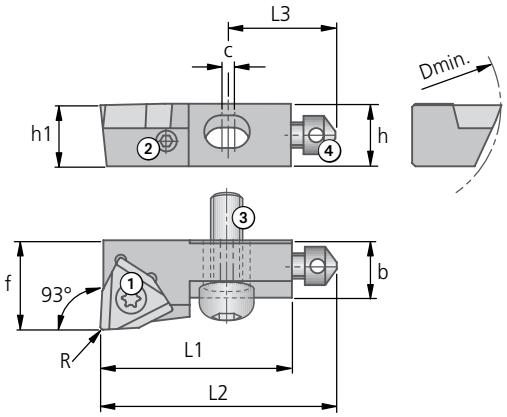
Short clamp holder size	Boring bar		Holder mounting							Location thread													
										without shim plate					with shim plate								
	D1 min.	D2 min.	d	e	e1	g	h	i	k	r	s	t	t1	u	Dimension l for $\varkappa$ 87°	75°	45°	m	n	o	p	q
UKS8	33	25	43	7,6	6,6	4	1	7	1	17	M4	3,2	2,7	6,5	28	28	28	7	M2	6	4	2
UKS10	36	28	53	9,6	8,6	5	1	8,4	1	17	M5	3,5	3	8,5	32	33,5	37,5	8,5	M2	6	5	2
UKS16	56	40	70	15,6	13,6	8	1	10,5	2	25	M6	6,5	6	10	45	46	49	14	M3	8	8	2

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 93°

Material: P M K N S H

- R.H. short clamp holder as shown with left or neutral insert
- L.H. short clamp holder in mirror image with right or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 93°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-93 L 38	**D40 50011**	7,6	8	25	32	17	7,5	2	11	10,99	10,97	0,009	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-93 R 38	**D40 55020**	9,6	10	30	37	17	9	2	14	13,99	13,97	0,017	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-801-93 L 38	**D40 50020**															
UKS16-810-93 R 48	**D40 55040**	15,6	16	42	50	25	12	2	18	17,99	17,97	0,048	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert				Shim plate		
for short clamp holder	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-93 L 38		**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75L	**L02 21310**	**55023 00206** M2×6 DIN965
UKS10-801-93 R 38	**W01 34..0.02..**		**W01 34600...**	**W29 34000.04..**	UKS10-5-0R	**L02 20920**	**55023 00206** M2×6 DIN965
UKS10-801-93 L 38		**W01.34..0.02..**			UKS10-5-0L	**L02 21920**	
UKS16-810-93 R 48	**W01 42..0.02..**		**W01 42600...**	**W29 42000.04..**	UKS16-5-0R	**L02 20940**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

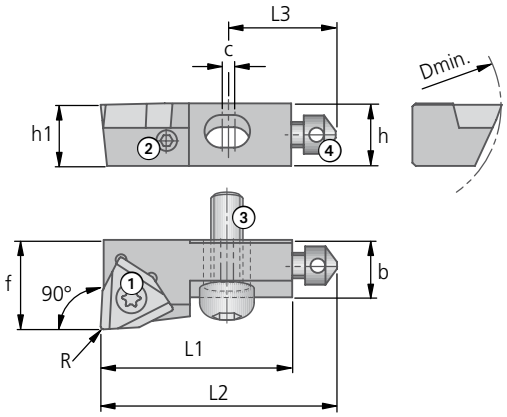
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa = 90°$

R.H. short clamp holder as shown with left or neutral insert ■
L.H. short clamp holder in mirror image with right or neutral insert ■
mounting instruction see page 502 – 503 ■

Material: P M K N S H



UKS $\varkappa = 90°$															
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-810-90 R 23	**D40 55160**	5,8	6	20	24,5	12	4,5	1	–	6,98	–	0,003	**N00 56041** S/M2×4,3-6IP 0,62 Nm	55054 03005 M3×5	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-818-90 R 32	**D40 55170**	7,6	8	25	32	17	7,5	2	–	10,98	–	0,003	**N00 57553** S/M2,2×5,5-6IP 1,01 Nm	55054 03005 M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-802-90 R 38	**D40 55111**	7,6	8	25	32	17	7,5	2	11	10,98	10,93	0,01	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-90 R 38	**D40 55120**	9,6	10	30	37	17	9	2	14	13,98	13,93	0,017	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	55054 04008 M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-801-90 L 38	**D40 50120**															
UKS16-810-90 R 48	**D40 55140**	15,6	16	42	50	25	12	2	17	17,98	17,93	0,05	**N00 57531** S/M4,5×9-15IP 6,25 Nm	55054 05012 M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS16-810-90 L 48	**D40 50140**															
UKS20-820-90 R 53	**D40 55150**	19,6	20	47	57	27	15	2	–	21,95	21,95	0,089	**N00 57531** S/M4,5×9-15IP 6,25 Nm	55054 05014 M5×14	**L02 30160** UKS20-3 35 Nm	**L02 30030** UKS12-4

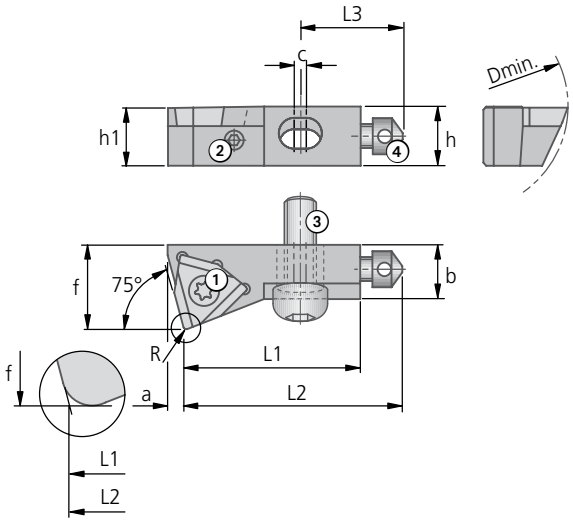
	Insert				Shim plate		
for short clamp holder	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-810-90 R 23				**W29 10000.04..**	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS8-818-90 R 32				**W29 18000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS8-802-90 R 38	**W01 24..0.02..**		**W01 24600..**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-90 R 38	**W01 34..0.02..**		**W01 34600...**	**W29 34000.04..**	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS10-801-90 L 38		**W01 34..0.02..**			UKS10-5-90L	**L02 21220**	
UKS16-810-90 R 48	**W01 42..0.02..**		**W01 42600...**	**W29 42000.04..**	UKS16-5-90R	**L02 20240**	**55021 03008** M3×8 DIN7991
UKS16-810-90 L 48		**W01 42..0.02..**			UKS16-5-90L	**L02 21240**	
UKS20-820-90 R 53	**W01 50..0.04..**		**W01 50600...**	**W29 50000.04..**	UKS20-5-90R	**L02 20250**	**55021 03008** M3×8 DIN7991

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 75°

Material
P M K N S H

- R.H. short clamp holder as shown with left or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 75°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-75 R 38	**D40 55211**	7,6	8	25	32	17	7,5	2	1	11	10,94	10,8	0,01	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-75 R 38	**D40 55220**	9,6	10	30	37	17	9	2	3	14	13,94	13,8	0,017	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-810-75 R 48	**D40 55240**	15,6	16	42	50	25	12	2	3,5	18	17,94	17,8	0,052	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W01 L.H. radial 06 = 6° rake 12 = 12°	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-75 R 38	**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-75 R 38	**W01 34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-75R	**L02 20320**	**55023 00206** M2×6 DIN965
UKS16-810-75 R 48	**W01 42..0.02..**	**W01 42600...**	**W29 42000.04..**	UKS16-5-75R	**L02 20340**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

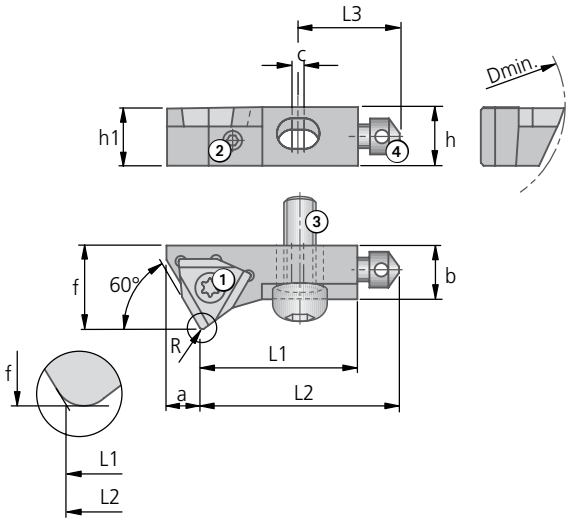
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa = 60°$

R.H. short clamp holder as shown with left or neutral insert ■
mounting instruction see page 502 – 503 ■

Material
P M K N S H



UKS $\varkappa = 60°$																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-60 R 38	**D40 55311**	7,6	8	25	32	17	7,5	2	4,5	11	10,9	10,72	0,011	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-60 R 38	**D40 55320**	9,6	10	30	37	17	9	2	6	14	13,9	13,72	0,018	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4

	Insert			Shim plate		
for short clamp holder	W01 L.H. radial 06 = 6° rake 12 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 / 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-60 R 38	**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-60R	**L02 20410**	**55023 00206** M2×6 DIN965
UKS10-801-60 R 38	**W01 34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-60R	**L02 20420**	**55023 00206** M2×6 DIN965

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

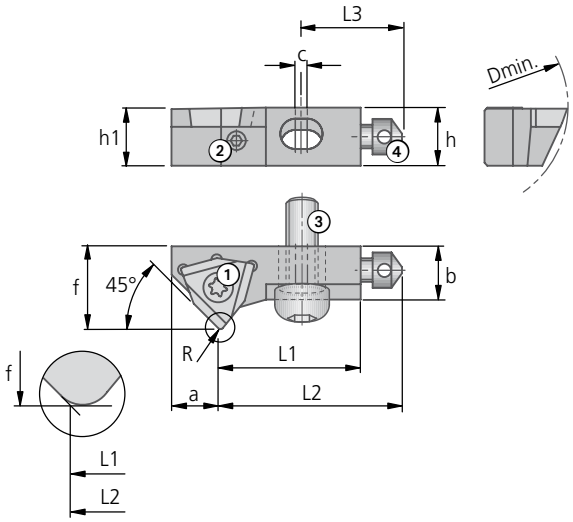
Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 45°

Material: P M K N S H

- R.H. short clamp holder as shown with left or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 45°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-810-45 R 23	**D40 55460**	5,8	6	15	19,5	12	4,5	1	4	–	6,9	–	0,003	**N00 56041** S/M2×4,3-6IP 0,62 Nm	–	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-802-45 R 38	**D40 55411**	7,6	8	19,5	26,5	17	7,5	2	6,5	11	10,9	10,71	0,008	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-45 R 38	**D40 55420**	9,6	10	30	37	17	9	2	9	14	13,9	13,71	0,026	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-810-45 R 48	**D40 55440**	15,6	16	42	50	25	12	2	10	17	17,9	17,71	0,064	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W01 L.H. radial rake 06 = 6° 12 = 12°	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-810-45 R 23			**W29 10000.04..**	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS8-802-45 R 38	**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-45 R 38	**W01 34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-45R	**L02 20520**	**55023 00206** M2×6 DIN965
UKS16-810-45 R 48	**W01 42..0.02..**	**W01 42600...**	**W29 42000.04..**	UKS16-5-45R	**L02 20540**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

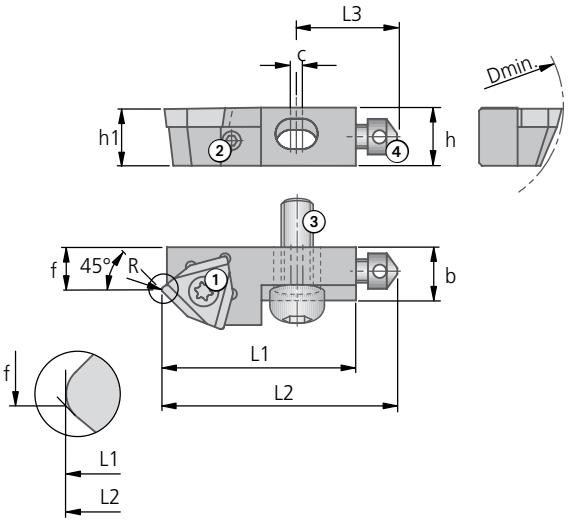
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 45° II

R.H. short clamp holder as shown with right or neutral insert ■
mounting instruction see page 502 – 503 ■

Material
P M K N S H



UKS $\varkappa$ = 45° II																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-II-45R38	**D40 55511**	7,6	8	26	33	17	7,5	2	5,6	5,7	5,89	0,009	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-II-45R38	**D40 55520**	9,6	10	30	37	17	9	2	7,1	7,2	7,39	0,018	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-810-II-45R38	**D40 55540**	15,6	16	42	50	25	12	2	9,6	9,7	9,89	0,05	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W01 R.H. radial 36 = 6° rake 42 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-II-45R38	**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-II-45R38	**W01 34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-0R	**L02 20920**	**55023 00206** M2×6 DIN965
UKS16-810-II-45R38	**W01 42..0.02..**	**W01 42600...**	**W29 42000.04..**	UKS16-5-0R	**L02 20940**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

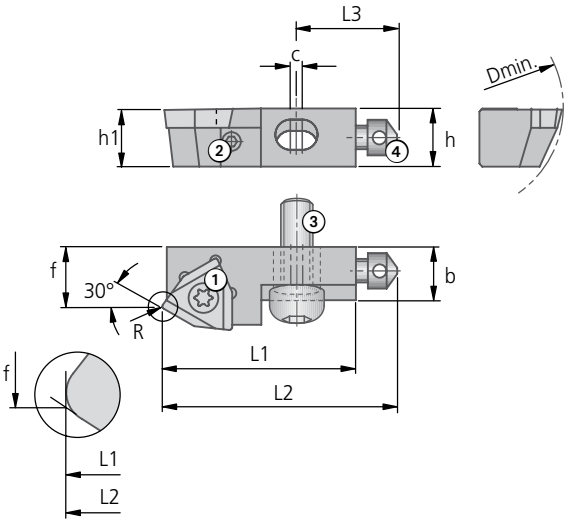
Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder $\varkappa = 30°$

Material
P M K N S H

- R.H. short clamp holder as shown with right or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa = 30°$															
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-30 R 38	**D40 55611**	7,6	8	26	33	17	7,5	2	8,05	8,11	8,21	0,009	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-30 R 38	**D40 55620**	9,6	10	30	37	17	9	2	10,05	10,11	10,21	0,009	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-810-30 R 48	**D40 55640**	15,6	16	42	50	25	12	2	13,05	13,11	13,21	0,052	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W01 R.H. radial 36 = 6° rake 42 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 / 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-30 R 38	**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-30 R 38	**W01 34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-0R	**L02 20920**	**55023 00206** M2×6 DIN965
UKS16-810-30 R 48	**W01 42..0.02..**	**W01 42600...**	**W29 42000.04..**	UKS16-5-0R	**L02 20940**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

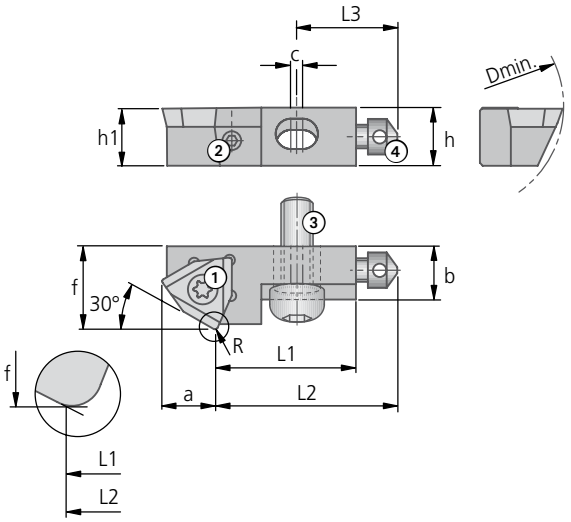
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 30° I

R.H. short clamp holder as shown with left or neutral insert ■
mounting instruction see page 502 – 503 ■

Material
P M K N S H



UKS $\varkappa$ = 30° I																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS10-801-I-30R38	**D40 55720**	9,6	10	24	31	17	9	2	9,38	14	13,92	13,75	0,017	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-810-I-30R48	**D40 55740**	15,6	16	34	42	25	12	2	11	18	17,92	17,75	0,045	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W01 L.H. radial 06 = 6° rake 12 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 / 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS10-801-I-30R38	**W01 34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-75R	**L02 20320**	**55023 00206** M2×6 DIN965
UKS16-810-I-30R48	**W01 42..0.02..**	**W01 42600...**	**W29 42000.04..**	UKS16-5-75R	**L02 20340**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate separately.

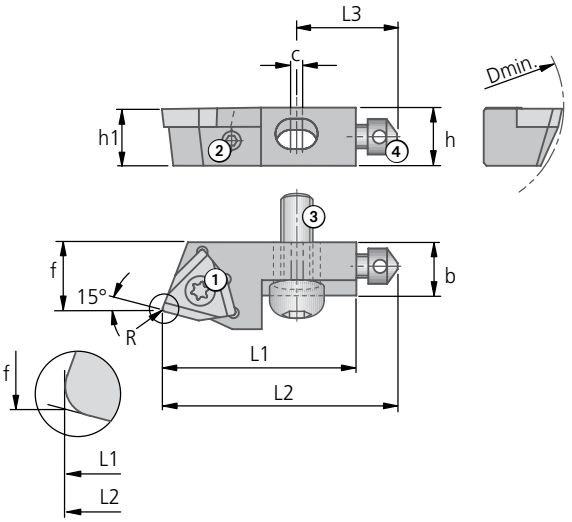
Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 15°

Material
P M K N S H

- R.H. short clamp holder as shown with right or neutral insert
- L.H. short clamp holder in mirror image with left or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 15°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-15 R 38	**D40 55811**	7,6	8	26	33	17	7,5	2	9,52	9,54	9,57	0,01	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-15 R 38	**D40 55820**	9,6	10	30	37	17	9	2	12,02	12,04	12,07	0,017	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-801-15 L 38	**D40 50820**															

	Insert				Shim plate		
for short clamp holder	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-15 R 38		**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-15 R 38		**W01.34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-15R	**L02 20720**	**55023 00206** M2×6 DIN965
UKS10-801-15 L 38	**W01 34..0.02..**				UKS10-5-15L	**L02 21720**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

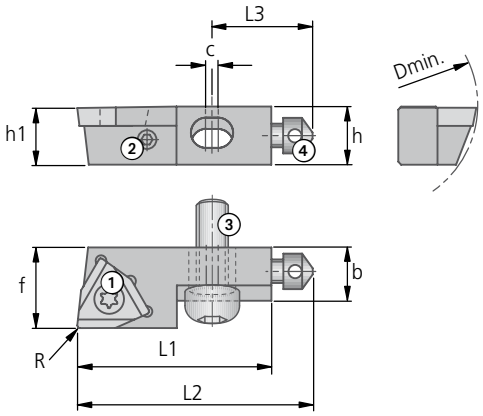
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 0°

R.H. short clamp holder as shown with right or neutral insert ■
L.H. short clamp holder in mirror image with left or neutral insert ■
mounting instruction see page 502 – 503 ■

Material: P M K N S H



UKS $\varkappa$ = 0°															
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-802-0 R 38	**D40 55911**	7,6	8	26	33	17	7,5	2	11	11	11	0,008	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	–	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-801-0 R 38	**D40 55920**	9,6	10	30	37	17	9	2	14	14	14	0,016	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	55054 04008 M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-801-0 L 38	**D40 50920**															
UKS16-810-0 R 48	**D40 55940**	15,6	16	42	50	25	12	2	18	18	18	0,048	**N00 57531** S/M4,5×9-15IP 6,25 Nm	55054 05012 M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS16-810-0 L 48	**D40 50940**															

	Insert				Shim plate		
for short clamp holder	W01 L.H. radial 06 = 6° rake 12 = 12° ▽▽	W01 R.H. radial 36 = 6° rake 42 = 12° ▽▽	W01 neutral	W29 neutral	Shim plate (grinding allowance 2,5 / 0,5) Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-802-0 R 38		**W01 24..0.02..**	**W01 24600...**	**W29 24000.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-801-0 R 38		**W01.34..0.02..**	**W01 34600...**	**W29 34000.04..**	UKS10-5-0R	**L02 20920**	**55023 00206** M2×6 DIN965
UKS10-801-0 L 38	**W01 34..0.02..**				UKS10-5-0L	**L02 21920**	
UKS16-810-0 R 48		**W01 42..0.02..**	**W01 42600...**	**W29 42000.04..**	UKS16-5-0R	**L02 20940**	**55021 03008** M3×8 DIN7991
UKS16-810-0 L 48	**W01 42..0.02..**				UKS16-5-0L	**L02 21940**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

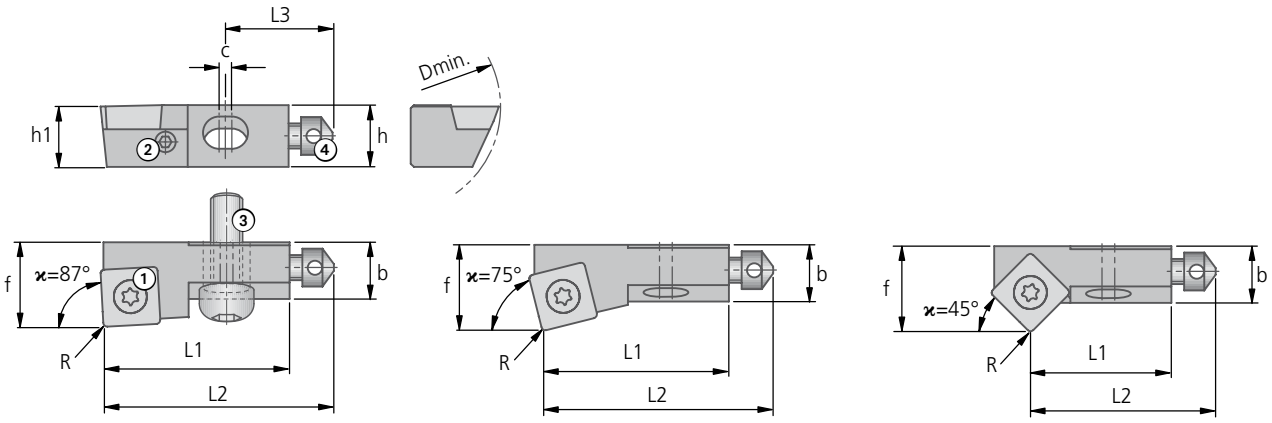
Screwdriver see chapter 8.

KOMET Kometric® UKS

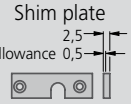
Short clamp holder $\varkappa$ = 87° | 75° | 45°

Material: P M K N S H

- R.H. short clamp holder as shown with neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 87° | 75° | 45°																
Article cutting form	Order No.	$\varkappa$	h1	h	L1	L2	L3	b	c	R	ISO dim. f	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8 SOEX060306 87 R	D40 06700	87°	7,6	8	25	32	17	7,5	2	0,6	11	0,014	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	–	L02 30121* UKS8-3 4,1 Nm	L02 30020 UKS8-4
UKS8 SOEX060306 75 R	D40 06710	75°									10,94	0,013				
UKS10 SOEX090408 87 R	D40 06801	87°	9,6	10	30	37	17	9	2	0,8	14	0,025	N00 57261 S3575-15IP 2,8 Nm	–	L02 30130 UKS10-3 8,5 Nm	L02 30020 UKS8-4
UKS10 SOEX07T308 75 R	D40 06810	75°	9,6	10	30	37	17	9	2	0,8	13,94	0,024	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	–	L02 30130 UKS10-3 8,5 Nm	L02 30020 UKS8-4
UKS10 SOEX07T308 45 R	D40 06821	45°	9,6	10	25	32	17	9	2	0,8	13,9	0,023	N00 57571 S/M2,5×6,3-8IP 1,28 Nm	–	L02 30130 UKS10-3 8,5 Nm	L02 30020 UKS8-4
UKS16 SOEX120508 87 R	D40 06901	87°	15,6	15,7	42	50	25	12	2	0,8	18	0,066	N00 57301 S45100-20IP 6,25 Nm	55054 05012 M5x12	L02 30140 UKS12-3 14 Nm	L02 30030 UKS12
UKS16 SOEX120508 75 R	D40 06911	75°									17,94	0,066				
UKS16 SOEX120508 45 R	D40 06921	45°									17,9	0,076				

	Insert	Shim plate		
for short clamp holder	W83 	Shim plate (2,5 grinding allowance 0,5)  Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8 SOEX060306 87 R	W83 18...	UKS8-5-75R	L02 20310	55023 00206 M2×6 DIN965
UKS8 SOEX060306 75 R				
UKS10 SOEX090408 87 R	W83 32...	UKS10-5-90R	L02 20220	55023 00206 M2×6 DIN965
UKS10 SOEX07T308 75 R	W83 23...	UKS10-5-75R	L02 20320	55023 00206 M2×6 DIN965
UKS10 SOEX07T308 45 R	W83 23...	UKS10-5-45R	L02 20520	55023 00206 M2×6 DIN965
UKS16 SOEX120508 87 R	W83 44...	UKS16-5-90R	L02 20240	55021 03008 M3×8 DIN7991
UKS16 SOEX120508 75 R		UKS16-5-75R	L02 20340	
UKS16 SOEX120508 45 R		UKS16-5-45R	L02 20540	

For further details on inserts see chapter 7.

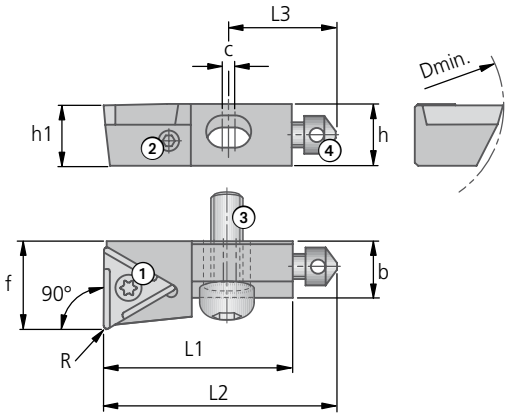
Supply includes: Short clamp holder with screws ①, ②, ③ and ④.
Please order insert and shim plate* separately.
* The shim plate for UKS8... is supplied with longer holding screw L02 30170.
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 90°

R.H. short clamp holder as shown with left or neutral insert ■
L.H. short clamp holder in mirror image with right or neutral insert ■
mounting instruction see page 502 – 503 ■

Material: P M K N S H



UKS $\varkappa$ = 90°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,3	R0,4	R0,5	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-803-90 R	**D40 05160**	5,8	6	20	24,5	12	4,5	1	7,08	7	6,93	–	–	0,003	**N00 56031** S/M2×4,9-6IP 0,62Nm	**55054 03005** M3×5	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS6-803-90 L	**D40 00160**																	
UKS8-804-90 R	**D40 05170**	7,6	8	25	32	17	6,5	2	10,14	–	10	–	9,7	0,008	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-804-90 L	**D40 00170**																	
UKS10-805-90 R	**D40 05180**	9,6	10	30	37	17	9	2	14,23	–	14,08	14	13,78	0,017	**N00 56211** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-805-90 L	**D40 00180**																	
UKS20-806-90 R	**D40 05190**	19,6	20	47	57	27	15	2	–	–	22,3	–	22	0,092	**N00 56411** S/M5×13,4-20IP 6,25 Nm	**55054 05014** M5×14	**L02 30160** UKS20-3 35 Nm	**L02 30030** UKS12-4
UKS10-T4-90 R	**D40 07130**	9,6	10	30	37	17	9	2	–	–	14,08	–	13,78	0,05	**N00 56651** S2560-8IP 1,28 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-T5-90 R	**D40 07140**	15,6	16	42	50	25	12	2	–	–	–	18,22	18	0,06	**N00 56771** S35102-10IP 2,8 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W30 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W57 / W59 neutral	Shim plate 2,5 grinding allowance 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-803-90 R	**W30 04..0.03..**		**W57 04140.04..**	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS6-803-90 L		**W30 04..0.03..**		UKS6-5-90L	**L02 21200**	
UKS8-804-90 R	**W30 14..0.04..**		**W57 14140.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS8-804-90 L		**W30 14..0.04..**		UKS8-5-75L	**L02 21310**	
UKS10-805-90 R	**W30 26..0.05..**		**W57 26140.04..**	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS10-805-90 L		**W30 26..0.05..**		UKS10-5-90L	**L02 21220**	
UKS20-806-90 R	**W30 44..0.08..**			UKS20-5-90R	**L02 20250**	**55021 03008** M3×8 DIN7991
UKS10-T4-90 R			**W59 18050.04..**	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS16-T5-90 R			**W59 32050.08..**	UKS16-5-90R	**L02 20240**	**55021 03008** M3×8 DIN7991

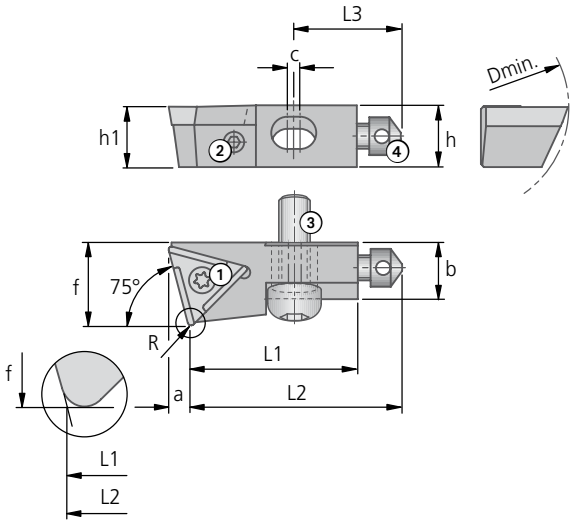
Supply includes: Short clamp holder with screws ①, ②, ③ and ④.
Please order insert and shim plate* separately.
* The shim plate for UKS8... is supplied with longer holding screw L02 30170.
Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 75°

Material: P M K N S H

- R.H. short clamp holder as shown with left or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 75°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-803-75 R	**D40 05260**	5,8	6	20	24,5	12	4,5	1	1	7,1	7	6,91	0,003	**N00 56031** S/M2×4,9-6IP 0,62Nm	55054 03005 M3×5	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-804-75 R	**D40 05270**	7,6	8	25	32	17	6,5	2	1,5	10,18	–	10	0,009	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	55054 03005 M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4

	Insert		Shim plate		
for short clamp holder	W30 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W57 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-803-75 R	**W30 04..0.03..**	**W57 04140.04..**	UKS6-5-75R	**L02 20300**	**55023 00206** M2×6 DIN965
UKS8-804-75 R	**W30 14..0.04..**	**W57 14140.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

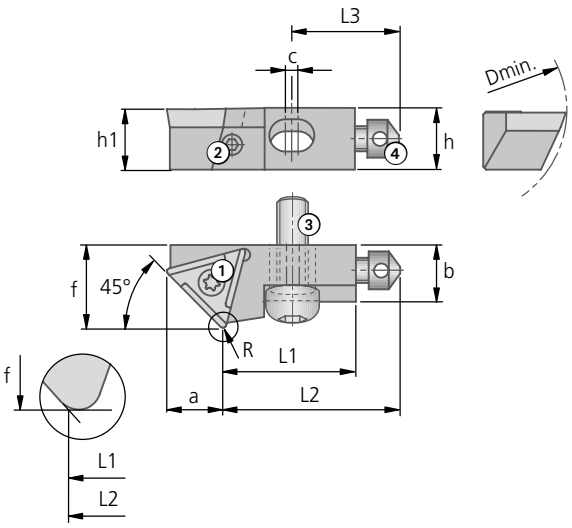
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 45°

R.H. short clamp holder as shown with left or neutral insert ■
L.H. short clamp holder in mirror image with right or neutral insert ■
mounting instruction see page 502 – 503 ■

Material: P M K N S H



UKS $\varkappa$ = 45°														Clamping screw ①	Adjusting screw DIN 916 ②	Location screw ③	Stop screw ④
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,2	R0,3	R0,4	R0,8	kg	Order No. Article	Order No. Article	Order No. Article	Order No. Article
UKS6-803-45 R	D40 05460	5,8	6	15	19,5	12	4,5	1	5	7,1	7	6,91	–	0,003	N00 56031 S/M2×4,9-6IP 0,62Nm	55054 03004 M3×4	L02 30111 UKS6-3 1,9 Nm	L02 30010 UKS6-4
UKS6-803-45 L	D40 00460																	
UKS8-804-45 R	D40 05470	7,6	8	19,5	26,5	17	6,5	2	6,5	10,18	–	10	9,62	0,007	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	55054 03005 M3×5	L02 30121* UKS8-3 4,1 Nm	L02 30020 UKS8-4
UKS8-804-45 L	D40 00470																	

	Insert			Shim plate		
for short clamp holder	W30 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W57 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-803-45 R	W30 04..0.03..		W57 04140.04..	UKS6-5-90R	L02 20200	55023 00206 M2×6 DIN965
UKS6-803-45 L		W30 04..0.03..		UKS6-5-90L	L02 21200	
UKS8-804-45 R	W30 14..0.04..		W57 14140.04..	UKS8-5-75R	L02 20310	55023 00206 M2×6 DIN965
UKS8-804-45 L		W30 14..0.04..		UKS8-5-75L	L02 21310	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

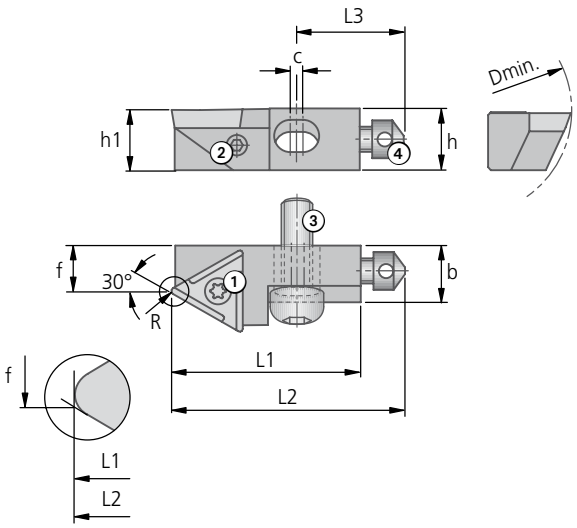
Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 30°

Material: P M K N S H

- R.H. short clamp holder as shown with right or neutral insert
- L.H. short clamp holder in mirror image with left or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 30°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,3	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-803-30 R	**D40 05660**	5,8	6	20	24,5	12	4,5	1	3,62	3,67	3,73	–	0,003	**N00 56031** S/M2×4,9-6IP 0,62Nm	**55054 03005** M3×5	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-804-30 R	**D40 05670**	7,6	8	26	33	17	6,5	2	5,12	–	5,23	5,46	0,008	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-804-30 L	**D40 00670**																

	Insert			Shim plate		
for short clamp holder	W30 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W57 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-803-30 R		**W30 04..0.03..**	**W57 04140.04..**	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS8-804-30 R		**W30 14..0.04..**	**W57 14140.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS8-804-30 L	**W30 14..0.04..**			UKS8-5-75L	**L02 21310**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

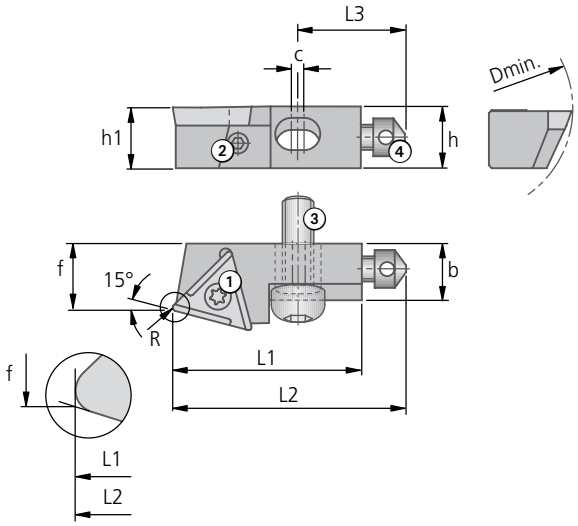
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 15°

R.H. short clamp holder as shown with right or neutral insert ■
L.H. short clamp holder in mirror image with left or neutral insert ■
mounting instruction see page 502 – 503 ■

Material
P M K N S H



UKS $\varkappa$ = 15°																
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,3	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-803-15 R	**D40 05860**	5,8	6	20	24,5	12	4,5	1	5,05	5,07	5,1	–	0,003	**N00 56031** S/M2×4,9-6lP 0,62Nm	**55054 03005** M3×5	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS6-803-15 L	**D40 00860**																
UKS8-804-15 R	**D40 05870**	7,6	8	26	33	17	6,5	2	7,55	–	7,6	7,7	0,008	**N00 56111** S/M2,6×6,2-8lP 1,28 Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-804-15 L	**D40 00870**																

	Insert			Shim plate		
for short clamp holder	W30 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W57 neutral	Shim plate grinding allowance 2,5 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-803-15 R		**W30 04..0.03..**	**W57 04140.04..**	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS6-803-15 L	**W30 04..0.03..**			UKS6-5-90L	**L02 21200**	
UKS8-804-15 R		**W30 14..0.04..**	**W57 14140.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS8-804-15 L	**W30 14..0.04..**			UKS8-5-75L	**L02 21310**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

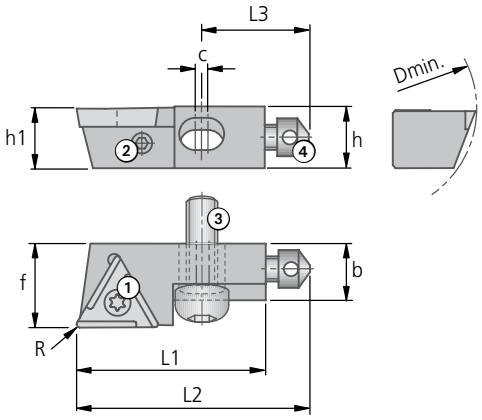
Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder $\varkappa = 0°$

Material: P M K N S H

- R.H. short clamp holder as shown with right or neutral insert
- L.H. short clamp holder in mirror image with left or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa = 0°$														
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dim. f	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-804-0 R	**D40 05970**	7,6	8	25	32	17	6,5	2	10	0,008	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-804-0 L	**D40 00970**													
UKS10-805-0 R	**D40 05980**	9,6	10	30	37	17	9	2	14	0,015	**N00 56211** S/M3,5×7,3-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4

	Insert			Shim plate		
for short clamp holder	W30 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W57 neutral	Shim plate grinding allowance 2,5 / 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-804-0 R		**W30 14..0.04..**	**W57 14140.04..**	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS8-804-0 L	**W30 14..0.04..**			UKS8-5-75L	**L02 21310**	
UKS10-805-0 R		**W30 26..0.05..**	**W57 26140.04..**	UKS10-5-0R	**L02 20920**	**55023 00206** M2×6 DIN965

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

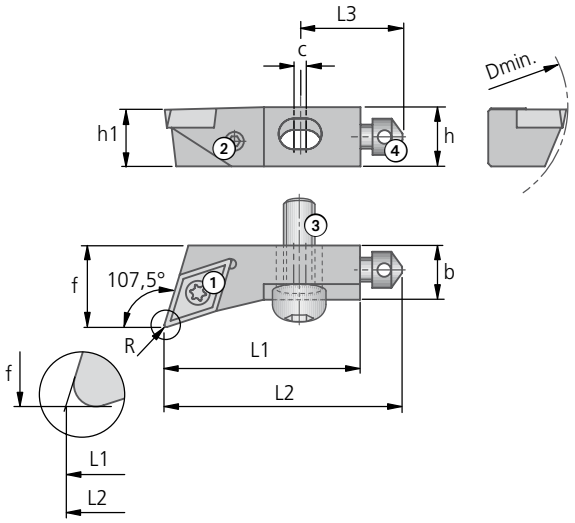
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

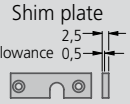
Short clamp holder $\varkappa$ = 107,5°

R.H. short clamp holder as shown, insert for this with peripheral chipbreaker ■
L.H. short clamp holder in mirror image ■
mounting instruction see page 502 – 503 ■

Material: P M K N S H



UKS $\varkappa$ = 107,5°															
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-8C1-107R	**D40 06010**	7,6	8	25	32	17	7,5	2	11,11	11	–	0,008	**N00 56651** S2560-8IP 1,28Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-8C1-107L	**D40 01010**															
UKS10-8C1-107R	**D40 06020**	9,6	10	30	37	17	9	2	14,11	14	–	0,015	**N00 56651** S2560-8IP 1,28Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-8C1-107L	**D40 01020**															
UKS16-8C2-107R	**D40 06040**	15,6	16	42	50	25	12	2	–	18,21	18	0,044	**N00 56751** S3574-10IP 2,8Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS16-8C2-107L	**D40 01040**															

	Insert	Shim plate		
for short clamp holder	W79 	Shim plate 2,5 grinding allowance 0,5  Article	**Order No.**	Countersunk screw for shim plate **Order No.** Article
UKS8-8C1-107R	**W79 18060.04..**	UKS8-5-107R	**L02 20010**	**55023 00206** M2×6 DIN965
UKS8-8C1-107L		UKS8-5-107L	**L02 21010**	
UKS10-8C1-107R	**W79 18060.04..**	UKS10-5-107R	**L02 20720**	**55023 00206** M2×6 DIN965
UKS10-8C1-107L		UKS10-5-107L	**L02 21720**	
UKS16-8C2-107R	**W79 32060.08..**	UKS16-5-107R	**L02 20040**	**55021 03008** M3×8 DIN7991
UKS16-8C2-107L		UKS16-5-107L	**L02 21040**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

Screwdriver see chapter 8.

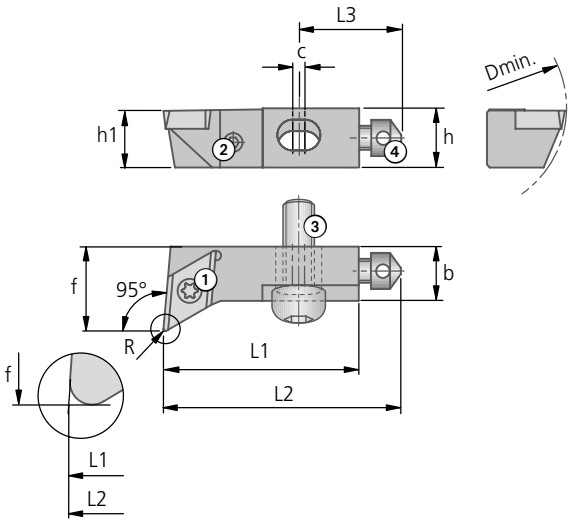
KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 95°

Material

P	M	K	N	S	H
●	●	●	●	●	◐

- R.H. short clamp holder as shown with left or neutral insert
- L.H. short clamp holder in mirror image with right or neutral insert
- mounting instruction see page 502 – 503



UKS $\varkappa$ = 95°															
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-8C1-95R	**D40 06110**	7,6	8	25	32	17	7,5	2	12,17	12	–	0,009	**N00 56651** S2560-8IP 1,28Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-8C1-95L	**D40 01110**															
UKS10-8C1-95L	**D40 01120**	9,6	10	30	37	17	9	2	14,17	14	–	0,016	**N00 56651** S2560-8IP 1,28Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-8C2-95R	**D40 06140**	15,6	16	42	50	25	12	2	–	18,33	18	0,046	**N00 56751** S3574-10IP 2,8 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS16-8C2-95L	**D40 01140**															

	Insert			Shim plate		
for short clamp holder	W60 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W60 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W79 neutral	Shim plate grinding allowance 2,5 – 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-8C1-95R	**W60 18..0.04..**		**W79 18060.02..**	UKS8-5-95R	**L02 20110**	**55023 00206** M2×6 DIN965
UKS8-8C1-95L		**W60 18..0.04..**		UKS8-5-95L	**L02 21110**	
UKS10-8C1-95L		**W60 18..0.04..**	**W79 18060.02..**	UKS10-5-95R	**L02 20120**	**55023 00206** M2×6 DIN965
UKS16-8C2-95R	**W60 32..0.08..**		**W79 32060.02..**	UKS16-5-95R	**L02 20140**	**55021 03008** M3×8 DIN7991
UKS16-8C2-95L		**W60 32..0.08..**		UKS16-5-95L	**L02 21140**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

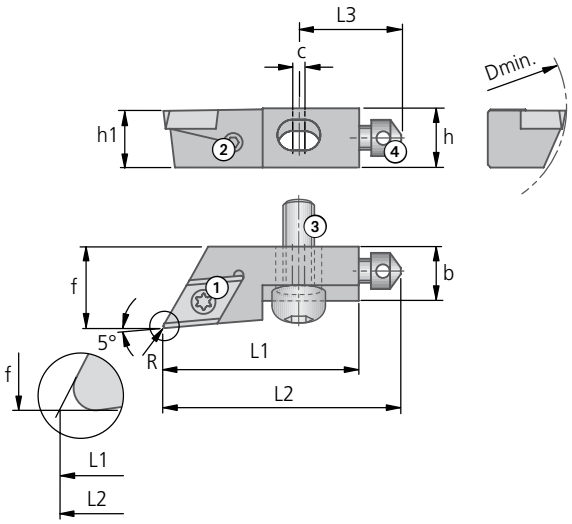
Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa$ = 5°

R.H. short clamp holder as shown with right or neutral insert ■
L.H. short clamp holder in mirror image with left or neutral insert ■
mounting instruction see page 502 – 503 ■

Material
P M K N S H



UKS $\varkappa$ = 5°															
Article cutting form ▼	Order No.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-8C1-5R	**D40 06210**	7,6	8	25	32	17	7,5	2	11,03	11	–	0,007	**N00 56651** S2560-8IP 1,28Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-8C1-5L	**D40 01210**															
UKS10-8C1-5R	**D40 06220**	9,6	10	30	37	17	9	2	14,03	14	–	0,014	**N00 56651** S2560-8IP 1,28Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-8C1-5L	**D40 01220**															
UKS16-8C2-5R	**D40 06240**	15,6	16	42	50	25	12	2	–	18,06	18	0,041	**N00 56751** S3574-10IP 2,8 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS16-8C2-5L	**D40 01240**															

	Insert			Shim plate		
for short clamp holder	W60 L.H. radial 06 = 6° rake 12 = 12° ▽▽ 20 = 20°	W60 R.H. radial 36 = 6° rake 42 = 12° ▽▽ 50 = 20°	W79 neutral	Shim plate (grinding allowance 2,5 / 0,5) Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS8-8C1-5R		**W60 18..0.04..**	**W79 18060.02..**	UKS8-5-5R	**L02 20810**	**55023 00206** M2×6 DIN965
UKS8-8C1-5L	**W60 18..0.04..**			UKS8-5-5L	**L02 21810**	
UKS10-8C1-5R		**W60 18..0.04..**	**W79 18060.02..**	UKS10-5-5R	**L02 20820**	**55023 00206** M2×6 DIN965
UKS10-8C1-5L	**W60 18..0.04..**			UKS10-5-5L	**L02 21820**	
UKS16-8C2-5R		**W60 32..0.08..**	**W79 32060.02..**	UKS16-5-5R	**L02 20840**	**55021 03008** M3×8 DIN7991
UKS16-8C2-5L	**W60 32..0.08..**			UKS16-5-5L	**L02 21840**	

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

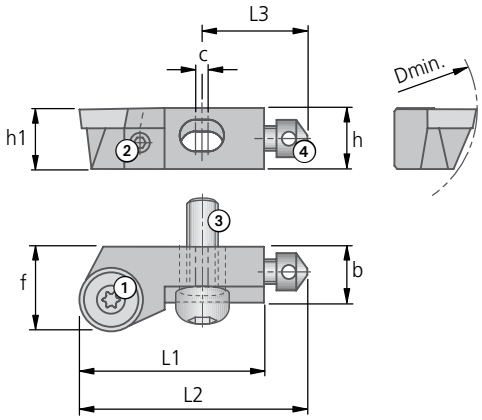
* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

Screwdriver see chapter 8.

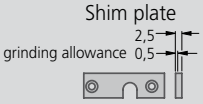
KOMET Kometric® UKS

Short clamp holder

■ mounting instruction see page 502 – 503



UKS														
Article	Order No.	h1	h	L1	L2	L3	b	c	ISO dim. f	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-705-Rd-R	**D40 06500**	5,8	6	20	24,5	12	4,5	1	7	0,003	**N00 56591** S2247-6IP 1,01Nm	**55054 03005** M3×5	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-708-Rd-R	**D40 06520**	7,6	8	25	32	17	7,5	2	11	0,009	**N00 57341** S3066-9IP 2,5Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS16-712-Rd-R	**D40 06551**	15,6	16	42	50	25	12	2	18	0,046	**N00 57271** S3585-15IP 2,8Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Round insert	Shim plate		
for short clamp holder		Shim plate  Article	**Order No.**	Countersunk screw for shim plate **Order No.** Article
UKS6-705-Rd-R	RCMT 05 02 M0	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS8-708-Rd-R	RCMT 08 03 M0	UKS8-5-107R	**L02 20010**	**55023 00206** M2×6 DIN965
UKS16-712-Rd-R	RCMT 12 04 M0	UKS16-5-0R	**L02 20940**	**55021 03008** M3×8 DIN7991

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

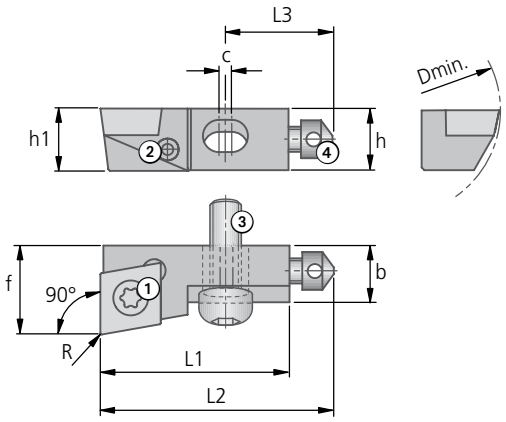
* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

Screwdriver see chapter 8.

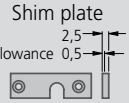
● very good | ◐ good | ○ possible | ✕ not possible

Short clamp holder $\varkappa = 90°$

mounting instruction see page 502 – 503 ■



UKS $\varkappa = 90°$														
Article	Order No.	h1	h	L1	L2	L3	b	c	ISO dim. f	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS8-CC06-90R	**D40 06600**	7,6	7,8	25	32	17	7,5	2	11	0,013	**N00 56651** S2560-8IP 1,28Nm	**55054 03005** M3×5	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-CC09-90R	**D40 06610**	9,6	9,8	30	37	17	9	2	14	0,022	**N00 56751** S3574-10IP 2,8Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-CC09-90R	**D40 06630**	15,6	15,8	42	50	25	12	2	18	0,063	**N00 56751** S3574-10IP 2,8Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS20-CC12-90R	**D40 06640**	19,6	19,8	47	57	27	15	2	22	0,111	**N00 56851** S45111-20IP 6,25Nm	**55054 05014** M5×14	**L02 30160** UKS20-3 35 Nm	**L02 30030** UKS12-4

	Insert	Shim plate		
for short clamp holder		Shim plate  Article	**Order No.**	Countersunk screw for shim plate **Order No.** Article
UKS8-CC06-90R	CCMT 06 02 04	UKS8-5-90R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-CC09-90R	CCMT 09 T3 04	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS16-CC09-90R	CCMT 09 T3 04	UKS16-5-90R	**L02 20240**	**55021 03008** M3×8 DIN7991
UKS20-CC12-90R	CCMT 12 04 04	UKS20-5-90R	**L02 20250**	**55021 03008** M3×8 DIN7991

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

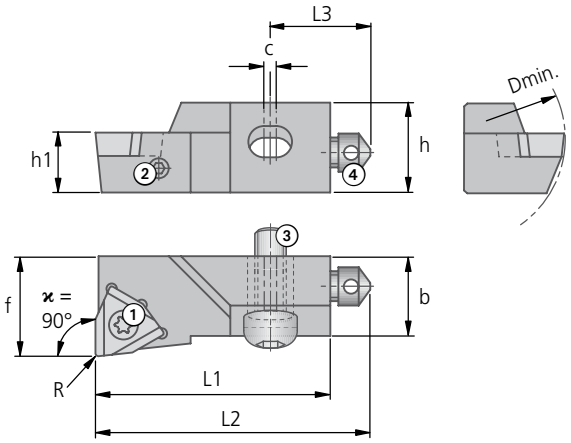
Screwdriver see chapter 8.

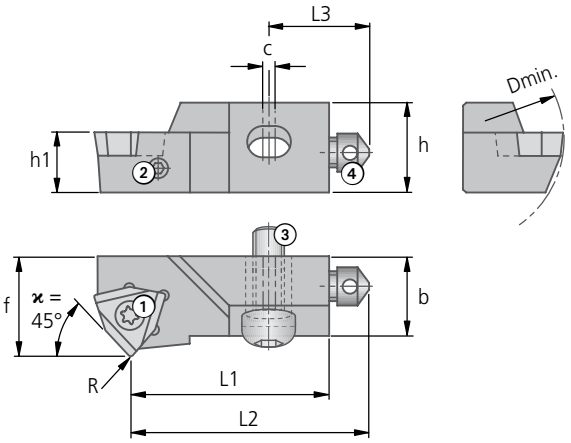
KOMET Kometric® ISO

Short clamp holder ϰ = 90° | 45°

Material
P M K N S H

- R.H. short clamp holder as shown with left or neutral insert
- to ISO standard





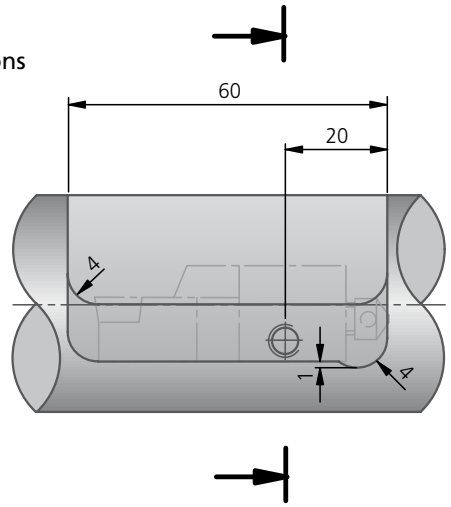
ISO ϰ = 90° | 45°														
Article	Order No.	ϰ	D min.	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg
SWFOR 10CA-06-38	D40 58000	90°	40	10	14	42	50	20	9	2	14	13,98	13,93	0,028
SWSOR 10CA-06-38	D40 58400	45°	40	10	14	36	44	20	9	2	14	13,9	13,71	0,028

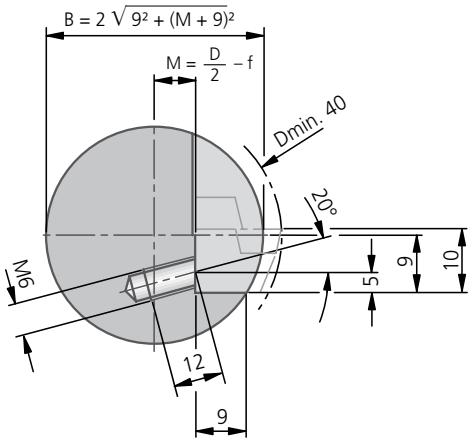
	Insert			Assembly parts			
for short clamp holder	W01 L.H.	W01 neutral	W29 neutral	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
SWSOR 10CA-06-38	W01 34060.02..	W01 34600...	W29 34000.04..	N00 57521 S/M3,5x7,3-10IP 2,8 Nm	55054 04008 M4x8	L02 30140 UKS12-3 14 Nm	L02 30020 UKS8-4
SWSOR 10CA-06-38	W01 34060.02..	W01 34600...	W29 34000.04..	N00 57521 S/M3,5x7,3-10IP 2,8 Nm	55054 04008 M4x8	L02 30140 UKS12-3 14 Nm	L02 30020 UKS8-4

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert separately. Screwdriver see chapter 8.

Mounting Dimensions



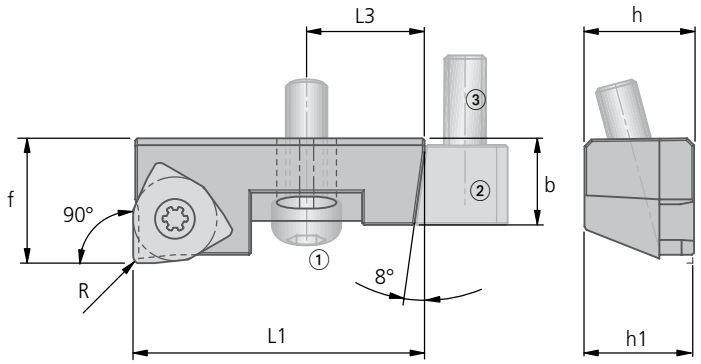


● very good | ◐ good | ○ possible | ✕ not possible

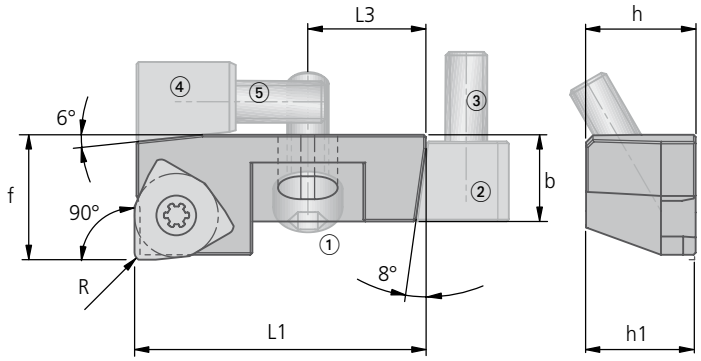
Short clamp holder $\varkappa = 90°$

Material
P M K N S H

axially adjustable



axially + radially adjustable



Short clamp holder										Inserts
Article cutting form ▾	Order No.	adjustable	h1	h	L1	L3	b	ISO dimension f for radius R0,8	kg	W01
UKS 10 WOHX 05T3 PN EL 90°	**D40 55190**	axially + radially	7,6	9,8	29,5	10,5	10	14,5	0,021	**W01 24600.906115**
UKS 16 WOHX 0804 PN EL 90°	**D40 65180**	axially	15,6	15,8	42	17	12,5	18	0,059	**W01 42600.906115**
UKS 16 WOHX 0804 PN EL 90°	**D40 65190**	axially + radially	15,6	15,8	42	17	12,5	18	0,057	**W01 42600.906115**

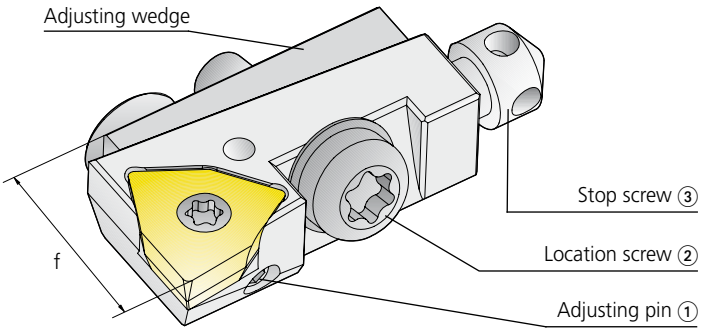
Assembly parts						
for short clamp holder	Clamping screw **Order No.** Article	Location screw ① **Order No.** Article	Axial wedge ② **Order No.**	Differential screw ③ **Order No.** Article	Radial wedge ④ **Order No.**	Differential screw ⑤ **Order No.** Article
UKS 10 WOHX 05T3 PN EL 90°	**N00 57511** S/M2,5x7,2-8IP 1,28 Nm	**L02 30130** UKS10-3 8,5 Nm	**L02 30880**	**L02 30851** M5×18-15IP	**L02 30860**	**L02 30851** M5×18-15IP
UKS 16 WOHX 0804 PN EL 90°	**N00 57531** S/M4,5x9-15IP 6,25 Nm	**L02 30140** UKS12-3 14 Nm	**L02 30890**	**N10 20220** M6x0,75	–	–
UKS 16 WOHX 0804 PN EL 90°	**N00 57531** S/M4,5x9-15IP 6,25 Nm	**L02 30140** UKS12-3 14 Nm	**L02 30890**	**N10 20220** M6x0,75	**L02 30860**	**L02 30851** M5×18-15IP

Supply includes:
Short clamp holder with assembly parts. Please order insert separately. Screwdriver see chapter 8.

KOMET Kometric® UKS

Short clamp holder with wedge adjustment and axial and radial adjustment

Adjusting the KOMET Kometric® short clamp holder with wedge adjustment



1. Set the short clamping holder to the smallest possible diameter (turn adjusting pin ① clockwise as far as the stop) and place the location screw ② lightly in position
2. Set the axial dimension (length) with the stop screw ③
3. Set the short clamping holder to the required diameter by turning the adjusting pin ① anti-clockwise. (If necessary loosen the location screw ② slightly)
4. Tighten the location screw ②

Important note!
The short clamping holder must always be set from minus to plus!

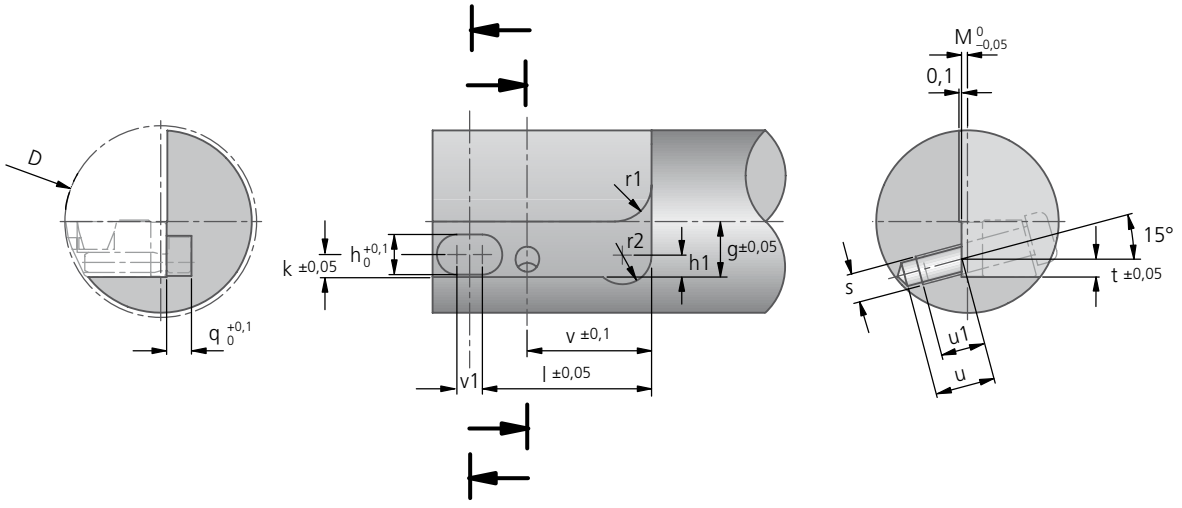
The following short clamping holder adjustments apply:

Holder size	axial	radial	f (for R0.4)
UKS 08	–1.0 to +1.0 mm	–0.07 to +0.16 mm	13.80
USK 10	–1.0 to +1.0 mm	–0.07 to +0.20 mm	17.58

Features
- Precise radial and axial adjustment
- Maximum support surface for short clamping holder on basic body provides maximum stability
- Parallel radial adjustment without changing the approach angle

Unlike the previous short clamping holder solutions, the user can carry out setting in the radial direction more accurately and more comfortably as no further movement occurs when the short clamping holder is locked with the central clamping screw.

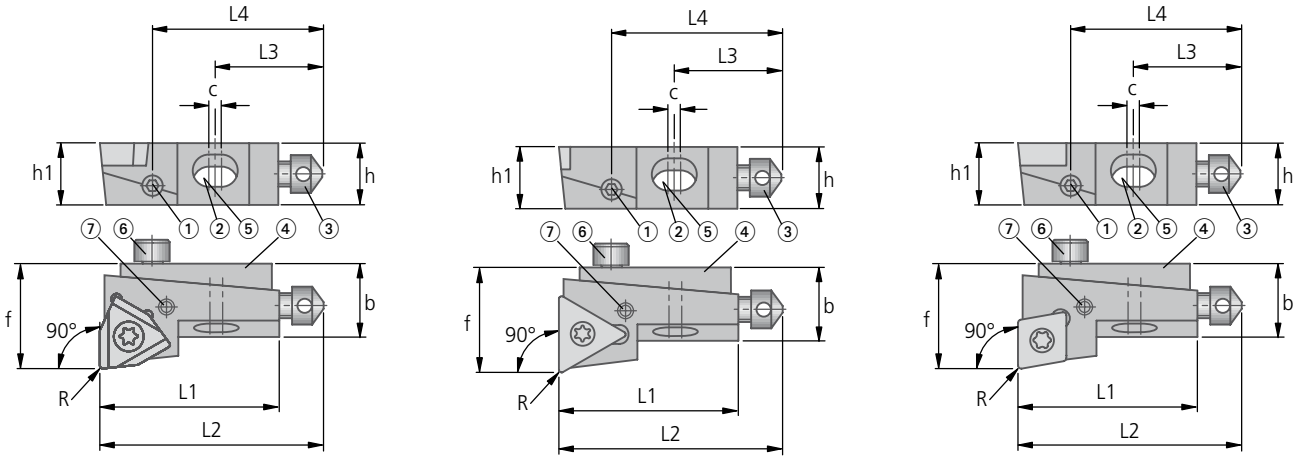
Mounting details



Short clamp holder size	D min.	for R0,4 f	g	h	h1	k	l	M	q	r1	r2	s	t	u	u1	v	v1
UKS 08	26	13,8	7,6	5,5	3	2,9	23,15	D/2 – f	3,4	5	4	M4	2,45	8	6,5	17	3,5
UKS 10	34	17,58	9,6	6,5	4	4	24,6	D/2 – f	4	5	5	M5	2,55	11	9	17	3,8

Short clamp holder $\varkappa = 90°$

R.H. short clamp holder as shown with left or neutral insert ■
with wedge adjustment and axial and radial adjustment ■



Short clamp holder												Inserts	
Order No. Article	h1	h	L1	L2	L3	L4	b	c	Adjustment path radial from	to	ISO dim. **f** in zero setting for radius R0,4	kg	L.H.	neutral
D40 65011 UKS08-W2924-90R	7,6	7,8	25	32	10	17,9	10,3	2	–0,07	+0,16	13,9	0,028	**W01 24060.04..** **W01 24120.04..**	**W01 24600..** **W29 24000.04..**
D40 65131 UKS08-W3014-90R	7,6	7,8	25	32	10	17,9	10,3	2	–0,07	+0,16	13,8	0,013	**W30 14060.04..** **W30 14120.04..** **W30 14200.04..**	**W57 14140.04..**
D40 65081 UKS10-CC09T3-90R	9,6	9,8	30	37	10	19,5	12,5	2	–0,10	+0,20	17,58	0,024		**C85 32..**

For further details on inserts see chapter 7

Assembly parts								
for short clamp holder	Clamping screw **Order No.** Article	Adjusting pin ① **Order No.** Article	Location screw ② **Order No.** Article	Stop screw ③ **Order No.** Article	Adjusting wedge ④ **Order No.**	Disc spring ⑤ **Order No.** Article	Cylindrical pin ⑥ **Order No.** Article	Cylindrical pin ⑦ **Order No.** Article
UKS08-W2924	**N00 57511** S/M2,5x7,2-8IP 1,28 Nm	**L02 30771**	**L02 31010** UKS8-3	**L02 30020** UKS8-4	**L02 22510**	**56771 08043** 8×4,2×0,3	**55311 02006** 2m6×6	**55311 01504** 1,5m6×4
UKS08-W3014	**N00 56111** S/M2,6x6,2-8IP 1,28 Nm	**L02 30771**	**L02 31010** UKS8-3	**L02 30020** UKS8-4	**L02 22510**	**56771 08043** 8×4,2×0,3	**55311 02006** 2m6×6	**55311 01504** 1,5m6×4
UKS10-CC09T3	**N00 56751** S3574-10IP 2,8 Nm	**L02 30781**	**L02 31020** UKS10-3	**L02 30020** UKS8-4	**L02 22520**	**56771 10054** 10×5,2×0,4	**55311 02008** 2m6×8	**55311 01505** 1,5m6×5

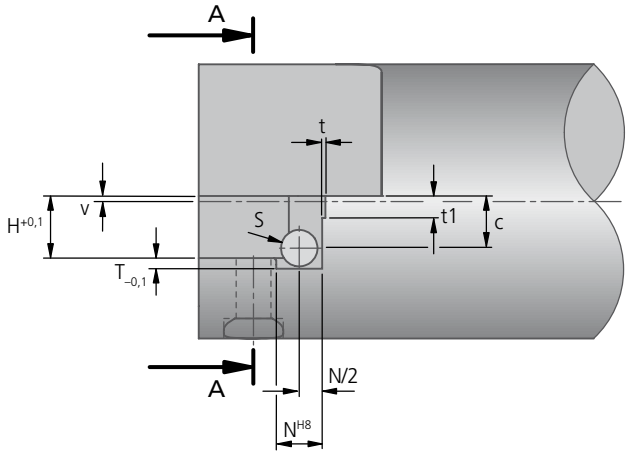
Supply includes:
Short clamp holder with assembly parts. Please order insert separately. Screwdriver see chapter 8.

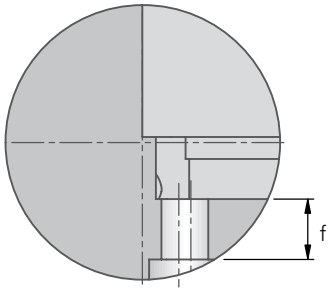
KOMET Kometric® FLWE Insert flat bed seating

Mounting details

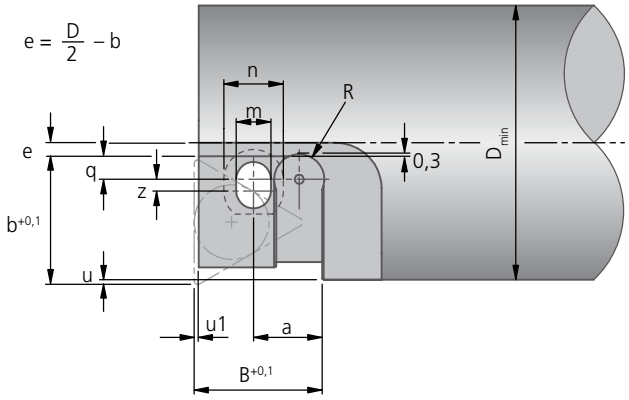
Mounting

for cutting form 1 as shown
for cutting form 2 in mirror image





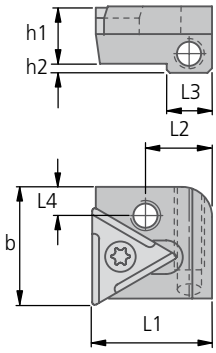
Section A-A



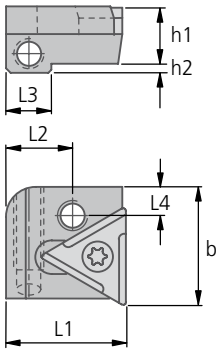
D = required turning diameter

Insert flat bed seating size	a	B	c	D min.	f	b	H	m	N	n	q	R	S	T	t	t1	u	u1	v	z
FLWE-U3..	4,4	8	2,9	16	1,3	7,8	3,6	2,2	3	4	1,6	1,75	2,5	0,85	0,1	1,8	0,5	0,3	0,5	0,8
FLWE-U4..	7	12	4,1	22	3,6	11	5,7	2,8	5	4,5	2	2,75	4	1,15	0,15	2,4	0,5	0,5	0,6	1,3
FLWE-U5..	7,5	14	5,7	30	6,6	14	6,8	3,8	5	6,5	2,5	2,75	4	1,15	0,15	2,4	0,5	0,5	0,6	1,3

Adjustable insert flat bed seating $\varkappa$ = 90°



Insert seating cutting form 1 as shown with left or neutral insert.



Insert seating cutting form 2 in mirror image with right or neutral insert.

Dimension 'b' relates to the appropriate insert radius

FLWE $\varkappa$ = 90°									
Article cutting form ▼	Order No.	for radius b	L1	L2	L3	L4	h1	h2	kg
FLWE-U3-90°-1	**D53 56410**	7,8	8	4,4	3	1,9	3,6	0,6	0,004
FLWE-U4-90°-1	**D53 56430**	11	12	7	5	2,5	5,7	0,95	0,006
FLWE-U4-90°-2	**D53 51430**								
FLWE-U5-90°-1	**D53 56440**	14	14	7,5	5	3	6,8	0,95	0,008
FLWE-U5-90°-2	**D53 51440**								

	Insert			Assembly parts		
	W30 L.H.	W30 R.H.	W57 neutral	Clamping screw	Location screw	Threaded pin
for insert seating	radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°		**Order No.** Article	**Order No.**	**Order No.** Article
FLWE-U3-90°-1	**W30 04..0.03..**		**W57 04140.04..**	**N00 56021** S/M2×3,8-6IP 0,62Nm	**N10 11200**	**55051 02005** M2×5
FLWE-U4-90°-1	**W30 14..0.04..**		**W57 14140.04..**	**N00 56101** S/M2,6×5,2-8IP 1,28Nm	**N10 11310**	**55051 03006** M3×6
FLWE-U4-90°-2		**W30 14..0.04..**				
FLWE-U5-90°-1	**W30 26..0.05..**		**W57 26140.04..**	**N00 56201** S/M3,5×6,2-10IP 2,8Nm	**N10 11400**	**55051 03006** M3×6
FLWE-U5-90°-2		**W30 26..0.05..**				

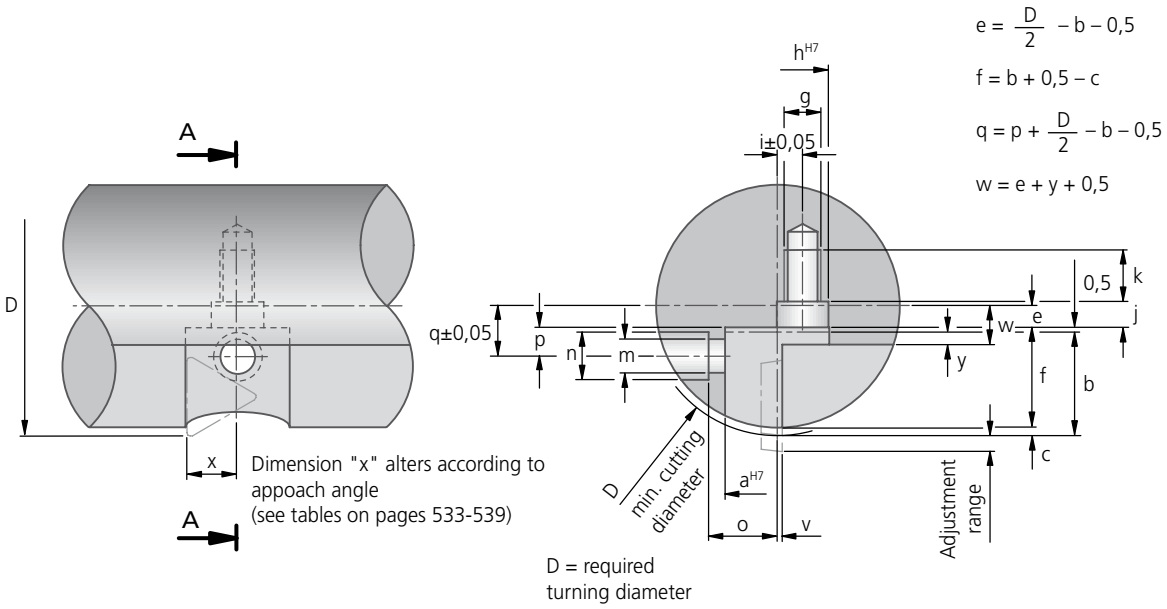
For further details on inserts see chapter 7

Note:
If using insert W30 ... .31.. (UF) the external contour have to be reworked.

Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

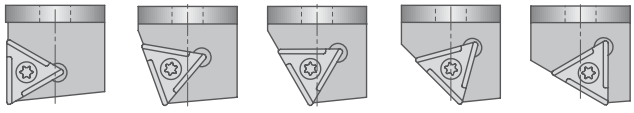
KOMET Kometric® WVP, WVU Adjustable insert seating

Mounting details



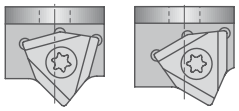
Features

- KOMET Kometric® type WVP can be fitted with Unisix® insert
- KOMET Kometric® type WVU can be fitted with triangular insert
- KOMET Kometric® types WVU4 and WVU5 can be interchanged with types WVP12 and WVP16
- can be used from 16 mm ∅
- optimum adjustment with easily accessible adjusting screw
- for own manufacture of fine boring tools using ABS® or HSK semi-finished heads



90° 75° 60° 45° 30°

WVU Insert seating size	Insert seating			Adjusting screw					Location screw				Chip channel	
	a	b	c	g	h	i	j	k	m	n	o	p	v	y
WVU3..	8	8,5	0,75	M3	4	2,1	2,5	4	2,8	4	5,5	2,7	0,5	1,5
WVU4..	12	12	1	M4	6	2,9	3	6	3,9	5,5	7,9	3,3	0,6	1,5
WVU5..	16	16	1	M5	7	4,4	3,5	8	4,5	7,5	9,5	4,2	0,6	2



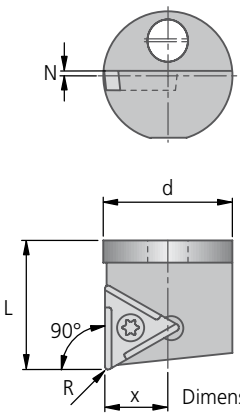
45° 30°

WVP Insert seating size	Insert seating			Adjusting screw					Location screw				Chip channel	
	a	b	c	g	h	i	j	k	m	n	o	p	v	y
WVP 12..	12	12	1	M4	6	2,9	3	6	3,9	5,5	7,9	3,3	0,6	1,5
WVP 16..	16	16	1	M5	7	4,4	3,5	8	4,5	7,5	9,5	4,2	0,6	2

Adjustable insert seatings $\varkappa$ = 90°

L.H. insert seating as shown with left or neutral insert ■
mounting instruction see page 532 ■

Material
P M K N S H



Dimension 'x' refers to the appropriate insert radius

WVU $\varkappa$ = 90°										
Article cutting form ▼	**Order No.**	min. cutting diameter	Adjust-ment-range	**d**	**L**	**N**	ISO dimension **x** for radius R0,2	R0,4	R0,8	kg
WVU3-800-90L	**D20 40000**	16	0,3	8	8,5	0,5	3,9	3,9	3,9	0,004
WVU4-800-90L	**D20 40010**	22	0,4	12	12	0,6	5,8	5,8	5,8	0,004

	Insert		Assembly parts		
for insert seating	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W57 neutral	Clamping screw **Order No.** Article	Location screw **Order No.** Article	Adjusting screw **Order No.** Article
WVU3-800-90L	**W30 04..0.03..**	**W57 04140.04..**	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**N00 55561** M2,5×4-8IP 1,28 Nm	**N00 52500** E34
WVU4-800-90L	**W30 14..0.04..**	**W57 14140.04..**	**N00 56121** S/M2,6×4,7-8IP 1,28 Nm	**N00 55701** M3,5×5-8IP 2,25 Nm	**N00 52510** E46

For further details on inserts see chapter 7

Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

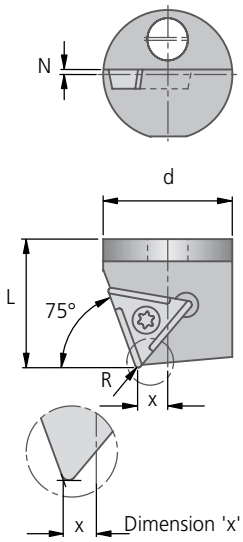
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® WVU

Adjustable insert seatings $\varkappa$ = 75°

Material
P M K N S H

- L.H. insert seating as shown with left or neutral insert
- mounting instruction see page 532



Dimension 'x' refers to the appropriate insert radius

WVU $\varkappa$ = 75°										
Article cutting form ▾	Order No.	min. cutting diameter	Adjust-ment-range	d	L	N	ISO dimension x for radius R0,2	R0,3	R0,4	kg
WVU3-800-75L	**D20 40100**	16	0,3	8	8,5	0,5	2,28	2,3	2,33	0,003
WVU4-800-75L	**D20 40110**	22	0,4	12	12	0,6	3,55	–	3,6	0,006

	Insert		Assembly parts		
for insert seating	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W57 neutral	Clamping screw Order No. Article	Location screw Order No. Article	Adjusting screw Order No. Article
WVU3-800-75L	**W30 04..0.03..**	**W57 04140.04..**	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**N00 55561** M2,5×4-8IP 1,28 Nm	**N00 52500** E34
WVU4-800-75L	**W30 14..0.04..**	**W57 14140.04..**	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**N00 55701** M3,5×5-8IP 2,25 Nm	**N00 52510** E46

For further details on inserts see chapter 7

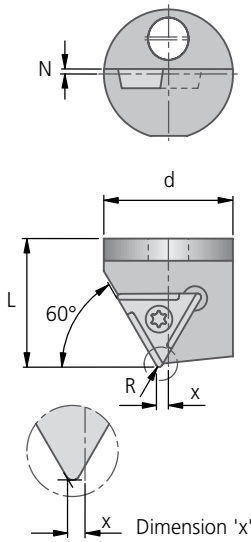
Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Adjustable insert seatings $\varkappa$ = 60°

L.H. insert seating as shown with left or neutral insert ■
mounting instruction see page 532 ■

Material
P M K N S H



Dimension 'x' refers to the appropriate insert radius

WVU $\varkappa$ = 60°									
Article cutting form ▼	**Order No.**	min. cutting diameter	Adjust-ment-range	**d**	**L**	**N**	ISO dimension **x** for radius R0,2	R0,4	kg
WVU4-800-60L	**D20 40210**	22	0,4	12	12	0,6	1,39	1,5	0,006

	Insert		Assembly parts		
	W30 L.H.	W57 neutral	Clamping screw	Location screw	Adjusting screw
for insert seating	radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°		**Order No.** Article	**Order No.** Article	**Order No.** Article
WVU4-800-60L	**W30 14..0.04..**	**W57 14140.04..**	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**N00 55701** M3,5×5-8IP 2,25 Nm	**N00 52510** E46

For further details on inserts see chapter 7

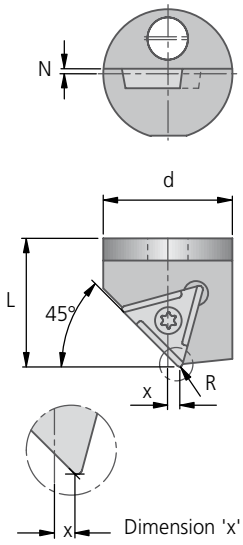
Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

KOMET Kometric® WVU

Adjustable insert seatings $\varkappa$ = 45°

Material
P M K N S H

- L.H. insert seating as shown with left or neutral insert
- R.H. insert seating in mirror image with right or neutral insert
- mounting instruction see page 532



Dimension 'x' refers to the appropriate insert radius

WVU $\varkappa$ = 45°										
Article cutting form ▼	Order No.	min. cutting diameter	Adjust-ment-range	d	L	N	ISO dimension x for radius R0,2	R0,4	R0,8	kg
WVU4-800-45L	D20 40310	22	0,4	12	12	0,6	0,88	0,7	–	0,005
WVU4-800-45R	D20 45310									
WVU5-800-45L	D20 40320	30	0,5	16	16	0,6	1,59	1,4	1,3	0,012

	Insert			Assembly parts		
for insert seating	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral	Clamping screw Order No. Article	Location screw Order No. Article	Adjusting screw Order No. Article
WVU4-800-45L	W30 14..0.04..		W57 14140.04..	N00 56101 S/M2,6x5,2-8IP 1,28Nm	N00 55701 M3,5x5-8IP 2,25Nm	N00 52510 E46
WVU4-800-45R		W30 14..0.04..				
WVU5-800-45L	W30 26..0.05..		W57 26140.04..	N00 56201 S/M3,5x6,2-10IP 2,8Nm	55012 04006 M4x6 DIN7984	N00 52520 E58

For further details on inserts see chapter 7

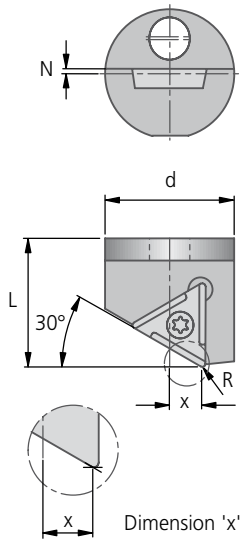
Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Adjustable insert seatings $\varkappa$ = 30°

L.H. insert seating as shown with left or neutral insert ■
mounting instruction see page 532 ■

Material
P M K N S H



Dimension 'x' refers to the appropriate insert radius

WVU $\varkappa$ = 30°									
Article cutting form ▾	**Order No.**	min. cutting diameter	Adjust-ment-range	**d**	**L**	**N**	ISO dimension **x** for radius R0,2	R0,4	kg
WVU4-800-30L	**D20 40410**	22	0,4	12	12	0,6	2,76	2,5	0,006

	Insert		Assembly parts		
	W30 L.H.	W57 neutral	Clamping screw	Location screw	Adjusting screw
for insert seating	radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°		**Order No.** Article	**Order No.** Article	**Order No.** Article
WVU4-800-30L	**W30 14..0.04..**	**W57 14140.04..**	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**N00 55701** M3,5×5-8IP 2,25 Nm	**N00 52510** E46

For further details on inserts see chapter 7

Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

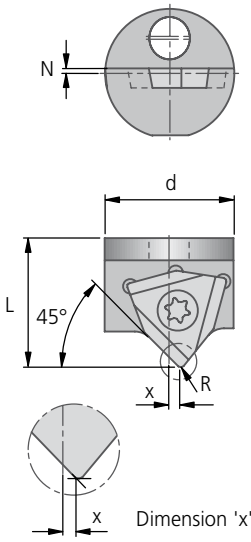
KOMET Kometric® WVP

Adjustable insert seatings $\varkappa$ = 45°

Material

P M K N S H

- L.H. insert seating as shown with left or neutral insert
- mounting instruction see page 532



Dimension 'x' refers to the appropriate insert radius

WVP $\varkappa$ = 45°										
Article cutting form	Order No.	min. cutting diameter	Adjust-ment-range	d	L	N	ISO dimension x for radius R0,2	R0,4	R0,8	kg
WVP12-818-45L31	**D20 80350**	22	0,4	12	12	0,6	0,7	0,61	0,41	0,02
WVP16-824-45L38	**D20 80360**	30	0,5	16	16	0,6	1,3	1,2	1,01	0,02

	Insert			Assembly parts		
for insert seating	W01 L.H.	W01 neutral	W29 neutral	Clamping screw **Order No.** Article	Location screw **Order No.** Article	Adjusting screw **Order No.** Article
WVP12-818-45L31			**W29 18010.04..**	**N00 57553** S/M2,2×5,5-6IP 1,01 Nm	**N00 55701** M3×5-8IP 2,25 Nm	**N00 52510** E46
WVP16-824-45L38	**W01 24060.02..**	**W01 24600...**	**W29 24010.04..**	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	**55012 04006** M4×6 DIN7984	**N00 52520** E58

For further details on inserts see chapter 7

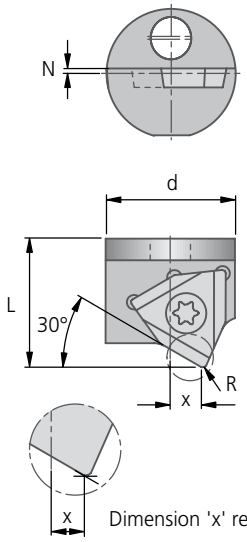
Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Adjustable insert seatings $\varkappa$ = 30°

L.H. insert seating as shown with left or neutral insert ■
mounting instruction see page 532 ■

Material
P M K N S H



Dimension 'x' refers to the appropriate insert radius

WVP $\varkappa$ = 30°										
Article cutting form ▼	Order No.	min. cutting diameter	Adjust-ment-range	d	L	N	ISO dimension x for radius R0,2	R0,4	R0,8	kg
WVP16-824-30L38	**D20 80460**	30	0,5	16	16	0,6	4	3,86	3,57	0,02

	Insert			Assembly parts		
for insert seating	W01 L.H.	W01 neutral	W29 neutral	Clamping screw **Order No.** Article	Location screw **Order No.** Article	Adjusting screw **Order No.** Article
WVP16-824-30L38	**W01 24060.02..**	**W01 24600...**	**W29 24010.04..**	**N00 57511** S/M2,5×7,2-8IP 1,28 Nm	**55012 04006** M4×6 DIN7984	**N00 52520** E58

For further details on inserts see chapter 7

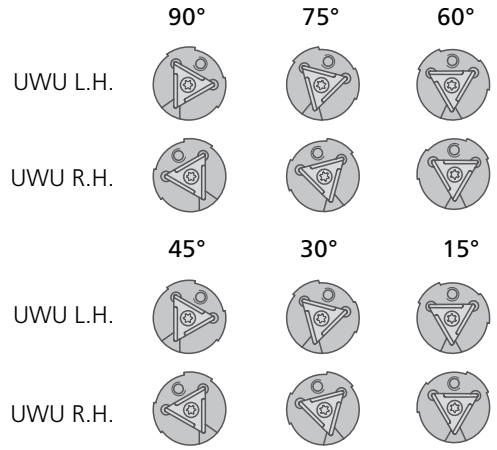
Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

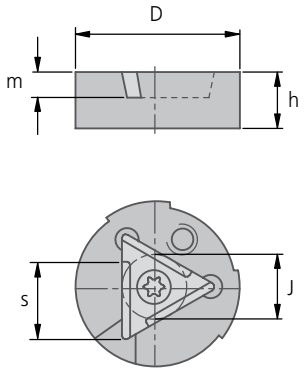
KOMET Kometric® UWU

Insert seatings

Material
P M K N S H

- L.H. insert seating as shown with left or neutral insert
- R.H. insert seating in mirror image with right or neutral insert
- Mounting instruction see page 542 – 543





UWU								Indexable insert		
Article cutting form ▼	Order No.	J	D	h	at standard radius s	insert thickness m	kg	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W57 neutral
UWU 4 L	**D52 01100**	5,6	16	5,5	4,5	2,5	0,007	**W30 14..0.04..**		**W57 14140.04..**
UWU 5 L	**D52 01110**	8,2	20	6,5	6,7	3	0,012	**W30 26..0.04..**		**W57 26140.04..**
UWU 5 R	**D52 06110**								**W30 26..0.04..**	

For further details on inserts see chapter 7

Assembly parts							
for insert seating	Clamping screw		Location screw		Cylindrical pin external machining		Cylindrical pin internal machining	
	Article	Order No.	Article	Order No.	Article	Order No.	Article	Order No.
UWU 4..	S/M2,6×6,2-8IP 1,28 Nm	**N00 56111**	Tx M2,6×6	**N00 55600**	1,8/2×4,5	**N00 52000**	1,8/2×4,5	**N00 52000**
UWU 5..	S/M3,5×7,3-10IP 2,8 Nm	**N00 56211**	M3,5×5-8IP 2,25 Nm	**N00 55701**	Ø3×10 DIN 6325	**55311 03010**	1,8/2×5,5	**55311 03010**

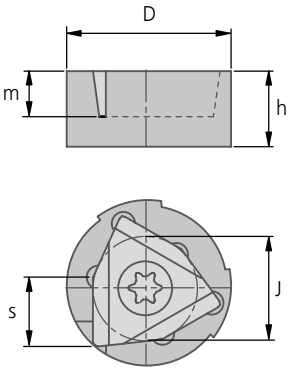
Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

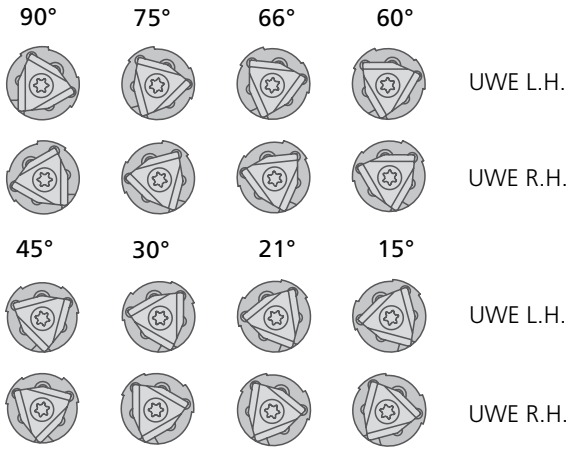
● very good | ◐ good | ○ possible | ✕ not possible

Insert seatings

L.H. insert seating as shown with left or neutral insert ■
R.H. insert seating in mirror image with right or neutral insert ■
Mounting instruction see page 544 – 545 ■

Material: P M K N S H





UWE								Indexable insert			
Article cutting form ▼	Order No.	J	D	h	s	insert thickness m	kg	W01 L.H. radial 06 = 6° rake 12 = 12° ▽▽	W01 R.H. radial 36 = 6° rake 42 = 12° ▽▽	W01 neutral	W29 neutral 00 = PD 01 = K ▽▽
UWE02-38 L	D52 50090	8	14	6	5	3,8	0,005	W01 24..0.04..		W01 24600...	W29 24..0.04..
UWE02-38 R	D52 55090								W01 24..0.04..		
UWE01-38 L	D52 50100	10	16	6,5	6,5	3,8	0,007	W01 34..0.04..		W01 34600...	W29 34..0.04..
UWE01-38 R	D52 55100								W01 34..0.04..		
UWE1-48 L	D52 50110	12	20	8,3	7,5	4,8	0,013	W01 42..0.04..		W01 42600...	W29 42..0.04..
UWE2-53 L	D52 50120	15	25	8,8	9,5	5,3	0,023	W01 50..0.04..		W01 50600...	W29 50..0.08..
UWE3-60 L	D52 50130	17,6	30	10,5	11,5	6	0,041	W01 58..0.04..		W01 58600...	W29 58..0.08..
UWE3-60 R	D52 55130								W01 58..0.04..		

For further details on inserts see chapter 7

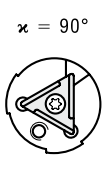
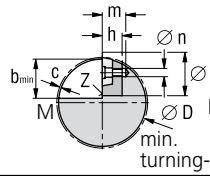
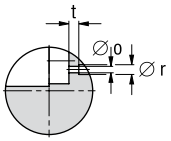
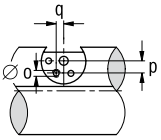
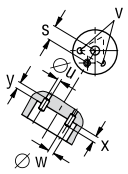
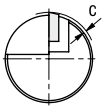
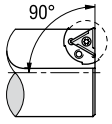
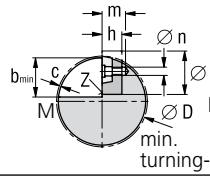
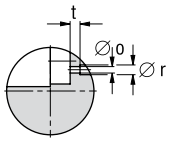
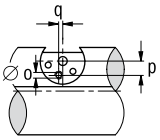
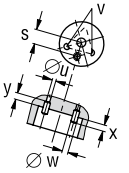
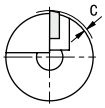
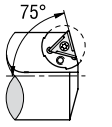
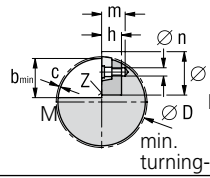
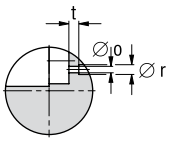
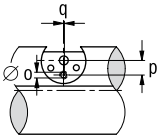
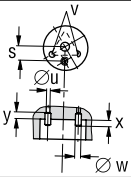
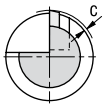
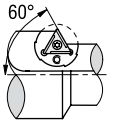
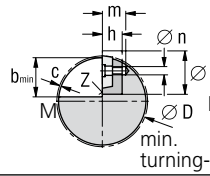
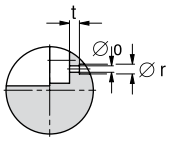
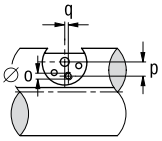
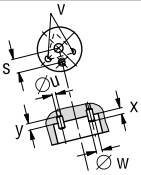
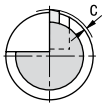
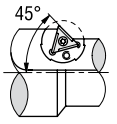
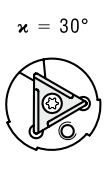
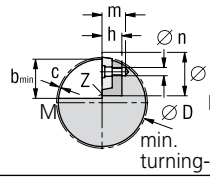
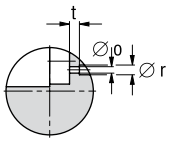
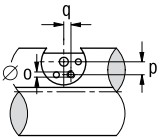
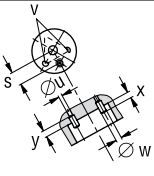
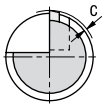
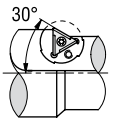
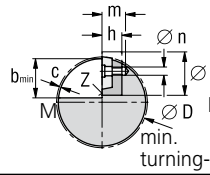
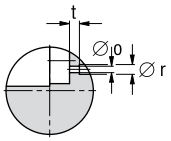
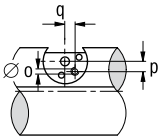
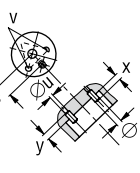
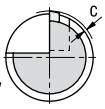
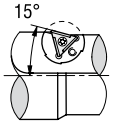
Assembly parts							
for insert seating	Clamping screw		Location screw		Cylindrical pin external machining		Cylindrical pin internal machining	
	Article	Order No.	Article	Order No.	Article	Order No.	Article	Order No.
UWE 02..	S/M2,5×6,3-8IP 1,28 Nm	N00 57571	M2,5×6-8IP 1,28 Nm	N00 55571	1,8/2×4,5	N00 52000	1,8/2×4,5	N00 52000
UWE 01..	S/M3,5×7,3-10IP 2,8 Nm	N00 57521	M3,5×5-8IP 2,25 Nm	N00 55701	1,8/2×4,5	N00 52000	1,8/2×4,5	N00 52000
UWE 1..	S/M4,5×9-15IP 6,25 Nm	N00 57531	M4,5×9-10IP 6,25 Nm	N00 55821	Ø4×10 DIN 6325	55311 04010	3/4×5,5	N00 52010
UWE 2..	S/M4,5×9-15IP 6,25 Nm	N00 57531	M4,5×9-10IP 6,25 Nm	N00 55821	Ø4×10 DIN 6325	55311 04010	3/4×5,5	N00 52010
UWE 3..	S/M5,5×11-20IP 6,25 Nm	N00 57541	M5,5×13,5-20IP 6,25 Nm	N00 559051	Ø5×12 DIN 6325	55311 05012	4/5×7	N00 52020

Supply includes:
Insert seating with assembly parts. Please order insert separately. Screwdriver see chapter 8.

KOMET Kometric® UWU insert seatings

Mounting instructions

L.H. cutting (R.H. cutting reflected image)

Approach angle	Fig. 1	Fig. 2	Fig. 3	Fig. 4	Fig. 5	Fig. 5a	Fig. 6
$\varkappa$ = 90°							
$\varkappa$ = 75°							
$\varkappa$ = 60°							
$\varkappa$ = 45°							
$\varkappa$ = 30°							
$\varkappa$ = 15°							

∅ D = required turning diameter

1. Mill cutting height ***Z*** to minimum width b, so that seating lies with diameter ***f*** as far as possible in the flute (Fig. 1).
2. Align machine spindle with central axis ***M-M***, take dimensions ***d*** and ***e*** from the table, based on insert radius ***R***, and calculate the distance ***g*** for centre point M1 ($g = \frac{D}{2} - d$). Move spindle by an amount ***g*** and allow for ***e***. The spindle is now at the centre point ***M1*** (Fig. 2).
3. Centre centrepoint ***M1*** and drill centre hole ***n*** to depth ***m*** (Fig. 3). Position machine spindle over ***n***.
4. Move to cutting height ***Z*** and countersink with ∅ ***f*** to depth ***h*** (Fig. 3).
5. Move with machine spindle (to coordinates ***p*** and ***q***) to clamping hole ***o***, centre and drill with ∅ ***o*** (Fig. 4).
6. Rotate workpiece 180°, locate bore ***o*** and counterbore ∅ ***r*** to dimension ***t*** (Fig. 4).
7. Move workpiece back 180°. Position seating, secure lightly, insert and check setting dimensions. Secure seating with clamping screw (Fig. 6).
8. Seating is now firmly mounted, remove insert and drill out both pin holes ***u*** to corner holes ***v*** and ream with ∅ ***w*** to depth ***y*** (Fig. 6 + 6a). Remove seating.
   Note: Attention should be paid with pin hole ***u*** and ***w*** as to whether the seating is used for internal or external machining (see table).
9. Press in the pins provided to a distance of ***x*** (Fig. 6a).
10. Turn, mill or grind off the excessive seating (Fig. 7). Deburr the tool an if necessary harden or temper.

Note:

The seating is hardened to approx. 52 HRc and has a tensile strengh of approx. 1800 N/mm². It is therefore highly suitable for machining with turning tool holders D007 and inserts. Carbide grade P25M at cutting speed of 45 m/min. and feed s ≈ 0.08 mm/rev.

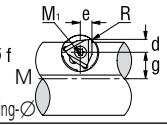
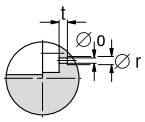
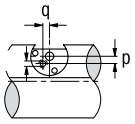
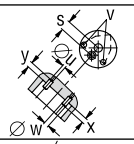
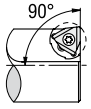
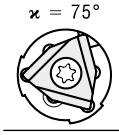
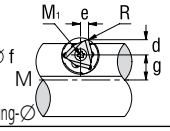
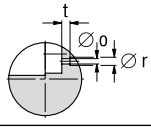
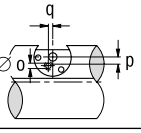
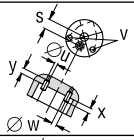
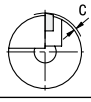
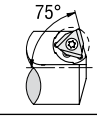
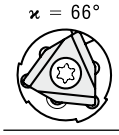
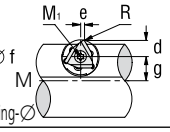
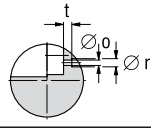
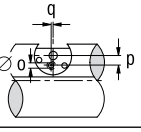
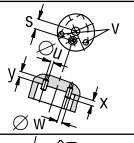
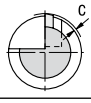
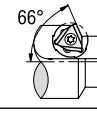
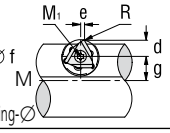
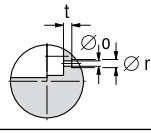
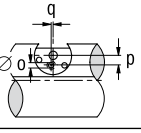
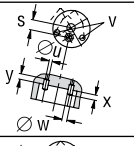
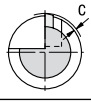
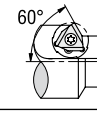
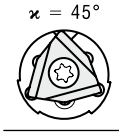
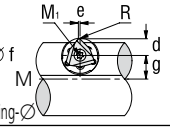
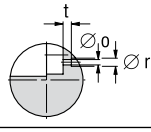
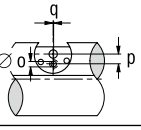
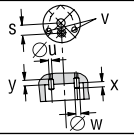
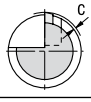
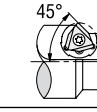
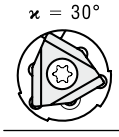
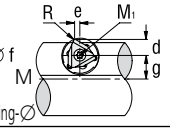
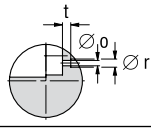
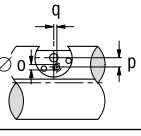
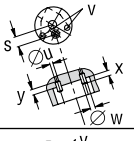
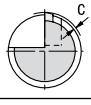
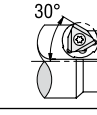
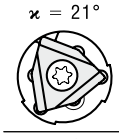
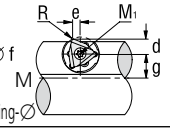
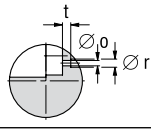
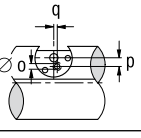
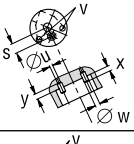
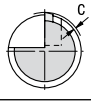
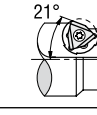
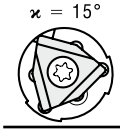
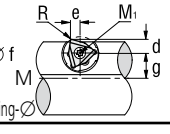
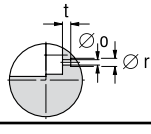
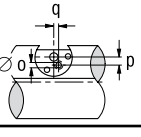
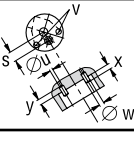
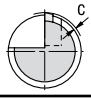
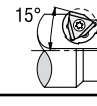
Approach angle		UWU 4 L/R		UWU 5 L/R			UWU 6 L/R		
		for R0,4	for R0,8	for R0,4	for R0,5	for R0,8	for R0,4	for R0,5	for R0,8
ϰ = 90°	d	4,56	4,26	6,81	6,73	6,51	10,71	10,41	10,12
	e	2,8	2,8	4,1	4,1	4,1	6,35	6,35	6,35
	p	3,9	3,9	5,5	5,5	5,5	8,23	8,23	8,23
	q	2,25	2,25	3,18	3,18	3,18	4,75	4,75	4,75
ϰ = 75°	d	5,04	4,66	7,55	7,45	7,17	11,94	11,56	11,19
	e	1,55	1,65	2,22	2,25	2,32	3,39	3,49	3,59
	p	4,35	4,35	6,13	6,13	6,13	9,18	9,18	9,18
	q	1,16	1,16	1,64	1,64	1,64	2,46	2,46	2,46
ϰ = 60°	d	5,2	4,8	7,8	7,7	7,4	12,3	11,9	11,5
	e	0,23	0,46	0,23	0,29	0,46	0,23	0,46	0,69
	p	4,5	4,5	6,35	6,35	6,35	9,5	9,5	9,5
	q	–	–	–	–	–	–	–	–
ϰ = 45°	d	5,04	4,66	7,55	7,45	7,17	11,89	11,52	11,15
	e	1,08	0,7	1,72	1,65	1,37	2,92	2,54	2,17
	p	4,35	4,35	6,13	6,13	6,13	9,18	9,18	9,18
	q	1,16	1,16	1,64	1,64	1,64	2,46	2,46	2,46
ϰ = 30°	d	4,56	4,26	6,81	6,73	6,51	10,71	10,41	10,12
	e	2,29	1,79	3,59	3,47	3,09	5,84	5,34	4,83
	p	3,9	3,9	5,5	5,5	5,5	8,23	8,23	8,23
	q	2,25	2,25	3,18	3,18	3,18	4,75	4,75	4,75
ϰ = 15°	d	3,79	3,63	5,63	5,59	5,47	8,81	8,65	8,48
	e	3,34	3,72	5,18	5,03	4,56	8,36	7,74	7,13
	p	3,18	3,18	4,49	4,49	4,49	6,72	6,72	6,72
	q	3,18	3,18	4,49	4,49	4,49	6,72	6,72	6,72

Mounting dimensions for		UWU 4 L/R	UWU 5 L/R		UWU 6 L/R	
Seating	min. cutting-Ø	24,0	40,0		50,0	
	b	14,0	19,0		28,0	
	c	0,5	0,5		0,7	
g = D/2 – d	f^{H7}	16,0	20,0		30,0	
	h	5,5	6,5		8,8	
	n	3,0	3,8		5,5	
	m	7,0	11,3		14,2	
Location screw	o	2,8	3,8		5,3	
	r	4,5	5,5		7,5	
	s	4,5	6,35		9,5	
	$t^{+0,1}$	2,5	3,9		8,5	
Pin			internal machining	external machining	internal machining	external machining
	u	1,6	1,6	2,8	2,8	3,8
	v^{H7}	2,0	3,0	3,0	4,0	4,0
	w^{H7}	1,8	1,8	3,0	3,0	4,0
	x	2,0	2,5	2,5	2,5	2,5
	y	3,0	6,0	7,5	6,0	7,5

KOMET Kometric® UWE insert seatings

Mounting instructions

L.H. cutting (R.H. cutting reflected image)

Approach angle	Fig. 1	Fig. 2	Fig. 3	Fig. 4	Fig. 5	Fig. 5a	Fig. 6
$\varkappa$ = 90°							
$\varkappa$ = 75°							
$\varkappa$ = 66°							
$\varkappa$ = 60°							
$\varkappa$ = 45°							
$\varkappa$ = 30°							
$\varkappa$ = 21°							
$\varkappa$ = 15°							

∅ D = required turning diameter

1. Mill cutting height ***Z*** to minimum width b, so that seating lies with diameter ***f*** as far as possible in the flute (Fig. 1).
2. Align machine spindle with central axis ***M-M***, take dimensions ***d*** and ***e*** from the table, based on insert radius ***R***, and calculate the distance ***g*** for centre point M1 ($g = \frac{D}{2} - d$). Move spindle by an amount ***g*** and allow for ***e***. The spindle is now at the centre point ***M1*** (Fig. 2).
3. Centre centrepoint ***M1*** and drill centre hole ***n*** to depth ***m*** (Fig. 3). Position machine spindle over ***n***.
4. Move to cutting height ***Z*** and countersink with ∅ ***f*** to depth ***h*** (Fig. 3).
5. Move with machine spindle (to coordinates ***p*** and ***q***) to clamping hole ***o***, centre and drill with ∅ ***o*** (Fig. 4).
6. Rotate workpiece 180°, locate bore ***o*** and counterbore ∅ ***r*** to dimension ***t*** (Fig. 4).
7. Move workpiece back 180°. Position seating, secure lightly, insert and check setting dimensions. Secure seating with clamping screw (Fig. 6).
8. Seating is now firmly mounted, remove insert and drill out both pin holes ***u*** to corner holes ***v*** and ream with ∅ ***w*** to depth ***y*** (Fig. 6 + 6a). Remove seating.
   Note: Attention should be paid with pin hole ***u*** and ***w*** as to whether the seating is used for internal or external machining (see table).
9. Press in the pins provided to a distance of ***x*** (Fig. 6a).
10. Turn, mill or grind off the excessive seating (Fig. 7). Deburr the tool an if necessary harden or temper.

Note:

The seating is hardened to approx. 52 HRc and has a tensile strengh of approx. 1800 N/mm². It is therefore highly suitable for machining with turning tool holders D007 and inserts. Carbide grade P25M at cutting speed of 45 m/min. and feed s ≈ 0.08 mm/rev.

Mounting dimensions

Approach angle		UWE 02..L/R				UWE 01..L/R			UWE 1..L/R				UWE 2..L/R				UWE 3..L/R			
		for R0,2	for R0,4	for R0,8	for R1,2	for R0,2	for R0,4	for R0,8	for R0,2	for R0,4	for R0,8	for R1,2	for R0,4	for R0,8	for R1,2	for R1,6	for R0,6	for R0,8	for R1,2	for R1,6
ϰ = 90°	d	4,42	4,34	4,35	4,31	5,53	5,51	5,47	6,64	6,62	6,58		8,29	8,25	8,2		9,71	9,69	9,65	9,61
	e	4	4	4	4	5	5	5	6	6	6		7,5	7,5	7,5		8,8	8,8	8,8	8,8
	p	2,39	2,39	2,39	2,39	2,97	2,97	2,97	3,72	3,72	3,72		4,09	4,09	4,09		5,05	5,05	5,05	5,05
	q	2,14	2,14	2,14	2,14	2,68	2,68	2,68	3,35	3,35	3,35		3,68	3,68	3,68		4,55	4,55	4,55	4,55
ϰ = 75°	d	5,26	5,19	5,06	4,93	6,59	6,53	6,39	7,92	7,87	7,72	7,59	9,86	9,72	9,59	9,46	11,52	11,46	11,33	11,2
	e	2,73	2,75	2,79	2,82	3,41	3,43	3,46	4,09	4,11	4,14	4,18	5,13	5,16	5,2	5,23	6,02	6,04	6,08	6,11
	p	2,85	2,85	2,85	2,85	3,56	3,56	3,56	4,46	4,46	4,46	4,46	4,9	4,9	4,9	4,9	6,06	6,06	6,06	6,06
	q	1,45	1,45	1,45	1,45	1,82	1,82	1,82	2,27	2,27	2,27	2,27	2,49	2,49	2,49	2,49	3,09	3,09	3,09	3,09
ϰ = 66°	d	4,42	4,4	4,35	4,31	5,53	5,51	5,46	6,64	6,62	6,58		8,29	8,24	8,2		9,71	9,68	9,64	9,6
	e	4	4	4	4	5	5	5	6	6	6		7,5	7,5	7,5		8,8	8,8	8,8	8,8
	p	3,04	3,04	3,04	3,04	3,8	3,8	3,8	4,76	4,76	4,76		5,23	5,23	5,23		6,47	6,47	6,47	6,47
	q	0,99	0,99	0,99	0,99	1,24	1,24	1,24	1,55	1,55	1,55		1,7	1,7	1,7		2,1	2,1	2,1	2,1
ϰ = 60°	d	5,76	5,66	5,48	5,29	7,22	7,12	6,94	8,68	8,58	8,4	8,22	10,78	10,6	10,42	10,33	12,59	12,49	12,31	12,12
	e	1,3	1,35	1,46	1,56	1,6	1,66	1,76	1,92	1,98	2,08	2,19	2,44	2,55	2,65	2,77	2,89	2,95	3,05	3,17
	p	3,13	3,13	3,13	3,13	3,91	3,91	3,91	4,89	4,89	4,89	4,89	5,38	5,38	5,38	5,38	6,65	6,65	6,65	6,65
	q	0,66	0,66	0,66	0,66	0,83	0,83	0,83	1,04	1,04	1,04	1,04	1,14	1,14	1,14	1,14	1,41	1,41	1,41	1,41
ϰ = 45°	d	5,87	5,77	5,58	5,38	7,36	7,26	7,07	8,86	8,76	8,57	8,37	10,99	10,8	10,6	10,41	12,84	12,74	12,54	12,35
	e	0,21	0,12	0,08	–0,28	0,29	0,19	0	0,37	0,27	0,08	–0,12	0,39	0,2	0	–0,19	0,4	0,3	0,1	–0,09
	p	3,2	3,2	3,2	3,2	3,99	3,99	3,99	4,99	4,99	4,99	4,99	5,49	5,49	5,49	5,49	6,79	6,79	6,79	6,79
	q	0,17	0,17	0,17	0,17	0,21	0,21	0,21	0,26	0,26	0,26	0,26	0,29	0,29	0,29	0,29	0,36	0,36	0,36	0,36
ϰ = 30°	d	5,6	5,52	5,35	5,18	7,02	6,93	6,76	8,45	8,36	8,19	8,03	10,49	10,32	10,15	9,99	12,25	12,16	12	11,82
	e	1,7	1,56	1,26	0,97	2,16	2,02	1,73	2,62	2,48	2,19	1,9	3,17	2,88	2,59	2,3	3,63	3,48	3,19	2,9
	p	3,04	3,04	3,04	3,04	3,8	3,8	3,8	4,76	4,76	4,76	4,76	5,23	5,23	5,23	5,23	6,47	6,47	6,47	6,47
	q	0,99	0,99	0,99	0,99	1,24	1,24	1,24	1,55	1,55	1,55	1,55	1,7	1,7	1,7	1,7	2,1	2,1	2,1	2,1
ϰ = 21°	d	5,26	5,19	5,06	4,93	6,59	6,53	6,39	7,92	7,86	7,72		9,85	9,72	9,59		11,52	11,45	11,32	11,19
	e	2,54	2,37	2,02	1,68	3,22	3,05	2,7	3,9	3,73	3,38		4,74	4,4	4,05		5,45	5,28	4,93	4,59
	p	2,85	2,85	2,85	2,85	3,56	3,56	3,56	4,46	4,46	4,46		4,9	4,9	4,9		6,06	6,06	6,06	6,06
	q	1,45	1,45	1,45	1,45	1,82	1,82	1,82	2,27	2,27	2,27		2,5	2,5	2,5		3,09	3,09	3,09	3,09
ϰ = 15°	d	4,96	4,91	4,81	4,71	6,22	6,17	6,06	7,47	7,42	7,32		9,3	9,2	9,1		10,88	10,83	10,73	10,62
	e	3,07	2,88	2,5	2,12	3,88	3,69	3,31	4,69	4,51	4,13		5,73	5,35	4,97		6,6	6,41	6,03	5,65
	p	2,68	2,68	2,68	2,68	3,35	3,35	3,35	4,19	4,19	4,19		4,61	4,61	4,61		5,7	5,7	5,7	5,7
	q	1,74	1,74	1,74	1,74	2,18	2,18	2,18	2,72	2,72	2,72		3	3	3		3,7	3,7	3,7	3,7

Mounting dimensions for		UWE 02..L/R	UWE 01..L/R	UWE 1..L/R		UWE 2..L/R		UWE 3..L/R	
Seating	min. cutt.-Ø	32	34	40		50		54	
	b	13	16	19		24		28	
ϰ = 90°, 75°, 60°, 45°, 30°, 15°	c	0,5	0,5	0,6		0,7		0,8	
g = D/2 – d	f^{H7}	14	16	20		25		30	
ϰ = 66°, 21°	h	6	6,5	8,3		8,8		10,5	
g = D/2 + d	n	2,7	3,8	4,8		4,8		5,8	
	m	8,5	7	11,3		11,3		16	
Location screw	o	2,7	3,8	4,8		4,8		5,8	
	r	4	5,5	6,5		6,5		7,5	
	s	3,2	4	5		5,5		6,8	
	$t^{+0,1}$	3,9	2,5	5,7		5,7		9,2	
Pin				internal machining	external machining	internal machining	external machining	internal machining	external machining
	u	1,6	1,6	2,8	3,8	2,8	3,8	3,8	4,8
	v^{H7}	2	2	4	4	4	4	5	5
	w^{H7}	1,8	1,8	3	4	3	4	4	5
	x	2	2	2,5	2,5	2,5	2,5	5	5
	y	3	3	6	7,5	6	7,5	8	8

KOMET Kometric® UZV Boring tool

Mounting instructions

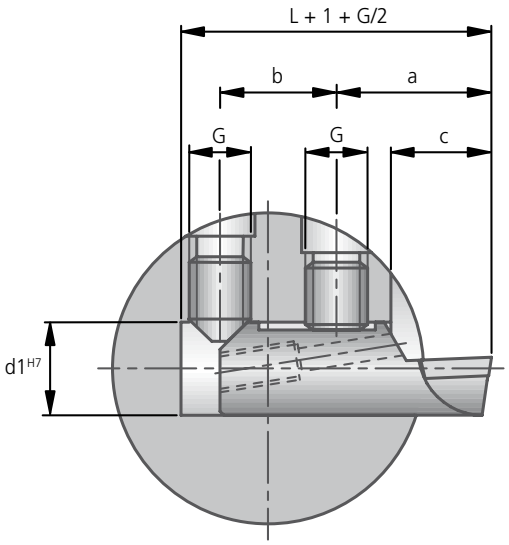
Mounting depends on the insert position required. The right dimensions for the mounting bore and holding thread for each boring bar Ø can be taken from the details on the drawings and tables.

Mounting dimensions

Boring tool size	d1	a	b	G	c
UZV 8	8	15	10	M6	9
UZV 10	10	18	12	M6	12
UZV 12	12	20	15	M8	13
UZV 16	16	27	18	M10	18
UZV 20	20	30	20	M12	20

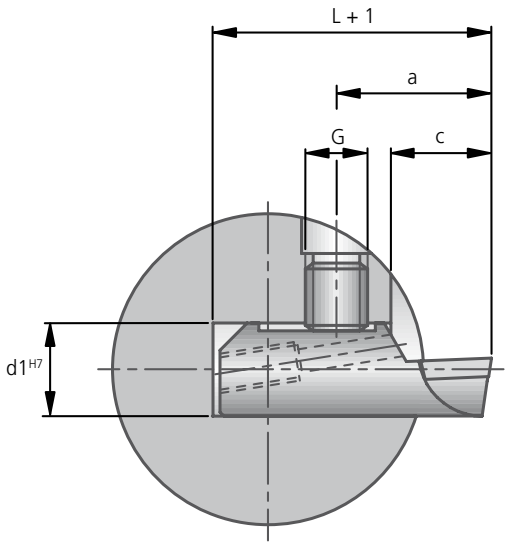
Mounting form A

Angled adjustment with threaded pin DIN 914



Mounting form B

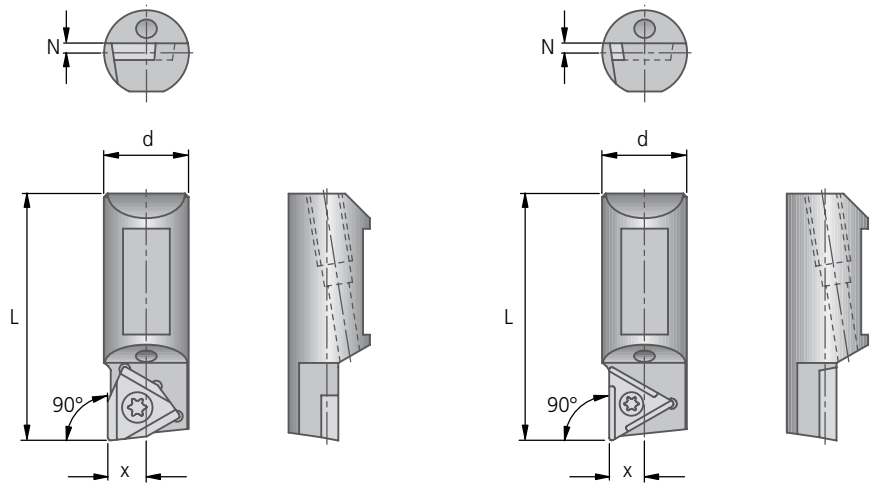
Adjustment with internal adjusting screw



Boring tool $\varkappa$ = 90°

L.H. boring tool as shown with left or neutral insert ■
R.H. boring tool in mirror image with right or neutral insert ■
mounting instruction see page 546 ■

Material: P M K N S H



UZV $\varkappa$ = 90° | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV 8-803-25-90°-L	D20 00000	8	25	1,0	3	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZV 8-803-25-90°-R	D20 05000								W30 04..0.03..	
UZV10-804-30-90°-L	D20 00020	10	30	1,5	4	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV10-804-30-90°-R	D20 05020								W30 14..0.04..	
UZV12-804-35-90°-L	D20 00040	12	35	1,5	5	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV16-805-45-90°-L	D20 00060	16	45	3,0	6	0,052	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26..0.05..		W57 26140.04..
UZV16-805-45-90°-R	D20 05060								W30 26..0.05..	

UZV $\varkappa$ = 90° | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV12-802-35-90°-R38	D20 05071	12	35	1,5	5	0,022	N00 57511 S/M2,5×7,2-8IP 1,28 Nm		W01 24....	W29 24000.. W29 24010..
UZV16-802-45-90°-L38	D20 50090	16	45	3,0	6	0,052	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV16-802-45-90°-R38	D20 55090								W01 24....	
UZV16-801-45-90°-L38	D20 00091	16	45	3,0	6	0,052	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W01 34....		W29 24000.. W29 24010..
UZV16-801-45-90°-R38	D20 05091								W01 34....	

For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

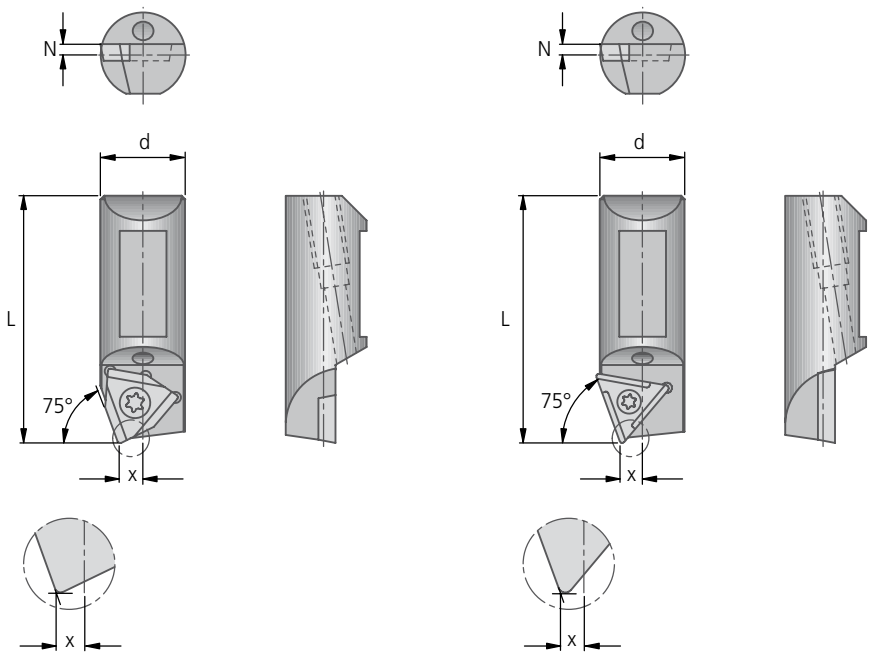
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® UZV

Boring tool $\varkappa$ = 75°

Material
P M K N S H

- L.H. boring tool as shown with left or neutral insert
- R.H. boring tool in mirror image with right or neutral insert
- mounting instruction see page 546



UZV $\varkappa$ = 75° | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV 8-803-25-75°-L	D20 00100	8	25	1,0	2	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZV 8-803-25-75°-R	D20 05100								W30 04..0.03..	
UZV10-804-30-75°-L	D20 00120	10	30	1,5	2,5	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV10-804-30-75°-R	D20 05120								W30 14..0.04..	
UZV12-804-35-75°-L	D20 00140	12	35	1,5	4	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV16-805-45-75°-L	D20 00160	16	45	3,0	4	0,052	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26..0.05..		W57 26140.04..

UZV $\varkappa$ = 75° | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV10-818-30-75°-L31	D20 50120	10	30	1,5	2,5	0,013	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	W01 18....		W29 18000.. W29 18010..
UZV10-818-30-75°-R31	D20 55120								W01 18....	
UZV12-802-35-75°-L38	D20 00171	12	35	1,5	4	0,022	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV16-802-45-75°-L38	D20 50190	16	45	3,0	4	0,052	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV16-801-45-75°-L38	D20 00191	16	45	3,0	4	0,052	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W01 34....		W29 24000.. W29 24010..

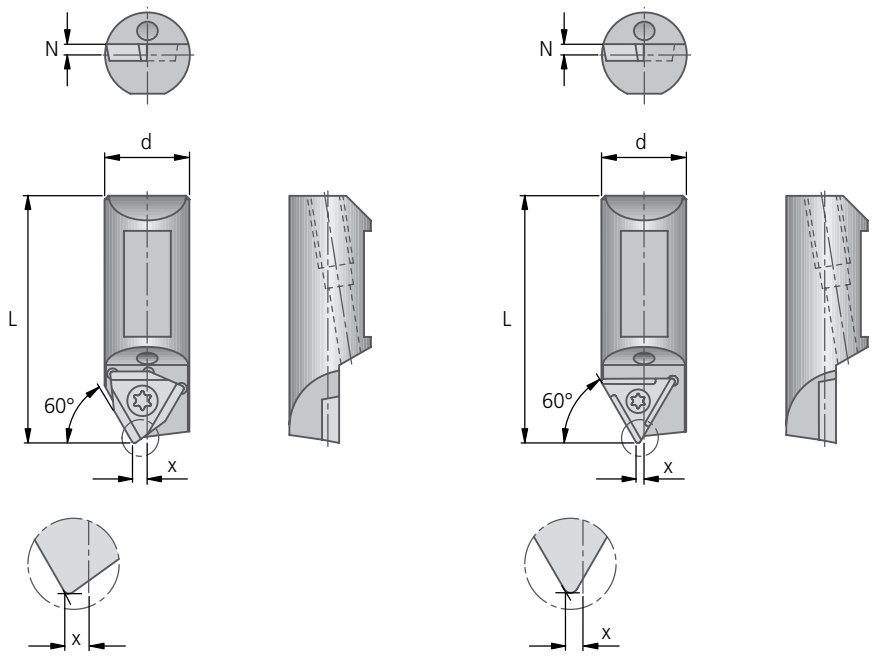
For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

Boring tool $\varkappa$ = 60°

L.H. boring tool as shown with left or neutral insert ■
R.H. boring tool in mirror image with right or neutral insert ■
mounting instruction see page 546 ■

Material: P M K N S H



UZV $\varkappa$ = 60° | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV 8-803-25-60°-L	D20 00200	8	25	1,0	0,6	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZV 8-803-25-60°-R	D20 05200								W30 04..0.03..	
UZV10-804-30-60°-L	D20 00220	10	30	1,5	0,6	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV10-804-30-60°-R	D20 05220								W30 14..0.04..	
UZV12-804-35-60°-L	D20 00240	12	35	1,5	1	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV12-804-35-60°-R	D20 05240								W30 14..0.04..	

UZV $\varkappa$ = 60° | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV12-802-35-60°-L38	D20 00271	12	35	1,5	1	0,022	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV12-802-35-60°-R38	D20 05271								W01 24....	
UZV16-801-45-60°-R38	D20 05291	16	45	3,0	1	0,052	N00 57521 S/M3,5×7,3-10IP 2,8 Nm		W01 34....	W29 34000.. W29 34010..

For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

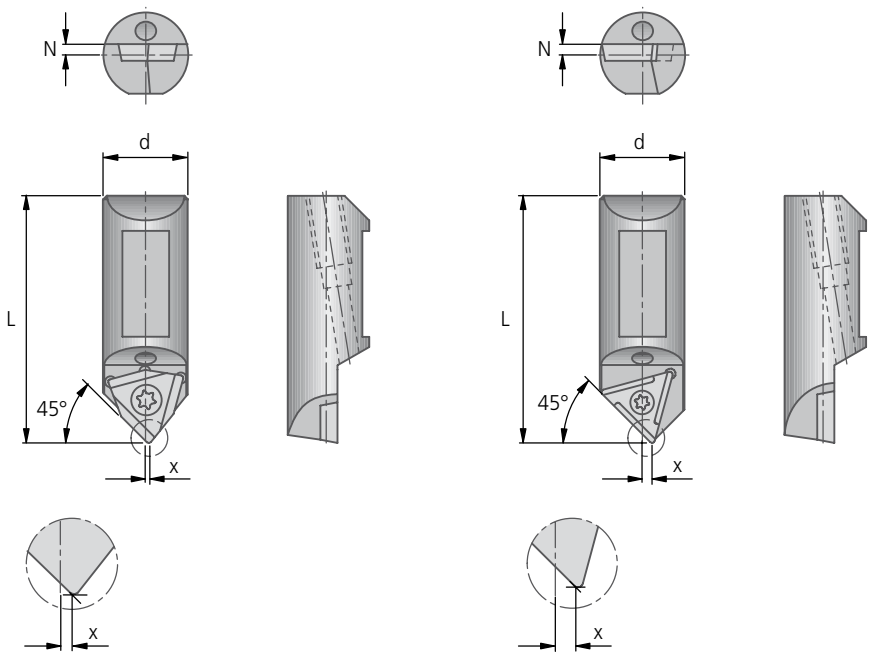
KOMET Kometric® UZV

Boring tool $\varkappa = 45°$

Material

P M K N S H

- L.H. boring tool as shown with left or neutral insert
- R.H. boring tool in mirror image with right or neutral insert
- mounting instruction see page 546



UZV $\varkappa = 45°$ | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV 8-803-25-45°-L	D20 00400	8	25	1,0	1	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZV 8-803-25-45°-R	D20 05400								W30 04..0.03..	
UZV10-804-30-45°-L	D20 00420	10	30	1,5	1,3	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV10-804-30-45°-R	D20 05420								W30 14..0.04..	
UZV12-804-35-45°-L	D20 00440	12	35	1,5	1	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV12-804-35-45°-R	D20 05440								W30 14..0.04..	
UZV16-805-45-45°-L	D20 00460	16	45	3,0	1,5	0,052	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26..0.05..		W57 26140.04..

UZV $\varkappa = 45°$ | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV10-818-30-45°-L31	D20 50420	10	30	1,5	1,3	0,013	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	W01 18....		W29 18000.. W29 18010..
UZV12-802-35-45°-L38	D20 00471	12	35	1,5	1	0,022	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV12-802-35-45°-R38	D20 05471								W01 24....	
UZV16-802-45-45°-L38	D20 50490	16	45	3,0	1,5	0,052	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV16-802-45-45°-R38	D20 55490								W01 24....	
UZV16-801-45-45°-R38	D20 05491	16	45	3,0	1,5	0,052	N00 57521 S/M3,5×7,3-10IP 2,8 Nm		W01 34....	W29 34000.. W29 34010..

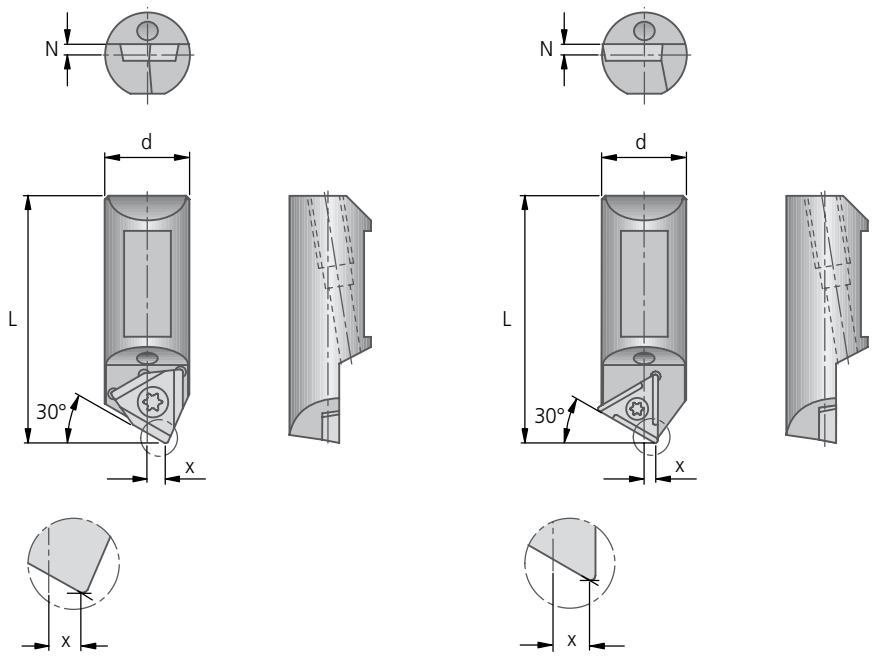
For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

Boring tool $\varkappa$ = 30°

L.H. boring tool as shown with left or neutral insert ■
R.H. boring tool in mirror image with right or neutral insert ■
mounting instruction see page 546 ■

Material: P M K N S H



UZV $\varkappa$ = 30° | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV 8-803-25-30°-L	D20 00500	8	25	1,0	2,5	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZV 8-803-25-30°-R	D20 05500								W30 04..0.03..	
UZV10-804-30-30°-L	D20 00520	10	30	1,5	3	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV10-804-30-30°-R	D20 05520								W30 14..0.04..	
UZV12-804-35-30°-R	D20 05540	12	35	1,5	3	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm		W30 14..0.04..	W57 14140.04..
UZV16-805-45-30°-R	D20 05560	16	45	3,0	3,5	0,052	N00 56211 S/M3,5×7,3-10IP 2,8 Nm		W30 26..0.05..	W57 26140.04..

UZV $\varkappa$ = 30° | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV12-802-35-30°-R38	D20 05571	12	35	1,5	3	0,022	N00 57511 S/M2,5×7,2-8IP 1,28 Nm		W01 24....	W29 24000.. W29 24010..
UZV16-802-45-30°-L38	D20 50590	16	45	3,0	3,5	0,052	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..

For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

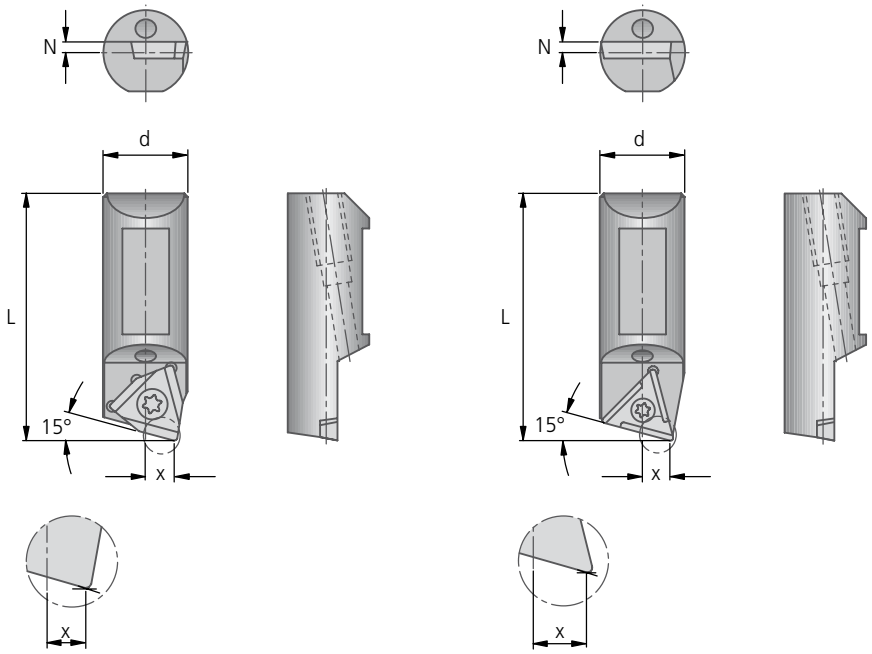
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® UZV

Boring tool $\varkappa$ = 15°

Material: P M K N S H

- L.H. boring tool as shown with left or neutral insert
- R.H. boring tool in mirror image with right or neutral insert
- mounting instruction see page 546



UZV $\varkappa$ = 15° | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV 8-803-25-15°-L	D20 00600	8	25	1,0	3	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZV 8-803-25-15°-R	D20 05600								W30 04..0.03..	
UZV10-804-30-15°-L	D20 00620	10	30	1,5	4	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV10-804-30-15°-R	D20 05620								W30 14..0.04..	
UZV12-804-35-15°-L	D20 00640	12	35	1,5	3,5	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZV12-804-35-15°-R	D20 05640								W30 14..0.04..	
UZV16-805-45-15°-L	D20 00660	16	45	3,0	5	0,052	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26..0.05..		W57 26140.04..

UZV $\varkappa$ = 15° | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV10-818-30-15°-L31	D20 50620	10	30	1,5	4	0,013	N00 57553 S/M2,2×5,5-6IP 1,01 Nm	W01 18....		W29 18000.. W29 18010..
UZV16-802-45-15°-L38	D20 50690	16	45	3,0	5	0,052	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZV16-801-45-15°-L38	D20 00691	16	45	3,0	5	0,052	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W01 34....		W29 34000.. W29 34010..
UZV16-801-45-15°-R38	D20 05691								W01 34....	

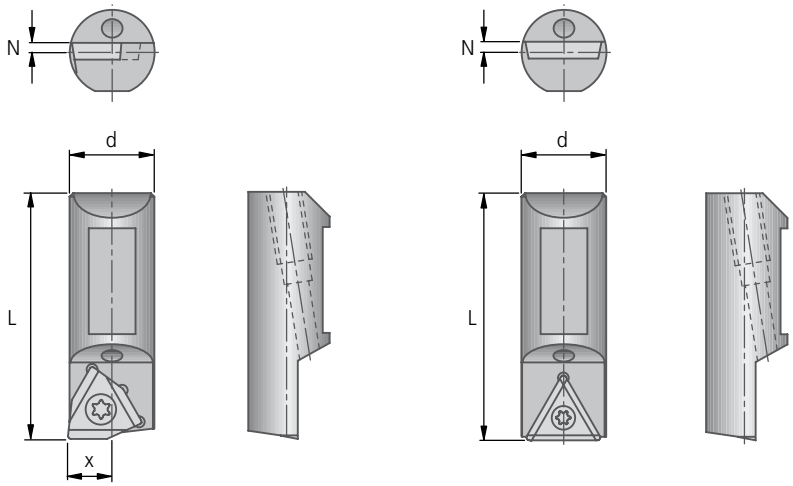
For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

Boring tool $\varkappa$ = 0°

L.H. boring tool as shown with right or neutral insert ■
R.H. boring tool in mirror image with left or neutral insert ■
mounting instruction see page 546 ■

Material: P M K N S H



UZV $\varkappa$ = 0° | W30 / W57							Insert		
Article	Order No.	d	L	N	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZV8-803-25-0°	D20 05700	8	25	1,0	0,007	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..	W30 04..0.03..	W57 04140.04..
UZV10-804-30-0°	D20 05720	10	30	1,5	0,013	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..	W30 14..0.04..	W57 14140.04..
UZV12-804-35-0°	D20 05740	12	35	1,5	0,022	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..	W30 14..0.04..	W57 14140.04..
UZV16-805-45-0°	D20 05760	16	45	3,0	0,052	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26..0.05..	W30 26..0.05..	W57 26140.04..
UZV20-806-50-0°	D20 05800	20	50	4,0	0,98	N00 56411 S/M5×13,4-20IP 6,25 Nm	W30 44..0.08..	W30 44..0.08..	

UZV $\varkappa$ = 0° | W01 / W29								Insert		
Article cutting form ▾	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZV10-818-30-0°-L31	D20 50720	10	30	1,5	5,3	0,013	N00 57553 S/M2,2×5,5-6IP 1,01 Nm		W01 18....	W29 18000.. W29 18010..
UZV16-802-45-0°-L38	D20 50790	16	45	3,0	8,3	0,052	N00 57511 S/M2,5×7,2-8IP 1,28 Nm		W01 24....	W29 24000.. W29 24010..
UZV16-801-45-0°-L38	D20 00791	16	45	3,0	8,3	0,052	N00 57521 S/M3,5×7,3-10IP 2,8 Nm		W01 34....	W29 34000..
UZV16-801-45-0°-R38	D20 05791							W01 34....		W29 34010..

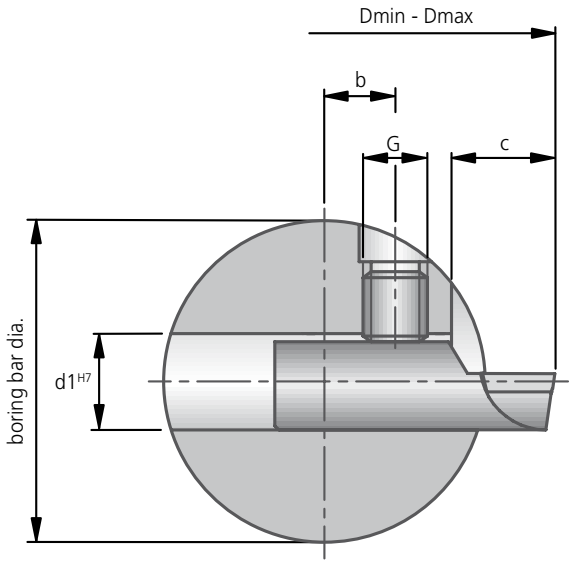
For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® UZ Boring tool

Mounting instructions



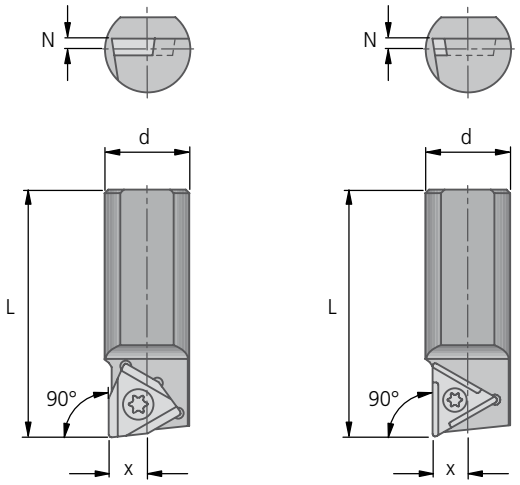
Mounting dimensions

Boring tool **size**	Drilling range Radial mounting D_{min} – D_{max}	for boring bar dia.	d1	b	G	c
UZ8	27 – 40	20	8	1,5	M6	9
UZ10	35 – 52	25	10	2,0	M6	12
UZ12	40 – 63	32	12	2,5	M8	13
UZ16	52 – 80	40	16	3,0	M10	18
UZ20	64 – 100	50	20	5,0	M12	20
UZ25	79 – 126	63	25	4,0	M16	23

Boring tool $\varkappa = 90°$

L.H. boring tool as shown with left or neutral insert ■
R.H. boring tool in mirror image with right or neutral insert ■
mounting instruction see page 554 ■

Material: P M K N S H



UZ $\varkappa = 90°$ | W30 / W57								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZ 8-803-45-90°-R	D20 15010	8	45	1,0	3	0,015	N00 56031 S/M2×4,9-6IP 0,62 Nm		W30 04..0.03..	W57 04140.04..
UZ10-804-50-90°-L	D20 10030	10	50	1,5	4	0,026	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZ10-804-50-90°-R	D20 15030								W30 14..0.04..	
UZ12-804-60-90°-L	D20 10050	12	60	1,5	5	0,045	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZ12-804-60-90°-R	D20 15050								W30 14..0.04..	

UZ $\varkappa = 90°$ | W01 / W29								Insert		
Article cutting form ▼	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZ12-802-60-90°-L38	D20 10071	12	60	1,5	5	0,047	N00 57511 S/M2,5×7,2-8IP 1,28 Nm	W01 24....		W29 24000.. W29 24010..
UZ16-801-80-90°-L38	D20 10091	16	80	3,0	6	0,11	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W01 34....		W29 34000.. W29 34010..
UZ16-801-80-90°-R38	D20 15091								W01 34....	
UZ20-810-100-90°-L48	D20 10111	20	100	4,0	8	0,217	N00 57531 S/M4,5×9-15IP 6,25 Nm	W01 42....		W29 42000.. W29 42010..
UZ20-810-100-90°-R48	D20 15111								W01 42....	
UZ25-820-120-90°-L53	D20 10131	25	120	4,0	10	0,404	N00 57531 S/M4,5×9-15IP 6,25 Nm	W01 50....		W29 50000.. W29 50010..
UZ25-820-120-90°-R53	D20 15131								W01 50....	

For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

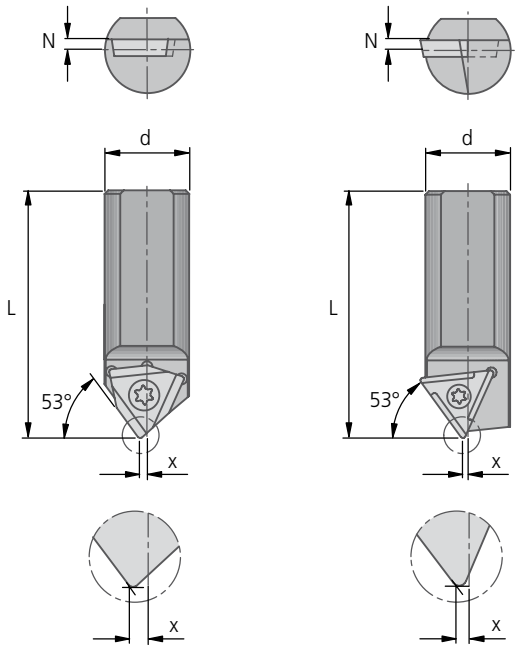
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® UZ

Boring tool $\varkappa$ = 53°

Material
P M K N S H

- L.H. boring tool as shown with left or neutral insert
- R.H. boring tool in mirror image with right or neutral insert
- mounting instruction see page 554



UZ $\varkappa$ = 53° | W30 / W57								Insert		
Article cutting form ▾	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZ 8-803-45-53°-L	D20 10610	8	45	1,0	0,4	0,015	N00 56031 S/M2×4,9-6IP 0,62 Nm	W30 04..0.03..		W57 04140.04..
UZ 8-803-45-53°-R	D20 15610								W30 04..0.03..	
UZ10-804-50-53°-L	D20 10630	10	50	1,5	0,5	0,026	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..
UZ12-804-60-53°-L	D20 10650	12	60	1,5	0,5	0,044	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..		W57 14140.04..

UZ $\varkappa$ = 53° | W01 / W29								Insert		
Article cutting form ▾	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZ12-802-60-53°-R38	D20 15671	12	60	1,5	0,5	0,047	N00 57511 S/M2,5×7,2-8IP 1,28 Nm		W01 24....	W29 24000.. W29 24010..
UZ16-801-80-53°-L38	D20 10691	16	80	3,0	0,6	0,108	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W01 34....		W29 34000.. W29 34010..
UZ20-810-100-53°-L48	D20 10711	20	100	4,0	0,6	0,212	N00 57531 S/M4,5×9-15IP 6,25 Nm	W01 42....		W29 42000.. W29 42010..
UZ25-820-120-53°-L53	D20 10731	25	120	4,0	0,6	0,395	N00 57531 S/M4,5×9-15IP 6,25 Nm	W01 50....		W29 50000.. W29 50010..

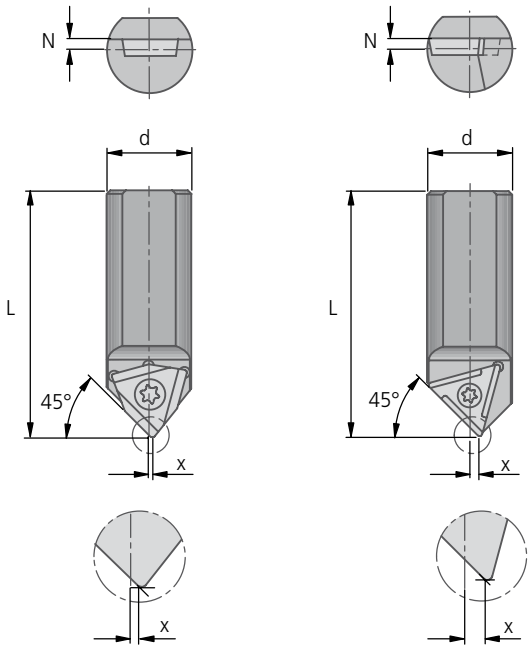
For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

Boring tool $\varkappa$ = 45°

L.H. boring tool as shown with left or neutral insert ■
R.H. boring tool in mirror image with right or neutral insert ■
mounting instruction see page 554 ■

Material
P M K N S H



UZ $\varkappa$ = 45° | W30 / W57								Insert		
Article cutting form ▾	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W30 R.H. radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°	W57 neutral
UZ 8-803-45-45°-L	**D20 10810**	8	45	1,0	1,0	0,015	**N00 56031** S/M2×4,9-6IP 0,62 Nm	**W30 04..0.03..**		**W57 04140.04..**
UZ 8-803-45-45°-R	**D20 15810**								**W30 04..0.03..**	
UZ10-804-50-45°-L	**D20 10830**	10	50	1,5	1,3	0,026	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14..0.04..**		**W57 14140.04..**
UZ10-804-50-45°-R	**D20 15830**								**W30 14..0.04..**	
UZ12-804-60-45°-L	**D20 10850**	12	60	1,5	1,0	0,044	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14..0.04..**		**W57 14140.04..**

UZ $\varkappa$ = 45° | W01 / W29								Insert		
Article cutting form ▾	Order No.	d	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W01 R.H. radial rake 36 = 6° 42 = 12° ▽▽	W29 neutral
UZ16-801-80-45°-L38	**D20 10891**	16	80	3,0	1,5	0,107	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**W01 34....**		**W29 34000..** **W29 34010..**
UZ16-801-80-45°-R38	**D20 15891**								**W01 34....**	

For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

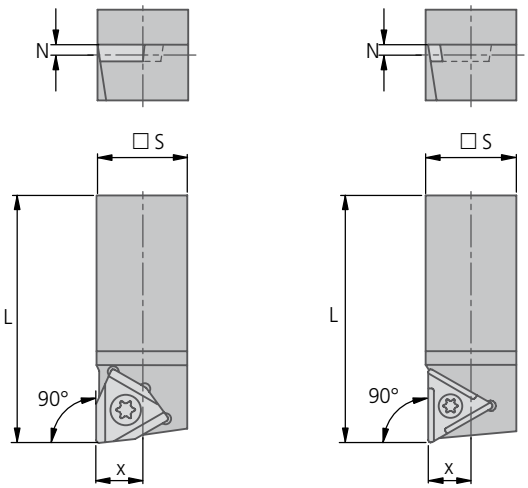
KOMET Kometric® UV

Boring tool $\varkappa = 90°$

Material

P M K N S H

■ L.H. boring tool as shown with left or neutral insert



UV $\varkappa = 90°$ | W30 / W57									Insert	
Article cutting form ▼	Order No.	for boring bar dia.	□ S	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W57 neutral
UV10-804-50-90°-L	D20 20040	32	10	50	1,5	4,8	0,03	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..	W57 14140.04..
UV12-804-60-90°-L	D20 20060	40	12	60	1,5	5,8	0,04	N00 56111 S/M2,6×6,2-8IP 1,28 Nm	W30 14..0.04..	W57 14140.04..

UV $\varkappa = 90°$ | W01 / W29									Insert	
Article cutting form ▼	Order No.	for boring bar dia.	□ S	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W29 neutral
UV16-801-80-90°-L38	D20 20081	50	16	80	3	7,8	0,01	N00 57521 S/M3,5×7,3-10IP 2,8 Nm	W01 34....	W29 34000.. W29 34010..
UV20-810-100-90°-L48	D20 20101	63	20	100	4	9,8	0,03	N00 57531 S/M4,5×9-15IP 6,25 Nm	W01 42....	W29 42000.. W29 42010..

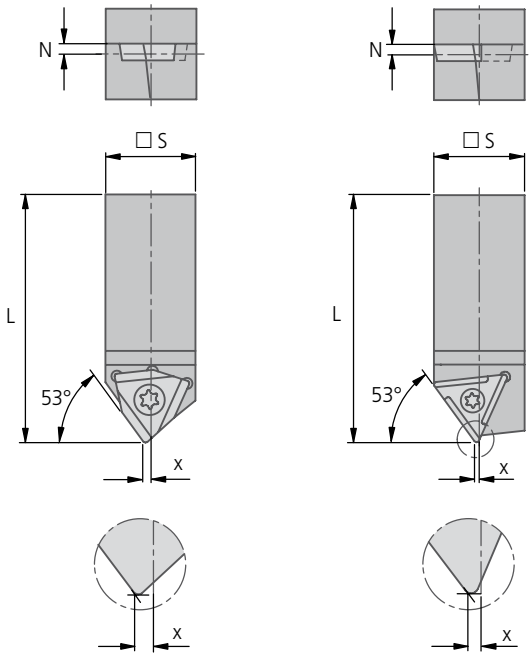
For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

Boring tool $\varkappa$ = 53°

L.H. boring tool as shown with left or neutral insert ■

Material: P M K N S H



UV $\varkappa$ = 53° | W30 / W57									Insert	
Article cutting form ▼	Order No.	for boring bar dia.	□S	L	N	x	kg	Clamping screw Order No. Article	W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W57 neutral
UV 8-803-40-53°-L	**D20 20220**	25	8	40	1,5	0,4	0,02	**N00 56031** S/M2×4,9-6IP 0,62 Nm	**W30 04..0.03..**	**W57 04140.04..**
UV10-804-50-53°-L	**D20 20240**	32	10	50	1,5	0,5	0,03	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14..0.04..**	**W57 14140.04..**
UV12-804-60-53°-L	**D20 20260**	40	12	60	1,5	0,5	0,06	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**W30 14..0.04..**	**W57 14140.04..**

UV $\varkappa$ = 53° | W01 / W29									Insert	
Article cutting form ▼	Order No.	for boring bar dia.	□S	L	N	x	kg	Clamping screw Order No. Article	W01 L.H. radial rake 06 = 6° 12 = 12° ▽▽	W29 neutral
UV16-801-80-53°-L38	**D20 20281**	50	16	80	3	0,6	0,01	**N00 57521** S/M3,5×7,3-10IP 2,8 Nm	**W01 34....**	**W29 34000..** **W29 34010..**
UV20-810-100-53°-L48	**D20 20301**	63	20	100	4	0,6	0,03	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**W01 42....**	**W29 42000..** **W29 42010..**
UV25-820-120-53°-L53	**D20 20321**	80	25	120	4	0,6	0,05	**N00 57531** S/M4,5×9-15IP 6,25 Nm	**W01 50....**	**W29 50000..** **W29 50010..**

For further details on inserts see chapter 7

Supply includes:
Boring tool with clamping screw. Please order insert separately. Screwdriver see chapter 8.

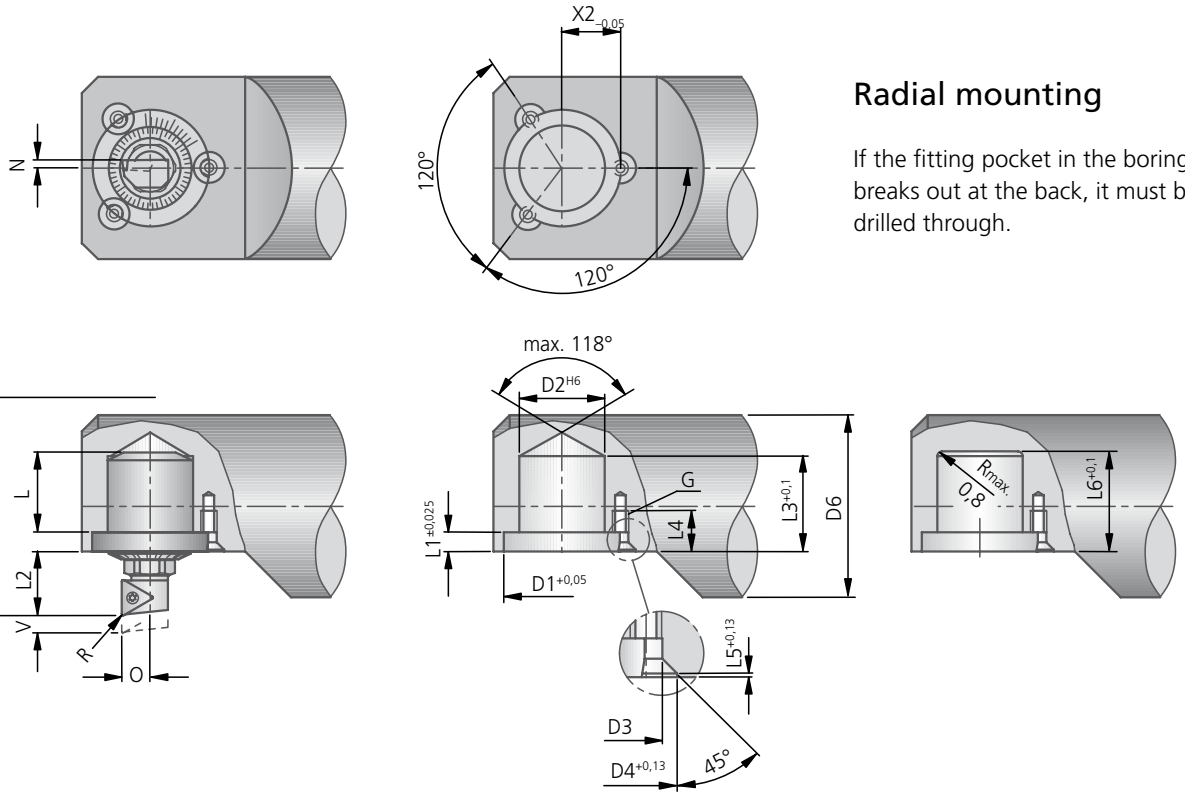
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric®

Micro-adjustable cartridge up to Ø 27,6 mm

Material: P M K N S H

- the smallest adjustment increment is 0.002 mm in the ∅ above vernier
- easy adjustment from the front
- high precision setting
- no clamping required
- compact, rigid design
- significant saving in setting times



Radial mounting

If the fitting pocket in the boring bar breaks out at the back, it must be drilled through.

Micro-adjustable cartridge					Insert			Accessories
min. turning Ø D5	Order No.	kg	Clamping screw Order No. Article	Location screw 3× DIN7991 Order No. Article	W30 L.H.	W30 neutral	W57 neutral	Wrench Order No. Article
27,6	**M31 00022**	0,021	**N00 56041** S/M2×4,3-6IP 0,62 Nm	**M31 00020.18** M3×6 sim. DIN7991	**W30 04060.04..**	**W30 04660.03..**	**W57 04140.04..**	**18589 10010** SW10
49,5	**M31 00032**	0,081	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55021 04010** M4×10	**W30 14060.04..**	**W30 14660.04..**	**W57 14140.04..**	**18589 10014** SW14
70	**M31 00042**	0,249	**N00 56201** S/M3,5×6,2-10IP 2,8 Nm	**55021 05012** M5×12	**W30 26060.05..**	**W30 26660.05..**	**W57 26140.04..**	**18589 10022** SW22

Supply includes:
Micro-adjustable cartridge with assembly parts. Please order accessories and inserts (chapter 7) separately.

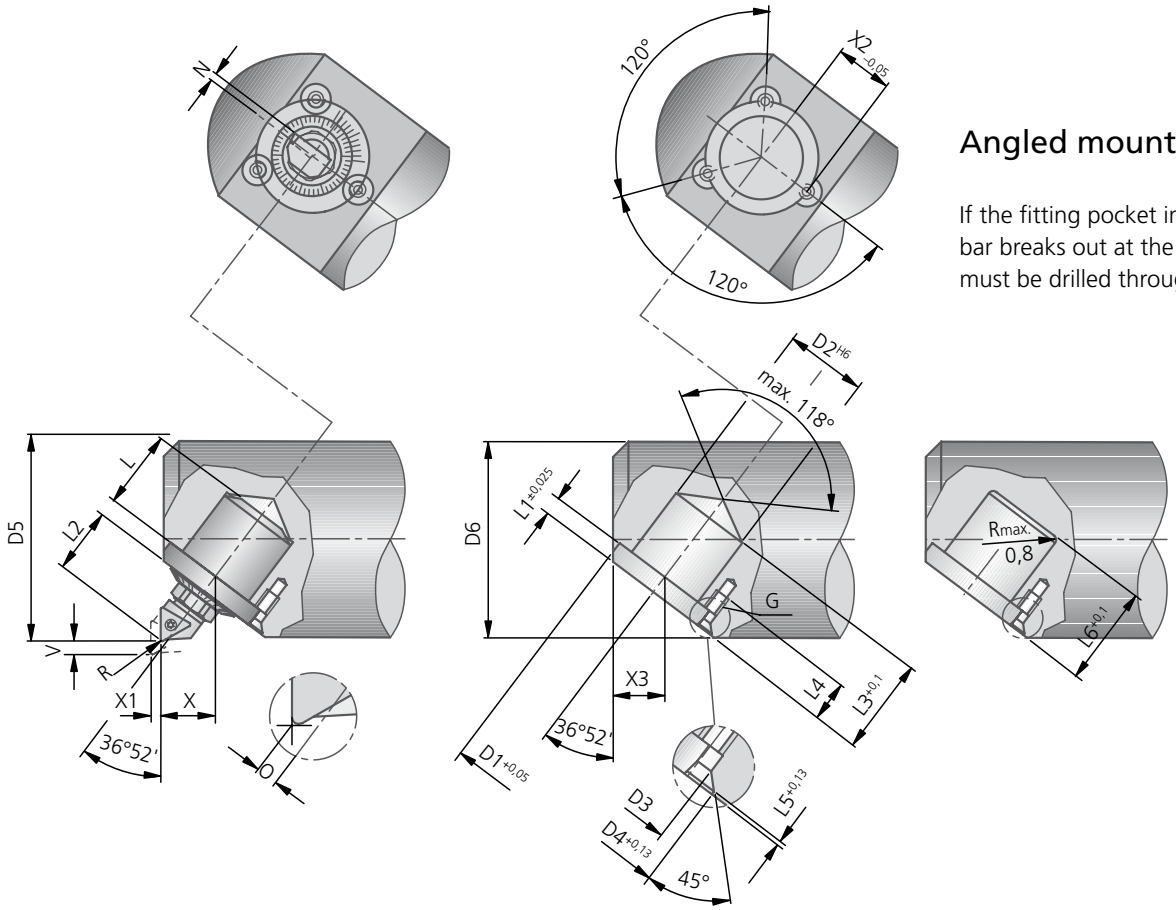
Mounting dimension

for cartridges	D1	D2	D3	D4	D6 min.	L	L1	L2	L3	L4	L5	L6	G	N	R	V	O	X2
M31 00022	19	16	3,2	4,6	26	8,7	2,8	10	11,5	9	1,6	12,5	M3	1,5	0,4	1,0	5,1	9,65
M31 00032	30	22	4,3	8	46	21,2	5	16,9	25	10	0,9	27,2	M4	2	0,4	3,4	7,2	15,4
M31 00042	46	32	5,5	10	67	27,72	6,3	25,5	33	12	0,8	35	M5	2	0,5	5,22	10,3	23,0

Micro-adjustable cartridge up to Ø 25,4 mm

- the smallest adjustment increment is 0.0016 mm in the ∅ above vernier
- easy adjustment from the front
- high precision setting
- no clamping required
- compact, rigid design
- significant saving in setting times

Material: P ● M ● K ● N ● S ● H ◐



Angled mounting

If the fitting pocket in the boring bar breaks out at the back, it must be drilled through.

Micro-adjustable cartridge					Insert			Accessories
min. turning Ø D5	Order No.	kg	Clamping screw Order No. Article	Location screw 3× DIN7991 Order No. Article	W30 L.H.	W30 neutral	W57 neutral	Wrench Order No. Article
25,4	**M31 01022**	0,021	**N00 56041** S/M2×4,3-6IP 0,62 Nm	**M31 00020.18** M3×6 sim. DIN7991	**W30 04060.04..**	**W30 04660.03..**	**W57 04140.04..**	**18589 10010** SW10
43	**M31 01032**	0,082	**N00 56111** S/M2,6×6,2-8IP 1,28 Nm	**55021 04010** M4×10	**W30 14060.04..**	**W30 14660.04..**	**W57 14140.04..**	**18589 00012** SW12
61	**M31 01042**	0,25	**N00 56201** S/M3,5×6,2-10IP 2,8 Nm	**55021 05012** M5×12	**W30 26060.05..**	**W30 26660.05..**	**W57 26140.04..**	**18589 00017** SW17

Supply includes:
Micro-adjustable cartridge with assembly parts. Please order accessories and inserts (chapter 7) separately.

Mounting dimension

for cartridges	D1	D2	D3	D4	D6 min.	L	L1	L2	L3	L4	L5	L6	G	N	ISO dimension for R	V	O	X	X1	X2	X3
M31 01022	19	16	3,2	4,6	24,5	9,1	2,8	11	11,9	9	1,6	12,9	M3	1,5	0,4	1,1	0,33	8,54	0,81	9,65	8,18
M31 01032	30	22	4,3	8	40	21,6	5	18,4	25	10	0,9	27,6	M4	2	0,4	3,1	1,3	15,08	2,0	15,4	14,0
M31 01042	46	32	5,5	10	55	27,6	6,3	27,2	33	12	0,8	34,9	M5	2	0,5	4,6	1,4	21,22	3,2	23	19,8

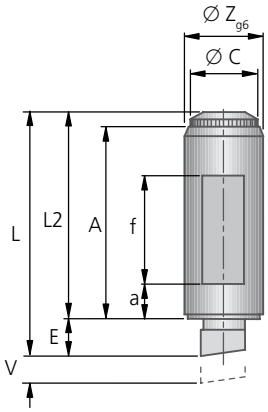
● very good | ◐ good | ○ possible | ✕ not possible

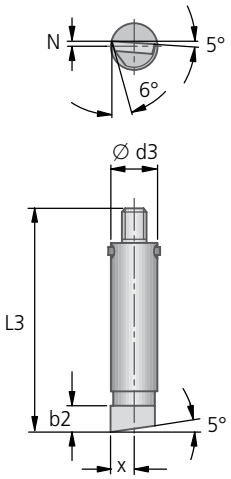
KOMET Kometric® FZ

Micro-adjustable cartridge up to Ø 25 mm

Material

P M K N S H





Drilling range[1]			Housing		Soldering			Accessories
					cutting form 1	cutting form 2		Wrench
D_{min} ①	D_{max} ②	D_{max} ③	Article	Order No.	Order No. Article	Order No. Article	kg	Order No. Article
25	33	36	FZ8-25-1	M30 00011	M30 50111.21 8Z1-K10	M30 51111.21 8Z2-K10	0,007	L05 01010 R0/N0
28	36	39	FZ8-28-1	M30 00021			0,008	

Drilling range[1]					Cutter Ø			Ø						Ø				Ø				
D_{min} ①	D_{max} ②	D_{max} ③	d1	$n^{2)}$	$D1^{2)}$	b	d2	Z^{H7}_{g6}	L1	L2	E	V	A	C	a	f	d3	L3	x	N	b2
25	33	36	20	3,5	8	1,5	M6	8	23,7	21	2,7	4	19,2	6,9	5	10	4,7	19,2	1,9	0,9	2,5
28	36	39							26,7	24			22,2			13					

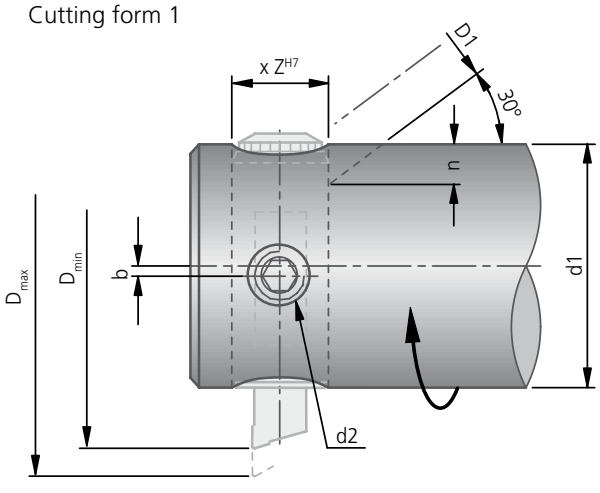
[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

[2] when using rough adjustment, the distance „n" must be used on the boring bar

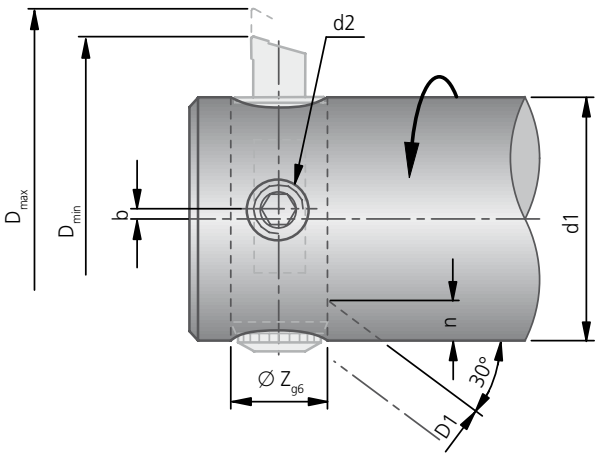
Radial mounting 90° (cutting form 1 and 2)

- Adjustment per graduation = 0.02 mm ∅
- Adjustment accuracy 2 µm ∅ above vernier

Cutting form 1

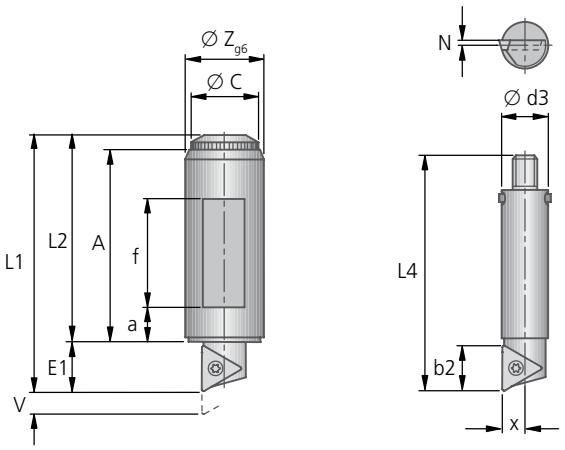


Cutting form 2



● very good | ◐ good | ○ possible | ✕ not possible

Micro-adjustable cartridge up to Ø 33 mm



Material: P M K N S H

Drilling range[1]			Housing		Turning tool				Insert			Accessories
					cutting form 1	cutting form 2		Clamping screw	W30 L.H.	W30 R.H.	W57 neutral	Wrench
D_{min} ①	D_{max} ②	D_{max} ③	Article	Order No.	Order No. Article	Order No. Article	kg	Order No. Article	radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°		Order No. Article
33	41	48	FZ10-31-1	M30 00031	M30 50021 U10Z1-803	M30 51021 U10Z2-803	0,014	N00 56021 S/M2×3,8-6IP 0,62 Nm	W30 04 .. 0.03..	W30 04 .. 0.03..	W57 04140.04..	L05 01020 R2/N1
37	45	52	FZ10-35-1	M30 00041			0,016					
41	51	58	FZ12-40-1	M30 00051	M30 50031 U12Z1-803	M30 51031 U12Z2-803	0,025	N00 56031 S/M2×4,9-6IP 0,62 Nm				L05 01030 R2a/N2
46	56	63	FZ12-45-1	M30 00061			0,030					
53	65	73	FZ16-50-1	M30 00071	M30 50041 U16Z1-804	M30 51041 U16Z2-804	0,058	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W30 14 .. 0.04..	W30 14 .. 0.04..	W57 14140.04..	L05 01040 N3
59	71	79	FZ16-56-1	M30 00081			0,067					
63	78	88	FZ20-64-1	M30 00091	M30 50051 U20Z1-804	M30 51051 U20Z2-804	0,112	N00 56111 S/M2,6×6,2-8IP 1,28 Nm				L05 01050 R4/N4
72	87	100	FZ20-72-1	M30 00101			0,13					
80	100	115	FZ25-80-1	M30 00111	M30 50061 U25Z1-805	M30 51061 U25Z2-805	0,221	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26 .. 0.05..	W30 26 .. 0.05..	W57 26140.04..	L05 01060 ZV25
90	110	126	FZ25-90-1	M30 00121			0,259					
104	134	154	FZ32-100-1	M30 00131	M30 50071 U32Z1-805	M30 51071 U32Z2-805	0,482					L05 01070 R5/N5
114	144	165	FZ32-110-1	M30 00141			0,544					
129	159	185	FZ32-125-1	M30 00151			0,635					
145	175	205	FZ32-140-1	M30 00161			0,728					

For further details on inserts see chapter 7

Drilling range[1]			d1	$n^{2)}$	Cutter Ø $D1^{2)}$	b	d2	Ø Z^{H7}_{g6}	L1	L2	E1	V	A	Ø C	a	f	Ø d3	L4	x	N	b2
D_{min} ①	D_{max} ②	D_{max} ③																			
33	41	48	25	4,5	8	2	M6	10	31,5	25,5	6	4	23,3	8,9	6	12	5,7	24,8	2,3	1,2	6,5
37	45	52							35,5	29,5			27,3			16					
41	51	58	32	5	10	2,5	M8	12	39,5	33,5	6	5	31	10,9	8	16	6,7	30,5	2,9	1,2	6,5
46	56	63							44,5	38,5			36			21					
53	65	73	40	8	12	3	M10	16	51	42	9	6	39	13,9	10	20	8,6	39,7	3,8	1,2	9
59	71	79							57	48			45			26					
63	78	88	50	9	16	5	M12	20	60	51	9	7,5	47	17,9	12	24	11,5	48,2	4,7	1,7	9
72	87	100							68	59			55			32					
80	100	115	63	10	20	4	M16	25	77,5	64,5	13	10	59,5	21,9	15	30	14	60,3	6	2	13,5
90	110	126							87,5	74,5			69,5			40					
104	134	154	80	13	25	6	M20	32	97	84	13	15	78	28,9	20	40	18	78,5	7,6	2,7	13,5
114	144	165							107	94			88			50					
129	159	185	100	13	25	12	M20	32	122	109	13	15	103	28,9	25	50	18	78,5	7,6	2,7	13,5
145	175	205							137	124			118			65					

[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

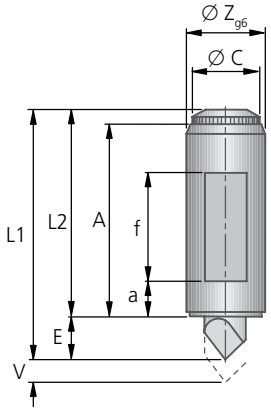
[2] when using rough adjustment, the distance „n“ must be used on the boring bar

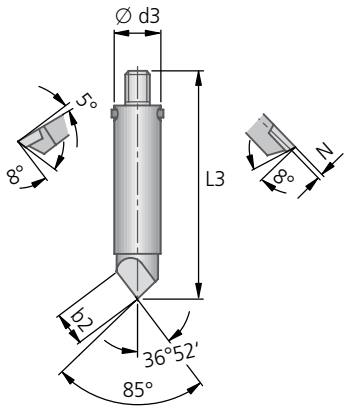
KOMET Kometric® FZ

Micro-adjustable cartridge up to Ø 23 mm

Material

P M K N S H





Drilling range[1]			Housing		Soldering		Accessories
					cutting form 3		Wrench
D_{min} ①	D_{max} ②	D_{max} ③	Article	Order No.	Order No. Article	kg	Order No. Article
23	29,4	32	FZ8-23-3	M30 02011	M30 52111.21 8Z3-K10	0,007	L05 01010 R0/N0
26	32,4	49	FZ8-26-3	M30 02021		0,008	

Drilling range[1]			d1	n[2]	Cutter Ø D1[2]	b	d2	Ø Z^{H7}_{g6}	L1	L2	E	V	A	Ø C	a	f	Ø d3	L3	N	b2
D_{min} ①	D_{max} ②	D_{max} ③																		
23	29,4	32	20	3	8	1,5	M6	8	26	21	5	4	19,2	6,9	5	10	4,7	21,5	0,9	2,5
26	32,4	49							29	24			22,2			13				

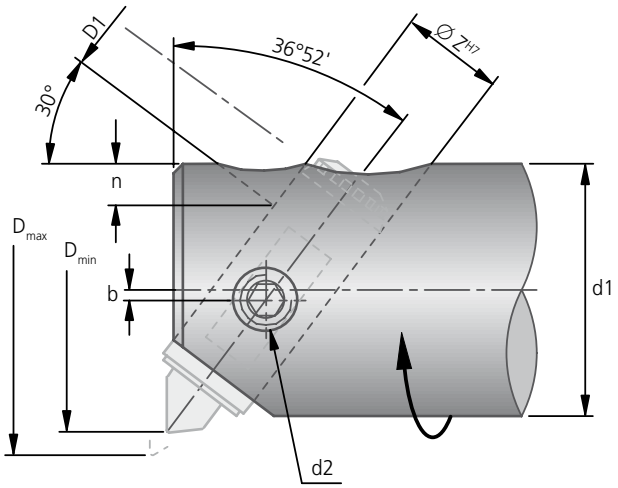
[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

[2] when using rough adjustment, the distance „n" must be used on the boring bar

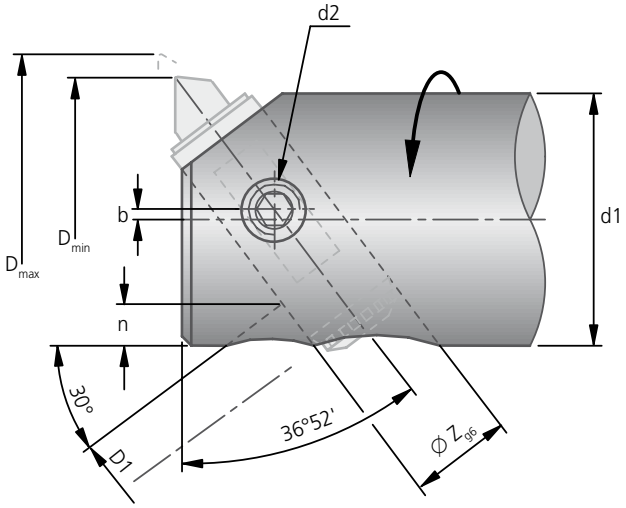
Angled mounting 36°52' (cutting form 3 and 4)

- Adjustment per graduation = 0.02 mm Ø
- Adjustment accuracy 1.6 µm Ø above vernier

Cutting form 3

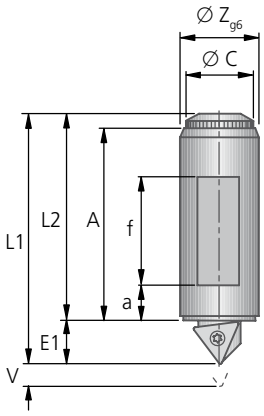


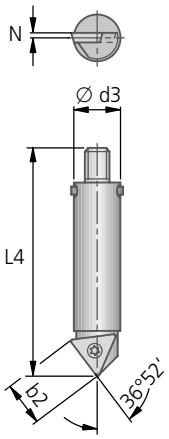
Cutting form 4



● very good | ◐ good | ○ possible | ✕ not possible

Micro-adjustable cartridge up to Ø 28 mm





Material
P M K N S H

	Housing		Turning tool				Insert			Accessories
Drilling range[1]			cutting form 3	cutting form 4		Clamping screw	W30 L.H.	W30 R.H.	W57 neutral	Wrench
D_{min} ① / D_{max} ② / D_{max} ③	Article	Order No.	Order No. Article	Order No. Article	kg	Order No. Article	radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	radial rake 36 = 6° 42 = 12° ▽▽ 50 = 20°		Order No. Article
28 / 34,4 / 38	FZ10-28-3	M30 02031	M30 52021 U10Z3-803	M30 53021 U10Z4-803	0,013	N00 56021 S/M2×3,8-6IP 0,62 Nm	W30 04 .. 0.03..	W30 04 .. 0.03..	W57 04140.04..	L05 01020 R2/N1
32 / 38,4 / 44	FZ10-32-3	M30 02041			0,015					
36 / 44 / 48	FZ12-36-3	M30 02051	M30 52031 U12Z3-803	M30 53031 U12Z4-803	0,026	N00 56031 S/M2×4,9-6IP 0,62 Nm				L05 01030 R2a/N2
40 / 48 / 55	FZ12-40-3	M30 02061			0,029					
45 / 54,6 / 60	FZ16-45-3	M30 02071	M30 52041 U16Z3-804	M30 53041 U16Z4-804	0,058	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W30 14 .. 0.04..	W30 14 .. 0.04..	W57 14140.04..	L05 01040 N3
50 / 59,6 / 68	FZ16-50-3	M30 02081			0,067					
56 / 68 / 78	FZ20-56-3	M30 02091	M30 52051 U20Z3-804	M30 53051 U20Z4-804	0,112	N00 56111 S/M2,6×6,2-8IP 1,28 Nm				L05 01050 R4/N4
64 / 76 / 90	FZ20-64-3	M30 02101			0,132					
72 / 88 / 100	FZ25-72-3	M30 02111	M30 52061 U25Z3-805	M30 53061 U25Z4-805	0,224	N00 56211 S/M3,5×7,3-10IP 2,8 Nm	W30 26 .. 0.05..	W30 26 .. 0.05..	W57 26140.04..	L05 01060 ZV25
80 / 96 / 114	FZ25-80-3	M30 02121			0,263					
90 / 114 / 126	FZ32-90-3	M30 02131	M30 52071 U32Z3-805	–	0,487					L05 01070 R5/N5
100 / 124 / 140	FZ32-100-3	M30 02141			0,548					
110 / 134 / 150	FZ32-110-3	M30 02151			0,639					
125 / 149 / 175	FZ32-125-3	M30 02161			0,732					

For further details on inserts see chapter 7

Drilling range[1]					Cutter Ø			Ø						Ø			Ø			
D_{min} ①	D_{max} ②	D_{max} ③	d1	n[2]	D1[2]	b	d2	Z^{H7}_{g6}	L1	L2	E1	V	A	C	a	f	d3	L4	N	b2
28	34,4	38	25	3,5	8	2	M6	10	31,5	25,5	6	4	23,3	8,9	6	12	5,7	24,8	1,2	6,5
32	38,4	44							35,5	29,5			27,3			16				
36	44	48	32	4	10	2,5	M8	12	40,3	33,5	6,8	5	31	10,9	8	16	6,7	31,3	1,2	6,5
40	48	55							45,3	38,5			36			21				
45	54,6	60	40	6,5	12	3	M10	16	51	42	9	6	39	13,9	10	20	8,6	39,7	1,2	9
50	59,6	68							57	48			45			26				
56	68	78	50	7	16	5	M12	20	63	51	12	7,5	47	17,9	12	24	11,5	51,2	1,7	9
64	76	90							71	59			55			32				
72	88	100	63	8	20	4	M16	25	81	64,5	16,5	10	59,5	21,9	15	30	14	63,8	2	13,5
80	96	114							91	74,5			69,5			40				
90	114	126	80	10	25	6	M20	32	102	84	18	15	78	28,9	20	40	18	83,5	2,7	13,5
100	124	140							112	94			88			50				
110	134	150	100	10	25	12	M20	32	127	109	18	15	103	28,9	25	50	18	83,5	2,7	13,5
125	149	175							142	124			118			65				

[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

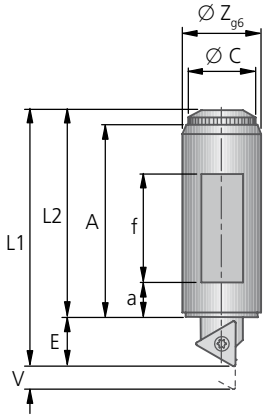
[2] when using rough adjustment, the distance „n" must be used on the boring bar

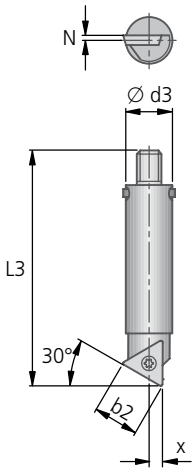
KOMET Kometric® FZ

Micro-adjustable cartridge Ø 20 – 44 mm

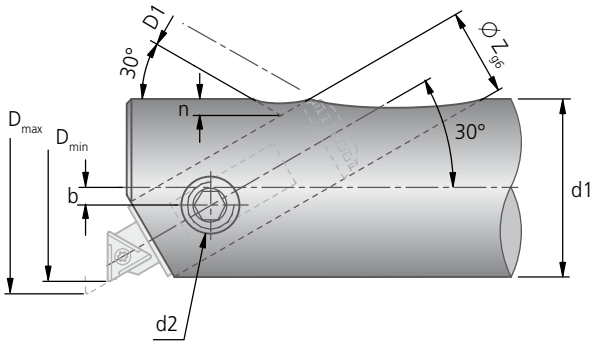
Material
P M K N S H

- Adjustment accuracy 1 µm ∅ above vernier
- For machining particularly small bores, the FZ fine boring cartridges can also be used for radial mounting on the boring bar are a 30° angle. Adjustment is then →||← 0.005 mm per graduation in the radial direction.





Angled mounting 30° (cutting form 5)



	Housing	Turning tool			Insert		Accessories
Drilling range[1]		cutting form 5		Clamping screw	W30 L.H.	W57 neutral	Wrench
D_{min} ① / D_{max} ② / D_{max} ③	Order No. Article	Order No. Article	kg	Order No. Article	radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°		Order No. Article
20 / 22 / 26	**M30 04011** FZ10-20-5	**M30 54011** U10Z5-803K	0,012	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**W30 04 .. 0.03..**	**W57 04140.04..**	**L05 01020** R2/N1
26 / 30 / 33	**M30 00031** FZ10-31-1	**M30 54021** U10Z5-803	0,014	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**W30 04 .. 0.03..**	**W57 04140.04..**	**L05 01020** R2/N1
30 / 35 / 40	**M30 00051** FZ12-40-1	**M30 54030** U12Z5-803	0,026	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**W30 04 .. 0.03..**	**W57 04140.04..**	**L05 01030** R2a/N2
38 / 44 / 50	**M30 00071** FZ16-50-1	**M30 54040** U16Z5-804	0,059	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W30 14 .. 0.04..**	**W57 14140.04..**	**L05 01040** N3

For further details on inserts see chapter 7

Drilling range[1]					Cutter																
D_{min} ①	D_{max} ②	D_{max} ③	d1	n[2]	Ø D1[2]	b	d2	Ø Z^{H7}_{g6}	L1	L2	E	V	A	Ø C	a	f	Ø d3	L3	x	N	b2
20	22	26	18	–	–	0,8	M5	10	28,5	23,7	4,8	2	21,5	8,9	5	10	5,7	22,0	2,1	1,2	6,5
26	30	33	20	4,5	8	1,2	M6	10	33,9	25,5	8,4	4	23,3	8,9	6	12	5,7	27,3	2,1	1,2	6,5
30	35	40	25	5	10	1,5	M8	12	43,0	33,5	9,5	5	31,0	10,9	8	16	6,7	34,0	2,8	1,2	6,5
38	44	50	32	8	12	2,0	M10	16	54,5	42,0	12,5	6	39,0	13,9	10	20	8,6	43,2	3,3	1,2	9

[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

[2] when using rough adjustment, the distance „n" must be used on the boring bar

● very good | ◐ good | ○ possible | ✕ not possible

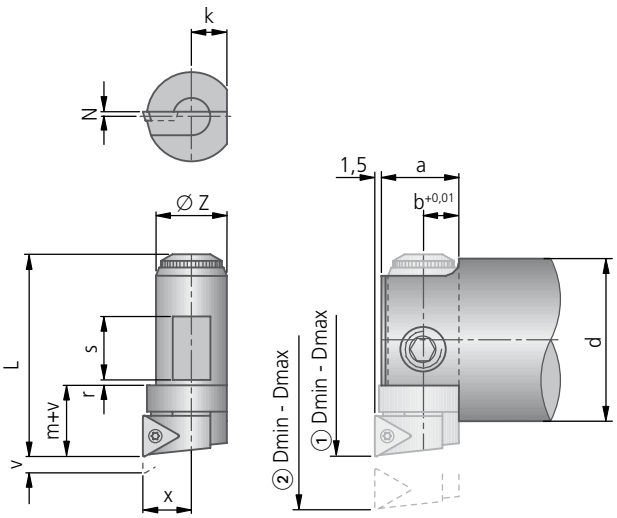
Micro-adjustable cartridge Ø 29,5 – 179 mm

Adjustment per graduation = 0.02 mm ∅ ■
Adjustment accuracy 2 µm ∅ above vernier ■

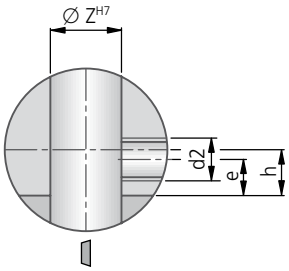
Material
P M K N S H

The FF micro adjustable cartridge is mounted radially and ideally suitable for NC tools, because the axial cutting dimensions are constant. The design and features of the cartridge are the same as type FZ (see sectional drawing), and are therefore also highly accurate. The prodruding cutting edge is supported in its seating and mounting, and is therefore exceptionally robust. The adjustment is only carried out in a clamped state.

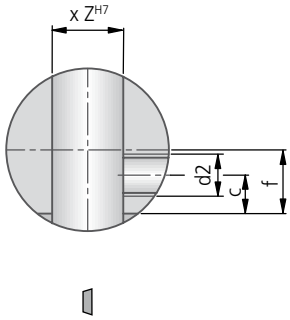
Setting: 1. Basic setting to be taken from drilling range ① and ②.
2. Machining diameter set by fine adjustment device.



Drilling range ①



Drilling range ②



Drilling range ① D_{min}–D_{max}	Drilling range ② D_{min}–D_{max}	Cartridges: Article	Order No.	kg	Clamping screw: Article	Order No.	Nm	Insert: W30 L.H. radial rake 06 = 6° 12 = 12° ▽▽ 20 = 20°	W57 neutral
29,5 – 36	35,5 – 42	FF10-30	**M30 20011**	0,055	S/M2×3,8-6IP	**N00 56021**	0,62	**W30 04 .. 0.03..**	**W57 04140.04..**
39 – 45	44 – 50	FF12-39	**M30 20021**	0,031					
47 – 57	56 – 66	FF16-47	**M30 20031**	0,062	S/M2,6×5,2-8IP	**N00 56101**	1,28	**W30 14 .. 0.04..**	**W57 14140.04..**
58 – 71	70 – 83	FF20-58	**M30 20041**	0,123	S/M2,6×6,2-8IP	**N00 56111**	1,28		
79 – 94	93 – 108	FF25-79	**M30 20051**	0,268	S/M3,5×7,3-10IP	**N00 56211**	2,8	**W30 26 .. 0.05..**	**W57 26140.04..**
100 – 121	120 – 141	FF32-100	**M30 20061**	0,548					
138 – 159	158 – 179	FF32-138	**M30 20071**	0,76					

For further details on inserts see chapter 7

for cartridges	d	Ø Z	a	b	h	e	f	c	d2	L	x	N	k	v	m	r	s
M30 20011	25	10	11	5	3,7	3,9	6,7	3,9	M6	28,8	7,5	2,0	5	3,5	11	0,5	8
M30 20021	32	12	13,5	6	7	6	9,5	6	M8	37,75	9	1,2	6	3,5	12,5	1	11
M30 20031	40	16	17,5	8	7,5	7,5	12	8	M10	45,4	11	1,2	8	5	16	2	13
M30 20041	50	20	23	10	11	9	17	9	M12	56,35	14,5	1,7	10	7	18	2	14,5
M30 20051	63	25	27	12,5	17,9	12,4	24,9	15,4	M16	77,8	16	2,0	12,5	8	21,6	2	28
M30 20061	80	32	33,5	16	24,5	15	34,5	22	M20	97,4	19	2,7	16	11	25,5	2	35
M30 20071	115	32	33,5	16	43,5	20	53,5	20	M20	131,4	19	2,7	16	11	25,5	2	35

KOMET Kometric® FZ Micro-adjustable cartridge

BENEFITS for you:

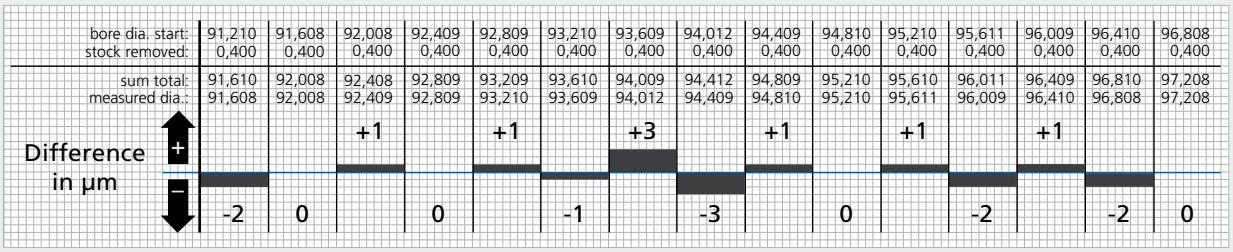
- Fast, accurate tool setting: simply using setting spindle
- Maximum accuracy: Tool is adjusted when clamped Anti-backlash design
- Large turning range: In addition to micro-adjustment, the whole cartridge can be moved
- Easy mounting: Only requirements: close tolerance bore or broached square hole and tapped hole for clamping
- Minimum weakening of boring bar: due to small dimensions of cartridges
- Suitable for standard boring bars
- Excellent for external turning: on automatics, turret lathes and special machines

Application example

A Material: Cast iron GG22

Boring bar: BZ 40×63×160 mm
Micro-adjustable cartridge:
Housing: **M30 02121** (FZ25-80-3)
Turning tool: **M30 52061** (U25Z3-805)
Insert: **W30 26600.0521** (TOHX 140305 EN K10)

Cutting speed: v ~ 80 m/min
Feed: f = 0.08 mm^{-1}
Cutting depth: a = 0.2 mm (≙ 0.4 mm in dia.)
Measuring tool: TESA internal precision measuring instrument

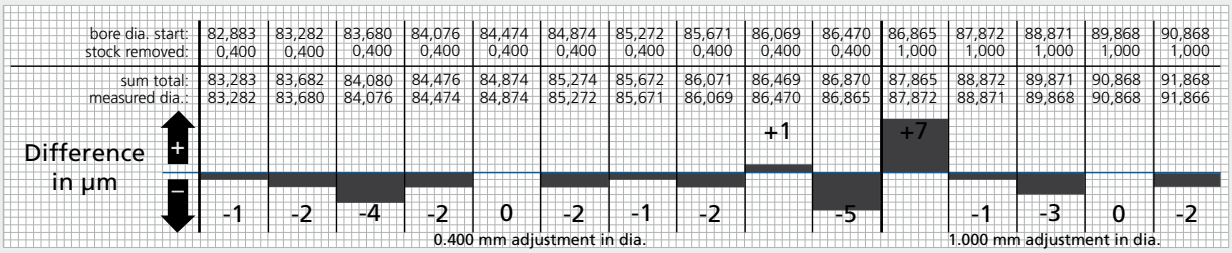


Result: Average deviation per pass 1.2 µm

B Material: Steel 1.7131 | 16MnCr5

Boring bar: BZ 40×63×160 mm
Micro-adjustable cartridge:
Housing: **M30 02121** (FZ25-80-3)
Turning tool: **M30 52061** (U25Z3-805)
Insert: **W30 26060.0521** (TOHX 140305 EL-G06 K10)

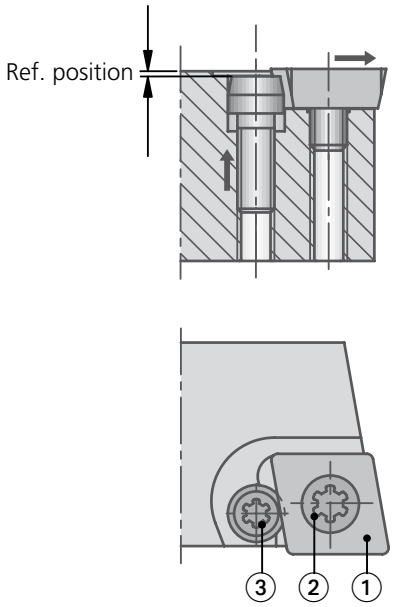
Cutting speed: v ~ 250 m/min
Feed: f = 0.1 mm^{-1}
Cutting depth: a = 0.2 mm (≙ 0.4 mm in dia.)
0.5 mm (≙ 1 mm in dia.) see diagram
Measuring tool: TESA internal precision measuring instrument



Result: Average deviation per pass 2.2 µm

Note: The application details shown depend on the environmental and application conditions (e.g. machine, ambient temperature, use of lubricant/coolant and the machining result required). These are subject to correct operating conditions, correct application and compliance with the spindle speed limits given for the tools.

Indexable insert adjustment with set screw



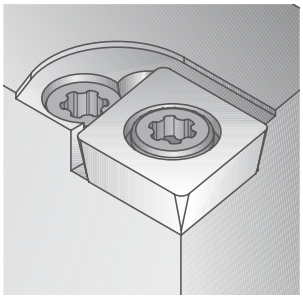
CC..		
Insert	Ref. position mm	Precision set screw ③ Order No.
CC..06	0,6	**N00 40010**
CC..09	1,2	**N00 40020**
CC..12	1,2	**N00 40030**

CP..		
Insert	Ref. position mm	Precision set screw ③ Order No.
CP..06	0,6	**N00 40040**
CP..08	0,6	**N00 40050**
CP..09	1,2	**N00 40060**
CP..12	1,2	**N00 40070**

SC..		
Insert	Ref. position mm	Precision set screw ③ Order No.
SC..09	1,2	**N00 40020**
SC..12	1,2	**N00 40030**

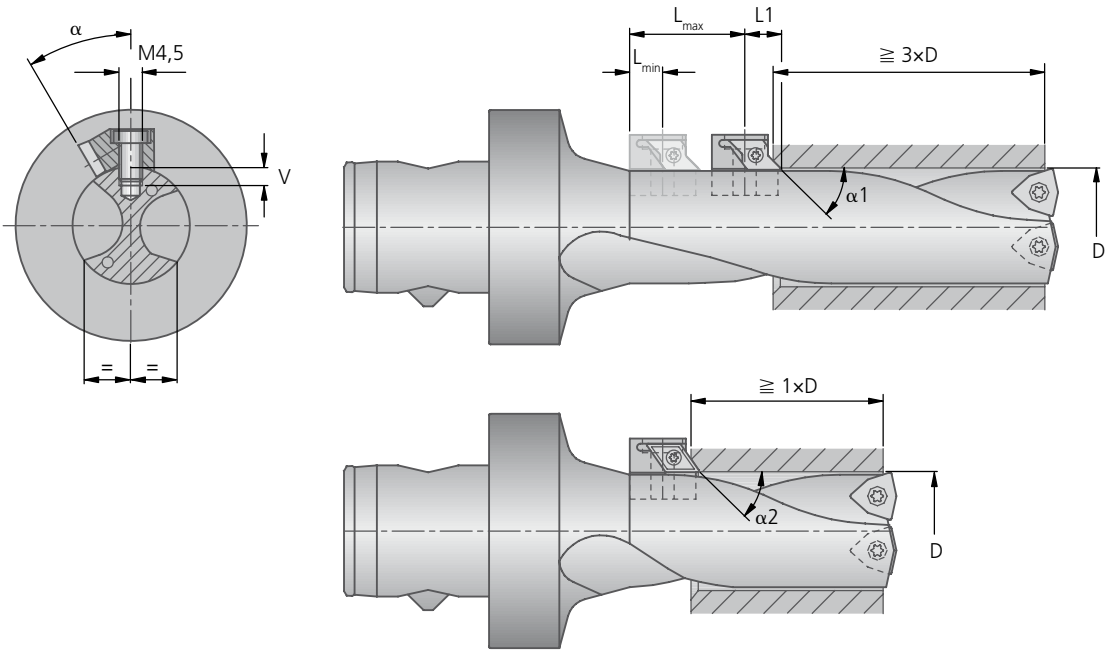
Fitting and adjusting an insert:

1. Before fitting, thoroughly clean the insert ① and the seating for the insert and secure the unit.
2. Grease clamping bolt ② and precision set screw ③ underneath the head and on the thread.
3. Insert precision set screw ③ and set it to its standard adjustment (ref. position).
4. Insert the insert ① and gently tighten the clamping bolt ②.
5. Set the precision set screw ③ to the required dimension.
6. Tighten the clamping bolt ②.



Addition of chamfering cartridge

Material
P M K N S H



⚠ For production of thread M4,5 for location screw into the hardened body we recommend the use of carbide tools.

Chamfering cartridge									Insert	
Order No.	for ∅ range D	max. chamfer diameter	L min	L max	L1	α	Clamping screw Order No. Article	Location screw Order No. Article	W60 / W79	
D50 00800	20 – 24	D+5	7	30	10	26°	N00 57221 S2553-7IP 0,9 Nm	N10 11500 Tx M4,5×10,5	W60 18600.4021 W60 18420.0403 W79 18060.0403	α1=45° α2=55° α2=55°
D50 00810*	25 – 29		5	35	8	30°				
D50 00820*	30 – 36		5	40	8	23°				
D50 00830*	37 – 44		5	50	8	20°				
D50 00840*	45 – 52		5	60	8	19°				

* on request

Supply includes:
Chamfering cartridge with assembly parts. Please order accessories and inserts separately.

Stepped tools are an important element for minimising production costs.
The D50 chamfering cartridge offers an economical solution to frequent solid drilling applications where chamfer machining is required.
The D50 chamfering cartridge can be fitted to any KUB® insert drills, KUB Trigon®, KUB Quatron®, KUB Pentron® and KUB Duon®.



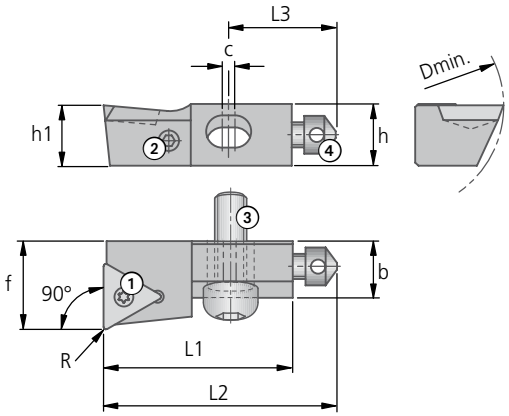
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® UKS

Short clamp holder $\varkappa$ = 90°

Material
P M K N S H

- **insert tilt of +5° over cutting edge**
- R.H. short clamp holder as shown with left or neutral insert
- L.H. short clamp holder in mirror image with right or neutral insert
- mounting instruction see page 502-503



UKS $\varkappa$ = 90°																
Article cutting form ▼	Order No.	D min	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,4	ISO dimension f for radius R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-T06-90 R	**D40 07000**	20	5,8	5,9	20	24,5	12	4,5	1	7	6,7	0,04	**N00 56021** S/M2×3,8-6IP 0,62 Nm	55054 02504 M2,5×4	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-T09-90 R	**D40 07010**	25	7,6	7,8	25	32	17	6,5	2	10	9,7	0,03	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	55054 03006 M3×6	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS8-T09-90 L	**D40 02010**															
UKS10-T11-90 R	**D40 07020**	33	9,6	9,8	30	37	17	9	2	14	13,7	0,04	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	55054 04008 M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-T11-90 L	**D40 02020**															
UKS10-T13-90 R	**D40 07030**	33	9,6	9,8	30	37	17	9	2	14	13,7	0,02	**N00 56201** S/M3,5×6,2-10IP 2,8 Nm	55054 04008 M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-T13-90 L	**D40 02030**															
UKS16-T16-90 L	**D40 02040**	56	15,6	15,8	42	50	25	12	2	18	17,7	0,10	**N00 56301** S/M4×8-10IP 4,3 Nm	55054 05012 M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert				Shim plate		
for short clamp holder	W32 L.H.	W32 R.H.	W32 neutral	W58 neutral	Shim plate 2,5 grinding allowance 0,5 Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-T06-90 R	**W32 03150..**		**W32 03.....** TPHB 0601..	**W58 03.....** TPGX 0601..	UKS6-5-90R	**L02 20200**	**55023 00206** M2×6 DIN965
UKS8-T09-90 R	**W32 13150..**		**W32 13.....** TPHB 0902..	**W58 13.....** TPGX 0902..	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS8-T09-90 L		**W32 13450..**			UKS8-7-75L	**L02 21310**	
UKS10-T11-90 R	**W32 18150..**		**W32 18.....** TPHB 1102..	**W58 18.....** TPGX 1102..	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS10-T11-90 L		**W32 18450..**			UKS10-5-90L	**L02 21220**	
UKS10-T13-90 R	**W32 23150..**		**W32 23.....** TPHB 1303..	**W58 23.....** TPGX 1303..	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS10-T13-90 L		**W32 23450..**			UKS10-5-90L	**L02 21220**	
UKS16-T16-90 L		**W32 32450..**	**W32 32.....** TPHB 1603..	**W58 32.....** TPGX 1603..	UKS16-5-90L	**L02 21240**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

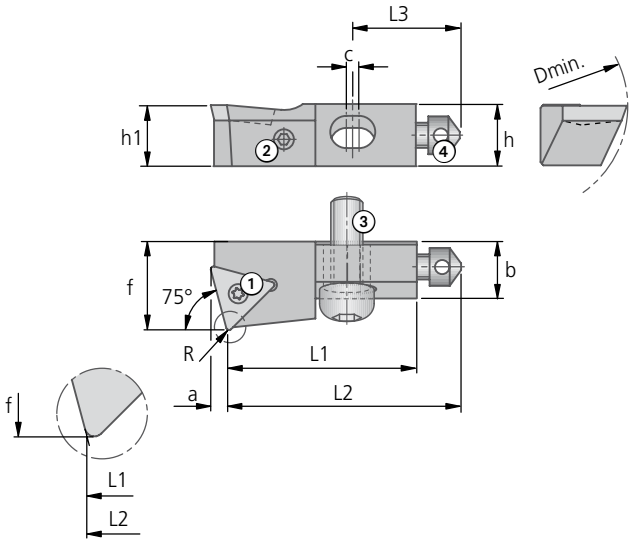
Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

Screwdriver see chapter 8.

Short clamp holder $\varkappa$ = 75°



Material: P M K N S H

- **insert tilt of +5° over cutting edge**
- R.H. short clamp holder as shown with left or neutral insert
- mounting instruction see page 502-503

UKS $\varkappa$ = 75°																	
Article cutting form ▾	Order No.	D min	h1	h	L1	L2	L3	b	c	a	ISO dimension f for radius R0,4	R0,8	kg	Clamping screw ① Order No. Article	Adjusting screw DIN 916 ② Order No. Article	Location screw ③ Order No. Article	Stop screw ④ Order No. Article
UKS6-T06-75 R	**D40 07200**	20	5,8	5,9	20	24,5	12	4,5	1	1,51	7	6,7	0,005	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**55054 02504** M2,5×4	**L02 30111** UKS6-3 1,9 Nm	**L02 30010** UKS6-4
UKS8-T09-75 R	**D40 07210**	25	7,6	7,8	25	32	17	6,5	2	2,23	10	9,7	0,015	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55054 03006** M3×6	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-T11-75 R	**D40 07220**	33	9,6	9,8	30	37	17	9	2	2,58	14	13,7	0,024	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS10-T13-75 R	**D40 07230**	33	9,6	9,8	30	37	17	9	2	3,29	14	13,7	0,045	**N00 56201** S/M3,5×6,2-10IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-T16-75 R	**D40 07240**	56	15,6	15,8	42	50	25	12	2	4	18	17,7	0,062	**N00 56301** S/M4×8-10IP 4,3 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4
UKS20-T22-75 R	**D40 07250**	60	19,6	19,8	47	57	27	15	2	5,43	22	21,7	0,113	**N00 56411** S/M5×13,4-20IP 6,25 Nm	**55054 05012** M5×12	**L02 30160** UKS20-3 35 Nm	**L02 30030** UKS12-4

	Insert			Shim plate		
for short clamp holder	W32 L.H.	W32 neutral	W58 neutral	Shim plate (2,5 / grinding allowance 0,5) Article	Order No.	Countersunk screw for shim plate Order No. Article
UKS6-T06-75 R	**W32 03150..** TPHX 0601..	**W32 03.....** TPHB 0601..	**W58 03.....** TPGX 0601..	UKS6-5-75R	**L02 20300**	**55023 00206** M2×6 DIN965
UKS8-T09-75 R	**W32 13150..** TPHX 0902..	**W32 13.....** TPHB 0902..	**W58 13.....** TPGX 0902..	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-T11-75 R	**W32 18150..** TPHX 1102..	**W32 18.....** TPHB 1102..	**W58 18.....** TPGX 1102..	UKS10-5-75R	**L02 20320**	**55023 00206** M2×6 DIN965
UKS10-T13-75 R	**W32 23150..** TPHX 1303..	**W32 23.....** TPHB 1303..	**W58 23.....** TPGX 1303..	UKS10-5-75R	**L02 20320**	**55023 00206** M2×6 DIN965
UKS16-T16-75 R	**W32 32150..** TPHX 1603..	**W32 32.....** TPHB 1603..	**W58 32.....** TPGX 1603..	UKS16-5-75R	**L02 20340**	**55021 03008** M3×8 DIN7991
UKS20-T22-75 R	**W32 44150..** TPHX 2204..	**W32 44.....** TPHB 2204..		UKS20-5-75R	**L02 20350**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

Screwdriver see chapter 8.

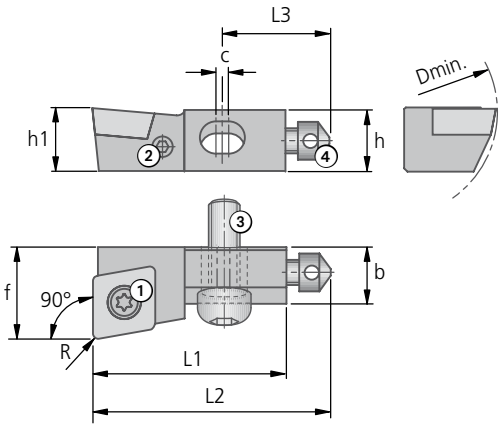
● very good | ◐ good | ○ possible | ✕ not possible

KOMET Kometric® UKS

Short clamp holder $\varkappa = 90°$

Material: P M K N S H

- insert tilt of +5° over cutting edge
- R.H. short clamp holder as shown with left or neutral insert
- mounting instruction see page 502-503



UKS $\varkappa = 90°$																
Article cutting form ▾	Order No.	D min	h1	h	L1	L2	L3	b	c	ISO dimension f for radius R0,2	R0,4	R0,8	kg	Clamping screw ①	Adjusting screw DIN 916 ②	Location screw ③	Stop screw ④
														Order No. Article	Order No. Article	Order No. Article	Order No. Article
UKS8-CP0602-90R	**D40 06410**	25	7,6	7,8	25	32	17	6,5	2	10,03	10		0,009	**N00 57221** S2553-7IP 0,9 Nm	**55054 03006** M3×6	**L02 30121*** UKS8-3 4,1 Nm	**L02 30020** UKS8-4
UKS10-CP09T3-90R	**D40 06430**	33	9,6	9,8	30	37	17	9	2		14	13,92	0,018	**N00 57261** S3575-15IP 2,8 Nm	**55054 04008** M4×8	**L02 30130** UKS10-3 8,5 Nm	**L02 30020** UKS8-4
UKS16-CP1204-90R	**D40 06440**	56	15,6	15,8	42	50	25	12	2		18	17,92	0,051	**N00 57301** S45100-20IP 6,25 Nm	**55054 05012** M5×12	**L02 30140** UKS12-3 14 Nm	**L02 30030** UKS12-4

	Insert		Shim plate		
for short clamp holder	W85 L.H.	W85 neutral	Shim plate 2,5 grinding allowance 0,5		Countersunk screw for shim plate
			Article	Order No.	Order No. Article
UKS8-CP0602-90R	**W85 18000..** CPG..0602..L	**W85 18000..** CPGW 0602..N	UKS8-5-75R	**L02 20310**	**55023 00206** M2×6 DIN965
UKS10-CP09T3-90R	**W85 32000..** CPG..09T3..L	**W85 32000..** CPGW 09T3..N	UKS10-5-90R	**L02 20220**	**55023 00206** M2×6 DIN965
UKS16-CP1204-90R	**W85 44000..** CPG..1204..L	**W85 44000..** CPGW 1204..N	UKS16-5-90R	**L02 20240**	**55021 03008** M3×8 DIN7991

For further details on inserts see chapter 7.

Supply includes: Short clamp holder with screws ①, ②, ③ and ④.

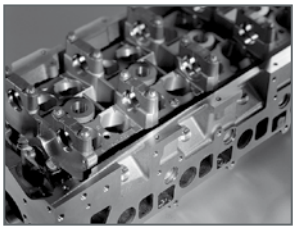
Please order insert and shim plate* separately.

* The shim plate for UKS8... is supplied with longer holding screw L02 30170.

Screwdriver see chapter 8.

● very good | ◐ good | ○ possible | ✕ not possible

Application example:
cylinder head



The task

Cam shaft bores
- Machining aluminium
- Maximum tolerance requirements
- Allowance up to 1.5 mm
- Large scale production
- Solutions for machining centres and transfer lines

Customer use

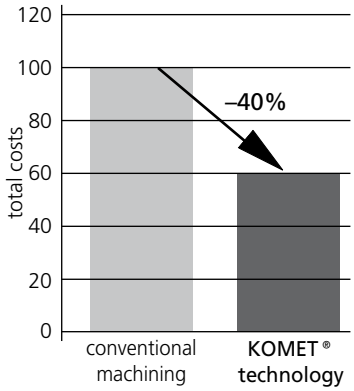
Complete result in just a few weeks
- 50% reduction of main time
- Increase in tool life to up to 80,000 parts per tool
- No setting
- Easy handling
- Approx. 40% reduction in production costs

Our solution

Ready-to-use solution from tool design to putting into operation
- Development of multiple insert PCD tools with up to eight cutting edges
- Pre-machining with multiple insert pilot PCD tool
- Finish machining with multiple insert PCD tool with carbide guide pad and internal coolant supply



Production costs: Cam shaft bores



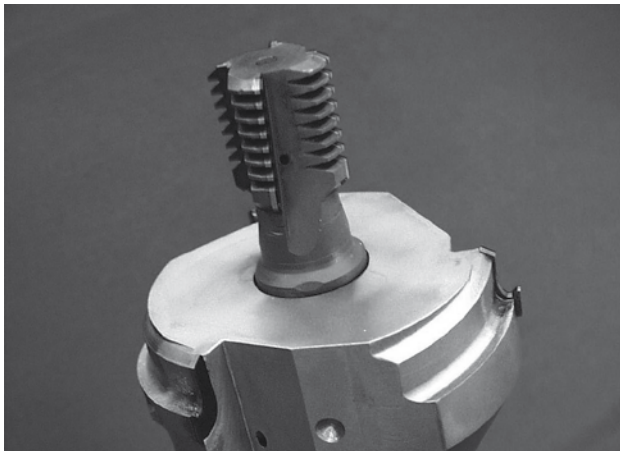
The conventional filter will be replaced by a new generation of oil filters; these are already in use on new car models.This consists mainly of an aluminium housing fitted with the appropriate filter elements.

Cast aluminium filter housing:
Material: G - AlSi9Cu3

Machined with:
TOMILL thread milling tool GWF S80×3 with PCD inserts

Special solutions:
Special VABOS (variable boring and counterboring system) with PCD inserts for complete face machining on filter housing.



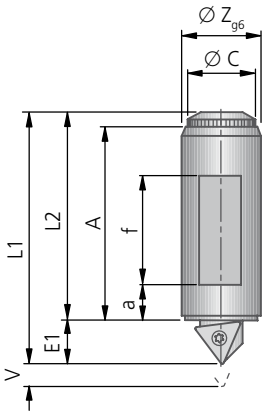


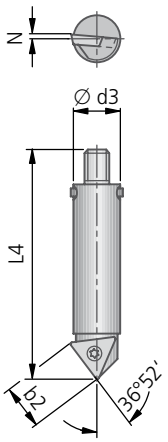
KOMET Kometric® FZ

Micro-adjustable cartridges Ø 28 – 68 mm

Material: P M K N S H

■ insert tilt of +5° over cutting edge





	Housing		Turning tool			Insert			Accessories
Drilling range[1]					Clamping screw	W32 L.H.	W32 neutral	W58 neutral	Wrench
D_{min} ① / D_{max} ② / D_{max} ③	Article	Order No.	Order No. Article	kg	Order No. Article				Order No. Article
28 / 34,4 / 38	FZ10-28-3	M30 02031	M30 52421 U10Z3-T06	0,013	N00 56021 S/M2×3,8-6IP 0,62 Nm	W32 03150.. TPHX 0601..	W32 03..... TPHB 0601..	W58 03..... TPGX 0601..	L05 01020 R2/N1
32 / 38,4 / 44	FZ10-32-3	M30 02041		0,015					
36 / 44 / 48	FZ12-36-3	M30 02051	M30 52431 U12Z3-T06	0,026	N00 56031 S/M2×4,9-6IP 0,62 Nm				L05 01030 R2a/N2
40 / 48 / 55	FZ12-40-3	M30 02061		0,029					
45 / 54,6 / 60	FZ16-45-3	M30 02071	M30 52441 U16Z3-T09	0,058	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W32 13150.. TPHX 0902..	W32 13..... TPHB 0902..	W58 13..... TPGX 0902..	L05 01040 N3
50 / 59,6 / 68	FZ16-50-3	M30 02081		0,067					

For further details on inserts see chapter 7

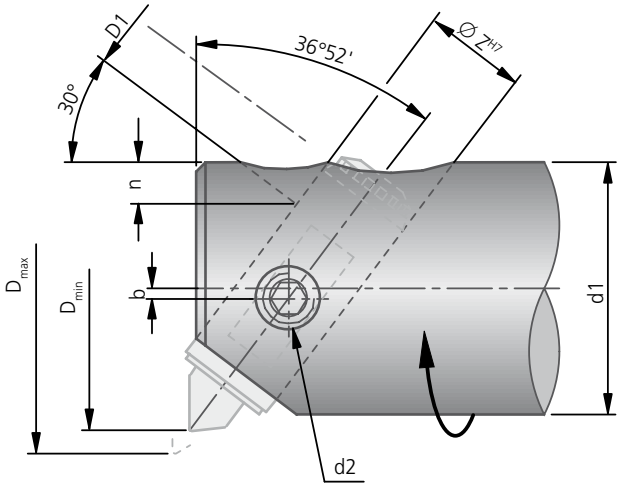
Drilling range[1]					Cutter Ø			Ø					Ø			Ø			
D_{min} ①	D_{max} ②	D_{max} ③	d1	n[2]	$D1^{2}$	b	d2	Z^{H7}_{g6}	L1	L2	E1	V	A	C	a	f	d3	L4	N	b2
28	34,4	38	25	3,5	8	2	M6	10	31,5	25,5	6	4	23,3	8,9	6	12	5,7	24,8	1,2	6,5
32	38,4	44							35,5	29,5			27,3			16				
36	44	48	32	4	10	2,5	M8	12	40,3	33,5	6,8	5	31	10,9	8	16	6,7	31,3	1,2	6,5
40	48	55							45,3	38,5			36			21				
45	54,6	60	40	6,5	12	3	M10	16	51	42	9	6	39	13,9	10	20	8,6	39,7	1,2	9
50	59,6	68							57	48			45			26				

[1] Value ① to ② = micro adjustment range of cartridge
Value ① to ③ = total adjustment range, consisting of micro and rough adjustment of cartridge in holder

[2] when using rough adjustment, the distance „n“ must be used on the boring bar

Angled mounting 36°52'

■ adjustment accuracy 1.6 µm Ø above vernier



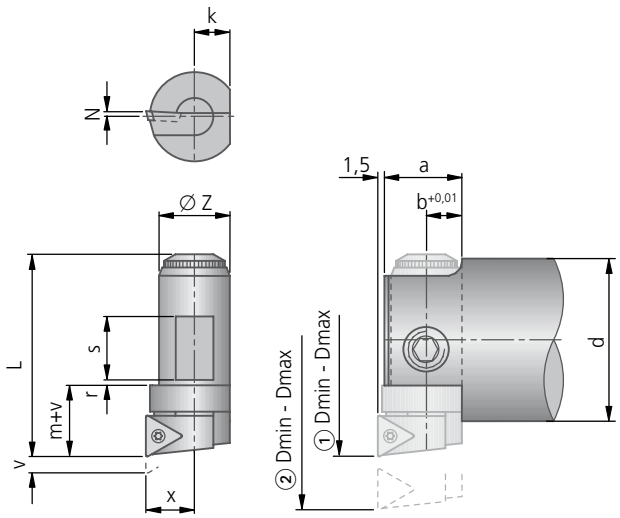
Micro-adjustable cartridge Ø 29,5 – 66 mm

insert tilt of +5° over cutting edge ■
Adjustment accuracy 2 µm ∅ above vernier ■

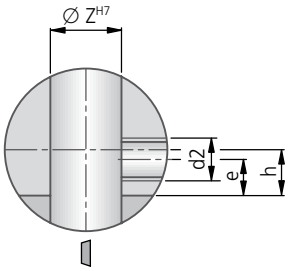
Material
P M K N S H
●

The FF micro adjustable cartridge is mounted radially and ideally suitable for NC tools, because the axial cutting dimensions are constant. The design and features of the cartridge are the same as type FZ (see sectional drawing), and are therefore also highly accurate. The prodruding cutting edge is supported in its seating and mounting, and is therefore exceptionally robust. The adjustment is only carried out in a clamped state.

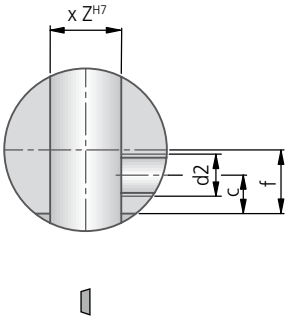
Setting: 1. Basic setting to be taken from drilling range ① and ②.
2. Machining diameter set by fine adjustment device.



Drilling range ①



Drilling range ②



		Cartridges				Insert		
Drilling range ① D_{min}–D_{max}	Drilling range ② D_{min}–D_{max}	Article	Order No.	kg	Clamping screw Order No. Article	W32 L.H.	W32 neutral	W58 neutral
29,5 – 36	35,5 – 42	FF10-T06-30	**M30 20201**	0,055	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**W32 03150..**	**W32 03.....** TPHB 0601..	**W58 03.....** TPGX 0601..
39 – 45	44 – 50	FF12-T06-39	**M30 20211**	0,031				
47 – 57	56 – 66	FF16-T09-47	**M30 20221**	0,062	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**W32 13150..**	**W32 13.....** TPHB 0902..	**W58 13.....** TPGX 0902..

For further details on inserts see chapter 7

for cartridges	d	Ø Z	a	b	h	e	f	c	d2	L	x	N	k	v	m	r	s
M30 20201	25	10	11	5	3,7	3,9	6,7	3,9	M6	28,8	7,5	2,0	5	3,5	11	0,5	8
M30 20211	32	12	13,5	6	7	6	9,5	6	M8	37,75	9	1,2	6	3,5	12,5	1	11
M30 20221	40	16	17,5	8	7,5	7,5	12	8	M10	45,4	11	1,2	8	5	16	2	13

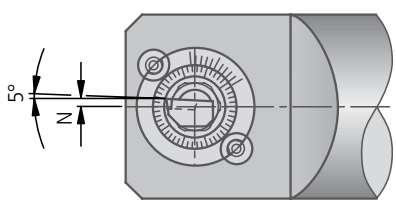
● very good | ◐ good | ○ possible | ✕ not possible

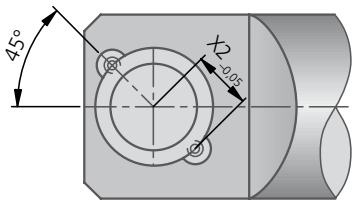
KOMET Kometric®

Micro-adjustable cartridge up to Ø 25,4 mm

Material: P M K N S H

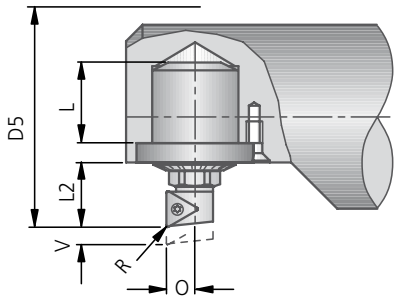
- **insert tilt of +5° over cutting edge**
- the smallest adjustment increment is 0.002 mm in the ∅ above vernier
- easy adjustment from the front
- high precision setting
- no clamping required
- compact, rigid design
- significant saving in setting times

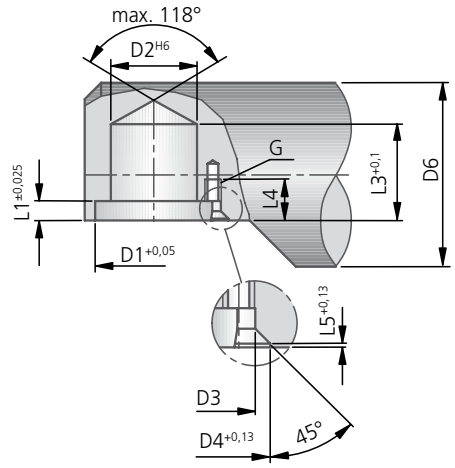


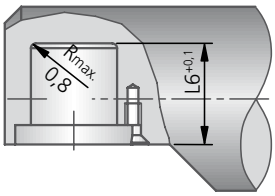


Radial mounting

If the fitting pocket in the boring bar breaks out at the back, it must be drilled through.







Micro-adjustable cartridge					Insert			Accessories
min. turning Ø D5	Order No.	kg	Clamping screw Order No. Article	Location screw 2× DIN7991 Order No. Article	W32 L.H.	W32 neutral	W58 neutral	Wrench Order No. Article
25,4	**M31 00122**	0,02	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**M31 00020.18** M3×6 sim. DIN7991	**W32 03150..** TPHX 0601..	**W32 03.....** TPHB 0601..	**W58 03.....** TPGX 0601..	**18589 10010** SW10
36,5	**M31 00153**	0,04	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55021 03008** M3×8	**W32 13150..** TPHX 0902..	**W32 13.....** TPHB 0902..	**W58 13.....** TPGX 0902..	**18589 10014** SW14
73	**M31 00162**	0,25	**N00 56201** S/M3,5×6,2-10IP 2,8 Nm	**55021 05012** M5×12	**W32 23150..** TPHX 1303..	**W32 23.....** TPHB 1303..	**W58 23.....** TPGX 1303..	**18589 10022** SW22

Supply includes:
Micro-adjustable cartridge with assembly parts. Please order accessories and inserts (chapter 7) separately.

Mounting dimension

for cartridges	D1	D2	D3	D4	D6 min.	L	L1	L2	L3	L4	L5	L6	G	N	R	V	O	X2
M31 00122	21	15	3,2	4,5	25	9,54	3,16	10,3	12,7	13	1,6	13,7	M3	1,5	0,4	1,0	3,6	10,5
M31 00153	24,6	19,05	4,3	6	33	14,84	3,96	13,5	19	10	1,5	19,8	M3	2	0,4	1,1	3,94	12,3
M31 00162	46	31,75	5,5	10	65	31,35	6,35	24,4	37	12	1,5	38,7	M5	2	0,4	5,5	7,1	23

Micro-adjustable cartridge up to Ø 25,4 mm

- **insert tilt of +5° over cutting edge**
- the smallest adjustment increment is 0.0016 mm in the ∅ above vernier
- easy adjustment from the front
- high precision setting
- no clamping required
- compact, rigid design
- significant saving in setting times

Material: P M K N S H

Angled mounting

If the fitting pocket in the boring bar breaks out at the back, it must be drilled through.

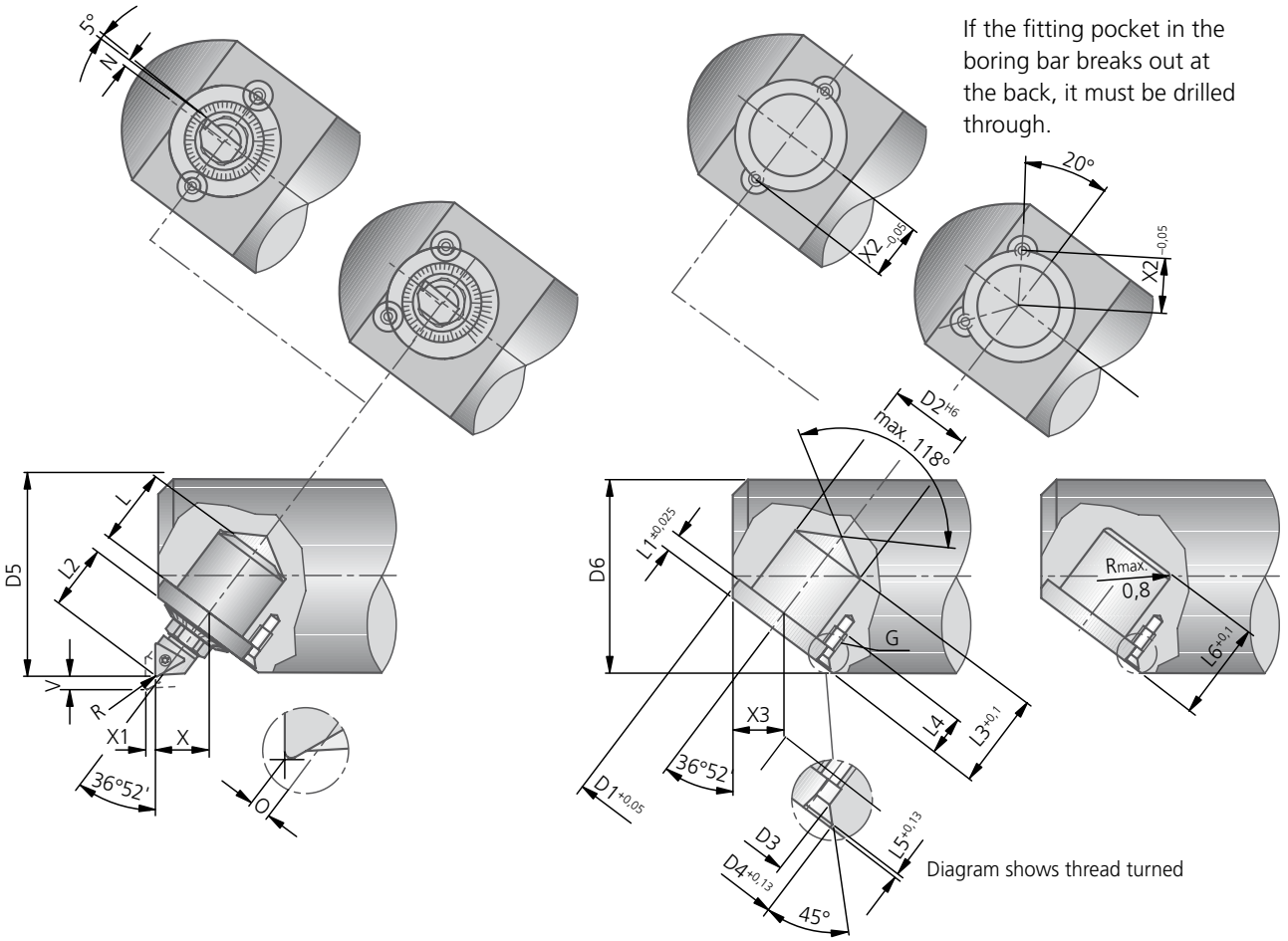


Diagram shows thread turned

Micro-adjustable cartridge					Insert			Accessories
min. turning Ø D5	Order No.	kg	Clamping screw Order No. Article	Location screw 2× DIN7991 Order No. Article	W32 L.H.	W32 neutral	W58 neutral	Wrench Order No. Article
25,4	**M31 01122**	0,02	**N00 56021** S/M2×3,8-6IP 0,62 Nm	**M31 00020.18** M3×6 sim. DIN7991	**W32 03150..** TPHX 0601..	**W32 03.....** TPHB 0601..	**W58 03.....** TPGX 0601..	**18589 10010** SW10
36,5	**M31 01153**	0,04	**N00 56101** S/M2,6×5,2-8IP 1,28 Nm	**55021 03008** M3×8	**W32 13150..** TPHX 0902..	**W32 13.....** TPHB 0902..	**W58 13.....** TPGX 0902..	**18589 10010** SW10
73	**M31 01162**	0,25	**N00 56201** S/M3,5×6,2-10IP 2,8 Nm	**55021 05012** M5×12	**W32 23150..** TPHX 1303..	**W32 23.....** TPHB 1303..	**W58 23.....** TPGX 1303..	**18589 10017** SW17

Supply includes:
Micro-adjustable cartridge with assembly parts. Please order accessories and inserts (chapter 7) separately.

Mounting dimension

for cartridges	D1	D2	D3	D4	D6 min.	L	L1	for R0,4 L2	L3	L4	L5	L6	G	N	ISO dimension for R	V	O	X	X1	X2	X3
M31 01122	19	15	3,2	4,5	23	9,2	3,2	11,1	13	13	1,6	13,4	M3	1,5	0,4	0,8	0,68	9,2	0,6	9,5	8,8
M31 01153	24,6	19,05	3,5	6	33	14,84	3,96	14,94	19	10	1,5	19,8	M3	2	0,4	1,3	0,9	12,06	0,95	12,3	11,3
M31 01162	46	31,75	5,5	10	65	30,51	6,35	27	37	12	1,5	37,9	M5	2	0,4	4,7	0,9	20,73	3,75	23	19,8

KOMET®

Cutting elements

KOMET® inserts and the appropriate tools provide the user with an efficient system for machining any materials.





KOMET®

Cutting elements

	Page
Programme summary	582 – 585
Cutting tool materials	586 – 595
Unisix® Indexable inserts	
W00 | W01 | W04 | W27 | W29	596 – 617
Indexable inserts	
W80 | W82 | W83	653 – 662
Indexable inserts	
W30 | W32 | W34 | W37	618 – 638
W57 | W58 | W59	639 – 643
Indexable inserts	
W60 | W78 | W79	644 – 652
W85 | W89	663 – 667
ISO HM Indexable inserts	
C83 | C84 | C85 | C86	668 – 671
ISO PCD / CVD-D Indexable inserts	
C79 | C84 | C85 | C86 | C87 | C88 | C89	672 – 731
Indexable inserts for milling	
Q09 | Q12 | Q15 | Q36	743 – 752
Q40 | Q43 | Q47	753 – 756
Q55 | Q56 | Q63 | Q75	757 – 761
Q80	762 – 763
Inserts H60 | H62	732 – 738
Replaceable head H70 | H71	739 – 741
Inserts H80	742
Central drill bit V95, Centring spade V96	764
Numerical coding	765 – 767
Clamping screws	Chapter 8

Cutting elements for solid drilling, counterboring, fine boring and lathe machining

84° Unisix® Indexable inserts W00 | W01 | W04 | W29



▶ 596

Unisix® W00 04 – WOHX
- MicroKom *BluFlex®*, MicroKom® *hi.flex*
- Counterboring tools
- Inside and outside turning tools
- Extremely efficient high-precision indexable inserts for tiny diameters



▶ 597
▶ 598

Unisix® W01 – WOHX
- TwinKom® double cutters, Kometric® insert seatings
- Counterboring tools
- Inside and outside turning tools
- Extremely efficient high-precision indexable inserts
- Compatible with W29... indexable inserts



▶ 599

Unisix® W01..60 – WOHX
- TwinKom® double cutters, Kometric® insert seatings
- Counterboring tools
- Inside and outside turning tools
- For cast iron materials
- High-precision indexable insert for difficult application conditions
- Compatible with W29... indexable inserts



▶ 600

Unisix® W01 – WOGX mit PKD / CBN
- TwinKom® double cutters, Kometric® insert seatings
- Counterboring tools
- Inside and outside turning tools
- PCD: Non-ferrous metals, plastics, composite material, graphite
- CBN: Cast iron materials and C322, hardened materials
- Compatible with W29... indexable inserts



▶ 601
▶ 602

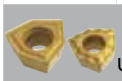
Unisix® Power W01 – WOHX $\varkappa$ = 90° / 75°
- TwinKom® double cutters, Kometric® insert seatings
- Counterboring tools with large L/D ratios
- For cast iron materials only
- High-precision indexable insert with support chamfer



▶ 604
▶ 605

Unisix® W04 – WNHX
- Counterboring tools
- Inside and outside turning tools
- Six usable cutting edges

95° Unisix® Indexable inserts W27



▶ 606
▶ 607
▶ 608

Unisix® W27
- KUB® V46/V47 (no longer available)
- Solid drilling up to a diameter of 24 mm



▶ 609

Unisix® W29..00 – WOEX
- TwinKom® double cutters, Kometric® insert seatings
- KUB Centron®, KUB Trigon®, KUB® drill
- Solid drilling and counterboring tool
- Inside and outside turning tools
- Rounded cutting edge for light cutting



▶ 610

Unisix® W29..01 – WOEX
- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Inside and outside turning tools
- Universal topography with stable, chamfered cutting edge



▶ 611

Unisix® W29..02 – WOEX
- TwinKom® double cutters
- Counterboring tools
- Extremely stable cutting edge with chip breaker



▶ 612

Unisix® W29..03 – WOEX
- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Inside and outside turning tools
- Extreme chip breaking properties for long-chipping and stainless steel materials



▶ 613

Unisix® W29..11 – WOEX
- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Inside and outside turning tools
- Sharp, highly positive topography for non-ferrous metals



▶ 614

Unisix® W29..13 – WOEX
- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Inside and outside turning tools
- Highly positive topography with powerful chip breaking properties



▶ 615
▶ 616

Unisix® W29..15 | W29..16 – WOGX
- TwinKom® double cutters, Kometric® insert seatings
- Counterboring and fine boring tools
- Inside and outside turning tools
- Semi-finishing chip breaking topography, optionally available with wiper geometry



▶ 617

Unisix® W29..20 – WOEX
- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Inside and outside turning tools
- Stable, chamfered cutting edge

90° Indexable inserts W80 | W82 | W83



▶ 653

W80..01 – SOGX
- KUB Pentron®
- Solid drilling and counterboring tool
- Universal topography with stable cutting edge



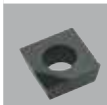
▶ 654

W80..03 – SOGX
- KUB Pentron®
- Solid drilling and counterboring tool
- Extreme chip breaking properties for long-chipping and stainless steel materials



▶ 655

W82..21 – SOHX
- Counterboring and fine boring tools
- Inside and outside turning tools
- Precision-ground design
- Compatible with W83 32...



▶ 661/662

W83 – SPGW:
- Counterboring, fine boring and turning tools
- For non-ferrous metals
- Also available in a PCD version



▶ 656

W83..01 – SOEX
- KUB Quatron®, KUB Centron® Powerline
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Universal topography with stable cutting edge



▶ 657

W83..03 – SOEX
- KUB Quatron®, KUB Centron® Powerline
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Extreme chip breaking properties for long-chipping and stainless steel materials



▶ 658

W83..13 – SOEX
- KUB Quatron®, KUB Centron® Powerline
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Highly positive topography with powerful chip breaking properties



▶ 659

W83..21 – SOEX
- KUB Quatron®, KUB Centron® Powerline
- TwinKom® double cutters, Kometric® insert seatings
- Solid drilling and counterboring tool
- Sharp, highly positive topography for non-ferrous metals



▶ 660

W83..32/33 – SOEX
- KUB Quatron®, KUB Centron® Powerline
- Solid drill bit tools
- For reduced burr formation at the hole exit

Cutting elements for solid drilling, counterboring, fine boring and lathe machining

60° Indexable inserts W30 | W32 | W34 | W37 | W57 | W58 | W59



▶ 618
▶ 619
▶ 620

W30 – TOHX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- High-precision indexable insert in a variety of designs



▶ 621

W30 (F) – TOHX
- KWS and KWZ indexable insert countersinks
- Countersink, end milling cutter
- High-precision indexable insert with three universal chip breakers



▶ 622
▶ 623

W30..82 | W30..83 – TOHX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- High-precision indexable insert made of Cermet with a sharp, stabilised cutting edge



▶ 624

W30.....31 (UF) – TOHX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- High-precision indexable insert with wiper for high feed rates



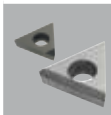
▶ 626
▶ 627

W30.....32 (US) – TOHX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- High-precision indexable insert for chip control with extremely low cutting depths



▶ 625

W30.....39 – TOHX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- High-precision indexable insert with low thrust forces for tools with long projection lengths



▶ 628
▶ 629
▶ 630

W30..94 | W30..98 | W30..99 – TOGX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- PCD: Non-ferrous metals, plastics, composite material, graphite
- CBN: Cast iron materials, hardened materials

Tangential insert H60 | H62



▶ 732

H60 | H62 – XOHX
- KUB Duon®
- Double-edged solid drill bit tools
- H60: Tangential, stable geometry for steel and cast iron materials
- H62: Tangential, highly positive geometry for non-ferrous metals

Replaceable head H70 | H71



▶ 739

- KUB K2®
- Double-edged solid drill bit tools
- H70: Geometry for steel and stainless materials
- H71: Geometry for cast iron materials

Central drill bit V95



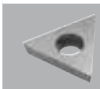
▶ 764

- KUB Centron®, KUB® V464
- Solid drill bit tools for high L/D ratios



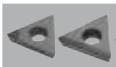
▶ 631
▶ 632

W32..15 | W32..45 – TPHX
- Kometric® insert seatings, MicroKom® micro-adjustable head
- Counterboring and fine boring tools
- Highly positive chip shape geometry ground to a polish for non-ferrous metals



▶ 633

W32..60 – TPHB
- Kometric® insert seatings, MicroKom® micro-adjustable head
- Counterboring and fine boring tools
- Rake face ground to a polish for non-ferrous metals



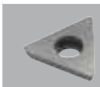
▶ 634
▶ 635
▶ 636

W32..94 | W32..98 | W32..99 – TPHB
- Kometric® insert seatings, MicroKom® micro-adjustable head
- Counterboring and fine boring tools
- PCD: Non-ferrous metals, plastics, composite material, graphite



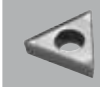
▶ 637

W34..66 – TOGX
- Counterboring and fine boring tools
- Stable indexable insert with three chip breakers that have been ground through
- Compatible with W59.. indexable inserts



▶ 638

W37..60 – TEHB
- Counterboring and fine boring tools
- 20° clearance angle with rake face ground to a polish for non-ferrous metals



▶ 639

W57..12 – TOGX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- Circumferential, highly positive and sharp topography for non-ferrous metals
- Compatible with W30.. indexable inserts



▶ 640
▶ 641

W57..14 | W57..18 – TOGX
- MicroKom® *hi.flex*, MicroKom *BluFlex*®, MicroKom® M02, MicroKom® M03 Speed, MicroKom® M04, micro-adjustable heads, boring bars, TwinKom® double cutter
- Counterboring and fine boring tools
- Inside and outside turning tools
- Chip breaking topography for extremely low cutting depths for steel materials, cast iron and stainless steels
- Also available in a wiper version
- Compatible with W30.. indexable inserts



▶ 642

W58..12 – TPGX
- Kometric® insert seatings, MicroKom® micro-adjustable head
- Counterboring and fine boring tools
- Circumferential, highly positive and sharp topography for non-ferrous metals
- Compatible with W32.. indexable inserts



▶ 643

W59..05 – TOHT
- Counterboring and fine boring tools
- Circumferential positive chip breaker for roughing, chamfer and face operations

90° Tangential indexable insert H80



▶ 742

H80 – LNHX
- KOMET® PreciKom
- Counterboring and fine boring tools
- Roughing and finishing operations with hole tolerances of up to IT8

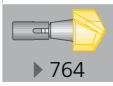
90° Tangential indexable insert Q80



▶ 762/763

Q80 – LNGU:
- Counterboring tools
- Multifunctional in special tools
- Eight usable cutting edges
- Extremely stable for maximum productivity

Centring spade V96

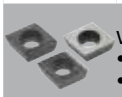


▶ 764

- KUB Centron® Powerline
- Double-edged solid drill bit tools for high L/D ratios

Cutting elements for solid drilling, counterboring, fine boring and lathe machining

80° Indexable inserts W85



W85 – CPGT | CPGW:
- Counterboring, fine boring and turning tools
- For non-ferrous metals
- Also available in a PCD version

▸ 663-665



W85 – CCGW
- TwinKom® double cutters, Kometric® insert seatings
- Counterboring, fine boring and turning tools
- CBN design for cast iron materials and hardened materials

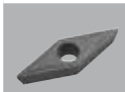
▸ 666

35° Indexable inserts W78 | W89



W78..07 – VOHT | W78..98 | W78.99 VOGW
- Inside and outside turning tools, copy turning
- PCD: Non-ferrous metals, plastics, composite material, graphite
- CBN: Cast iron materials

▸ 649-651



W89 – VCMT | VBMT:
- Inside and outside turning tools, copy turning
- Positive chip breaker

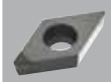
▸ 667

55° Indexable inserts W60 | W79



W60 – DOHT | DOHW:
- Kometric® insert seatings
- Inside and outside turning tools, copy turning
- Extremely efficient high-precision indexable inserts

▸ 644-646



W60..98 | W60..99 – DOGT / DOGW
- Kometric® insert seatings
- Inside and outside turning tools, copy turning
- PCD: Non-ferrous metals, plastics, composite material, graphite
- CBN: Cast iron materials, hardened materials

▸ 647-648

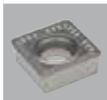


W79..06 – DOHT:
- Kometric® insert seatings
- Inside and outside turning tools, copy turning
- Circumferential positive chip breaker
- Compatible with W60.. indexable inserts

▸ 652

ISO indexable inserts

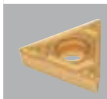
90° ISO indexable insert C83



C83 – SCMT | SCGT:
- Counterboring and fine boring tools
- Inside and outside turning tools
- Topographies and cutting materials for steel, stainless steels, cast iron materials and non-ferrous metals

▸ 668

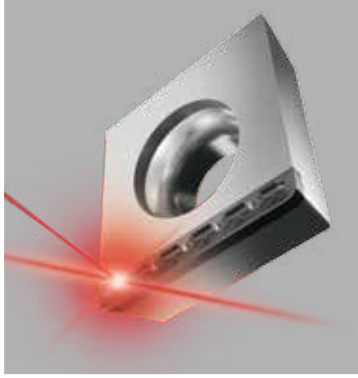
60° ISO indexable insert C84



C84 – TCGT | TCMT:
- Counterboring and fine boring tools
- Inside and outside turning tools
- Topographies and cutting materials for steel, stainless steels, cast iron materials and non-ferrous metals

▸ 669

ISO diamond indexable inserts



- Counterboring and fine boring tools
- Inside and outside turning tools
- For non-ferrous metals, plastics, CFRP, GFRP, carbide, graphite
- **Ultra-hard PCD and CVD-D diamond cutting material**
- **3D chip breakers in finishing and roughing design**
- **Cutting edge and chip breakers manufactured with the latest laser technology**

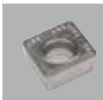
60° ISO diamond indexable insert C84



C84 – TCGT | TCGW
- Cutting edge designs: Tipped corners, entire edge, full face

▸ 673

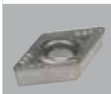
80° ISO indexable insert C85



C85 – CCMT | CCGT:
- Counterboring and fine boring tools
- Inside and outside turning tools
- Topographies and cutting materials for steel, stainless steels, cast iron materials and non-ferrous metals

▸ 670

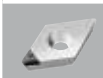
55° ISO indexable insert C86



C86 – DCMT | DCGT:
- Counterboring and fine boring tools
- Inside and outside turning tools
- Topographies and cutting materials for steel, stainless steels, cast iron materials and non-ferrous metals

▸ 671

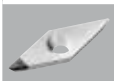
55° ISO diamond indexable insert C86



C86 – DCGT | DCGW
- Cutting edge design: Tipped corners
- Also available in a wiper version

▸ 673

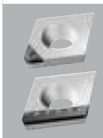
35° ISO diamond indexable inserts C78 | C89



C79 – VBGT | VBGW
C89 – VCGT | VCGW
- Cutting edge design: Tipped corners

▸ 673

80° ISO diamond indexable inserts C85 | C95



C85 – CCGT | CCGW
C95 – CPGT | CPGW
- Cutting edge designs: Tipped corners, entire edge
- C85 also available in a wiper version

▸ 673

ISO diamond indexable inserts C87 | C88 | C89



C87 | C88 – RCGT | RCGW
C89 – RDHX
- C88 in a reinforced version

▸ 673

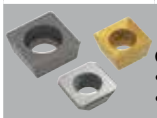
90° Indexable insert W83



▸ 656

W83..01 – SOEX
- KOMET® Quatron *hi.feed*
- High feed rate milling
- Universal topography with stable cutting edge

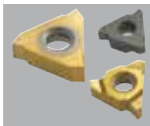
90° Indexable insert Q09



▸ 743-745

Q09 – SPGW | SPMT | SEHW | SEHT
- Face milling cutter
- 45° placement

60° Indexable insert Q12



▸ 746-749

Q12 – TCAA | TNAA | TCAX | TNAX | TPAX
- Circular milling cutter
- Slot milling cutter
- Has three cutting edges with different widths and radii

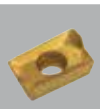
80° Indexable insert Q15



▸ 750

Q15 – CPMT / CPMW
- T slot milling cutter
- Circumferentially positive for steel
- Circumferentially chamfered for cast iron

85° Indexable inserts Q36



▸ 751

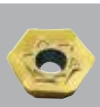
Q36 – APKT:
- Corner milling cutter KOMET® *hi.apQ*
- Shell end face milling cutter
- Highly positive stable topography



▸ 752

Q36 – APKT:
- Copy milling cutter
- Highly positive stable topography

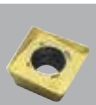
135° Indexable insert Q40



▸ 753

Q40 53 – HOKT | HPCT | HPKT
- Face milling cutter Q40-KFM
- Has six cutting edges and is highly positive
- With wiper for excellent surface quality

Indexable insert Q43



▸ 754

Q43 28 – SDHT | SDKT
- Corner milling cutter Q43-KSM
- Extremely soft-cutting

Indexable insert Q43



▸ 755

Q43 38 – SDMX
- Copy milling cutter Q55-KCM with insert seat size 12
- Additional geometry for 45° face milling operations with the Q55-KCM copy milling cutter

75° Indexable insert Q47



▸ 756

Q47 – EOMT
- Copy milling cutter Q55-KCM with insert seat size 12
- Additional geometry for 45° face milling operations with the Q55-KCM copy milling cutter

Indexable inserts Q55



▸ 757

Q55 – RPMX | RPHX | RDHW | RDHX
- Copy milling cutter Q55-KCM
- Circular insert with eight indexing positions



▸ 758

Q55..26 – RPMX | RPHX
- Copy milling cutter Q55-KCM
- Circular insert with four indexing positions
- With wiper for excellent surface quality

Indexable insert Q56



▸ 759

Q56 – XPLT | XDLT | XOLT
- Face milling cutter Q56-KHF
- High feed rate milling
- Optimised angled cutting edge for maximum feed rate and excellent surface quality

Indexable insert Q63



▸ 760

Q63 – SOKU
- Face milling cutter Q63-KFM
- Double-sided, with eight cutting edges
- With wiper for excellent surface quality

Indexable insert Q75



▸ 761

Q75 – RNKU | ROHU
- Copy milling cutter Q75-KCM
- Double-sided circular insert with eight cutting edges
- With wiper for excellent surface quality

90° Tangential indexable insert Q80



▸ 762
▸ 763

Q80 – LNGU:
- Face milling cutter KOMET® *hi.aeQ*
- Multifunctional in special tools
- Eight usable cutting edges
- Extremely stable for maximum productivity

Summary and list of codes

Guidelines
for selecting inserts

All dimensions shown are subject to tolerance in accordance with the relevant requirement.

Workpiece material	
Mild steel/tool steel	P
Stainless and acid-resistant steel	M
Grey cast iron, spheroidal cast iron	K
Non-ferrous metals	N
Heat-resistant steels	S
Hardened tool steel	H

Key
Abbreviations used

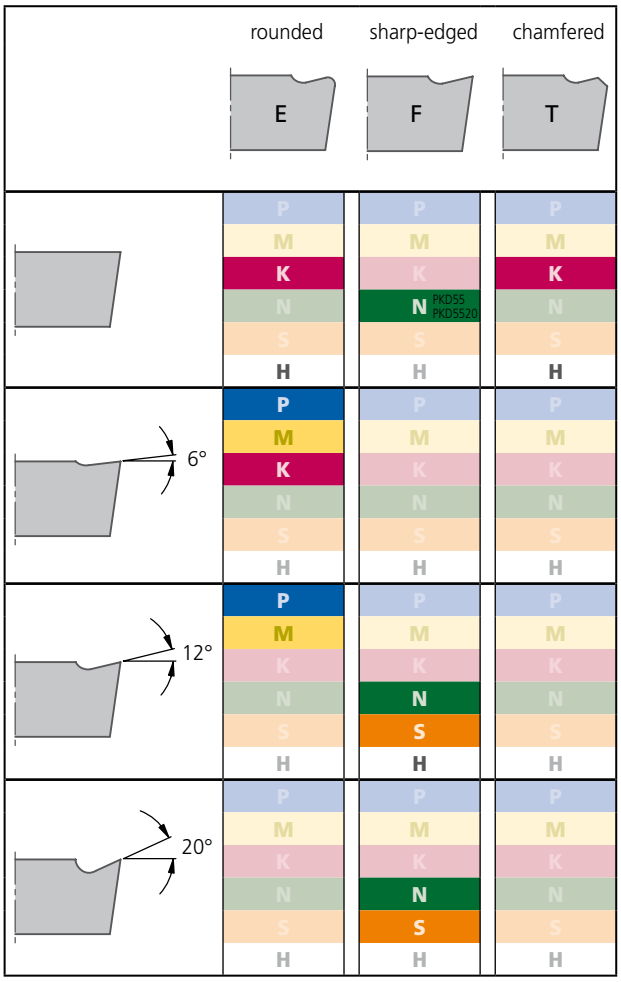
d1	mm	Incircle diameter
s	mm	Indexable insert thickness
l	mm	Theoretical usable length of cutting edge
γ	°	Rake angle
f	mm	Construction auxiliary dimension
R	mm	Corner radius
d2	mm	Hole diameter

New 4-digit cutting material code e.g.

BK6115
- Toughness grade (05...50)
- Coating type (e.g. CVD Al_2O_3)
- Cutting material designation: carbide + coating

Selecting the top rake
Recommendations for using inserts with ground chip grooves

(W00, W01, W04, W30, W32, W34, W37, W60)

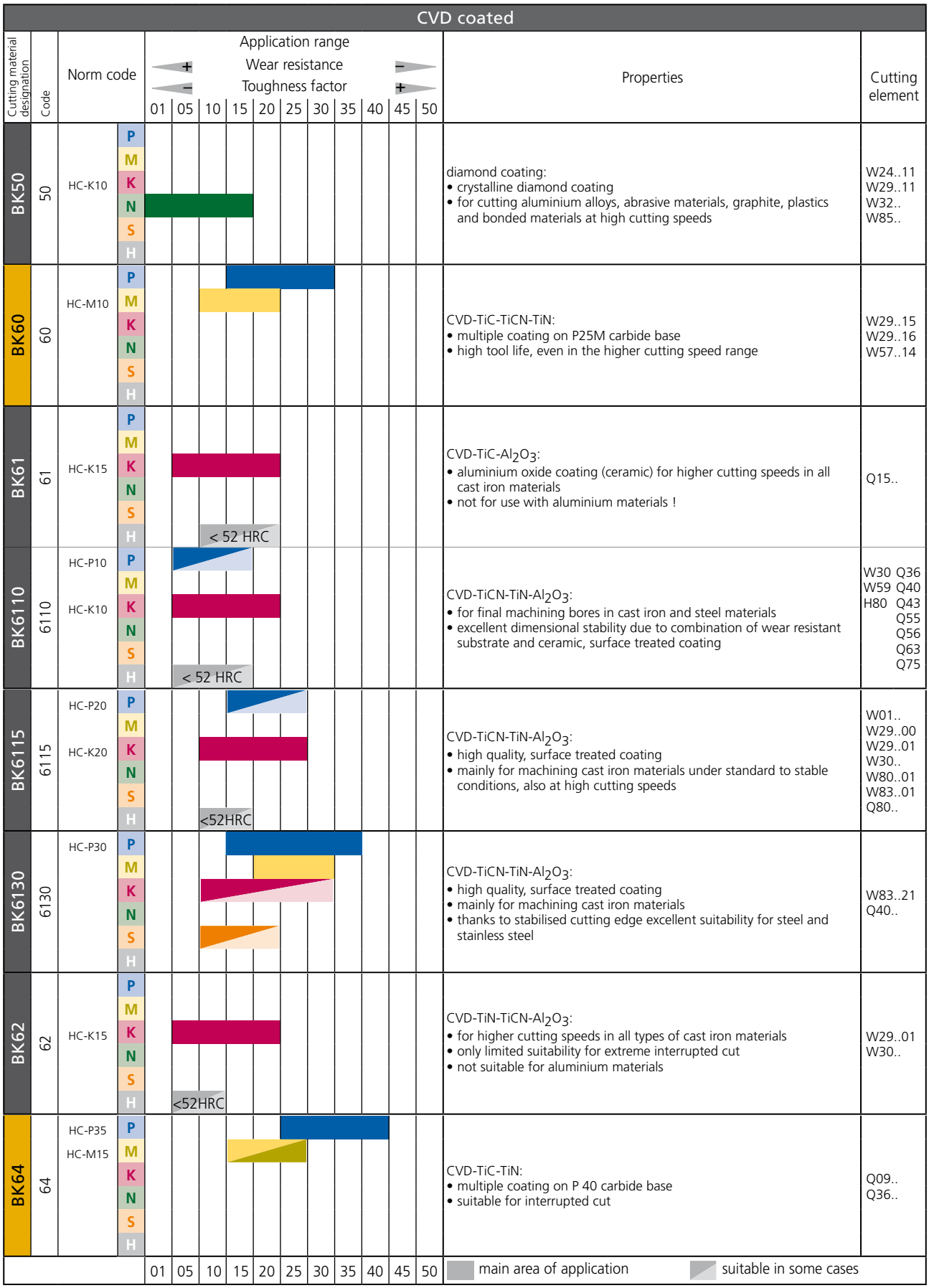


uncoated

Cutting material designation	Code	Norm code		Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
P10	01	HW-P10	P M K N S H	P: 05–15; M: 10–15	uncoated: • turning operations with medium to low cutting depths without interrupted cut	
P25	12	HW-P25	P M K N S H	P: 15–30; M: 15–20	uncoated: • with excellent wear resistance and good toughness factor • suitable for medium to high cutting speeds for roughing and finishing • for non-alloy steel, malleable cast iron, stainless steel and cast iron	W04..
P25M	03	HW-P25	P M K N S H	P: 15–35; M: 15–30	uncoated: • with excellent wear resistance and good toughness factor • suitable for medium to high cutting speeds for roughing and finishing, also for interrupted cut • for non-alloy steel, malleable cast iron, stainless steel and cast steel	W01 Q09 W27 Q36 W29 W30 W34 W59 W60 W79
P35	14	HW-P35	P M K N S H	P: 30–45; M: 25–40	uncoated: • for turning operations with suitable toughness factor and good resistance to wear	W78..
P40	04	HW-P40	P M K N S H	P: 30–45; M: 25–40	uncoated: • with medium wear resistance at optimum toughness factor • low to medium cutting speeds for roughing and with heavily interrupted cut • also for unstable working conditions • for non-alloy steel, die steel and stainless steels	W00.. W04.. W27..01 W29..01 W29..13 W30..
K10	21	HW-K10	P M K N S H	P: 10–15; K: 05–15; N: 05–20; S: 05–15	uncoated: • chamfered and neutral cutter geometry suitable for all grades of cast iron • positively sintered (PD) and ground geometry is used for aluminium e.g.: 12° and 20° top rake, ground sharply and not rounded	W00 W37 W01 W59 W04 W60 W24 W79 W27 W83 W29 W85 W30 Q36 W32 W34
K10 / fine grain	23	HW-M10 HW-K15	P M K N S H	M: 05–15; N: 05–20; S: 05–15	uncoated: • fine grain carbide with high wear and thermal resistance • mainly for machining aluminium; PVD coated, also suitable for machining general steels and rust-resistant materials	W57..12 W58..12 C83.. C85.. C86.. Q40.. Q43.. Q55.. Q80..
K20	22	HW-K20	P M K N S H	K: 15–25; N: 15–25	uncoated: • with large application range for cast iron materials • medium to high cutting speeds for roughing and finishing • wet and dry machining also possible • for cast iron, malleable cast iron, aluminium/copper/brass and bronze alloys; main application area in milling	Q09.. Q12.. Q15..

01 05 10 15 20 25 30 35 40 45 50 — main area of application — suitable in some cases

Summary and list of codes

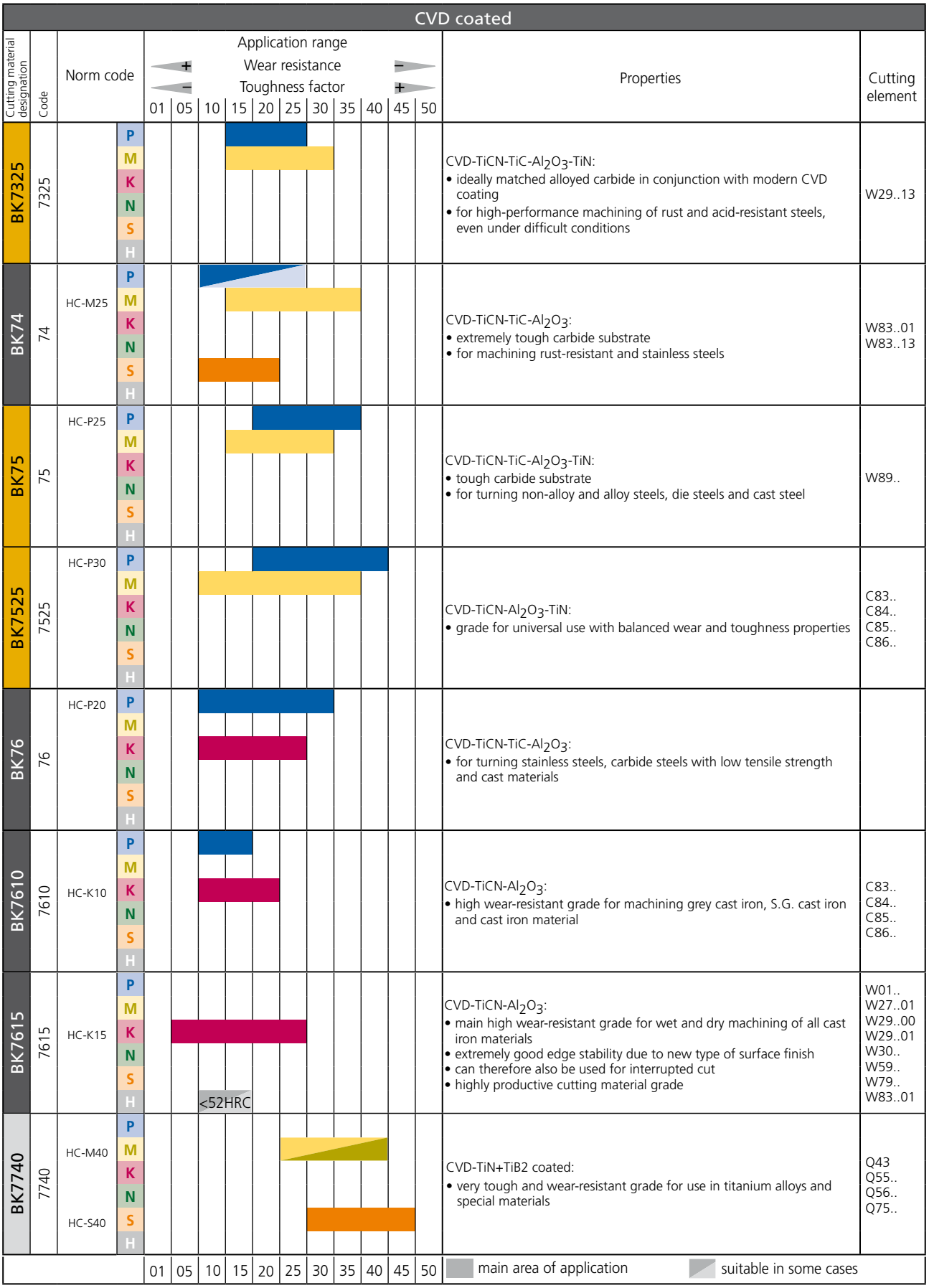


CVD coated

Cutting material designation	Code	Norm code		Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
BK6420	6420	HC-P20	P M K N S H		CVD-TiCN-Al_2O_3-TiN: • considerable level of toughness with extremely high wear resistance • for full cut at high cutting speeds in steel, cast steel and stainless steels	W29..01 W83..01 W83..13
BK6425	6425	HC-P25 HC-M15	P M K N S H		MT-CVD-TiCN-Al_2O_3-TiN: • standard grades (grain) • extremely high wear resistance in all steel and stainless materials	W01 W59 W04 W60 W27 W79 W29 W80 W30 W34
BK6435	6435	HC-M35 HC-S35	P M K N S H		CVD-TiN-Ti (C,N);Al2O3; Ti (N,B) coated: • very tough and wear-resistant grade for use in special materials	Q40.. Q43.. Q55.. Q56.. Q63.. Q75..
BK6440	6440		P M K N S H		MT-CVD-TiCN-Al_2O_3-TiN: • extremely tough standard grit grade • considerable wear resistance in steel and stainless materials, even under unfavourable cutting conditions	W00.. W01.. W27.. W29.. W30.. W59.. W79..
BK66	66	HC-P35	P M K N S H		CVD-TiC-TiCN-TiN: • for turning	W78..
BK6730	6730		P M K N S H		CVD-TiCN-Al_2O_3: • extremely wear-resistant grade for use in long-chipping materials, even stainless, with high cutting speeds • very resistant to temperature and abrasion thanks to surface-treated protective layer	W83..03
BK68	68	HC-P20	P M K N S H		CVD-TiCN: • coated milling tools for high cutting speeds, particularly in the areas of steel and iron casting • high wear resistance, even with insufficient cooling lubricant supply	Q36.. Q80..
BK72	72	HC-P30	P M K N S H		CVD-TiCN-TiC-Al_2O_3-TiN: • cutting material with tough substrate • for machining non-alloy and alloy steels, die steels and cast steel • ensures long tool life even at high cutting speeds	W29..01
BK73	73	HC-M20	P M K N S H		CVD-TiCN/TiC/TiN-Al_2O_3-TiN: • tough carbide substrate • for machining rust-resistant and stainless steel materials, plus alloyed steels, even at higher cutting speeds	W29..15 W29..16 C85..

01 05 10 15 20 25 30 35 40 45 50 — main area of application — suitable in some cases

Summary and list of codes

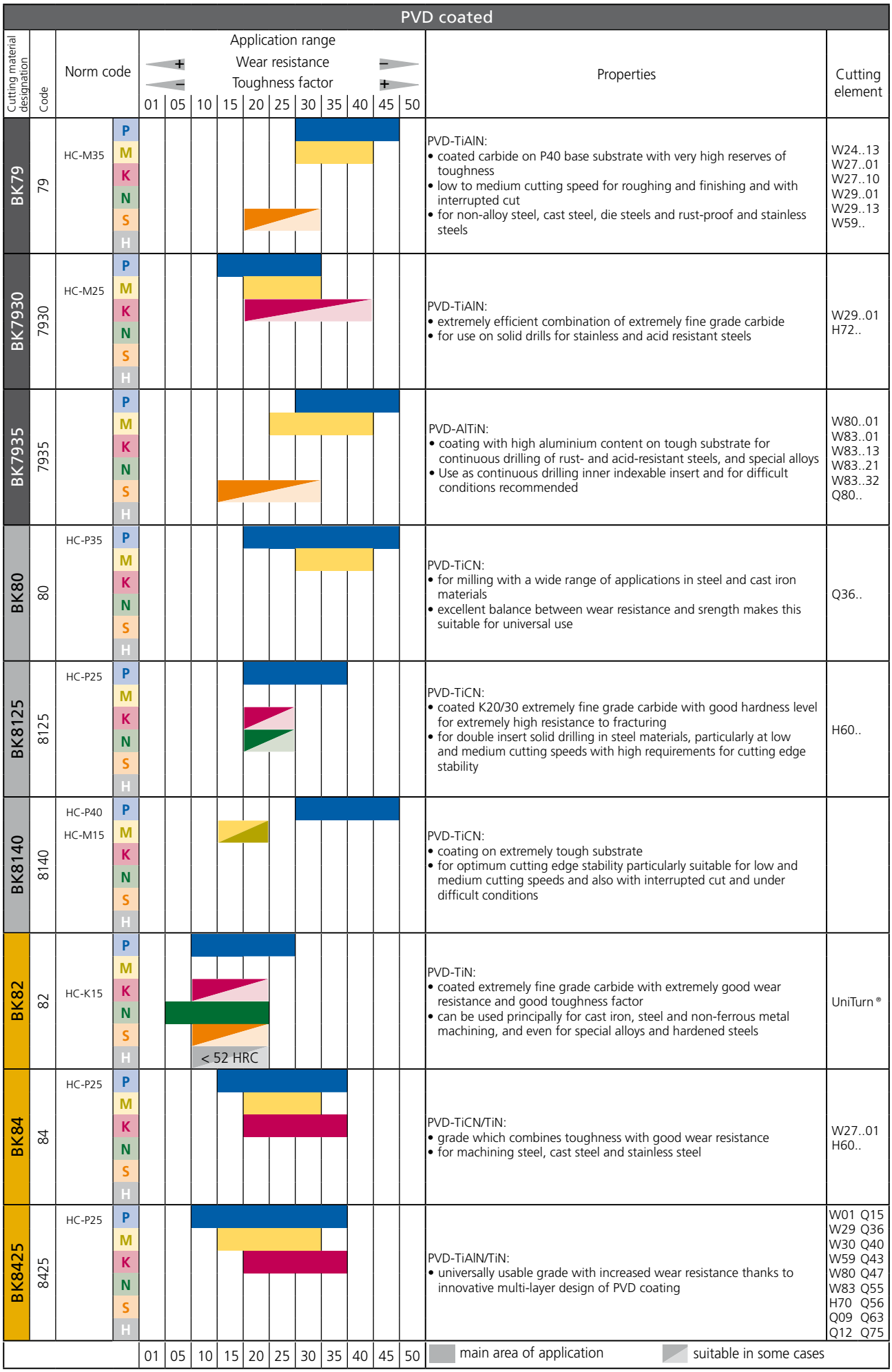


PVD coated

Cutting material designation	Code	Norm code		Application range: Wear resistance + / Toughness factor − … Wear resistance − / Toughness factor + (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
BK2710	2710	HC-K10	P, M, K, N, S, H	P, M, K: 10–20; K: 05–20; H: < 52 HRC	PVD-TiAlN: • extremely wear resistant carbide • for bore end machining stainless steels, structural and tool steels and cast materials • excellent dimensional stability due to combination of hard substrate and TiAln coating with high aluminium content	W00.. W30.. W60.. W79.. H80.. Q55..
BK2715	2715	HC-K20	P, M, K, N, S, H	P, M, K: 10–25; K: 05–25	PVD-TiAlN: • models designed especially for continuous drilling and milling in GJL and GJS • high wear resistance, good edge stability and sufficient toughness reserves • for double-edged continuous drilling, also suitable for high-strength steels and non-ferrous metals	H60.. Q12.. Q80..
BK2725	2725		P, M, K, N, S, H	P, M, K: 15–30; M: 20–25; K: 15–25	PVD-TiAlN: • coated carbide in the P15-P30, M20-M25 and K15-K25 application areas with universal properties, for a wide scope of applications, also for difficult conditions in the medium speed range	H71.. Q09..
BK2730	2730	HC-M25	P, M, K, N, S, H	P, M: 15–35; K: 20–40	PVD-TiAlN: • extremely fine grades • extremely good edge stability and maximum wear resistance at medium and high speed ranges	W29..20 W82..21 Q80..
BK2735	2735	HC-P35 HC-M30	P, M, K, N, S, H	P: 20–40; M: 10–30	PVD-TiAlTaN coated: • extremely tough grade with outstanding coating adhesion and wear resistance • post-treated	Q40..
BK2740	2740	HC-P35	P, M, K, N, S, H	P: 25–40; M: 10–15	PVD-TiAlN: • coating with high aluminium content on extremely tough substrate • completes the grades for solid drilling steel materials in the medium cutting speed ranges	Q40.. Q43.. Q47.. Q55.. Q56.. Q63.. Q75..
BK77	77	HC-K10	P, M, K, N, S, H	N: 10–25; S: 10–25	PVD-TiN: • wear-resistant PVD-coated grade • for cutting aluminium alloys and plastics at medium cutting speeds • sufficient properties of toughness and a high level of resistance against the formation of build-up on the cutting edges	W24..11 W29..11 W30.. W85..
BK7710	7710	HC-K10	P, M, K, N, S, H	N: 05–25	PVD-TiB_2: • coating on extremely high wear resistance K10 carbide • for finish and rough machining aluminium up to approx. 10% Si content and titanium alloys • optimum coating properties to prevent build-up on cutting edges	W29..11 W32.. W57..12 W58..12 W80..01 W82..21 W83..21 H62..
BK78	78	HC-P25	P, M, K, N, S, H	P: 15–35; M: 15–25	PVD-TiAlN: • coated carbide on P25M base with high wear resistance • medium to high cutting speed for roughing and finishing and with interrupted cut • for non alloy steel, cast steel and die steels	Q36..

01 05 10 15 20 25 30 35 40 45 50 — main area of application — suitable in some cases

Summary and list of codes



PVD coated

Cutting material designation	Code	Norm code		Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
BK8430	8430	HC-P30	P, M, K, N, S, H		PVD-TiAlN/TiN: • extremely fine grades • extremely good edge stability and maximum wear resistance at medium and high speed ranges	W29..15 W29..16 W29..20 W57..14 W57..18 W80..03 W83..03 W83..21
BK8440	8440	HC-P35	P, M, K, N, S, H		PVD-TiCN/TiN: • coating on extremely tough substrate • for medium cutting speeds and also suitable for interrupted cut	W00.. H60.. Q15..
BK8450	8450	HC-P35	P, M, K, N, S, H		PVD-TiCN/TiN: • extremely tough carbide with very fine grain • extremely good wear due to coating • for use on non-alloy and alloy steels and on stainless materials	V95.. V96..
BK85	85	HC-P20	P, M, K, N, S, H		PVD-TiCN/TiN: • coated carbide with optimum wear resistance and high toughness factor • medium and high cutting speeds for roughing and finishing • for non-alloy and alloy steels and cast steel	
BK8530	8530	HC-P30	P, M, K, N, S, H		PVD-TiAlN+TiN: • extremely fine grades • extremely good edge stability and maximum wear resistance at medium and high speed ranges • optimised PVD grades	W82..21
BK87	87	HC-P35	P, M, K, N, S, H		PVD-TiN: • coated carbide on P40 base • medium to high cutting speeds for roughing and finishing and with interrupted cut • for non alloy steel, cast steel and die steels	Q09..
BK89	89	HSS-Co.	P, M, K, N, S, H		PVD-TiN: • coated HSS-E high quality, high speed steel • first choice for steel and aluminium • used for low cutting speeds with medium to high feed rates • coolant essential!	V95..
BK90	90	HSS-Co.	P, M, K, N, S, H		PVD-TiAlN: • coated HSS-E high quality, high speed steel • first choice for stainless steel and iron cast • good suited for unusual materials, Ti alloys, Ni and Co alloys • coolant essential!	V95..

01 05 10 15 20 25 30 35 40 45 50 — main area of application — suitable in some cases

Summary and list of codes

Super-Hard CBN

Cutting material designation	Code	Norm code	Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
CBN40	40	BN-H05	P M K N S H; ≥ 52 HRC	uncoated: • cubic boron nitride material • for turning hardened steels with an HRC of over 45, high heat resistant alloys on nickel or cobalt base	W30.. W60.. W85..
CBN57	57	BN-K05	P M K N S H	uncoated: • cubic boron nitride • for machining cast materials, powder metallurgical materials and high temperature alloys	W01.. W30.. W60.. W78.. W85..

Super-Hard PCD

Cutting material designation	Code	Norm code	Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
PKD5510	5510		P M K N S H	uncoated: • polycrystalline diamond cutting tool material with mixed grain micro-structure • extremely good wear resistance, even with an Si content >12% and high proportions of abrasive filler materials • use in fibre-composite materials (GFRP, CFRP), wood and wood composite materials as well as carbide machining	C79 W01 C84 W30 C85 W32 C86 W60 C87 W78 C88 W83 C89 C95 C98

Super-Hard CVD-D (thickfilm diamond)

Cutting material designation	Code	Norm code	Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
DSD5605	5605		P M K N S H	uncoated: • ultra-hard, polycrystalline, binder-free thickfilm diamond (CVD-D) • superior wear resistance in continuous cutting, under stable conditions, e.g. when turning and counterboring • tool life benefits, especially with extremely abrasive materials such as MMC, carbide, ceramic • ideally suitable for aluminium materials with an Si content >12% or with high proportions of abrasive filler materials (teflon, glass), as well as for use in fibre-composite materials (GFRP, CFRP), as well as wood and electrode materials	C79.. C84.. C85.. C86.. C87.. C88.. C89.. C95.. C98..

Ceramic

Cutting material designation	Code	Norm code	Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
SK44	44	CN-K30	P M K N S H	uncoated: • silicon nitride • ceramic material with extremely high wear resistance and high toughness factor • for roughing and finishing cast iron • high to very high cutting speeds	
SK45	45	CC-K20	P M K N S H	CVD-Al_2O_3-multilayer: • coated silicon nitride cutting material • for high performance cutting of grey cast iron and SG cast iron materials • for high cutting speeds in conjunction with high feed rates; also for interrupted cut	

01 05 10 15 20 25 30 35 40 45 50 — main area of application — suitable in some cases

Cermet uncoated

Cutting material designation	Code	Norm code	Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
CK30	30	HT-P15 P, M, K, N, S, H		uncoated: • for fine and finish turning • high toughness factor, low wear and comparatively high cutting speeds produce longer tool life and high surface quality	W30..
CK32	32	HT-P15 P, M, K, N, S, H		uncoated: • for fine and finish turning • low wear and higher cutting speed producing longer tool life and good surface finish • cutting material for high productivity in the upper cutting speed range	W30.. W57..18 W79..
CK3210	3210	HT-P10 P, M, K, N, S, H		uncoated: • for fine and finish turning • low wear and higher cutting speed producing longer tool life and good surface finish • cutting material for high productivity in the upper cutting speed range	W57..14
CK3215	3215	HT-P10 P, M, K, N, S, H		uncoated: • wear-resistant grade with the necessary strength for machining steel and stainless steel and for cast iron materials	C86..
CK3230	3230	HT-P20 P, M, K, N, S, H		uncoated: • extremely tough behaviour and good wear resistance • also suitable for use in interrupted cut	W57..14
CK37	37	HT-P20 P, M, K, N, S, H		uncoated: • good balance of wear resistance and toughness • allows interrupted cuts and light roughing operations	W29..00 W30.. W79.. Q09..

Cermet coated

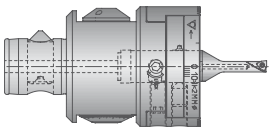
Cutting material designation	Code	Norm code	Application range: Wear resistance + / Toughness factor − (01 05 10 15 20 25 30 35 40 45 50)	Properties	Cutting element
CK38	38	HC-P10 P, M, K, N, S, H		PVD-TiCN/TiN: • high toughness factor and extremely good wear resistance • his cutting material has a wide range of applications in non-alloy and alloy steel, die steel, rust-resistant and stainless steels and cast irons	W30..
CK39	39	HC-P15 P, M, K, N, S, H		PVD-TiCN/TiN: • for fine and finish turning • high toughness factor, low wear and comparatively high cutting speeds produce longer tool life and high surface quality	W89..

01 05 10 15 20 25 30 35 40 45 50 — main area of application — suitable in some cases

Inserts



Application range:

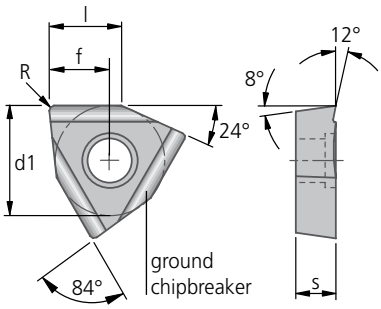


- MicroKom *BluFlex*® and MicroKom® *hi.flex* Ø 6-8 mm
- External and internal turning
- Special tools

- positive cutter geometry produces efficient cutting results
- particularly suitable for low output machines and unstable workpieces
- good, controllable chip formation in materials with low tensile strength

Cutter geometry:

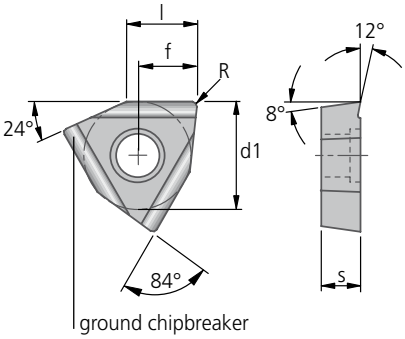
L.H. cutting form „L“



Substrate		Carbide											
Coating type		–	–	PVD	PVD	CVD							
Cutting material designation		P40	K10	BK2710	BK8440	BK6440							
Cutting edge design		E	F	E	E	E							
ISO Code	Order No.												
Cutting edge design E = rounded F = sharp	Enter code ▼	04	21	2710	8440	6440	d1	s	l	γ	f	R	
WOHX 02T001..L-G12	W00 04120.01..	▲	▲	▲	▲	▲	4,0	1,2	2,6	12°	2,20	0,1	
WOHX 02T002..L-G12	W00 04120.02..			▲	▲						2,19	0,2	
Mild steel/tool steel	P	●	◐	●	●	●							
Stainless and acid-resistant steel	M	○		○	○	◑							
Grey cast iron, spheroidal cast iron	K		●	●									
Non-ferrous metals	N		●										
Heat-resistant steels	S		●										
Hardened tool steel	H			○									

Order example:
ISO Code
WOHX 02T001 FL-G12
Cutting material
K10
Order No.
W00 04120.0121

R.H. cutting form „R“

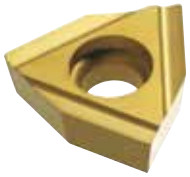


Substrate		Carbide											
Coating type		–	PVD	PVD	CVD								
Cutting material designation		P40	BK2710	BK8440	BK6440								
Cutting edge design		E	E	E	E								
ISO Code	Order No.												
Cutting edge design E = rounded	Enter code ▼	04	2710	8440	6440	d1	s	l	γ	f	R		
WOHX 02T001..R-G12	W00 04420.01..	▲	▲	▲	▲	4,0	1,2	2,6	12°	2,20	0,1		
WOHX 02T002..R-G12	W00 04420.02..		▲	▲						2,19	0,2		
Mild steel/tool steel	P	●	●	●	●								
Stainless and acid-resistant steel	M	○	○	○	◑								
Grey cast iron, spheroidal cast iron	K		●										
Non-ferrous metals	N												
Heat-resistant steels	S												
Hardened tool steel	H		○										

Order example:
ISO Code
WOHX 02T001 ER-G12
Cutting material
BK2710
Order No.
W00 04420.012710

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list



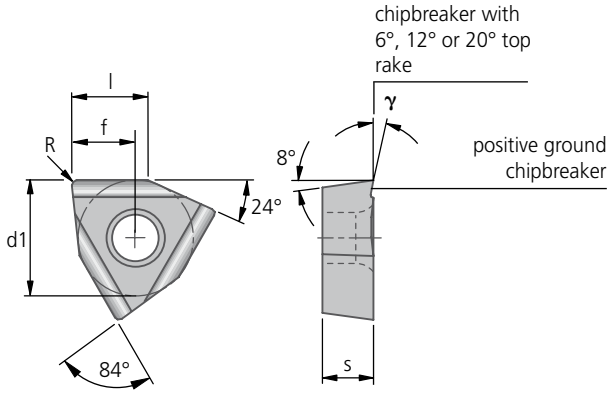
Inserts

L.H. cutting form „L“

Application range:

- External and internal turning
- TwinKom® Double Insert Tools
- Special tools
- Kometric® mounted seatings
- positive cutter geometry produces efficient cutting results
- particularly suitable for low output machines and unstable workpieces
- good, controllable chip formation in materials with low tensile strength

Cutter geometry:



Substrate		Carbide											
Coating type		–	–	–	CVD	CVD	PVD						
Cutting material designation		P25M	K10	K10	BK6425	BK6115	BK8425						
Cutting edge design		E	E	F	E	E	E						
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	03	21	21	6425	6115	8425	d1	s	l	γ	f	R
WOHX 030204..L-G06	W01 10060.04..						▲	5,0	2,3	3,2	6°	2,73	0,4
WOHX 030204..L-G12	W01 10120.04..	▲		▲			▲				12°	2,72	0,4
WOHX 040304..L-G12	W01 18120.04..			▲	▲		▲	6,35	3,18	4,1	12°	3,47	0,4
WOHX 05T302..L-G06	W01 24060.02..	▲	▲		▲		▲	8,0	3,8	5,3	6°	4,42	0,2
WOHX 05T304..L-G06	W01 24060.04..					▲						4,40	0,4
WOHX 05T302..L-G12	W01 24120.02..	▲			▲		▲	8,0	3,8	5,3	12°	4,42	0,2
WOHX 05T304..L-G12	W01 24120.04..	▲		▲	▲		▲					4,40	0,4
WOHX 06T302..L-G06	W01 34060.02..	▲	▲		▲		▲	10,0	3,8	6,6	6°	5,53	0,2
WOHX 06T304..L-G06	W01 34060.04..					▲	▲					5,51	0,4
WOHX 06T302..L-G12	W01 34120.02..	▲					▲	10,0	3,8	6,6	12°	5,53	0,2
WOHX 06T304..L-G12	W01 34120.04..	▲		▲	▲		▲					5,51	0,4
WOHX 080402..L-G06	W01 42060.02..	▲			▲		▲	12,0	4,8	7,9	6°	6,64	0,2
WOHX 080404..L-G06	W01 42060.04..		▲			▲						6,62	0,4
WOHX 080402..L-G12	W01 42120.02..				▲		▲	12,0	4,8	7,9	12°	6,64	0,2
WOHX 080404..L-G12	W01 42120.04..	▲		▲	▲		▲					6,62	0,4
WOHX 100504..L-G06	W01 50060.04..	▲	▲		▲		▲	15,0	5,3	9,9	6°	8,29	0,4
WOHX 100504..L-G12	W01 50120.04..			▲			▲				12°	8,29	0,4
WOHX 120606..L-G06	W01 58060.06..						▲	17,6	6,0	11,6	6°	9,71	0,6
WOHX 120606..L-G12	W01 58120.06..						▲				12°	9,71	0,6
Mild steel/tool steel P		●	◐	◐	●	◐	●						
Stainless and acid-resistant steel M		○			○		○						
Grey cast iron, spheroidal cast iron K			●	●		●							
Non-ferrous metals N			●	●									
Heat-resistant steels S			●	●									
Hardened tool steel H						◐ < 52 HRC							

Order example:
ISO Code
WOHX 030204 EL-G06
Cutting material
BK8425
Order No.
W01 10060.048425

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET Unisix® W01

WOHX

Inserts

R.H. cutting form „R“

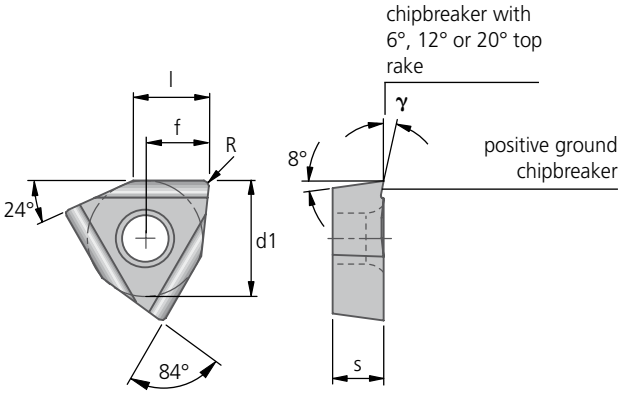


Application range:

- External and internal turning
- TwinKom® Double Insert Tools
- Special tools
- Kometric® mounted seatings

- positive cutter geometry produces efficient cutting results
- particularly suitable for low output machines and unstable workpieces
- good, controllable chip formation in materials with low tensile strength

Cutter geometry:



Substrate		Carbide											
Coating type		–	–	CVD	CVD	PVD							
Cutting material designation		P25M	K10	BK6425	BK6115	BK8425							
Cutting edge design		E	F	E	E	E							
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	 03	 21	 6425	 6115	 8425	d1	s	l	γ	f	R
WOHX 030204..R-G06	**W01 10360.04..**					▲	5,0	2,3	3,2	6°	2,73	0,4
WOHX 030204..R-G12	**W01 10420.04..**					▲				12°	2,72	0,4
WOHX 040304..R-G06	**W01 18360.04..**			▲		▲	6,35	3,18	4,1	6°	3,48	0,4
WOHX 040304..R-G12	**W01 18420.04..**					▲				12°	3,47	0,4
WOHX 05T304..R-G06	**W01 24360.04..**				▲		8,0	3,8	5,3	6°	4,40	0,4
WOHX 05T302..R-G12	**W01 24420.02..**	▲	▲	▲		▲				12°	4,42	0,2
WOHX 06T302..R-G06	**W01 34360.02..**	▲					10,0	3,8	6,6	6°	5,53	0,2
WOHX 06T304..R-G06	**W01 34360.04..**				▲						5,51	0,4
WOHX 06T302..R-G12	**W01 34420.02..**	▲		▲		▲	10,0	3,8	6,6	12°	5,53	0,2
WOHX 080402..R-G06	**W01 42360.02..**	▲					12,0	4,8	7,9	6°	6,64	0,2
WOHX 080404..R-G06	**W01 42360.04..**			▲	▲						6,62	0,4
WOHX 080402..R-G12	**W01 42420.02..**	▲	▲	▲		▲	12,0	4,8	7,9	12°	6,64	0,2
WOHX 080404..R-G12	**W01 42420.04..**					▲					6,62	0,4
WOHX 100504..R-G06	**W01 50360.04..**	▲					15,0	5,3	9,9	6°	8,29	0,4
WOHX 100504..R-G12	**W01 50420.04..**	▲				▲				12°	8,29	0,4
Mild steel/tool steel	P	●	◐	●	◐	●							
Stainless and acid-resistant steel	M	○		○		○							
Grey cast iron, spheroidal cast iron	K		●		●								
Non-ferrous metals	N		●										
Heat-resistant steels	S		●										
Hardened tool steel	H				◐ <52 HRC								

Order example:
ISO Code
WOHX 030204 ER-G12
Cutting material
BK8425
Order No.
W01 10420.048425

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

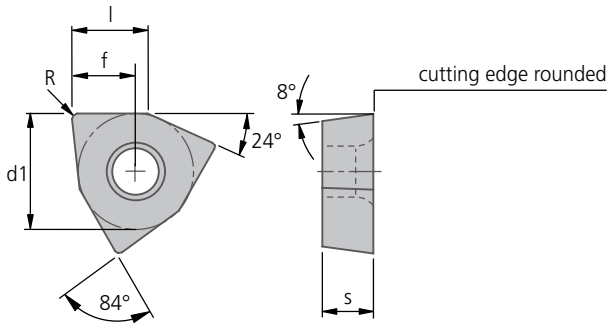


Application range:

Rough boring and turning operations on grey cast iron and SG cast iron materials

- roughing and standard machining under difficult operating conditions (interrupted cut or variations in machining allowances)
- grey cast iron and SG cast iron materials
- can be used on G01 twin cutting tools and on special tools
- extremely efficient because of high cutting speeds

Cutter geometry:



Substrate		Carbide						
Coating type		–	CVD					
Cutting material designation		K10	BK7615					
Cutting edge design		E	E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 21	 7615	d1	s	l	f	R
WOHX 040304 EN	W01 18600.04..	▲	▲	6,35	3,18	4,1	3,48	0,4
WOHX 05T304 EN	W01 24600.04..	▲	▲	8,0	3,8	5,3	4,40	0,4
WOHX 05T308 EN	W01 24600.08..		▲				4,35	0,8
WOHX 06T304 EN	W01 34600.04..	▲	▲	10,0	3,8	6,6	5,51	0,4
WOHX 06T308 EN	W01 34600.08..		▲				5,47	0,8
WOHX 080404 EN	W01 42600.04..		▲	12,0	4,8	7,9	6,62	0,4
WOHX 080408 EN	W01 42600.08..		▲				6,58	0,8
Mild steel/tool steel P		◐		Order example: ISO Code WOHX 030204 EN Cutting material BK7615 Order No. W01 10600.047615				
Stainless and acid-resistant steel M								
Grey cast iron, spheroidal cast iron K		●	●					
Non-ferrous metals N		●						
Heat-resistant steels S		●						
Hardened tool steel H			◐ <52HRC					

● Main area of application ◐ Suitable in some cases

KOMET Unisix® W01..94 WOGX

Inserts

neutral cutting form „N“



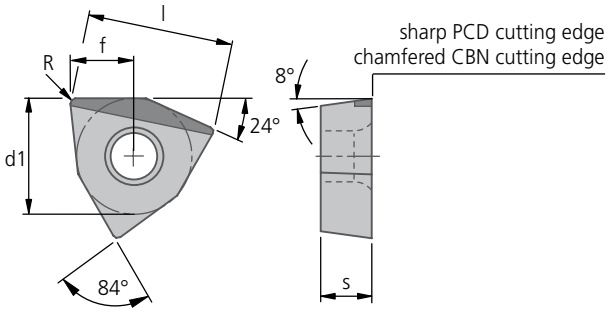
Application range:

PCD application range
Machining non-ferrous metals, plastics, composites, rubber, graphite, etc.

CBN application range
Machining cast iron materials etc.

Inserts with PCD and CBN cutting edges have the following advantages:
- high cutting speeds
- high dimensional consistency
- enormously long tool life
- above-average surface finish

Cutter geometry:



Substrate		PCD	CBN					
Coating type		–	–					
Cutting material designation		PKD5510	CBN57					
Cutting edge design		F	S					
ISO Code Cutting edge design S = chamfered+rounded F = sharp ▼	Order No. Enter code ▼	 5510	 57	d1	s	l	f	R
WOGX 05T304 ..	W01 24940.04..	▲	▲	8,0	3,8	10,1	4,40	0,4
WOGX 06T304 ..	W01 34940.04..	▲	▲	10,0	3,8	12,7	5,51	0,4
WOGX 080404 ..	W01 42940.04..	▲		12,0	4,8	15,3	6,62	0,4
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	● ◐	Order example: ISO Code WOGX 05T304 S Cutting material CBN57 Order No. W01 24940.0457				

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Inserts

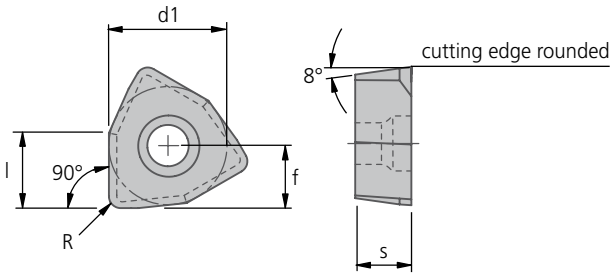
for clockwise-rotating tools
approach angle ϰ = 90°
L.H. cutting form „L“

Anwendungsbereich:

Rough boring with double and multiple inserts

- roughing and finishing operations
- grey cast iron, SG cast iron and CGI materials
- high feed rates
- extremely good form and surface qualities

Cutter geometry:



Substrate		Carbide						
Coating type		CVD						
Cutting material designation		BK6115						
Cutting edge design		E						
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 6115		d1	s	l	f	R
WOHX 05T3PN EL	**W01 24600.90..**	▲		8,0	3,8	5,1	4,23	0,8
WOHX 06T3PN EL	**W01 34600.90..**	▲		10,0	3,8	6,4	5,34	0,8
WOHX 0804PN EL	**W01 42600.90..**	▲		12,0	4,8	7,7	6,45	0,8
WOHX 1005PN EL	**W01 50600.90..**	▲		15,0	5,3	9,7	8,12	0,8
Mild steel/tool steel	P							
Stainless and acid-resistant steel	M							
Grey cast iron, spheroidal cast iron	K	●						
Non-ferrous metals	N							
Heat-resistant steels	S							
Hardened tool steel	H	◐ <52HRC						

Order example:
ISO Code
WOHX 05T3PN EL
Cutting material
BK6115
Order No.
W01 24600.906115

EP 1311363 and other patents (support land)

● Main area of application ◐ Suitable in some cases

KOMET Unisix® Power W01 WOHX

Inserts



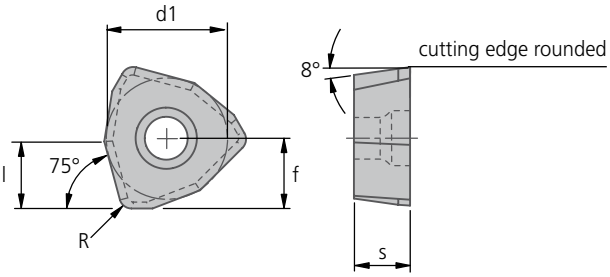
for clockwise-rotating tools
approach angle ϰ =75°
L.H. cutting form „L“

Application range:

Rough boring with double and multiple inserts

- roughing and finishing operations
- grey cast iron, SG cast iron and CGI materials
- high feed rates
- extremely good form and surface qualities

Cutter geometry:



Substrate		Carbide					
Coating type		CVD					
Cutting material designation		BK6115					
Cutting edge design		E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 6115	d1	s	l	f	R
WOHX 05T3EN EL	**W01 24600.75..**	▲	8,0	3,8	4,4	4,63	0,8
WOHX 06T3EN EL	**W01 34600.75..**	▲	10,0	3,8	5,7	5,96	0,8
WOHX 0804EN EL	**W01 42600.75..**	▲	12,0	4,8	6,9	7,29	0,8
WOHX 1005EN EL	**W01 50600.75..**	▲	15,0	5,3	8,9	9,29	0,8
Mild steel/tool steel	P						
Stainless and acid-resistant steel	M						
Grey cast iron, spheroidal cast iron	K	●					
Non-ferrous metals	N						
Heat-resistant steels	S						
Hardened tool steel	H	◐ <52HRC					

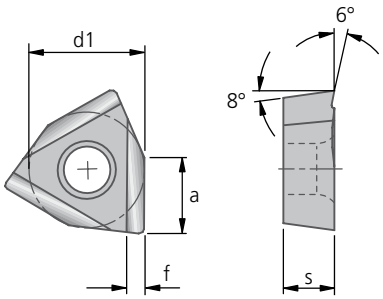
Order example:
ISO Code
WOHX 05T3EN EL
Cutting material
BK6115
Order No.
W01 24600.756115

EP 1311363 and other patents (support land)

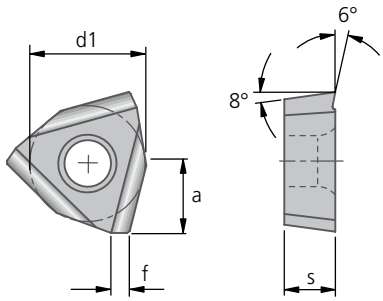
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Cutter geometry:



Approach angle 90°
for corner milling cutter F020



Approach angle 75°
for face milling cutter F020

Substrate		Carbide							
Coating type		–	–	CVD					
Cutting material designation		P25M	K10	BK6440					
Cutting edge design		E	E	E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	03	21	6440	d1	s	γ	f	R
WOHX 06T3PA ER-G06	W01 34360.34..	▲	▲	▲	10,0	3,8	6°	1,4	6,0
WOHX 06T3EA ER-G06	W01 34360.35..		▲						5,9
WOHX 0804PA ER-G06	W01 42360.34..	▲	▲		12,0	4,8	6°	1,4	7,0
Mild steel/tool steel	P	●	◐	●	Order example: ISO Code WOHX 06T3PA ER-G06 Cutting material P25M Order No. W01 34360.3403				
Stainless and acid-resistant steel	M	○		◑					
Grey cast iron, spheroidal cast iron	K		●						
Non-ferrous metals	N		●						
Heat-resistant steels	S		●						
Hardened tool steel	H								

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET Unisix® W04..18 WNHX

Inserts

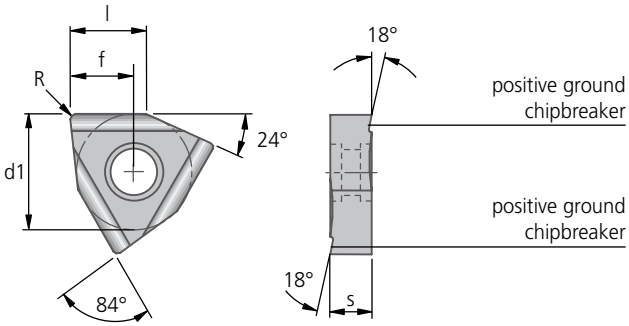
positive ground chipbreaker
L.H. cutting form „L“
P6 cutting edges



Application range:

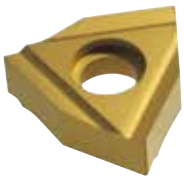
Internal and external turning
The Unisix® insert with 6 cutting edges is an efficient and economic insert. The six cutting edges can be used because of the negative insert seating.
The positively ground chipbreakers guarantee a good chip form and a soft cut.

Cutter geometry:



Substrate		Carbide								
Coating type		–	–	–	CVD					
Cutting material designation		P25	P40	K10	BK6425					
Cutting edge design		E	E	F	E					
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	 12	 04	 21	 6425	d1	s	l	f	R
WNHX 060302..L-G18	**W04 34180.02..**	▲				10,0	3,5	6,5	5,53	0,2
WNHX 08T302..L-G18	**W04 42180.02..**	▲	▲	▲	▲	12,0	4,5	7,5	6,64	0,2
WNHX 100404..L-G18	**W04 50180.04..**	▲	▲		▲	15,0	5,0	9,5	8,29	0,4
Mild steel/tool steel	P	●	●	◐	●	Order example: ISO Code WNHX 060302 EL-G18 Cutting material P25 Order No. W04 34180.0212				
Stainless and acid-resistant steel	M	○	○		○					
Grey cast iron, spheroidal cast iron	K			●						
Non-ferrous metals	N			●						
Heat-resistant steels	S			●						
Hardened tool steel	H									

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



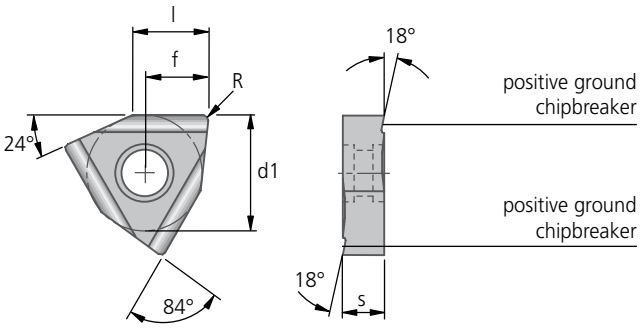
Inserts

positive ground chipbreaker
R.H. cutting form „R“
P6 cutting edges

Application range:

Internal and external turning
The Unisix® insert with 6 cutting edges is an efficient and economic insert. The six cutting edges can be used because of the negative insert seating.
The positively ground chipbreakers guarantee a good chip form and a soft cut.

Cutter geometry:



Substrate		Carbide								
Coating type		–	–	–	CVD					
Cutting material designation		P25	P40	K10	BK6425					
Cutting edge design		E	E	F	E					
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	12	04	21	6425	d1	s	l	f	R
WNHX 060302..R-G18	**W04 34480.02..**	▲				10,0	3,5	6,5	5,53	0,2
WNHX 08T302..R-G18	**W04 42480.02..**	▲	▲	▲	▲	12,0	4,5	7,5	6,64	0,2
WNHX 08T304..R-G18	**W04 42480.04..**	▲							6,62	0,4
WNHX 100404..R-G18	**W04 50480.04..**	▲	▲	▲	▲	15,0	5,0	9,5	8,29	0,4
WNHX 120606..R-G18	**W04 58480.06..**	▲				17,6	6,0	11,5	9,71	0,6
Mild steel/tool steel	P	●	●	◐	●	Order example: ISO Code WNHX 060302ER-G18 Cutting material P25 Order No. W04 34480.0212				
Stainless and acid-resistant steel	M	○	○		○					
Grey cast iron, spheroidal cast iron	K			●						
Non-ferrous metals	N			●						
Heat-resistant steels	S			●						
Hardened tool steel	H									

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET Unisix® W27..00

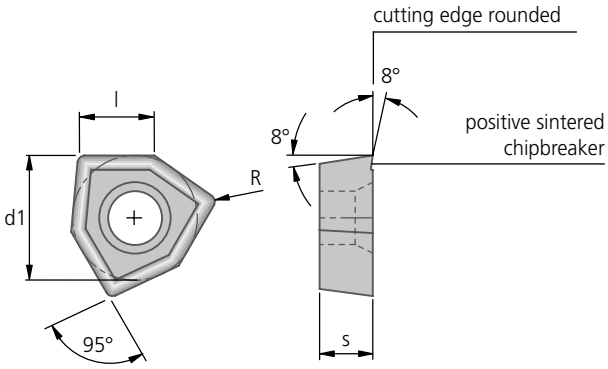
Inserts



Application range:

Drilling into the solid < Ø 24 mm
A mixture of parts are normally used on solid boring tools. Here a coated insert is used as the external cutting edge and an uncoated insert for the internal cutting edge. The 95° cutting angle increases the stability of the insert and produces a clear improvement in machining safety. Optimum chip form at a feed of f ≦ 0.06 mm. Used as a central insert only.

Cutter geometry:



Substrate	Carbide					
Coating type	–	CVD				
Cutting material designation	K10	BK6440				
Order No.			d1	s	l	R
Enter code	21	6440				
W27 12000.04..		▲	5,5	2,3	3,40	0,4
W27 20000.04..	▲	▲	7,0	3,0	4,31	0,4
Mild steel/tool steel P	◐	●				
Stainless and acid-resistant steel M		◐				
Grey cast iron, spheroidal cast iron K	●					
Non-ferrous metals N	●					
Heat-resistant steels S	●					
Hardened tool steel H						

Order example:
Cutting material
BK6440
Order No.
W27 12000.046440

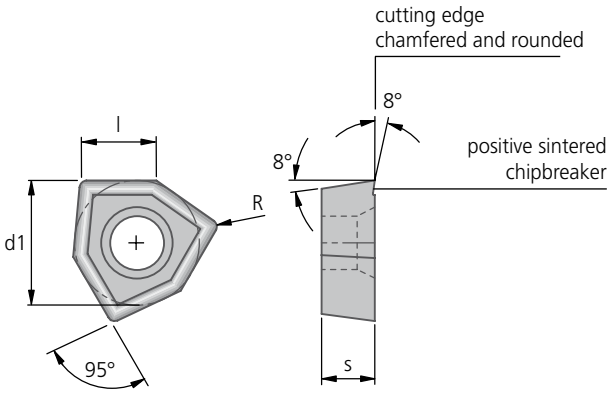
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

Drilling into the solid < Ø 24 mm
A mixture of parts are normally used on solid boring tools. Here a coated insert is used as the external cutting edge and an uncoated insert for the internal cutting edge.
The 95° cutting angle increases the stability of the insert and produces a clear improvement in machining safety.
Additional chamfering prevents insert fracturing.

Cutter geometry:



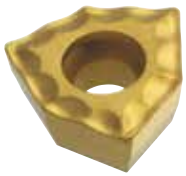
Substrate		Carbide											
Coating type		–	–	–	CVD	CVD	CVD	PVD	PVD				
Cutting material designation		P25M	P40	K10	BK6425	BK7615	BK6440	BK79	BK84				
Order No.										d1	s	l	R
Enter code		03	04	21	6425	7615	6440	79	84				
W27 12010.04..		▲	▲	▲	▲	▲	▲	▲	▲	5,5	2,3	3,40	0,4
W27 20010.04..		▲	▲	▲	▲	▲	▲	▲	▲	7,0	3,0	4,31	0,4
Mild steel/tool steel	P	●	●	◐	●		●	●	●	Order example: Cutting material P25M Order No. W27 12010.0403			
Stainless and acid-resistant steel	M	○	○		○		◑	○	○				
Grey cast iron, spheroidal cast iron	K			●		●			●				
Non-ferrous metals	N			●									
Heat-resistant steels	S			●				◐					
Hardened tool steel	H					◐ < 52 HRC							

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET Unisix® W27..10

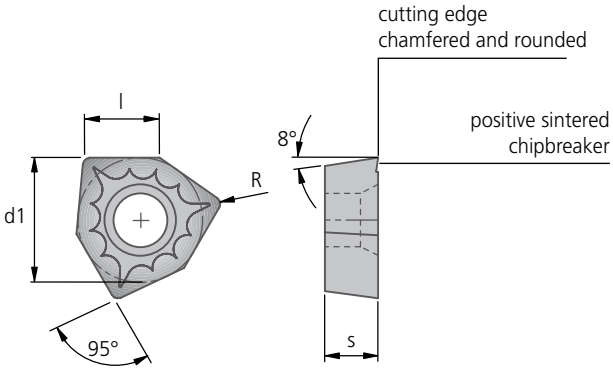
Inserts



Application range:

Drilling into the solid < Ø 24 mm
A mixture of parts are normally used on solid boring tools. Here a coated insert is used as the external cutting edge and an uncoated insert for the internal cutting edge.
The 95° cutting angle increases the stability of the insert and produces a clear improvement in machining safety.
The chip is compressed in cross section and tends to break more easily.

Cutter geometry:



Substrate	Carbide					
Coating type	CVD	PVD				
Cutting material designation	BK6440	BK79				
Order No.			d1	s	l	R
Enter code	6440	79				
W27 12100.04..	▲		5,5	2,3	3,40	0,4
W27 20100.04..	▲	▲	7,0	3,0	4,31	0,4
Mild steel/tool steel P	●	●				
Stainless and acid-resistant steel M	◐	◐				
Grey cast iron, spheroidal cast iron K						
Non-ferrous metals N						
Heat-resistant steels S		◐				
Hardened tool steel H						

Order example:
Cutting material
BK6440
Order No.
W27 12100.046440

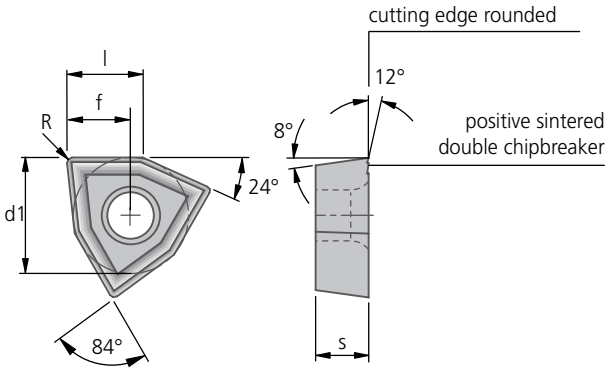
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

- External and internal turning
- TwinKom® Double Insert Tools
- Special tools
- Kometric® mounted seatings
- as outer cutter with KUB® solid drill bit
- positive cutter geometry produces efficient cutting results
- particularly suitable for low output machines and unstable workpieces
- good, controllable chip formation in materials with low tensile strength

Cutter geometry:



Substrate		Carbide												
Coating type		–	–	CVD	CVD	CVD	CVD	PVD						
Cutting material designation		P25M	K10	BK6425	BK7615	BK6115	BK6440	BK8425						
ISO Code	Order No.								d1	s	l	f	R	
	Enter code ▼	03	21	6425	7615	6115	6440	8425						
WOEX 05T304-00	**W29 24000.04..**	▲	▲	▲	▲	▲	▲	▲	8,0	3,8	5,3	4,40	0,4	
WOEX 06T304-00	**W29 34000.04..**	▲	▲	▲	▲	▲	▲	▲	10,0	3,8	6,6	5,51	0,4	
WOEX 080404-00	**W29 42000.04..**	▲	▲	▲	▲	▲	▲	▲	12,0	4,8	7,9	6,62	0,4	
WOEX 100504-00	**W29 50000.04..**	▲	▲	▲		▲	▲	▲	15,0	5,3	9,9	8,29	0,4	
WOEX 100508-00	**W29 50000.08..**					▲	▲					8,24	0,8	
WOEX 120608-00	**W29 58000.08..**		▲	▲		▲	▲	▲	17,6	6,0	11,6	9,69	0,8	
Mild steel/tool steel	P	●	◐	●		●	●	●	Order example:					
Stainless and acid-resistant steel	M	○		○		◑	◑	○	ISO Code					
Grey cast iron, spheroidal cast iron	K		●		●	●		●	WOEX 05T304-00					
Non-ferrous metals	N		●						Cutting material					
Heat-resistant steels	S		●						P25M					
Hardened tool steel	H				◑				Order No.					
									W29 24000.0403					
External cutting edge		✓	✓	✓	✓	✓	✓	✓						
Internal cutting edge *Recommendation*		*W29..01 – BK8425*												

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET Unisix® W29..01

WOEX

Inserts

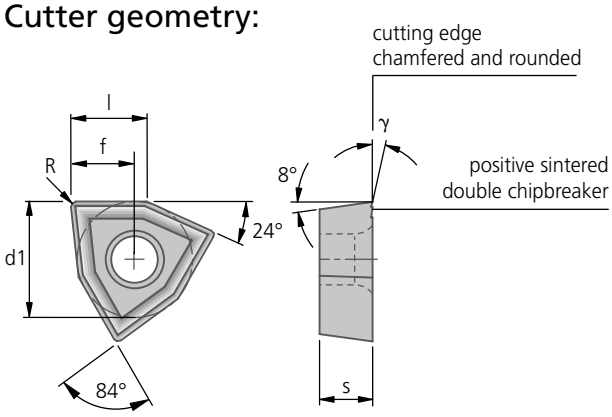


Application range:

- External and internal turning
- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® Double Insert Tools
- Special tools
- Kometric® mounted seatings

- positive cutter geometry produces efficient cutting results
- particularly suitable for low output machines and unstable workpieces
- good, controllable chip formation in materials with low tensile strength

Cutter geometry:



Substrate		Carbide																	
Coating type		–	–	–	CVD	CVD	CVD	CVD	CVD	CVD	CVD	PVD	PVD	PVD					
Cutting material designation		P25M	P40	K10	BK 6425	BK 7615	BK 6115	BK 62	BK 6440	BK 6420	BK 72	BK 79	BK 7930	BK 8425					
ISO Code	Order No.														d1	s	l	γ	f	R
Enter code		03	04	21	6425	7615	6115	62	6440	6420	72	79	7930	8425						
WOEX 020102-01	W29 04010.02..											▲		▲	4,0	1,6	2,6	12°	2,19	0,2
WOEX 030204-01	W29 10010.04..		▲	▲		▲	▲	▲			▲		▲	▲	5,0	2,3	3,2	8°	2,73	0,4
WOEX 040304-01	W29 18010.04..		▲	▲		▲	▲	▲			▲		▲	▲	6,35	3,18	4,1	8°	3,48	0,4
WOEX 05T304-01	W29 24010.04..	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	8,0	3,8	5,3	12°	4,40	0,4
WOEX 05T308-01	W29 24010.08..	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲		▲					4,35	0,8
WOEX 06T304-01	W29 34010.04..	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	10,0	3,8	6,6	12°	5,51	0,4
WOEX 06T308-01	W29 34010.08..			▲	▲	▲	▲	▲	▲		▲	▲		▲					5,47	0,8
WOEX 080404-01	W29 42010.04..	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	12,0	4,8	7,9	12°	6,62	0,4
WOEX 080408-01	W29 42010.08..	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲		▲					6,58	0,8
WOEX 100504-01	W29 50010.04..	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	15,0	5,3	9,9	12°	8,29	0,4
WOEX 100508-01	W29 50010.08..	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲					8,24	0,8
WOEX 120608-01	W29 58010.08..	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	17,6	6,0	11,6	12°	9,69	0,8
Mild steel/tool steel	P	●	●	◐	●		●		●	●	●	●	●	●	Order example:					
Stainless and acid-resistant steel	M	○	○		○		◐		◐	○	◐	○	○	○	ISO Code					
Grey cast iron, spheroidal cast iron	K			●		●	●	●		◐			◐	●	WOEX 05T304-01					
Non-ferrous metals	N			●											Cutting material					
Heat-resistant steels	S			●											P25M					
Hardened tool steel	H					◐		◐ <52 HRC							Order No.					
															W29 24010.0403					
External cutting edge		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Internal cutting edge *Recommendation*		✓	✓	✓	✓	✓	*BK 8425*	✓	✓	*BK 8425*	✓	✓	✓	✓						

● Main area of application ◐ Suitable in some cases

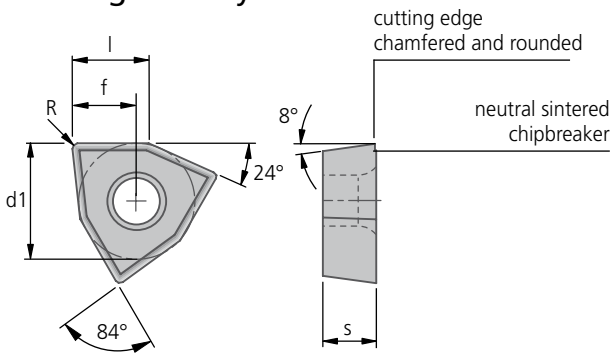
▲ Availability: for delivery see current price and stock list



Application range:

- TwinKom® Double Insert Tools
- Special tools
- as outer cutter with KUB® solid drill bit
- excellent for interrupted cut because of stable cutting angle (82°) (top rake 0°) and chamfered cutting edge. A first class chipbreaker also produces good chip formation even from difficult materials.
- cutting edge chamfered and rounded.
- for cutting depths of < 1.5 mm

Cutter geometry:



Substrate		Carbide						
Coating type		CVD	CVD					
Cutting material designation		BK6425	BK6440					
ISO Code	Order No.			d1	s	l	f	R
	Enter code ▼	6425	6440					
WOEX 05T304-02	**W29 24020.04..**	▲	▲	8,0	3,8	5,3	4,40	0,4
WOEX 05T308-02	**W29 24020.08..**		▲				4,35	0,8
WOEX 06T304-02	**W29 34020.04..**	▲	▲	10,0	3,8	6,6	5,51	0,4
WOEX 06T308-02	**W29 34020.08..**		▲				5,47	0,8
WOEX 080404-02	**W29 42020.04..**		▲	12,0	4,8	7,9	6,62	0,4
WOEX 080408-02	**W29 42020.08..**		▲				6,58	0,8
WOEX 100504-02	**W29 50020.04..**		▲	15,0	5,3	9,9	8,29	0,4
WOEX 100508-02	**W29 50020.08..**		▲				8,24	0,8
WOEX 120608-02	**W29 58020.08..**		▲	17,6	6,0	11,6	9,69	0,8
Mild steel/tool steel P		●	●	Order example: ISO Code WOEX 05T304-02 Cutting material BK6440 Order No. W29 24020.046440				
Stainless and acid-resistant steel M		◐	◐					
Grey cast iron, spheroidal cast iron K								
Non-ferrous metals N								
Heat-resistant steels S								
Hardened tool steel H								
External cutting edge		✓	✓					
Internal cutting edge *Recommendation*		*W29..01 – BK8425*						

● Main area of application ◐ Suitable in some cases

KOMET Unisix® W29..03

WOEX

Inserts

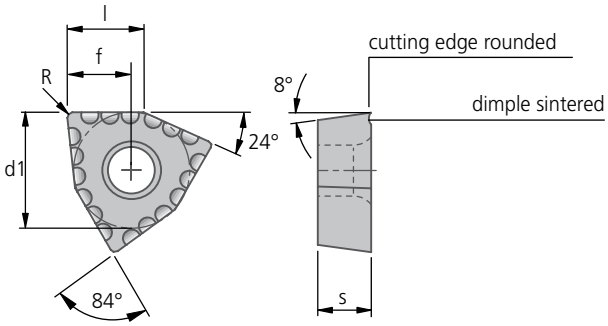


Application range:

- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double insert tools
- Special tools
- Internal and external machining

The dimple shaped chipbreaker causes a different chip flow action.
The chip is compressed in cross section and tends to break more rapidly.

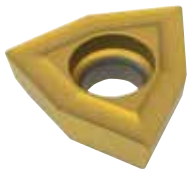
Cutter geometry:



Substrate		Carbide							
Coating type		–	CVD	PVD					
Cutting material designation		P25M	BK6425	BK8425					
ISO Code	Order No.				d1	s	l	f	R
Enter code ▼		03	6425	8425					
WOEX 030204-03	W29 10030.04..		▲	▲	5,0	2,3	3,2	2,73	0,4
WOEX 040304-03	W29 18030.04..		▲	▲	6,35	3,18	4,1	3,48	0,4
WOEX 05T304-03	W29 24030.04..		▲	▲	8,0	3,8	5,3	4,40	0,4
WOEX 05T308-03	W29 24030.08..		▲					4,35	0,8
WOEX 06T304-03	W29 34030.04..	▲	▲	▲	10,0	3,8	6,6	5,51	0,4
WOEX 06T308-03	W29 34030.08..		▲	▲				5,47	0,8
WOEX 080404-03	W29 42030.04..	▲	▲	▲	12,0	4,8	7,9	6,62	0,4
WOEX 080408-03	W29 42030.08..		▲	▲				6,58	0,8
WOEX 100504-03	W29 50030.04..	▲	▲	▲	15,0	5,3	9,9	8,29	0,4
WOEX 100508-03	W29 50030.08..		▲	▲				8,24	0,8
WOEX 120608-03	W29 58030.08..		▲	▲	17,6	6,0	11,6	9,69	0,8
Mild steel/tool steel P		●	●	●	Order example:				
Stainless and acid-resistant steel M		◐	◐	◐	ISO Code				
Grey cast iron, spheroidal cast iron K				●	WOEX 030201-03				
Non-ferrous metals N					Cutting material				
Heat-resistant steels S					BK6425				
Hardened tool steel H					Order No.				
					W29 10030.046425				
External cutting edge		✓	✓	✓					
Internal cutting edge *Recommendation*		*W29..01 – BK8425*							

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

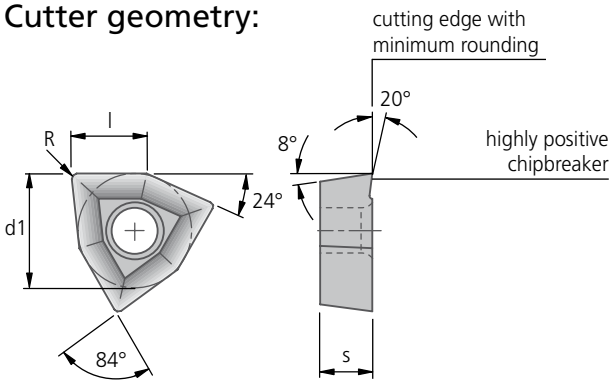


Application range:

- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double insert tools
- Special tools
- Internal and external machining

The highly positive chip groove with minimal chamfer for soft cutting operations, mainly on aluminium

Cutter geometry:



Substrate		Carbide							
Coating type		–		PVD	PVD				
Cutting material designation		K10	BK50	BK77	BK7710				
ISO Code	Order No.					d1	s	l	R
Enter code		21	50	77	7710				
WOEX 030204-11	**W29 10110.04..**	▲	▲	▲	▲	5,0	2,3	3,2	0,4
WOEX 040304-11	**W29 18110.04..**	▲	▲	▲	▲	6,35	3,18	4,1	0,4
WOEX 05T304-11	**W29 24110.04..**	▲	▲	▲	▲	8,0	3,8	5,3	0,4
WOEX 06T304-11	**W29 34110.04..**	▲	▲	▲	▲	10,0	3,8	6,6	0,4
WOEX 080404-11	**W29 42110.04..**	▲	▲	▲	▲	12,0	4,8	7,9	0,4
WOEX 100504-11	**W29 50110.04..**	▲	▲	▲	▲	15,0	5,3	9,9	0,4
Mild steel/tool steel P		◐				Order example:			
Stainless and acid-resistant steel M						ISO Code			
Grey cast iron, spheroidal cast iron K		●				WOEX 030204-11			
Non-ferrous metals N		●	●	●	●	Cutting material			
Heat-resistant steels S		●		●		K10			
Hardened tool steel H						Order No.			
						W29 10110.0421			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts



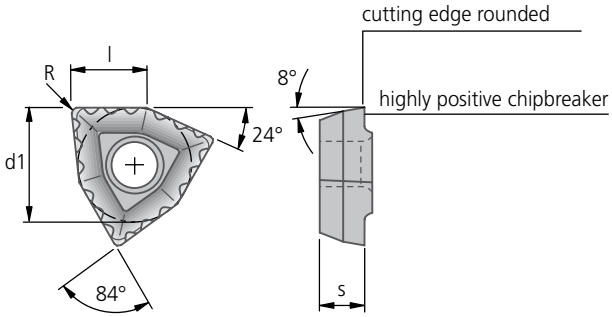
Application range:

- KUB Centron®, KUB Trigon®, KUB® drill
- TwinKom® double insert tools
- Special tools
- Internal and external machining

The dimple shaped chipbreaker causes a different chip flow action.

The chip is compressed in cross section and tends to break more rapidly.

Cutter geometry:



Substrate		Carbide							
Coating type		–	CVD	PVD	PVD				
Cutting material designation		P40	BK7325	BK79	BK8425				
ISO Code	Order No.					d1	s	l	R
	Enter code ▼	04	7325	79	8425				
WOEX 030204-13	**W29 10130.04..**	▲	▲	▲	▲	5,0	2,3	3,2	0,4
WOEX 040304-13	**W29 18130.04..**	▲	▲	▲	▲	6,35	3,18	4,1	0,4
WOEX 05T304-13	**W29 24130.04..**	▲	▲	▲	▲	8,0	3,8	5,3	0,4
WOEX 06T304-13	**W29 34130.04..**		▲	▲	▲	10,0	3,8	6,6	0,4
WOEX 080404-13	**W29 42130.04..**	▲	▲	▲	▲	12,0	4,8	7,9	0,4
WOEX 100504-13	**W29 50130.04..**		▲	▲	▲	15,0	5,3	9,9	0,4
WOEX 120608-13	**W29 58130.08..**	▲	▲	▲	▲	17,6	6,0	11,6	0,8
Mild steel/tool steel	P	●	●	●	●	Order example:			
Stainless and acid-resistant steel	M	◐	◐	◐	◐	ISO Code			
Grey cast iron, spheroidal cast iron	K				●	WOEX 030204-13			
Non-ferrous metals	N					Cutting material			
Heat-resistant steels	S			◐		P40			
Hardened tool steel	H					Order No.			
						W29 10130.0404			

EP 0 792 201 and other patents (geometry)

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

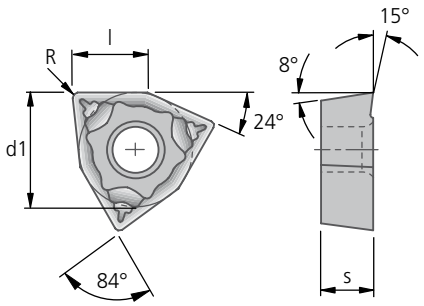


Application range:

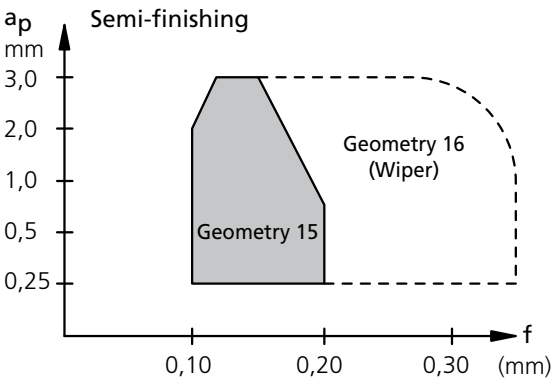
- TwinKom® double insert tools
- Special tools
- Internal and external machining

Optimum chip formation for cutting depths from 0.25 mm.

Cutter geometry:



Substrate		Carbide						
Coating type		CVD	CVD	PVD				
Cutting material designation		BK60	BK73	BK8430				
ISO Code	Order No.				d1	s	l	R
	Enter code	60	73	8430				
WOGX 030204-15	**W29 10150.04..**			▲	5,0	2,3	3,2	0,4
WOGX 040304-15	**W29 18150.04..**	▲		▲	6,35	3,18	4,1	0,4
WOGX 05T304-15	**W29 24150.04..**	▲	▲	▲	8,0	3,8	5,3	0,4
WOGX 06T304-15	**W29 34150.04..**	▲		▲	10,0	3,8	6,6	0,4
WOGX 080404-15	**W29 42150.04..**	▲	▲	▲	12,0	4,8	7,9	0,4
Mild steel/tool steel	P	●	●	●	Order example:			
Stainless and acid-resistant steel	M		○	○	ISO Code			
Grey cast iron, spheroidal cast iron	K	●		◐	WOGX 030204-15			
Non-ferrous metals	N				Cutting material			
Heat-resistant steels	S				BK60			
Hardened tool steel	H				Order No.			
					W29 10150.0460			



● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET Unisix® W29..16

WOGX

Inserts

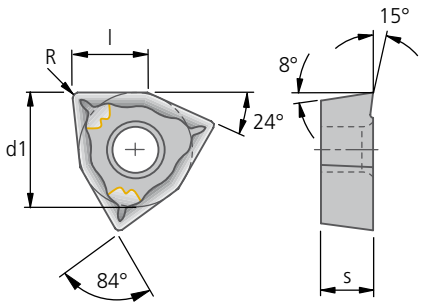


Application range:

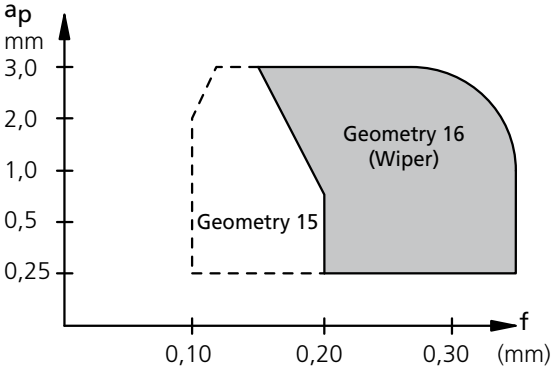
- TwinKom® double insert tools
- Special tools
- Internal and external machining

Optimum chip formation for cutting depths from 0.25 mm.

Cutter geometry:

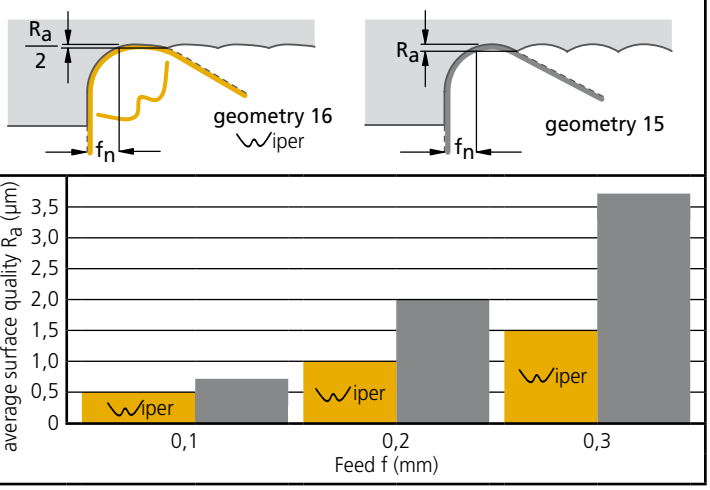


Substrate		Carbide						
Coating type		CVD	CVD	PVD				
Cutting material designation		BK60	BK73	BK8430				
ISO Code	Order No.				d1	s	l	R
	Enter code ▼	60	73	8430				
WOGX 030204-16	**W29 10160.04..**	▲		▲	5,0	2,3	3,2	0,4
WOGX 040304-16	**W29 18160.04..**		▲	▲	6,35	3,18	4,1	0,4
WOGX 05T304-16	**W29 24160.04..**	▲		▲	8,0	3,8	5,3	0,4
WOGX 06T304-16	**W29 34160.04..**	▲	▲	▲	10,0	3,8	6,6	0,4
WOGX 080404-16	**W29 42160.04..**	▲		▲	12,0	4,8	7,9	0,4
Mild steel/tool steel	P	●	●	●	Order example:			
Stainless and acid-resistant steel	M		◐	◐	ISO Code			
Grey cast iron, spheroidal cast iron	K	●		◑	WOGX 030204-16			
Non-ferrous metals	N				Cutting material			
Heat-resistant steels	S				BK60			
Hardened tool steel	H				Order No.			
					W29 10160.0460			



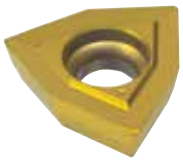
Surface quality results:

Comparison of surface quality results for "Wiper" – R04 for ϰ = 90°
in X40Cr13 / 1.4034



● Main area of application ◐ Suitable in some cases

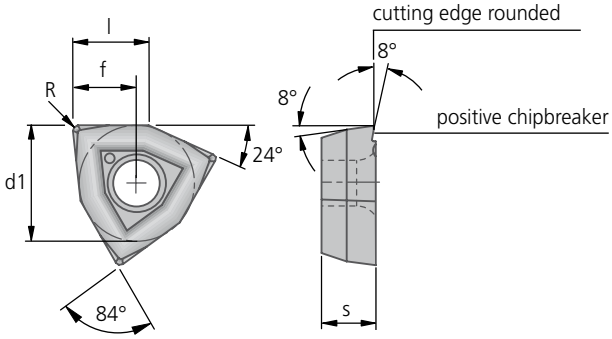
▲ Availability: for delivery see current price and stock list



Application range:

- External and internal turning
- KUB® solid drill
- TwinKom® double insert tools
- Kometric® mounted seatings

Cutter geometry:



Substrate		Carbide					
Coating type		PVD	PVD				
Cutting material designation		BK2730	BK8430				
ISO Code	Order No.			d1	s	l	R
	Enter code ▼	2730	8430				
WOEX 030204-20	**W29 10200.04..**	▲	▲	5,0	2,3	3,2	0,4
WOEX 040304-20	**W29 18200.04..**	▲	▲	6,35	3,18	4,1	0,4
WOEX 05T304-20	**W29 24200.04..**	▲	▲	8,0	3,8	5,3	0,4
WOEX 06T304-20	**W29 34200.04..**	▲	▲	10,0	3,8	6,6	0,4
WOEX 080404-20	**W29 42200.04..**	▲	▲	12,0	4,8	7,9	0,4
WOEX 100504-20	**W29 50200.04..**	▲	▲	15,0	5,3	9,9	0,4
Mild steel/tool steel	P	◐	●	Order example:			
Stainless and acid-resistant steel	M	○	○	ISO Code			
Grey cast iron, spheroidal cast iron	K	●	◑	WOEX 030204-20			
Non-ferrous metals	N	◐	◐	Cutting material			
Heat-resistant steels	S	◑	◑	BK2730			
Hardened tool steel	H	◔		Order No.			
				W29 10200.042730			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts

L.H. cutting form „L“



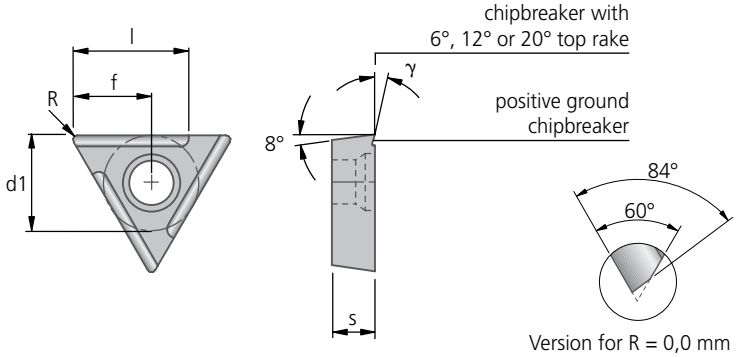
Application range:

- Internal and external turning
- Small boring bars
- Fine machining, internal and external
- Countersink tools, end mill cutters

Peripheral ground triangular insert. Can be turned over with high changeover accuracy because of precision 2-sided contact. Large selection of ground chipbreakers and carbides suitable for almost any materials.

Important note! The cutting edge on Cermet inserts is rounded.

Cutter geometry:



Version for R = 0,0 mm

Substrate		Carbide								Cermet								
Coating type		–	–	CVD	CVD	CVD	CVD	PVD	PVD	–	–	–	PVD					
Cutting material designation		P25M	K10	BK 6425	BK 7615	BK 6110	BK 6440	BK 2710	BK 8425	CK 30	CK 32	CK 37	CK 38					
Cutting edge design		E	E F	E	E	E	E	E	E	E	E	E	E					
ISO Code	Order No.													d1	s	l	γ	f	R
Cutting edge design E = rounded F = sharp	Enter code ▼	03	21	6425	7615	6110	6440	2710	8425	30	32	37	38						
TOHX 06T100EL-G06	W30 04060.30..		▲	▲					▲					4,0	1,8	1	6°	3,25	0,0
TOHX 06T102..L-G06	W30 04060.02..	▲		▲	▲	▲	▲	▲	▲									3,32	0,2
TOHX 06T103..L-G06	W30 04060.03..	▲		▲	▲	▲	▲	▲	▲									3,25	0,3
TOHX 06T104..L-G06	W30 04060.04..	▲		▲	▲		▲											3,17	0,4
TOHX 06T100EL-G12	W30 04120.30..				▲					▲								3,25	0,0
TOHX 06T102..L-G12	W30 04120.02..	▲		▲	▲			▲		▲	▲	▲	▲	4,0	1,8	1	12°	3,32	0,2
TOHX 06T103..L-G12	W30 04120.03..	▲		▲	▲			▲		▲		▲	▲					3,25	0,3
TOHX 06T104..L-G12	W30 04120.04..	▲		▲	▲			▲		▲			▲					3,17	0,4
TOHX 06T102..L-G20	W30 04200.02..			▲	▲					▲				4,0	1,8	1	20°	3,32	0,2
TOHX 06T103..L-G20	W30 04200.03..			▲	▲													3,25	0,3
TOHX 090200EL-G06	W30 14060.30..		▲		▲					▲				5,6	2,5	2,5	6°	4,55	0,0
TOHX 090202EL-G06	W30 14060.02..	▲	▲		▲	▲	▲	▲	▲	▲								4,70	0,2
TOHX 090204EL-G06	W30 14060.04..	▲	▲		▲	▲	▲	▲	▲									4,56	0,4
TOHX 090208EL-G06	W30 14060.08..		▲		▲	▲	▲	▲	▲									4,26	0,8
TOHX 090200EL-G12	W30 14120.30..		▲		▲				▲					5,6	2,5	2,5	12°	4,55	0,0
TOHX 090202..L-G12	W30 14120.02..	▲		▲	▲		▲		▲	▲	▲	▲	▲					4,70	0,2
TOHX 090204EL-G12	W30 14120.04..	▲	▲		▲		▲		▲	▲	▲	▲	▲					4,56	0,4
TOHX 090208..L-G12	W30 14120.08..			▲	▲				▲									4,26	0,8
TOHX 090202..L-G20	W30 14200.02..	▲		▲	▲				▲					5,6	2,5	2,5	20°	4,70	0,2
TOHX 090204..L-G20	W30 14200.04..			▲	▲													4,56	0,4
TOHX 140302EL-G06	W30 26060.02..	▲	▲		▲	▲	▲		▲	▲				8,2	3,0	4,5	6°	6,96	0,2
TOHX 140304EL-G06	W30 26060.04..	▲	▲		▲	▲	▲	▲	▲									6,81	0,4
TOHX 140305EL-G06	W30 26060.05..	▲	▲		▲	▲	▲	▲	▲									6,74	0,5
TOHX 140308EL-G06	W30 26060.08..				▲	▲	▲	▲	▲									6,52	0,8
TOHX 140300EL-G12	W30 26120.30..				▲									8,2	3,0	4,5	12°	6,28	0,0
TOHX 140302..L-G12	W30 26120.02..	▲		▲	▲		▲		▲		▲	▲	▲					6,96	0,2
TOHX 140304..L-G12	W30 26120.04..	▲		▲	▲				▲	▲			▲					6,81	0,4
TOHX 140305..L-G12	W30 26120.05..	▲		▲	▲		▲		▲		▲	▲						6,74	0,5
TOHX 140308EL-G12	W30 26120.08..				▲				▲									6,52	0,8
TOHX 140302FL-G20	W30 26200.02..			▲										8,2	3,0	4,5	20°	6,96	0,2
TOHX 140304FL-G20	W30 26200.04..			▲														6,81	0,4
TOHX 140305FL-G20	W30 26200.05..			▲														6,74	0,5
TOHX 22T308EL-G06	W30 44060.08..								▲					12,7	4,3	10,5	6°	10,41	0,8

Mild steel/tool steel	P	●	◐	●		◐	●	●	●	●	●	●	●
Stainless and acid-resistant steel	M	○		○			◑	○	○	○	○	○	○
Grey cast iron, spheroidal cast iron	K		●		●	●		●	●	◐	◐	◐	◐
Non-ferrous metals	N		●								◐	◐	
Heat-resistant steels	S		●										
Hardened tool steel	H				◑	◑		○					

Order example:
ISO Code
TOHX 06T100 EL-G06
Cutting material
BK6425
Order No.
W30 04060.306425

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list



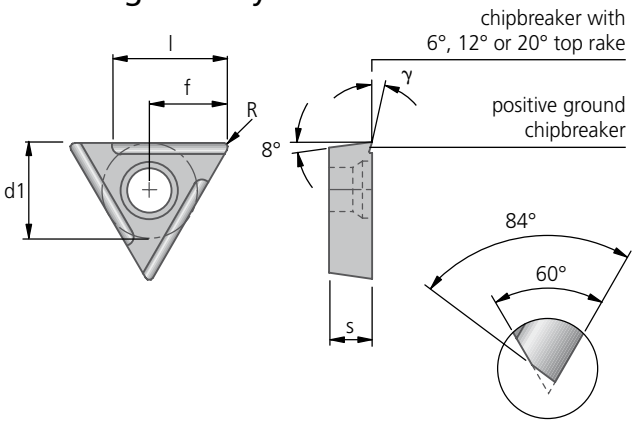
Application range:

- Internal and external turning
- Small boring bars
- Fine machining, internal and external
- Countersink tools, end mill cutters

Peripheral ground triangular insert. Can be turned over with high changeover accuracy because of precision 2-sided contact. Large selection of ground chipbreakers and carbides suitable for almost any materials.

Important note! The cutting edge on Cermet inserts is rounded.

Cutter geometry:



Version for R = 0,0 mm

Substrate		Carbide						Cermet									
Coating type		–	–	CVD	CVD	CVD	PVD	–	–	–	PVD						
Cutting material designation		P25M	K10	BK6425	BK7615	BK6440	BK8425	CK30	CK32	CK37	CK38						
Cutting edge design		E	E F	E	E	E	E	E	E	E	E						
ISO Code	Order No.											d1	s	l	γ	f	R
Cutting edge design E = rounded F = sharp ▼	Enter code ▼	03	21	6425	7615	6440	8425	30	32	37	38						
TOHX 06T102ER-G06	W30 04360.02..	▲	▲		▲			▲								3,32	0,2
TOHX 06T103ER-G06	W30 04360.03..	▲	▲		▲		▲	▲				4,0	1,8	1	6°	3,25	0,3
TOHX 06T104ER-G06	W30 04360.04..				▲			▲								3,17	0,4
TOHX 06T102..R-G12	W30 04420.02..	▲		▲	▲			▲	▲	▲	▲					3,32	0,2
TOHX 06T103..R-G12	W30 04420.03..	▲		▲	▲		▲	▲			▲	4,0	1,8	1	12°	3,25	0,3
TOHX 06T104ER-G12	W30 04420.04..				▲			▲			▲					3,17	0,4
TOHX 06T102..R-G20	W30 04500.02..			▲								4,0	1,8	1	20°	3,32	0,2
TOHX 06T103..R-G20	W30 04500.03..			▲												3,25	0,3
TOHX 090200ER-G06	W30 14360.30..	▲														4,55	0,0
TOHX 090202ER-G06	W30 14360.02..	▲	▲		▲			▲				5,6	2,5	2,5	6°	4,70	0,2
TOHX 090204ER-G06	W30 14360.04..	▲	▲		▲	▲	▲	▲								4,56	0,4
TOHX 090202..R-G12	W30 14420.30..			▲												4,55	0,0
TOHX 090202..R-G12	W30 14420.02..	▲		▲	▲			▲		▲	▲	5,6	2,5	2,5	12°	4,70	0,2
TOHX 090204..R-G12	W30 14420.04..	▲		▲	▲	▲	▲	▲	▲	▲	▲					4,56	0,4
TOHX 090202..R-G20	W30 14500.02..			▲								5,6	2,5	2,5	20°	4,70	0,2
TOHX 090204..R-G20	W30 14500.04..			▲	▲											4,56	0,4
TOHX 140302ER-G06	W30 26360.02..		▲				▲									6,96	0,2
TOHX 140304ER-G06	W30 26360.04..				▲							8,2	3,0	4,5	6°	6,81	0,4
TOHX 140305ER-G06	W30 26360.05..	▲	▲		▲		▲	▲								6,74	0,5
TOHX 140302..R-G12	W30 26420.02..			▲	▲											6,96	0,2
TOHX 140304ER-G12	W30 26420.04..										▲	8,2	3,0	4,5	12°	6,81	0,4
TOHX 140305..R-G12	W30 26420.05..	▲		▲	▲			▲		▲						6,74	0,5
TOHX 140305ER-G20	W30 26500.05..						▲					8,2	3,0	4,5	20°	6,74	0,5
TOHX 22T308ER-G06	W30 44360.08..	▲					▲					12,7	4,3	10,5	6°	10,41	0,8
TOHX 22T308ER-G12	W30 44420.08..						▲					12,7	4,3	10,5	12°	10,41	0,8
Mild steel/tool steel	P	●	◐	●		●	●	●	●	●	●						
Stainless and acid-resistant steel	M	○		○		◑	○	○	○	○	○						
Grey cast iron, spheroidal cast iron	K		●		●		●	◑	◑	◑	◑						
Non-ferrous metals	N		●						◑	◑							
Heat-resistant steels	S		●														
Hardened tool steel	H				◑												

Order example:
ISO Code
TOHX 06T102 ER-G06
Cutting material
P25M
Order No.
W30 04360.0203

● Main area of application ◐ Suitable in some cases

KOMET® W30..60 TOHX

Inserts

neutral cutting form „N“

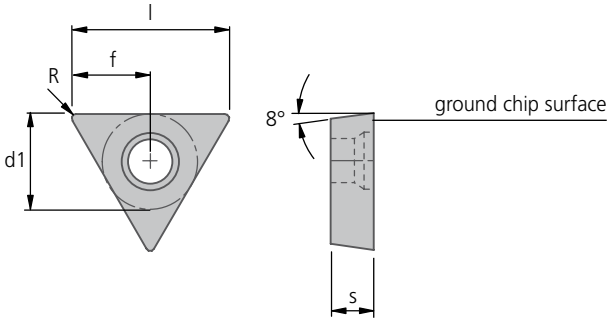


Application range:

- Internal and external turning
- Small boring bars
- Fine machining, internal and external
- Countersink tools, end mill cutters

Peripheral ground triangular insert. Can be turned over with high changeover accuracy because of precision 2-sided contact.

Cutter geometry:



Substrate		Carbide										
Coating type		–	–	CVD	CVD	CVD	PVD					
Cutting material designation		P25M	K10	BK6425	BK7615	BK62	BK8425					
Cutting edge design		E	E	E	E	E	E					
ISO Code Cutting edge design E = rounded	Order No. Enter code	03	21	6425	7615	62	8425	d1	s	l	f	R
TOHX 06T102 EN	W30 04600.02..		▲					4,0	1,8	6,5	3,32	0,2
TOHX 06T103 EN	W30 04600.03..	▲	▲	▲	▲		▲			6,5	3,25	0,3
TOHX 090202 EN	W30 14600.02..		▲					5,6	2,5	9,4	4,70	0,2
TOHX 090204 EN	W30 14600.04..	▲	▲	▲	▲	▲	▲			9,1	4,56	0,4
TOHX 090208 EN	W30 14600.08..				▲					8,5	4,26	0,8
TOHX 140304 EN	W30 26600.04..				▲			8,2	3,0	13,6	6,81	0,4
TOHX 140305 EN	W30 26600.05..	▲	▲		▲		▲			13,5	6,74	0,5
TOHX 140308 EN	W30 26600.08..		▲	▲	▲					13,0	6,52	0,8
TOHX 22T308 EN	W30 44600.08..		▲		▲			12,7	4,3	20,8	10,41	0,8
Mild steel/tool steel P		●	◐	●			●	Order example:				
Stainless and acid-resistant steel M		○		○			○	ISO Code				
Grey cast iron, spheroidal cast iron K			●		●	●	●	TOHX 06T103 EN				
Non-ferrous metals N			●					Cutting material				
Heat-resistant steels S			●					K10				
Hardened tool steel H					◐	◐ <52 HRC		Order No.				
								W30 04600.0321				

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

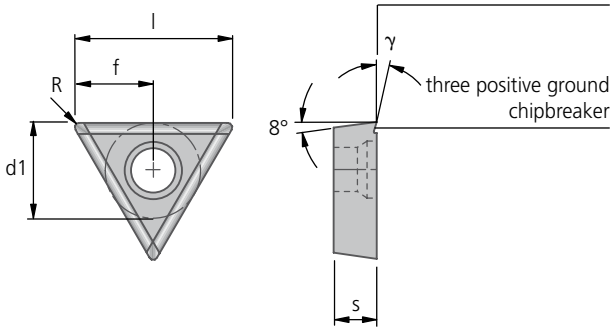


Application range:

- Internal and external turning
- Small boring bars
- Fine machining, internal and external
- Countersink tools, end mill cutters

Peripheral ground triangular insert. Can be turned over with high changeover accuracy because of precision 2-sided contact. Large selection of ground chipbreakers and carbides suitable for almost any materials.

Cutter geometry:



Substrate		Carbide													
Coating type		–	–	–	–	CVD	CVD	CVD	PVD						
Cutting material designation		P25M	P40	K10	K10	BK6425	BK7615	BK6440	BK8425						
Cutting edge design		E	E	E	F	E	E	E	E						
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	03	04	21	21	6425	7615	6440	8425	d1	s	l	γ	f	R
TOHX 06T103 ..N-G06	**W30 04660.03..**	▲		▲		▲		▲	▲	4,0	1,8	6,5	6°	3,25	0,3
TOHX 06T103 ..N-G12	**W30 04720.03..**	▲			▲	▲							12°	3,25	0,3
TOHX 090202 ..N-G06	**W30 14660.02..**								▲	5,6	2,5	9,1	6°	4,70	0,2
TOHX 090204 ..N-G06	**W30 14660.04..**	▲	▲	▲		▲	▲	▲	▲					4,56	0,4
TOHX 090204 ..N-U8.77	**W30 14660.33..**	▲		▲		▲		▲	▲					4,56	0,4
TOHX 090202 ..N-G12	**W30 14720.02..**					▲				5,6	2,5	9,4	12°	4,70	0,2
TOHX 090204 ..N-G12	**W30 14720.04..**	▲			▲	▲		▲	▲	5,6	2,5	9,1	12°	4,56	0,4
TOHX 090204 ..N-G20	**W30 14800.04..**				▲								20°	4,56	0,4
TOHX 140305 ..N-G06	**W30 26660.05..**	▲		▲		▲	▲	▲	▲	8,2	3,0	13,5	6°	6,74	0,5
TOHX 140305 ..N-G12	**W30 26720.05..**	▲			▲	▲							12°	6,74	0,5
TOHX 22T308 ..N-G06	**W30 44660.08..**	▲		▲		▲	▲	▲		12,7	4,3	20,8	6°	10,41	0,8
TOHX 22T308 ..N-G12	**W30 44720.08..**				▲	▲							12°	10,41	0,8
Mild steel/tool steel	P	●	●	◐	◐	●		●	●						
Stainless and acid-resistant steel	M	○	○			○		◑	○						
Grey cast iron, spheroidal cast iron	K			●	●		●		●						
Non-ferrous metals	N			●	●										
Heat-resistant steels	S			●	●										
Hardened tool steel	H						◑								

Order example:
ISO Code
TOHX 06T103 EN-G06
Cutting material
P25M
Order No.
W30 04660.0303

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts

L.H. cutting form „L“

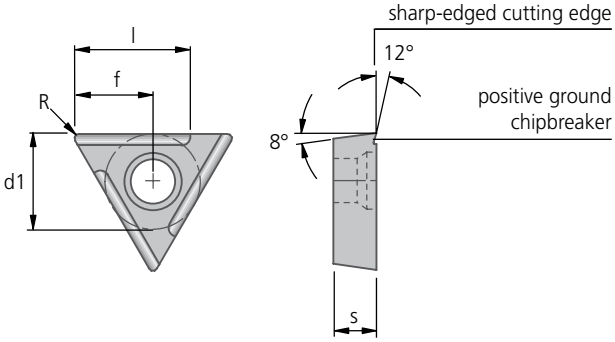


Application range:

- Internal and external turning
- Small boring bars
- Fine machining, internal and external
- Countersink tools, end mill cutters

Peripheral ground triangular insert. Can be turned over with high changeover accuracy because of precision 2-sided contact. Large selection of ground chipbreakers and carbides suitable for almost any materials.

Cutter geometry:



Substrate		Cermet							
Coating type		–	–	PVD					
Cutting material designation		CK30	CK32	CK38					
Cutting edge design		F	F	F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 30	 32	 38	d1	s	l	f	R
TOHX 06T102 FL-G12	W30 04820.02..	▲	▲	▲	4,0	1,8	1	3,32	0,2
TOHX 06T103 FL-G12	W30 04820.03..		▲					3,25	0,3
TOHX 06T104 FL-G12	W30 04820.04..	▲		▲				3,17	0,4
TOHX 090202 FL-G12	W30 14820.02..	▲	▲	▲	5,6	2,5	2,5	4,70	0,2
TOHX 090204 FL-G12	W30 14820.04..	▲	▲	▲				4,56	0,4
TOHX 140302 FL-G12	W30 26820.02..		▲	▲	8,2	3,0	4,5	6,96	0,2
TOHX 140304 FL-G12	W30 26820.04..			▲				6,81	0,4
TOHX 140305 FL-G12	W30 26820.05..		▲					6,74	0,5
Mild steel/tool steel P		●	●	●	Order example: ISO Code TOHX 06T102 FL-G12 Cutting material CK30 Order No. W30 04820.0230				
Stainless and acid-resistant steel M		◐	◐	◐					
Grey cast iron, spheroidal cast iron K		◐	◐	◐					
Non-ferrous metals N									
Heat-resistant steels S									
Hardened tool steel H									

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

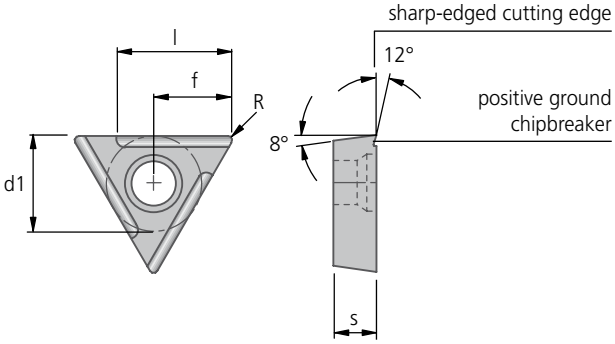


Application range:

- Internal and external turning
- Small boring bars
- Fine machining, internal and external
- Countersink tools, end mill cutters

Peripheral ground triangular insert. Can be turned over with high changeover accuracy because of precision 2-sided contact. Large selection of ground chipbreakers and carbides suitable for almost any materials.

Cutter geometry:



Substrate		Cermet						
Coating type		–						
Cutting material designation		CK32						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 32		d1	s	l	f	R
TOHX 06T102 FR-G12	**W30 04830.02..**	▲		4,0	1,8	1	3,32	0,2
TOHX 090202 FR-G12	**W30 14830.02..**	▲		5,6	2,5	2,5	4,70	0,2
Mild steel/tool steel	P	●						
Stainless and acid-resistant steel	M	○						
Grey cast iron, spheroidal cast iron	K	◐						
Non-ferrous metals	N							
Heat-resistant steels	S							
Hardened tool steel	H							

Order example:
ISO Code
TOHX 06T102 FR-G12
Cutting material
CK32
Order No.
W30 04830.0232

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W30.....31 TOHX

Inserts

L.H. cutting form „L“

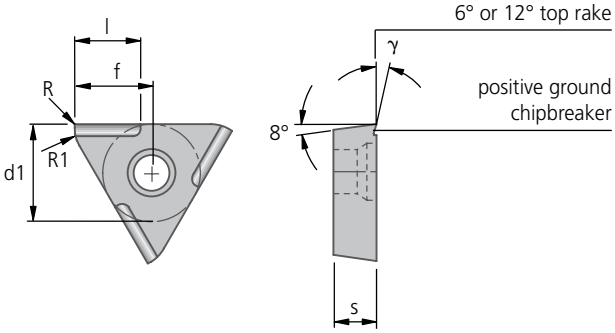


Application range:

Internal turning
with high feed rates for stable conditions for tools up to a max. of 2.5 × D

Ideal cutting depths:
Steel a_p = 0.1 – 0.25 mm
Cast iron a_p = 0.15 – 0.3 mm

Cutter geometry:

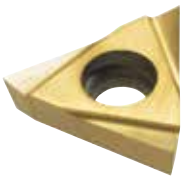


Important note!
The cutting edge on Cermet inserts is rounded.

Substrate		Carbide						Cermet								
Coating type		–	–	CVD	CVD	CVD	PVD	–	PVD							
Cutting material designation		K10	K10	BK6425	BK7615	BK6440	BK8425	CK30	CK38							
Cutting edge design		E	F	E	E	E	E	E	E							
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	21	21	6425	7615	6440	8425	30	38	d1	s	l	γ	f	R	R1
TOHX 06T102..L-UF06	W30 04060.31..			▲	▲	▲				4,0	1,8	2,8	6°	3,24	0,15	2,0
TOHX 06T102..L-UF12	W30 04120.31..		▲	▲			▲	▲	▲				12°	3,24	0,15	2,0
TOHX 090202..L-UF06	W30 14060.31..	▲		▲	▲	▲				5,6	2,5	4,0	6°	4,31	0,2	3,0
TOHX 090202..L-UF12	W30 14120.31..			▲		▲	▲	▲	▲				12°	4,30	0,2	3,0
TOHX 140302..L-UF06	W30 26060.31..	▲		▲	▲	▲	▲			8,2	3,0	5,5	6°	6,46	0,2	3,0
TOHX 140302..L-UF12	W30 26120.31..			▲		▲	▲	▲					12°	6,45	0,2	3,0
Mild steel/tool steel	P	●	●	●		●	●	●	●							
Stainless and acid-resistant steel	M			○		◑	○	○	○							
Grey cast iron, spheroidal cast iron	K	●	●		●		●	◐	◐							
Non-ferrous metals	N	●	●													
Heat-resistant steels	S	●	●													
Hardened tool steel	H															

Order example:
ISO Code
TOHX06T102 EL-UF06
Cutting material
BK6425
Order No.
W30 04060.316425

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

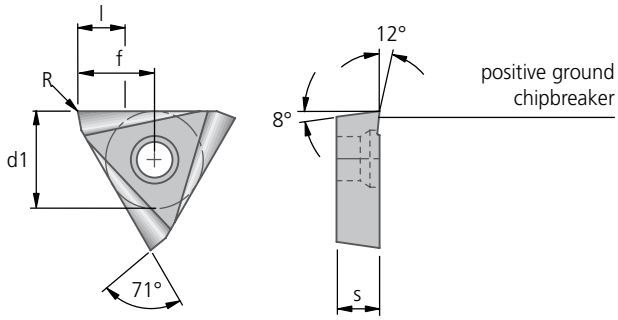


Application range:

Sharp cutting edge
Insert with 0.05 mm centre radius for internal machining for tools with long overhang.

Ideal cutting depths:
Steel a_p = 0.02 – 0.1 mm
Non-ferrous metal a_p = 0.05 – 0.25 mm

Cutter geometry:



Substrate		Carbide					
Coating type		PVD					
Cutting material designation		BK77					
Cutting edge design		F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 77	d1	s	l	f	R
TOHX 06T1ZZ FL-39G12	**W30 04120.39..**	▲	4,0	1,8	2,0	3,18	0,05
TOHX 0902ZZ FL-39G12	**W30 14120.39..**	▲	5,6	2,5	3,0	4,45	0,05
TOHX 1403ZZ FL-39G12	**W30 26120.39..**	▲	8,2	3,0	4,0	6,60	0,05
Mild steel/tool steel	P						
Stainless and acid-resistant steel	M						
Grey cast iron, spheroidal cast iron	K						
Non-ferrous metals	N	●					
Heat-resistant steels	S	●					
Hardened tool steel	H						

Order example:
ISO Code
TOHX 06T1ZZ FL-39G12
Cutting material
BK77
Order No.
W30 04120.3977

● Main area of application ◐ Suitable in some cases

Inserts

L.H. cutting form „L“



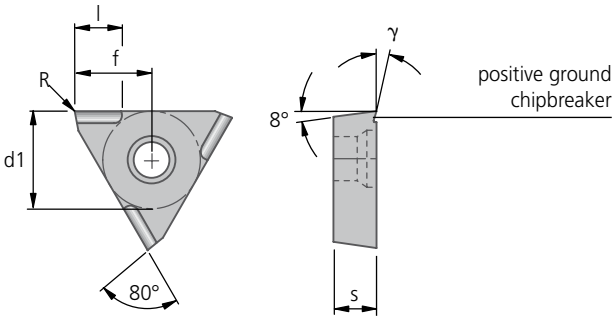
Application range:

- Small boring bars
- Internal fine machinig

Because of the positive cutting edge geometry, cutting is very efficient. A deeper, narrow chipbreaker produces a controlled chip even from materials which produce long chips and at narrow cutting depths.
A flat ground secondary cutting edge provides increased corner stability.

Important note!
The cutting edge on Cermet inserts is rounded.
Also be supplied in Cermet for sharp-edged version.

Cutter geometry:



Substrate		Carbide				Cermet											
Coating type		CVD	CVD	CVD	PVD	–	–	–	PVD								
Cutting material designation		BK6425	BK6440	BK6115	BK8425	CK30	CK32	CK37	CK38								
Cutting edge design		E	E	E	E	E	E	E	E								
ISO Code Cutting edge design E = rounded	Order No. Enter code	6425	6440	6115	8425	30	32	37	38	d1	s	l	γ	f	R		
TOHX 06T102EL-US12	**W30 04120.32..**	▲	▲		▲	▲	▲	▲	▲	4,0	1,8	1,5	12°	2,95	0,2		
TOHX 090202EL-US12	**W30 14120.32..**	▲	▲	▲	▲	▲	▲	▲	▲	5,6	2,5	2,0	12°	4,28	0,2		
TOHX 140302EL-US12	**W30 26120.32..**	▲	▲		▲	▲	▲	▲	▲	8,2	3,0	2,0	12°	6,44	0,2		
Mild steel/tool steel	P	●	●	◐	●	●	●	●	●	Order example:							
Stainless and acid-resistant steel	M	○	◐		○	○	○	○	○	ISO Code							
Grey cast iron, spheroidal cast iron	K			●	●	◐	◐	◐	◐	TOHX 06T102 EL-US12							
Non-ferrous metals	N						◐	◐		Cutting material							
Heat-resistant steels	S									BK6425							
Hardened tool steel	H									Order No.							
										W30 04120.326425							

Ideal Cutting depth:
Steel a_p = 0.01 – 0.15 mm
Only suitable for non-ferrous metals in certain circumstances.

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



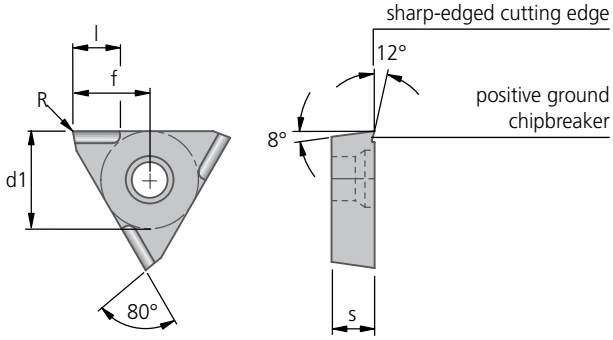
L.H. cutting form „L“
sharp-edged cutting edge

Application range:

- Small boring bars
- Internal fine machinig

Because of the positive cutting edge geometry, cutting is very efficient. A deeper, narrow chipbreaker produces a controlled chip even from materials which produce long chips and at narrow cutting depths.
A flat ground secondary cutting edge provides increased corner stability.
Also be supplied in Cermet for rounded version.

Cutter geometry:



Substrate		Cermet							
Coating type		–	–	PVD					
Cutting material designation		CK30	CK32	CK38					
Cutting edge design		F	F	F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	30	32	38	d1	s	l	f	R
TOHX 06T102 FL-US12	**W30 04820.32..**	▲		▲	4,0	1,8	1,5	2,95	0,2
TOHX 090202 FL-US12	**W30 14820.32..**	▲	▲	▲	5,6	2,5	2,0	4,28	0,2
TOHX 140302 FL-US12	**W30 26820.32..**	▲		▲	8,2	3,0	2,0	6,44	0,2
Mild steel/tool steel	P	●	●	●	Order example: ISO Code TOHX 06T102 FL-US12 Cutting material CK30 Order No. W30 04820.3230				
Stainless and acid-resistant steel	M	◯	◯	◯					
Grey cast iron, spheroidal cast iron	K	◐	◐	◐					
Non-ferrous metals	N		◐						
Heat-resistant steels	S								
Hardened tool steel	H								

Ideal Cutting depth:
Steel a_p = 0.01 – 0.15 mm
Only suitable for non-ferrous metals in certain circumstances.

● Main area of application ◐ Suitable in some cases

KOMET® W30..94 TOGX

Inserts

PCD or CBN cutting edge

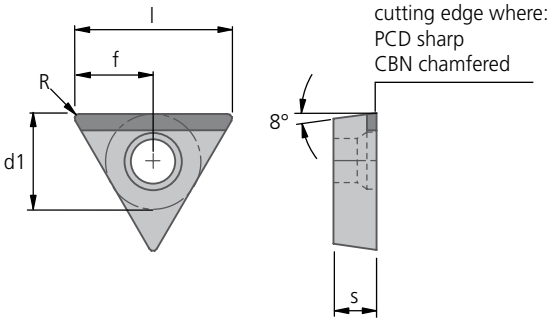


Application range:

PCD: Turning and for processing with very high cutting parameters and with interrupted cuts and for other non-ferrous metal materials.

CBN: Internal and external machining, fine turning. Inserts with cutting edges have the following advantages: high cutting speeds, high dimensional consistency, extremely long tool life and above-average surface finish.
CBN 57: Preferably for cast materials and alloys on a nickel cobalt base.

Cutter geometry:



Substrate		PCD	CBN					
Coating type		–	–					
Cutting material designation		PKD5510	CBN57					
Cutting edge design		F	T					
ISO Code Cutting edge design F = sharp T = chamfered ▼	Order No. Enter code ▼	 5510	 57	d1	s	l	f	R
TOEX 090204 ..	**W30 14940.04..**	▲	▲	5,6	2,5	9,12	4,56	0,4
TOEX 140305 ..	**W30 26940.05..**	▲	▲	8,2	3,0	13,5	6,74	0,5
Mild steel/tool steel P				Order example:				
Stainless and acid-resistant steel M				ISO Code				
Grey cast iron, spheroidal cast iron K			●	TOEX 090204 F				
Non-ferrous metals N		●		Cutting material				
Heat-resistant steels S			◐	PKD5510				
Hardened tool steel H			○ < 52 HRC	Order No.				
				W30 14940.045510				

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

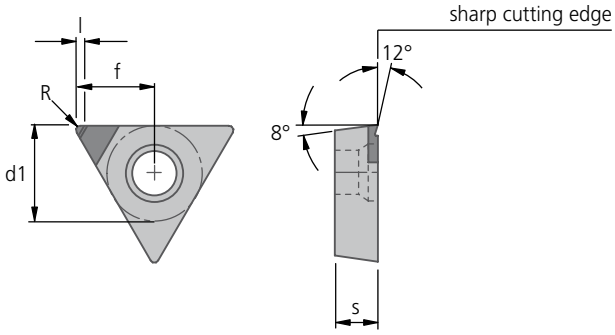


Application range:

Version with chip breaker for optimum chip control. Particularly well-suited for long-chipping non-ferrous metals, mainly aluminium, wrought alloys and die casting alloys.

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

Cutter geometry:



Substrate		PCD					
Coating type		–					
Cutting material designation		PKD5510					
Cutting edge design		F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	d1	s	l	f	R
TOGX 06T103 FN-G12	**W30 04980.03..**	▲	4,0	1,8	0,6	3,25	0,3
TOGX 090204 FN-G12	**W30 14980.04..**	▲	5,6	2,5	0,6	4,56	0,4
TOGX 140305 FN-G12	**W30 26980.05..**	▲	8,2	3,0	0,6	6,74	0,5
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	Order example: ISO Code TOGX 06T103 FN Cutting material PKD5510 Order No. W30 04980.035510				

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W30..99 TOGX

Inserts

PCD or CBN cutting edge

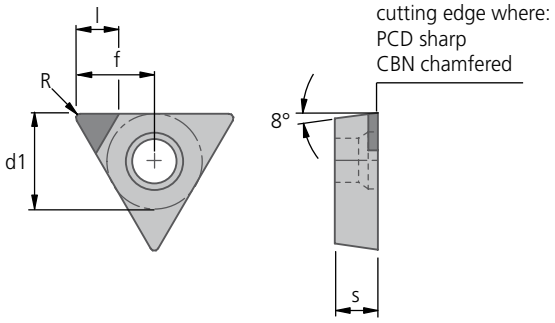


Application range:

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

CBN: Internal and external machining, fine turning. Inserts with cutting edges have the following advantages: high cutting speeds, high dimensional consistency, extremely long tool life and above-average surface finish.
CBN 57: Preferably for cast materials and alloys on a nickel cobalt base.
CBN 40: For machining hardened steels (harder than 45 HRC)

Cutter geometry:



Substrate		PCD	CBN						
Coating type		–	–	–					
Cutting material designation		PKD5510	CBN57	CBN40					
Cutting edge design		F	T	T					
ISO Code Cutting edge design F = sharp T = chamfered ▼	Order No. Enter code ▼	 5510	 57	 40	d1	s	l	f	R
TOGX 06T102 ..N	W30 04990.02..	▲	▲	▲				3,32	0,2
TOGX 06T103 ..N	W30 04990.03..	▲	▲		4,0	1,8	1,8	3,25	0,3
TOGX 06T104 ..N	W30 04990.04..	▲						3,17	0,4
TOGX 090202 ..N	W30 14990.02..	▲	▲	▲				4,70	0,2
TOGX 090204 ..N	W30 14990.04..	▲	▲	▲	5,6	2,5	2,7	4,56	0,4
TOGX 090208 ..N	W30 14990.08..	▲	▲					4,26	0,8
TOGX 140302 ..N	W30 26990.02..	▲	▲					6,96	0,2
TOGX 140304 ..N	W30 26990.04..	▲	▲	▲	8,2	3,0	2,7	6,81	0,4
TOGX 140305 ..N	W30 26990.05..	▲	▲					6,74	0,5

Mild steel/tool steel	P			
Stainless and acid-resistant steel	M			
Grey cast iron, spheroidal cast iron	K		●	
Non-ferrous metals	N	●		
Heat-resistant steels	S		◐	◐
Hardened tool steel	H			○ ≥ 52 HRC

Order example:
ISO Code
TOGX 06T102 TN
Cutting material
CBN57
Order No.
W30 04990.0257

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

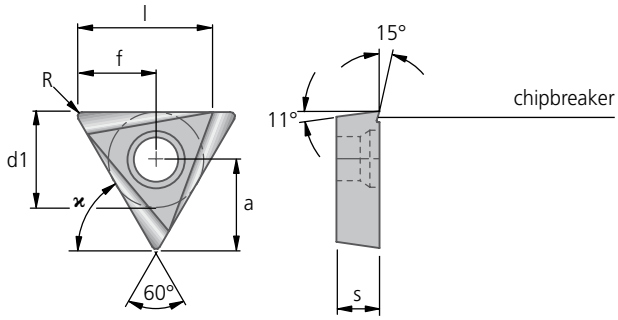
11° TPHX insert with chip surface (polished ground for uncoated carbide) for softer aluminium materials and other non-ferrous metals.
10 – 15° top rake with axial and radial tilt.

Please note:
Should a TPHB be used instead of this insert, dimension "a" changes according to angle "ϰ"

$$a = \cos(\varkappa - 60°) \times (d1 - 2R) + R - \left(\frac{\varkappa}{90°} \times \Delta\right)$$

Δ 0.03 for R = 0.4
Δ 0.06 for R = 0.8

Cutter geometry:



Substrate		Carbide								
Coating type		–		PVD						
Cutting material designation		K10	BK50	BK7710						
Cutting edge design		F	F	F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	21	50	7710	d1	s	l	f ϰ=90°	R
TPHX 060104 FL-P15	W32 03150.04..	▲	▲	▲	3,97	1,60	3,3	3,12	0,4
TPHX 090204 FL-P15	W32 13150.04..	▲	▲	▲	5,56	2,38	4,5	4,49	0,4
TPHX 090208 FL-P15	W32 13150.08..	▲	▲	▲			4,2	4,17	0,8
TPHX 110204 FL-P15	W32 18150.04..	▲	▲	▲	6,35	2,38	4,6	5,17	0,4
TPHX 110208 FL-P15	W32 18150.08..	▲	▲	▲			4,3	4,87	0,8
TPHX 130304 FL-P15	W32 23150.04..	▲	▲		7,94	3,18	5,0	6,55	0,4
TPHX 130308 FL-P15	W32 23150.08..			▲			4,7	6,25	0,8
TPHX 160304 FL-P15	W32 32150.04..	▲	▲		9,52	3,18	8,0	7,92	0,4
Mild steel/tool steel P		◐			Order example: ISO Code TPHX 060104 FL-P15 Cutting material K10 Order No. W32 03150.0421				
Stainless and acid-resistant steel M									
Grey cast iron, spheroidal cast iron K		●							
Non-ferrous metals N		●	●	●					
Heat-resistant steels S		●		●					
Hardened tool steel H									

● Main area of application ◐ Suitable in some cases

Inserts

R.H. cutting form „R“
for machining aluminium



Application range:

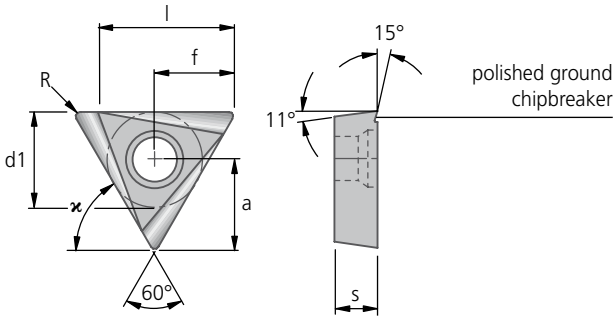
11° TPHX insert with polished ground chip surface for softer aluminium materials and other non-ferrous metals.
10 – 15° top rake with axial and radial tilt.

Please note:
Should a TPHB be used instead of this insert, dimension "a" changes according to angle "ϰ"

$$a = \cos(\varkappa - 60°) \times (d1 - 2R) + R - \left(\frac{\varkappa}{90°} \times \Delta\right)$$

Δ 0.03 for R = 0.4
Δ 0.06 for R = 0.8

Cutter geometry:



Substrate		Carbide						
Coating type		–						
Cutting material designation		K10						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	**Order No.** Enter code ▼	 **21**		d1	s	l	f ϰ=90°	R
TPHX 060104 FR-P15	**W32 03450.04..**	▲		3,97	1,60	3,3	3,12	0,4
TPHX 090204 FR-P15	**W32 13450.04..**	▲		5,56	2,38	4,5	4,49	0,4
TPHX 110204 FR-P15	**W32 18450.04..**	▲		6,35	2,38	4,6	5,17	0,4
Mild steel/tool steel	P	◐						
Stainless and acid-resistant steel	M							
Grey cast iron, spheroidal cast iron	K	●						
Non-ferrous metals	N	●						
Heat-resistant steels	S	●						
Hardened tool steel	H							

Order example:
ISO Code
TPHX 060104 FL-P15
Cutting material
K10
Order No.
W32 03150.0421

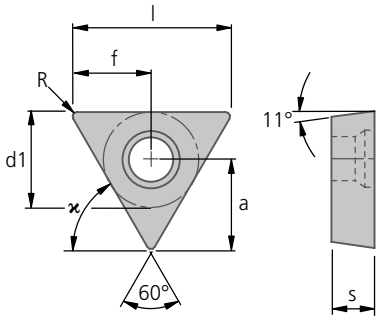
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

11° TPHB insert (polished chip surface for uncoated carbide) for high tensile strength cast aluminium alloys. 5° top rake due to axial tilt for cutting speed range of ≦ 300 m/min.

Cutter geometry:



$a = \cos(\varkappa - 60°) \times (d1 - 2R) + R$

Substrate		Carbide						
Coating type		–						
Cutting material designation		K10	BK50					
Cutting edge design		F	F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 21	 50	d1	s	l	f $\varkappa$=90°	R
TPHB 060104 FN-P	W32 03600.04..	▲	▲	3,97	1,60	6,29	3,15	0,4
TPHB 090204 FN-P	W32 13600.04..	▲	▲	5,56	2,38	9,04	4,52	0,4
TPHB 090208 FN-P	W32 13600.08..	▲	▲			8,46	4,23	0,8
TPHB 110204 FN-P	W32 18600.04..	▲	▲	6,35	2,38	10,41	5,21	0,4
TPHB 110208 FN-P	W32 18600.08..	▲	▲			9,83	4,91	0,8
TPHB 130304 FN-P	W32 23600.04..	▲	▲	7,94	3,18	13,17	6,58	0,4
TPHB 130308 FN-P	W32 23600.08..	▲				12,58	6,29	0,8
TPHB 160304 FN-P	W32 32600.04..	▲	▲	9,52	3,18	15,9	7,95	0,4
TPHB 160308 FN-P	W32 32600.08..	▲	▲			15,32	7,66	0,8
TPHB 220404 FN-P	W32 44600.04..	▲		12,7	4,30	21,41	10,71	0,4
TPHB 220408 FN-P	W32 44600.08..	▲	▲			20,83	10,41	0,8
Mild steel/tool steel P		◐		Order example: ISO Code TPHB 060104 FN-P Cutting material K10 Order No. W32 03600.0421				
Stainless and acid-resistant steel M								
Grey cast iron, spheroidal cast iron K		●						
Non-ferrous metals N		●	●					
Heat-resistant steels S		●						
Hardened tool steel H								

● Main area of application ◐ Suitable in some cases

Inserts

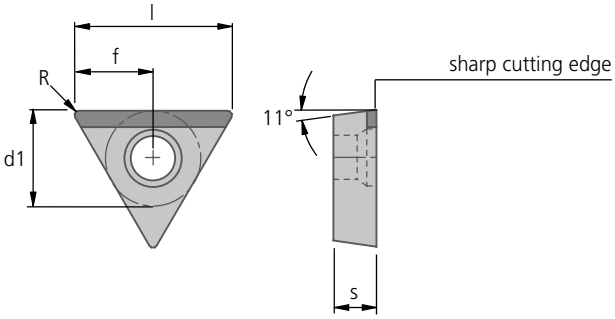
PCD cutting edge
for machining aluminium



Application range:

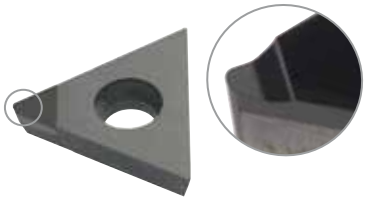
PCD: Turning and for processing with very high cutting parameters and with interrupted cuts and for other non-ferrous metal materials.

Cutter geometry:



Substrate		PCD						
Coating type		–						
Cutting material designation		PKD5510						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	d1	s	l	f	R
TPHB 090204 F	**W32 13940.04..**	▲	5,56	2,38	9,05	4,52	0,4
TPHB 110204 F	**W32 18940.04..**	▲	6,35	2,38	10,41	5,21	0,4
TPHB 110208 F	**W32 18940.08..**	▲				4,91	0,8
TPHB 130304 F	**W32 23940.04..**	▲	7,94	3,18	13,17	6,59	0,4
TPHB 160304 F	**W32 32940.04..**	▲	9,52	3,18	15,9	7,95	0,4
Mild steel/tool steel **P** Stainless and acid-resistant steel **M** Grey cast iron, spheroidal cast iron **K** Non-ferrous metals **N** Heat-resistant steels **S** Hardened tool steel **H**		●	Order example: ISO Code TPHB 090204 F Cutting material PKD5510 Order No. W32 13940.045510					

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

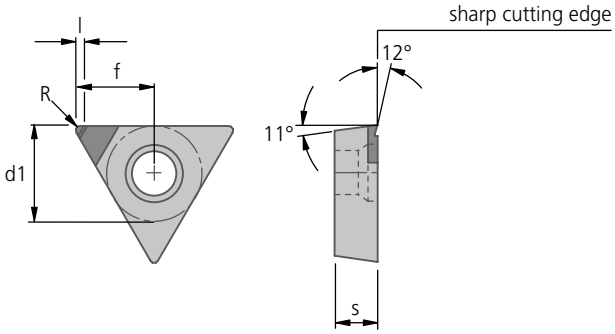


Application range:

Version with chip breaker for optimum chip control. Particularly well-suited for long-chipping non-ferrous metals, mainly aluminium, wrought alloys and die casting alloys.

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

Cutter geometry:



Substrate		PCD						
Coating type		–						
Cutting material designation		PKD5510						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	d1	s	l	f	R
TPHB 060104 FN	**W32 03980.04..**	▲	3,97	1,60	0,6	3,15	0,4
TPHB 090204 FN	**W32 13980.04..**	▲	5,56	2,38	0,6	4,52	0,4
TPHB 110204 FN	**W32 18980.04..**	▲	6,35	2,38	0,6	5,21	0,4
TPHB 130304 FN	**W32 23980.04..**	▲	7,94	3,18	0,6	6,59	0,4
TPHB 160304 FN	**W32 32980.04..**	▲	9,52	3,18	0,6	7,95	0,4
Mild steel/tool steel **P**								
Stainless and acid-resistant steel **M**								
Grey cast iron, spheroidal cast iron **K**								
Non-ferrous metals **N**		●						
Heat-resistant steels **S**								
Hardened tool steel **H**								

Order example:
ISO Code
TPHB 060104 FN
Cutting material
PKD5510
Order No.
W32 03990.045510

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts

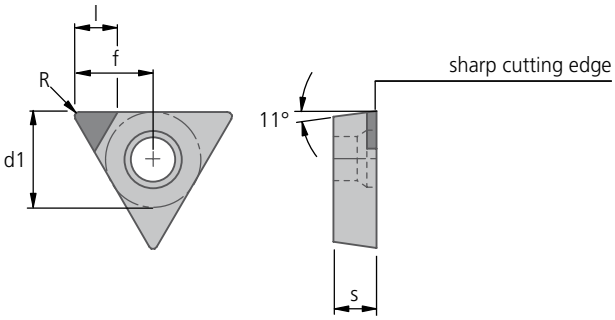
PCD cutting edge
for machining aluminium



Application range:

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

Cutter geometry:



Substrate		PCD						
Coating type		–						
Cutting material designation		PKD5510						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	5510	d1	s	l	f	R
TPHB 060104 FN	**W32 03990.04..**	▲	3,97	1,60	1,8	3,15	0,4
TPHB 090204 FN	**W32 13990.04..**	▲	5,56	2,38	2,7	4,52	0,4
TPHB 110204 FN	**W32 18990.04..**	▲	6,35	2,38	3,8	5,21	0,4
TPHB 130304 FN	**W32 23990.04..**	▲	7,94	3,18	3,8	6,59	0,4
TPHB 160304 FN	**W32 32990.04..**	▲	9,52	3,18	3,8	7,95	0,4
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	Order example: ISO Code TPHB 060104 FN Cutting material PKD5510 Order No. W32 03990.045510					

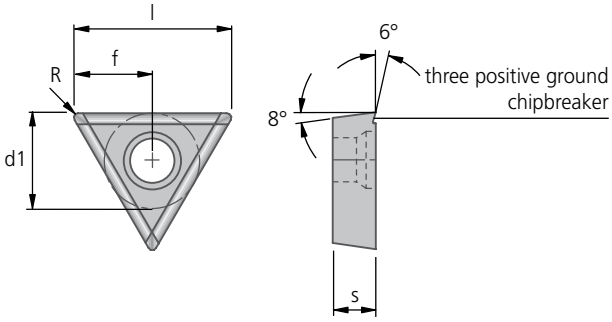
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

Peripheral and surface ground triangular insert for roughing and facing operations:
2-sided contact produces a very high changeover accuracy when changing the insert.

Cutter geometry:



Substrate		Carbide						
Coating type		–	CVD					
Cutting material designation		K10	BK6425					
Cutting edge design		E	E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 21	 6425	d1	s	l	f	R
TOHT 110304 EN-G06	W34 18660.04..	▲	▲	6,35	3,18	10,4	5,21	0,4
Mild steel/tool steel P		◐	●	Order example: ISO Code TOHT 110304 EN-G06 Cutting material K10 Order No. W34 18660.0421				
Stainless and acid-resistant steel M			○					
Grey cast iron, spheroidal cast iron K		●						
Non-ferrous metals N		●						
Heat-resistant steels S		●						
Hardened tool steel H								

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts

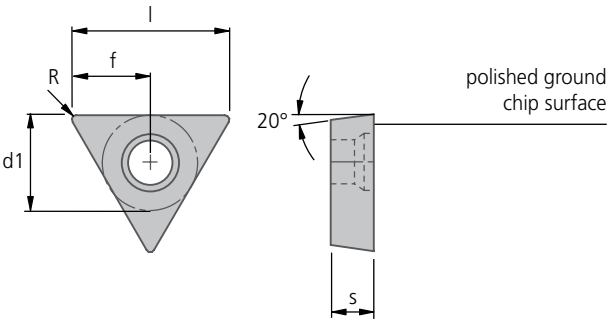
neutral cutting form „N“
for machining aluminium



Application range:

20° TEHB insert with polished chip surface for softer aluminium materials and other non-ferrous metals.
10 – 12° top rake with axial and radial tilt.

Cutter geometry:



Substrate		Carbide						
Coating type		–						
Cutting material designation		K10						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 21		d1	s	l	f	R
TEHB 110204 FN-P	**W37 18600.04..**	▲		6,35	2,38	10,4	5,21	0,4
TEHB 110208 FN-P	**W37 18600.08..**	▲				9,8	4,91	0,8
TEHB 130308 FN-P	**W37 23600.08..**	▲		7,94	3,18	12,6	6,29	0,8
Mild steel/tool steel	P	◐						
Stainless and acid-resistant steel	M							
Grey cast iron, spheroidal cast iron	K	●						
Non-ferrous metals	N	●						
Heat-resistant steels	S	●						
Hardened tool steel	H							

Order example:
ISO Code
TEHB 110204 FN-P
Cutting material
K10
Order No.
W37 18600.0421

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

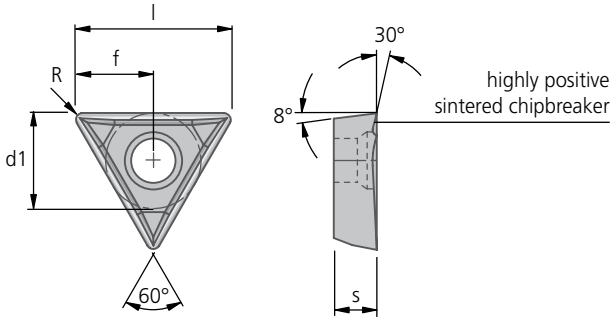


Application range:

- Internal and external turning
- Fine finish turning for aluminium machining
- Aluminium materials, in particular soft wrought alloys

The highly positive cutting edge geometry and the peripheral ground clearance faces guarantee controlled chip formation and the best surface quality with low cutting forces.

Cutter geometry:



Substrate		Carbide						
Coating type		–	PVD					
Cutting material designation		K10	BK7710					
Cutting edge design		F	F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 23	 7710	d1	s	l	f	R
TOGX 06T102 FN-12	**W57 04120.02..**	▲	▲	4,00	1,80	6,64	3,32	0,2
TOGX 090204 FN-12	**W57 14120.04..**	▲	▲	5,60	2,50	9,12	4,56	0,4
TOGX 140304 FN-12	**W57 26120.04..**	▲	▲	8,20	3,00	13,62	6,81	0,4
Mild steel/tool steel P				Order example: ISO Code TOGX 06T102 FN-12 Cutting material K10 Order No. W57 04120.0223				
Stainless and acid-resistant steel M		◐						
Grey cast iron, spheroidal cast iron K								
Non-ferrous metals N		●	●					
Heat-resistant steels S		●						
Hardened tool steel H								

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts

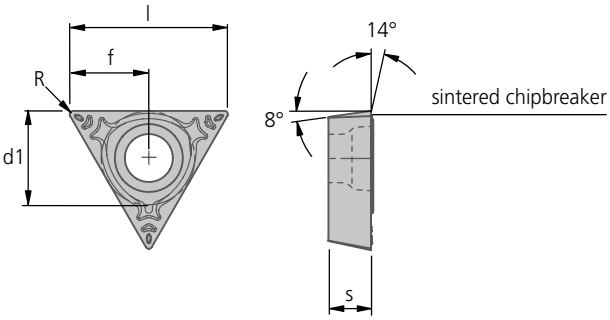


Application range:

- Internal and external machining
- Special tools
- Fine boring

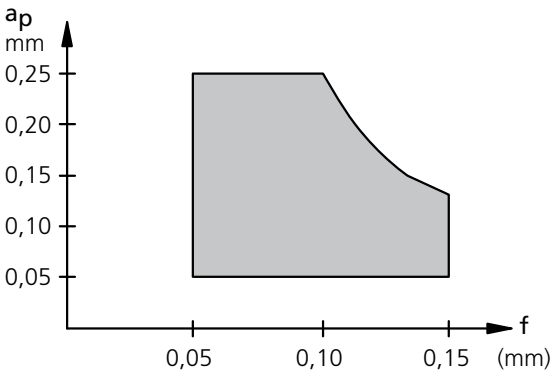
Controlled chip formation for fine and high precision machining.Wear resistant grades: CVD and PVD coated and uncoated Cermet.
CK3210: Extremely high resistance to wear
CK3230: Optimum toughness, suitable for interrupted cutting

Cutter geometry:



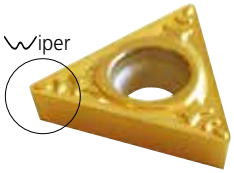
Substrate		Carbide		Cermet						
Coating type		CVD	PVD	–	–					
Cutting material designation		BK60	BK8430	CK3210	CK3230					
Cutting edge design		E	E	E	E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 60	 8430	 3210	 3230	d1	s	l	f	R
TOGX 06T102 EN-14	**W57 04140.02..**	▲	▲	▲	▲	4,0	1,8	6,64	3,32	0,2
TOGX 06T104 EN-14	**W57 04140.04..**	▲	▲	▲	▲			6,35	3,17	0,4
TOGX 090202 EN-14	**W57 14140.02..**	▲	▲	▲	▲	5,6	2,5	9,41	4,70	0,2
TOGX 090204 EN-14	**W57 14140.04..**	▲	▲	▲	▲			9,12	4,56	0,4
TOGX 140302 EN-14	**W57 26140.02..**	▲	▲	▲	▲	8,2	3,0	13,91	6,96	0,2
TOGX 140304 EN-14	**W57 26140.04..**	▲	▲	▲	▲			13,62	6,81	0,4
Mild steel/tool steel	P	●	●	●	●	Order example: ISO Code TOGX 06T102 EN-14 Cutting material BK60 Order No. W57 04140.0260				
Stainless and acid-resistant steel	M		◐	◐	◐					
Grey cast iron, spheroidal cast iron	K	●	◐	◐	◐					
Non-ferrous metals	N			◐	◐					
Heat-resistant steels	S									
Hardened tool steel	H									

Application area



● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

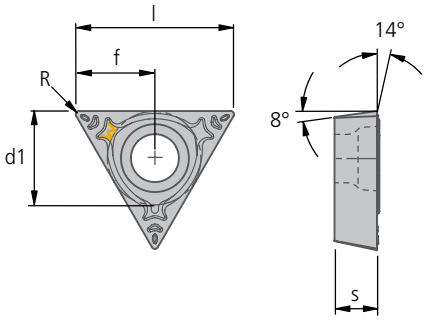


Application range:

- Internal and external machining
- Special tools
- Fine boring

Controlled chip formation for fine and high precision machining with optimised feed:surface ratio for best surface finish.
Wear resistant grades: Finest grade carbide + PVD coating and uncoated Cermet.

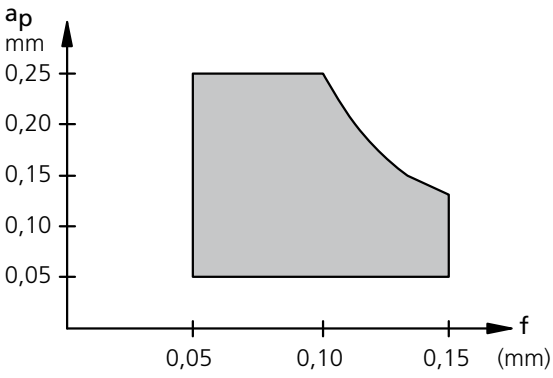
Cutter geometry:



Substrate		Carbide	Cermet					
Coating type		PVD	–					
Cutting material designation		BK8430	CK32					
Cutting edge design		E	E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 8430	 32	d1	s	l	f	R
TOGX 060104 EN-18	**W57 04180.04..**	▲	▲	4,0	1,8	6,3	3,17	0,4
TOGX 090204 EN-18	**W57 14180.04..**	▲	▲	5,6	2,5	9,1	4,56	0,4
TOGX 140304 EN-18	**W57 26180.04..**	▲	▲	8,2	3,0	13,6	6,81	0,4
Mild steel/tool steel	P	●	●					
Stainless and acid-resistant steel	M	●	●					
Grey cast iron, spheroidal cast iron	K	●	◐					
Non-ferrous metals	N		◐					
Heat-resistant steels	S	◐						
Hardened tool steel	H	◐						

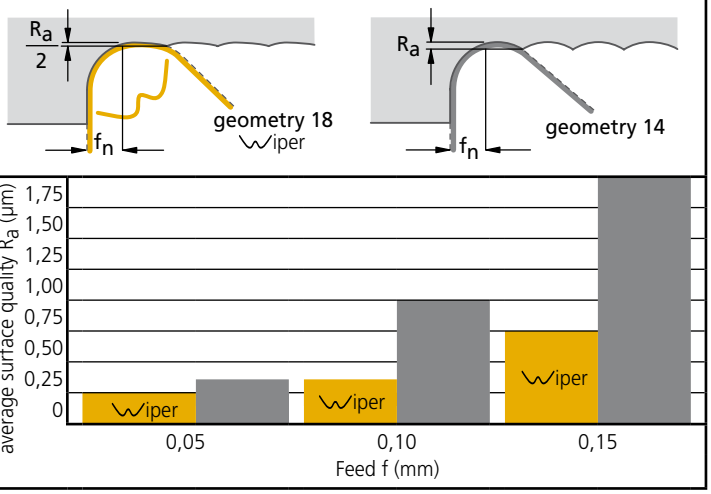
Order example:
ISO Code
TOGX 060104 EN-18
Cutting material
BK8430
Order No.
W57 04180.048430

Application area



Surface quality results:

Comparison of surface quality results for "Wiper" – R04 for ϰ = 90°
in X40Cr13 / 1.4034



● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W58..12 TPGX

Inserts

for machining aluminium

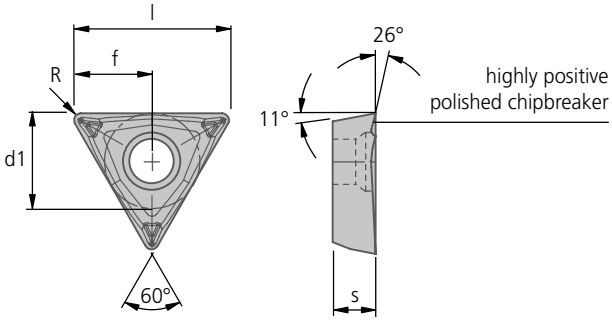


Application range:

- Internal and external turning
- Fine finish turning for aluminium machining
- Aluminium materials, in particular soft wrought alloys

The highly positive cutting edge geometry and the peripheral ground clearance faces guarantee controlled chip formation and the best surface quality with low cutting forces.

Cutter geometry:



Substrate		Carbide						
Coating type		–	PVD					
Cutting material designation		K10	BK7710					
Cutting edge design		F	F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 23	 7710	d1	s	l	f	R
TPGX 060104 FN-12	**W58 03120.04..**	▲	▲	3,97	1,60	6,29	3,15	0,4
TPGX 090204 FN-12	**W58 13120.04..**	▲	▲	5,56	2,38	9,05	4,52	0,4
TPGX 110204 FN-12	**W58 18120.04..**	▲	▲	6,35	2,38	10,41	5,21	0,4
TPGX 130304 FN-12	**W58 23120.04..**	▲	▲	7,94	3,18	13,17	6,58	0,4
TPGX 160304 FN-12	**W58 32120.04..**	▲	▲	9,52	3,18	15,90	7,95	0,4
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		◐ ● ●	●	Order example: ISO Code TPGX 060104 FN-12 Cutting material K10 Order No. W58 03120.0423				

● Main area of application ◐ Suitable in some cases

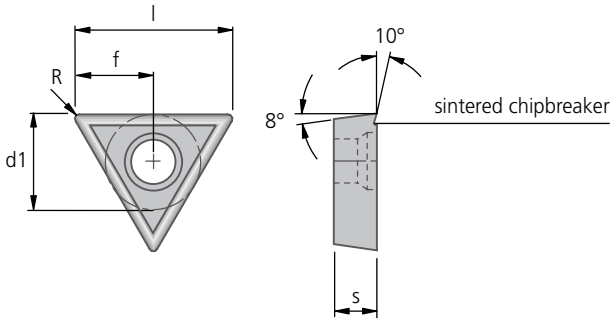
▲ Availability: for delivery see current price and stock list



Application range:

Peripheral and surface ground triangular insert for roughing and facing operations:
2-sided contact produces a very high changeover accuracy when changing the insert.

Cutter geometry:



Substrate		Carbide												
Coating type		–	–	CVD	CVD	CVD	CVD	PVD	PVD					
Cutting material designation		P25M	K10	BK6425	BK6110	BK7615	BK6440	BK79	BK8425					
Cutting edge design		E	E	E	E	E	E	E	E					
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼									d1	s	l	f	R
		03	21	6425	6110	7615	6440	79	8425					
TOHT 110304 EN-05	**W59 18050.04..**	▲	▲	▲	▲	▲	▲	▲	▲	6,35	3,18	10,4	5,21	0,4
TOHT 160408 EN-05	**W59 32050.08..**	▲	▲	▲	▲	▲	▲	▲	▲	9,52	4,76	15,3	7,66	0,8
Mild steel/tool steel	P	●	◐	●	◐		●	●	●	Order example:				
Stainless and acid-resistant steel	M	○		○			◑	○	○	ISO Code				
Grey cast iron, spheroidal cast iron	K		●		●	●			●	TOHT 110304 EN-05				
Non-ferrous metals	N		●							Cutting material				
Heat-resistant steels	S		●					◐		P25M				
Hardened tool steel	H				◐ < 52 HRC	◐ < 52 HRC				Order No.				
										W59 18050.0403				

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W60..06 / W60..12 / W60..20 DOHT

Inserts

L.H. cutting form „L“

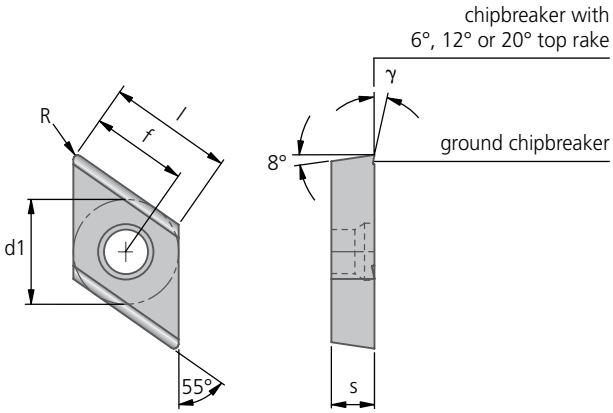


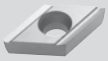
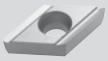
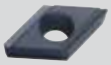
Application range:

- External and internal copy turning

Because of the positive cutting edge geometry, cutting is very efficient. Particularly suitable for long overhang and for thin-walled materials. The large selection of ground chipbreakers and carbides will suit almost any materials.

Cutter geometry:

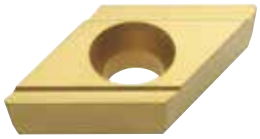


Substrate		Carbide									
Coating type		–	–	CVD	PVD						
Cutting material designation		P25M	K10	BK6425	BK2710						
Cutting edge design		E	F	E	E						
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	 03	 21	 6425	 2710	d1	s	l	γ	f	R
DOHT 070202..L-G06	W60 18060.02..	▲				6,35	2,4	7,4	6°	5,92	0,2
DOHT 070204..L-G06	W60 18060.04..			▲						5,73	0,4
DOHT 070202..L-G12	W60 18120.02..	▲	▲	▲	▲	6,35	2,4	7,4	12°	5,92	0,2
DOHT 070204..L-G12	W60 18120.04..	▲	▲	▲	▲					5,73	0,4
DOHT 070202..L-G20	W60 18200.02..		▲			6,35	2,4	7,4	20°	5,92	0,2
DOHT 11T302..L-G12	W60 32120.02..	▲	▲	▲		9,52	4,0	11,2	12°	8,96	0,2
DOHT 11T304..L-G12	W60 32120.04..	▲	▲	▲	▲					8,78	0,4
DOHT 11T308..L-G12	W60 32120.08..			▲	▲					8,41	0,8
Mild steel/tool steel	P	●	◐	●	◐						
Stainless and acid-resistant steel	M	○		○	◑						
Grey cast iron, spheroidal cast iron	K		●		●						
Non-ferrous metals	N		●								
Heat-resistant steels	S		●		●						
Hardened tool steel	H										

Order example:
ISO Code
DOHT 070202 EL-G06
Cutting material
P25M
Order No.
W60 18060.0203

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

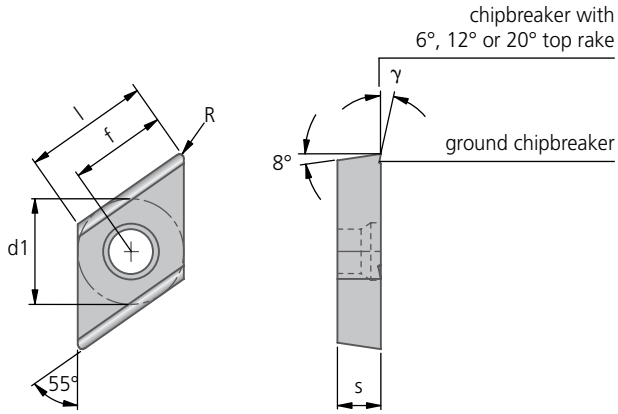


Application range:

- External and internal copy turning

Because of the positive cutting edge geometry, cutting is very efficient. Particularly suitable for long overhang and for thin-walled materials. The large selection of ground chipbreakers and carbides will suit almost any materials.

Cutter geometry:



Substrate		Carbide									
Coating type		–	–	CVD							
Cutting material designation		P25M	K10	BK6425							
Cutting edge design		E	F	E							
ISO Code Cutting edge design E = rounded F = sharp ▼	Order No. Enter code ▼	 03	 21	 6425	d1	s	l	γ	f	R
DOHT 070202..R-G06	**W60 18360.02..**	▲		▲	6,35	2,4	7,4	6°	5,92	0,2
DOHT 070204..R-G06	**W60 18360.04..**			▲					5,73	0,4
DOHT 070202..R-G12	**W60 18420.02..**	▲	▲	▲	6,35	2,4	7,4	12°	5,92	0,2
DOHT 070204..R-G12	**W60 18420.04..**	▲	▲	▲					5,73	0,4
DOHT 070202..R-G20	**W60 18500.02..**		▲		6,35	2,4	7,4	20°	5,92	0,2
DOHT 070204..R-G20	**W60 18500.04..**		▲						5,73	0,4
DOHT 11T308..R-G06	**W60 32360.08..**			▲	9,52	4,0	11,2	6°	8,41	0,8
DOHT 11T302..R-G12	**W60 32420.02..**	▲	▲	▲	9,52	4,0	11,2	12°	8,96	0,2
DOHT 11T304..R-G12	**W60 32420.04..**	▲	▲	▲					8,78	0,4
DOHT 11T308..R-G12	**W60 32420.08..**			▲					8,41	0,8
Mild steel/tool steel P		●	◐	●	Order example: ISO Code DOHT 070202 ER-G06 Cutting material P25M Order No. W60 18360.0203					
Stainless and acid-resistant steel M		●		●						
Grey cast iron, spheroidal cast iron K			●							
Non-ferrous metals N			●							
Heat-resistant steels S			●							
Hardened tool steel H										

● Main area of application ◐ Suitable in some cases

KOMET® W60..60 DOHW

Inserts

neutral cutting form „N“

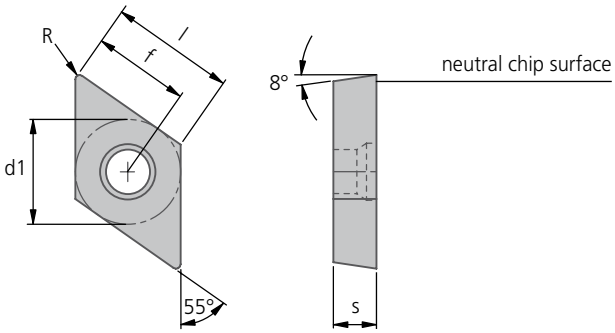


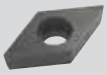
Application range:

- External and internal copy turning

Because of the positive cutting edge geometry, cutting is very efficient. Particularly suitable for long overhang and for thin-walled materials.

Cutter geometry:

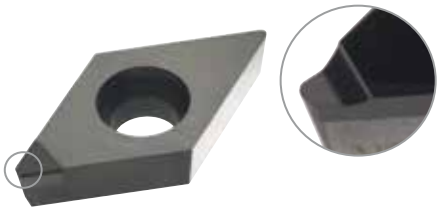


Substrate		Carbide						
Coating type		–						
Cutting material designation		K10						
Cutting edge design		E						
ISO Code Cutting edge design E = rounded ▼	Order No. Enter code ▼	 21		d1	s	l	f	R
DOHW 070202 EN	**W60 18600.02..**	▲		6,35	2,4	7,4	5,20	0,2
DOHW 070204 EN	**W60 18600.04..**	▲					5,73	0,4
DOHW 11T304 EN	**W60 32600.04..**	▲		9,52	4,0	11,2	8,78	0,4
Mild steel/tool steel	P	◐						
Stainless and acid-resistant steel	M							
Grey cast iron, spheroidal cast iron	K	●						
Non-ferrous metals	N	●						
Heat-resistant steels	S	●						
Hardened tool steel	H							

Order example:
ISO Code
DOHW 070202 EN
Cutting material
K10
Order No.
W60 18600.0221

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

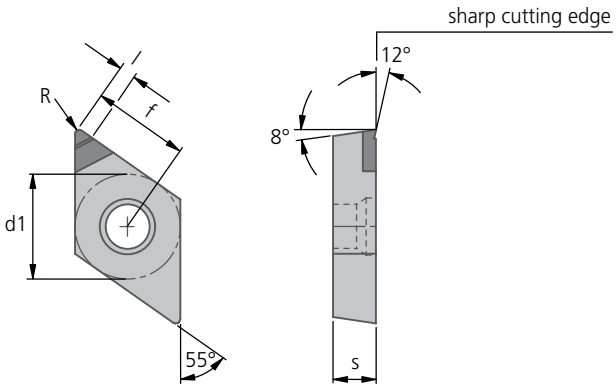


Application range:

Version with chip breaker for optimum chip control. Particularly well-suited for long-chipping non-ferrous metals, mainly aluminium, wrought alloys and die casting alloys.

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

Cutter geometry:



Substrate		PCD					
Coating type		–					
Cutting material designation		PKD5510					
Cutting edge design		F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	d1	s	l	f	R
DOGT 070204 FN-G12	**W60 18980.04..**	▲	6,35	2,4	0,6	5,73	0,4
DOGT 11T304 FN-G10	**W60 32980.04..**	▲	9,52	4,0	0,6	8,78	0,4
Mild steel/tool steel **P**							
Stainless and acid-resistant steel **M**							
Grey cast iron, spheroidal cast iron **K**							
Non-ferrous metals **N**		●					
Heat-resistant steels **S**							
Hardened tool steel **H**							

Order example:
ISO Code
DOGW 070204 FN
Cutting material
PKD5510
Order No.
W60 18980.045510

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W60..99 DOGW

Inserts

PCD or CBN cutting edge

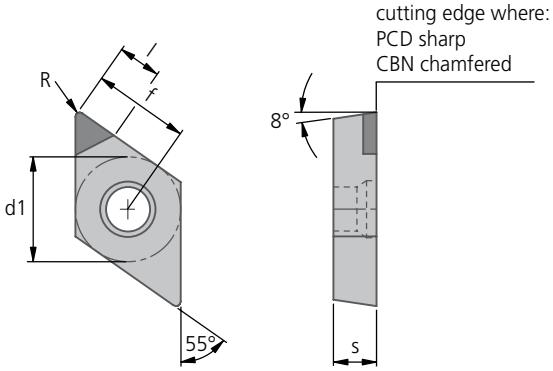


Application range:

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

CBN: Internal and external machining, fine turning. Inserts with cutting edges have the following advantages: high cutting speeds, high dimensional consistency, extremely long tool life and above-average surface finish.
CBN 57: Preferably for cast materials and alloys on a nickel cobalt base.
CBN 40: For machining hardened steels (over 52 HRC).

Cutter geometry:



Substrate		PCD	CBN						
Coating type		–	–	–					
Cutting material designation		PKD5510	CBN57	CBN40					
Cutting edge design		F	T	T					
ISO Code Cutting edge design F = sharp T = chamfered ▼	Order No. Enter code ▼	 5510	 57	 40	d1	s	l	f	R
DOGW 070202 ..N	W60 18990.02..	▲		▲	6,35	2,4	3,0	5,92	0,2
DOGW 070204 ..N	W60 18990.04..	▲	▲	▲				5,73	0,4
DOGW 11T302 ..N	W60 32990.02..	▲		▲	9,52	4,0	3,0	8,96	0,2
DOGW 11T304 ..N	W60 32990.04..	▲	▲	▲				8,78	0,4
Mild steel/tool steel P					Order example: ISO Code DOGW 070202 FN Cutting material PKD5510 Order No. W60 18990.025510				
Stainless and acid-resistant steel M									
Grey cast iron, spheroidal cast iron K			●						
Non-ferrous metals N		●							
Heat-resistant steels S			◐	◐					
Hardened tool steel H				○ ≥ 52 HRC					

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

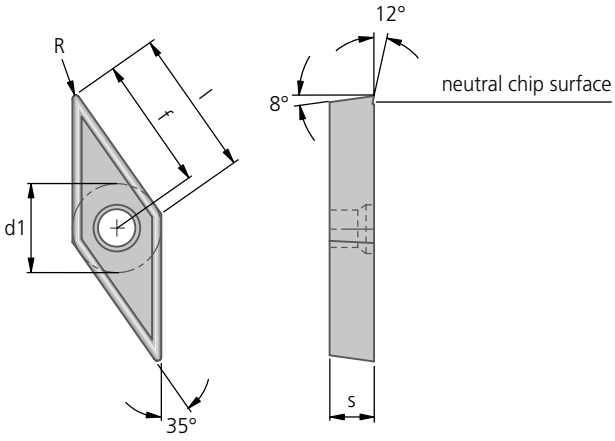


Application range:

- External and internal copy turning

The sintered chipbreaker allows universal use.
The positive cutter geometry and peripheral ground clearance faces produce low cutting forces with high changeover accuracy.

Cutter geometry:



Substrate		Carbide						
Coating type		–	CVD					
Cutting material designation		P35	BK66					
ISO Code	Order No.			d1	s	l	f	R
	Enter code ▼	14	66					
VOHT 110302-07	**W78 18070.02..**	▲	▲	6,35	3,18	11	9,64	0,2
VOHT 110304-07	**W78 18070.04..**	▲	▲				9,20	0,4
VOHT 160404-07	**W78 32070.04..**	▲	▲	9,52	4,76	16	14,23	0,4
VOHT 160408-07	**W78 32070.08..**	▲	▲				13,36	0,8
Mild steel/tool steel **P**		●	●	Order example: ISO Code VOHT 110302-07 Cutting material P35 Order No. W78 18070.0214				
Stainless and acid-resistant steel **M**		◐	◐					
Grey cast iron, spheroidal cast iron **K**								
Non-ferrous metals **N**								
Heat-resistant steels **S**								
Hardened tool steel **H**								

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W78..98 VOGW

Inserts

PCD chip topography

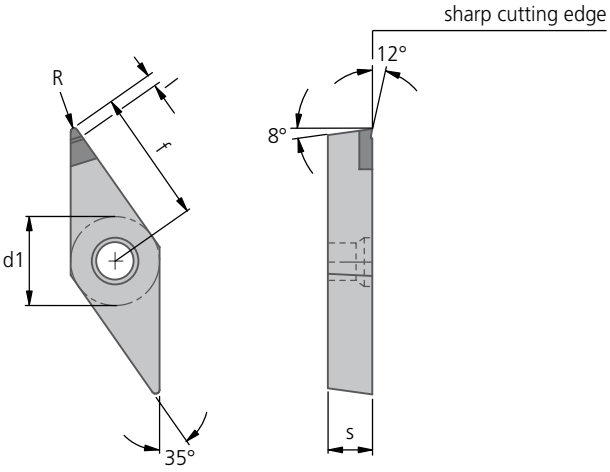


Application range:

Version with chip breaker for optimum chip control. Particularly well-suited for long-chipping non-ferrous metals, mainly aluminium, wrought alloys and die casting alloys.

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

Cutter geometry:



Substrate		PCD					
Coating type		–					
Cutting material designation		PKD5510					
Cutting edge design		F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	d1	s	l	f	R
VOGW 110304 FN-G12	**W78 18980.04..**	▲	6,35	3,18	0,6	9,20	0,4
VOGW 160404 FN-G12	**W78 32980.04..**	▲	9,52	4,76	0,6	13,36	0,4
Mild steel/tool steel **P**							
Stainless and acid-resistant steel **M**							
Grey cast iron, spheroidal cast iron **K**							
Non-ferrous metals **N**		●					
Heat-resistant steels **S**							
Hardened tool steel **H**							

Order example:
ISO Code
VOGW 110304 FN
Cutting material
PKD5510
Order No.
W78 18980.045510

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

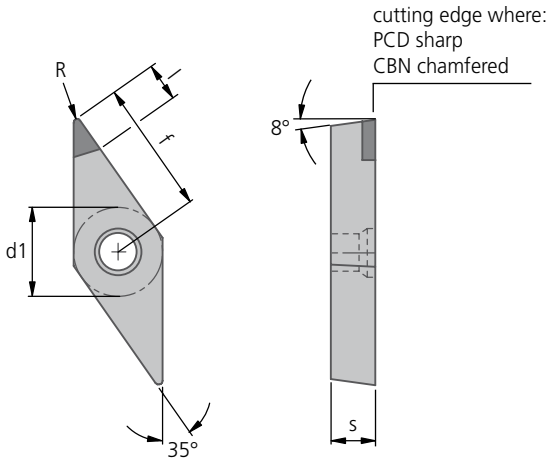


Application range:

PCD: Internal and external machining, fine turning of non-ferrous metals, plastics, composites, rubber, graphites, etc. High cutting speeds, good dimensional accuracy, above-average surface finish and extremely good tool life are all features of these PCD tipped inserts.

CBN: Internal and external machining, fine turning. Inserts with cutting edges have the following advantages: high cutting speeds, high dimensional consistency, extremely long tool life and above-average surface finish.
CBN 57: Preferably for cast materials and alloys on a nickel cobalt base.

Cutter geometry:



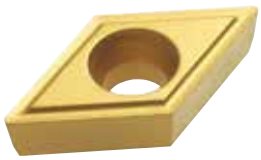
Substrate		PCD	CBN					
Coating type		–	–					
Cutting material designation		PKD5510	CBN57					
Cutting edge design		F	T					
ISO Code Cutting edge design F = sharp T = chamfered ▼	Order No. Enter code ▼	 5510	 57	d1	s	l	f	R
VOGW 110304 ..N	W78 18990.04..	▲	▲	6,35	3,18	2,5	9,20	0,4
VOGW 160408 ..N	W78 32990.08..	▲	▲	9,52	4,76	3,5	13,36	0,8
Mild steel/tool steel P				Order example: ISO Code VOGW 110304 FN Cutting material PKD5510 Order No. W78 18990.045510				
Stainless and acid-resistant steel M								
Grey cast iron, spheroidal cast iron K			●					
Non-ferrous metals N		●						
Heat-resistant steels S			◐					
Hardened tool steel H								

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W79..06 DOHT

Inserts

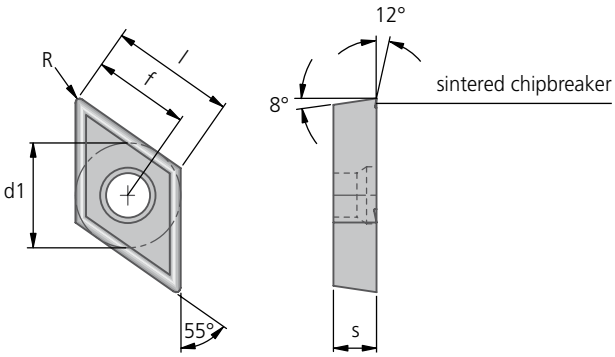


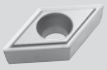
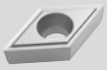
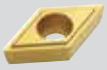
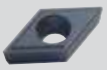
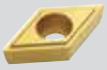
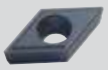
Application range:

- External and internal copy turning

The sintered chipbreaker allows universal use.
The positive cutter geometry and peripheral ground clearance faces produce low cutting forces with high changeover accuracy.

Cutter geometry:



Substrate		Carbide										
Coating type		–	–	CVD	CVD	CVD	PVD					
Cutting material designation		P25M	K10	BK6425	BK7615	BK6440	BK2710					
ISO Code	Order No.							d1	s	l	f	R
Enter code ▼		03	21	6425	7615	6440	2710					
DOHT 070202-06	W79 18060.02..	▲	▲	▲		▲	▲				5,92	0,2
DOHT 070204-06	W79 18060.04..	▲	▲	▲	▲	▲	▲	6,35	2,4	7,4	5,73	0,4
DOHT 070208-06	W79 18060.08..			▲		▲					5,36	0,8
DOHT 11T302-06	W79 32060.02..		▲	▲							8,96	0,2
DOHT 11T304-06	W79 32060.04..	▲	▲	▲		▲	▲	9,52	4,0	11,2	8,78	0,4
DOHT 11T308-06	W79 32060.08..		▲	▲		▲	▲				8,41	0,8
Mild steel/tool steel	P	●	◐	●		●	◐	Order example:				
Stainless and acid-resistant steel	M	○		○		◑	◑	ISO Code				
Grey cast iron, spheroidal cast iron	K		●		●		●	DOHT 070202-06				
Non-ferrous metals	N		●					Cutting material				
Heat-resistant steels	S		●				●	P25M				
Hardened tool steel	H				◑ < 52 HRC			Order No.				
								W79 18060.0203				

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

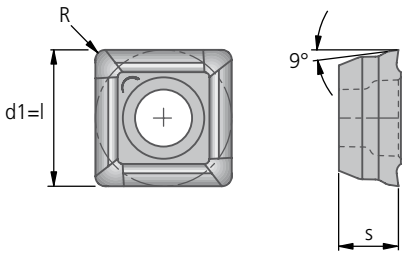


Application range:

- Solid drilling with KUB Pentron®
- Special tools

All-round geometry for KUB Pentron®:
wear-resistant indexable insert for universal use

Cutter geometry:



Substrate		Carbide								
Coating type		CVD	CVD	PVD	PVD	PVD				
Cutting material designation		BK6115	BK6425	BK7935	BK7710	BK8425				
ISO Code	Order No.						d1	s	l	R
	Enter code ▼	6115	6425	7935	7710	8425				
SOGX 040204-01	W80 10010.04..	▲	▲	▲	▲	▲	4,8	2,2	4,8	0,4
SOGX 050204-01	W80 12010.04..	▲	▲	▲	▲	▲	5,5	2,4	5,5	0,4
SOGX 060206-01	W80 18010.06..	▲	▲	▲	▲	▲	6,2	2,75	6,2	0,6
SOGX 07T208-01	W80 20010.08..	▲	▲	▲	▲	▲	7,1	2,97	7,1	0,8
SOGX 080308-01	W80 24010.08..	▲	▲	▲	▲	▲	8,0	3,4	8,0	0,8
SOGX 09T308-01	W80 28010.08..	▲	▲	▲	▲	▲	8,9	3,9	8,9	0,8
SOGX 100408-01	W80 32010.08..	▲	▲	▲	▲	▲	9,8	4,2	9,8	0,8
SOGX 110408-01	W80 38010.08..	▲	▲	▲	▲	▲	10,9	4,5	10,9	0,8
SOGX 120408-01	W80 42010.08..	▲	▲	▲	▲	▲	12,0	4,8	12,0	0,8
SOGX 130508-01	W80 46010.08..	▲	▲	▲	▲	▲	13,2	5,2	13,2	0,8
Mild steel/tool steel	P	◐	●			●	Order example:			
Stainless and acid-resistant steel	M	◑	○	○		○	ISO Code			
Grey cast iron, spheroidal cast iron	K	●	◐	◐		◐	SOGX 050204-01			
Non-ferrous metals	N				●	◐	Cutting material			
Heat-resistant steels	S			◐			BK6115			
Hardened tool steel	H	◑					Order No.			
							W80 12010.046115			
External cutting edge		✓	✓	✓	✓	✓				
Internal cutting edge *Recommendation*		*BK8425*	*BK8425*	✓	✓	✓				

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W80..03 SOGX

Inserts

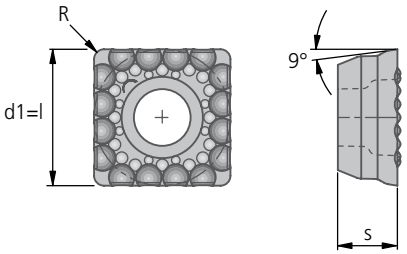


Application range:

- Solid drilling with KUB Pentron®
- Special tools

This geometry is suitable for all steels in general, especially for long-chipping and stainless steel materials. The SOGX indexable insert topography is predestined for use in long-chipping materials and, thanks to optimum chip formation, ensures the reliable removal of chips, even with high L/D ratios.

Cutter geometry:



Substrate		Carbide				
Coating type		PVD				
Cutting material designation		BK8430				
ISO Code	Order No.		d1	s	l	R
	Enter code ▼	8430				
SOGX 040204-03	W80 10030.04..	▲	4,8	2,2	4,8	0,4
SOGX 050204-03	W80 12030.04..	▲	5,5	2,4	5,5	0,4
SOGX 060206-03	W80 18030.06..	▲	6,2	2,75	6,2	0,6
SOGX 07T208-03	W80 20030.08..	▲	7,1	2,97	7,1	0,8
SOGX 080308-03	W80 24030.08..	▲	8,0	3,4	8,0	0,8
SOGX 09T308-03	W80 28030.08..	▲	8,9	3,9	8,9	0,8
SOGX 100408-03	W80 32030.08..	▲	9,8	4,2	9,8	0,8
SOGX 110408-03	W80 38030.08..	▲	10,9	4,5	10,9	0,8
SOGX 120408-03	W80 42030.08..	▲	12,0	4,8	12,0	0,8
SOGX 130508-03	W80 46030.08..	▲	13,2	5,2	13,2	0,8
Mild steel/tool steel P		●	Order example: ISO Code SOGX 040204-03 Cutting material BK8430 Order No. W80 10030.048430			
Stainless and acid-resistant steel M		●				
Grey cast iron, spheroidal cast iron K		◐				
Non-ferrous metals N		◐				
Heat-resistant steels S						
Hardened tool steel H						
External cutting edge		✓				
Internal cutting edge *Recommendation*		✓				

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

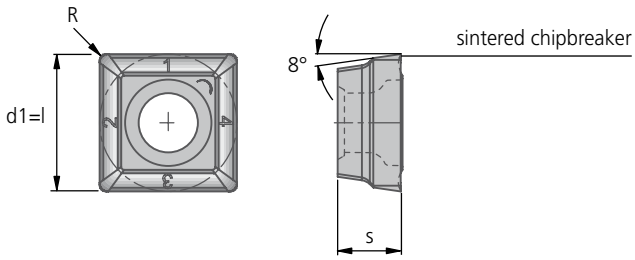


Application range:

- Special tools
- Roughing
- Precision boring
- Turning

Reduced cutting forces thanks high positive chip forming step, four effective cutting edges. High indexing and repeatability due to precision-ground circumference. Compatible with SOEX indexable inserts, additional labelling for easy identification.

Cutter geometry:



Substrate		Carbide					
Coating type		PVD	PVD				
Cutting material designation		BK2730	BK8530				
ISO Code	Order No.			d1	s	l	R
	Enter code ▼	2730	8530				
SOHX 090404-21	W82 32210.04..		▲	9,52	4,37	9,52	0,4
SOHX 090408-21	W82 32210.08..	▲	▲				0,8
Mild steel/tool steel	P	◐	●				
Stainless and acid-resistant steel	M	○	◑				
Grey cast iron, spheroidal cast iron	K	●					
Non-ferrous metals	N						
Heat-resistant steels	S						
Hardened tool steel	H						

Order example:
ISO Code
SOHX 090404-21
Cutting material
BK8530
Order No.
W82 32210.048530

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W83..01

Inserts

SOEX

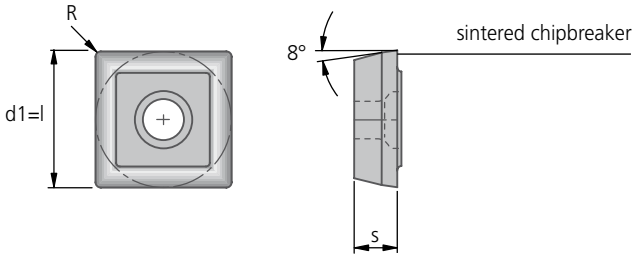


Application range:

- KUB Quatron®, KUB Centron® Powerline
- Special tools
- TwinKom® double insert tools
- Kometric® mounted seatings

Optimum solution for all roughing operations.
Suitable for medium and strong steels and cast iron according to quality.
All-round geometry:
Wear-resistant insert for universal use for internal and external cutting.

Cutter geometry:



Substrate		Carbide									
Coating type		CVD	CVD	CVD	CVD	PVD	PVD				
Cutting material designation		BK7615	BK6115	BK6420	BK74	BK7935	BK8425				
ISO Code	Order No.							d1	s	l	R
Enter code ▼		7615	6115	6420	74	7935	8425				
SOEX 050204-01	W83 13000.01..		▲		▲			5,56	2,38	5,56	0,4
	W83 13010.04..	▲		▲		▲	▲				
SOEX 060306-01	W83 18000.09..		▲		▲			6,35	3,18	6,35	0,6
	W83 18010.06..	▲		▲		▲	▲				
SOEX 07T308-01	W83 23000.01..		▲		▲			7,94	3,58	7,94	0,8
	W83 23010.08..	▲		▲		▲	▲				
SOEX 090408-01	W83 32000.15..		▲		▲			9,52	4,37	9,52	0,8
	W83 32010.08..	▲		▲		▲	▲				
SOEX 120508-01	W83 44000.18..		▲		▲			12,7	5,16	12,7	0,8
	W83 44010.08..	▲		▲		▲	▲				
Mild steel/tool steel	P		◐	●	◐	●	●	Order example:			
Stainless and acid-resistant steel	M			○	○	○	○	ISO Code			
Grey cast iron, spheroidal cast iron	K	●	●	◐			●	SOEX 050204-01			
Non-ferrous metals	N							Cutting material			
Heat-resistant steels	S				●	◐		BK6420			
Hardened tool steel	H	◐	◐ <52HRC					Order No.			
								W83 13010.046420			
External cutting edge		✓	✓	✓	✓	✓	✓				
Internal cutting edge *Recommendation*		*BK8425*	*BK8425*	*BK8425*	✓	✓	✓				

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

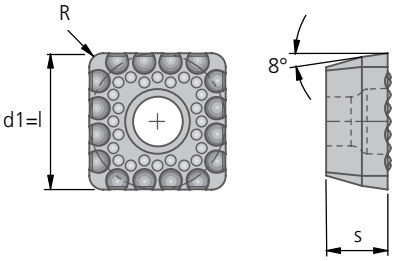


Application range:

- KUB Quatron®, KUB Centron® Powerline
- Special tools and Easy Special

Generally suitable for all steels, in particular for long-chipping steel materials and stainless steels. The SOEX indexable insert topography is predestined for use in long-chipping materials, and, thanks to its optimum chip formation, ensures reliable removal of chips, even with high L/D ratios.

Cutter geometry:



BK6730: Only suitable to be used for outer cutters. All-round cutting material BK8430 should be used for inner cutters.
BK8430 all-round cutting material: Wear-resistant, universal indexable insert for inner and outer cutters.

Substrate		Carbide					
Coating type		CVD	PVD				
Cutting material designation		BK6730	BK8430				
ISO Code	Order No.			d1	s	l	R
	Enter code ▼	6730	8430				
SOEX 050204-03	W83 13030.04..	▲	▲	5,56	2,38	5,56	0,4
SOEX 060306-03	W83 18030.06..	▲	▲	6,35	3,18	6,35	0,6
SOEX 07T308-03	W83 23030.08..	▲	▲	7,94	3,58	7,94	0,8
SOEX 090408-03	W83 32030.08..	▲	▲	9,52	4,37	9,52	0,8
SOEX 120508-03	W83 44030.08..	▲	▲	12,7	5,16	12,7	0,8
Mild steel/tool steel P		●	●	Order example: ISO Code SOEX 050204-03 Cutting material BK8430 Order No. W83 13030.048430			
Stainless and acid-resistant steel M		●	●				
Grey cast iron, spheroidal cast iron K		◐	◐				
Non-ferrous metals N		◐	◐				
Heat-resistant steels S							
Hardened tool steel H							
External cutting edge		✓	✓				
Internal cutting edge *Recommendation*		*BK8430*	✓				

GSM EM 001773441 (geometry)

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W83..13

Inserts

SOEX

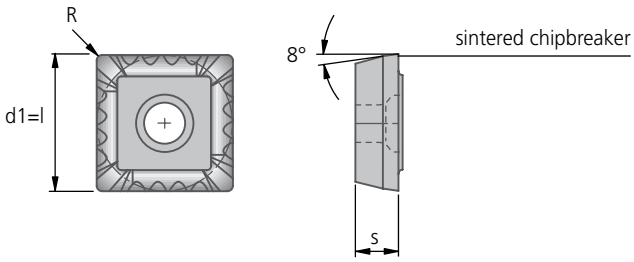


Application range:

- KUB Quatron®, KUB Centron® Powerline
- Special tools
- TwinKom® double insert tools
- Kometric® mounted seatings

Optimum solution for steel with low carbon content and for stainless steels. Suitable for medium to high cutting speeds for internal and external cutting edge.

Cutter geometry:



Substrate		Carbide							
Coating type		CVD	CVD	PVD	PVD				
Cutting material designation		BK6420	BK74	BK7935	BK8425				
ISO Code	Order No.					d1	s	l	R
	Enter code ▼	6420	74	7935	8425				
SOEX 050204-13	W83 13130.04..			▲	▲	5,56	2,38	5,56	0,4
SOEX 060306-13	W83 18000.10..		▲			6,35	3,18	6,35	0,6
	W83 18130.06..	▲		▲	▲				
SOEX 060308-13	W83 18130.08..	▲	▲	▲	▲				0,8
SOEX 07T308-13	W83 23000.02..		▲			7,94	3,58	7,94	0,8
	W83 23130.08..	▲		▲	▲				
SOEX 090408-13	W83 32000.17..		▲			9,52	4,37	9,52	0,8
	W83 32130.08..	▲		▲	▲				
SOEX 110508-13	W83 39130.08..	▲	▲	▲	▲	11,1	4,76	11,1	0,8
SOEX 120508-13	W83 44000.19..		▲			12,7	5,16	12,7	0,8
	W83 44130.08..	▲		▲	▲				
Mild steel/tool steel P		●	◐	●	●	Order example:			
Stainless and acid-resistant steel M		○	○	○	○	ISO Code			
Grey cast iron, spheroidal cast iron K		◐			●	SOEX 050204-13			
Non-ferrous metals N						Cutting material			
Heat-resistant steels S			●	◐		BK6420			
Hardened tool steel H						Order No.			
						W83 13130.046420			
External cutting edge		✓	✓	✓	✓				
Internal cutting edge *Recommendation*		*BK8425*	✓	✓	✓				

EP 0 792 201 and other patents (geometry)

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

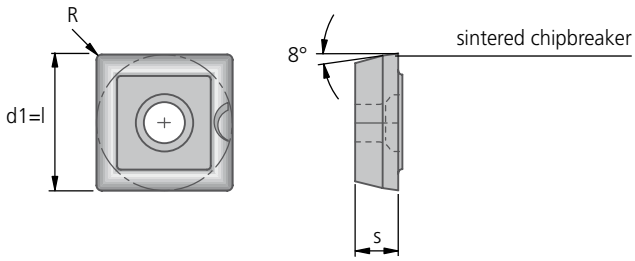


Application range:

- KUB Quatron®, KUB Centron® Powerline
- Special tools
- TwinKom® double insert tools
- Kometric® mounted seatings

For cutting stainless and general steels and aluminium materials.

Cutter geometry:



Substrate		Carbide							
Coating type		PVD	PVD	PVD	CVD				
Cutting material designation		BK8430	BK7935	BK7710	BK6130				
ISO Code	Order No.					d1	s	l	R
Enter code ▼		8430	7935	7710	6130				
SOEX 050204-21	W83 13210.04..	▲	▲	▲	▲	5,56	2,38	5,56	0,4
SOEX 060306-21	W83 18210.06..	▲	▲	▲	▲	6,35	3,18	6,35	0,6
SOEX 060308-21	W83 18210.08..	▲	▲	▲	▲				0,8
SOEX 07T308-21	W83 23210.08..	▲	▲	▲	▲	7,94	3,58	7,94	0,8
SOEX 090408-21	W83 32210.08..	▲	▲	▲	▲	9,52	4,37	9,52	0,8
SOEX 110508-21	W83 39210.08..	▲	▲	▲	▲	11,1	4,76	11,1	0,8
SOEX 120508-21	W83 44210.08..	▲	▲	▲	▲	12,7	5,16	12,7	0,8
Mild steel/tool steel P		●	●		●	Order example:			
Stainless and acid-resistant steel M		◯	◯		◯	ISO Code			
Grey cast iron, spheroidal cast iron K		◐	◐		◐	SOEX 050204-21			
Non-ferrous metals N		◐		●		Cutting material			
Heat-resistant steels S		◐			◐	BK2730			
Hardened tool steel H						Order No.			
						W83 13210.042730			
External cutting edge		✓	✓	✓	✓				
Internal cutting edge *Recommendation*		✓	*W83..01 – BK8425*	✓	*W83..01 – BK8425*				

● Main area of application ◐ Suitable in some cases

KOMET® W83..32 / W83..33 SOEX

Inserts

for drilling with minimum burring



Application range:

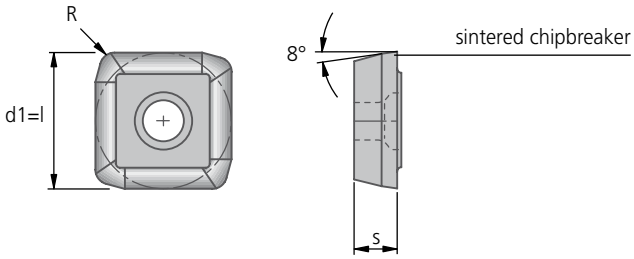
- Solid drilling
- Special tools

For cutting steel and cast iron materials.
Minimum burring at bore entrance and exit.

- Drive shaft machining
- Safe removal of the disc at the hole bottom when the drill exits
- C70 connecting rod machining with minimal burring



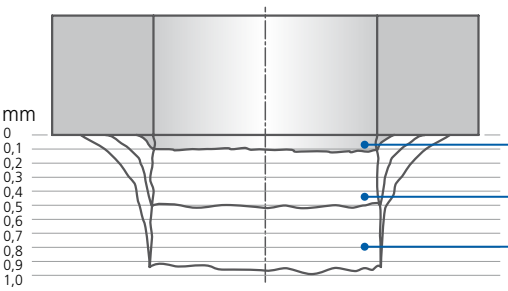
Cutter geometry:



Substrate		Carbide						Important Note	
Coating type		PVD	PVD					Because of design there is a nominal diameter reduction for standard KUB Quatron®	
Cutting material designation		BK7935	BK8425						
ISO Code	Order No.			d1	s	l	R	Tool-Ø	Reduction
	Enter code ▼	7935	8425						
SOEX 050204-32	**W83 13320.04..**	▲	▲	5,56	2,38	5,56	0,4	14,0-16,0 16,1-17,5	0,05 0,08
SOEX 060306-32	**W83 18320.06..**	▲	▲	6,35	3,18	6,35	0,6	17,6-21,5	0,10
SOEX 07T308-33	**W83 23330.08..**	▲	▲	7,94	3,58	7,94	0,8	21,6-27,0 44,1-52,0	0,09
SOEX 090408-32	**W83 32320.08..**	▲	▲	9,52	4,37	9,52	0,8	27,1-33,0 52,1-65,0	0,11
SOEX 120508-32	**W83 44320.08..**	▲	▲	12,7	5,16	12,7	0,8	33,1-44,0	0,13
Mild steel/tool steel P		●	●						
Stainless and acid-resistant steel M		●	●						
Grey cast iron, spheroidal cast iron K			●						
Non-ferrous metals N									
Heat-resistant steels S		◐							
Hardened tool steel H									

Order example:
ISO Code
SOEX 050204-32
Cutting material
BK7935
Order No.
W83 13320.047935

EP 1525066 and other patents (drilling with minimum burring)



Burr formation at hole exit

Material: C15 (1.0401)

0,102 height of burring — KUB Quatron® with burr minimising insert

0,506 height of burring — Insert drill: Competitor 1

0,988 height of burring — Insert drill: Competitor 2

● Main area of application ◐ Suitable in some cases

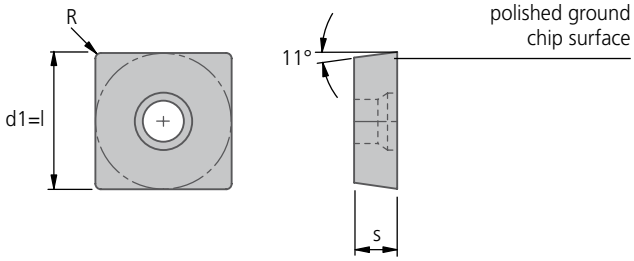
▲ Availability: for delivery see current price and stock list



Application range:

with K10
For cutting aluminium materials and plastics at up to medium cutting speeds. Tough grades and high resistance to build-up on cutting edges.

Cutter geometry:



Substrate		Carbide					
Coating type		–					
Cutting material designation		K10					
Cutting edge design		F					
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 21		d1	s	l	R
SPGW 060202 FN	**W83 18000.15..**	▲		6,35	2,38	6,35	0,2
SPGW 060204 FN	**W83 18000.16..**	▲					0,4
SPGW 09T304 FN	**W83 32000.18..**	▲		9,52	3,97	9,52	0,4
SPGW 09T308 FN	**W83 32000.19..**	▲					0,8
Mild steel/tool steel	P	◐					
Stainless and acid-resistant steel	M						
Grey cast iron, spheroidal cast iron	K	●					
Non-ferrous metals	N	●					
Heat-resistant steels	S	●					
Hardened tool steel	H						

Order example:
ISO Code
SPGW 060202 FN
Cutting material
K10
Order No.
W83 18000.1521

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W83 SPGW

Inserts

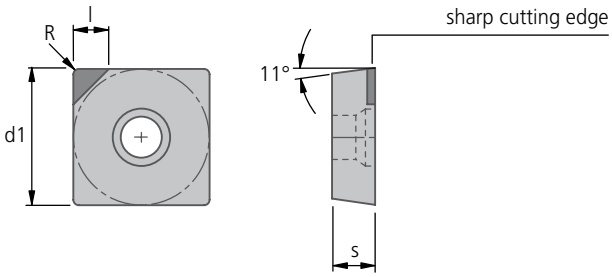
PCD cutting edge
for machining aluminium



Application range:

PCD
Increased edge stability so can also be used, for example, in aluminium with 12% Si content and with interrupted cut.

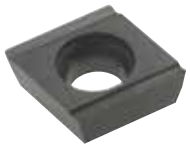
Cutter geometry:



Substrate		PCD				
Coating type		–				
Cutting material designation		PKD5510				
Cutting edge design		F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	d1	s	l	R
SPGW 09T308 FN	W83 32000.14..	▲	9,52	3,97	3,0	0,8
Mild steel/tool steel P						
Stainless and acid-resistant steel M						
Grey cast iron, spheroidal cast iron K						
Non-ferrous metals N		●				
Heat-resistant steels S						
Hardened tool steel H						

Order example:
ISO Code
SPGW 09T304 FN
Cutting material
PKD5510
Order No.
W83 32000.135510

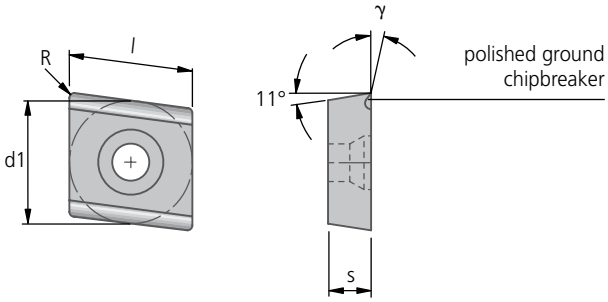
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

For cutting aluminium materials and plastics at up to medium cutting speeds. Tough grades, high edge stability and high resistance to build-up on cutting edges (coated).

Cutter geometry:



Substrate		Carbide								
Coating type		–		PVD						
Cutting material designation		K10	BK50	BK77						
Cutting edge design		F	F	F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 21	 50	 77	d1	s	l	γ	R
CPGT 040102 FL-P18	W85 09000.01..	▲			4,76	1,59	4,8	18°	0,2
CPGT 040104 FL-P18	W85 09000.03..	▲		▲					0,4
CPGT 04T104 FL-P18	W85 09000.12..				4,76	1,98	4,8	18°	0,4
CPGT 060202 FL-P18	W85 18000.06..	▲			6,35	2,38	6,45	18°	0,2
CPGT 060204 FL-P18	W85 18000.08..	▲		▲					0,4
CPGT 080302 FL-P18	W85 23000.01..	▲			7,94	3,18	8,06	18°	0,2
CPGT 080304 FL-P18	W85 23000.02..	▲							0,4
CPGT 09T304 FL-P18	W85 32000.23..	▲	▲	▲	9,52	3,97	9,65	18°	0,4
CPGT 09T308 FL-P18	W85 32000.24..	▲	▲	▲					0,8
CPGT 120404 FL-P18	W85 44000.29..		▲	▲	12,7	4,76	12,9	18°	0,4
CPGT 120408 FL-P18	W85 44000.30..			▲					0,8
Mild steel/tool steel P		◐			Order example: ISO Code CPGT 040102 FL-P18 Cutting material BK50 Order No. W85 09000.0150				
Stainless and acid-resistant steel M									
Grey cast iron, spheroidal cast iron K		●							
Non-ferrous metals N		●	●	●					
Heat-resistant steels S		●		●					
Hardened tool steel H									

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® W85 CPGT

Inserts

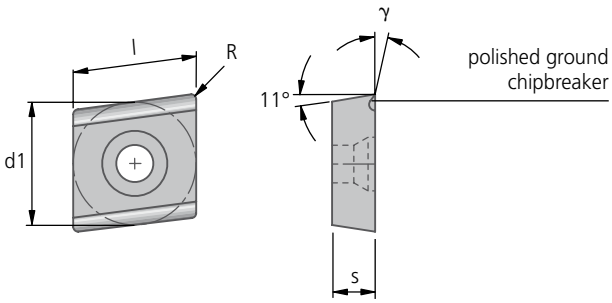
R.H. cutting form „R“
for machining aluminium



Application range:

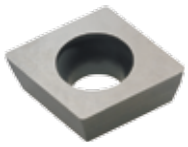
For cutting aluminium materials and plastics at up to medium cutting speeds. Tough grades, high edge stability and high resistance to build-up on cutting edges (coated).

Cutter geometry:



Substrate		Carbide						
Coating type		–						
Cutting material designation		K10						
Cutting edge design		F						
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 21		d1	s	l	γ	R
CPGT 04T102 FR-P18	W85 09000.13..	▲		4,76	1,98	4,8	18°	0,2
CPGT 04T104 FR-P18	W85 09000.14..	▲						0,4
CPGT 060202 FR-P18	W85 18000.27..	▲		6,35	2,38	6,45	18°	0,2
CPGT 060204 FR-P18	W85 18000.28..	▲						0,4
CPGT 080302 FR-P18	W85 23000.03..	▲		7,94	3,18	8,06	18°	0,2
CPGT 080304 FR-P18	W85 23000.04..	▲						0,4
CPGT 09T304 FR-P18	W85 32000.34..	▲		9,52	3,97	9,65	18°	0,4
CPGT 09T308 FR-P18	W85 32000.35..	▲						0,8
CPGT 120408 FR-P18	W85 44000.39..	▲		12,7	4,76	12,9	18°	0,8
Mild steel/tool steel	P	◐		Order example: ISO Code CPGT 040102 FR-P18 Cutting material K10 Order No. W85 09000.0921				
Stainless and acid-resistant steel	M							
Grey cast iron, spheroidal cast iron	K	●						
Non-ferrous metals	N	●						
Heat-resistant steels	S	●						
Hardened tool steel	H							

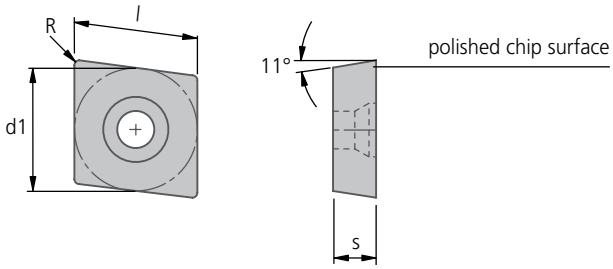
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Application range:

For cutting aluminium materials and plastics at up to medium cutting speeds. Tough grades and high resistance to build-up on cutting edges.

Cutter geometry:



Substrate		Carbide				
Coating type		–				
Cutting material designation		K10				
Cutting edge design		F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 21	d1	s	l	R
CPGW 060202 FN	**W85 18000.17..**	▲	6,35	2,38	6,45	0,2
CPGW 060204 FN	**W85 18000.18..**	▲				0,4
CPGW 09T304 FN	**W85 32000.26..**	▲	9,52	3,97	9,65	0,4
CPGW 120404 FN	**W85 44000.32..**	▲	12,7	4,76	12,9	0,4
CPGW 120408 FN	**W85 44000.33..**	▲				0,8
Mild steel/tool steel P		◐	Order example: ISO Code CPGW 060202 FN Cutting material K10 Order No. W85 18000.1721			
Stainless and acid-resistant steel M						
Grey cast iron, spheroidal cast iron K		●				
Non-ferrous metals N		●				
Heat-resistant steels S		●				
Hardened tool steel H						

● Main area of application ◐ Suitable in some cases

KOMET® W85 CCGW

Inserts

CBN cutting edge
for hard machining and cast iron machining

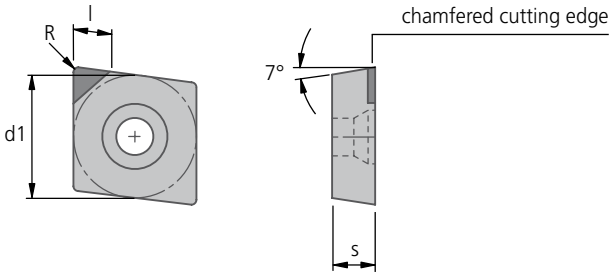


Application range:

CBN57
for cutting cast iron (GJL) and alloyed cast iron (ferrite content <10%) and chilled cast iron and some heat resistant alloys
v_c = 500 ... 800 (1500) m/min
f = 0.1 ... 0.5 mm
a_p = 0.1 ... 1 mm

CBN40
for cutting hardened steels >48 HRC
v_c = 100 ... 160 m/min
f = 0.1 ... 0.3 mm
a_p = 0.1 ... 0.5 mm

Cutter geometry:



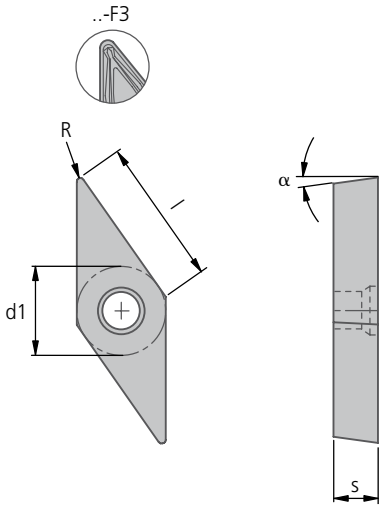
Substrate		CBN					
Coating type		–	–				
Cutting material designation		CBN40	CBN57				
Cutting edge design		T	T				
ISO Code Cutting edge design T = chamfered	Order No. Enter code	40	57	d1	s	l	R
CCGW 060204 TN	W85 18000.26..		▲	6,35	2,38	3,0	0,4
CCGW 09T304 TN	W85 32000.31..	▲	▲	9,52	3,97	3,0	0,4
CCGW 120408 TN	W85 44000.36..		▲	12,7	4,76	3,0	0,8
Mild steel/tool steel P							
Stainless and acid-resistant steel M							
Grey cast iron, spheroidal cast iron K			●				
Non-ferrous metals N							
Heat-resistant steels S		◐	◐				
Hardened tool steel H		○ ≥ 52 HRC					

Order example:
ISO Code
CCGW 060204 TN
Cutting material
CBN40
Order No.
W85 18000.2640

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



Cutter geometry:



Substrate		Carbide								
Coating type		CVD	CVD							
Cutting material designation		BK75	BK76							
ISO Code	Order No.			f mm	a_p mm	d1	s	l	α	R
	Enter code ▼	75	76							
VCMT 160404-F3	**W89 32000.05..**		▲	0,12-0,25	1,0-5,0	9,52	4,76	16,5	7°	0,4
VCMT 160408-F3	**W89 32000.06..**	▲	▲	0,12-0,30						0,8
Mild steel/tool steel **P**		●	●	Order example:						
Stainless and acid-resistant steel **M**		◐		ISO Code						
Grey cast iron, spheroidal cast iron **K**			●	VCMT 160404-F3						
Non-ferrous metals **N**				Cutting material						
Heat-resistant steels **S**				BK76						
Hardened tool steel **H**				Order No.						
				W89 32000.0576						

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

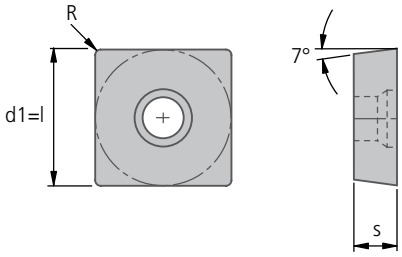
KOMET® C83

ISO Inserts

SCMT / SCGT



Cutter geometry:



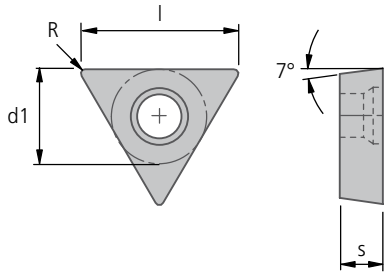
Substrate			Carbide					Cermet								
Coating type			CVD			CVD		–								
Cutting material designation			BK7625			BK6110		CK3215								
ISO Code R = Roughing S = Semi-Finisching F = Finishing		Order No. Enter code ▼	v_c m/min 7625			v_c m/min 6110		v_c m/min 3215			Feed f mm	Cutting depth a_p mm	d1	s	l	R
R	SCMT09T304-01	**C83 32010.04..**	80-240	100-180	60-180						0,1-0,18	0,5-3,0	9,52	3,97	9,52	0,4
R/S	SCMT09T304-05	**C83 32050.04..**				120-270	60-270				0,1-0,2	0,5-3,14	9,52	3,97	9,52	0,4
R/S	SCMT09T308-05	**C83 32050.08..**				120-270	60-270				0,2-0,4	1,0-3,14				0,8
F	SCMT09T304-14	**C83 32140.04..**	80-240	100-180	60-180						0,1-0,2	0,05-1,5	9,52	3,97	9,52	0,4
F	SCMT09T308-14	**C83 32140.08..**						120-270	100-220	160-300	0,05-0,25	0,05-2,50				0,8
R	SCMT120404-01	**C83 44010.04..**	80-240	100-180	60-180						0,1-0,18	0,5-4,2	12,7	4,76	12,7	0,4
R	SCMT120408-01	**C83 44010.08..**	80-240	100-180	60-180						0,2-0,36	1,0-4,2	12,7	4,76	12,7	0,8
R/S	SCMT120408-05	**C83 44050.08..**				120-270	60-270				0,24-0,42	1,0-4,19	12,7	4,76	12,7	0,8
Mild steel/tool steel	P		●			◐		●			Order example: ISO Code SCMT 09T304-01 Cutting material BK7625 Order No. C83 32010.047625					
Stainless and acid-resistant steel	M			○					○							
Grey cast iron, spheroidal cast iron	K				◐		●			◐						
Non-ferrous metals	N															
Heat-resistant steels	S															
Hardened tool steel	H															

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list



Cutter geometry:



Substrate		Carbide								
Coating type		CVD								
Cutting material designation		BK7625								
ISO Code R = Roughing S = Semi-Finisching F = Finishing	Order No. Enter code	v_c m/min 7625			Feed f mm	Cutting depth a_p mm	d1	s	l	R
F TCMT110204-14	**C84 18140.04..**	80-240	100-180	60-180	0,03-0,11	0,28-1,32	6,36	2,38	11,0	0,4
F TCMT110208-14	**C84 18140.08..**	80-240	100-180	60-180	0,06-0,22	0,56-1,32	6,36	2,38	11,0	0,8
F TCMT16T308-14	**C84 32140.08..**	80-240	100-180	60-180	0,06-0,22	0,56-1,98	9,52	3,97	16,5	0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	○	◐	Order example: ISO Code TCMT110204-14 Cutting material BK7625 Order No. C84 18140.047625					

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

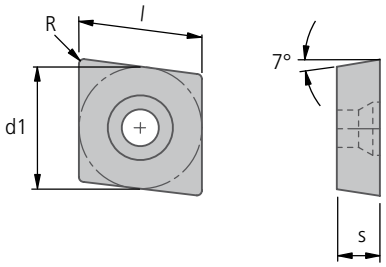
KOMET® C85

ISO Inserts

CCMT / CCGT



Cutter geometry:



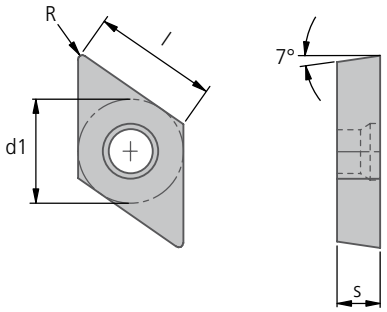
Substrate			Carbide								Cermet							
Coating type			–		CVD			CVD		CVD								
Cutting material designation			K10		BK7625			BK7925		BK6110								
ISO Code R = Roughing S = Semi-Finisching F = Finishing		Order No. Enter code ▼	v_c m/min		v_c m/min			v_c m/min		v_c m/min			v_c m/min			Feed f mm	Cutting depth a_p mm	d1	s	l	R
			22		7625			7925		6110			3215								
R	CCMT060204-01	C85 18010.04..			80-240	100-180	60-180									0,10-0,18	0,50-2,13	6,35	2,38	6,45	0,4
R/S	CCMT060204-05	C85 18050.04..								120-270	60-270					0,11-0,21	0,50-4,26	6,35	2,38	6,45	0,4
S	CCGT060202-12	C85 18120.02..	90-200	200-600												0,05-0,13	0,38-3,55	6,35	2,38	6,45	0,2
S	CCGT060204-12	C85 18120.04..														0,10-0,18	0,50-3,19				0,4
F	CCGT060202-14	C85 18140.02..											120-270	100-220	160-300	0,05-0,25	0,05-2,50	6,35	2,38	6,45	0,2
F	CCMT060202-14	C85 18140.02..			80-240	100-180	60-180									0,02-0,06	0,14-0,77	6,35	2,38	6,45	0,2
F	CCMT060204-14	C85 18140.04..			80-240	100-180	60-180						120-270	100-220	160-300	BK7625: 0,03-0,11 CK3215: 0,05-0,25	BK7625: 0,28-0,77 CK3215: 0,05-2,50	6,35	2,38	6,45	0,4
S	CCMT060202-15	C85 18150.02..						50-230	55-200							0,03-0,07	0,25-1,61	6,35	2,38	6,45	0,2
S	CCMT060204-15	C85 18150.04..														0,06-0,14	0,50-1,61				0,4
R	CCMT09T304-01	C85 32010.04..			80-240	100-180	60-180									0,10-0,18	0,50-3,19	9,52	3,97	9,67	0,4
R	CCMT09T308-01	C85 32010.08..														0,20-0,36	1,0-3,19				0,8
R/S	CCMT09T304-05	C85 32050.04..								120-270	60-270					0,11-0,21	0,50-3,19	9,52	3,97	9,67	0,4
R/S	CCMT09T308-05	C85 32050.08..														0,22-0,42	1,0-3,19				0,8
S	CCGT09T308-12	C85 32120.08..	90-200	200-600												0,2-0,5	1,52-5,32	9,52	3,97	9,67	0,8
F	CCMT09T308-14	C85 32140.08..			80-240	100-180	60-180									0,03-0,11	0,28-1,16	9,52	3,97	9,67	0,8
R	CCMT120404-01	C85 44010.04..			80-240	100-180	60-180									0,10-0,18	0,50-4,26	12,7	4,76	12,9	0,4
R	CCMT120408-01	C85 44010.08..														0,2-0,36	1,0-4,26				0,8
R/S	CCMT120404-05	C85 44050.04..								120-270	60-270					0,11-0,21	0,50-4,26	12,7	4,76	12,9	0,4
R/S	CCMT120408-05	C85 44050.08..														0,22-0,42	1,0-3,63				0,8
R/S	CCMT120412-05	C85 44050.12..														0,34-0,62	1,5-4,26				1,2
Mild steel/tool steel	P			●			◐		◐		●			◐		Order example: ISO Code CCMT 060204-01 Cutting material BK7625 Order No. C85 18010.047625						
Stainless and acid-resistant steel	M				○			○				○									
Grey cast iron, spheroidal cast iron	K	◐				◐				●					◐						
Non-ferrous metals	N		●																		
Heat-resistant steels	S																				
Hardened tool steel	H																				

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list



Cutter geometry:



	Substrate		Carbide						Cermet									
	Coating type		–		CVD			CVD			–							
	Cutting material designation		K10		BK7625			BK6110			CK3215							
	ISO Code R = Roughing S = Semi-Finisching F = Finishing	Order No. Enter code	v_c m/min		v_c m/min			v_c m/min			v_c m/min			Feed f mm	Cutting depth a_p mm	d1	s	l	R
			22		7625			6110			3215								
F	DCMT070204-14	C86 18140.04..			80-240	100-180	60-180							0,03-0,11	0,28-0,93	6,35	2,38	7,75	0,4
R/S	DCMT11T304-05	C86 32050.04..						120-270	60-270					0,11-0,21	0,5-3,84	9,52	3,97	11,63	0,4
R/S	DCMT11T308-05	C86 32050.08..						120-270	60-270					0,22-0,42	1,0-3,84				0,8
S	DCGT11T304-12	C86 32120.04..	90-200	200-600										0,1-0,25	0,76-6,40	9,52	3,97	11,63	0,4
F	DCMT11T304-14	C86 32140.04..			80-240	100-180	60-180			120-270	100-220	160-300	BK7625: 0,03-0,11 CK3215: 0,05-0,25	BK7625: 0,28-1,4 CK3215: 0,05-2,50	9,52	3,97	11,63	0,4		
F	DCMT11T308-14	C86 32140.08..			80-240	100-180	60-180						0,06-0,22	0,56-1,4				0,8		
	Mild steel/tool steel P		◐		●		◐	◐	●	●	○	◐								
	Stainless and acid-resistant steel M					○														
	Grey cast iron, spheroidal cast iron K			●																
	Non-ferrous metals N																			
	Heat-resistant steels S																			
	Hardened tool steel H																			

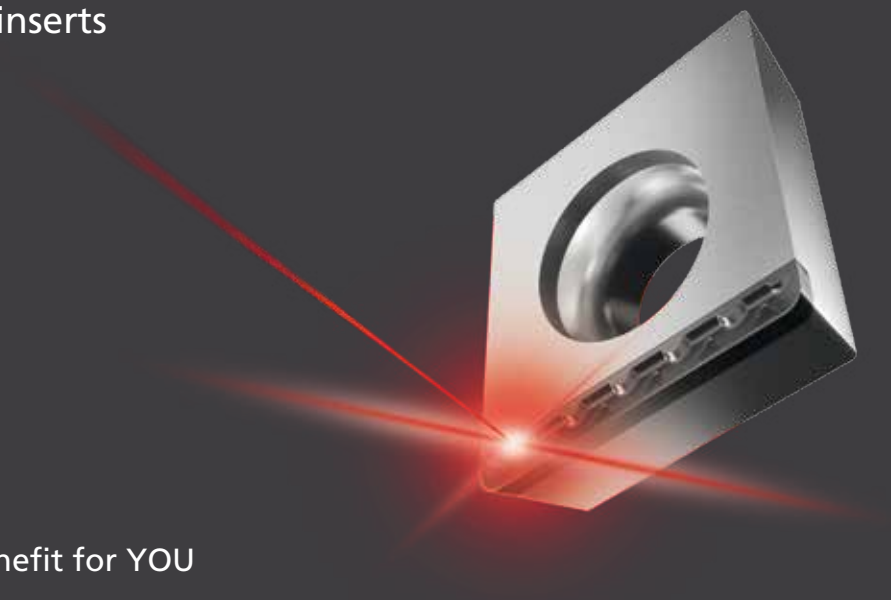
Order example:
ISO Code
DCMT070204-14
Cutting material
BK7625
Order No.
C86 18140.047625

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® ISO Indexable inserts

With super-hard PCD / CVD-D diamond cutting tool materials. Cutting edge and chip breakers manufactured with latest laser technology.



Laser technology and the benefit for YOU

The EXTRA FEATURE in the cutting tool material

- PCD mixed grain with bimodal microstructure By using large and small grains, the microstructure guarantees an increase in packing density and, consequently, a uniform diamond cutting edge with no gaps. As a result, the efficient machining of abrasive materials is guaranteed and the material can be used with interrupted cuts.
- CVD-D thickfilm diamond is pure polycrystalline diamond and, unlike PCD, is binder-free. That makes it the hardest and most wear-resistant cutting tool material for machining non-ferrous metals, composite materials, carbide, ceramic, plastic with fillers and MMC (metal matrix composite). This cutting tool material can only be machined with laser technology and its superior performance can be used to its full potential when maximum wear resistance is demanded.
- In addition to innovative laser technology, KOMET® opts for high-vacuum soldering when fitting the diamond cutting edges. The high-strength solder used in this process wins favour in machining due to its higher temperature resistance, process reliability and service life.

The EXTRA FEATURE at the cutting edge

- Despite the use of larger-sized diamond grains in the PCD mixed grain, the chipping of the cutting edge is significantly reduced and, as a result, a good surface quality is assured with simultaneously prolonged service life of the cutting edge.
- Due to the laser technology, the diamond grains are cut apart and not torn out of the microstructure, as is the case with conventional grinding operations. Even damage to the PCD microstructure caused by grinding pressure can be avoided in this way. In addition to the lower level of chipping, laser machining allows extremely good accuracy in terms of shape to be achieved in the cutting edge contour.
- Regardless of the size of the diamond grain, an extremely sharp cutting edge is created as a result of the diamond grains splitting apart. The benefit for you is a soft cutting action with low shearing forces and an excellent surface quality.
- The wiper geometries provide a further possibility of significantly improving the surface quality.

The EXTRA FEATURE in chip control

- The laser technology enables the inclusion of 3D chip breakers and their arrangement in whatever formation may be desired. KOMET® has optimised chip control and developed two outstanding chip breakers for finishing and roughing operations. As a result, excellent chip breaking properties are created in a wide application field of materials and cutting parameters.



Ground PCD cutting edge
Diamond grains that are torn out leave gaps in the microstructure and produce chipping. Microstructure close to cutting edges is also damaged by grinding pressure.



Laser-machined PCD cutting edge
The mixture of grain used and laser machining guarantee a uniform and undamaged cutting edge, with no gaps. Benefits for YOU in terms of service life, surface quality and accuracy of shape.

Portfolio overview – ISO PCD/CVD-D Indexable inserts

CCGT

 C85..96 ▽▽▽ ▸ 699	 C85..92 ▽▽▽ wiper ▸ 695	 C85..84 ▽▽▽ L.H. cutting form ▸ 690	 C85..85 ▽▽▽ R.H. cutting form ▸ 691
 C85..97 ▽ ▸ 700	 C85..93 ▽ wiper ▸ 696	 C85..86 ▽ L.H. cutting form ▸ 692	 C85..87 ▽ R.H. cutting form ▸ 693
 C85..98 ▸ 701			

CCGW

 C85..99 ▸ 702	 C85..91 wiper ▸ 694	 C85..94 L.H. cutting form ▸ 697	 C85..95 R.H. cutting form ▸ 698

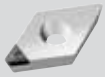
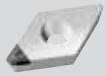
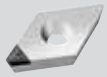
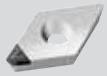
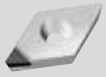
CPGT

 C95..96 ▽▽▽ ▸ 726	 C95..84 ▽▽▽ L.H. cutting form ▸ 720	 C95..85 ▽▽▽ R.H. cutting form ▸ 721
 C95..97 ▽ ▸ 727	 C95..86 ▽ L.H. cutting form ▸ 722	 C95..87 ▽ R.H. cutting form ▸ 723

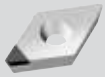
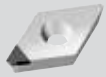
CPGW

 C95..99 ▸ 728	 C95..94 L.H. cutting form ▸ 724	 C95..95 R.H. cutting form ▸ 725

DCGT

 C86..96 ▽▽▽ ▸ 706	 C86..92 ▽▽▽ wiper ▸ 704
 C86..97 ▽ ▸ 707	 C86..93 ▽ wiper ▸ 705
 C86..98 ▸ 708	

DCGW

 C86..99 ▸ 709	 C86..91 wiper ▸ 703

RCGT

 C87..89 ▽▽▽ standard ▸ 711	 C88..89 ▽▽▽ strengthened ▸ 714
 C87..90 ▽ standard ▸ 712	 C88..90 ▽ strengthened ▸ 715

RCGW

 C87..88 standard ▸ 710	 C88..88 strengthened ▸ 713

RDHX

 C98..89 ▽▽▽ ▸ 730
 C98..90 ▽ ▸ 731

RDHX

 C98..88 ▸ 729

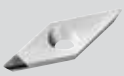
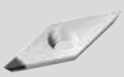
TCGT

 C84..84 ▽▽▽ ▸ 680	 C84..96 ▽▽▽ ▸ 686	 C84..89 ▽▽▽ ▸ 683
 C84..86 ▽ ▸ 681	 C84..97 ▽ ▸ 687	 C84..90 ▽ ▸ 684
 C84..81 ▸ 679	 C84..98 ▸ 688	

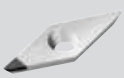
TCGW

 C84..94 ▸ 685	 C84..99 ▸ 689	 C84..88 ▸ 682

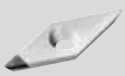
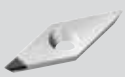
VBGT

 C79..96 ▽▽▽ ▸ 675
 C79..97 ▽ ▸ 676
 C79..98 ▸ 677

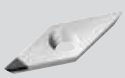
VBGW

 C79..99 ▸ 678

VCGT

 C89..96 ▽▽▽ ▸ 716
 C89..97 ▽ ▸ 717
 C89..98 ▸ 718

VCGW

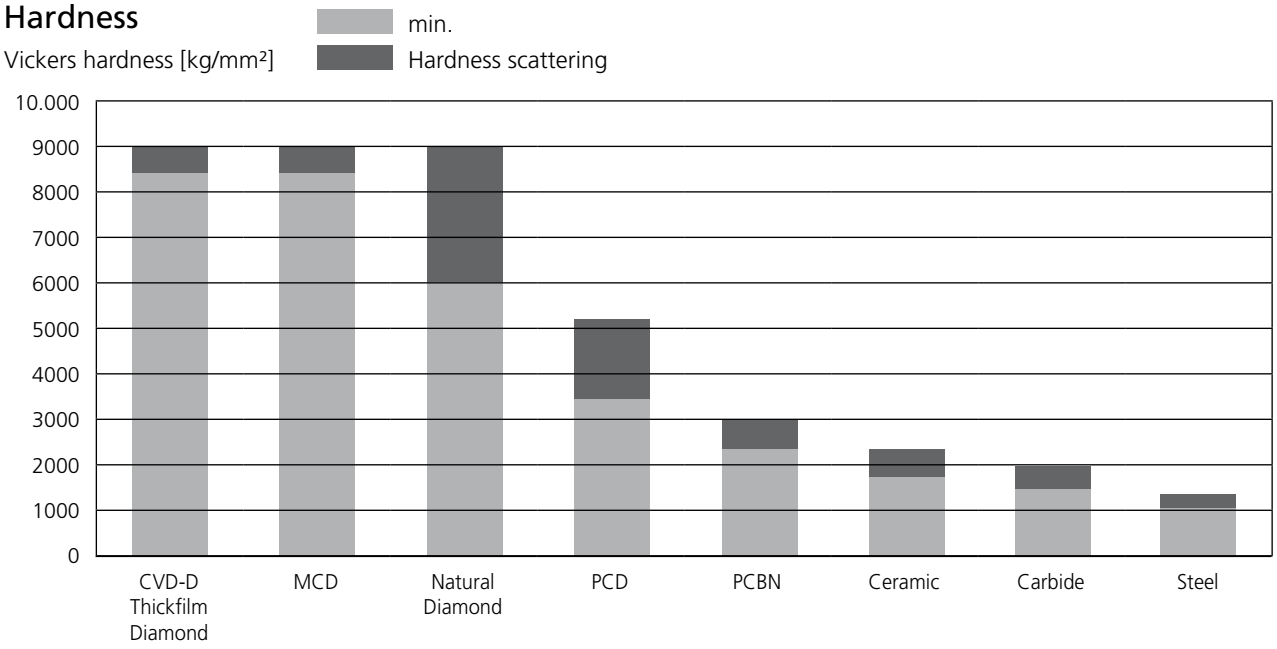
 C89..99 ▸ 719

▽ 3-D chip breaker for roughing
▽▽▽ 3-D chip breaker for finishing

PKD5510
Polycrystalline diamond cutting tool material for machining aluminium materials, abrasive materials, plastics and composite materials with high cutting speeds.

DSD5605
CVD-D thickfilm diamond is the most wear-resistant cutting tool material for non-ferrous metals and non-metallic materials. Superior performance when maximum abrasion resistance is required.

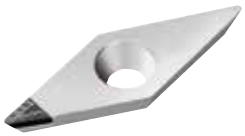
Hardness



Recommended cutting data

		Cutting depth ap (mm)			Feed f (mm/rev)		
	R	without chip breaker	3-D chip breaker for finishing ▽▽▽	3-D chip breaker for roughing ▽	without chip breaker	3-D chip breaker for finishing ▽▽▽	3-D chip breaker for roughing ▽
Edge radius	0,1	0,01 - 2,80			0,01 - 0,05		
	0,2	0,01 - 2,80	0,08 - 1,50	0,20 - 2,80	0,01 - 0,10	0,02 - 0,10	0,80 - 0,15
	0,4	0,01 - 2,80	0,10 - 2,00	0,50 - 2,80	0,01 - 0,20	0,04 - 0,20	0,12 - 0,25
	0,8	0,01 - 2,80	0,15 - 2,40	0,80 - 2,80	0,01 - 0,40	0,08 - 0,40	0,25 - 0,45
	1,2	0,01 - 2,80	0,20 - 2,85	0,90 - 2,80	0,01 - 0,60	0,12 - 0,60	0,30 - 0,65
Round insert	d1						
	5	0,05 - 1,25	0,20 - 1,25	0,80 - 1,25	0,05 - 0,40	0,08 - 0,40	0,15 - 0,50
	7	0,05 - 1,75	0,20 - 1,75	0,80 - 1,75	0,05 - 0,40	0,08 - 0,40	0,15 - 0,50
	10	0,05 - 2,50	0,20 - 2,50	0,80 - 2,50	0,05 - 0,60	0,08 - 0,60	0,15 - 0,70
	12	0,05 - 3,00	0,20 - 3,00	0,80 - 3,00	0,05 - 0,60	0,08 - 0,60	0,15 - 0,70

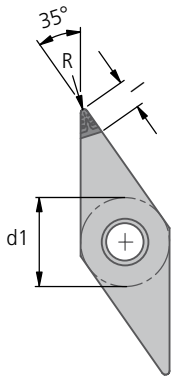
Cutting speed v_c (m/min)				
N	Aluminium alloys Si < 1%	300 - 6000	Ceramics generally	12 - 55
	Aluminium alloys Si < 12%	300 - 4000	sintered carbides (G20-G55)	12 - 55
	Aluminium alloys Si > 12%	300 - 2000	non-sintered carbides (green carbide)	20 - 70
	Copper-brass alloys	300 - 3000	Metal Matrix Composites (MMC)	200 - 800
	Graphite	100 - 3000	Plastics, including composites	300 - 1000
	Glas-carbon fibre reinforced	100 - 4000	Glass, quartz glass	140 - 200

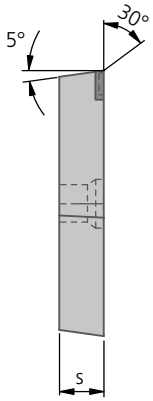


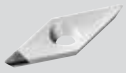
Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



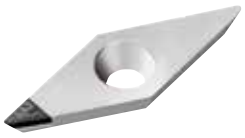


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VBGT110202FN-96	C79 18960.02..	▲	▲	6,35	2,38	3,0	0,2
VBGT110204FN-96	C79 18960.04..	▲	▲				0,4
VBGT110208FN-96	C79 18960.08..	▲	▲				0,8
VBGT160402FN-96	C79 32960.02..	▲	▲	9,52	4,76	3,0	0,2
VBGT160404FN-96	C79 32960.04..	▲	▲				0,4
VBGT160408FN-96	C79 32960.08..	▲	▲				0,8
VBGT160412FN-96	C79 32960.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VBGT110202FN-96 Cutting material PKD5510 Order No. C79 18960.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

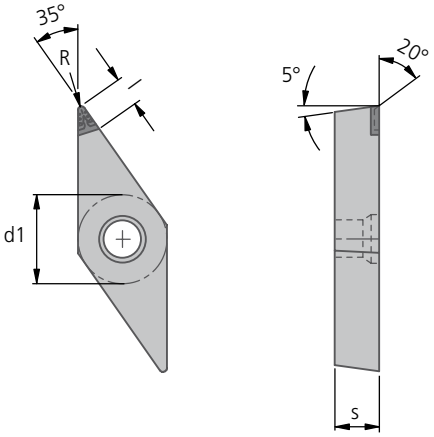
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽

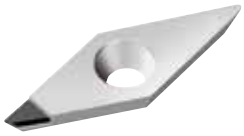
3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
VBGT110202FN-97	C79 18970.02..	▲	▲	6,35	2,38	3,0	0,2
VBGT110204FN-97	C79 18970.04..	▲	▲				0,4
VBGT110208FN-97	C79 18970.08..	▲	▲				0,8
VBGT160402FN-97	C79 32970.02..	▲	▲	9,52	4,76	3,0	0,2
VBGT160404FN-97	C79 32970.04..	▲	▲				0,4
VBGT160408FN-97	C79 32970.08..	▲	▲				0,8
VBGT160412FN-97	C79 32970.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VBGT110202FN-97 Cutting material PKD5510 Order No. C79 18970.025510			

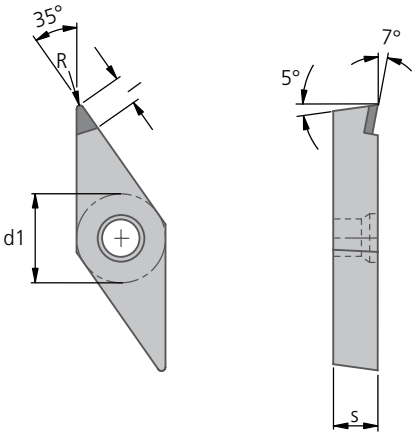
Recommended cutting data: page 674.

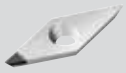
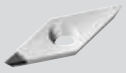
▲ Availability: for delivery see current price and stock list



Cutter geometry:

positive rake angle
sharp cutting edge

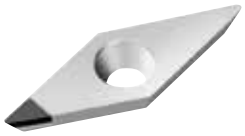


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VBGT110201FN-98	C79 18980.01..	▲	▲	6,35	2,38	3,0	0,1
VBGT110202FN-98	C79 18980.02..	▲	▲				0,2
VBGT110204FN-98	C79 18980.04..	▲	▲				0,4
VBGT110208FN-98	C79 18980.08..	▲	▲				0,8
VBGT160401FN-98	C79 32980.01..	▲	▲	9,52	4,76	3,0	0,1
VBGT160402FN-98	C79 32980.02..	▲	▲				0,2
VBGT160404FN-98	C79 32980.04..	▲	▲				0,4
VBGT160408FN-98	C79 32980.08..	▲	▲				0,8
VBGT160412FN-98	C79 32980.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VBGT110201FN-98 Cutting material PKD5510 Order No. C79 18980.015510			

● Main area of application ◐ Suitable in some cases

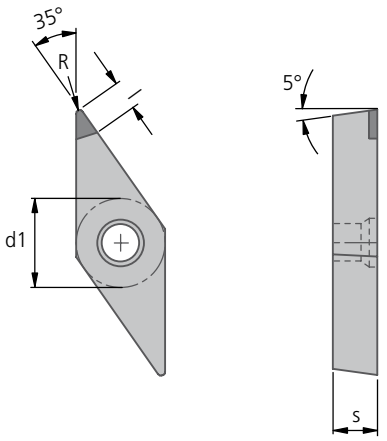
Important: See chapter 8 for more application details and safety notes !

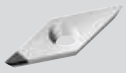
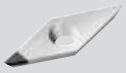
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VBGW110201FN-99	C79 18990.01..	▲	▲	6,35	2,38	3,0	0,1
VBGW110202FN-99	C79 18990.02..	▲	▲				0,2
VBGW110204FN-99	C79 18990.04..	▲	▲				0,4
VBGW110208FN-99	C79 18990.08..	▲	▲				0,8
VBGW160401FN-99	C79 32990.01..	▲	▲	9,52	4,76	3,0	0,1
VBGW160402FN-99	C79 32990.02..	▲	▲				0,2
VBGW160404FN-99	C79 32990.04..	▲	▲				0,4
VBGW160408FN-99	C79 32990.08..	▲	▲				0,8
VBGW160412FN-99	C79 32990.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VBGW110201FN-99 Cutting material PKD5510 Order No. C79 18990.015510			

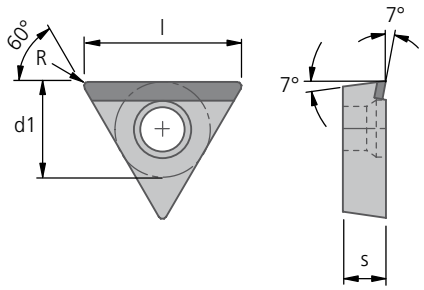
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

positive rake angle
sharp cutting edge

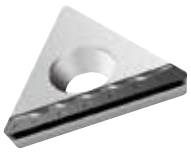


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGT090202F-81	C84 13810.02..	▲	▲	5,56	2,38	9,34	0,2
TCGT090204F-81	C84 13810.04..	▲	▲			9,04	0,4
TCGT090208F-81	C84 13810.08..	▲	▲			8,46	0,8
TCGT110202F-81	C84 18810.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204F-81	C84 18810.04..	▲	▲			10,41	0,4
TCGT110208F-81	C84 18810.08..	▲	▲			9,83	0,8
TCGT110212F-81	C84 18810.12..	▲	▲			9,24	1,2
TCGT16T302F-81	C84 32810.02..	▲	▲	9,52	3,97	16,20	0,2
TCGT16T304F-81	C84 32810.04..	▲	▲			15,90	0,4
TCGT16T308F-81	C84 32810.08..	▲	▲			15,32	0,8
TCGT16T312F-81	C84 32810.12..	▲	▲			14,73	1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT090202F-81 Cutting material PKD5510 Order No. C84 13810.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

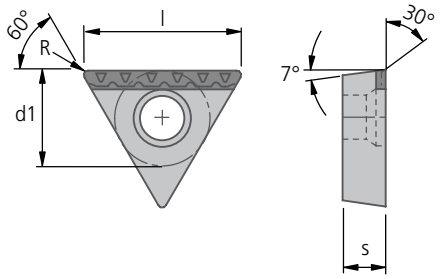
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽▽▽

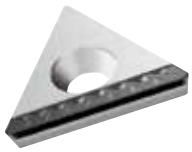
3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGT090202F-84	C84 13840.02..	▲	▲	5,56	2,38	9,34	0,2
TCGT090204F-84	C84 13840.04..	▲	▲			9,04	0,4
TCGT090208F-84	C84 13840.08..	▲	▲			8,46	0,8
TCGT110202F-84	C84 18840.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204F-84	C84 18840.04..	▲	▲			10,41	0,4
TCGT110208F-84	C84 18840.08..	▲	▲			9,83	0,8
TCGT110212F-84	C84 18840.12..	▲	▲			9,24	1,2
TCGT16T302F-84	C84 32840.02..	▲	▲	9,52	3,97	16,20	0,2
TCGT16T304F-84	C84 32840.04..	▲	▲			15,90	0,4
TCGT16T308F-84	C84 32840.08..	▲	▲			15,32	0,8
TCGT16T312F-84	C84 32840.12..	▲	▲			14,73	1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT090202F-84 Cutting material PKD5510 Order No. C84 13840.025510			

Recommended cutting data: page 674.

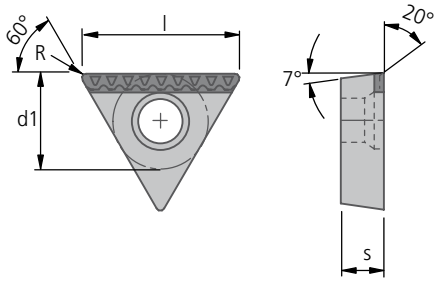
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm

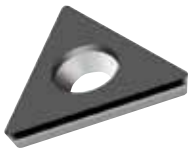


Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
TCGT090202F-86	C84 13860.02..	▲	▲	5,56	2,38	9,34	0,2
TCGT090204F-86	C84 13860.04..	▲	▲			9,04	0,4
TCGT090208F-86	C84 13860.08..	▲	▲			8,46	0,8
TCGT110202F-86	C84 18860.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204F-86	C84 18860.04..	▲	▲			10,41	0,4
TCGT110208F-86	C84 18860.08..	▲	▲			9,83	0,8
TCGT110212F-86	C84 18860.12..	▲	▲			9,24	1,2
TCGT16T302F-86	C84 32860.02..	▲	▲	9,52	3,97	16,20	0,2
TCGT16T304F-86	C84 32860.04..	▲	▲			15,90	0,4
TCGT16T308F-86	C84 32860.08..	▲	▲			15,32	0,8
TCGT16T312F-86	C84 32860.12..	▲	▲			14,73	1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT090202F-86 Cutting material PKD5510 Order No. C84 13860.025510			

● Main area of application ◐ Suitable in some cases

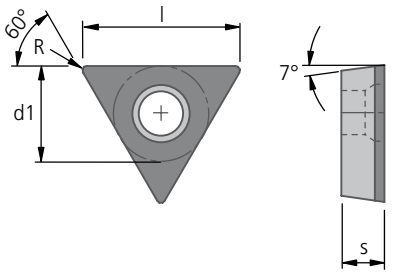
Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

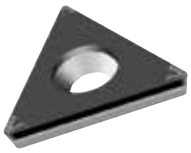
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGW110202FN-88F	C84 18880.02..	▲	▲	6,35	2,38	10,71	0,2
TCGW110204FN-88F	C84 18880.04..	▲	▲			10,41	0,4
TCGW110208FN-88F	C84 18880.08..	▲	▲			9,83	0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGW110202FN-88F Cutting material PKD5510 Order No. C84 18880.025510			

Recommended cutting data: page 674.

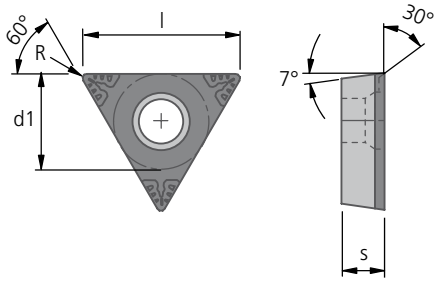
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm

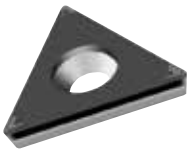


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGT110202FN-89F	C84 18890.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204FN-89F	C84 18890.04..	▲	▲			10,41	0,4
TCGT110208FN-89F	C84 18890.08..	▲	▲			9,83	0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT110202FN-89F Cutting material PKD5510 Order No. C84 18890.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

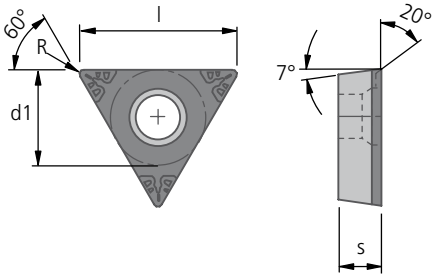
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽

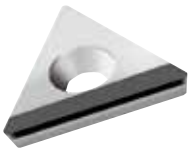
3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGT110202FN-90F	C84 18900.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204FN-90F	C84 18900.04..	▲	▲			10,41	0,4
TCGT110208FN-90F	C84 18900.08..	▲	▲			9,83	0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT110202FN-90F Cutting material PKD5510 Order No. C84 18890.025510			

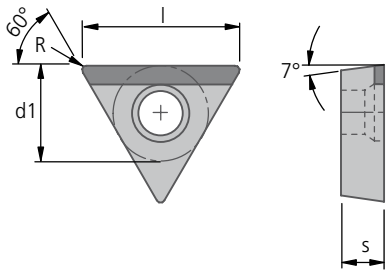
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge

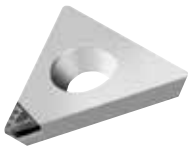


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGW090202F-94	C84 13940.02..	▲	▲	5,56	2,38	9,34	0,2
TCGW090204F-94	C84 13940.04..	▲	▲			9,04	0,4
TCGW090208F-94	C84 13940.08..	▲	▲			8,46	0,8
TCGW110202F-94	C84 18940.02..	▲	▲	6,35	2,38	10,71	0,2
TCGW110204F-94	C84 18940.04..	▲	▲			10,41	0,4
TCGW110208F-94	C84 18940.08..	▲	▲			9,83	0,8
TCGW110212F-94	C84 18940.12..	▲	▲			9,24	1,2
TCGW16T302F-94	C84 32940.02..	▲	▲	9,52	3,97	16,20	0,2
TCGW16T304F-94	C84 32940.04..	▲	▲			15,90	0,4
TCGW16T308F-94	C84 32940.08..	▲	▲			15,32	0,8
TCGW16T312F-94	C84 32940.12..	▲	▲			14,73	1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGW090202F-94 Cutting material PKD5510 Order No. C84 13940.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

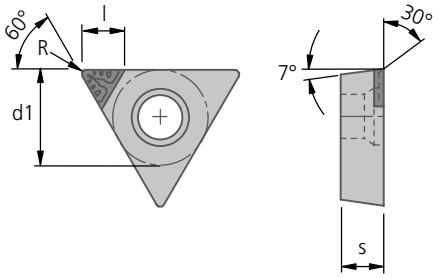
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	**Order No.** Enter code ▼	 **5510**	 **5605**				
TCGT090202FN-96	**C84 13960.02..**	▲	▲	5,56	2,38	3,0	0,2
TCGT090204FN-96	**C84 13960.04..**	▲	▲				0,4
TCGT090208FN-96	**C84 13960.08..**	▲	▲				0,8
TCGT110202FN-96	**C84 18960.02..**	▲	▲	6,35	2,38	3,0	0,2
TCGT110204FN-96	**C84 18960.04..**	▲	▲				0,4
TCGT110208FN-96	**C84 18960.08..**	▲	▲				0,8
TCGT16T302FN-96	**C84 32960.02..**	▲	▲	9,52	3,97	3,0	0,2
TCGT16T304FN-96	**C84 32960.04..**	▲	▲				0,4
TCGT16T308FN-96	**C84 32960.08..**	▲	▲				0,8
TCGT16T312FN-96	**C84 32960.12..**	▲	▲				1,2
Mild steel/tool steel **P** Stainless and acid-resistant steel **M** Grey cast iron, spheroidal cast iron **K** Non-ferrous metals **N** Heat-resistant steels **S** Hardened tool steel **H**		●	●	Order example: ISO Code TCGT090202FN-96 Cutting material PKD5510 Order No. C84 13960.025510			

Recommended cutting data: page 674.

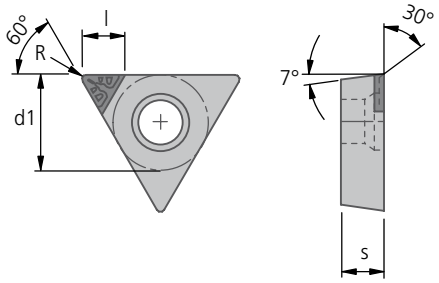
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm

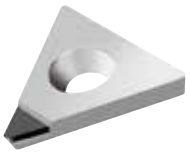


Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
TCGT090202FN-97	C84 13970.02..	▲	▲	5,56	2,38	3,0	0,2
TCGT090204FN-97	C84 13970.04..	▲	▲				0,4
TCGT090208FN-97	C84 13970.08..	▲	▲				0,8
TCGT110202FN-97	C84 18970.02..	▲	▲	6,35	2,38	3,0	0,2
TCGT110204FN-97	C84 18970.04..	▲	▲				0,4
TCGT110208FN-97	C84 18970.08..	▲	▲				0,8
TCGT16T302FN-97	C84 32970.02..	▲	▲	9,52	3,97	3,0	0,2
TCGT16T304FN-97	C84 32970.04..	▲	▲				0,4
TCGT16T308FN-97	C84 32970.08..	▲	▲				0,8
TCGT16T312FN-97	C84 32970.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT090202FN-97 Cutting material PKD5510 Order No. C84 13970.025510			

● Main area of application ◐ Suitable in some cases

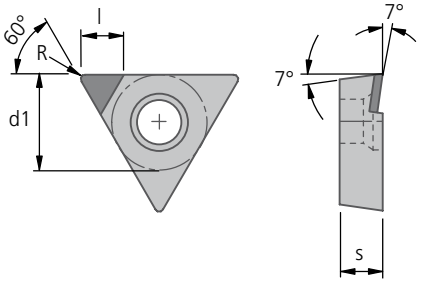
Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

positive rake angle
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGT090202FN-98	C84 13980.02..	▲	▲	5,56	2,38	3,0	0,2
TCGT090204FN-98	C84 13980.04..	▲	▲				0,4
TCGT090208FN-98	C84 13980.08..	▲	▲				0,8
TCGT110202FN-98	C84 18980.02..	▲	▲	6,35	2,38	3,0	0,2
TCGT110204FN-98	C84 18980.04..	▲	▲				0,4
TCGT110208FN-98	C84 18980.08..	▲	▲				0,8
TCGT16T302FN-98	C84 32980.02..	▲	▲	9,52	3,97	3,0	0,2
TCGT16T304FN-98	C84 32980.04..	▲	▲				0,4
TCGT16T308FN-98	C84 32980.08..	▲	▲				0,8
TCGT16T312FN-98	C84 32980.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGT090202FN-98 Cutting material PKD5510 Order No. C84 13980.025510			

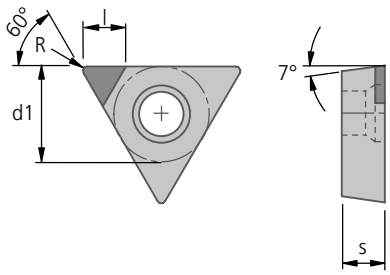
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
TCGW090202FN-99	C84 13990.02..	▲	▲	5,56	2,38	3,0	0,2
TCGW090204FN-99	C84 13990.04..	▲	▲				0,4
TCGW090208FN-99	C84 13990.08..	▲	▲				0,8
TCGW110202FN-99	C84 18990.02..	▲	▲	6,35	2,38	3,0	0,2
TCGW110204FN-99	C84 18990.04..	▲	▲				0,4
TCGW110208FN-99	C84 18990.08..	▲	▲				0,8
TCGW16T302FN-99	C84 32990.02..	▲	▲	9,52	3,97	3,0	0,2
TCGW16T304FN-99	C84 32990.04..	▲	▲				0,4
TCGW16T308FN-99	C84 32990.08..	▲	▲				0,8
TCGW16T312FN-99	C84 32990.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code TCGW090202FN-99 Cutting material PKD5510 Order No. C84 13990.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

KOMET® C85..84 CCGT

ISO PCD/CVD-D Indexable inserts

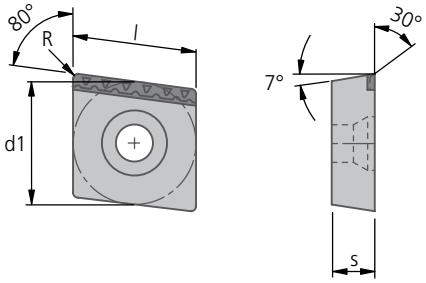
L.H. cutting form „L“



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



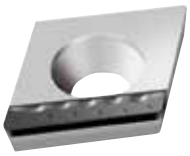
Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGT060202FL-84	C85 18840.02..	▲	▲	6,35	2,38	6,5	0,2
CCGT060204FL-84	C85 18840.04..	▲	▲				0,4
CCGT060208FL-84	C85 18840.08..	▲	▲				0,8
CCGT09T304FL-84	C85 32840.04..	▲	▲	9,52	3,97	9,7	0,4
CCGT09T308FL-84	C85 32840.08..	▲	▲				0,8
CCGT09T312FL-84	C85 32840.12..	▲	▲				1,2
CCGT120404FL-84	C85 44840.04..	▲	▲	12,7	4,76	12,9	0,4
CCGT120408FL-84	C85 44840.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FL-84 Cutting material PKD5510 Order No. C85 18840.025510			

Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list

ISO PCD/CVD-D Indexable inserts

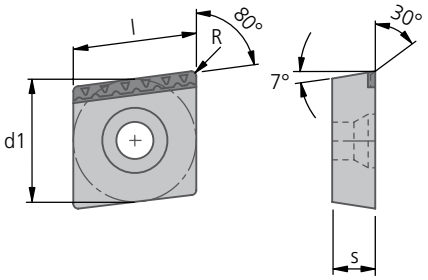
R.H. cutting form „R“



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGT060202FR-85	C85 18850.02..	▲	▲	6,35	2,38	6,5	0,2
CCGT060204FR-85	C85 18850.04..	▲	▲				0,4
CCGT060208FR-85	C85 18850.08..	▲	▲				0,8
CCGT09T304FR-85	C85 32850.04..	▲	▲	9,52	3,97	9,7	0,4
CCGT09T308FR-85	C85 32850.08..	▲	▲				0,8
CCGT09T312FR-85	C85 32850.12..	▲	▲				1,2
CCGT120404FR-85	C85 44850.04..	▲	▲	12,7	4,76	12,9	0,4
CCGT120408FR-85	C85 44850.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FR-85 Cutting material PKD5510 Order No. C85 18850.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

KOMET® C85..86 CCGT

ISO PCD/CVD-D Indexable inserts

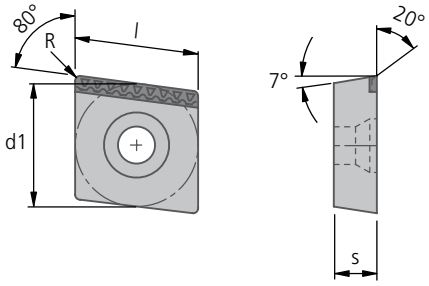
L.H. cutting form „L“



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGT060202FL-86	C85 18860.02..	▲	▲	6,35	2,38	6,5	0,2
CCGT060204FL-86	C85 18860.04..	▲	▲				0,4
CCGT060208FL-86	C85 18860.08..	▲	▲				0,8
CCGT09T304FL-86	C85 32860.04..	▲	▲	9,52	3,97	9,7	0,4
CCGT09T308FL-86	C85 32860.08..	▲	▲				0,8
CCGT09T312FL-86	C85 32860.12..	▲	▲				1,2
CCGT120404FL-86	C85 44860.04..	▲	▲	12,7	4,76	12,9	0,4
CCGT120408FL-86	C85 44860.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FL-86 Cutting material PKD5510 Order No. C85 18860.025510			

Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list

ISO PCD/CVD-D Indexable inserts

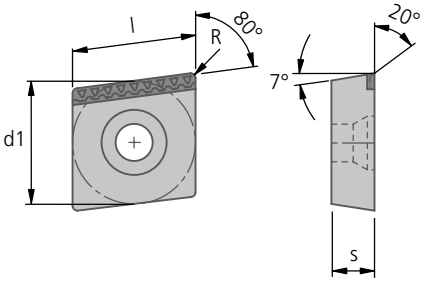
R.H. cutting form „R“



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGT060202FR-87	**C85 18870.02..**	▲	▲	6,35	2,38	6,5	0,2
CCGT060204FR-87	**C85 18870.04..**	▲	▲				0,4
CCGT060208FR-87	**C85 18870.08..**	▲	▲				0,8
CCGT09T304FR-87	**C85 32870.04..**	▲	▲	9,52	3,97	9,7	0,4
CCGT09T308FR-87	**C85 32870.08..**	▲	▲				0,8
CCGT09T312FR-87	**C85 32870.12..**	▲	▲				1,2
CCGT120404FR-87	**C85 44870.04..**	▲	▲	12,7	4,76	12,9	0,4
CCGT120408FR-87	**C85 44870.08..**	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FR-87 Cutting material PKD5510 Order No. C85 18870.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

KOMET® C85..91 CCGW

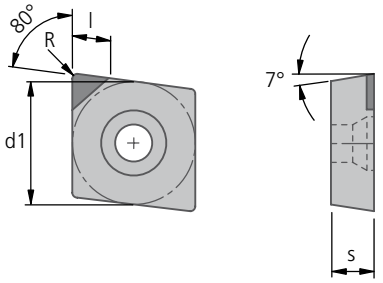
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

Wiper

sharp cutting edge
with Wiper geometry for
setting angle $\varkappa$ = 95°



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CCGW060202FN-91W	C85 18910.02..	▲	▲	6,35	2,38	3,0	0,2
CCGW060204FN-91W	C85 18910.04..	▲	▲				0,4
CCGW060208FN-91W	C85 18910.08..	▲	▲				0,8
CCGW09T302FN-91W	C85 32910.02..	▲	▲	9,52	3,97	3,0	0,2
CCGW09T304FN-91W	C85 32910.04..	▲	▲				0,4
CCGW09T308FN-91W	C85 32910.08..	▲	▲				0,8
CCGW09T312FN-91W	C85 32910.12..	▲	▲				1,2
CCGW120402FN-91W	C85 44910.02..	▲	▲	12,7	4,76	3,0	0,2
CCGW120404FN-91W	C85 44910.04..	▲	▲				0,4
CCGW120408FN-91W	C85 44910.08..	▲	▲				0,8
CCGW120412FN-91W	C85 44910.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGW060202FN-91W Cutting material PKD5510 Order No. C85 18910.025510			

Surface comparison

R0,4

R0,8

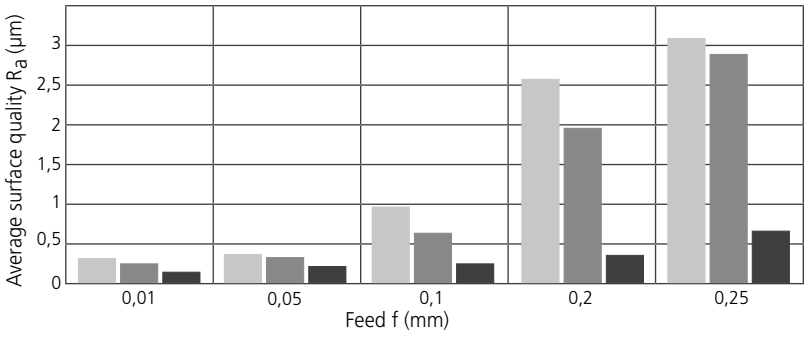
R0,4 Wiper $\varkappa$ = 95°

Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

Cutting speed: v_c = 1000 m/min

Cutting depth: a_p = 0,5 mm



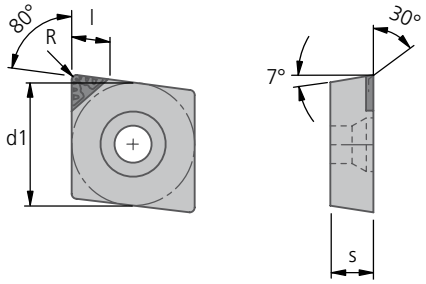
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽▽▽ Wiper
3-D chip breaker for finishing with Wiper geometry for setting angle $\varkappa$ = 95°
With stabilised cutting edge for ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CCGT060202FN-92W	C85 18920.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-92W	C85 18920.04..	▲	▲				0,4
CCGT060208FN-92W	C85 18920.08..	▲	▲				0,8
CCGT09T302FN-92W	C85 32920.02..	▲	▲	9,52	3,97	3,0	0,2
CCGT09T304FN-92W	C85 32920.04..	▲	▲				0,4
CCGT09T308FN-92W	C85 32920.08..	▲	▲				0,8
CCGT09T312FN-92W	C85 32920.12..	▲	▲				1,2
CCGT120402FN-92W	C85 44920.02..	▲	▲	12,7	4,76	3,0	0,2
CCGT120404FN-92W	C85 44920.04..	▲	▲				0,4
CCGT120408FN-92W	C85 44920.08..	▲	▲				0,8
CCGT120412FN-92W	C85 44920.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FN-92W Cutting material PKD5510 Order No. C85 18920.025510			

Surface comparison

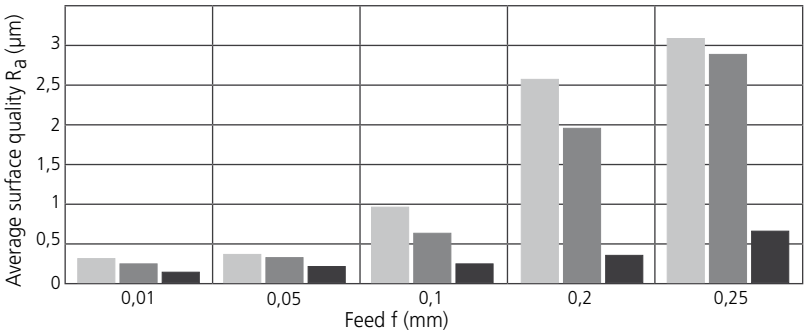
- R0,4
- R0,8
- R0,4 Wiper $\varkappa$ = 95°

Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

Cutting speed: v_c = 1000 m/min

Cutting depth: a_p = 0,5 mm



● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

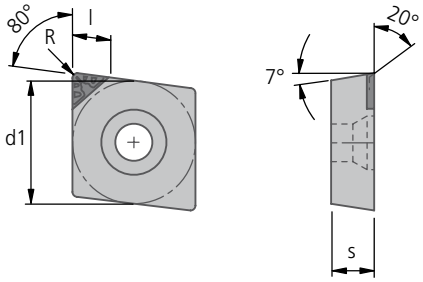
KOMET® C85..93 CCGT

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

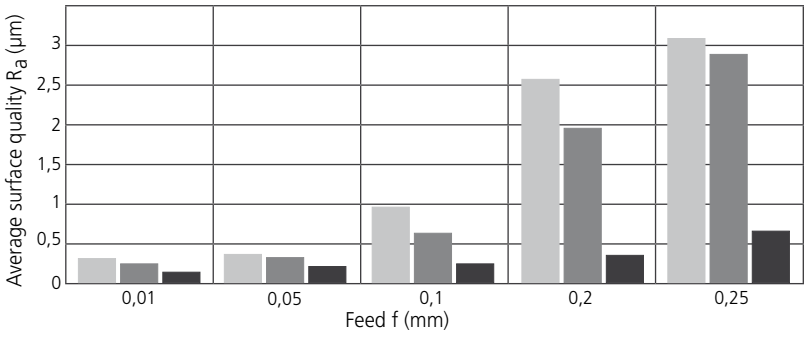
▽ ⩔iper
3-D chip breaker for roughing with Wiper geometry for setting angle $\varkappa$ = 95°
With stabilised cutting edge for ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CCGT060202FN-93W	C85 18930.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-93W	C85 18930.04..	▲	▲				0,4
CCGT060208FN-93W	C85 18930.08..	▲	▲				0,8
CCGT09T302FN-93W	C85 32930.02..	▲	▲	9,52	3,97	3,0	0,2
CCGT09T304FN-93W	C85 32930.04..	▲	▲				0,4
CCGT09T308FN-93W	C85 32930.08..	▲	▲				0,8
CCGT09T312FN-93W	C85 32930.12..	▲	▲				1,2
CCGT120402FN-93W	C85 44930.02..	▲	▲	12,7	4,76	3,0	0,2
CCGT120404FN-93W	C85 44930.04..	▲	▲				0,4
CCGT120408FN-93W	C85 44930.08..	▲	▲				0,8
CCGT120412FN-93W	C85 44930.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FN-93W Cutting material PKD5510 Order No. C85 18930.025510			

Surface comparison
- R0,4
- R0,8
- R0,4 ⩔iper $\varkappa$ = 95°

Average surface quality R_a
Material: G-AlSi9Cu4Mg (~ 3.2573)
Cutting speed: v_c = 1000 m/min
Cutting depth: a_p = 0,5 mm



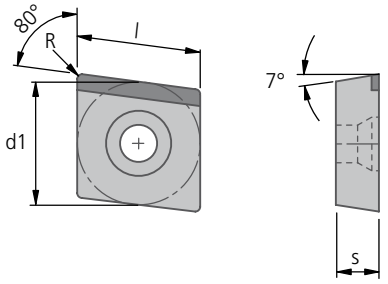
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CCGW060202FL-94	C85 18940.02..	▲	▲	6,35	2,38	6,5	0,2
CCGW060204FL-94	C85 18940.04..	▲	▲				0,4
CCGW060208FL-94	C85 18940.08..	▲	▲				0,8
CCGW09T304FL-94	C85 32940.04..	▲	▲	9,52	3,97	9,7	0,4
CCGW09T308FL-94	C85 32940.08..	▲	▲				0,8
CCGW09T312FL-94	C85 32940.12..	▲	▲				1,2
CCGW120404FL-94	C85 44940.04..	▲	▲	12,7	4,76	12,9	0,4
CCGW120408FL-94	C85 44940.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGW060202FL-94 Cutting material PKD5510 Order No. C85 18940.025510			

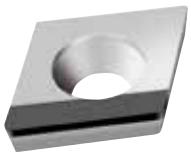
● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

KOMET® C85..95 CCGW

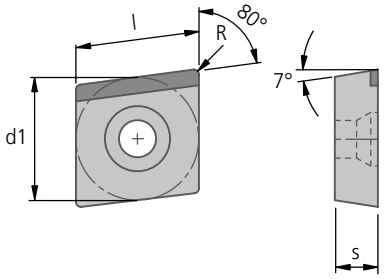
ISO PCD/CVD-D Indexable inserts

R.H. cutting form „R“



Cutter geometry:

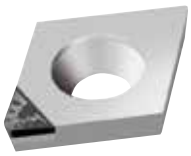
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CCGW060202FR-95	C85 18950.02..	▲	▲	6,35	2,38	6,5	0,2
CCGW060204FR-95	C85 18950.04..	▲	▲				0,4
CCGW060208FR-95	C85 18950.08..	▲	▲				0,8
CCGW09T304FR-95	C85 32950.04..	▲	▲	9,52	3,97	9,7	0,4
CCGW09T308FR-95	C85 32950.08..	▲	▲				0,8
CCGW09T312FR-95	C85 32950.12..	▲	▲				1,2
CCGW120404FR-95	C85 44950.04..	▲	▲	12,7	4,76	12,9	0,4
CCGW120408FR-95	C85 44950.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGW060202FR-95 Cutting material PKD5510 Order No. C85 18950.025510			

Recommended cutting data: page 674.

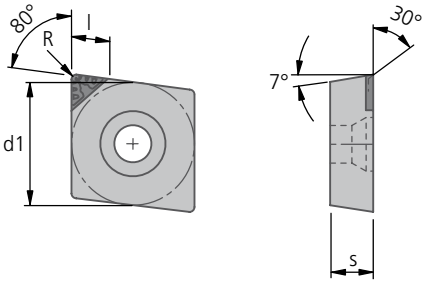
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm

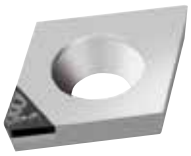


Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGT060202FN-96	C85 18960.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-96	C85 18960.04..	▲	▲				0,4
CCGT060208FN-96	C85 18960.08..	▲	▲				0,8
CCGT09T302FN-96	C85 32960.02..	▲	▲	9,52	3,97	3,0	0,2
CCGT09T304FN-96	C85 32960.04..	▲	▲				0,4
CCGT09T308FN-96	C85 32960.08..	▲	▲				0,8
CCGT09T312FN-96	C85 32960.12..	▲	▲				1,2
CCGT120402FN-96	C85 44960.02..	▲	▲	12,7	4,76	3,0	0,2
CCGT120404FN-96	C85 44960.04..	▲	▲				0,4
CCGT120408FN-96	C85 44960.08..	▲	▲				0,8
CCGT120412FN-96	C85 44960.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FN-96 Cutting material PKD5510 Order No. C85 18960.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

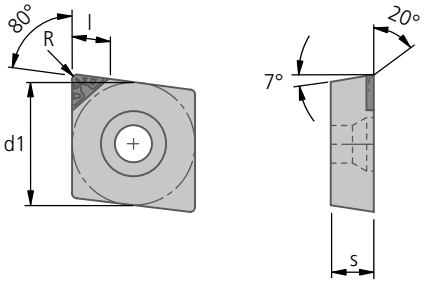
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGT060202FN-97	C85 18970.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-97	C85 18970.04..	▲	▲				0,4
CCGT060208FN-97	C85 18970.08..	▲	▲				0,8
CCGT09T302FN-97	C85 32970.02..	▲	▲	9,52	3,97	3,0	0,2
CCGT09T304FN-97	C85 32970.04..	▲	▲				0,4
CCGT09T308FN-97	C85 32970.08..	▲	▲				0,8
CCGT09T312FN-97	C85 32970.12..	▲	▲				1,2
CCGT120402FN-97	C85 44970.02..	▲	▲	12,7	4,76	3,0	0,2
CCGT120404FN-97	C85 44970.04..	▲	▲				0,4
CCGT120408FN-97	C85 44970.08..	▲	▲				0,8
CCGT120412FN-97	C85 44970.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FN-97 Cutting material PKD5510 Order No. C85 18970.025510			

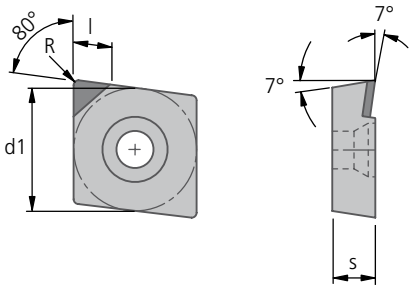
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

positive rake angle
sharp cutting edge

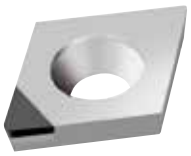


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CCGT060202FN-98	C85 18980.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-98	C85 18980.04..	▲	▲				0,4
CCGT060208FN-98	C85 18980.08..	▲	▲				0,8
CCGT09T302FN-98	C85 32980.02..	▲	▲	9,52	3,97	3,0	0,2
CCGT09T304FN-98	C85 32980.04..	▲	▲				0,4
CCGT09T308FN-98	C85 32980.08..	▲	▲				0,8
CCGT09T312FN-98	C85 32980.12..	▲	▲				1,2
CCGT120402FN-98	C85 44980.02..	▲	▲	12,7	4,76	3,0	0,2
CCGT120404FN-98	C85 44980.04..	▲	▲				0,4
CCGT120408FN-98	C85 44980.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGT060202FN-98 Cutting material PKD5510 Order No. C85 18980.025510			

● Main area of application ◐ Suitable in some cases

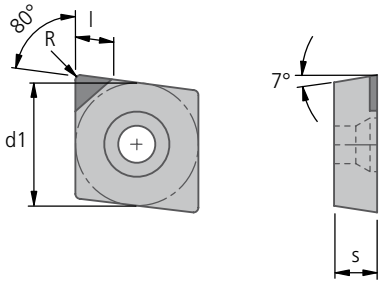
Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

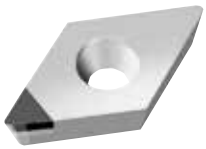
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
CCGW060202FN-99	C85 18990.02..	▲	▲	6,35	2,38	3,0	0,2
CCGW060204FN-99	C85 18990.04..	▲	▲				0,4
CCGW060208FN-99	C85 18990.08..	▲	▲				0,8
CCGW09T302FN-99	C85 32990.02..	▲	▲	9,52	3,97	3,0	0,2
CCGW09T304FN-99	C85 32990.04..	▲	▲				0,4
CCGW09T308FN-99	C85 32990.08..	▲	▲				0,8
CCGW09T312FN-99	C85 32990.12..	▲	▲				1,2
CCGW120402FN-99	C85 44990.02..	▲	▲	12,7	4,76	3,0	0,2
CCGW120404FN-99	C85 44990.04..	▲	▲				0,4
CCGW120408FN-99	C85 44990.08..	▲	▲				0,8
CCGW120412FN-99	C85 44990.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CCGW060202FN-99 Cutting material PKD5510 Order No. C85 18990.025510			

Recommended cutting data: page 674.

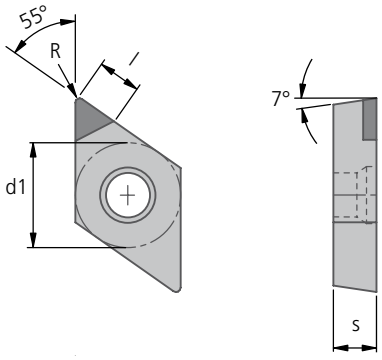
▲ Availability: for delivery see current price and stock list

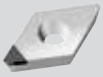
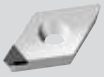


Cutter geometry:

Wiper

sharp cutting edge
with Wiper geometry for
setting angle $\varkappa$ = 93°



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
DCGW070202FN-91W	C86 18910.02..	▲	▲	6,35	2,38	3,0	0,2
DCGW070204FN-91W	C86 18910.04..	▲	▲				0,4
DCGW070208FN-91W	C86 18910.08..	▲	▲				0,8
DCGW11T302FN-91W	C86 32910.02..	▲	▲	9,52	3,97	3,0	0,2
DCGW11T304FN-91W	C86 32910.04..	▲	▲				0,4
DCGW11T308FN-91W	C86 32910.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code DCGW070202FN-91W Cutting material PKD5510 Order No. C86 18910.025510			

Surface comparison

R0,4

R0,8

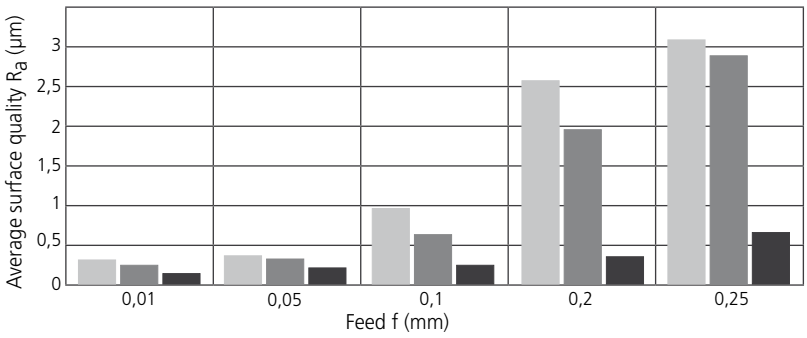
R0,4 Wiper $\varkappa$ = 93°

Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

Cutting speed: v_c = 1000 m/min

Cutting depth: a_p = 0,5 mm

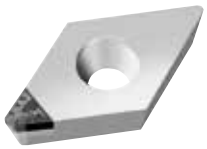


● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

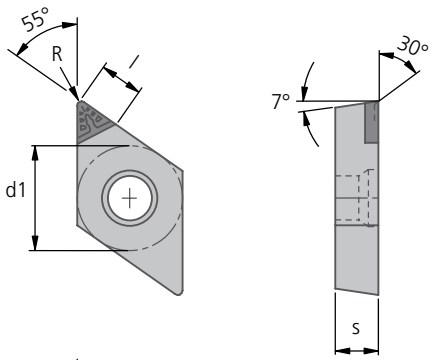
KOMET® C86..92 DCGT

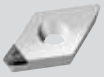
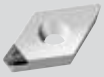
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽▽▽ ⌇iper
3-D chip breaker for finishing with Wiper geometry for setting angle $\varkappa$ = 93°
With stabilised cutting edge for ap > 0,08 mm

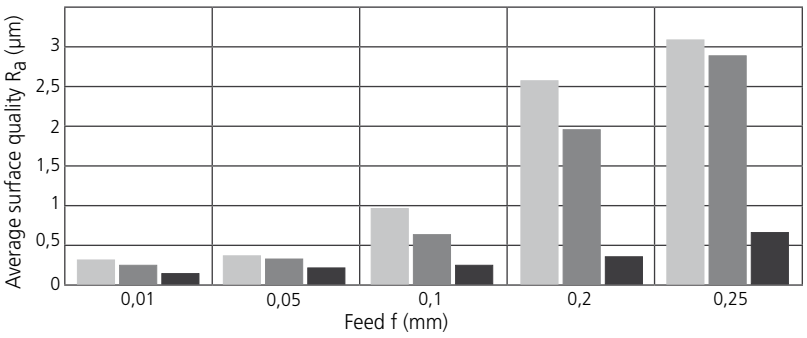


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
DCGT070202FN-92W	C86 18920.02..	▲	▲	6,35	2,38	3,0	0,2
DCGT070204FN-92W	C86 18920.04..	▲	▲				0,4
DCGT070208FN-92W	C86 18920.08..	▲	▲				0,8
DCGT11T302FN-92W	C86 32920.02..	▲	▲	9,52	3,97	3,0	0,2
DCGT11T304FN-92W	C86 32920.04..	▲	▲				0,4
DCGT11T308FN-92W	C86 32920.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code DCGT070202FN-92W Cutting material PKD5510 Order No. C86 18920.025510			

Surface comparison

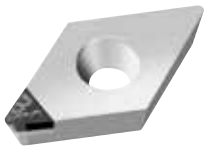
R0,4
R0,8
R0,4 ⌇iper $\varkappa$ = 93°

Average surface quality R_a
Material: G-AlSi9Cu4Mg (~ 3.2573)
Cutting speed: v_c = 1000 m/min
Cutting depth: a_p = 0,5 mm



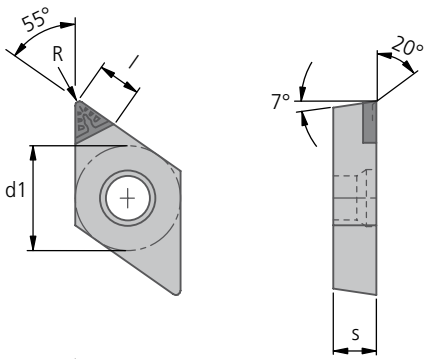
Recommended cutting data: page 674.

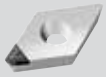
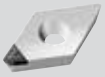
▲ Availability: for delivery see current price and stock list



Cutter geometry:

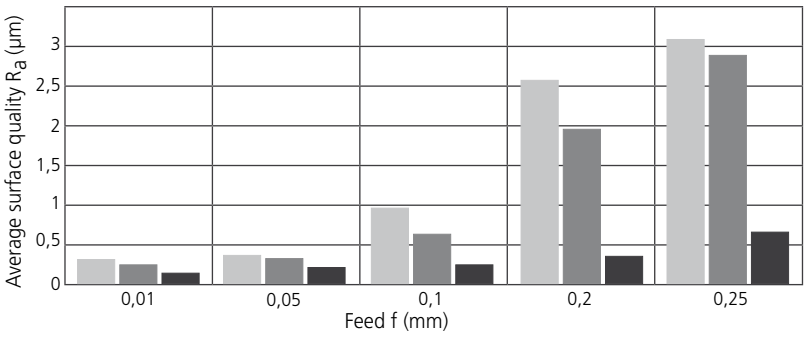
▽ ⩛iper
3-D chip breaker for roughing with Wiper geometry for setting angle $\varkappa$ = 93°
With stabilised cutting edge for ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
DCGT070202FN-93W	C86 18930.02..	▲	▲	6,35	2,38	3,0	0,2
DCGT070204FN-93W	C86 18930.04..	▲	▲				0,4
DCGT070208FN-93W	C86 18930.08..	▲	▲				0,8
DCGT11T302FN-93W	C86 32930.02..	▲	▲	9,52	3,97	3,0	0,2
DCGT11T304FN-93W	C86 32930.04..	▲	▲				0,4
DCGT11T308FN-93W	C86 32930.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code DCGT070202FN-93W Cutting material PKD5510 Order No. C86 18930.025510			

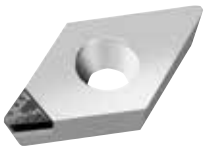
Surface comparison
- R0,4
- R0,8
- R0,4 ⩛iper $\varkappa$ = 93°

Average surface quality R_a
Material: G-AlSi9Cu4Mg (~ 3.2573)
Cutting speed: v_c = 1000 m/min
Cutting depth: a_p = 0,5 mm



● Main area of application ◐ Suitable in some cases

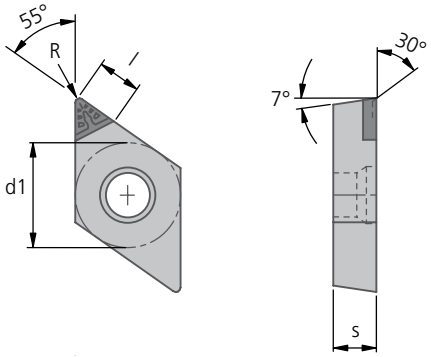
ISO PCD/CVD-D Indexable inserts

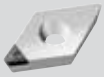
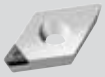


Cutter geometry:

▽▽▽

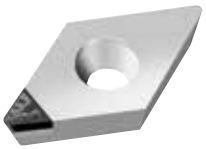
3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	**Order No.** Enter code ▼	 **5510**	 **5605**				
DCGT070202FN-96	**C86 18960.02..**	▲	▲	6,35	2,38	3,0	0,2
DCGT070204FN-96	**C86 18960.04..**	▲	▲				0,4
DCGT070208FN-96	**C86 18960.08..**	▲	▲				0,8
DCGT11T302FN-96	**C86 32960.02..**	▲	▲	9,52	3,97	3,0	0,2
DCGT11T304FN-96	**C86 32960.04..**	▲	▲				0,4
DCGT11T308FN-96	**C86 32960.08..**	▲	▲				0,8
DCGT11T312FN-96	**C86 32960.12..**	▲	▲				1,2
Mild steel/tool steel **P** Stainless and acid-resistant steel **M** Grey cast iron, spheroidal cast iron **K** Non-ferrous metals **N** Heat-resistant steels **S** Hardened tool steel **H**		●	●	Order example: ISO Code DCGT070202FN-96 Cutting material PKD5510 Order No. C86 18960.025510			

Recommended cutting data: page 674.

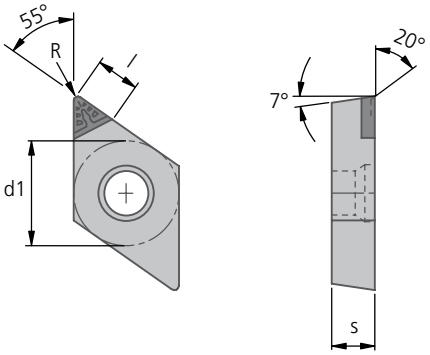
▲ Availability: for delivery see current price and stock list

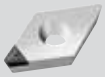
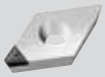


Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm

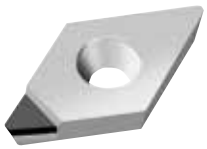


Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	**Order No.** Enter code ▼	 **5510**	 **5605**				
DCGT070202FN-97	**C86 18970.02..**	▲	▲	6,35	2,38	3,0	0,2
DCGT070204FN-97	**C86 18970.04..**	▲	▲				0,4
DCGT070208FN-97	**C86 18970.08..**	▲	▲				0,8
DCGT11T302FN-97	**C86 32970.02..**	▲	▲	9,52	3,97	3,0	0,2
DCGT11T304FN-97	**C86 32970.04..**	▲	▲				0,4
DCGT11T308FN-97	**C86 32970.08..**	▲	▲				0,8
DCGT11T312FN-97	**C86 32970.12..**	▲	▲				1,2
Mild steel/tool steel **P**				Order example: ISO Code DCGT070202FN-97 Cutting material PKD5510 Order No. C86 18970.025510			
Stainless and acid-resistant steel **M**							
Grey cast iron, spheroidal cast iron **K**							
Non-ferrous metals **N**		●	●				
Heat-resistant steels **S**							
Hardened tool steel **H**							

● Main area of application ◐ Suitable in some cases

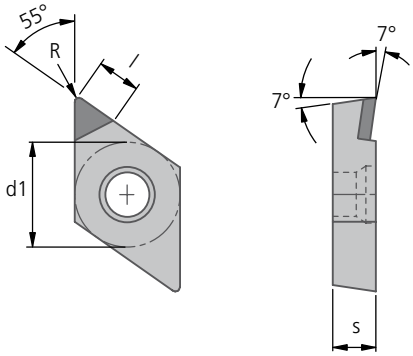
Important: See chapter 8 for more application details and safety notes !

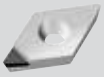
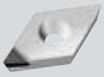
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

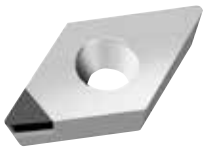
positive rake angle
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
DCGT070201FN-98	C86 18980.01..	▲	▲	6,35	2,38	3,0	0,1
DCGT070202FN-98	C86 18980.02..	▲	▲				0,2
DCGT070204FN-98	C86 18980.04..	▲	▲				0,4
DCGT070208FN-98	C86 18980.08..	▲	▲				0,8
DCGT11T301FN-98	C86 32980.01..	▲	▲	9,52	3,97	3,0	0,1
DCGT11T302FN-98	C86 32980.02..	▲	▲				0,2
DCGT11T304FN-98	C86 32980.04..	▲	▲				0,4
DCGT11T308FN-98	C86 32980.08..	▲	▲				0,8
DCGT11T312FN-98	C86 32980.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code DCGT070201FN-98 Cutting material PKD5510 Order No. C86 18980.015510			

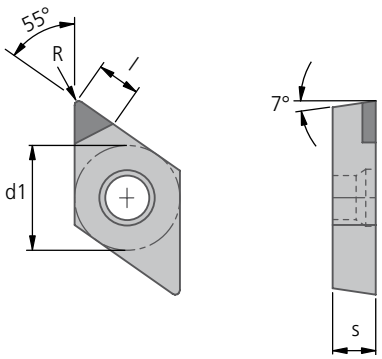
Recommended cutting data: page 674.

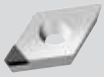
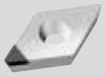
▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605				
DCGW070201FN-99	C86 18990.01..	▲	▲	6,35	2,38	3,0	0,1
DCGW070202FN-99	C86 18990.02..	▲	▲				0,2
DCGW070204FN-99	C86 18990.04..	▲	▲				0,4
DCGW070208FN-99	C86 18990.08..	▲	▲				0,8
DCGW11T301FN-99	C86 32990.01..	▲	▲	9,52	3,97	3,0	0,1
DCGW11T302FN-99	C86 32990.02..	▲	▲				0,2
DCGW11T304FN-99	C86 32990.04..	▲	▲				0,4
DCGW11T308FN-99	C86 32990.08..	▲	▲				0,8
DCGW11T312FN-99	C86 32990.12..	▲	▲				1,2
Mild steel/tool steel P				Order example: ISO Code DCGW070204FN-99 Cutting material PKD5510 Order No. C86 18990.015510			
Stainless and acid-resistant steel M							
Grey cast iron, spheroidal cast iron K							
Non-ferrous metals N		●	●				
Heat-resistant steels S							
Hardened tool steel H							

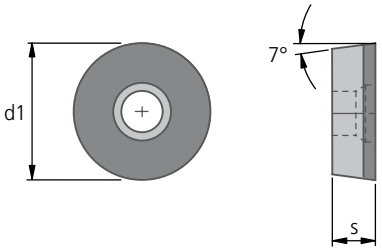
● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s
RCGW1003M0FN-88F	C87 34880.00..	▲	▲	10,0	3,18
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RCGW1003M0FN-88F Cutting material PKD5510 Order No. C87 34880.005510	

Recommended cutting data: page 674.

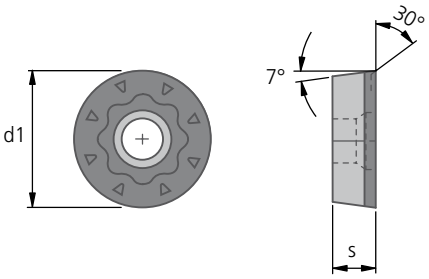
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s
RCGT1003M0FN-89F	C87 34890.00..	▲	▲	10,0	3,18
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RCGT1003M0FN-89F Cutting material PKD5510 Order No. C87 34890.005510	

● Main area of application ◐ Suitable in some cases

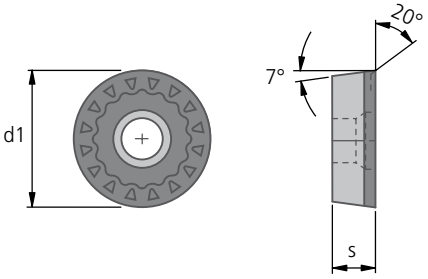
Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽
3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	**Order No.** Enter code ▼	 **5510**	 **5605**	**d1**	**s**
RCGT1003M0FN-90F	**C87 34900.00..**	▲	▲	10,0	3,18
Mild steel/tool steel **P**				Order example: ISO Code RCGT1003M0FN-90F Cutting material PKD5510 Order No. C87 34900.005510	
Stainless and acid-resistant steel **M**					
Grey cast iron, spheroidal cast iron **K**					
Non-ferrous metals **N**		●	●		
Heat-resistant steels **S**					
Hardened tool steel **H**					

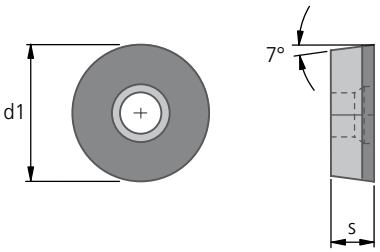
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s
RCGW0602M0FN-88F	C88 17880.00..	▲	▲	6,0	2,38
RCGW0803M0FN-88F	C88 24880.00..	▲	▲	8,0	3,18
RCGW10T3M0FN-88F	C88 34880.00..	▲	▲	10,0	3,97
RCGW1204M0FN-88F	C88 42880.00..	▲	▲	12,0	4,76
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RCGW0602M0FN-88F Cutting material PKD5510 Order No. C88 17880.005510	

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

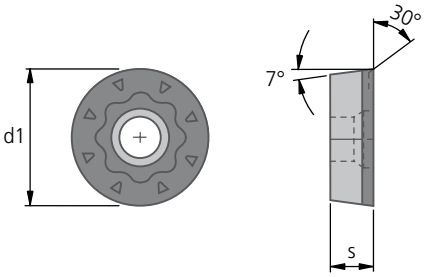
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s
RCGT0602M0FN-89F	C88 17890.00..	▲	▲	6,0	2,38
RCGT0803M0FN-89F	C88 24890.00..	▲	▲	8,0	3,18
RCGT10T3M0FN-89F	C88 34890.00..	▲	▲	10,0	3,97
RCGT1204M0FN-89F	C88 42890.00..	▲	▲	12,0	4,76
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RCGT0602M0FN-89F Cutting material PKD5510 Order No. C88 17890.005510	

Recommended cutting data: page 674.

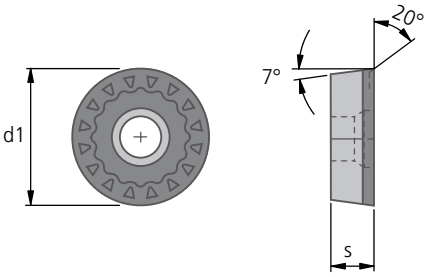
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm

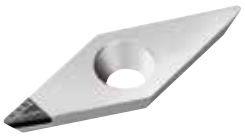


Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s
RCGT0602M0FN-90F	C88 17900.00..	▲	▲	6,0	2,38
RCGT0803M0FN-90F	C88 24900.00..	▲	▲	8,0	3,18
RCGT10T3M0FN-90F	C88 34900.00..	▲	▲	10,0	3,97
RCGT1204M0FN-90F	C88 42900.00..	▲	▲	12,0	4,76
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RCGT0602M0FN-90F Cutting material PKD5510 Order No. C88 17900.005510	

● Main area of application ◐ Suitable in some cases

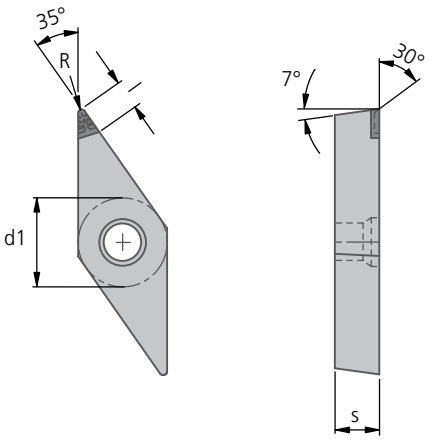
Important: See chapter 8 for more application details and safety notes !

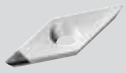
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

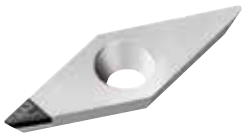
▽▽▽
3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VCGT070202FN-96	C89 03960.02..	▲	▲	3,97	2,38	3,0	0,2
VCGT070204FN-96	C89 03960.04..	▲	▲				0,4
VCGT070208FN-96	C89 03960.08..	▲	▲				0,8
VCGT110302FN-96	C89 18960.02..	▲	▲	6,35	3,18	3,0	0,2
VCGT110304FN-96	C89 18960.04..	▲	▲				0,4
VCGT110308FN-96	C89 18960.08..	▲	▲				0,8
VCGT160402FN-96	C89 32960.02..	▲	▲	9,52	4,76	3,0	0,2
VCGT160404FN-96	C89 32960.04..	▲	▲				0,4
VCGT160408FN-96	C89 32960.08..	▲	▲				0,8
VCGT160412FN-96	C89 32960.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VCGT070202FN-96 Cutting material PKD5510 Order No. C89 03960.025510			

Recommended cutting data: page 674.

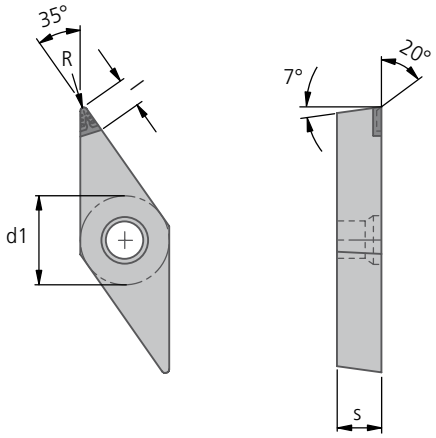
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm

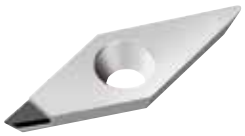


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VCGT070202FN-97	C89 03970.02..	▲	▲	3,97	2,38	3,0	0,2
VCGT070204FN-97	C89 03970.04..	▲	▲				0,4
VCGT070208FN-97	C89 03970.08..	▲	▲				0,8
VCGT110302FN-97	C89 18970.02..	▲	▲	6,35	3,18	3,0	0,2
VCGT110304FN-97	C89 18970.04..	▲	▲				0,4
VCGT110308FN-97	C89 18970.08..	▲	▲				0,8
VCGT160402FN-97	C89 32970.02..	▲	▲	9,52	4,76	3,0	0,2
VCGT160404FN-97	C89 32970.04..	▲	▲				0,4
VCGT160408FN-97	C89 32970.08..	▲	▲				0,8
VCGT160412FN-97	C89 32970.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VCGT070202FN-97 Cutting material PKD5510 Order No. C89 03970.025510			

● Main area of application ◐ Suitable in some cases

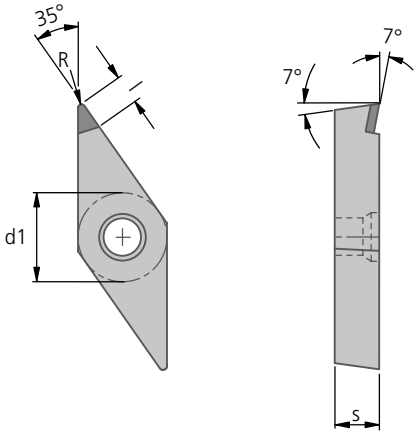
Important: See chapter 8 for more application details and safety notes !

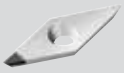
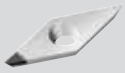
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

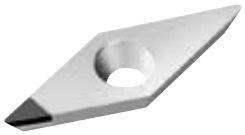
positive rake angle
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VCGT070201FN-98	C89 03980.01..	▲	▲	3,97	2,38	3,0	0,1
VCGT070202FN-98	C89 03980.02..	▲	▲				0,2
VCGT070204FN-98	C89 03980.04..	▲	▲				0,4
VCGT070208FN-98	C89 03980.08..	▲	▲				0,8
VCGT110301FN-98	C89 18980.01..	▲	▲	6,35	3,18	3,0	0,1
VCGT110302FN-98	C89 18980.02..	▲	▲				0,2
VCGT110304FN-98	C89 18980.04..	▲	▲				0,4
VCGT110308FN-98	C89 18980.08..	▲	▲				0,8
VCGT160401FN-98	C89 32980.01..	▲	▲	9,52	4,76	3,0	0,1
VCGT160402FN-98	C89 32980.02..	▲	▲				0,2
VCGT160404FN-98	C89 32980.04..	▲	▲				0,4
VCGT160408FN-98	C89 32980.08..	▲	▲				0,8
VCGT160412FN-98	C89 32980.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VCGT070201FN-98 Cutting material PKD5510 Order No. C89 03980.015510			

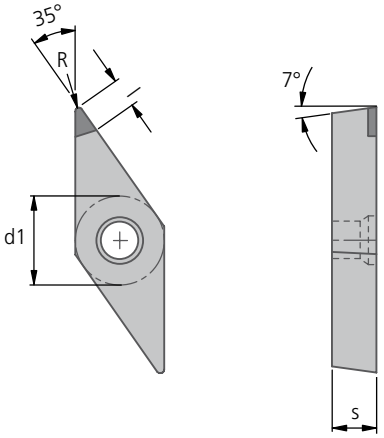
Recommended cutting data: page 674.

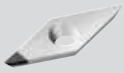
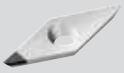
▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
VCGW070201FN-99	C89 03990.01..	▲	▲	3,97	2,38	3,0	0,1
VCGW070202FN-99	C89 03990.02..	▲	▲				0,2
VCGW070204FN-99	C89 03990.04..	▲	▲				0,4
VCGW070208FN-99	C89 03990.08..	▲	▲				0,8
VCGW110301FN-99	C89 18990.01..	▲	▲	6,35	3,18	3,0	0,1
VCGW110302FN-99	C89 18990.02..	▲	▲				0,2
VCGW110304FN-99	C89 18990.04..	▲	▲				0,4
VCGW110308FN-99	C89 18990.08..	▲	▲				0,8
VCGW160401FN-99	C89 32990.01..	▲	▲	9,52	4,76	3,0	0,1
VCGW160402FN-99	C89 32990.02..	▲	▲				0,2
VCGW160404FN-99	C89 32990.04..	▲	▲				0,4
VCGW160408FN-99	C89 32990.08..	▲	▲				0,8
VCGW160412FN-99	C89 32990.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code VCGW070201FN-99 Cutting material PKD5510 Order No. C89 03990.015510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

KOMET® C95..84 CPGT

ISO PCD/CVD-D Indexable inserts

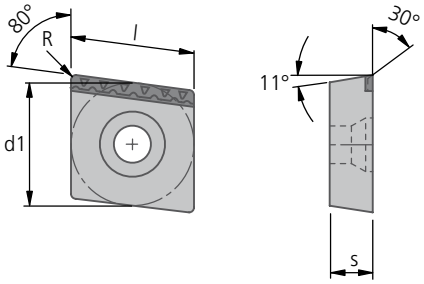
L.H. cutting form „L“



Cutter geometry:

▽▽▽

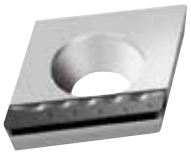
3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGT04T102FL-84	C95 09840.02..	▲	▲	4,76	1,98	4,8	0,2
CPGT060202FL-84	C95 18840.02..	▲	▲	6,35	2,38	6,5	0,2
CPGT060204FL-84	C95 18840.04..	▲	▲				0,4
CPGT080304FL-84	C95 23840.04..	▲	▲	7,94	3,18	8,1	0,4
CPGT09T304FL-84	C95 32840.04..	▲	▲	9,52	3,97	9,7	0,4
CPGT09T308FL-84	C95 32840.08..	▲	▲				0,8
CPGT120404FL-84	C95 44840.04..	▲	▲	12,7	4,76	12,9	0,4
CPGT120408FL-84	C95 44840.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGT04T102FL-84 Cutting material PKD5510 Order No. C95 09840.025510			

Recommended cutting data: page 674.

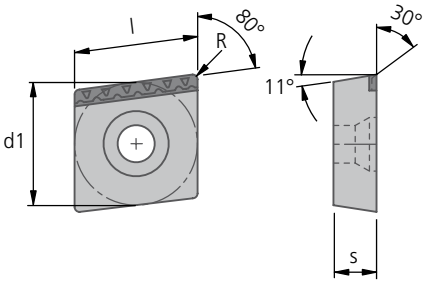
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGT04T102FR-85	C95 09850.02..	▲	▲	4,76	1,98	4,8	0,2
CPGT060202FR-85	C95 18850.02..	▲	▲	6,35	2,38	6,5	0,2
CPGT060204FR-85	C95 18850.04..	▲	▲				0,4
CPGT080304FR-85	C95 23850.04..	▲	▲	7,94	3,18	8,1	0,4
CPGT09T304FR-85	C95 32850.04..	▲	▲	9,52	3,97	9,7	0,4
CPGT09T308FR-85	C95 32850.08..	▲	▲				0,8
CPGT120404FR-85	C95 44850.04..	▲	▲	12,7	4,76	12,9	0,4
CPGT120408FR-85	C95 44850.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGT04T102FR-85 Cutting material PKD5510 Order No. C95 09850.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts

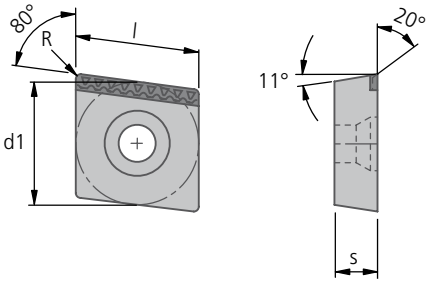
L.H. cutting form „L“



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	**Order No.** Enter code ▼	 **5510**	 **5605**	d1	s	l	R
CPGT04T102FL-86	**C95 09860.02..**	▲	▲	4,76	1,98	4,8	0,2
CPGT060202FL-86	**C95 18860.02..**	▲	▲	6,35	2,38	6,5	0,2
CPGT060204FL-86	**C95 18860.04..**	▲	▲				0,4
CPGT080304FL-86	**C95 23860.04..**	▲	▲	7,94	3,18	8,1	0,4
CPGT09T304FL-86	**C95 32860.04..**	▲	▲	9,52	3,97	9,7	0,4
CPGT09T308FL-86	**C95 32860.08..**	▲	▲				0,8
CPGT120404FL-86	**C95 44860.04..**	▲	▲	12,7	4,76	12,9	0,4
CPGT120408FL-86	**C95 44860.08..**	▲	▲				0,8
Mild steel/tool steel **P** Stainless and acid-resistant steel **M** Grey cast iron, spheroidal cast iron **K** Non-ferrous metals **N** Heat-resistant steels **S** Hardened tool steel **H**		●	●	Order example: ISO Code CPGT04T102FL-86 Cutting material PKD5510 Order No. C95 09860.025510			

Recommended cutting data: page 674.

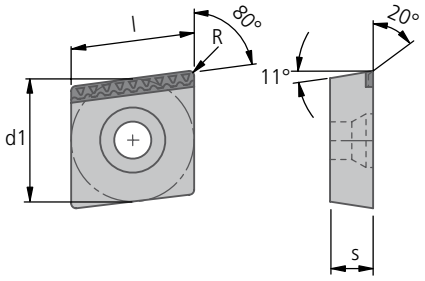
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGT04T102FR-87	C95 09870.02..	▲	▲	4,76	1,98	4,8	0,2
CPGT060202FR-87	C95 18870.02..	▲	▲	6,35	2,38	6,5	0,2
CPGT060204FR-87	C95 18870.04..	▲	▲				0,4
CPGT080304FR-87	C95 23870.04..	▲	▲	7,94	3,18	8,1	0,4
CPGT09T304FR-87	C95 32870.04..	▲	▲	9,52	3,97	9,7	0,4
CPGT09T308FR-87	C95 32870.08..	▲	▲				0,8
CPGT120404FR-87	C95 44870.04..	▲	▲	12,7	4,76	12,9	0,4
CPGT120408FR-87	C95 44870.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGT04T102FR-87 Cutting material PKD5510 Order No. C95 09870.025510			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

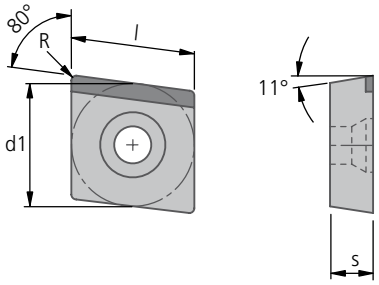
ISO PCD/CVD-D Indexable inserts

L.H. cutting form „L“



Cutter geometry:

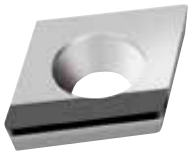
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGW04T102FL-94	C95 09940.02..	▲	▲	4,76	1,98	4,8	0,2
CPGW060202FL-94	C95 18940.02..	▲	▲	6,35	2,38	6,5	0,2
CPGW060204FL-94	C95 18940.04..	▲	▲				0,4
CPGW080302FL-94	C95 23940.02..	▲	▲	7,94	3,18	8,1	0,2
CPGW080304FL-94	C95 23940.04..	▲	▲				0,4
CPGW09T304FL-94	C95 32940.04..	▲	▲	9,52	3,97	9,7	0,4
CPGW09T308FL-94	C95 32940.08..	▲	▲				0,8
CPGW120404FL-94	C95 44940.04..	▲	▲	12,7	4,76	12,9	0,4
CPGW120408FL-94	C95 44940.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGW04T102FL-94 Cutting material PKD5510 Order No. C95 09940.025510			

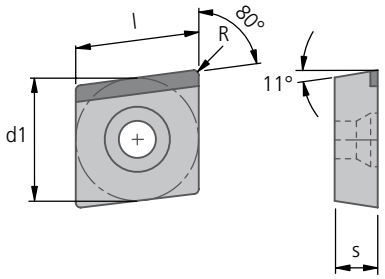
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge

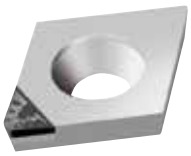


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGW04T102FR-95	C95 09950.02..	▲	▲	4,76	1,98	4,8	0,2
CPGW060202FR-95	C95 18950.02..	▲	▲	6,35	2,38	6,5	0,2
CPGW060204FR-95	C95 18950.04..	▲	▲				0,4
CPGW080304FR-95	C95 23950.04..	▲	▲	7,94	3,18	8,1	0,4
CPGW09T304FR-95	C95 32950.04..	▲	▲	9,52	3,97	9,7	0,4
CPGW09T308FR-95	C95 32950.08..	▲	▲				0,8
CPGW120404FR-95	C95 44950.04..	▲	▲	12,7	4,76	12,9	0,4
CPGW120408FR-95	C95 44950.08..	▲	▲				0,8
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGW04T102FR-95 Cutting material PKD5510 Order No. C95 09950.025510			

● Main area of application ◐ Suitable in some cases

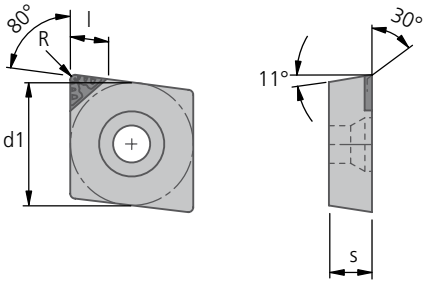
Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽▽▽
3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGT04T102FN-96	C95 09960.02..	▲	▲	4,76	1,98	2,0	0,2
CPGT060201FN-96	C95 18960.01..	▲	▲	6,35	2,38	3,0	0,1
CPGT060202FN-96	C95 18960.02..	▲	▲				0,2
CPGT060204FN-96	C95 18960.04..	▲	▲				0,4
CPGT060208FN-96	C95 18960.08..	▲	▲				0,8
CPGT09T302FN-96	C95 32960.02..	▲	▲	9,52	3,97	3,0	0,2
CPGT09T304FN-96	C95 32960.04..	▲	▲				0,4
CPGT09T308FN-96	C95 32960.08..	▲	▲				0,8
CPGT120404FN-96	C95 44960.04..	▲	▲	12,7	4,76	3,0	0,4
CPGT120408FN-96	C95 44960.08..	▲	▲				0,8
CPGT120412FN-96	C95 44960.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGT04T102FN-96 Cutting material PKD5510 Order No. C95 09960.025510			

Recommended cutting data: page 674.

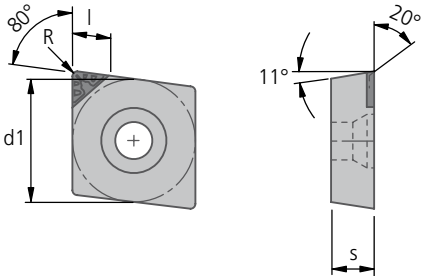
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm

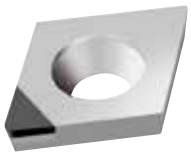


Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGT04T102FN-97	C95 09970.02..	▲	▲	4,76	1,98	2,0	0,2
CPGT060201FN-97	C95 18970.01..	▲	▲	6,35	2,38	3,0	0,1
CPGT060202FN-97	C95 18970.02..	▲	▲				0,2
CPGT060204FN-97	C95 18970.04..	▲	▲				0,4
CPGT060208FN-97	C95 18970.08..	▲	▲				0,8
CPGT09T302FN-97	C95 32970.02..	▲	▲	9,52	3,97	3,0	0,2
CPGT09T304FN-97	C95 32970.04..	▲	▲				0,4
CPGT09T308FN-97	C95 32970.08..	▲	▲				0,8
CPGT120404FN-97	C95 44970.04..	▲	▲	12,7	4,76	3,0	0,4
CPGT120408FN-97	C95 44970.08..	▲	▲				0,8
CPGT120412FN-97	C95 44970.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGT04T102FN-97 Cutting material PKD5510 Order No. C95 09970.025510			

● Main area of application ◐ Suitable in some cases

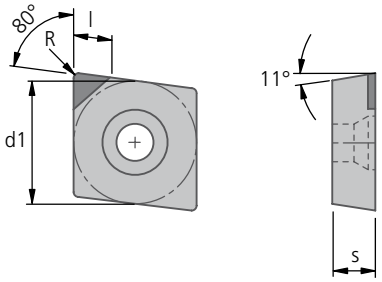
Important: See chapter 8 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		–	–				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s	l	R
CPGW04T102FN-99	C95 09990.02..	▲	▲	4,76	1,98	2,0	0,2
CPGW060201FN-99	C95 18990.01..	▲	▲	6,35	2,38	3,0	0,1
CPGW060202FN-99	C95 18990.02..	▲	▲				0,2
CPGW060204FN-99	C95 18990.04..	▲	▲				0,4
CPGW060208FN-99	C95 18990.08..	▲	▲				0,8
CPGW09T302FN-99	C95 32990.02..	▲	▲	9,52	3,97	3,0	0,2
CPGW09T304FN-99	C95 32990.04..	▲	▲				0,4
CPGW09T308FN-99	C95 32990.08..	▲	▲				0,8
CPGW120404FN-99	C95 44990.04..	▲	▲	12,7	4,76	3,0	0,4
CPGW120408FN-99	C95 44990.08..	▲	▲				0,8
CPGW120412FN-99	C95 44990.12..	▲	▲				1,2
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code CPGW 04T102 FN Cutting material PKD5510 Order No. C95 09990.025510			

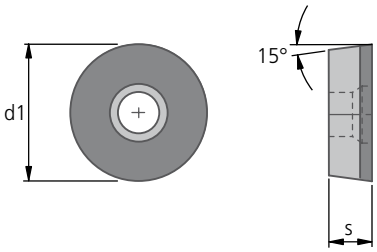
Recommended cutting data: page 674.

▲ Availability: for delivery see current price and stock list



Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D		
Coating type		–	–	d1	s
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605		
RDHX0501M0FN-88F	C98 10880.00..	▲	▲	5,0	1,59
RDHX0702M0FN-88F	C98 20880.00..	▲	▲	7,0	2,38
RDHX1003M0FN-88F	C98 34880.00..	▲	▲	10,0	3,18
RDHX12T3M0FN-88F	C98 42880.00..	▲	▲	12,0	3,97
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RDHX0501M0FN-88F Cutting material PKD5510 Order No. C98 10880.005510	

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

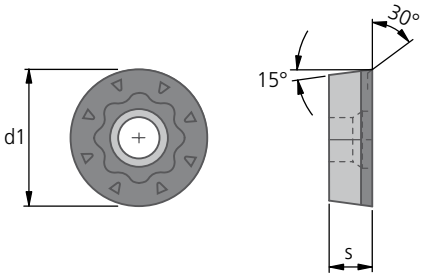
ISO PCD/CVD-D Indexable inserts



Cutter geometry:

▽▽▽

3-D chip breaker for finishing
With stabilised cutting edge for
ap > 0,08 mm



Substrate		PCD	CVD-D		
Coating type		–	–		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605	d1	s
RDHX0501M0FN-89F	C98 10890.00..	▲	▲	5,0	1,59
RDHX0702M0FN-89F	C98 20890.00..	▲	▲	7,0	2,38
RDHX1003M0FN-89F	C98 34890.00..	▲	▲	10,0	3,18
RDHX12T3M0FN-89F	C98 42890.00..	▲	▲	12,0	3,97
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RDHX0501M0FN-89F Cutting material PKD5510 Order No. C98 10890.005510	

Recommended cutting data: page 674.

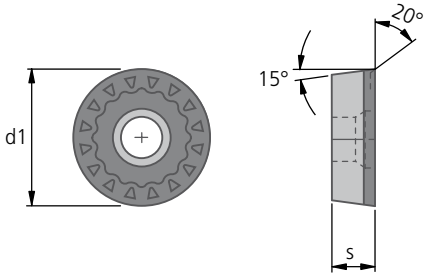
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽

3-D chip breaker for roughing
With stabilised cutting edge for
ap > 0,2 mm



Substrate		PCD	CVD-D		
Coating type		–	–	d1	s
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code Cutting edge design F = sharp ▼	Order No. Enter code ▼	 5510	 5605		
RDHX0501M0FN-90F	C98 10900.00..	▲	▲	5,0	1,59
RDHX0702M0FN-90F	C98 20900.00..	▲	▲	7,0	2,38
RDHX1003M0FN-90F	C98 34900.00..	▲	▲	10,0	3,18
RDHX12T3M0FN-90F	C98 42900.00..	▲	▲	12,0	3,97
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	●	Order example: ISO Code RDHX0501M0FN-90F Cutting material PKD5510 Order No. C98 10900.005510	

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes !

KOMET® H60 | H62

XOHX

Inserts Ø 17,3 - 21,2 mm



For KUB Duon®

Patent applied for inside and outside Germany

Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾∅	Enter code ▾	8440	2715	84	▾∅	Enter code ▾	7710
XOHX 0802-17,3	H60 17300. ..				XOHX 0802-17,3-62	H62 17300. ..	
XOHX 0802-17,4	H60 17400. ..				XOHX 0802-17,4-62	H62 17400. ..	
XOHX 0802-17,5	**H60 17500. ..**	▲	▲	▲	XOHX 0802-17,5-62	**H62 17500. ..**	▲
XOHX 0802-17,6	H60 17600. ..				XOHX 0802-17,6-62	H62 17600. ..	
XOHX 0802-17,7	H60 17700. ..				XOHX 0802-17,7-62	H62 17700. ..	
XOHX 0802-17,8	H60 17800. ..				XOHX 0802-17,8-62	H62 17800. ..	
XOHX 0802-17,9	H60 17900. ..				XOHX 0802-17,9-62	H62 17900. ..	
XOHX 0802-18,0	**H60 18000. ..**	▲	▲	▲	XOHX 0802-18,0-62	**H62 18000. ..**	▲
XOHX 0802-18,1	H60 18100. ..				XOHX 0802-18,1-62	H62 18100. ..	
XOHX 0802-18,2	H60 18200. ..				XOHX 0802-18,2-62	H62 18200. ..	
XOHX 0802-18,3	H60 18300. ..				XOHX 0802-18,3-62	H62 18300. ..	
XOHX 0802-18,4	H60 18400. ..				XOHX 0802-18,4-62	H62 18400. ..	
XOHX 0802-18,5	**H60 18500. ..**	▲	▲	▲	XOHX 0802-18,5-62	**H62 18500. ..**	▲
XOHX 0802-18,6	H60 18600. ..				XOHX 0802-18,6-62	H62 18600. ..	
XOHX 0802-18,7	H60 18700. ..				XOHX 0802-18,7-62	H62 18700. ..	
XOHX 0802-18,8	H60 18800. ..				XOHX 0802-18,8-62	H62 18800. ..	
XOHX 0802-18,9	H60 18900. ..				XOHX 0802-18,9-62	H62 18900. ..	
XOHX 0802-19,0	**H60 19000. ..**	▲	▲	▲	XOHX 0802-19,0-62	**H62 19000. ..**	▲
XOHX 0802-19,1	H60 19100. ..				XOHX 0802-19,1-62	H62 19100. ..	
XOHX 0802-19,2	H60 19200. ..				XOHX 0802-19,2-62	H62 19200. ..	
XOHX 0802-19,3	H60 19300. ..				XOHX 0802-19,3-62	H62 19300. ..	
XOHX 0802-19,4	H60 19400. ..				XOHX 0802-19,4-62	H62 19400. ..	
XOHX 0802-19,5	**H60 19500. ..**	▲	▲	▲	XOHX 0802-19,5-62	**H62 19500. ..**	▲
XOHX 0802-19,6	H60 19600. ..				XOHX 0802-19,6-62	H62 19600. ..	
XOHX 0802-19,7	H60 19700. ..				XOHX 0802-19,7-62	H62 19700. ..	
XOHX 0802-19,8	H60 19800. ..				XOHX 0802-19,8-62	H62 19800. ..	
XOHX 0802-19,9	H60 19900. ..				XOHX 0802-19,9-62	H62 19900. ..	
XOHX 0802-20,0	**H60 20000. ..**	▲	▲	▲	XOHX 0802-20,0-62	**H62 20000. ..**	▲
XOHX 0802-20,1	H60 20100. ..				XOHX 0802-20,1-62	H62 20100. ..	
XOHX 0802-20,2	H60 20200. ..				XOHX 0802-20,2-62	H62 20200. ..	
XOHX 0802-20,3	H60 20300. ..				XOHX 0802-20,3-62	H62 20300. ..	
XOHX 0802-20,4	H60 20400. ..				XOHX 0802-20,4-62	H62 20400. ..	
XOHX 0802-20,5	**H60 20500. ..**	▲	▲	▲	XOHX 0802-20,5-62	**H62 20500. ..**	▲
XOHX 0802-20,6	H60 20600. ..				XOHX 0802-20,6-62	H62 20600. ..	
XOHX 0802-20,7	H60 20700. ..				XOHX 0802-20,7-62	H62 20700. ..	
XOHX 1003-20,8	H60 20800. ..				XOHX 1003-20,8-62	H62 20800. ..	
XOHX 1003-20,9	H60 20900. ..				XOHX 1003-20,9-62	H62 20900. ..	
XOHX 1003-21,0	**H60 21000. ..**	▲	▲	▲	XOHX 1003-21,0-62	**H62 21000. ..**	▲
XOHX 1003-21,1	H60 21100. ..				XOHX 1003-21,1-62	H62 21100. ..	
XOHX 1003-21,2	H60 21200. ..				XOHX 1003-21,2-62	H62 21200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 0802-17,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 17300.8440		

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

XOHX

KOMET® H60 | H62

Inserts Ø 21,3 - 25,2 mm

For KUB Duon®

Patent applied for inside and outside Germany



Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾Ø	Enter code ▾	8440	2715	84	▾Ø	Enter code ▾	7710
XOHX 1003-21,3	H60 21300. ..				XOHX 1003-21,3-62	H62 21300. ..	
XOHX 1003-21,4	H60 21400. ..				XOHX 1003-21,4-62	H62 21400. ..	
XOHX 1003-21,5	**H60 21500. ..**	▲	▲	▲	XOHX 1003-21,5-62	**H62 21500. ..**	▲
XOHX 1003-21,6	H60 21600. ..				XOHX 1003-21,6-62	H62 21600. ..	
XOHX 1003-21,7	H60 21700. ..				XOHX 1003-21,7-62	H62 21700. ..	
XOHX 1003-21,8	H60 21800. ..				XOHX 1003-21,8-62	H62 21800. ..	
XOHX 1003-21,9	H60 21900. ..				XOHX 1003-21,9-62	H62 21900. ..	
XOHX 1003-22,0	**H60 22000. ..**	▲	▲	▲	XOHX 1003-22,0-62	**H62 22000. ..**	▲
XOHX 1003-22,1	H60 22100. ..				XOHX 1003-22,1-62	H62 22100. ..	
XOHX 1003-22,2	H60 22200. ..				XOHX 1003-22,2-62	H62 22200. ..	
XOHX 1003-22,3	H60 22300. ..				XOHX 1003-22,3-62	H62 22300. ..	
XOHX 1003-22,4	H60 22400. ..				XOHX 1003-22,4-62	H62 22400. ..	
XOHX 1003-22,5	**H60 22500. ..**	▲	▲	▲	XOHX 1003-22,5-62	**H62 22500. ..**	▲
XOHX 1003-22,6	H60 22600. ..				XOHX 1003-22,6-62	H62 22600. ..	
XOHX 1003-22,7	H60 22700. ..				XOHX 1003-22,7-62	H62 22700. ..	
XOHX 1003-22,8	H60 22800. ..				XOHX 1003-22,8-62	H62 22800. ..	
XOHX 1003-22,9	H60 22900. ..				XOHX 1003-22,9-62	H62 22900. ..	
XOHX 1003-23,0	**H60 23000. ..**	▲	▲	▲	XOHX 1003-23,0-62	**H62 23000. ..**	▲
XOHX 1003-23,1	H60 23100. ..				XOHX 1003-23,1-62	H62 23100. ..	
XOHX 1003-23,2	H60 23200. ..				XOHX 1003-23,2-62	H62 23200. ..	
XOHX 1003-23,3	H60 23300. ..				XOHX 1003-23,3-62	H62 23300. ..	
XOHX 1003-23,4	H60 23400. ..				XOHX 1003-23,4-62	H62 23400. ..	
XOHX 1003-23,5	**H60 23500. ..**	▲	▲	▲	XOHX 1003-23,5-62	**H62 23500. ..**	▲
XOHX 1003-23,6	H60 23600. ..				XOHX 1003-23,6-62	H62 23600. ..	
XOHX 1003-23,7	H60 23700. ..				XOHX 1003-23,7-62	H62 23700. ..	
XOHX 1003-23,8	H60 23800. ..				XOHX 1003-23,8-62	H62 23800. ..	
XOHX 1003-23,9	H60 23900. ..				XOHX 1003-23,9-62	H62 23900. ..	
XOHX 1003-24,0	**H60 24000. ..**	▲	▲	▲	XOHX 1003-24,0-62	**H62 24000. ..**	▲
XOHX 1003-24,1	H60 24100. ..				XOHX 1003-24,1-62	H62 24100. ..	
XOHX 1003-24,2	H60 24200. ..				XOHX 1003-24,2-62	H62 24200. ..	
XOHX 1003-24,3	H60 24300. ..				XOHX 1003-24,3-62	H62 24300. ..	
XOHX 1003-24,4	H60 24400. ..				XOHX 1003-24,4-62	H62 24400. ..	
XOHX 1003-24,5	**H60 24500. ..**	▲	▲	▲	XOHX 1003-24,5-62	**H62 24500. ..**	▲
XOHX 1003-24,6	H60 24600. ..				XOHX 1003-24,6-62	H62 24600. ..	
XOHX 1003-24,7	H60 24700. ..				XOHX 1003-24,7-62	H62 24700. ..	
XOHX 12T3-24,8	H60 24800. ..				XOHX 12T3-24,8-62	H62 24800. ..	
XOHX 12T3-24,9	H60 24900. ..				XOHX 12T3-24,9-62	H62 24900. ..	
XOHX 12T3-25,0	**H60 25000. ..**	▲	▲	▲	XOHX 12T3-25,0-62	**H62 25000. ..**	▲
XOHX 12T3-25,1	H60 25100. ..				XOHX 12T3-25,1-62	H62 25100. ..	
XOHX 12T3-25,2	H60 25200. ..				XOHX 12T3-25,2-62	H62 25200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 1003-21,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 21300.8440		

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® H60 | H62

XOHX

Inserts Ø 25,3 - 29,2 mm



For KUB Duon®

Patent applied for inside and outside Germany

Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾∅	Enter code ▾	8440	2715	84	▾∅	Enter code ▾	7710
XOHX 12T3-25,3	H60 25300. ..				XOHX 12T3-25,3-62	H62 25300. ..	
XOHX 12T3-25,4	H60 25400. ..				XOHX 12T3-25,4-62	H62 25400. ..	
XOHX 12T3-25,5	**H60 25500. ..**	▲	▲	▲	XOHX 12T3-25,5-62	**H62 25500. ..**	▲
XOHX 12T3-25,6	H60 25600. ..				XOHX 12T3-25,6-62	H62 25600. ..	
XOHX 12T3-25,7	H60 25700. ..				XOHX 12T3-25,7-62	H62 25700. ..	
XOHX 12T3-25,8	H60 25800. ..				XOHX 12T3-25,8-62	H62 25800. ..	
XOHX 12T3-25,9	H60 25900. ..				XOHX 12T3-25,9-62	H62 25900. ..	
XOHX 12T3-26,0	**H60 26000. ..**	▲	▲	▲	XOHX 12T3-26,0-62	**H62 26000. ..**	▲
XOHX 12T3-26,1	H60 26100. ..				XOHX 12T3-26,1-62	H62 26100. ..	
XOHX 12T3-26,2	H60 26200. ..				XOHX 12T3-26,2-62	H62 26200. ..	
XOHX 12T3-26,3	H60 26300. ..				XOHX 12T3-26,3-62	H62 26300. ..	
XOHX 12T3-26,4	H60 26400. ..				XOHX 12T3-26,4-62	H62 26400. ..	
XOHX 12T3-26,5	**H60 26500. ..**	▲	▲	▲	XOHX 12T3-26,5-62	**H62 26500. ..**	▲
XOHX 12T3-26,6	H60 26600. ..				XOHX 12T3-26,6-62	H62 26600. ..	
XOHX 12T3-26,7	H60 26700. ..				XOHX 12T3-26,7-62	H62 26700. ..	
XOHX 12T3-26,8	H60 26800. ..				XOHX 12T3-26,8-62	H62 26800. ..	
XOHX 12T3-26,9	H60 26900. ..				XOHX 12T3-26,9-62	H62 26900. ..	
XOHX 12T3-27,0	**H60 27000. ..**	▲	▲	▲	XOHX 12T3-27,0-62	**H62 27000. ..**	▲
XOHX 12T3-27,1	H60 27100. ..				XOHX 12T3-27,1-62	H62 27100. ..	
XOHX 12T3-27,2	H60 27200. ..				XOHX 12T3-27,2-62	H62 27200. ..	
XOHX 12T3-27,3	H60 27300. ..				XOHX 12T3-27,3-62	H62 27300. ..	
XOHX 12T3-27,4	H60 27400. ..				XOHX 12T3-27,4-62	H62 27400. ..	
XOHX 12T3-27,5	**H60 27500. ..**	▲	▲	▲	XOHX 12T3-27,5-62	**H62 27500. ..**	▲
XOHX 12T3-27,6	H60 27600. ..				XOHX 12T3-27,6-62	H62 27600. ..	
XOHX 12T3-27,7	H60 27700. ..				XOHX 12T3-27,7-62	H62 27700. ..	
XOHX 12T3-27,8	H60 27800. ..				XOHX 12T3-27,8-62	H62 27800. ..	
XOHX 12T3-27,9	H60 27900. ..				XOHX 12T3-27,9-62	H62 27900. ..	
XOHX 12T3-28,0	**H60 28000. ..**	▲	▲	▲	XOHX 12T3-28,0-62	**H62 28000. ..**	▲
XOHX 12T3-28,1	H60 28100. ..				XOHX 12T3-28,1-62	H62 28100. ..	
XOHX 12T3-28,2	H60 28200. ..				XOHX 12T3-28,2-62	H62 28200. ..	
XOHX 12T3-28,3	H60 28300. ..				XOHX 12T3-28,3-62	H62 28300. ..	
XOHX 12T3-28,4	H60 28400. ..				XOHX 12T3-28,4-62	H62 28400. ..	
XOHX 12T3-28,5	**H60 28500. ..**	▲	▲	▲	XOHX 12T3-28,5-62	**H62 28500. ..**	▲
XOHX 12T3-28,6	H60 28600. ..				XOHX 12T3-28,6-62	H62 28600. ..	
XOHX 12T3-28,7	H60 28700. ..				XOHX 12T3-28,7-62	H62 28700. ..	
XOHX 12T3-28,8	H60 28800. ..				XOHX 12T3-28,8-62	H62 28800. ..	
XOHX 12T3-28,9	H60 28900. ..				XOHX 12T3-28,9-62	H62 28900. ..	
XOHX 12T3-29,0	**H60 29000. ..**	▲	▲	▲	XOHX 12T3-29,0-62	**H62 29000. ..**	▲
XOHX 12T3-29,1	H60 29100. ..				XOHX 12T3-29,1-62	H62 29100. ..	
XOHX 12T3-29,2	H60 29200. ..				XOHX 12T3-29,2-62	H62 29200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 12T3-25,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 25300.8440		

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

XOHX

KOMET® H60 | H62

Inserts Ø 29,3 - 33,2 mm

For KUB Duon®

Patent applied for inside and outside Germany



Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾∅	Enter code ▾	8440	2715	84	▾∅	Enter code ▾	7710
XOHX 12T3-29,3	H60 29300. ..				XOHX 12T3-29,3-62	H62 29300. ..	
XOHX 12T3-29,4	H60 29400. ..				XOHX 12T3-29,4-62	H62 29400. ..	
XOHX 12T3-29,5	**H60 29500. ..**	▲	▲	▲	XOHX 12T3-29,5-62	**H62 29500. ..**	▲
XOHX 12T3-29,6	H60 29600. ..				XOHX 12T3-29,6-62	H62 29600. ..	
XOHX 12T3-29,7	H60 29700. ..				XOHX 12T3-29,7-62	H62 29700. ..	
XOHX 1504-29,8	H60 29800. ..				XOHX 1504-29,8-62	H62 29800. ..	
XOHX 1504-29,9	H60 29900. ..				XOHX 1504-29,9-62	H62 29900. ..	
XOHX 1504-30,0	**H60 30000. ..**	▲	▲	▲	XOHX 1504-30,0-62	**H62 30000. ..**	▲
XOHX 1504-30,1	H60 30100. ..				XOHX 1504-30,1-62	H62 30100. ..	
XOHX 1504-30,2	H60 30200. ..				XOHX 1504-30,2-62	H62 30200. ..	
XOHX 1504-30,3	H60 30300. ..				XOHX 1504-30,3-62	H62 30300. ..	
XOHX 1504-30,4	H60 30400. ..				XOHX 1504-30,4-62	H62 30400. ..	
XOHX 1504-30,5	**H60 30500. ..**	▲	▲	▲	XOHX 1504-30,5-62	**H62 30500. ..**	▲
XOHX 1504-30,6	H60 30600. ..				XOHX 1504-30,6-62	H62 30600. ..	
XOHX 1504-30,7	H60 30700. ..				XOHX 1504-30,7-62	H62 30700. ..	
XOHX 1504-30,8	H60 30800. ..				XOHX 1504-30,8-62	H62 30800. ..	
XOHX 1504-30,9	H60 30900. ..				XOHX 1504-30,9-62	H62 30900. ..	
XOHX 1504-31,0	**H60 31000. ..**	▲	▲	▲	XOHX 1504-31,0-62	**H62 31000. ..**	▲
XOHX 1504-31,1	H60 31100. ..				XOHX 1504-31,1-62	H62 31100. ..	
XOHX 1504-31,2	H60 31200. ..				XOHX 1504-31,2-62	H62 31200. ..	
XOHX 1504-31,3	H60 31300. ..				XOHX 1504-31,3-62	H62 31300. ..	
XOHX 1504-31,4	H60 31400. ..				XOHX 1504-31,4-62	H62 31400. ..	
XOHX 1504-31,5	**H60 31500. ..**	▲	▲	▲	XOHX 1504-31,5-62	**H62 31500. ..**	▲
XOHX 1504-31,6	H60 31600. ..				XOHX 1504-31,6-62	H62 31600. ..	
XOHX 1504-31,7	H60 31700. ..				XOHX 1504-31,7-62	H62 31700. ..	
XOHX 1504-31,8	H60 31800. ..				XOHX 1504-31,8-62	H62 31800. ..	
XOHX 1504-31,9	H60 31900. ..				XOHX 1504-31,9-62	H62 31900. ..	
XOHX 1504-32,0	**H60 32000. ..**	▲	▲	▲	XOHX 1504-32,0-62	**H62 32000. ..**	▲
XOHX 1504-32,1	H60 32100. ..				XOHX 1504-32,1-62	H62 32100. ..	
XOHX 1504-32,2	H60 32200. ..				XOHX 1504-32,2-62	H62 32200. ..	
XOHX 1504-32,3	H60 32300. ..				XOHX 1504-32,3-62	H62 32300. ..	
XOHX 1504-32,4	H60 32400. ..				XOHX 1504-32,4-62	H62 32400. ..	
XOHX 1504-32,5	**H60 32500. ..**	▲	▲	▲	XOHX 1504-32,5-62	**H62 32500. ..**	▲
XOHX 1504-32,6	H60 32600. ..				XOHX 1504-32,6-62	H62 32600. ..	
XOHX 1504-32,7	H60 32700. ..				XOHX 1504-32,7-62	H62 32700. ..	
XOHX 1504-32,8	H60 32800. ..				XOHX 1504-32,8-62	H62 32800. ..	
XOHX 1504-32,9	H60 32900. ..				XOHX 1504-32,9-62	H62 32900. ..	
XOHX 1504-33,0	**H60 33000. ..**	▲	▲	▲	XOHX 1504-33,0-62	**H62 33000. ..**	▲
XOHX 1504-33,1	H60 33100. ..				XOHX 1504-33,1-62	H62 33100. ..	
XOHX 1504-33,2	H60 33200. ..				XOHX 1504-33,2-62	H62 33200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 12T3-29,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 29300.8440		

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® H60 | H62

XOHX

Inserts Ø 33,3 - 37,2 mm



For KUB Duon®

Patent applied for inside and outside Germany

Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾Ø	Enter code ▾	8440	2715	84	▾Ø	Enter code ▾	7710
XOHX 1504-33,3	H60 33300. ..				XOHX1504-33,3-62	H62 33300. ..	
XOHX 1504-33,4	H60 33400. ..				XOHX1504-33,4-62	H62 33400. ..	
XOHX 1504-33,5	**H60 33500. ..**	▲	▲	▲	XOHX1504-33,5-62	**H62 33500. ..**	▲
XOHX 1504-33,6	H60 33600. ..				XOHX1504-33,6-62	H62 33600. ..	
XOHX 1504-33,7	H60 33700. ..				XOHX1504-33,7-62	H62 33700. ..	
XOHX 1504-33,8	H60 33800. ..				XOHX1504-33,8-62	H62 33800. ..	
XOHX 1504-33,9	H60 33900. ..				XOHX1504-33,9-62	H62 33900. ..	
XOHX 1504-34,0	**H60 34000. ..**	▲	▲	▲	XOHX1504-34,0-62	**H62 34000. ..**	▲
XOHX 1504-34,1	H60 34100. ..				XOHX1504-34,1-62	H62 34100. ..	
XOHX 1504-34,2	H60 34200. ..				XOHX1504-34,2-62	H62 34200. ..	
XOHX 1504-34,3	H60 34300. ..				XOHX1504-34,3-62	H62 34300. ..	
XOHX 1504-34,4	H60 34400. ..				XOHX1504-34,4-62	H62 34400. ..	
XOHX 1504-34,5	**H60 34500. ..**	▲	▲	▲	XOHX1504-34,5-62	**H62 34500. ..**	▲
XOHX 1504-34,6	H60 34600. ..				XOHX1504-34,6-62	H62 34600. ..	
XOHX 1504-34,7	H60 34700. ..				XOHX1504-34,7-62	H62 34700. ..	
XOHX 1504-34,8	H60 34800. ..				XOHX1504-34,8-62	H62 34800. ..	
XOHX 1504-34,9	H60 34900. ..				XOHX1504-34,9-62	H62 34900. ..	
XOHX 1504-35,0	**H60 35000. ..**	▲	▲	▲	XOHX1504-35,0-62	**H62 35000. ..**	▲
XOHX 1504-35,1	H60 35100. ..				XOHX1504-35,1-62	H62 35100. ..	
XOHX 1504-35,2	H60 35200. ..				XOHX1504-35,2-62	H62 35200. ..	
XOHX 1504-35,3	H60 35300. ..				XOHX1504-35,3-62	H62 35300. ..	
XOHX 1504-35,4	H60 35400. ..				XOHX1504-35,4-62	H62 35400. ..	
XOHX 1504-35,5	**H60 35500. ..**	▲	▲	▲	XOHX1504-35,5-62	**H62 35500. ..**	▲
XOHX 1504-35,6	H60 35600. ..				XOHX1504-35,6-62	H62 35600. ..	
XOHX 1504-35,7	H60 35700. ..				XOHX1504-35,7-62	H62 35700. ..	
XOHX 1504-35,8	H60 35800. ..				XOHX1504-35,8-62	H62 35800. ..	
XOHX 1504-35,9	H60 35900. ..				XOHX1504-35,9-62	H62 35900. ..	
XOHX 1504-36,0	**H60 36000. ..**	▲	▲	▲	XOHX1504-36,0-62	**H62 36000. ..**	▲
XOHX 1504-36,1	H60 36100. ..				XOHX1504-36,1-62	H62 36100. ..	
XOHX 1504-36,2	H60 36200. ..				XOHX1504-36,2-62	H62 36200. ..	
XOHX 2205-36,3	H60 36300. ..				XOHX 2205-36,3-62	H62 36300. ..	
XOHX 2205-36,4	H60 36400. ..				XOHX 2205-36,4-62	H62 36400. ..	
XOHX 2205-36,5	**H60 36500. ..**	▲	▲	▲	XOHX 2205-36,5-62	**H62 36500. ..**	▲
XOHX 2205-36,6	H60 36600. ..				XOHX 2205-36,6-62	H62 36600. ..	
XOHX 2205-36,7	H60 36700. ..				XOHX 2205-36,7-62	H62 36700. ..	
XOHX 2205-36,8	H60 36800. ..				XOHX 2205-36,8-62	H62 36800. ..	
XOHX 2205-36,9	H60 36900. ..				XOHX 2205-36,9-62	H62 36900. ..	
XOHX 2205-37,0	**H60 37000. ..**	▲	▲	▲	XOHX 2205-37,0-62	**H62 37000. ..**	▲
XOHX 2205-37,1	H60 37100. ..				XOHX 2205-37,1-62	H62 37100. ..	
XOHX 2205-37,2	H60 37200. ..				XOHX 2205-37,2-62	H62 37200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 1504-33,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 33300.8440		

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

XOHX



KOMET® H60 | H62

Inserts Ø 37,3 - 41,2 mm

For KUB Duon®

Patent applied for inside and outside Germany

Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾Ø	Enter code ▾	8440	2715	84	▾Ø	Enter code ▾	7710
XOHX 2205-37,3	H60 37300. ..				XOHX 2205-37,3-62	H62 37300. ..	
XOHX 2205-37,4	H60 37400. ..				XOHX 2205-37,4-62	H62 37400. ..	
XOHX 2205-37,5	**H60 37500. ..**	▲	▲	▲	XOHX 2205-37,5-62	**H62 37500. ..**	▲
XOHX 2205-37,6	H60 37600. ..				XOHX 2205-37,6-62	H62 37600. ..	
XOHX 2205-37,7	H60 37700. ..				XOHX 2205-37,7-62	H62 37700. ..	
XOHX 2205-37,8	H60 37800. ..				XOHX 2205-37,8-62	H62 37800. ..	
XOHX 2205-37,9	H60 37900. ..				XOHX 2205-37,9-62	H62 37900. ..	
XOHX 2205-38,0	**H60 38000. ..**	▲	▲	▲	XOHX 2205-38,0-62	**H62 38000. ..**	▲
XOHX 2205-38,1	H60 38100. ..				XOHX 2205-38,1-62	H62 38100. ..	
XOHX 2205-38,2	H60 38200. ..				XOHX 2205-38,2-62	H62 38200. ..	
XOHX 2205-38,3	H60 38300. ..				XOHX 2205-38,3-62	H62 38300. ..	
XOHX 2205-38,4	H60 38400. ..				XOHX 2205-38,4-62	H62 38400. ..	
XOHX 2205-38,5	**H60 38500. ..**	▲	▲	▲	XOHX 2205-38,5-62	**H62 38500. ..**	▲
XOHX 2205-38,6	H60 38600. ..				XOHX 2205-38,6-62	H62 38600. ..	
XOHX 2205-38,7	H60 38700. ..				XOHX 2205-38,7-62	H62 38700. ..	
XOHX 2205-38,8	H60 38800. ..				XOHX 2205-38,8-62	H62 38800. ..	
XOHX 2205-38,9	H60 38900. ..				XOHX 2205-38,9-62	H62 38900. ..	
XOHX 2205-39,0	**H60 39000. ..**	▲	▲	▲	XOHX 2205-39,0-62	**H62 39000. ..**	▲
XOHX 2205-39,1	H60 39100. ..				XOHX 2205-39,1-62	H62 39100. ..	
XOHX 2205-39,2	H60 39200. ..				XOHX 2205-39,2-62	H62 39200. ..	
XOHX 2205-39,3	H60 39300. ..				XOHX 2205-39,3-62	H62 39300. ..	
XOHX 2205-39,4	H60 39400. ..				XOHX 2205-39,4-62	H62 39400. ..	
XOHX 2205-39,5	**H60 39500. ..**	▲	▲	▲	XOHX 2205-39,5-62	**H62 39500. ..**	▲
XOHX 2205-39,6	H60 39600. ..				XOHX 2205-39,6-62	H62 39600. ..	
XOHX 2205-39,7	H60 39700. ..				XOHX 2205-39,7-62	H62 39700. ..	
XOHX 2205-39,8	H60 39800. ..				XOHX 2205-39,8-62	H62 39800. ..	
XOHX 2205-39,9	H60 39900. ..				XOHX 2205-39,9-62	H62 39900. ..	
XOHX 2205-40,0	**H60 40000. ..**	▲	▲	▲	XOHX 2205-40,0-62	**H62 40000. ..**	▲
XOHX 2205-40,1	H60 40100. ..				XOHX 2205-40,1-62	H62 40100. ..	
XOHX 2205-40,2	H60 40200. ..				XOHX 2205-40,2-62	H62 40200. ..	
XOHX 2205-40,3	H60 40300. ..				XOHX 2205-40,3-62	H62 40300. ..	
XOHX 2205-40,4	H60 40400. ..				XOHX 2205-40,4-62	H62 40400. ..	
XOHX 2205-40,5	**H60 40500. ..**	▲	▲	▲	XOHX 2205-40,5-62	**H62 40500. ..**	▲
XOHX 2205-40,6	H60 40600. ..				XOHX 2205-40,6-62	H62 40600. ..	
XOHX 2205-40,7	H60 40700. ..				XOHX 2205-40,7-62	H62 40700. ..	
XOHX 2205-40,8	H60 40800. ..				XOHX 2205-40,8-62	H62 40800. ..	
XOHX 2205-40,9	H60 40900. ..				XOHX 2205-40,9-62	H62 40900. ..	
XOHX 2205-41,0	**H60 41000. ..**	▲	▲	▲	XOHX 2205-41,0-62	**H62 41000. ..**	▲
XOHX 2205-41,1	H60 41100. ..				XOHX 2205-41,1-62	H62 41100. ..	
XOHX 2205-41,2	H60 41200. ..				XOHX 2205-41,2-62	H62 41200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 2205-37,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 37300.8440		

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® H60 | H62

XOHX

Inserts Ø 41,3 - 44,2 mm



For KUB Duon®

Patent applied for inside and outside Germany

Substrate		Carbide			Substrate		Carbide
Coating type		PVD	PVD	PVD	Coating type		PVD
Cutting material designation		BK8440	BK2715	BK84	Cutting material designation		BK7710
ISO Code	Order No.				ISO Code	Order No.	
▾∅	Enter code ▾	8440	2715	84	▾∅	Enter code ▾	7710
XOHX 2205-41,3	H60 41300. ..				XOHX 2205-41,3-62	H62 41300. ..	
XOHX 2205-41,4	H60 41400. ..				XOHX 2205-41,4-62	H62 41400. ..	
XOHX 2205-41,5	**H60 41500. ..**	▲	▲	▲	XOHX 2205-41,5-62	**H62 41500. ..**	▲
XOHX 2205-41,6	H60 41600. ..				XOHX 2205-41,6-62	H62 41600. ..	
XOHX 2205-41,7	H60 41700. ..				XOHX 2205-41,7-62	H62 41700. ..	
XOHX 2205-41,8	H60 41800. ..				XOHX 2205-41,8-62	H62 41800. ..	
XOHX 2205-41,9	H60 41900. ..				XOHX 2205-41,9-62	H62 41900. ..	
XOHX 2205-42,0	**H60 42000. ..**	▲	▲	▲	XOHX 2205-42,0-62	**H62 42000. ..**	▲
XOHX 2205-42,1	H60 42100. ..				XOHX 2205-42,1-62	H62 42100. ..	
XOHX 2205-42,2	H60 42200. ..				XOHX 2205-42,2-62	H62 42200. ..	
XOHX 2205-42,3	H60 42300. ..				XOHX 2205-42,3-62	H62 42300. ..	
XOHX 2205-42,4	H60 42400. ..				XOHX 2205-42,4-62	H62 42400. ..	
XOHX 2205-42,5	**H60 42500. ..**	▲	▲	▲	XOHX 2205-42,5-62	**H62 42500. ..**	▲
XOHX 2205-42,6	H60 42600. ..				XOHX 2205-42,6-62	H62 42600. ..	
XOHX 2205-42,7	H60 42700. ..				XOHX 2205-42,7-62	H62 42700. ..	
XOHX 2205-42,8	H60 42800. ..				XOHX 2205-42,8-62	H62 42800. ..	
XOHX 2205-42,9	H60 42900. ..				XOHX 2205-42,9-62	H62 42900. ..	
XOHX 2205-43,0	**H60 43000. ..**	▲	▲	▲	XOHX 2205-43,0-62	**H62 43000. ..**	▲
XOHX 2205-43,1	H60 43100. ..				XOHX 2205-43,1-62	H62 43100. ..	
XOHX 2205-43,2	H60 43200. ..				XOHX 2205-43,2-62	H62 43200. ..	
XOHX 2205-43,3	H60 43300. ..				XOHX 2205-43,3-62	H62 43300. ..	
XOHX 2205-43,4	H60 43400. ..				XOHX 2205-43,4-62	H62 43400. ..	
XOHX 2205-43,5	**H60 43500. ..**	▲	▲	▲	XOHX 2205-43,5-62	**H62 43500. ..**	▲
XOHX 2205-43,6	H60 43600. ..				XOHX 2205-43,6-62	H62 43600. ..	
XOHX 2205-43,7	H60 43700. ..				XOHX 2205-43,7-62	H62 43700. ..	
XOHX 2205-43,8	H60 43800. ..				XOHX 2205-43,8-62	H62 43800. ..	
XOHX 2205-43,9	H60 43900. ..				XOHX 2205-43,9-62	H62 43900. ..	
XOHX 2205-44,0	**H60 44000. ..**	▲	▲	▲	XOHX 2205-44,0-62	**H62 44000. ..**	▲
XOHX 2205-44,1	H60 44100. ..				XOHX 2205-44,1-62	H62 44100. ..	
XOHX 2205-44,2	H60 44200. ..				XOHX 2205-44,2-62	H62 44200. ..	
Mild steel/tool steel P		●	◐	●	Order example:	P	
Stainless and acid-resistant steel M					ISO Code	M	
Grey cast iron, spheroidal cast iron K			●	◐	XOHX 2205-41,3	K	
Non-ferrous metals N			◐	◐	Cutting material	N	●
Heat-resistant steels S					BK8440	S	
Hardened tool steel H					Order No.	H	
					H60 41300.8440		

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

Replaceable head Ø 10,0 – 13,9 mm



For KUB K2®

Patent applied for inside and outside Germany

Substrate		Carbide			
Coating type		PVD			PVD
Cutting material designation		BK8425			BK2725
Ø	Order No. Enter code ▼	 8425	Order No. Enter code ▼	 2725	
10,0	H70 10000.01....		H71 10000.01....		
10,1	H70 10100.01....		H71 10100.01....		
10,2	H70 10200.01....	▲	H71 10200.01....	▲	
10,3	H70 10300.01....		H71 10300.01....		
10,4	H70 10400.01....		H71 10400.01....		
10,5	H70 10500.01....		H71 10500.01....		
10,6	H70 10600.01....		H71 10600.01....		
10,7	H70 10700.01....	▲	H71 10700.01....	▲	
10,8	H70 10800.01....		H71 10800.01....		
10,9	H70 10900.01....		H71 10900.01....		
11,0	H70 11000.01....		H71 11000.01....		
11,1	H70 11100.01....		H71 11100.01....		
11,2	H70 11200.01....	▲	H71 11200.01....	▲	
11,3	H70 11300.01....		H71 11300.01....		
11,4	H70 11400.01....		H71 11400.01....		
11,5	H70 11500.01....		H71 11500.01....		
11,6	H70 11600.01....		H71 11600.01....		
11,7	H70 11700.01....	▲	H71 11700.01....	▲	
11,8	H70 11800.01....		H71 11800.01....		
11,9	H70 11900.01....		H71 11900.01....		
12,0	H70 12000.01....		H71 12000.01....		
12,1	H70 12100.01....		H71 12100.01....		
12,2	H70 12200.01....	▲	H71 12200.01....	▲	
12,3	H70 12300.01....		H71 12300.01....		
12,4	H70 12400.01....		H71 12400.01....		
12,5	H70 12500.01....		H71 12500.01....		
12,6	H70 12600.01....		H71 12600.01....		
12,7	H70 12700.01....	▲	H71 12700.01....	▲	
12,8	H70 12800.01....		H71 12800.01....		
12,9	H70 12900.01....		H71 12900.01....		
13,0	H70 13000.01....		H71 13000.01....		
13,1	H70 13100.01....		H71 13100.01....		
13,2	H70 13200.01....	▲	H71 13200.01....	▲	
13,3	H70 13300.01....		H71 13300.01....		
13,4	H70 13400.01....		H71 13400.01....		
13,5	H70 13500.01....		H71 13500.01....		
13,6	H70 13600.01....		H71 13600.01....		
13,7	H70 13700.01....	▲	H71 13700.01....	▲	
13,8	H70 13800.01....		H71 13800.01....		
13,9	H70 13900.01....		H71 13900.01....		
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	Order example: for Ø D 10,0 mm Cutting material BK8425 Order No. H70 10000.018425	◐	

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® H70 | H71

Replaceable head Ø 14,0 – 17,9 mm

For KUB K2®

Patent applied for inside and outside Germany



Substrate		Carbide			
Coating type		PVD			PVD
Cutting material designation		BK8425			BK2725
Ø	Order No. Enter code	 8425	Order No. Enter code	 2725	
14,0	H70 14000.01....		H71 14000.01....		
14,1	H70 14100.01....		H71 14100.01....		
14,2	H70 14200.01....	▲	H71 14200.01....		▲
14,3	H70 14300.01....		H71 14300.01....		
14,4	H70 14400.01....		H71 14400.01....		
14,5	H70 14500.01....		H71 14500.01....		
14,6	H70 14600.01....		H71 14600.01....		
14,7	H70 14700.01....	▲	H71 14700.01....		▲
14,8	H70 14800.01....		H71 14800.01....		
14,9	H70 14900.01....		H71 14900.01....		
15,0	H70 15000.01....		H71 15000.01....		
15,1	H70 15100.01....		H71 15100.01....		
15,2	H70 15200.01....	▲	H71 15200.01....		▲
15,3	H70 15300.01....		H71 15300.01....		
15,4	H70 15400.01....		H71 15400.01....		
15,5	H70 15500.01....		H71 15500.01....		
15,6	H70 15600.01....		H71 15600.01....		
15,7	H70 15700.01....	▲	H71 15700.01....		▲
15,8	H70 15800.01....		H71 15800.01....		
15,9	H70 15900.01....		H71 15900.01....		
16,0	H70 16000.01....		H71 16000.01....		
16,1	H70 16100.01....		H71 16100.01....		
16,2	H70 16200.01....	▲	H71 16200.01....		▲
16,3	H70 16300.01....		H71 16300.01....		
16,4	H70 16400.01....		H71 16400.01....		
16,5	H70 16500.01....		H71 16500.01....		
16,6	H70 16600.01....		H71 16600.01....		
16,7	H70 16700.01....	▲	H71 16700.01....		▲
16,8	H70 16800.01....		H71 16800.01....		
16,9	H70 16900.01....		H71 16900.01....		
17,0	H70 17000.01....		H71 17000.01....		
17,1	H70 17100.01....		H71 17100.01....		
17,2	H70 17200.01....	▲	H71 17200.01....		▲
17,3	H70 17300.01....		H71 17300.01....		
17,4	H70 17400.01....		H71 17400.01....		
17,5	H70 17500.01....		H71 17500.01....		
17,6	H70 17600.01....		H71 17600.01....		
17,7	H70 17700.01....	▲	H71 17700.01....		▲
17,8	H70 17800.01....		H71 17800.01....		
17,9	H70 17900.01....		H71 17900.01....		
Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H		●	Order example: for Ø D 14,0 mm Cutting material BK8425 Order No. H70 14000.018425		◐
		◐			●

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list



Replaceable head Ø 18,0 – 20,5 mm

For KUB K2®

Patent applied for inside and outside Germany

Substrate		Carbide			
Coating type		PVD			PVD
Cutting material designation		BK8425			BK2725
Ø	Order No. Enter code	 8425		Order No. Enter code	 2725
18,0	H70 18000.01....			H71 18000.01....	
18,1	H70 18100.01....			H71 18100.01....	
18,2	H70 18200.01....	▲		H71 18200.01....	▲
18,3	H70 18300.01....			H71 18300.01....	
18,4	H70 18400.01....			H71 18400.01....	
18,5	H70 18500.01....			H71 18500.01....	
18,6	H70 18600.01....			H71 18600.01....	
18,7	H70 18700.01....	▲		H71 18700.01....	▲
18,8	H70 18800.01....			H71 18800.01....	
18,9	H70 18900.01....			H71 18900.01....	
19,0	H70 19000.01....			H71 19000.01....	
19,1	H70 19100.01....			H71 19100.01....	
19,2	H70 19200.01....	▲		H71 19200.01....	▲
19,3	H70 19300.01....			H71 19300.01....	
19,4	H70 19400.01....			H71 19400.01....	
19,5	H70 19500.01....			H71 19500.01....	
19,6	H70 19600.01....			H71 19600.01....	
19,7	H70 19700.01....	▲		H71 19700.01....	▲
19,8	H70 19800.01....			H71 19800.01....	
19,9	H70 19900.01....			H71 19900.01....	
20,0	H70 20000.01....			H71 20000.01....	
20,1	H70 20100.01....			H71 20100.01....	
20,2	H70 20200.01....	▲		H71 20200.01....	▲
20,3	H70 20300.01....			H71 20300.01....	
20,4	H70 20400.01....			H71 20400.01....	
20,5	H70 20500.01....			H71 20500.01....	
Mild steel/tool steel P		●		Order example: for Ø D 18,0 mm Cutting material BK8425 Order No. H70 18000.018425	◐
Stainless and acid-resistant steel M					
Grey cast iron, spheroidal cast iron K		◐			●
Non-ferrous metals N					
Heat-resistant steels S					
Hardened tool steel H					

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

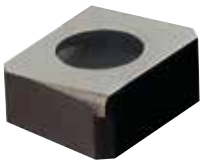
KOMET® H80

LNHX

Tangential indexable inserts Ø 32 – 101,99 mm

for KOMET® PreciKom

Patented design



		Substrate	Carbide	
		Coating type	CVD	PVD
		Cutting material designation	BK6110	BK2710
Ø	ISO Code	Order No. Enter code ▼	 6110	 2710
32,0 – 34,99	LNHX 09T310-01	H80 32000.01....	▲	▲
35,0 – 37,49	LNHX 09T310-01	H80 35000.01....	▲	▲
37,5 – 39,99	LNHX 09T310-01	H80 37500.01....	▲	▲
40,0 – 41,99	LNHX 09T310-01	H80 40000.01....	▲	▲
42,0 – 43,99	LNHX 120510-01	H80 42000.01....	▲	▲
44,0 – 45,99	LNHX 120510-01	H80 44000.01....	▲	▲
46,0 – 47,99	LNHX 120510-01	H80 46000.01....	▲	▲
48,0 – 49,99	LNHX 120510-01	H80 48000.01....	▲	▲
50,0 – 51,99	LNHX 120510-01	H80 50000.01....	▲	▲
52,0 – 53,99	LNHX 120510-01	H80 52000.01....	▲	▲
54,0 – 55,99	LNHX 120510-01	H80 54000.01....	▲	▲
56,0 – 57,99	LNHX 120510-01	H80 56000.01....	▲	▲
58,0 – 59,99	LNHX 120510-01	H80 58000.01....	▲	▲
60,0 – 61,99	LNHX 120510-01	H80 60000.01....	▲	▲
62,0 – 66,99	LNHX 120510-01	H80 62000.01....	▲	▲
67,0 – 71,99	LNHX 120510-01	H80 67000.01....	▲	▲
72,0 – 76,99	LNHX 120510-01	H80 72000.01....	▲	▲
77,0 – 81,99	LNHX 120510-01	H80 77000.01....	▲	▲
82,0 – 86,99	LNHX 120510-01	H80 82000.01....	▲	▲
87,0 – 91,99	LNHX 120510-01	H80 87000.01....	▲	▲
92,0 – 96,99	LNHX 120510-01	H80 92000.01....	▲	▲
97,0 – 101,99	LNHX 120510-01	H80 97000.01....	▲	▲
Order example: for Ø D 32,5 mm Cutting material BK6110 Order No. H80 32000.016110		Mild steel/tool steel P Stainless and acid-resistant steel M Grey cast iron, spheroidal cast iron K Non-ferrous metals N Heat-resistant steels S Hardened tool steel H	●	●

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

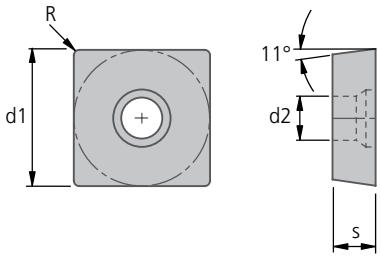


Application range:

T slot cutter

Precision inserts ground on all sides with rounded cutting edges. Suitable for machining steel and cast iron materials in conjunction with positive axial position.

Cutter geometry:



Substrate		Carbide					
Coating type		–	–				
Cutting material designation		P25M	K20				
ISO Code	Order No.			d1	d2	s	R
	Enter code ▼	03	22				
SPGW 050204	Q09 13000.01..	▲	▲	5,57	2,8	2,38	0,4
Mild steel/tool steel P		●		Order example:			
Stainless and acid-resistant steel M		●		ISO Code			
Grey cast iron, spheroidal cast iron K			●	SPGW 050204			
Non-ferrous metals N			●	Cutting material			
Heat-resistant steels S				P25M			
Hardened tool steel H				Order No.			
				Q09 13000.0103			

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q09 SPMT

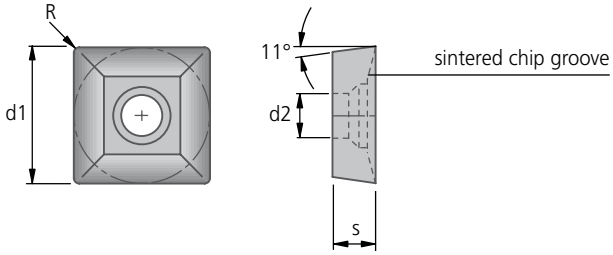
Inserts



Application range:

Chamfering
Inserts with sintered positive chip groove and rounded cutting edge. Because of its positive chip geometry, this insert produces a good cutting result even under difficult and critical cutting conditions.

Cutter geometry:



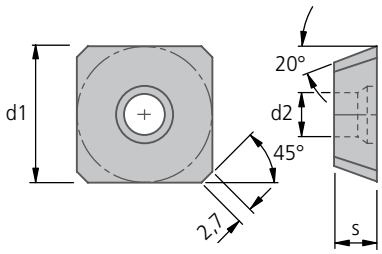
Substrate		Carbide						
Coating type		–	PVD	PVD				
Cutting material designation		K20	BK2725	BK87				
ISO Code	Order No.				d1	d2	s	R
	Enter code ▼	22	2725	87				
SPMT 060304	Q09 18000.17..	▲	▲	▲	6,35	2,8	3,18	0,4
Mild steel/tool steel P			●	●	Order example:			
Stainless and acid-resistant steel M			●	◐	ISO Code			
Grey cast iron, spheroidal cast iron K		●			SPMT 060304			
Non-ferrous metals N		●			Cutting material			
Heat-resistant steels S		●			BK2725			
Hardened tool steel H					Order No.			
					Q09 18000.172725			

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

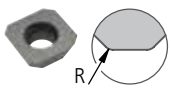
Application range:

Face milling cutter
Insert precision ground on all sides.

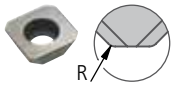
Cutter geometry:



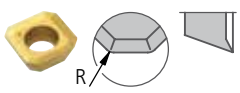
Substrate		Carbide			Cermet				
Coating type		–	CVD	PVD	–				
Cutting material designation		K20	BK64	BK8425	CK37				
ISO Code	Order No.					d1	d2	s	R
	Enter code ▼	22	64	8425	37				
SEHW 1204 AFFN-V	Q09 44000.02..	▲			▲	12,7	5,5	4,76	1,0
SEHW 1204 AFTN-V	Q09 44000.15..			▲	▲				1,0
SEHT 1204 AFEN	Q09 44000.23..		▲						1,0
Mild steel/tool steel P			●	●	●	Order example:			
Stainless and acid-resistant steel M			◐	◐	◐	ISO Code			
Grey cast iron, spheroidal cast iron K		●		◐	◐	SEHW 1204 AFFN-V			
Non-ferrous metals N		●				Cutting material			
Heat-resistant steels S						K20			
Hardened tool steel H						Order No.			
						Q09 44000.0222			



Q09 44000.02.. : With chamfering (blending radius) from main to secondary cutting edge, sharp edged.
The insert provides a specially shaped, positive cutter geometry for machining CrNi and unusual materials. Materials which tend to produce a build-up on the cutting edge can also be successfully machined with this geometry. Used in the lower cutting speed ranges with medium chip cross sections.



Q09 44000.15.. : With chamfering (blending radius) from main to secondary cutting edge, main edge chamfered. For roughing and finishing at medium to high cutting speeds and feed rates. Main cutting edge stabilised by chamfer. The rounded transition to the sharp secondary cutting edge produces a high quality surface finish. The wide application range is particular suitable for steel and cast iron materials.



Q09 44000.23..

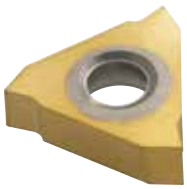
● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q12

Inserts

TCAA / TNAA

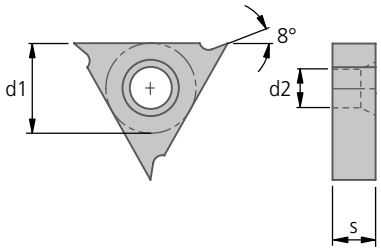


Application range:

Slot milling cutter
Slot milling cutter adaptor

Positive chip angle produces soft cut. The cutting edge is designed for machining steel or cast iron/aluminium.

Cutter geometry:



Substrate		Carbide						
Coating type		–	PVD	PVD				
Cutting material designation		K20	BK2715	BK8425				
ISO Code	Order No.				d1	d2	s	for milling width
	Enter code ▼	22	2715	8425				
TCAA 1102ZZ R	Q12 18000.01..	▲	▲	▲	6,35	2,8	2,6	4-5
TCAA 1102ZZ L	Q12 18000.02..	▲	▲	▲				
TCAA 1103ZZ R	Q12 18000.03..	▲	▲	▲	6,35	2,8	3,2	6
TCAA 1103ZZ L	Q12 18000.04..	▲	▲	▲				
TNAA 16T3ZZ R	Q12 32000.05..	▲	▲	▲	9,52	4,4	3,97	7
TNAA 16T3ZZ L	Q12 32000.06..	▲	▲	▲				
TNAA 1604ZZ N	Q12 32000.07..	▲	▲	▲	9,52	3,4	4,76	8-9
TNAA 1604ZZ R	Q12 32000.52..	▲	▲	▲	9,52	4,4	4,76	8-9
TNAA 1604ZZ L	Q12 32000.53..	▲	▲	▲				
TNAA 1606ZZ R	Q12 32000.08..	▲	▲	▲	9,52	4,4	6,4	10-12
TNAA 1606ZZ L	Q12 32000.09..	▲	▲	▲				
Mild steel/tool steel P				●	Order example:			
Stainless and acid-resistant steel M				◐	ISO Code			
Grey cast iron, spheroidal cast iron K			●	◐	TCAA 1102ZZ R			
Non-ferrous metals N		●			Cutting material			
Heat-resistant steels S					K20			
Hardened tool steel H					Order No.			
					Q12 18000.0122			

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



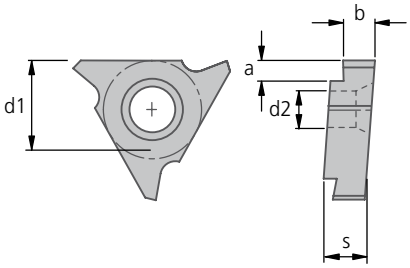
Application range:

Circular milling

Internal and external circular milling of longitudinal or annular slots for circlips/safety rings.
The cutting edge geometry produces a good machining result for steel, cast iron and aluminium when used with the appropriate carbide grades.

Design:
Dimension b is aligned with the slot width to H13 tolerance for circlips to DIN 471 and DIN 472. This relates to the upper tolerance limit for the slot widths which can be still be produced to the correct dimension after wear.

Cutter geometry:



Substrate		Carbide							
Coating type		–	PVD	PVD					
Cutting material designation		K20	BK2715	BK8425					
ISO Code	Order No.				d1	d2	s	b^{H13}	a max.
Enter code ▼		22	2715	8425					
TCAX 1103ZZ R-160	Q12 18000.11..	▲	▲	▲	6,35	2,8	3,2	1,60	1,4
TCAX 1103ZZ R-185	Q12 18000.12..	▲	▲	▲				1,85	1,7
TCAX 1103ZZ R-215	Q12 18000.13..	▲	▲	▲				2,15	2,0
TCAX 1103ZZ R-265	Q12 18000.14..	▲	▲	▲				2,65	2,2
TNAX 1604ZZ R-265	Q12 32000.18..	▲	▲	▲	9,52	3,4	4,76	2,65	2,2
TNAX 1604ZZ R-315	Q12 32000.19..	▲	▲	▲				3,15	2,2
TNAX 1604ZZ R-415	Q12 32000.20..	▲	▲	▲				4,15	3,2
TNAX 2206ZZ R-415	Q12 44000.21..	▲	▲	▲	12,7	5,5	6,4	4,15	4,0
TNAX 2206ZZ R-465	Q12 44000.22..	▲	▲	▲				4,65	4,5
TNAX 2206ZZ R-515	Q12 44000.23..	▲	▲	▲				5,15	4,5
TNAX 2206ZZ R-620	Q12 44000.25..	▲	▲	▲				6,20	6,0
Mild steel/tool steel P				●					
Stainless and acid-resistant steel M				◐					
Grey cast iron, spheroidal cast iron K			●	◐					
Non-ferrous metals N		●							
Heat-resistant steels S									
Hardened tool steel H									

Order example:
ISO Code
TCAX 1103ZZ R-160
Cutting material
K20
Order No.
Q12 18000.1122

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q12

Inserts



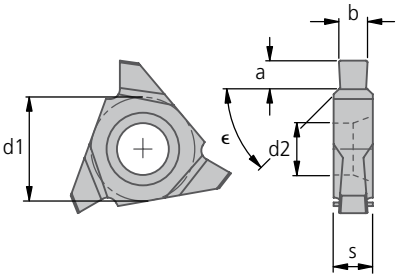
Application range:

Circular milling

Internal and external circular milling of longitudinal or annular slots for circlips/safety rings.
The cutting edge geometry produces a good machining result for steel, cast iron and aluminium when used with the appropriate carbide grades.

Design:
Dimension b is aligned with the slot width to H13 tolerance for circlips to DIN 471 and DIN 472. This relates to the upper tolerance limit for the slot widths which can be still be produced to the correct dimension after wear.

Cutter geometry:



Dimensions "a" and "b" apply
for the resulting workpiece contour.

Substrate		Carbide								
Coating type		–	PVD	PVD						
Cutting material designation		K20	BK2715	BK8425						
ISO Code	Order No.				d1	d2	s	b^{H13}	a	chamfer ϵ
Enter code ▼		22	2715	8425						
TPAX 1103ZZ R-110F	Q12 18000.10..	▲	▲	▲	6,35	2,9	3,2	1,1	0,9	–
TNAX 1103ZZ R-160F	Q12 18000.31..	▲	▲	▲	6,35	2,9	3,2	1,6	1,0	45°
TNAX 1103ZZ R-185F	Q12 18000.32..	▲	▲	▲				1,85	1,25	
TNAX 1103ZZ R-215F	Q12 18000.33..	▲	▲	▲				2,15	1,5	
TNAX 1103ZZ R-265F	Q12 18000.34..	▲	▲	▲				2,65	1,75	
TCAX 16T3ZZ R-110F	Q12 32000.15..	▲	▲	▲	9,52	4,4	3,96	1,1	0,9	–
TCAX 16T3ZZ R-130F	Q12 32000.16..	▲	▲	▲				1,3	1,3	
TCAX 16T3ZZ R-160F	Q12 32000.17..	▲	▲	▲				1,6	1,4	
TNAX 1604ZZ R-265F	Q12 32000.41..	▲	▲	▲	9,52	4,4	4,76	2,65	1,75	45°
TNAX 1604ZZ R-315F	Q12 32000.42..	▲	▲	▲				3,15	1,75	
TNAX 1604ZZ R-415F	Q12 32000.43..	▲	▲	▲				4,15	2,5	
TNAX 2206ZZ R-415F	Q12 44000.84..	▲	▲	▲	12,7	5,5	6,4	4,15	2,5	45°
TNAX 2206ZZ R-465F	Q12 44000.85..	▲	▲	▲				4,65	3,4	
TNAX 2206ZZ R-515F	Q12 44000.86..	▲	▲	▲				5,15	4,0	
TNAX 2206ZZ R-515F	Q12 44000.87..	▲	▲	▲				5,15	4,0	
Mild steel/tool steel P				●						
Stainless and acid-resistant steel M				◐						
Grey cast iron, spheroidal cast iron K			●	◐						
Non-ferrous metals N		●								
Heat-resistant steels S										
Hardened tool steel H										

Order example:
ISO Code
TPAX 1103ZZ R-110F
Cutting material
K20
Order No.
Q12 18000.1022

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list



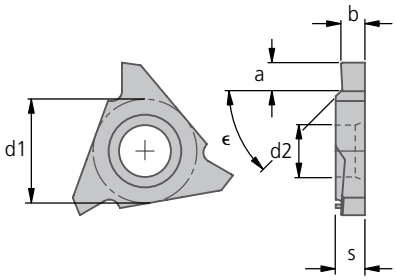
Application range:

Circular milling

Internal and external circular milling of longitudinal or annular slots for circlips/safety rings.
The cutting edge geometry produces a good machining result for steel, cast iron and aluminium when used with the appropriate carbide grades.

Design:
Dimension b is aligned with the slot width to H13 tolerance for circlips to DIN 471 and DIN 472. This relates to the upper tolerance limit for the slot widths which can be still be produced to the correct dimension after wear.

Cutter geometry:



Dimensions "a" and "b" apply
for the resulting workpiece contour.

Substrate		Carbide								
Coating type		–	PVD	PVD						
Cutting material designation		K20	BK2715	BK8425						
ISO Code	Order No.				d1	d2	s	b^{H13}	a	chamfer ϵ
	Enter code ▼	22	2715	8425						
TNAX 1103ZZ R-265F	Q12 18000.36..	▲	▲	▲	6,35	2,9	3,2	2,65	1,75	45°
TNAX 1604ZZ R-415F	Q12 32000.38..	▲	▲	▲	9,52	4,4	4,76	4,15	2,5	45°
Mild steel/tool steel P				●	Order example:					
Stainless and acid-resistant steel M				◐	ISO Code					
Grey cast iron, spheroidal cast iron K			●	◐	TNAX 1103ZZ R-265F					
Non-ferrous metals N		●			Cutting material					
Heat-resistant steels S					K20					
Hardened tool steel H					Order No.					
					Q12 18000.3622					

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts



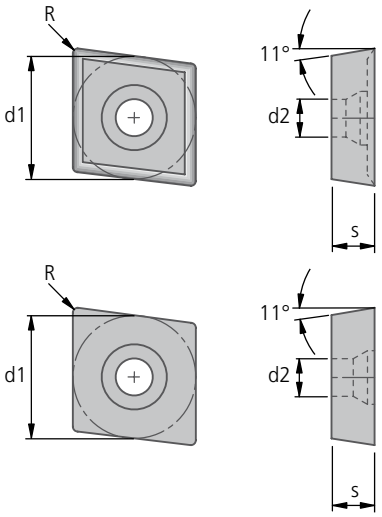
Application range:

T slot cutter

CPMT:
Inserts with sintered peripheral positive chip guide and chamfered cutting edge. Particularly suitable for T slot cutting for steel materials.

CPMW:
Insert with chamfered cutting edge.
Because of its cutting geometry, particularly suitable for machining cast iron materials.

Cutter geometry:



Substrate			Carbide							
Coating type		–	–	CVD	PVD	PVD				
Cutting material designation		P40	K20	BK61	BK8425	BK8440				
ISO Code	Order No.						d1	d2	s	R
Enter code		04	22	61	8425	8440				
CPMT 060304	Q15 18000.01..	▲			▲	▲	6,35	2,8	3,18	0,4
CPMW 060304	Q15 18000.02..			▲						
CPMW 09T308	Q15 32000.03..		▲				9,52	4,3	3,97	0,8
CPMT 09T308	Q15 32000.04..				▲	▲				
Mild steel/tool steel	P	●			●	●	Order example:			
Stainless and acid-resistant steel	M	◐			◐	◐	ISO Code			
Grey cast iron, spheroidal cast iron	K		●	●	◐		CPMT 060304			
Non-ferrous metals	N		●				Cutting material			
Heat-resistant steels	S						BK8425			
Hardened tool steel	H			◐ <52HRC			Order No.			
							Q15 18000.018425			

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

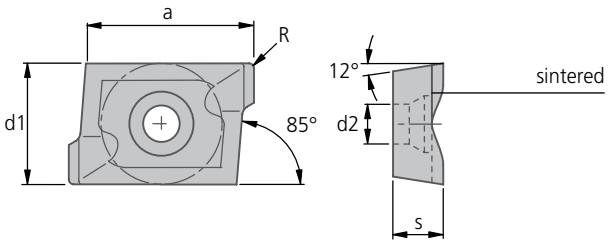


Application range:

Corner milling cutter
Shell end face milling cutter
End milling cutter

Highly positive cutter geometry with specially designed face cutter allows high feed rates and a good surface quality.
Soft cutting also possible even with unstable machining conditions. The special cutter geometry allows the insert to be used universally in the appropriate grades both for machining steel, cast iron and aluminium.

Cutter geometry:



Substrate		Carbide												
Coating type		–	–	CVD	CVD	CVD	PVD	PVD	PVD					
Cutting material designation		P25M	K10	BK6110	BK64	BK68	BK78	BK80	BK8425					
ISO Code RM = strengthened cutting edge	Order No.									d1	d2	s	a	R
	Enter code ▼	03	21	6110	64	68	78	80	8425					
APKT 1003PD-RM	Q36 18000.01..	▲	▲	▲	▲		▲	▲	▲	6,7	2,8	3,5	9	0,35
APKT 1003PD-R						▲								
APKT 1203PD-RM	Q36 24000.02..	▲	▲	▲	▲		▲		▲	8,0	3,5	3,8	11	0,6
APKT 1203PD-R						▲		▲						
APKT 1605PD-RM	Q36 38000.07..	▲	▲	▲	▲		▲		▲	11,1	4,5	5,26	15	0,8
APKT 1605PD-R								▲						
Mild steel/tool steel P		●			●	●	●	●	●	Order example:				
Stainless and acid-resistant steel M					◐		◐	◐	◐	ISO Code				
Grey cast iron, spheroidal cast iron K			●	●		◐			●	APKT 1003PD-RM				
Non-ferrous metals N			●							Cutting material				
Heat-resistant steels S			●							P25M				
Hardened tool steel H										Order No.				
										Q36 18000.0103				

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

Inserts

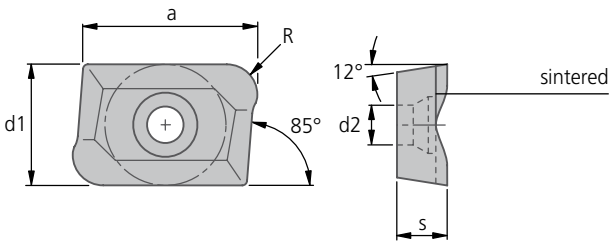


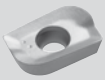
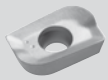
Application range:

Copy end milling cutter

A special cutter geometry whose main feature is a positive peripheral top rake, produces a soft cut particularly in the radius range of the insert; this requires low cutting forces and produces good chip formation.
The insert can be used universally in various carbide grades both for steel and cast iron.

Cutter geometry:



Substrate		Carbide								
Coating type		–	CVD	CVD	PVD					
Cutting material designation		K10	BK64	BK68	BK8425					
ISO Code	Order No.					d1	d2	s	a	R
Enter code ▼		21	64	68	8425					
APKT 120316PD-R	Q36 24000.04..	▲	▲	▲	▲	8,0	3,5	3,8	11	1,6
APKT 120324PD-R	Q36 24000.05..	▲	▲	▲	▲					2,4
APKT 120332PD-R	Q36 24000.06..	▲	▲	▲	▲					3,2
Mild steel/tool steel P		◐	●	●	●	Order example: ISO Code APKT 120316PD-R Cutting material P25M Order No. Q36 24000.0403				
Stainless and acid-resistant steel M			◐		◐					
Grey cast iron, spheroidal cast iron K		●		◐	●					
Non-ferrous metals N		●								
Heat-resistant steels S										
Hardened tool steel H										

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

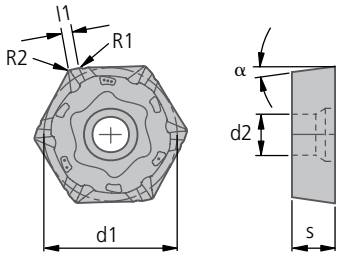


Application range:

Face milling cutter Q40-KFM

Six useful cutting edges, each cutting edge with wiper cutting edge.
Highly positive cutting edge geometry for a soft cutting action.
Optimised topographies for different applications on small and medium-sized milling machines.

Cutter geometry:



Substrate		Solid carbide													
Coating type		–	PVD	PVD	PVD	CVD	CVD	CVD							
Cutting material designation		K10	BK2735	BK2740	BK8425	BK6130	BK6435	BK6110							
ISO Code	Order No.								d1	d2	s	l1	R1	R2	α
Topography ▼	Enter code ▼	23	2735	2740	8425	6130	6435	6110							
HOKT0604AZER-01	Q40 53010.04..		▲			▲									
HPCT0604AZFR-12	Q40 53120.04..	▲													
HPKT0604AZER-01	Q40 53010.04..			▲	▲				16,3	4,4	4,5	1,7	0,4	0,5	11°
HPKT0604AZER-21	Q40 53210.04..			▲	▲		▲								
HPKT0604AZER-05	Q40 53050.04..							▲							
Mild steel/tool steel	P		●	◐	●	●			Order example:						
Stainless and acid-resistant steel	M		◐	○	◐	◐	◐		ISO code						
Grey cast iron, spheroidal cast iron	K					●		●	HOKT 0604AZ-01						
Non-ferrous metals	N	●							Cutting material						
Heat-resistant steels	S						●		K10						
Hardened tool steel	H								Order No.						
									Q40 53010.0423						

Topographies	
-01	Stable cutting edge (chamfered and rounded) for universal steel machining, even with interrupted cuts
-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-12	Extremely sharp topography (polished), large rake angle for NF machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys

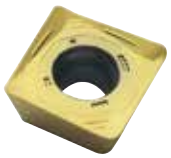
● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q43 28

Indexable insert

SDHT | SDKT

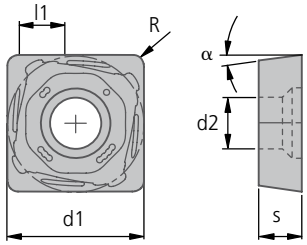


Application range:

Shoulder milling cutter Q43-KSM

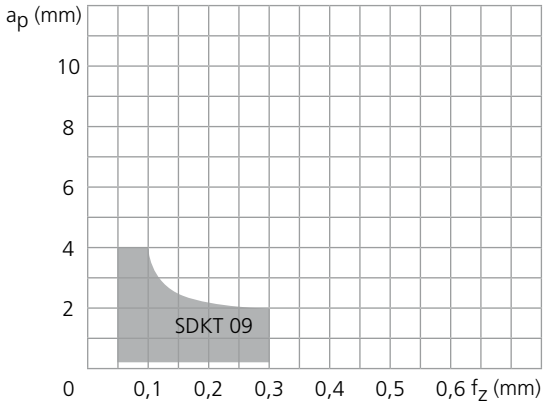
Four cutting edges per indexable insert.
For creating an exactly 90-degree shoulder.

Cutter geometry:



Substrate		Solid carbide											
Coating type		–	PVD	PVD	CVD	CVD	PVD						
Cutting material designation		K10	BK8425	BK2740	BK6110	BK6435	BK7740						
ISO Code	Order No.							d1	d2	s	l1	R	α
Topography ▼	Enter code ▼	23	8425	2740	6110	6435	7740						
SDHT 09T308FR-12	Q43 28120.08..	▲						9	3,4	3,97	2,5	0,8	15°
SDKT 09T308SR-01	Q43 28010.08..		▲										
SDKT 09T308SR-21	Q43 28210.08..			▲		▲	▲						
SDKT 09T308SR-05	Q43 28050.08..				▲								
Mild steel/tool steel	P		●	◐				Order example:					
Stainless and acid-resistant steel	M		◐	○		◐		ISO code					
Grey cast iron, spheroidal cast iron	K				●			SDHT 09T308FR-12					
Non-ferrous metals	N	●						Cutting material					
Heat-resistant steels	S					●	●	K10					
Hardened tool steel	H							Order No.					
								Q43 28120.0823					

Topographies	
-01	Stable cutting edge (chamfered and rounded) for universal steel machining, even with interrupted cuts
-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-12	Extremely sharp topography (polished), large rake angle for NF machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys



● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

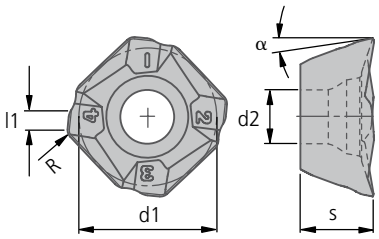


Application range:

Copy milling cutter Q55-KCM

Four useful cutting edges per indexable insert for face and chamfer milling.

Cutter geometry:



Substrate		Solid carbide										
Coating type		PVD	PVD	CVD	CVD	PVD						
Cutting material designation		BK8425	BK2740	BK6110	BK6435	BK7740						
ISO Code	Order No.						d1	d2	s	l1	R	α
Topography ▼	Enter code ▼	8425	2740	6110	6435	7740						
SDMX 1105AE-01	Q43 38010.15..	▲					11,4	4,4	5,9	1	0,8	20°
SDMX 1105AE-21	Q43 38210.15..		▲									
SDMX 1105AE-05	Q43 38050.15..			▲								
SDMX 1105AE-25	Q43 38250.15..				▲	▲						
Mild steel/tool steel	P	●	◐				Order example: ISO code SDMX 1105AE-01 Cutting material BK8425 Order No. Q43 38010.158425					
Stainless and acid-resistant steel	M	◑	○		◑							
Grey cast iron, spheroidal cast iron	K			●								
Non-ferrous metals	N											
Heat-resistant steels	S				●	●						
Hardened tool steel	H											

Topographies	
-01	Stable cutting edge (chamfered and rounded) for universal steel machining, even with interrupted cuts
-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys
-25	Stable cutting edge for highly heat-resistant steels and titanium/titanium alloys

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q47

Indexable insert

EOMT

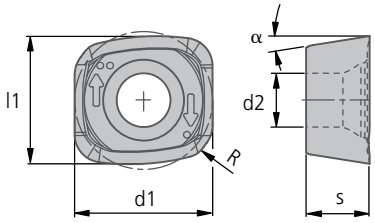


Application range:

Copy milling cutter Q55-KCM

Two cutting edges per indexable insert for high feed-rate machining operations.

Cutter geometry:



Substrate		Solid carbide							
Coating type		PVD	PVD						
Cutting material designation		BK8425	BK2740						
ISO Code	Order No.			d1	d2	s	l1	R	α
Topography ▼	Enter code ▼	8425	2740						
EOMT 120416-21	Q47 34210.16..	▲	▲	12	4,4	5	10,5	16	9°
Mild steel/tool steel P		●	◐	Order example: ISO code EOMT 120416-21 Cutting material BK8425 Order No. Q47 34210.168425					
Stainless and acid-resistant steel M		◐	○						
Grey cast iron, spheroidal cast iron K									
Non-ferrous metals N									
Heat-resistant steels S									
Hardened tool steel H									

Topography

-21 Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list



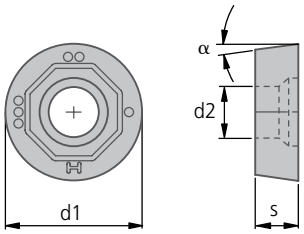
Application range:

Copy milling cutter Q55-KCM

Eight useful cutting edges per indexable insert.
Use of different indexable insert clearance angles.

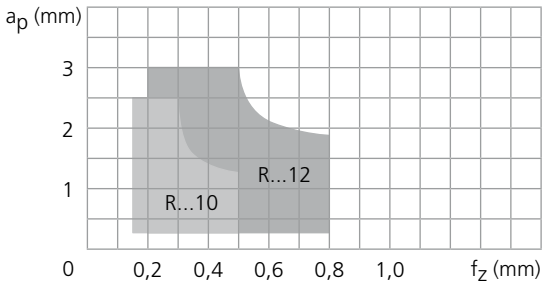
The indexable insert is supported with three surfaces, which allows high feed rates with maximum stability to be achieved. 8 indexing positions for optimum cost-efficiency.

Cutter geometry:



Substrate		Solid carbide										
Coating type		–	PVD	PVD	PVD	CVD	CVD	PVD				
Cutting material designation		K10	BK8425	BK2740	BK2710	BK6110	BK6435	BK7740				
ISO Code	Order No.								d1	d2	s	α
Topography ▼	Enter code ▼	23	8425	2740	2710	6110	6435	7740				
RPMX 10T3MO-01	Q55 34010.11..		▲						10	3,4	3,97	11°
RPMX 10T3MO-21	Q55 34210.11..			▲								
RPMX 10T3MO-05	Q55 34050.11..					▲						
RPHX 10T3MO-25	Q55 34250.11..						▲	▲				
RDHW 10T3MO-02	Q55 34020.15..				▲				10	3,4	3,97	15°
RDHX 10T3MO-12	Q55 34120.15..	▲										
RPMX 1204MO-01	Q55 42010.11..		▲						12	4,4	4,76	11°
RPMX 1204MO-21	Q55 42210.11..			▲								
RPMX 1204MO-05	Q55 42050.11..					▲						
RPHX 1204MO-25	Q55 42250.11..						▲	▲				
RDHW 1204MO-02	Q55 42020.15..				▲				12	4,4	4,76	15°
RDHX 1204MO-12	Q55 42120.15..	▲										
Mild steel/tool steel	P		●	◐			◐		Order example:			
Stainless and acid-resistant steel	M		◐	○					ISO code			
Grey cast iron, spheroidal cast iron	K					●			RPMX 10T3MO-01			
Non-ferrous metals	N	●							Cutting material			
Heat-resistant steels	S						●	●	BK8425			
Hardened tool steel	H				○				Order No.			
									Q55 34010.118425			

Topographies	
-01	Stable cutting edge (chamfered and rounded) for universal steel machining, even with interrupted cuts
-02	Reinforced cutting edge for hard machining
-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-12	Extremely sharp topography (polished), large rake angle for NF machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys
-25	Stable cutting edge for highly heat-resistant steels and titanium/titanium alloys



● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q55..26

RPMX | RPHX

Indexable insert

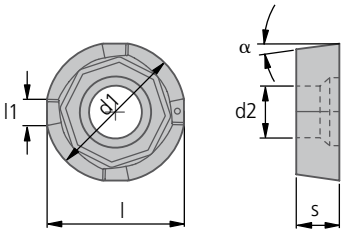


Application range:

Copy milling cutter Q55-KCM

Wiper geometry for outstanding surface finish.

Cutter geometry:



Substrate		Solid carbide									
Coating type		PVD	CVD	CVD	PVD						
Cutting material designation		BK8425	BK6110	BK6435	BK7740						
ISO Code	Order No.					d1	d2	l	l1	s	α
Topography ▼	Enter code ▼	8425	6110	6435	7740						
RPMX 1204MO-26	Q55 42260.11..	▲	▲			12	4,4	11,75	2,4	4,76	11°
RPHX 1204MO-46	Q55 42460.11..			▲	▲						
Mild steel/tool steel	P	●				Order example:					
Stainless and acid-resistant steel	M	◐		◐		ISO code					
Grey cast iron, spheroidal cast iron	K		●			RPMX 1204MO-26					
Non-ferrous metals	N					Cutting material					
Heat-resistant steels	S			●	●	BK8425					
Hardened tool steel	H					Order No.					
						Q55 42260.118425					

Topographies

-26	Wiper geometry for outstanding surface finish for steel, cast steel
-46	Wiper geometry for outstanding surface finish for exotic materials

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

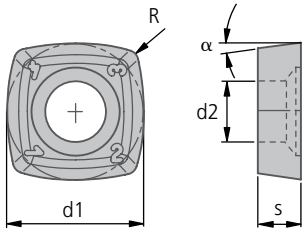


Application range:

Face milling cutter Q56-KHF

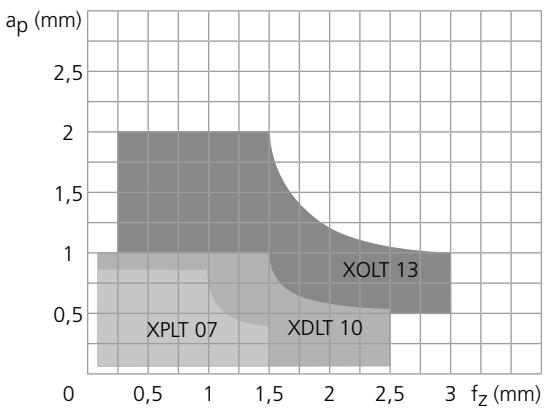
Four useful cutting edges per indexable insert.
High metal removal rate achievable because tooth feed rate of up to 3 mm possible.
Soft-cutting geometry reduces vibration during machining.
Premium-grade coatings for highly heat-resistant alloys and titanium materials.
Angled cutting edge for excellent surface quality, yet 90-degree shoulder still possible.

Cutter geometry:



Substrate		Solid carbide									
Coating type		PVD	PVD	PVD	CVD	CVD					
Cutting material designation		BK8425	BK2740	BK7740	BK6435	BK6110					
ISO Code	Order No.						d1	d2	s	R	α
Topography ▼	Enter code ▼	8425	2740	7740	6435	6110					
XPLT 070305-01	Q56 20010.05..	▲	▲				7	2,8	2,75	0,5	11°
XPLT 070305-21	Q56 20210.05..			▲	▲						
XDLT 10T308-01	Q56 32010.08..	▲	▲				10	4,4	3,97	0,8	9°
XDLT 10T308-21	Q56 32210.08..	▲	▲	▲	▲						
XDLT 10T308-05	Q56 32050.08..					▲					
XOLT 130410-01	Q56 46010.10..	▲	▲				13	5,5	4,76	1	9°
XOLT 130410-21	Q56 46210.10..	▲	▲	▲	▲						
XOLT 130410-05	Q56 46050.10..					▲					
Mild steel/tool steel	P	●	◐				Order example:				
Stainless and acid-resistant steel	M	◑	○		◑		ISO code				
Grey cast iron, spheroidal cast iron	K					●	XPLT 070305-01				
Non-ferrous metals	N						Cutting material				
Heat-resistant steels	S			●	●		BK8425				
Hardened tool steel	H						Order No.				
							Q56 20010.058425				

Topographies	
-01	Stable cutting edge (chamfered and rounded) for universal steel machining, even with interrupted cuts
-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys



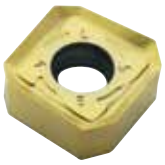
● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® Q63

Indexable insert

SOKU

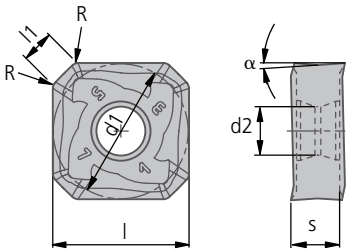


Application range:

Face milling cutter Q63-KFM

Eight useful cutting edges with positive clearance angle per indexable insert.
Stable double-sided indexable insert for ap up to 6.5 mm.
High-quality surface finishes are produced thanks to the wiper cutting edge.

Cutter geometry:



Substrate		Solid carbide											
Coating type		PVD	PVD	CVD	CVD								
Cutting material designation		BK8425	BK2740	BK6435	BK6110								
ISO Code	Order No.					d1	d2	s	l	l1	R	α
Topography ▼	Enter code ▼	8425	2740	6435	6110								
SOKU 1205AZ-21	Q63 46210.06..	▲	▲	▲		13	4,55	5	13	2	0,8	6°
SOKU 1205AZ-05	Q63 46050.06..				▲							
SOKU 1505AZ-21	Q63 53210.06..	▲	▲	▲		15,875	5,7	6,03	15,875	3,65	1	6°
SOKU 1505AZ-05	Q63 53050.06..				▲							
Mild steel/tool steel	P	●	◐									
Stainless and acid-resistant steel	M	◐	○	◐								
Grey cast iron, spheroidal cast iron	K				●							
Non-ferrous metals	N											
Heat-resistant steels	S			●								
Hardened tool steel	H											

Order example:
ISO code
SOKU 1205AZ-21
Cutting material
BK8425
Order No.
Q63 46210.068425

Topographies

-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys

● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

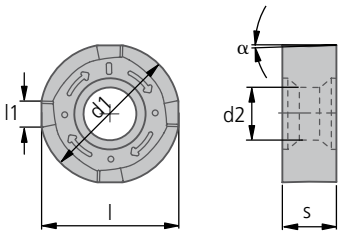


Application range:

Copy milling cutter Q75-KCM

Eight useful cutting edges per indexable insert.
Stable double-sided indexable insert for ap up to 4.5 mm.
High-quality surface finishes are produced thanks to the wiper cutting edge.

Cutter geometry:



Substrate		Solid carbide											
Coating type		PVD	PVD	CVD	CVD	PVD							
Cutting material designation		BK8425	BK2740	BK6110	BK6435	BK7740							
ISO Code	Order No.						d1	d2	s	l	l1	α
Topography ▼	Enter code ▼	8425	2740	6110	6435	7740						
RNKU 1204MO-01	Q75 42010.00..	▲					12	4,5	5,9	11,8	2,3	0°
ROHU 1204MO-21	Q75 42210.03..		▲									3°
RNKU 1204MO-05	Q75 42050.00..			▲								0°
ROHU 1204MO-25	Q75 42250.03..				▲	▲						3°
Mild steel/tool steel	P	●	◐				Order example:						
Stainless and acid-resistant steel	M	◑	○		◑		ISO code						
Grey cast iron, spheroidal cast iron	K			●			RNKU 1204MO-01						
Non-ferrous metals	N						Cutting material						
Heat-resistant steels	S				●	●	BK8425						
Hardened tool steel	H						Order No.						
							Q75 42010.008425						

Topographies	
-01	Stable cutting edge (chamfered and rounded) for universal steel machining, even with interrupted cuts
-05	Stable cutting edge (chamfered and rounded) for universal cast iron machining
-21	Easy-cutting topography (cutting edge slightly rounded) for stainless and highly heat-resistant alloys
-25	Stable cutting edge for highly heat-resistant steels and titanium/titanium alloys

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

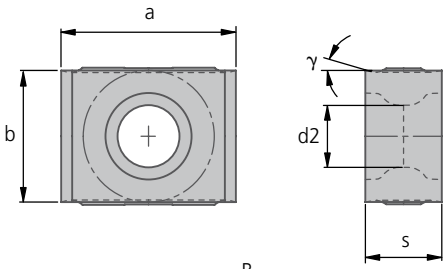
Tangential indexable inserts



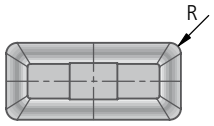
Application range:

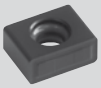
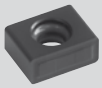
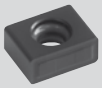
Roughing
Face milling cutter Q80-KFM
Setting angle 88°

Cutter geometry:

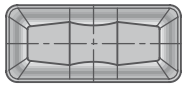


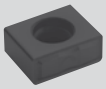
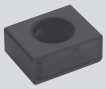
Topography -05:
Cast materials, some steel materials



Substrate		Carbide									
Coating type		CVD	PVD	PVD							
Cutting material designation		BK6115	BK2715	BK2730							
ISO Code	Order No.				d2	a	b	s	γ	R	
Enter code ▾		6115	2715	2730							
LNGU 06T204 EN-05	Q80 09050.04..	▲	▲	▲	2,3	6,35	4,73	2,88	14°	0,4	
LNGU 090406 EN-05	Q80 20050.06..	▲	▲	▲	3,4	9,52	7,25	4,17	14°	0,6	
LNGU 120508 EN-05	Q80 32000.01..	▲	▲	▲	4,5	12,7	9,52	5,56	10°	0,8	
Mild steel/tool steel	P	◐		◐	Order example:						
Stainless and acid-resistant steel	M			◑	ISO Code						
Grey cast iron, spheroidal cast iron	K	●	●	●	LNGU 120508 EN-05						
Non-ferrous metals	N				Cutting material						
Heat-resistant steels	S				BK2715						
Hardened tool steel	H				Order No.						
					Q80 32000.012715						

Topography -21:
Steel materials, also limitedly suitable for heat-resistant steels



Substrate		Carbide								
Coating type		PVD	PVD							
Cutting material designation		BK2730	BK7935							
ISO Code	Order No.			d2	a	b	s	γ	R	
Enter code ▾		2730	7935							
LNGU 120508 EN-21	Q80 32210.08..	▲	▲	4,5	12,7	9,52	5,56	22°	0,8	
Mild steel/tool steel	P	●	●	Order example:						
Stainless and acid-resistant steel	M	◑	◑	ISO Code						
Grey cast iron, spheroidal cast iron	K	◐		LNGU 120508 EN-21						
Non-ferrous metals	N	●		Cutting material						
Heat-resistant steels	S		◐	BK2730						
Hardened tool steel	H			Order No.						
				Q80 32210.082730						

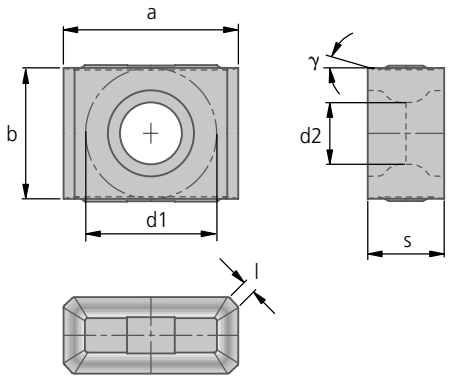
● Main area of application ◐ Suitable in some cases
▲ Availability: for delivery see current price and stock list

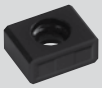
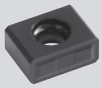


Application range:

Face milling cutter Q80-KFM
Setting angle 45°

Cutter geometry:



Substrate		Carbide								
Coating type		CVD	PVD							
Cutting material designation		BK6115	BK2715							
ISO Code	Order No.			d1	d2	a	b	l	s	γ
	Enter code ▼	6115	2715							
LNGU 1205AN EN-05	Q80 32050.45..	▲	▲	9,52	4,5	12,7	9,69	0,7	5,56	10°
Mild steel/tool steel P										
Stainless and acid-resistant steel M										
Grey cast iron, spheroidal cast iron K		●	●							
Non-ferrous metals N										
Heat-resistant steels S										
Hardened tool steel H										

Order example:
ISO Code
LNGU 1205AN EN-05
Cutting material
BK2715
Order No.
Q80 32050.452715

● Main area of application ◐ Suitable in some cases

Important: See chapter 8 for more application details and safety notes!

KOMET® V95

Central drill bit Ø 5 – 20 mm

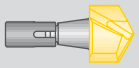
for KUB Centron® and KUB® V464

		Substrate	HSS			Carbide
		Coating type	PVD	PVD		PVD
		Cutting material designation	BK89	BK90		BK8450
	Order No.				Order No.	
Ø	Enter code ▼		89	90	Enter code ▼	8450
5	V95 10012.00..		▲	▲	V95 10310.	▲
6	V95 10022.00..		▲	▲	V95 10320.	▲
8	V95 10032.00..		▲	▲	V95 10330.	▲
10	V95 10042.00..		▲	▲	V95 10340.	▲
12	V95 10050.00..		▲	▲		
16	V95 10063.00..		▲	▲		
20	V95 10213.00..		▲	▲		
Order example: for Ø D 5 mm Cutting material BK8450 Order No. V95 10310.8450		Mild steel/tool steel P	●		P	
		Stainless and acid-resistant steel M		○	M	
		Grey cast iron, spheroidal cast iron K		●	K	◐
		Non-ferrous metals N	●	●	N	◐
		Heat-resistant steels S			S	
		Hardened tool steel H			H	

KOMET® V96

Centring spade Ø 10,3 – 16,3 mm

for KUB Centron® Powerline

		Substrate	Carbide
		Coating type	PVD
		Cutting material designation	BK8450
	Order No.		
Ø	Enter code ▼		8450
10,3	V96 01100.		▲
11,3	V96 01110.		▲
12,3	V96 01120.		▲
13,3	V96 01130.		▲
14,3	V96 01140.		▲
15,3	V96 01150.		▲
16,3	V96 01160.		▲
Order example: for Ø D 10,3 mm Cutting material BK8450 Order No. V96 01100.8450		Mild steel/tool steel P	●
		Stainless and acid-resistant steel M	◐
		Grey cast iron, spheroidal cast iron K	●
		Non-ferrous metals N	●
		Heat-resistant steels S	●
		Hardened tool steel H	○ < 52 HRC

● Main area of application ◐ Suitable in some cases

▲ Availability: for delivery see current price and stock list

W	N	M	G	0 8	0 4	0 8	F	L	–	0 1
①	②	③	④	⑤	⑥	⑦	⑧	⑨		⑩

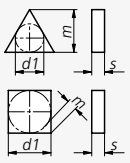
① Form

Code		
R		
S	90°	
L	90°	
A	85°	
T	60°	
C	80° / 100°	
E	75°	
D	55°	
V	35°	
W	80°	

② Clearance angle

Code		
N	0°	
B	5°	
C	7°	
O	according to manufacturer specification (with KOMET 8°)	
P	11°	
E	20°	

③ Tolerance



Code	m	s	d
A	±0,005	±0,025	±0,025
E	±0,025	±0,025	±0,025
G	±0,025	±0,13	±0,025
H	±0,013	±0,025	±0,013
K	±0,013	±0,025	±0,05...±0,15
M	±0,08...±0,18[1)]	±0,13	±0,05...±0,13[1)]
U	±0,13...±0,38[1)]	±0,13	±0,08...±0,25[1)]

Tolerance in mm

Ø *d1* IC	at *m* Class M	at *m* Class U	at *d1* Class M	at *d1* Class U
6,35	±0,08	±0,13	d±0,05	±0,08
9,52	±0,08	±0,13	d±0,05	±0,08
12,70	±0,13	±0,20	±0,08	±0,13
15,87	±0,15	±0,27	±0,10	±0,18
19,05	±0,15	±0,27	±0,10	±0,18
25,40	±0,18	±0,38	±0,13	±0,25

④ Type

Code	
A	no chipformer, with hole
M	chipformer on one side, with hole
G	chipformer both sides, with hole
R	chipformer on one side, no hole
W	no chipformer, countersunk hole 40-60°
B	no chipformer, countersunk hole 70-90°
T	chipformer on one side, countersunk hole 40-60°
H	chipformer on one side, countersunk hole 70-90°
P	neg/pos. one or two sides, with hole
U	chipformer both sides, with countersunk hole
X	special design, drawing required

⑤ Cutting edge length *l*

Code

d1 mm	at code A	C	D	L	R	S	T	V	W
3,97							06		02
4,80		04							03
5,56		05				05	09		
6,35	10	06	07			06	11	11	04
7,94		08				07	13	13	
8,00	12				08	08	14		05
9,52		09	11	12		09	16	16	
10,00					10				06
10,90	16								
12,00					12				08
12,70		12	15			12	22	22	
15,00									10
15,88						15	27		
16,00					16				
17,60									12
19,05		19				19	33		13
20,00					20				
25,00					25				
25,40						25			

⑥ Thickness *s*

Code	
T0	1,20 mm
01	1,59 mm
T1	1,80 mm
02	2,38 mm
T2	2,97 mm
03	3,18 mm
T3	3,97 mm
04	4,76 mm
05	5,30 mm
06	6,35 mm
07	7,94 mm

⑦ Corner radius *R*

Code	
00	0,0 mm
01	0,1 mm
02	0,2 mm
03	0,3 mm
04	0,4 mm
05	0,5 mm
06	0,6 mm
08	0,8 mm
12	1,2 mm
16	1,6 mm
20	2,0 mm
24	2,4 mm
ZZ	Face cutting edge

⑧ Cutting edge design

Code	
F	sharp
E	rounded
T	chamfered (negative)
S	chamfered + rounded

⑨ Cutting direction of insert

Code	
R	R.H.
L	L.H.
N	R.H. and L.H.

⑩ Chipfomer

Code
-01
-05
-11
-13
-14
-15
-21
-32
-33

Numerical coding for inserts

W	6	0	3	2	0	6	0	.	0	8	6	0					
W	2	9	2	4	0	1	0	.	0	4	8	4	2	5			
①	②		③		④		⑤		⑥		⑦						

① Main group

③ Inscribed circle *d1*

03	3,97 mm
04	4,0 mm
10	4,8 / 5,0 mm
12	5,5 mm
13	5,56 mm
14	5,6 mm
17	6,0 mm
18	6,2 / 6,35 mm
20	7,0 / 7,1 mm
22	7,7 mm
23	7,94 mm
24	8,0 mm
26	8,2 mm
28	8,9 mm
32	9,52 / 9,8 mm
34	10,0 mm
38	10,9 / 11,1 mm
42	12,0 mm
44	12,7 mm
46	13,2 mm
50	15,0 mm
53	15,88 mm
58	17,6 mm

② Insert geometry

	Code	Form	Version	peripheral	Chip groove	Clearance angle,other
84°	00	Unisix®	standard	ground	ground	
	01	Unisix®	strengthened	ground	ground	
	04	Unisix®	6 edged	ground	ground	0°
	05	Unisix®	6 edged	ground	ground	0°, wide flute
	24	Unisix® 95°	strengthened	sintered	sintered	
	25	Unisix®	standard	sintered	sintered	
	27	Unisix® 95°	strengthened	ground	sintered	
	28	Unisix®	standard	ground	sintered	
	29	Unisix®	strengthened		sintered	
60°	30	triangular		ground	ground	8°
	32	triangular		ground	ground	11°
	34	triangular	strengthened	ground	ground	
	36	triangular	6 edged	ground	ground	0°
	37	triangular		ground	ground	20°
	57	triangular		ground	sintered	11°
	58	triangular		ground	sintered	IC tolerance ±0,025
	59	triangular	strengthened	ground	sintered	
55°	60	rhomboid		ground	ground	
35°	78	rhomboid		ground	sintered	
55°	79	rhomboid		ground	sintered	
90°	80	square		sintered	sintered	
	82	square		ground	sintered	
	83	square		sintered	sintered	

④ Type of chip groove / chip surface

Code **ground**	Code sintered
00 L.H. cutting, neutral	00 Double chip groove (PD), cutting edge rounded
06 L.H. cutting, 6°	01 Double chip groove (K), cutting edge chamfered and rounded
12 L.H. cutting, 12°	02 Step geometry (KS), cutting edge chamfered and rounded
15 L.H. cutting, 15°	03 Dimple geometry (KX), cutting edge rounded
18 L.H. cutting, 18°	04 Finished geometry
20 L.H. cutting, 20°	05 10° chip groove (T), cutting edge rounded
30 R.H. cutting, neutral	06 12° chip groove (C), cutting edge rounded
36 R.H. cutting, 6°	07 Finished geometry
42 R.H. cutting, 12°	10 Shank geometry, cutting edge chamfered and rounded
45 R.H. cutting, 15°	11 20° chip groove, cutting edge rounded
48 R.H. cutting, 18°	12 AI / finished geometry
50 R.H. cutting, 20°	13 Shank geometry, cutting edge rounded
60 neutral	14 Finishing-Topographie
66 3× ground, 6°	15 Semi-finishing Topographie
70 3× ground, 10°	16 Semi-finishing Topographie with "Wiper" corner
72 3× ground, 12°	17 22° Topographie / tangential insert
80 3× ground, 20°	18 Finishing-Topographie with "Wiper" corner
82 L.H. cutting, 12°, sharp-edged	20 Universal topography 8° top rake
83 R.H. cutting, 12°, sharp-edged	21 20° Highly positive "Technology 21"
94 neutral, bright complete, L.H. + R.H. cutting	32 peripheral ground with minimal burring
98 bright with flute on corner, L.H. + R.H. cutting	33 peripheral sintered with minimal burring
99 neutral, bright on corner, L.H. + R.H. cutting	

⑤ Modification code

1 ... 9

⑥ Geometry of cutting edge

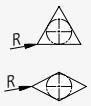
Code		
01	R 0,1 mm	
02	R 0,2 mm	
03	R 0,3 mm	
04	R 0,4 mm	
05	R 0,5 mm	
06	R 0,6 mm	
08	R 0,8 mm	
10	R 1,0 mm	
12	R 1,2 mm	
30	U8.00 R 0	
31	UF	
32	US	
33	U8.77	15° clearance angle additional cutting edge form for Unisix® milling cutter inserts
34	F / KUF 90°	
35	F / KUF 75°	
36	F / KUF 60°	
39	R 0,05 mm	
40	45° corner for chamfering cartridge	
75	Support chamfer 75° L.H.	
90	Support chamfer 90° L.H.	

⑦ Material grade

C	8 6	3 2	9 9	0	.	0 4	5 6 0 5
①	②	③	④	⑤		⑥	⑦

②	Insert geometry	
Code	ISO basic forms	
79	V... rhomboid 35°	5°
83	S... square 90°	7°
84	T... triangular 60°	7°
85	C... rhomboid 80°	7°
86	D... rhomboid 55°	7°
87	R... round (standard)	7°
88	R... round (strengthened)	7°
89	V... rhomboid 35°	7°
90	W... hexagonal 80°	7°
93	S... square 90°	11°
94	T... triangular 60°	11°
95	C... rhomboid 80°	11°
96	D... rhomboid 55°	11°
98	R... round	15°
00	W... hexagonal 80°	11°

⑥	Geometry of cutting edge
Code	
00	Round insert
01	R 0,1
02	R 0,2
04	R 0,4
08	R 0,8
12	R 1,2
...	



④	Topography
Code	
	HM ISO range
01	Roughing operations Universal | HM ISO range
05	Iron casting roughing and semi-machining operations | HM ISO range
12	Semi-machining operations Highly positive (NF metal) | HM ISO range
14	Finishing operations Chip control | HM ISO range
15	Semi-finishing Chip control | HM ISO range
82 ... 83	Chip breakers (HM/cermet)
	PCD / CVD-D range
81	Long blank L and R/L, full cutting edge (full edge) positive rake angle
84	Long blank L and R/L + 3D chip breaker for finishing
85	Long blank R + 3D chip breaker for finishing
86	Long blank L and R/L + 3D chip breaker for roughing
87	Long blank R + 3D chip breaker for roughing
88	Complete rake face R/L (full face)
89	Complete rake face R/L (full face) + 3D chip breaker for finishing
90	Complete rake face R/L (full face) + 3D chip breaker for roughing
91	Triangular blank L+R (tipped) Wiper (95°/C..+W.., 93°/T.., 91°/T..)
92	Triangular blank L+R (tipped) Wiper (95°/C..+W.., 93°/T.., 91°/T..) + 3D chip breaker for finishing
93	Triangular blank L+R (tipped) Wiper (95°/C..+W.., 93°/T.., 91°/T..) + 3D chip breaker for roughing
94	Long blank L and R/L, full cutting edge (full edge)
95	Long blank R, full cutting edge (full edge)
96	Triangular blank L+R (tipped) 3D chip breaker for finishing
97	Triangular blank L+R (tipped) 3D chip breaker for roughing
98	Triangular blank L+R (tipped) positive rake angle
99	Triangular blank L+R (tipped)

Q	8 0	3 2	0 0	0	.	0 1	6 1 1 5
①	②	③	④	⑤		⑥	⑦

②	Insert geometry
Code	ISO basic forms
09	S... square 90°
12	T... triangular 60°
15	C... rhomboid 80°
21	E... rhomboid 75°
36	A... rhomboid form
80	L... square 90°

④	Serial number
00 ... 99	Code

⑥	Serial number
01 ... 99	Code



The ideas factory

The IDEEN-FABRIK reflects the evolution of the KOMET GROUP from a tool manufacturer into a creative expert for solutions covering all aspects of boring, reaming, thread milling and mechatronic tools.

The central objective is to offer our customers and employees scope for creative working and learning.

On a total area of 2,500 m², we have created a modern, multi-storey factory environment. The IDEEN-FABRIK was deliberately not constructed as a separate, detached training building, but integrated directly above a manufacturing business.

While the metal swarf flies down below, ideas are exchanged above. By this, we aim to demonstrate that the work here is always associated with new ideas and creative ambition.

With the IDEEN-FABRIK and the comprehensive seminar programme for customers and employee qualification, we aim to offer you a measurable and permanent competitive advantage in your markets.

Ask for our no-obligation specialist seminar brochure.



TOOLS+IDEAS®

The KOMET GROUP is the worldwide technology leader for innovative tool concepts and complete solutions for drilling machining.

Our customers know us as a manufacturer of premium tools, and know the ideas behind our solutions. The further creativity is still unused, and remains to be discovered. We have set ourselves the objective of exploiting the added value thus created for the benefit of our customers.

We call this TOOLS+IDEAS. A new and different way of being able to offer our customers long-term, sustainable advantages through a plus in support and services.

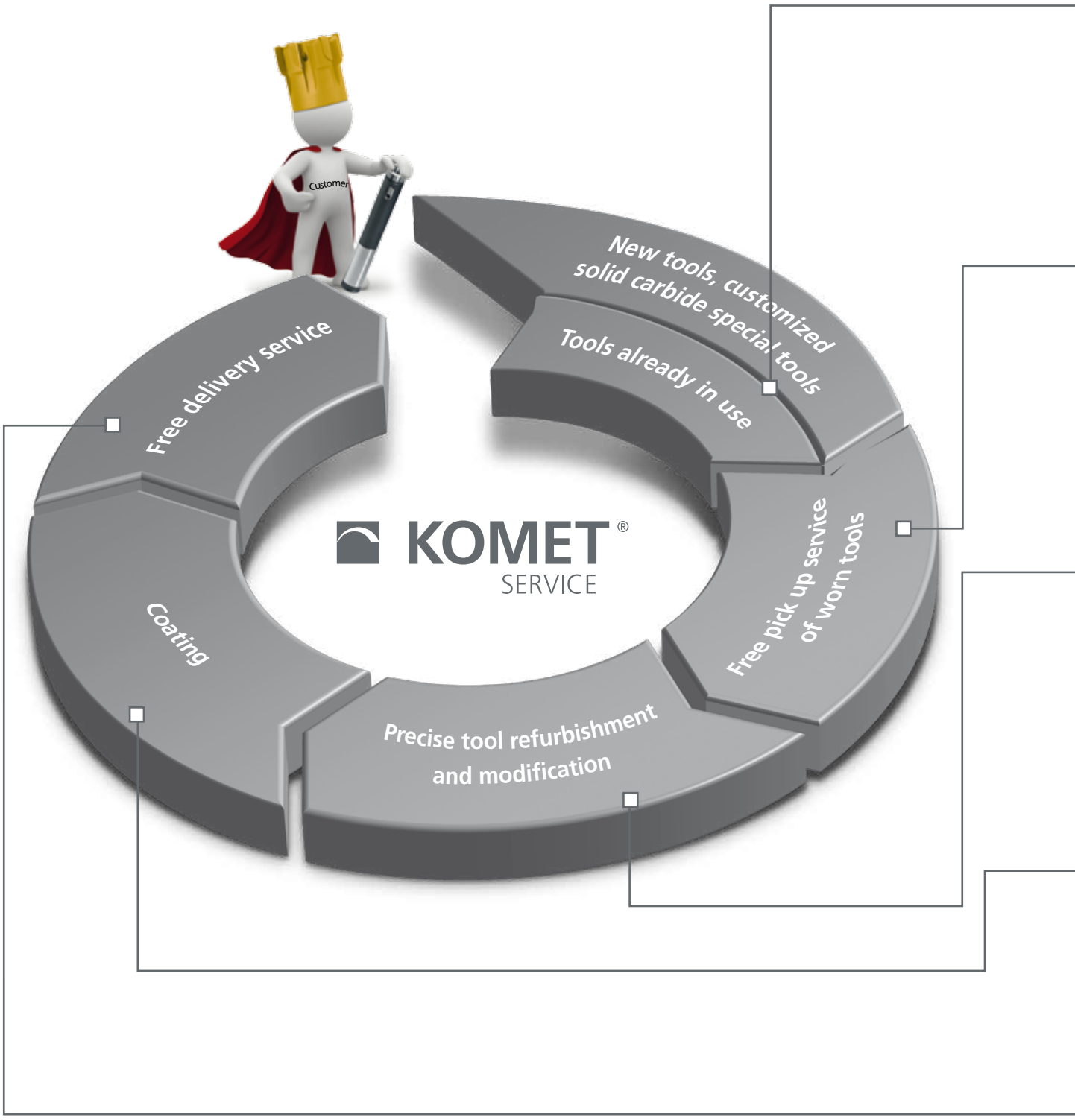
Our IDEEN-FABRIK in Besigheim is the first step in this direction.

Informations

	Page
KOMET SERVICE®	770 – 773
A network of local partners that provide professional tool refurbishment, trade tools and manufacture customized solid carbide special tools	
KOMET® BRINKHAUS	774 – 775
ToolScope – Next generation process monitoring	
Performation calculation	776 – 777
Dimensional variation	778
Types of wear on indexable inserts	779
Usage and safety notes	780 – 781
KOMET ABS®	782 – 787
KOMET® HSK	788 – 791
KOMET KomLoc® HSK	792 – 795
Coolant transfer	796
Pull studs	797
Clamping screws	798 – 801
Screwdriver | Key	802
KOMET® Company concept	807
KOMET® APP	804 – 806
International material classification	808 – 809
Numerical index	810
Order formulae	837
KOMET GROUP International agencies	838 – 839

KOMET SERVICE ®
the service brand name of the KOMET GROUP

A network of local partners that provide professional tool refurbishment, trade tools and manufacture customized solid carbide special tools. Everything from a single source. Fast, flexible and always close to you.





From stock or individually manufactured

Get your solid carbide TOOL*life* tools directly from your KOMET SERVICE® partner or have your own customized solid carbide special tools manufactured.
Your KOMET SERVICE® partner will happily refurbish these tools along with all tools from other brands.



One call does it all

Get on a regular pick-up schedule or arrange a one-time pick-up of your tools needing refurbishment by your KOMET SERVICE® partner. It's fast and it's free.



Tools refurbished to original quality

Our refurbishing experts fairly assess the current state of your tools (irrespective of the manufacturer) in order to recommend refurbishment or replacement.
KOMET GROUP tools are refurbished according to strict criteria to restore the original geometry or original tipping. By request you receive a measurement report. Our partners will also professionally modify tools for you, quickly and flexibly.



Coating – fully customized

KOMET GROUP tools are of course given the original coatings once more. We customize our service to your needs, even with other standard coatings, all within a few days.

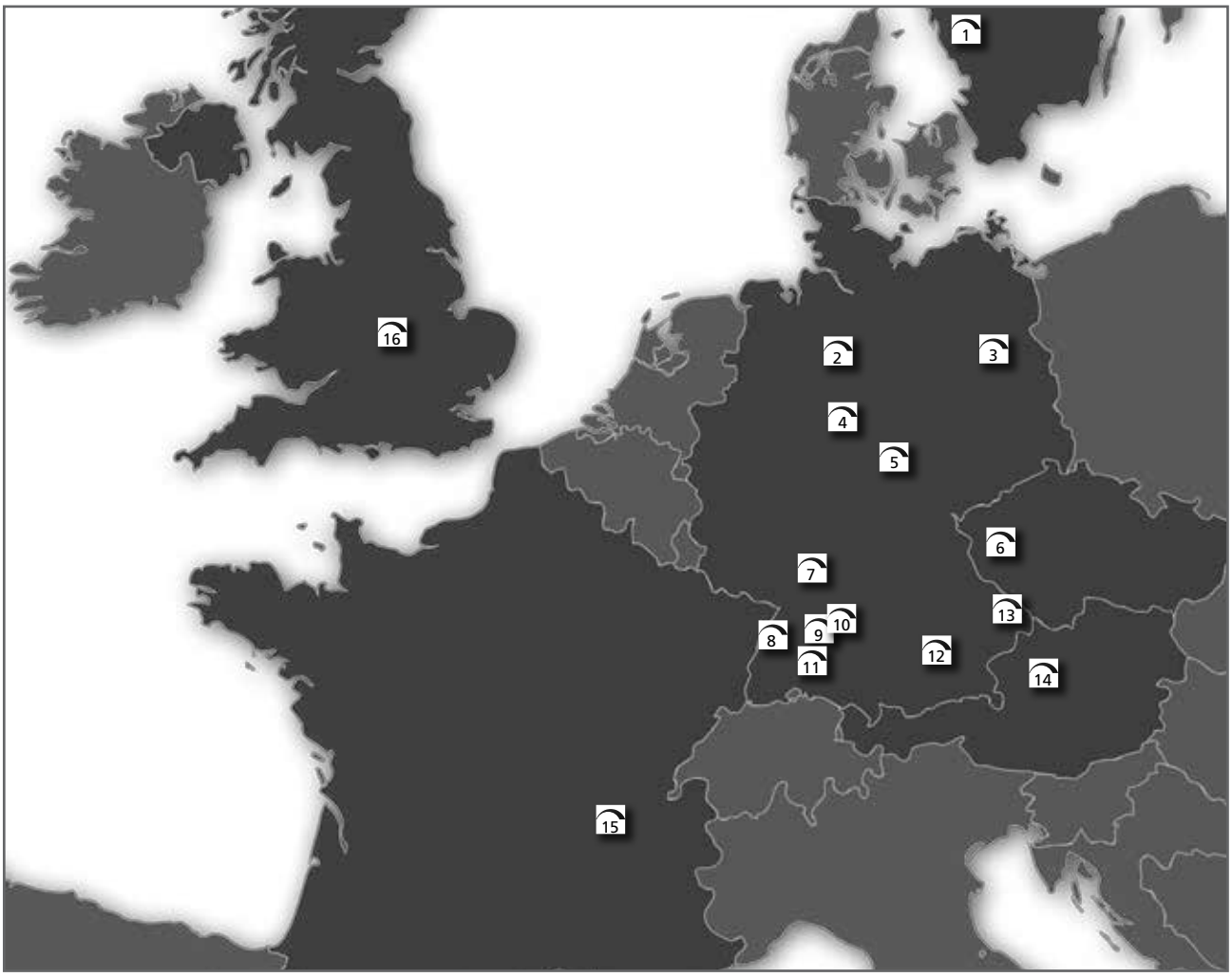


Just-in-time delivery

Your KOMET SERVICE® partner will return your KOMET GROUP tools refurbished to their original quality within 5 or 10 days (without or with coating) – safely stored in the KOMET SERVICE® TOOL*life* box.

KOMET SERVICE ® Partner

Europe



1 Görans Slipservice AB
Ångpannegatan 3 | SE-417 05 Göteborg
Tel. +46 31 232060 | Fax +46 31 229684
gorans@kometservice.com

2 Werkzeugservice Wulf e.K.
Inhaber: Karsten Wulf
Industriestr. 40 | D-30900 Wedemark
Tel. +49 5130 37670 | Fax +49 5130 376729
wulf@kometservice.com

3 Herbert Schaube Werkzeugschleiferei
Alt-Blankenburg 25 | D-13129 Berlin
Tel. +49 30 47471037 | Fax +49 30 4744194
schaube@kometservice.com

4 Kanne Werkzeugtechnik GmbH
Borsigstr. 29 | D-37154 Northeim
Tel. +49 5551 988060 | Fax +49 5551 9880666
kanne@kometservice.com

5 CNC Werkzeugschleiferei
und Werkzeughandel J. Steikert
OT Göllingen · Am Atzelsberg 1
D-99707 Kyffhäuserland
Tel. +49 34671 62551 | Fax +49 34671 79651
steikert@kometservice.com

6 Zero systems, s.r.o.
Pod Tratí 493/16 | CZ-32200 Plzeň
Tel. +420 377927171 | Fax +420 377983910
zero@kometservice.com

7 Andre Woitschach GmbH
Max-Berk-Straße 2 | D-69226 Nussloch
Tel. +49 6224 16334 | Fax +49 6224 16365
woitschach@kometservice.com

8 Schnebelt Präzision
Burdastr. 21 | D-77746 Schutterwald
Tel. +49 781 960444 | Fax +49 781 960450
schnebelt@kometservice.com

9 Werkzeugschleiferei Liebrich
Obere Brandstr. 10 | D-70567 Stuttgart
Tel. +49 711 714995 | Fax +49 711 712645
liebrich@kometservice.com

10 Werkzeugschleiferei Schlenker GmbH
Mögglinger Str. 64 | D-73560 Böbingen
Tel. +49 7173 929073 | Fax +49 7173 5757
schlenker@kometservice.com

11 NB Werkzeugtechnik
Im Anwandel 12 | D-72459 Albstadt
Tel. +49 7432 2009422 | Fax +49 7432 2009424
nb@kometservice.com

12 WEMA GmbH
Raiffeisenstraße 9 | D-85276 Pfaffenhofen
Tel. +49 8441 859160 | Fax +49 8441 8591620
wema@kometservice.com

13 Schneidwerkzeuge Schleiftechnik Moser
Hauptstr. 21 | D-94556 Schönanger-Neuschönau
Tel. +49 8558 663 | Fax +49 8558 671
moser@kometservice.com

14 Gradauer G.M.B.H.
Ternberger Straße 1a
A-4596 Steinbach/Steyr
Tel. +43 7257 7366 | Fax +43 7257 7366
gradauer@kometservice.com

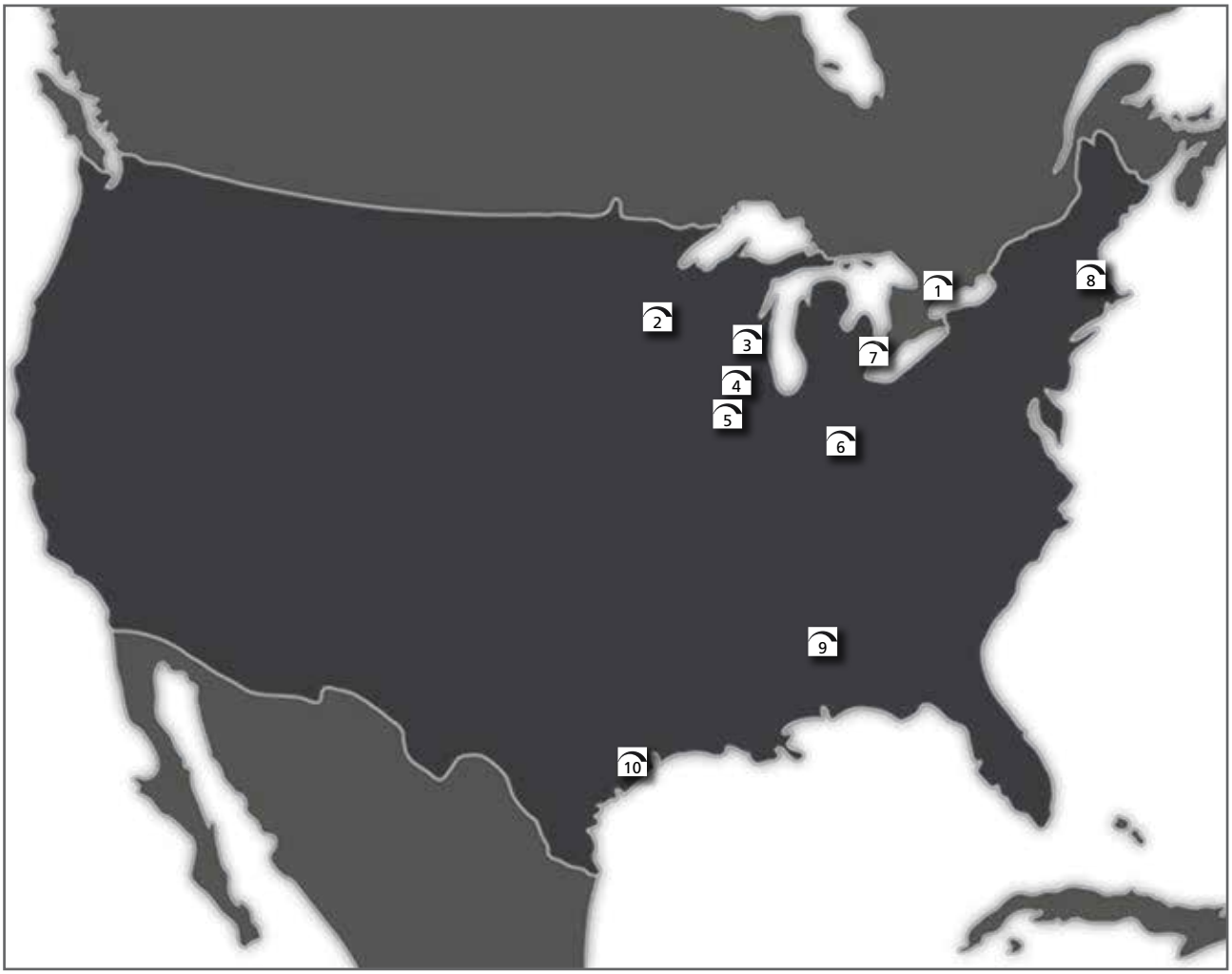
15 AFLY, Affûtage Lyonnais S.A.S.
200 rue Léon Blum | F-69100 Villeurbanne
Tel. +33 472 148939 | Fax +33 472 140320
afly@kometservice.com

16 Exactaform Cutting Tools Ltd
Unit G2 | Little Heath Ind Estate |
Old Church Road | CV6 7ND | Coventry
Tel. +44 2476 665823
exactaform@kometservice.com

Fast, flexible and always close to you

www.kometservice.com

North America



1 Castelar Tool & Grinding Inc.
2775 Slough St.
L4T 1G2, Mississauga, Ontario, Canada
Tel. +1 9056773090
Fax +1 9056773091
castelar@kometservice.com

2 NTM, Inc.
140 NE Liberty Street
Minneapolis, MN 55432, USA
Tel. +1 763 780 1420
Fax +1 763 780 8921
Toll Free +1 800 274 4686
ntm@kometservice.com

3 Integrity Saw & Tool
507 West Rolling Meadows Drive
Fond du Lac, WI 54937, USA
Tel. +1 920 923 4474
Fax +1 920 923 4407
integrity@kometservice.com

4 Ekstrom Carlson
5248 27th Avenue
Rockford, IL 61109, USA
Tel. +1 815 394 1744
Fax +1 815 316 8120
ekstrom@kometservice.com

5 Countyline Tool, Inc.
3303 N. Main Street
East Peoria, IL 61611, USA
Tel. +1 309 694 2400
Fax +1 309 694 2445
countyline@kometservice.com

6 Tri-State Tool Grinding
5311-A Robert Ave
Cincinnati, OH 45248, USA
Tel. +1 513 347 0100
Fax +1 513 347 3728
tristate@kometservice.com

7 Brecker's ABC Tool Company
15919 East 12 Mile Road
Roseville, MI 48066, USA
Tel. +1 5867791122
Fax +1 5867790157
breckers@kometservice.com

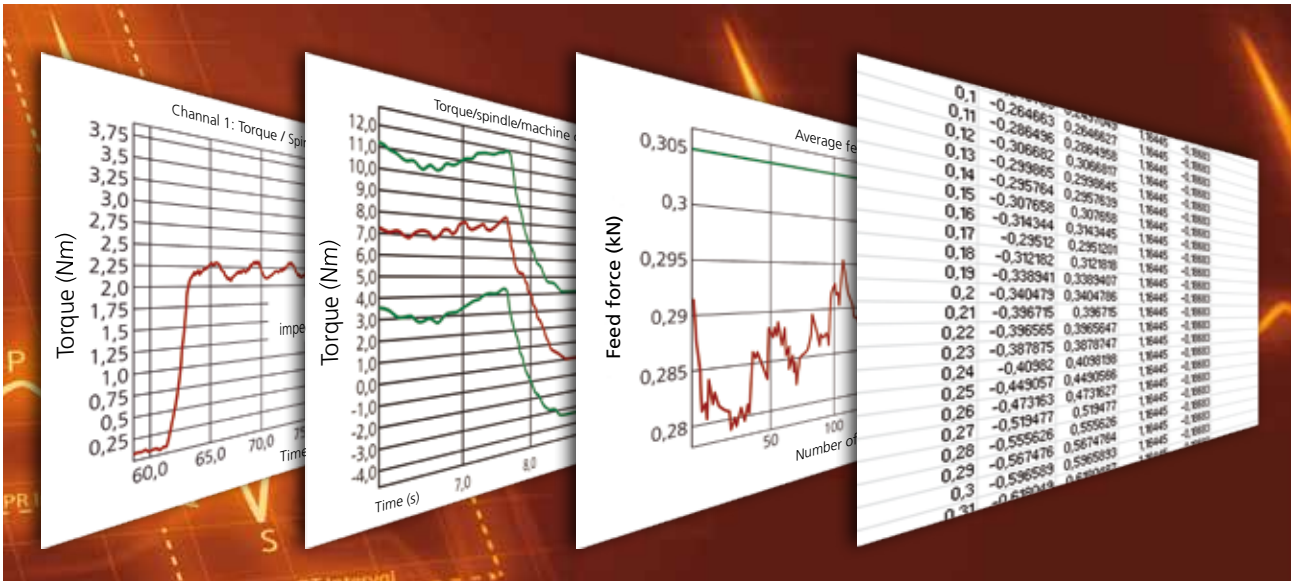
8 Razor Tool, Inc.
41 Elm Street
Stoneham, MA 02180, USA
Tel. +1 7816541582
razortool@kometservice.com

9 Cutting Tool Engineers, Inc.
208 Commerce Parkway
Pelham, AL 35124, USA
Tel. +1 2057330100
Fax +1 2057330191
CTE@kometservice.com

10 Grinding Technology, LLC
220 Barren Springs Drive
Houston, TX 77090, USA
Tel. +1 7139107719
Fax +1 7139107554
GT@kometservice.com

KOMET® BRINKHAUS ToolScope

Process monitoring – the benefit for your production



Visualisation Monitoring Optimisation Documentation

Next generation process monitoring



Growing automation in the machining industry increases the demand for more process and machine tool monitoring, which can help minimize machine down time and reduce scrap rates, detect and manage wear in mass series production, thereby improving the delivery times to your customers.

Based on the latest technology of process and machine tool monitoring, the ToolScope System from KOMET® BRINKHAUS relies on a unique, patented method for statistical process monitoring which not only detects breakage but also recognizes considerably smaller process deviations. In addition to the usual procedures of process control, the ToolScope System provides a procedure for monitoring quality while a process is running.

KOMET® BRINKHAUS ToolScope adds considerable value to your production

KOMET® BRINKHAUS ToolScope has an advantage over other systems not only because it features the latest technology, but also because of its modularity and user-friendliness. Above that, many additional modules like Adaptive Feed Control, Condition Monitoring or Energy Monitoring underline the multiplicity of the system. Finally we offer with our wide network of application tools and process specialist service up to the complete management of system and production process.

BENEFITS for you:

- Wide network of KOMET® tool and process experts, which can support the operation of the system
- Online visualization of the process (oscilloscope function) to support the set-up procedure, e.g. in order to promptly detect the jamming of chips
- Six Sigma Strategy: statistical process verification and process quality monitoring
- Dynamic Monitoring Module: Process monoitoring for small batch runs which alleviates the need for a learning period
- Adaptive Control (AC) Module: Optimization of the essential operating time through process acceleration for tools that are underused, and speed reduction for tools that are overused
- Measuring without (additional) sensors: The sensor data is read directly from the CNC via Profibus or TCP/IP
- Automatic documentation of the process data as a PDF, PNG or Excel file
- Monitoring for tool wear and missing tool
- Monitoring of any and all possible sensor signals
- Evaluating analogue sensor signals with up to 10 kHz
- Monitoring of the vibration behavior of bearings, axles, spindles and tools
- Operation via the machine control system HMI or using a touch screen
- Modular program structure enables the optimal adjustment to customer needs
- Many additional modules like chatter recognition and control, Condition Monitoring, Energy Monitoring etc.

Dimensions (W×D×H)	Data – mm (inch)	Note
IPC version	215×272×114 (8.465×10.708×4.488)	
DIN Rail Module	200×140×110 (7.874×5.512×4.331)	
Touch Panel PC version	410×320×90 (16.142×12.598×3.543)	15" Display

Interfaces	Sampling frequency	Note
Profibus with synchronous actions / PLC-Transfere	Sampling frequency approx. 20 - 30 Hz	
Profibus with compile cycle	Sampling frequency approx. 100 - 500 Hz	see below
TCP/IP	yes	HMI-visualization over TCP/IP
Analog input channels	up to 10 kHz	16 inputs, during monitoring perhaps lower sample rate
Digital input/output channels		16 input/output channels each

Supported control systems
Siemens 840D SL, 840D PL, Heidenhain >iTNC530, Fanuc >3xi, Bosch Rexroth, Beckhoff. From year of manufacture 2005 applies for all control systems, other types and years of manufacture possible on request.

Profibus connection (Siemens)	
Requirements for compile cycle Sample rate approx. 100 Hz	**Drive hardware:** SIMODRIVE® 611D based drive system, digital drive, delivers digital current/torque information **Control hardware:** SINUMERIK® 840D, • NCU: 572.3 or 573.2 or higher (572.2 only SW4.4), • storage: min. 32 MB, • PROFIBUS interface **Control software:** SINUMERIK® 840D technology board, version 05.03.06 (NCU_05.03.18) or 04.04.11 (NCU_04.04.37) or higher
Requirements for compile cycle Sample rate approx. 100 - 500 Hz	**In addition to the above mentioned requirements, the following must apply:** **Control software:** SINUMERIK® 840D, NC-Software ≥ 06.03

Visualization on HMI (only Siemens)	
Requirements	Windows® 95 and later, network card

Start monitoring with the KOMET® BRINKHAUS ToolScope system
Monitoring can automatically be started by changing from G0 to G1. Furthermore the processes can automatically be stored in reference to the tool number, workpiece number, program name, etc.

Functionality	
Visualization	Each process can easily and continously be visualized (oscilloscope function).
Data logging	Each process is automatically stored on the hard disk (logbook).
Filtering	The system offers a variety of filters such as average value, effective value, RMS, variance, etc. as standard for the filtering of the input signals.
Monitoring tool breakage	The basic system contains a self learning algorithm to recognize tool breakage. The tolerance bands are simply and automatically identified.
Monitoring tool wear	The system offers tracing and monitoring of tool wear. By setting warning thresholds, the operator can be forewarned of worn tools.
Six Sigma Strategy (optional) Online statistical process control	With this monitoring algorithm, minimal process deviations such as wear, larger cavities, changes in material can be recognized during consistant serial production processes. This is equivalent to conducting real-time quality control while a process is running.
Adaptive Control (AC) Module (optional)	With adaptive control, the feed is optimized so that the effective power of the tool remains as constant as possible. Therefore, the essential operation time can signi-ficantly be reduced, e.g. during roughing. Moreover, the feed can be reduced if an effective power limit is exceeded, thus protecting the tool.
Dynamic Monitoring Module (optional)	With this monitoring strategy, the process and the tool can be monitored from as early as lot size 1. Here the system is also fully self-learing.

KOMET® BRINKHAUS ToolScope Basic system including installation / commissioning: Order No. E65 01010		
Enhanced with:	Dynamic Monitoring Module Order No. E65 21020	Adaptive Control (AC) Module Order No. E65 21030

Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.
SIMODRIVE® and SINUMERIK® are registered trademarks of Siemens AG.

Performation calculation

Example: Material 42CrMo4, bore 40 mm diameter
a_p = cutting width in mm = 5 mm
f = feed in mm/rev = 0,15 mm/rev
k_c = special cutting force in N/mm² = 2450 N/mm²

D = diameter in mm = 40 mm
v_c = cutting speed in m/min = 180 m/min
n = spindle speed in min^{-1} = 1433 min^{-1}
η = machine output 0,7-0,85 (0,8) = 0,8

Solid drilling

The machine power in kW

$$P_a = \frac{v_c \times f \times D \times k_c}{1000 \times 60 \times 4 \times \eta}$$

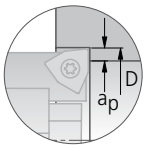
The feed F_f required is approx.:

$$F_f \approx 0{,}7 \times \frac{D}{2} \times f \times k_c$$

$$P_a = \frac{180 \times 0{,}15 \times 40 \times 2450}{1000 \times 60 \times 4 \times 0{,}8} = 13{,}8 \text{ kW}$$

$$F_f \approx 0{,}7 \times \frac{40}{2} \times 0{,}15 \times 2450 = 5145 \text{ N}$$

Roughing / Fine boring



The machine power in kW

$$P_a = \frac{a_p \times f \times k_c \times n\,(D - a_p)}{2000 \times 9550 \times \eta}$$

The feed F_f required is approx.:

$$F_f \approx 0{,}7 \times a_p \times f \times k_c$$

$$P_a = \frac{5 \times 0{,}15 \times 2450 \times 1433\,(40 - 5)}{2000 \times 9550 \times 0{,}8} = 6 \text{ kW}$$

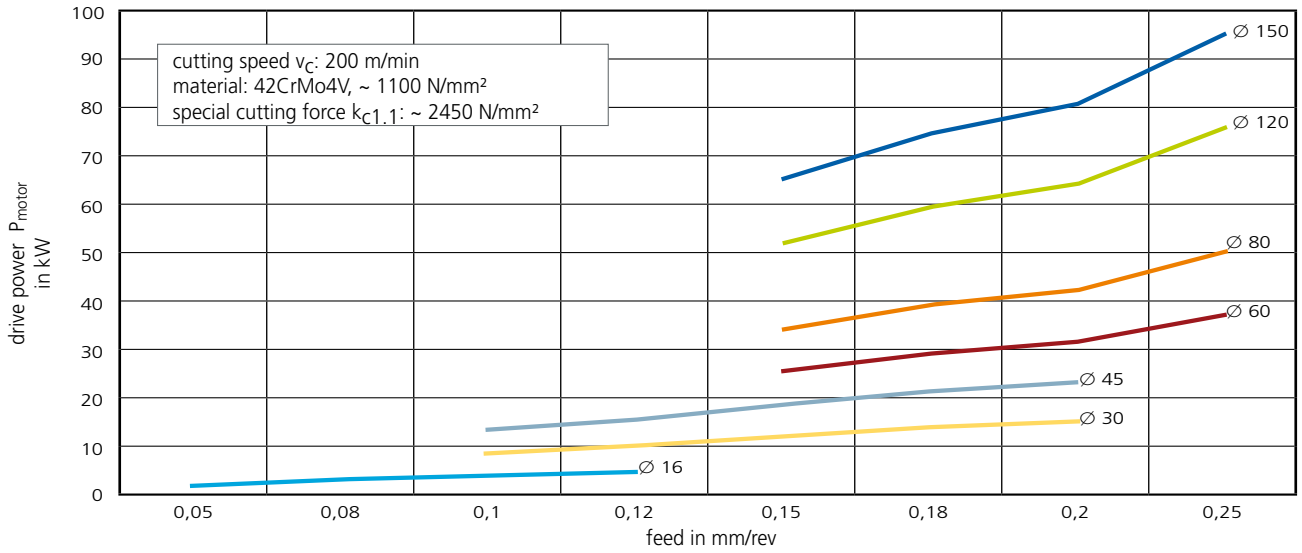
$$F_f \approx 0{,}7 \times 5 \times 0{,}15 \times 2450 = 1286{,}25 \text{ N}$$

The k_c values depend on the feed rate. The table therefore shows the upper limits for these. This means the performance figure calculated may be slightly higher (~ 10 – 20%) than the actual performance required. This is necessary because of the variation in the effective level and provides a safeguard against bad results.

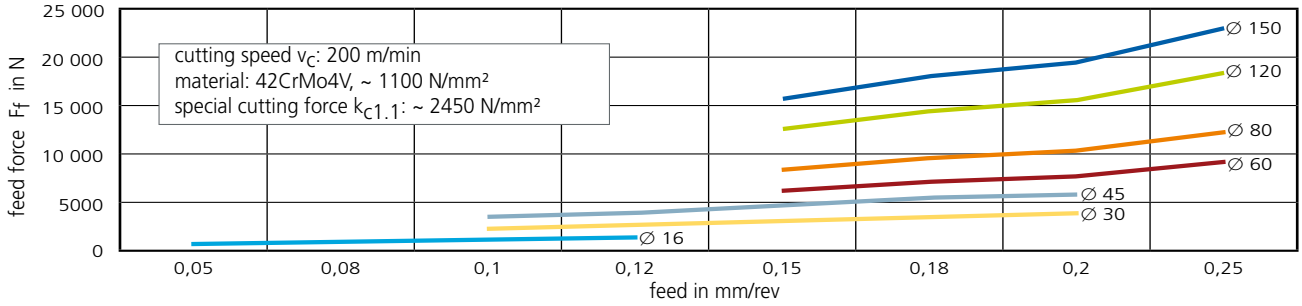
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	Special cutting force k_c (N/mm²)
P	1.0	≤500		non-alloy steels	1.0037 (S235JR) |1.0715 (11SMn30) |1.0044 (S2575JR)	1740
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) | 1.0535 (C55) | 1.7131 (16MnCr5)	2060
P	2.1	<500		lead alloys	1.0718 (11SMnPb30)	1250
P	3.0	>900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) | 1.1221 (C60E)	2450
P	4.0	>900		high alloy steels	1.2341 (6CrMo15-5) | 1.2601 (X165CrMoV12)	1820
P	4.1			HSS		1860
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) | 2.4631 (Nimonic 80A)	2090
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	1370
M	6.0	≤600		stainless steels	1.4306 (X2CrNi19-11) | 1.4401 (X5CrNiMo17-12-2)	2400
M	6.1	<900		stainless steels	1.4511 (X3CrNb17) | 1.4571 (X10CrNiMoTi17-12-2)	2530
M	7.0	>900		stainless / fireproof steels	1.4713 (X10CrAlSi7) | 1.4862 (X8NiCrSi38-18)	2580
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) | 0.6035 (EN-GJL-350)	1140
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	1280
K	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	1080
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) | 0.7055 (GGG-55) | 0.8055 (GTW-55)	1135
K	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) | 0.8165 (GTS-65)	1050
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	1180
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 | EN-GJV Ti > 0,2	1050
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) | 2.1182.01 (G-CuPb15Sn)	780
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) | 2.0060 (E-Cu57)	780
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) | 3.0517 (AlMnCu)	650
N	13.1		75	cast alum. alloy: Si-content <10%, magnesium alloy	3.3561 (G-AlMg5) | 3.2373.61 (G-AlSi9Mg wa)	780
N	14.0		100	cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	830
H	15.0	1400		hardened steels < 45 HRC		2880
H	16.0	1800		hardened steels > 45 HRC		3300

Important: See page 780 – 781 for application details and safety notes!

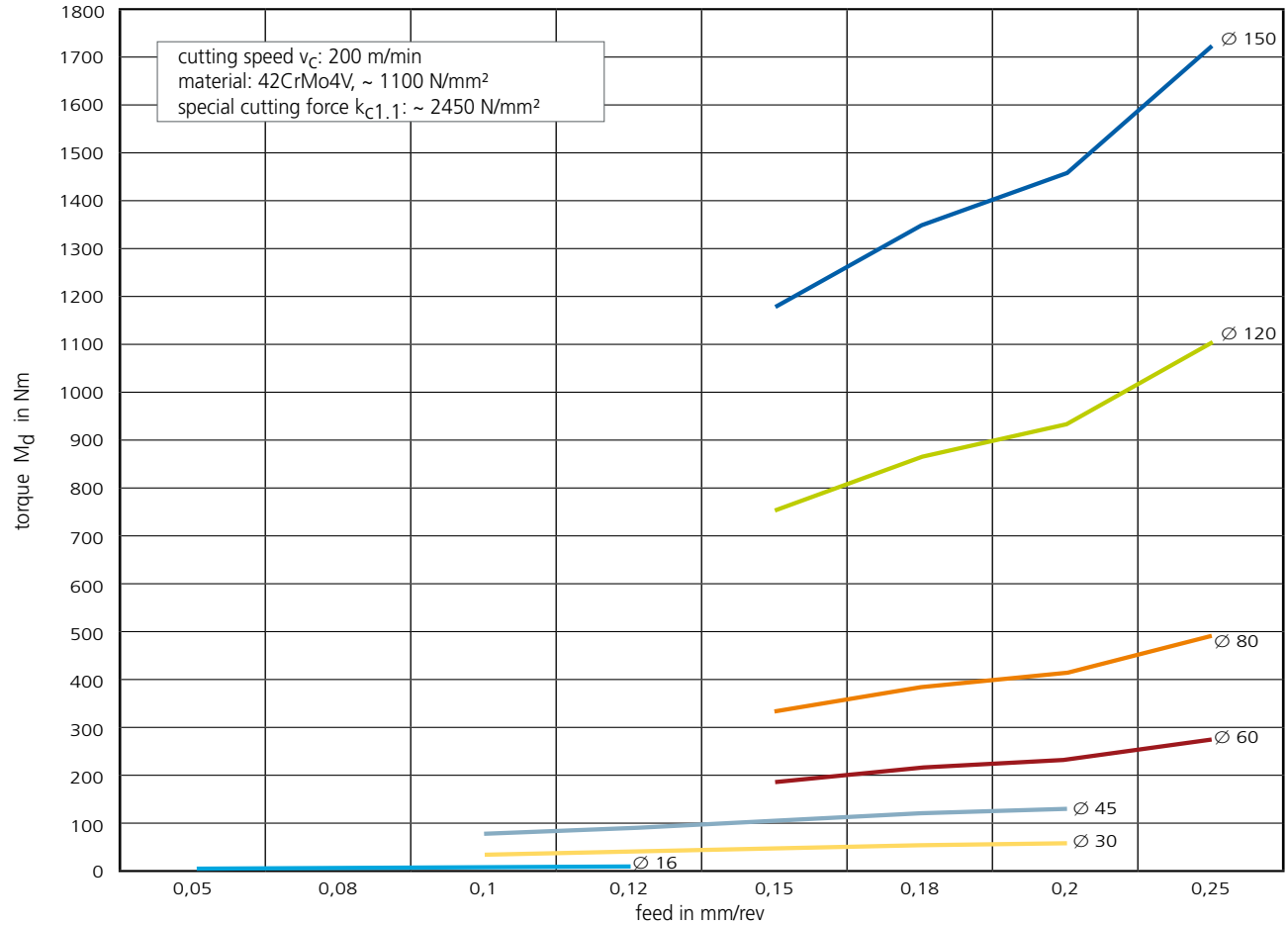
Drive power kW



Feed force F_f

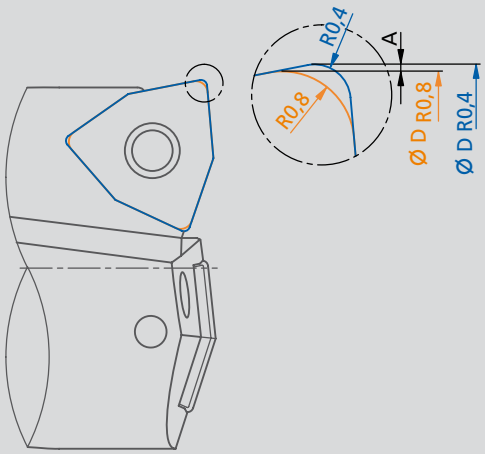


Torque M_d



Dimensional variation

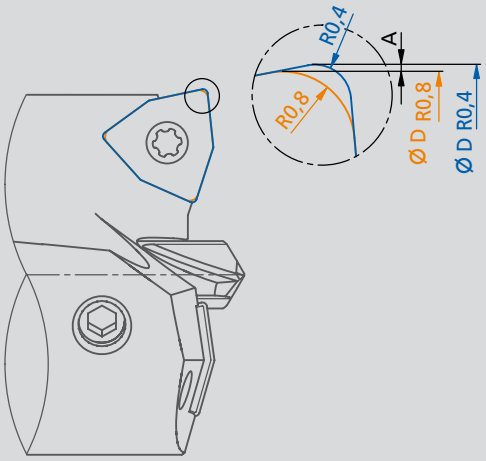
KUB Trigon ®, KUB ® drill



Ø D	A
25,0 – 27,9	0,08
28,0 – 28,9	0,09
29,0 – 29,9	0,10
30,0 – 31,9	0,08
32,0 – 33,9	0,09
34,0 – 36,9	0,10
37,0 – 38,9	0,08
39,0 – 41,9	0,09
42,0 – 44,9	0,10

$$D_{R0,8} = D_{R0,4} - 2 \times A$$

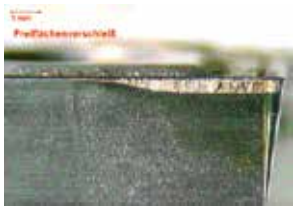
KUB Centron ®



Ø D	A
33,0 – 37,9	0,08
38,0 – 54,9	0,09
55,0 – 64,9	0,10

$$D_{R0,8} = D_{R0,4} - 2 \times A$$

1.



Wear on clearance face
normal type of wear expected

remedy:
- use hardened/wear-resistant cutting materials
- reduce cutting parameters

2.



Pitting
caused by:
- coating/substrate not sufficiently wear-resistant
- chip geometry too negative

rectified by:
- substrate or coatings with better wear resistance
- positive chip geometries

3.



Microscopic fracturing
caused by:
- coating/substrate too brittle
- vibrations on part or tool
- interrupted cut
- build-up on cutting edges

correcting by:
- tougher coating
- avoidance of vibrations
- avoidance of build-up on cutting edges

4.



Stress fracture
caused by:
- wrong/excessively high cutting parameters
- no allowance for tool restrictions
- interrupted cut

rectified by:
- checking of cutting data
- checking of tool restrictions

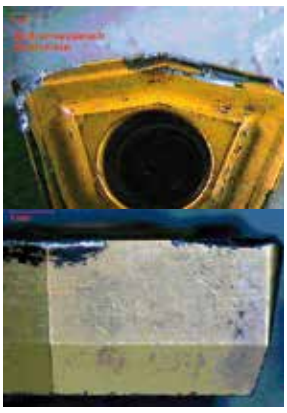
5.



Thermal wear
caused by:
- cutting speed too high
- excessive heat

rectified by:
- reduction of cutting speed
- wear-resistant, more thermally stable coatings or substrate

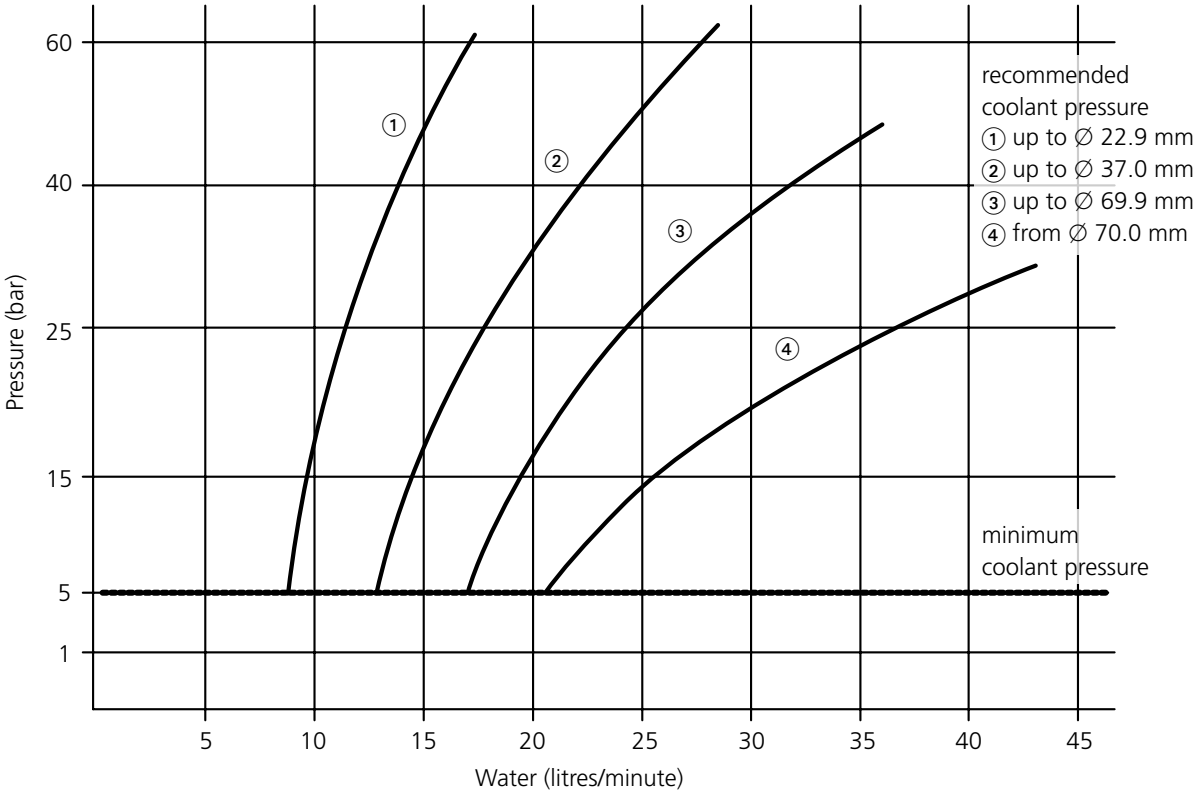
6.



Fracture of centre insert
caused by:
- basic substrate/coatings too brittle
- central position of internal insert too high (insert protrudes over centre)

rectified by:
- tougher coatings and substrate
- check lower central position of internal insert
- use centre plate with stronger chamfering
- use internal and external insert with same geometry

Coolant flow / coolant pressure:





- **Important note!** On exit of the drill a disc as shown is ejected. With rotating components this can cause accidents. Please arrange suitable guarding.

- The technical notes provided in the application details depend on the environmental and application conditions (such as machine, environmental temperature, lubrication/coolant used and desired machining results): these are based on proper application conditions, use and compliance with the spindle speed limits given for the tools.

- To prevent damage to machine and tool, we recommend that the drive power be calculated in advance (see performance calculation). The drive power which is actually available will be found in the machine manufacturer's spindle speed/performance diagram.

- Safety equipment should be provided to protect personnel from flying chips.
  Please see our safety note (enclosed with packing).

- To ensure the best possible tool life, the insert should be changed promptly.
  Acceptable width of flank wear marks on inserts: W29 10... to W29 18... VB max = 0.20 mm
  W29 24... to W29 34... VB max = 0.25 mm
  W29 42... to W29 58... VB max = 0.30 mm

The application details given depend on the environmental and application conditions (e.g. machine, ambient temperature, lubricant/coolant used and machining result required): they are based on the correct application conditions, correct use and compliance with the spindle speed limits given for the tools.

All measurement specifications stated in the catalogue apply to the metric unit system, unless they are expressly identified using another unit of measurement.

Hazard warning:

If using tungsten carbide-based hard metal products together with cobalt as a binder metal, please read our safety data sheets, which are available for you to download from our website.
(http://www.kometgroup.com/navigation-top/download/service/datenblaetter.html)

Balancing note:

Tool holders or adaptors are only balanced as supplied, i.e. no allowance has been made for items which can alter this, such as boring tools, milling cutters, inserts, etc. When used at high speeds, we recommend precision balancing be carried out when the tool is fitted ready for use.

KOMET ABS®

Even more perfectly joined

One benefit of the new version of the KOMET ABS® connection is substantially higher clamping forces. It is fully compatible with the existing system, and also matches the original's high precision demands. In tooling systems, the tool adapter is an important element between the tool and machine.

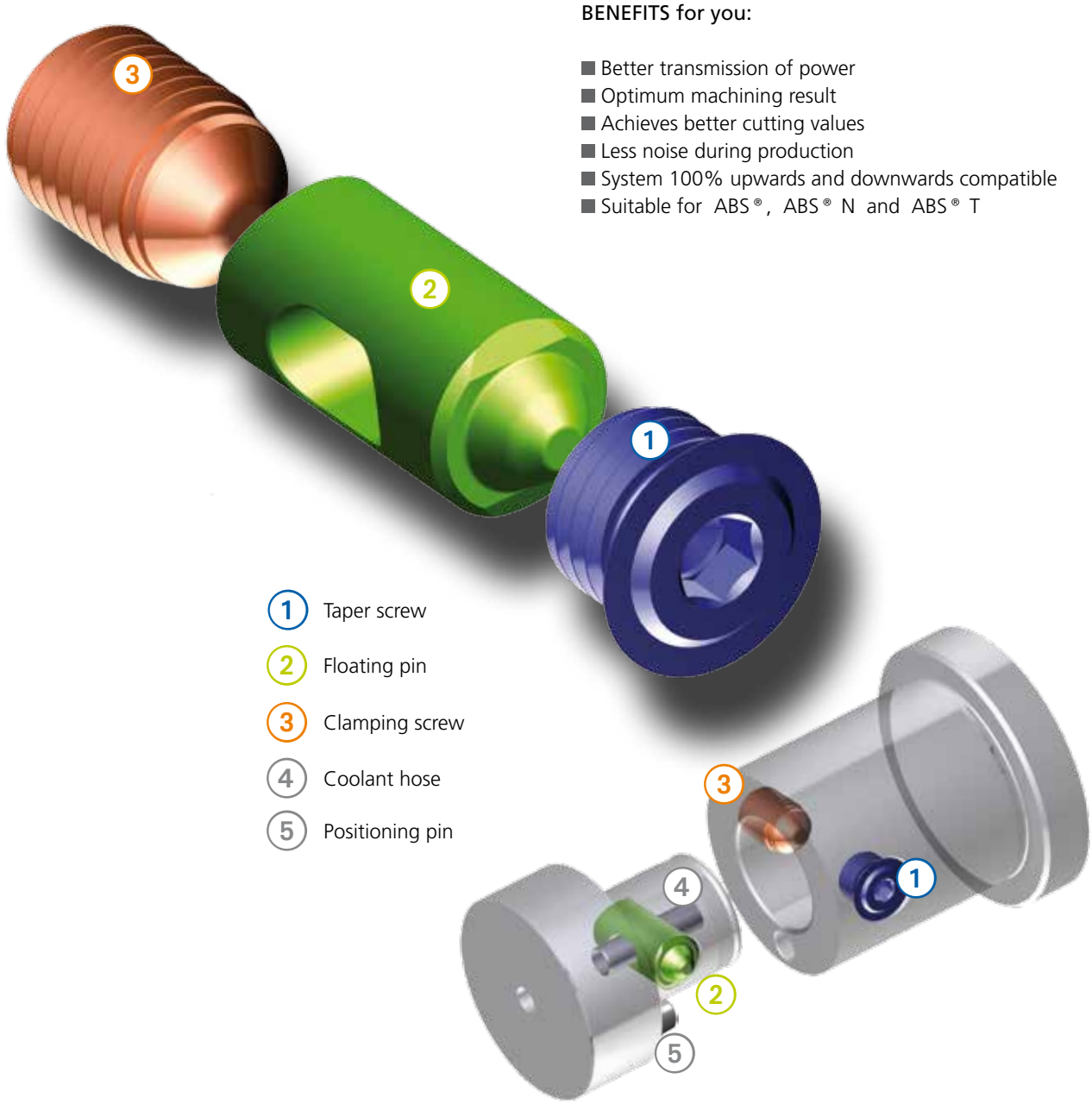
It must be able to transfer the machining forces safely. Moreover, tool adapters greatly influence the quality of the machining result. They also contribute to a cost efficient machining process. KOMET ABS® connections form a modular coupling system for rotating and stationary tools. The interface system is designed according to the modular principle. In this way, users can quickly and cheaply make use of modular metal cutting tools, extensions or adaptors.

Since its launch by KOMET® in 1981, the system has become established globally. It has fully developed components for each requirement.

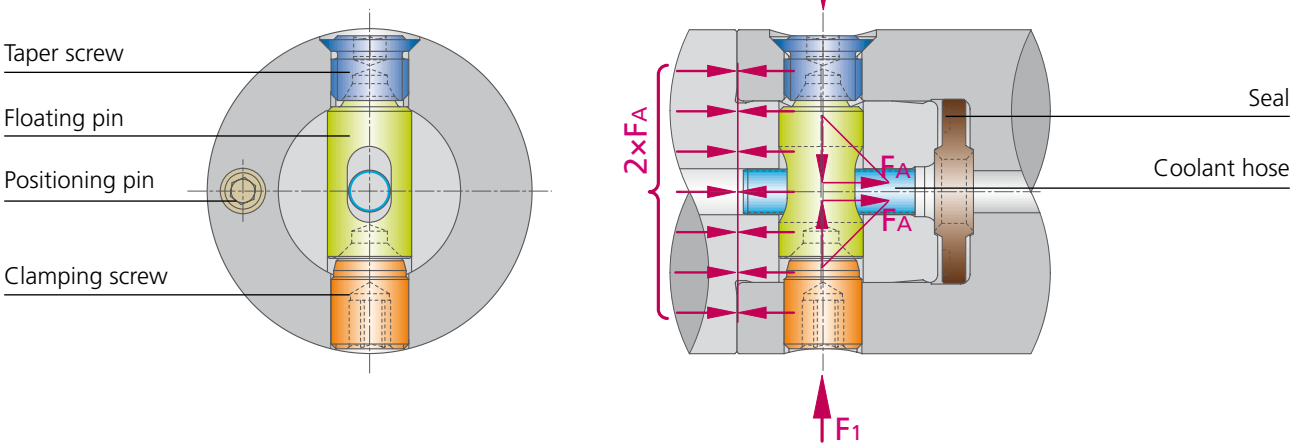
The new KOMET ABS® is a technological leap forwards. The patented modifications have led to an increase of approx. 20 % in the clamping force. This means better transmission of power along with the corresponding effects on the machining result. During use, the new KOMET ABS® connections are quieter, and can achieve better cutting values. On the other hand, it also means reduced tightening torque at a constant required clamping force. The service life of the assembly parts are therefore longer. With 100% system compatibility, existing and new components can be combined with each other.

BENEFITS for you:

- Better transmission of power
- Optimum machining result
- Achieves better cutting values
- Less noise during production
- System 100% upwards and downwards compatible
- Suitable for ABS®, ABS® N and ABS® T



Patent applied for inside and outside Germany



The ABS® connection consists of a location (spindle) and a shank with spigot (tool). In addition to the cylindrical bore on the location, there are two cross threads with the clamping screw and the taper screw. On the shank section, in addition to the cylindrical pin with cross bore, there is a sliding pin and positioning pin.

By axially offsetting the clamping screw/taper screw and sliding pin, the tapered surfaces are brought into contact when the screws are tightened and produce double the expansion force through axial components 2×FA. If cutting forces or moments arise, there is sufficient play between the positioning pin and the positioning bore to allow for a specific, minimum torsion. Exact positioning is achieved with a suitable positioning pin. On tools where an accurately defined cutting position is required, positioning and torque transmission is by means of 2 key slots on the holder or 2 key blocks on the tool.

The exactly adjusted dimensions of the ABS® System in conjunction with an extremely low amount of adjustment play produces minimum distortion from self-centering contact at four points. This in turn produces increased strength, a higher tool change repeatability and low vibration.

The ABS® coupling system is protected by patent application domestically and abroad.

Tools with the Original ABS® connection system are manufactured and/or marketed exclusively by KOMET® and companies specifically authorised by KOMET®. All authorised (licenced) manufacturers are contractually bound to use manufacturing specifications supplied by KOMET®.
Original ABS® systems are identified with "ABS ... under licence to KOMET". All authorised ABS manufacturers guarantee a quality standard which complies with KOMET® manufacturing specifications. Quality and safety is guaranteed subject to original ABS® tools being correctly used. No guarantee can be given where tools are used with modular connections which are not identified as original ABS® tools. This particularly applies for connections which are designed to be combined and used with original ABS® tools.

Please ensure that tools are used with original ABS® connections only.

Features / changes:

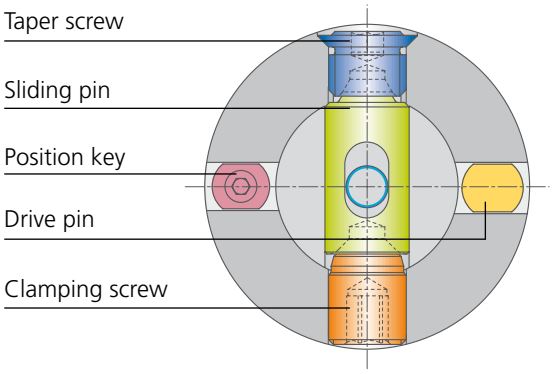
- The new ABS® is generally compatible with all conventional ABS® systems. You can see the variation possibilities illustrated above.

- Instead of a 90° tip, the floating pin now has a stepped shape at the flank towards the taper screw at which two contact parts are planned. Through the new shape, the basic body of the floating pin is longer and thus, a better guidance in the bore of the spigot is achieved.

- The taper screw was also improved by a new design with the features described above. This results in an increase of the clamping force and a higher accuracy of the ABS® system.
  Through the modifications mentioned, a better overall rigidity of the ABS® system is achieved in addition. More efficient cutting tools can be used with the new ABS® without any problems.

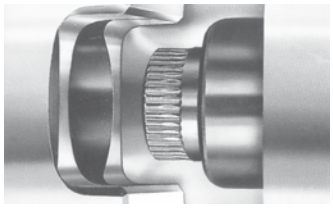
KOMET ABS®

ABS® N – The slotted ABS® version



Features:
For cutting operations which set high demands, the ABS® system has been modified so that moment and cutting forces can be absorbed by high-precision slots. This of course ensures that the results from ABS® and ABS® N are consistently high.

Compatibility:
- Standard ABS® tools can be used in ABS® N adaptors
- Because ABS® tools can be easily converted, the tool can be held in standard adaptors.

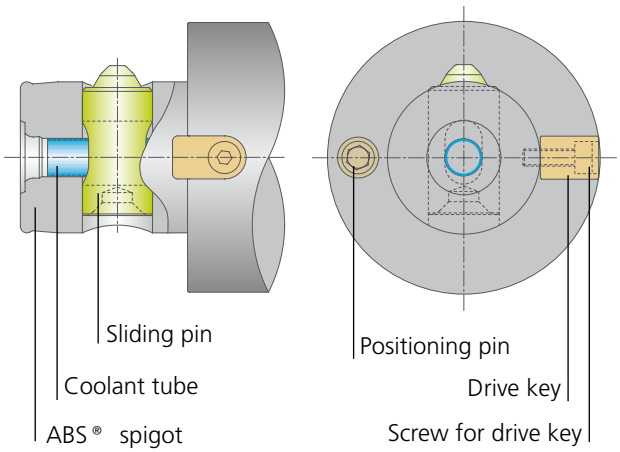


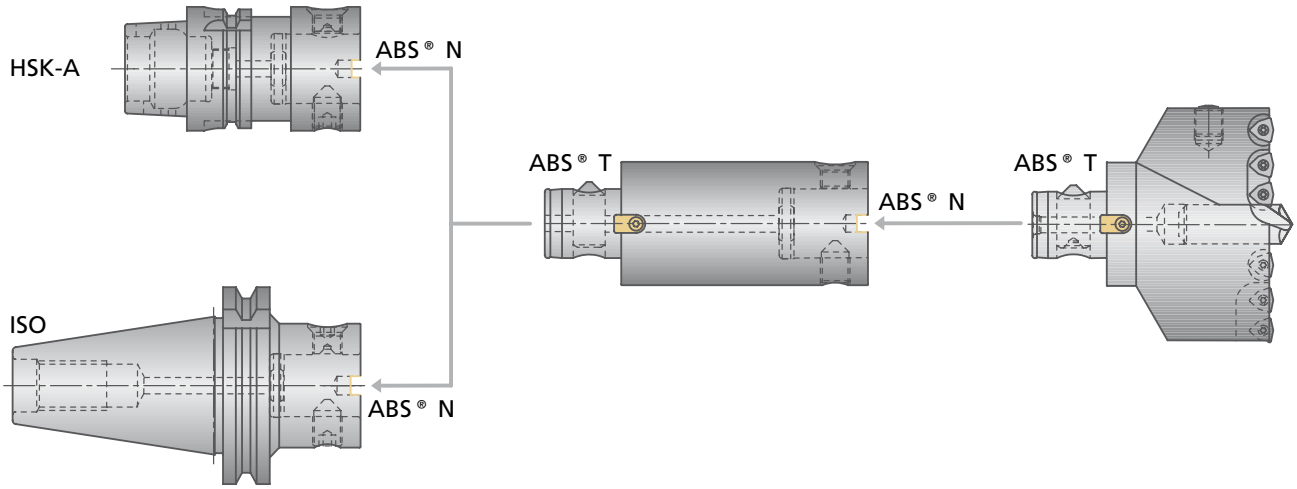
High stability from ABS® face connection with slots

ABS® T – for increased torque requirements

Features:
For cutting operations which set high demands, the ABS® system has been modified so that moment and cutting forces can be absorbed by high-precision slots. This of course ensures that the results from ABS® N and ABS® T are consistently high.

Compatibility:
- standard ABS® T tools can be used in ABS® N adaptors
- removal the drive key, ABS® T tool can be held in standard adaptors ABS®.



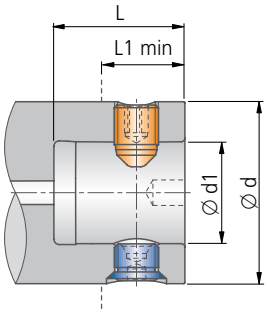


Patent applied for inside and outside Germany

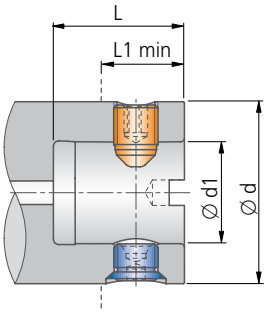
A colour code system is used for the ABS®, ABS® N and ABS® T ∅ d size so that selection of tools with a specific location size can be made quickly and accurately.

Location hole

ABS®



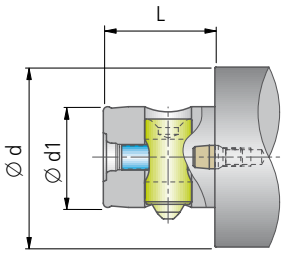
ABS® N



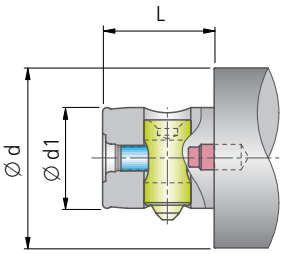
ABS® / ABS® N					
size	size	Ø d	Ø d1	L	L1 min.
ABS 25	ABS 25 N	25	13	24	13,0
ABS 32	ABS 32 N	32	16	27	16,0
ABS 40	ABS 40 N	40	20	31	18,5
ABS 50	ABS 50 N	50	28	36	22,0
ABS 63	ABS 63 N	63	34	43	28,0
ABS 80	ABS 80 N	80	46	48	34,0
ABS 100	ABS 100 N	100	56	60	40,5
ABS 125	ABS 125 N	125	70	76	51,0
ABS 160	ABS 160 N	160	90	96	65,0

Location spigot

ABS®



ABS® N / ABS® T

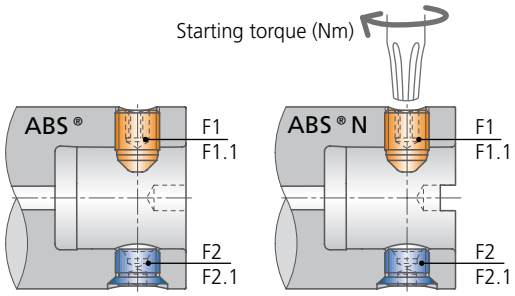


ABS® / ABS® N / ABS® T					
size	size	size	Ø d	Ø d1	L
ABS 25	ABS 25 N		25	13	20
ABS 32	ABS 32 N		32	16	23
ABS 40	ABS 40 N		40	20	26
ABS 50	ABS 50 N	ABS 50 T	50	28	31
ABS 63	ABS 63 N	ABS 63 T	63	34	38
ABS 80	ABS 80 N	ABS 80 T	80	46	43
ABS 100	ABS 100 N		100	56	55
ABS 125	ABS 125 N		125	70	70
ABS 160	ABS 160 N		160	90	90

KOMET ABS®

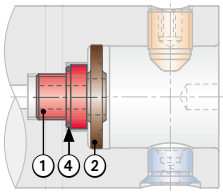
Individual spares (spares assortment) are supplied for replacement purposes only.
Any other use is not permitted and represents an infringement of the patent.

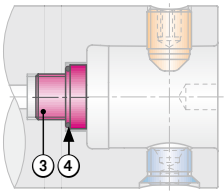
Assembly parts ABS® / ABS® N

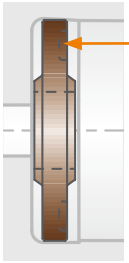


ABS® / ABS® N									
	25	32	40	50	63	80	100	125	160
Spares assortment ①	N00 15251 ABS25-FS-W	N00 15261 ABS32-FS-W	N00 15271 ABS40-FS-W	N00 15281 ABS50-FS-W	N00 15291 ABS63-FS-W	N00 15301 ABS80-FS-W	N00 15311 ABS100-FS-W	N00 15321 ABS125-FS-W	N00 15330 ABS160-FS-W
Clamping screw F1, F1.1	N00 02052 ABS25-F1.1	N00 02062 ABS32-F1.1	N00 02072 ABS40-F1.1	N00 02082 ABS50-F1.1	N00 02092 ABS63-F1.1	N00 02102 ABS80-F1.1	N00 02112 ABS100-F1.1	N00 02122 ABS125-F1.1	N00 02131 ABS160-F1
light cutting reaming, fine boring, finish milling	2,5 - 3 Nm	9 -11 Nm	12 - 20 Nm	15 - 28 Nm	30 - 45 Nm	38 - 54 Nm	46 - 70 Nm	55 - 78 Nm	
heavy cutting boring, roughing, milling	3,5-4,5 Nm	12 - 14 Nm	21 - 28 Nm	30 - 40 Nm	46 - 60 Nm	55 - 70 Nm	75 - 100 Nm	90 - 120 Nm	
Taper screw F2, F2.1	N00 03052 ABS25-F2.1	N00 03062 ABS32-F2.1	N00 03072 ABS40-F2.1	N00 03082 ABS50-F2.1	N00 03092 ABS63-F2.1	N00 03102 ABS80-F2.1	N00 03112 ABS100-F2.1	N00 03122 ABS125-F2.1	N00 03131 ABS160-F2

Accessories ABS® / ABS® N



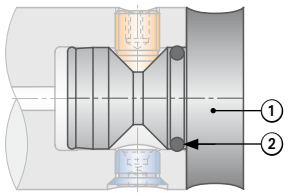




Please note!
Up to ABS® 50, the sealing disc is provided with a ring groove. After fitting in the ABS® drilled hole, the ring groove must be visible.

ABS® / ABS® N								
	25	32	40	50	63	80	100	125
Sealing screw ①	L02 30510 M8×1	L02 30510 M8×1	L02 30520 M10×1	L02 30520 M10×1	L02 30530 M12×1,5	L02 30540 M12×1,5	L02 30550 M16×1,5	N00 07100 M36×1,5
Sealing disc ②	L01 02011 ABS25-E9	L01 02021 ABS32-E9	L01 02031 ABS40-E9	L01 02041 ABS50-E9	L01 02051 ABS63-E9	L01 02061 ABS80-E9	L01 02071 ABS100-E9	
Plug screw ③	55041 00810 M8×1	55041 00810 M8×1	55041 01010 M10×1	55041 01010 M10×1	55041 01215 M12×1,5	55041 01215 M12×1,5	55041 01615 M16×1,5	55041 03615 M36×1,5
Sealing ring ④	56941 00811	56941 00811	56941 01013	56941 01013	56941 01215	56941 01215	56941 01620	

Safety cover (for covering ABS® / ABS® N spindle adaptor when not in use)



ABS® / ABS® N							
	25	32	40	50	63	80	100
Safety cover ①	L01 03020 0,016	L01 03030 0,027	L01 03040 0,049	L01 03050 0,095	L01 03060 0,173	L01 03070 0,293	L01 03080 0,488
Sealing ring ②	52911 01010	52911 01315	52911 01615	52911 02515	52911 03015	52911 04220	52911 05030

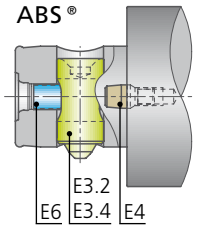
Supply includes: Safety cover with sealing ring

Patent applied for inside and outside Germany

Individual spares (spares assortment) are supplied for replacement purposes only.
Any other use is not permitted and represents an infringement of the patent.

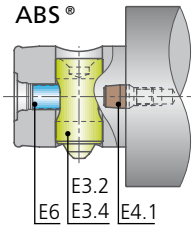
Assembly parts ABS® / ABS® N / ABS® T and ABS® H

ABS®



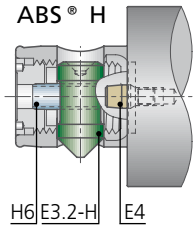
Spares assortment ②

ABS®



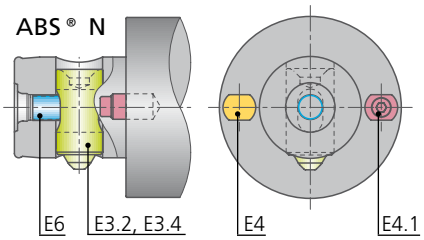
Spares assortment ③
for milling cutter adaptor

ABS® H



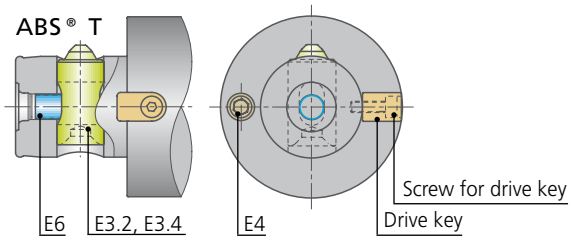
Spares assortment ④

ABS® N



Spares assortment ⑤

ABS® T



Spares assortment ⑥

ABS® / ABS® N / ABS® T / ABS® H									
	25	32	40	50	63	80	100	125	160
Spares assortment ②	N00 17651 ABS25-ES-M3	N00 17661 ABS32-ES-M3	N00 17671 ABS40-ES-M3	N00 17681 ABS50-ES-M3	N00 17691 ABS63-ES-M3	N00 17701 ABS80-ES-M3	N00 17711 ABS100-ES-M3	N00 17721 ABS125-ES-M3	N00 17730 ABS160-ES-M3
Spares assortment ③	N00 17851 ABS25-ES-M4	N00 17862 ABS32-ES-M4	N00 17872 ABS40-ES-M4	N00 17882 ABS50-ES-M4	N00 17892 ABS63-ES-M4	N00 17902 ABS80-ES-M4	N00 17912 ABS100-ES-M4		
Spares assortment ④		N00 20060 ABS32-H-ES	N00 20070 ABS40-H-ES	N00 20080 ABS50-H-ES	N00 20090 ABS63-H-ES	N00 20100 ABS80-H-ES			
Spares assortment ⑤	N00 19252 SBA25-ES-M1	N00 19263 SBA32-ES-M1	N00 19273 SBA40-ES-M1	N00 19283 SBA50-ES-M1	N00 19293 SBA63-ES-M1	N00 19303 SBA80-ES-M1	N00 19313 SBA100-ES-M1		
Spares assortment ⑥				N00 18181 ABS50-T-ES	N00 18191 ABS63-T-ES	N00 18201 ABS80-T-ES			
Sliding pin E3.2, E3.4	N00 00451 ABS25-E3.4	N00 00461 ABS32-E3.4	N00 00471 ABS40-E3.4	N00 00481 ABS50-E3.4	N00 00491 ABS63-E3.4	N00 00501 ABS80-E3.4	N00 00511 ABS100-E3.4	N00 00521 ABS125-E3.4	N00 00530 ABS160-E3.2
Sliding pin E3.2-H		N00 01661 ABS32-E3.2-H	N00 01670 ABS40-E3.2-H	N00 01680 ABS50-E3.2-H	N00 01690 ABS63-E3.2-H	N00 01700 ABS80-E3.2-H			
Positioning pin E4	N00 04050 ABS25-E4	N00 04060 ABS32-E4	N00 04070 ABS40-E4	N00 04080 ABS50-E4	N00 04090 ABS63-E4	N00 04100 ABS80-E4	N00 04110 ABS100-E4	N00 04120 ABS125-E4	N00 04130 ABS160-E4
Positioning pin E4.1	N00 04250 ABS25-E4.1	N00 04261 ABS32-E4.1	N00 04271 ABS40-E4.1	N00 04281 ABS50-E4.1	N00 04291 ABS63-E4.1	N00 04301 ABS80-E4.1	N00 04311 ABS100-E4.1		
Drive key				N12 20280 T50	N12 20290 T63	N12 20300 T80			
Screw for drive key				55011 03010	55011 04012	55011 05016			
Drive pin E4	N00 05051 SBA25-E4	N00 05062 SBA32-E4	N00 05072 SBA40-E4	N00 05082 SBA50-E4	N00 05092 SBA63-E4	N00 05102 SBA80-E4	N00 05112 SBA100-E4		
Position key E4.1	N00 05251 SBA25-E4.1	N00 05262 SBA32-E4.1	N00 05272 SBA40-E4.1	N00 05282 SBA50-E4.1	N00 05292 SBA63-E4.1	N00 05302 SBA80-E4.1	N00 05312 SBA100-E4.1		
Coolant tube E6	N00 06050 ABS25-E6	N00 06060 ABS32-E6	N00 06070 ABS40-E6	N00 06080 ABS50-E6	N00 06090 ABS63-E6	N00 06100 ABS80-E6	N00 06110 ABS100-E6	N00 06120 ABS125-E6	N00 06130 ABS160-E6
Coolant tube H6	N00 06250 ABS25-H6	N00 06260 ABS32-H6	N00 06270 ABS40-H6	N00 06280 ABS50-H6	N00 06290 ABS63-H6	N00 06300 ABS80-H6			
Extraction tool*		L05 01590	L05 01590	L05 01590	L05 01590	L05 01590	L05 01590	L05 01590	L05 01590
Press punch*	N75 80000	N75 80010	N75 80020	N75 80030	N75 80040	N75 80050	N75 80060	N75 80070	N75 80080
Expansion punch*	N75 80100	N75 80110	N75 80120	N75 80130	N75 80140	N75 80150	N75 80160	N75 80170	N75 80170

*** Fitting and removing coolant hose:** Once coolant hoses have been removed, these must not be re-used.
To ensure seal, always fit a new coolant hose using the press and expansion punch.

KOMET® HSK

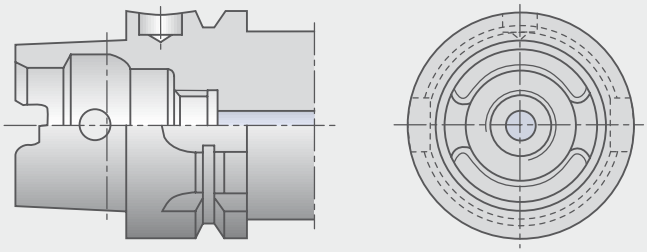
Features and advantages

- The modern connection between machine spindle and tool is the hollow taper shank system (HSK)
- HSK is standardised under ISO 12164
- The main feature of HSK is the taper and face connection
- This gives important advantages: Maximum tool change accuracy, high static rigidity, high radial rigidity, small dimensions, low weights, use at high spindle speeds, shorter tool change times because of lower weights and higher machine acceleration.
- The HSK-A version is used for automatic tool change on machining centres, turning/milling centres, milling machines and other machine tools.
- HSK-A can also be used on machines with manual tool change.
- Other HSK versions can of course be supplied by KOMET® on request
- Chip bore 10×4.5 included in the standard.



Hollow taper shanks
for automatic tool change DIN 69893 Part 1 and 2 – with gripper groove

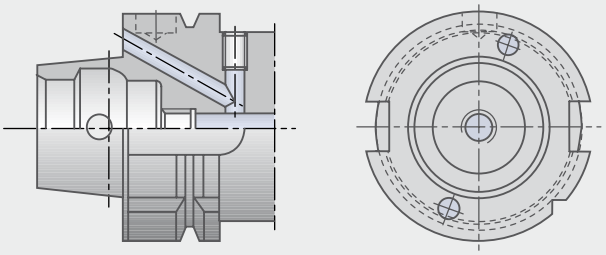
Form A



- used on machining centres, milling machines, turning machines, special machines with automatic tool change
- central, axial coolant supply through coolant tube
- torque transmission via two key slots at end of taper
- two slots on collar for tool magazine, location edge. Hole for data carrier DIN 69873 in collar

Hollow taper shanks
for automatic tool change DIN 69893 Part 1 and 2 – with gripper groove

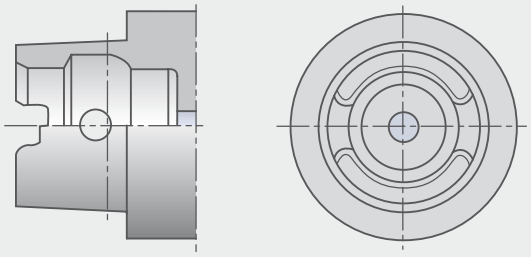
Form B



- use on machining centres, milling machines for heavy-duty cutting, turning machines
- enlarged collar
- off-centre coolant supply through collar or central supply through coolant tube
- torque transmission via two slots on collar
- location edge
- hole for data carrier DIN 69873 in collar

Hollow taper shanks
for manual tool change DIN 69893 Part 1 and 2 – without gripper groove

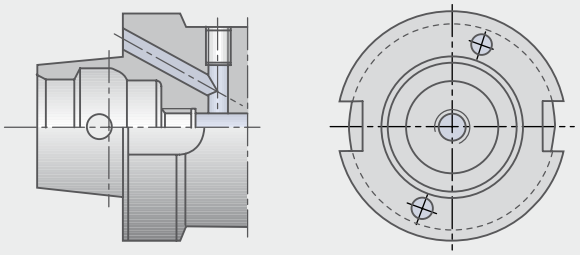
Form C



- preferably used for spindles on transfer lines and special machines with no automatic tool change or for short bore spindles and tool extensions and reducers
- central, axial coolant supply
- torque transmission via two key slots at end of taper

Hollow taper shanks
for manual tool change DIN 69893 Part 1 and 2 – without gripper groove

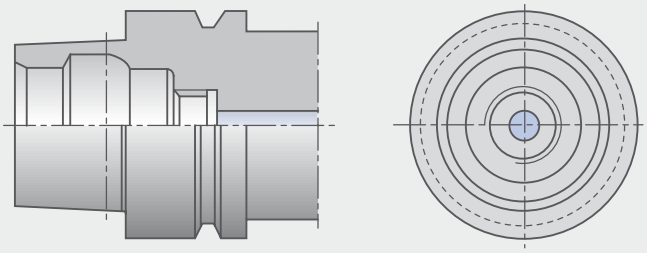
Form D



- for use in all areas which require better support from a large contact surface during manual tool change
- with larger collar
- off-centre coolant supply through collar or central supply through coolant tube
- torque transmission via two collar slots

Hollow taper shanks
for higher spindle speeds (HSC). Provisional standard DIN 69893 Part 5 and 6 – with gripper groove

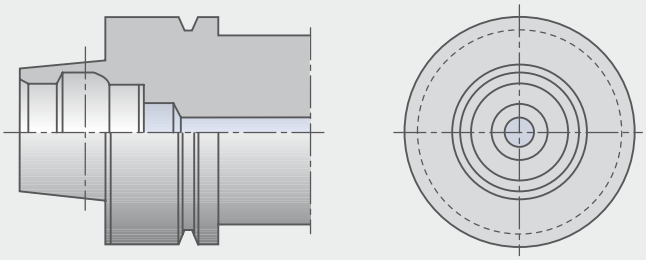
Form E



- used for high frequency spindles and wood machining
- rotationally symmetrical, without key slots
- torque transmission via friction resistance
- central coolant supply possible through coolant tube

Hollow taper shanks
for higher spindle speeds (HSC). Provisional standard DIN 69893 Part 5 and 6 – with gripper groove

Form F

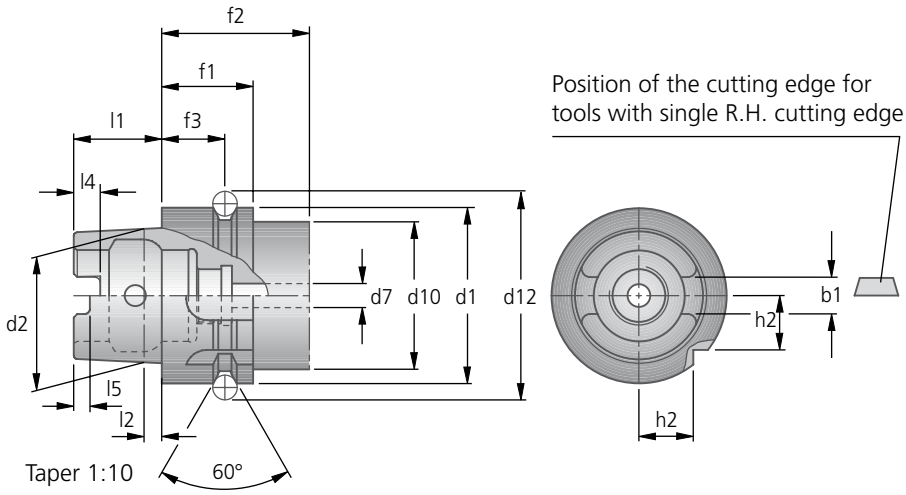


- with larger collar
- central coolant supply possible through coolant hose

KOMET® HSK-A

Hollow shank HSK-A to ISO 12164-1

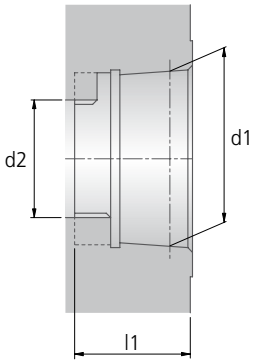
(as DIN 69893-1)
Version with hole for data carrier to DIN 69873.



Dimensions														
HSK size	$d1_{h10}$	d2	d10 max	d12	d7 max	$b1^{\pm 0,04}$	$h2_{-0,3}$	$f1_{-0,1}$	f2 min	$f3^{\pm 0,1}$	$l1_{-0,2}$	l2	$l4^{+0,2}$	$l5^{+0,2}$
HSK-A 32	32,0	24,0	26,0	37,00	4,2	7,05	9,50	20,0	35,0	16,0	16,0	3,2	3,5	3,0
HSK-A 40	40,0	30,0	34,0	45,00	5,0	8,05	12,00	20,0	35,0	16,0	20,0	4,0	6,0	5,0
HSK-A 50	50,0	38,0	42,0	59,30	6,8	10,54	15,50	26,0	42,0	18,0	25,0	5,0	7,5	4,5
HSK-A 63	63,0	48,0	53,0	72,30	8,4	12,54	20,00	26,0	42,0	18,0	32,0	6,3	10,0	6,0
HSK-A 80	80,0	60,0	67,0	88,80	10,2	16,04	25,00	26,0	42,0	18,0	40,0	8,0	12,0	8,0
HSK-A100	100,0	75,0	88,0	109,75	12,0	20,02	31,50	29,0	45,0	20,0	50,0	10,0	15,0	10,0

Adaptors for hollow taper shanks

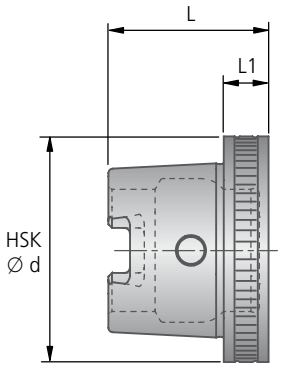
form A and C to ISO 12164-2 (as DIN 69063)



HSK-A | HSK-C			
HSK size	d1	d2	$l1^{+0,2}$
HSK-A/C 32	23,998	17	16,5
HSK-A/C 40	29,998	21	20,5
HSK-A/C 50	37,998	26	25,5
HSK-A/C 63	47,998	34	33
HSK-A/C 80	59,997	42	41
HSK-A/C 100	74,997	53	51

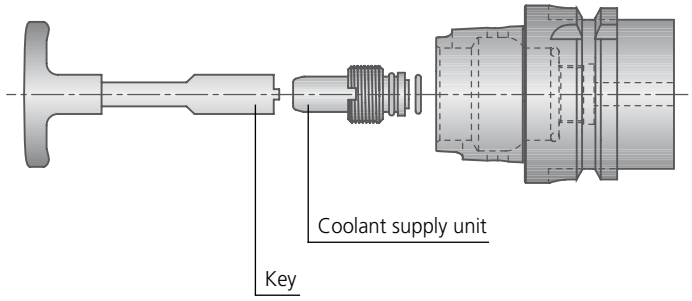
HSK-A/C Plugs

For sealing HSK units against dirt or other contamination.

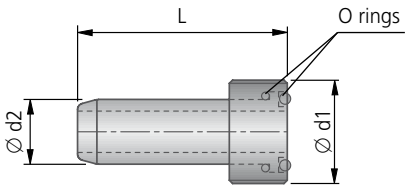


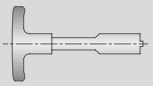
HSK-A | HSK-C				
Article	Order No.	HSK Ø d	L	L1
HSK-A/C 50	**A06 23470**	50	37,5	12,5
HSK-A/C 63	**A06 33470**	63	44,5	12,5
HSK-A/C100	**A06 53470**	100	66	16

Mounting of the coolant supply unit



Note:
The coolant supply unit should be fitted in the tool with the key, to ensure a seal is produced.
A coolant supply unit specifically for the machine can also be fitted, if required, using the thread in the tool.



	Key	Coolant supply unit						
HSK-A size	 Order No.	Order No.	Ø d1	Ø d2	L	O ring face side and over tube Article		Order No.
32	**18021 01032**	**51391 00032**	M10×1,0	6	26	5×1,2	2×	**52914 00512**
40	**18021 01040**	**51391 00040**	M12×1,0	8	29,1	7,5×1,5	2×	**52914 00751**
50	**18021 01050**	**51391 00050**	M16×1,0	10	32,7	9×2	2×	**52914 00920**
63	**18021 01063**	**51391 00063**	M18×1,0	12	36,2	10×2,5 10×2	1× 1×	**52914 01025** **52914 01020**
80	**18021 01080**	**51391 00080**	M20×1,5	14	39,7	13×2	2×	**52914 01320**
100	**18021 01100**	**51391 00100**	M24×1,5	16	43,6	14×3	2×	**52914 01430**

Supply coolant supply unit includes:
Coolant tube, locking collar and two O rings.

Note re. supply:
The coolant supply connection for the tool adaptors must be ordered separately.
Only use the keys listed for assembly.
This will prevent coolant flowing back into the machine spindle/clamping system.
A specific coolant hose for the machine can also be fitted on all HSK adaptors.

KOMET KomLoc® HSK

KomLoc® clamping system

Features of the system
- uncomplicated, low cost spindle contour
- small number of extremely sturdy components
- maximum clamping force
- specially suited to high speed machining (HSC)
- internal coolant supply
- practical ejector function

Application area
There are numerous situations which require hollow taper shank tools to be clamped manual. The KOMET® HSK clamping device is used universally on transfer lines, machining centres, turning machines, multi-head machines and setting devices.
- direct mounting on multi-spindle boring heads and short boring spindles
- spindle mounting and adaptor flanges
- adaptors as extensions or reducers

Using the KomLoc® clamping system
By using a hexagonal key, operating the KomLoc® clamping system is quite simple. A low draw-in moment automatically produces an excellent and stable clamping effect. In addition an axial movement or turning of the locking ring prevents dirt and chips from penetrating into the clamping mechanism.

Ability for HSC (High Speed Cutting)
Because of the radially outward effect of the clamping action, the new KomLoc® clamping system is almost predestined for use at high clamping speeds. The clamping cartridge is designed to be completely symmetric in rotation.

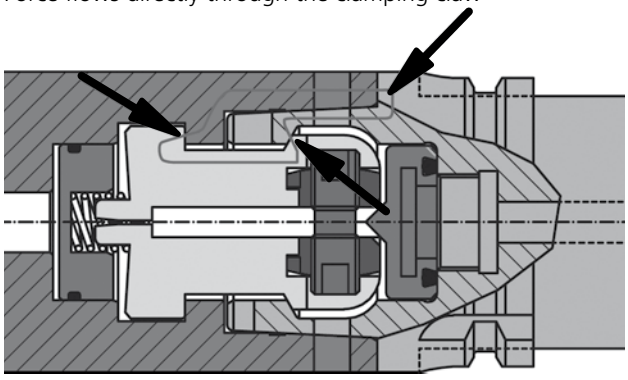
Emulsion (water-miscible cooling lubricant)
Internal coolant supply is introduced by two coolant hoses which form a cage with the ejector and the distributor. This cage is supported on floating bearings and produces a seal for a coolant pressure of p > 2 bar.

Application details
By maintaining the correct draw-in moments and clamping forces the clamping device ensures a excellent transmission of the bending and torsion moments. The direction of these moments is not affected by the position of clamping cartridge.

KomLoc® HSK clamping system – System K

Function

Force flows directly through the clamping claw



Clamping mechanism
- The two clamping nuts are moved radially outwards by using a hexagonal key on the threaded spindle.
- The two clamping elements are applied to the clamping shoulder of the hollow taper shank.
- The high axial clamping force produces a positive connection.

Release mechanism
Clamping is released by moving the two clamping elements inwards back to the block. This activates the ejector which releases the connection.

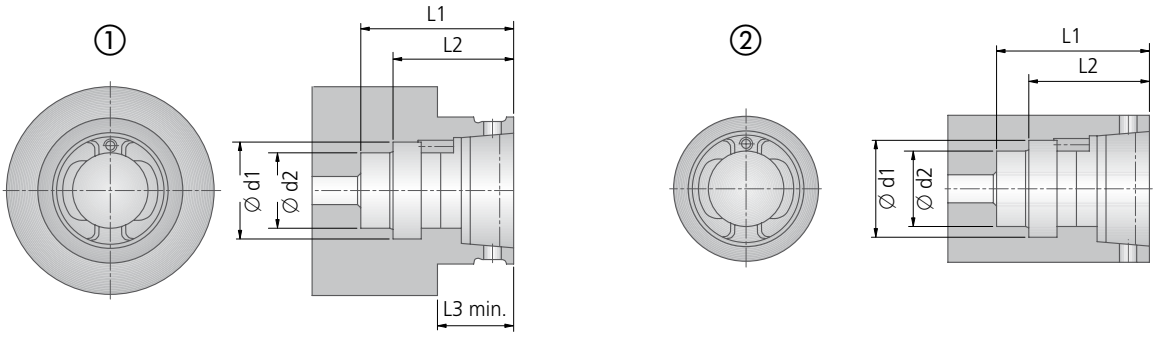
Clamping force / Rigidity
The high clamping forces (see table) produce excellent bending resistance.
Depending on the operation temperature and the lubrication on the clamping element, clamping forces may vary by ± 15%.

Torque setting (Nm) | Tension force (KN)									
HSK size	WAF for operating					KOMET standard value			
		Nm	KN	Nm	KN	Nm	KN	Nm	KN
25	2	–	–	1	3,5	1,5	5,5	2	7
32	2,5	1,5	6,5	2	8	2,5	9	3,5	11
40	3	4	16	5	18	6	20	8	25
50	4	5	19	7,5	25	10	31	15	41
63	5	10	28	12,5	32	15	40	17,5	51
80	6	15	37	20	45	25	50	30	60
100	8	30	40	50	60	60	70	60	70



Patent applied for inside and outside Germany

Spindle contour



Montage

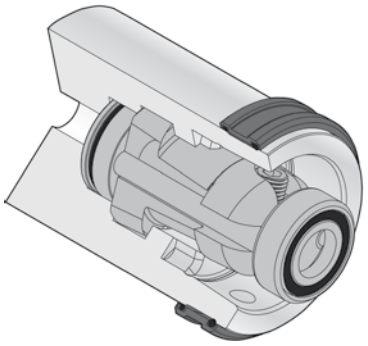
The KomLoc® clamping cartridge is extremely easy to fit. Insert the KomLoc® cartridge, rotate 90° and secure with threaded pin. This can be effected from any side and requires no alignment.

Note

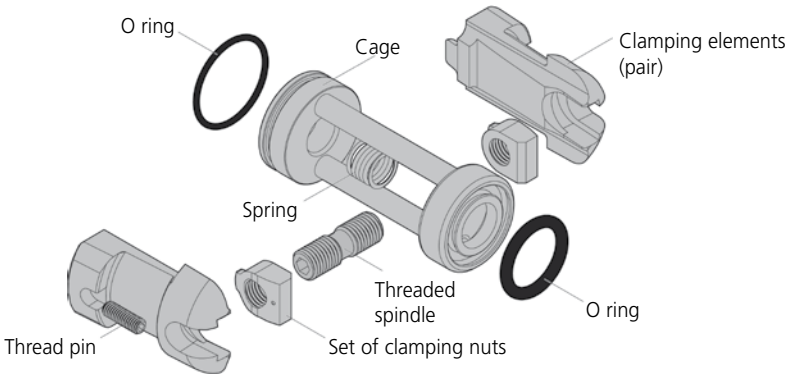
Sealing ring for use on short bore spindles to DIN 69002 in conjunction with centrifuge ring available on request.
Detailed dimensional drawings can be supplied on request (free of charge).

Fitting dimensions					①		②	
HSK size	L1	L2	Ø d1	Ø d2	Sealing ring, shifting Order No.	L3 min.	Sealing ring, turning Order No.	Ball pressure screw Order No.
32	34,3	27,3	21,1	17,0	**L07 01430**	16	**L07 01730**	**N10 30737**
40	42,4	33,8	26,4	21,0	**L07 01440**	19	**L07 01740**	**N10 30738**
50	53,0	42,2	33,0	26,0	**L07 01450**	24	**L07 01750**	**N10 30739**
63	65,0	52,8	42,5	34,0	**L07 01460**	29	**L07 01761**	**N10 30740**
80	84,8	67,6	52,8	42,0	**L07 01470**	37	**L07 01771**	**N10 30741**
100	106,0	84,4	66,0	52,0	**L07 01480**	47	**L07 01780**	**N10 30742**

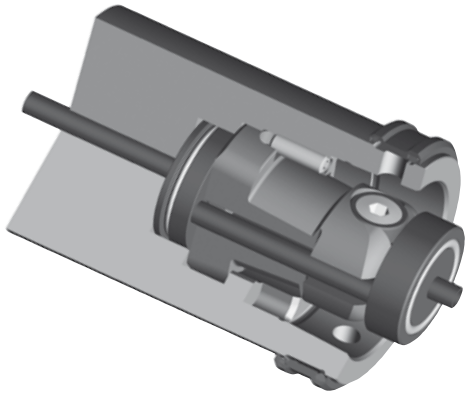
Components

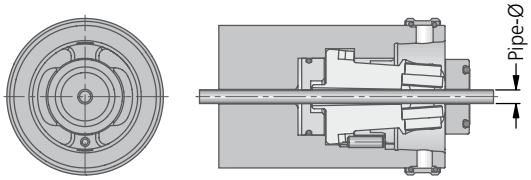


KomLoc® Clamping cartridge	
Article	Order No.
System K IKZ-HSK25	**L07 01020**
System K IKZ-HSK32	**L07 01030**
System K IKZ-HSK40	**L07 01040**
System K IKZ-HSK50	**L07 01050**
System K IKZ-HSK63	**L07 01060**
System K IKZ-HSK80	**L07 01070**
System K IKZ-HSK100	**L07 01080**



KomLoc® HSK clamping system – System K for MQL





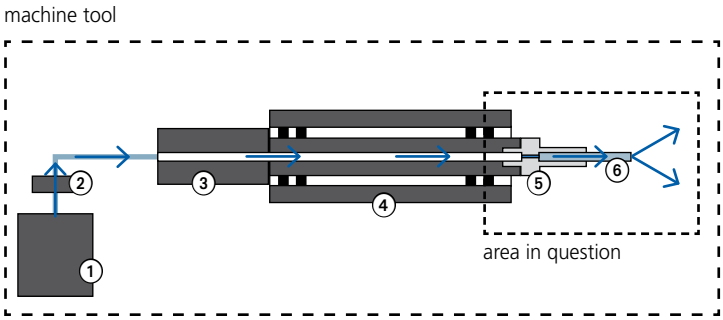
Description / features

- KomLoc® minimal lubrication clamping element with open central area
- through hose for supply of minimal lubrication
- high clamping force similar to KomLoc®
- integral ejector
- compatible with existing KomLoc® contour
- available in sizes HSK 40, 50, 63, 80 and 100
- operating key can be held on both sides

KomLoc® System K			
Article	**Order No.** with ejector	Pipe-Ø	Clamping force in kN
System K MQL-HSK40	**L07 02040**	3,9	20
System K MQL-HSK50	**L07 02050**	4,9	30
System K MQL-HSK63	**L07 02060**	6,9	40
System K MQL-HSK80	**L07 02070**	7,9	50
System K MQL-HSK100	**L07 02080**	9,9	70

Overall system (MLC)

One important aspect for trouble-free functioning of the MLC system is the interplay of the individual elements in the overall minimal lubrication system. It is not generally sufficient for example for the tool just to be suitable for use with minimal lubrication. In fact all the elements need to be appropriately matched with one another.

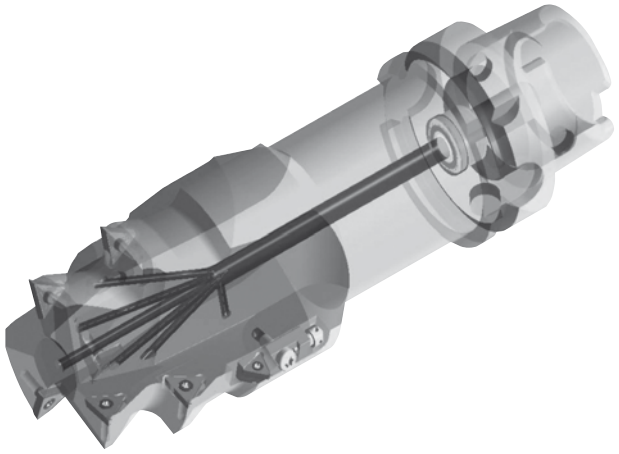


Components for an MLC machine tool

① MLC unit
② stop valve
③ rotating supply
④ operating spindle
⑤ toolholder
⑥ tool

Tool design for minimal lubrication

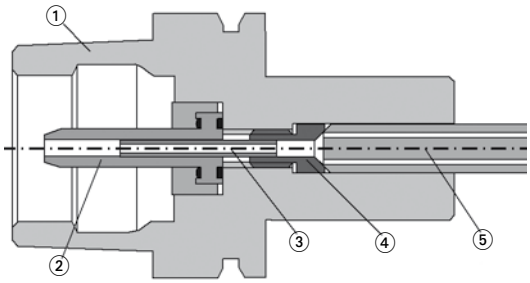
Our external engineers and our project team are at your disposal at any time for queries on concrete projects.



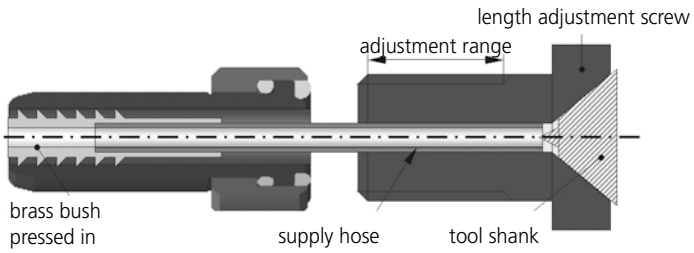
Patent applied for inside and outside Germany

Automatic tool change

View of elements in question using an HSK connection as an example



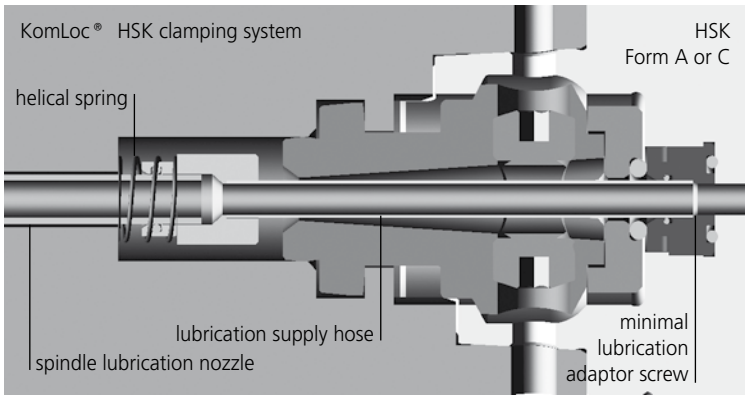
① toolholder
② coolant supply hose
③ minimal lubrication supply hose
④ length adjustment screw
⑤ tool



Accessories such as adjusting screws can be supplied for any chucks and supply hoses.

Manual tool change

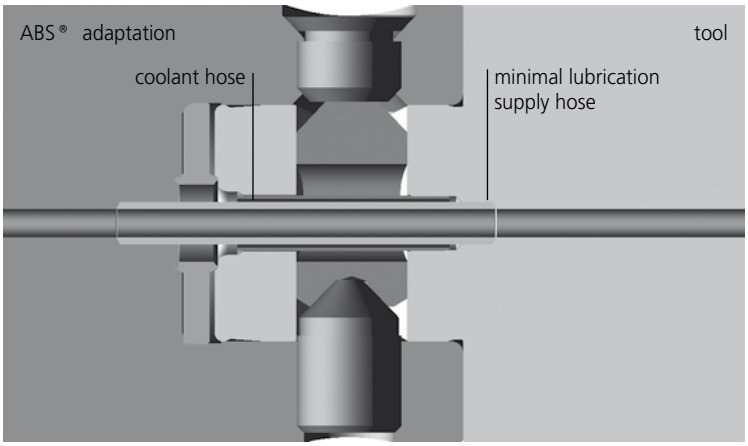
To successfully implement the manual clamping system, a solution for minimal lubrication supply on the machine was found for OEM projects. Here a system was applied which allowed the lubricant to be used in the best possible way. This solution involved connection by means of an HSK Form C adaptor with additional thread (as Form A) for the minimal lubricant adaptor screw to be fitted.



Layout for minimal lubrication with KomLoc® HSK clamping system

ABS® modular connection

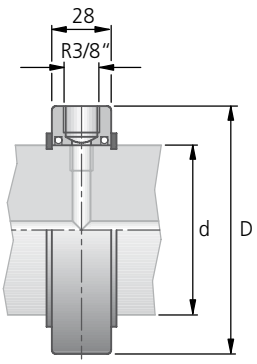
For ABS® connections and ABS® adaptors there are standard KOMET GROUP solutions. Please ask for information on the relevant projects. ABS® connections usually involve connections with a tool or a form of adaptation with which an extension or a reduction is required.



ABS® supply solution for minimal lubrication

Coolant supply ring

- For machines with manual tool change.
- Peripheral speed: 15 - 20 m/ sec.
- Coolant pressure up to approx.10 bar.

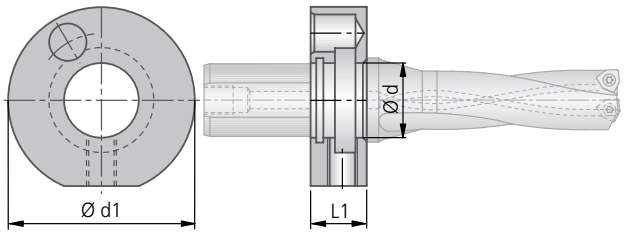


Coolant supply ring KRD					
Order No. Article	d	D	kg	Sealing ring Order No.	Retaining ring DIN 471 Order No. Article
L01 00001 KRD 40	40	81	0,83	**L01 00900**	**55231 04017** 40×1,75
L01 00011 KRD 50	50	91	1,08	**L01 00910**	**55231 05020** 50×2
L01 00031 KRD 70	70	110	1,33	**L01 00930**	**55231 07025** 70×2,5
L01 00041 KRD 80	80	120	1,49	**L01 00940**	**55231 08025** 80×2,5
L01 00051 KRD 100	100	140	1,80	**L01 00950**	**55231 10030** 100×3
L01 00061 KRD 125	125	165	2,22	**L01 00960**	**55231 12540** 125×4

Coolant supply ring

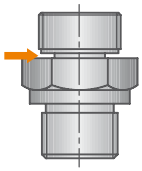
for axial coolant supply

Coolant supply to DIN 69880



Coolant supply ring for NC adaptors					
Order No.	Ø d	Ø d1	L1	kg	Sealing ring Order No.
L01 01100	30	68	15	0,34	**52914 03015**
L01 01000	40	83	15	0,46	**52914 04015**

Coolant connection

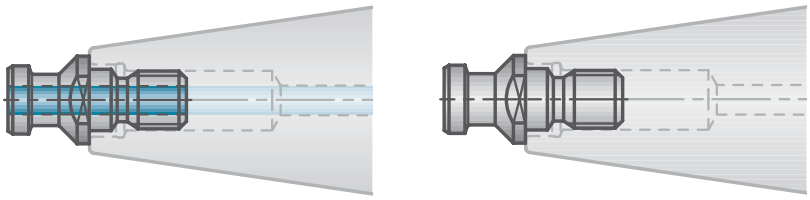


Coolant connection	
Article	Order No.
KUB-3/8	**L01 00800**

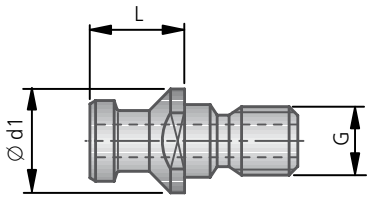
NOTE:
For safety reasons, only use a pipe connection with a definite shear point. Switch on coolant supply before starting operation.

We recommend use of KOMET® pipe connections to prevent any risk of accident from torn pipes should the coolant ring seize.

Note:
With coolant supply through spindle, use pull stud with through hole.
To close off central coolant hole, use pull stud without through hole.

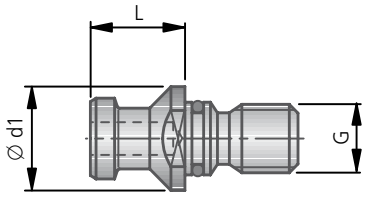


DIN 69872 A
with through hole



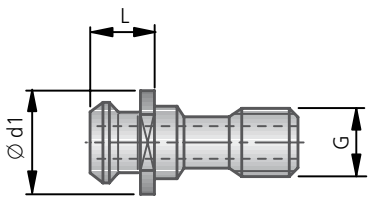
DIN 69872 A				
ISO size	Order No.	Ø d1	L	G
40	**55391 01240**	23	26	M16
45	**55391 01645**	30	30	M20
50	**55391 02050**	36	34	M24

DIN 69872 B
sealed,
for coolant through collar



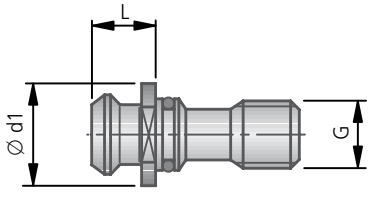
DIN 69872 B				
ISO size	Order No.	Ø d1	L	G
40	**55392 01240**	23	26	M16
45	**55392 01645**	30	30	M20
50	**55392 02050**	36	34	M24

ISO 7388/2 B
with through hole



ISO 7388/2 B				
ISO size	Order No.	Ø d1	L	G
40	**55391 51640**	22,5	16,40	M16
45	**55391 52045**	30,0	20,95	M20
50	**55391 52450**	37,0	25,55	M24

ISO 7388 B
sealed,
for coolant through collar



ISO 7388 B				
ISO size	Order No.	Ø d1	L	G
40	**55392 51640**	22,5	16,40	M16
45	**55392 52045**	30,0	20,95	M20
50	**55392 52450**	37,0	25,55	M24

Allocation of indexable insert to clamping screw

Insert Size	Clamping screw Order No.	Article
W00 WOHX		
W00 04..	N00 56011	S/M1,8×2,9-5IP
W00 10..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W00 17..	N00 55581	M2,5×4,5-8IP
	N00 55551*	M2,5×2,8-8IP
	N00 55561*	M2,5×4-8IP
W00 24..	N00 55571	M2,5×6-8IP
	N00 55561*	M2,5×4-8IP
	N00 55581*	M2,5×4,5-8IP
W00 34..	N00 55701	M3,5×5-8IP
	N00 55711	M3,5×7,4-8IP
W00 42..	N00 55811	M4,5×7-10IP
	N00 55801*	M4,5×6-10IP
	N00 55821*	M4,5×9-10IP
W00 50..	N00 55811	M4,5×7-10IP
	N00 55821*	M4,5×9-10IP
W00 58..	N00 55891	M5,5×8,5-20IP
	N00 55901*	M5,5×13,5-20IP
W01 WOHX		
W01 10..	N00 56041	S/M2×4,3-6IP
W01 18..	N00 57553	S/M2,2×5,5-6IP
W01 24..	N00 57511	S/M2,5×7,2-8IP
W01 34..	N00 57521	S/M3,5×7,3-10IP
W01 42..	N00 57531	S/M4,5×9-15IP
W01 50..	N00 57531	S/M4,5×9-15IP
W01 58..	N00 57541	S/M5,5×11-20IP
W04 WNHX		
W04 22..	N00 55050	M3×7,8 /75°-Ø1,5
	N00 55050	M3×7,8 /75°-Ø1,5
W04 34..	N00 55060	M3,5×9,4/60°-Ø1,5
	N00 55070	M3,5×11,4/60°-Ø1,5
W04 42..	N00 55100	M4,5×12,4-Ø2,5
	N00 55110	M4,5×14,5-Ø2,5
	N00 55130	M4,5×18,7-Ø2,5
W04 50..	N00 55120	M4,5×16,4-Ø2,5
	N00 55140	M4,5×22,5-Ø2,5
W04 58..	N00 55180	M5,5×29,2-Ø3
W24		
W24 12..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W24 20..	N00 56651	S2560-8IP
W27		
W27 12..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W27 20..	N00 56651	S2560-8IP
W28 WOEX		
W28 10..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W28 17..	N00 55581	M2,5×4,5-8IP
	N00 55551*	M2,5×2,8-8IP
	N00 55561*	M2,5×4-8IP
W28 24..	N00 55571	M2,5×6-8IP
	N00 55561*	M2,5×4-8IP
	N00 55581*	M2,5×4,5-8IP
W28 34..	N00 55701	M3,5×5-8IP
	N00 55711	M3,5×7,4-8IP
W28 42..	N00 55811	M4,5×7-10IP
	N00 55801*	M4,5×6-10IP
	N00 55821*	M4,5×9-10IP
W28 50..	N00 55811	M4,5×7-10IP
	N00 55821*	M4,5×9-10IP
W28 58..	N00 55891	M5,5×8,5-20IP
	N00 55901*	M5,5×13,5-20IP
W28 72..	N00 55901	M5,5×13,5-20IP
W29 WOEX		
W29 04..	N00 56051	S/M1,8×3,8-5IP
W29 10..	N00 56041	S/M2×4,3-6IP
W29 18..	N00 57553	S/M2,2×5,5-6IP
W29 24..	N00 57511	S/M2,5×7,2-8IP
W29 34..	N00 57521	S/M3,5×7,3-10IP
	N00 57790**	S/M3,5×7,3-10IP
W29 42..	N00 57531	S/M4,5×9-15IP
W29 50..	N00 57531	S/M4,5×9-15IP
W29 58..	N00 57541	S/M5,5×11-20IP
W30 TOHX | TOGX		
W30 04..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W30 14..	N00 56111	S/M2,6×6,2-8IP
	N00 56101*	S/M2,6×5,2-8IP
	N00 56121*	S/M2,6×4,7-8IP
W30 26..	N00 56201	S/M3,5×6,2-10IP
	N00 56211*	S/M3,5×7,3-10IP
W30 44.	N00 56401	S/M5×9,4-20IP
	N00 56411*	S/M5×13,4-20IP
W32 TPHX		
W32 03..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W32 13..	N00 56111	S/M2,6×6,2-8IP
	N00 56101*	S/M2,6×5,2-8IP
W32 18..	N00 56111	S/M2,6×6,2-8IP
	N00 56121*	S/M2,6×4,7-8IP
W32 23..	N00 56201	S/M3,5×6,2-10IP
	N00 56211*	S/M3,5×7,3-10IP
W32 32..	N00 56301	S/M4×8-10IP
W32 44..	N00 56401	S/M5×9,4-20IP
	N00 56411*	S/M5×13,4-20IP
W34 TOHT		
W34 18..	N00 56651	S2560-8IP
W34 32..	N00 56751	S3574-10IP
	N00 56771	S35102-10IP
W37 TPHB		
W37 18..	N00 56111	S/M2,6×6,2-8IP
	N00 56101*	S/M2,6×5,2-8IP
	N00 56121*	S/M2,6×4,7-8IP
W37 23..	N00 56201	S/M3,5×6,2-10IP
	N00 56211*	S/M3,5×7,3-10IP
W37 32..	N00 56301	S/M4×8-10IP
W57 TOHX | TOGX		
W57 04..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W57 14..	N00 56111	S/M2,6×6,2-8IP
	N00 56101*	S/M2,6×5,2-8IP
	N00 56121*	S/M2,6×4,7-8IP
W57 26..	N00 56201	S/M3,5×6,2-10IP
	N00 56211*	S/M3,5×7,3-10IP
W58 TPHX		
W58 03..	N00 56031	S/M2×4,9-6IP
	N00 56021*	S/M2×3,8-6IP
W58 13..	N00 56111	S/M2,6×6,2-8IP
	N00 56101*	S/M2,6×5,2-8IP
W58 18..	N00 56111	S/M2,6×6,2-8IP
	N00 56121*	S/M2,6×4,7-8IP
W58 23..	N00 56201	S/M3,5×6,2-10IP
	N00 56211*	S/M3,5×7,3-10IP
W58 32..	N00 56301	S/M4×8-10IP
W59 TOHT		
W59 18..	N00 56651	S2560-8IP
W59 32..	N00 56751	S3574-10IP
	N00 56771	S35102-10IP
W60 DOHT		
W60 18..	N00 56651	S2560-8IP
W60 32..	N00 56751	S3574-10IP
	N00 56771	S35102-10IP
W78 VOHT | VOGW		
W78 18..	N00 56651	S2560-8IP
W78 32..	N00 56751	S3574-10IP
	N00 56771	S35102-10IP
W79 DOHT		
W79 18..	N00 56651	S2560-8IP
W79 32..	N00 56751	S3574-10IP
	N00 56771	S35102-10IP
W80 SOGX		
W80 10..	N00 56051	S/M1,8×3,8-5IP
W80 12..	N00 56041	S/M2×4,3-6IP
W80 18..	N00 57553	S/M2,2×5,5-6IP
W80 20..	N00 57553	S/M2,2×5,5-6IP
W80 24..	N00 57571	S/M2,5×6,3-8IP
W80 28..	N00 57251	S3076-8IP
W80 32..	N00 57261	S3575-15IP
W80 38..	N00 57261	S3575-15IP
W80 42..	N00 57301	S45100-20IP
W80 46..	N00 57301	S45100-20IP

Allocation of indexable insert to clamping screw

Insert Size	Clamping screw Order No.	Article
W82 SOHX		
W82 32..	N00 57261	S3575-15IP
W83 SOEX		
W83 13..	N00 56041	S/M2×4,3-6IP
W83 18..	N00 57553	S/M2,2×5,5-6IP
	N00 57740**	S/M2,2×5,5-6IP
	N00 57760**	S/M2,2×7,5-6IP
W83 23..	N00 57571	S/M2,5×6,3-8IP
	N00 57730**	S/M2,5×6,3-8IP
	N00 57780**	S/M2,5×8,8-8IP
W83 32..	N00 57261	S3575-15IP
	N00 57750**	S3575-15IP
W83 44..	N00 57301	S45100-20IP
W83 SPGT/SPGW		
W83 18..	N00 57221	S2553-7IP
W83 32..	N00 57261	S3575-15IP
W83 44..	N00 56851	S45111-20IP
W84		
W84 18..	N00 56651	S2560-8IP
W84 32..	N00 56771	S35102-10IP
W85 CPGT/CPGW		
W85 09..	N00 57191	S2043-6IP
W85 18..	N00 57221	S2553-7IP
W85 18.. .01 | .02	N00 56651	S2560-8IP
W85 23..	N00 57341	S3066-9IP
W85 32..	N00 57261	S3575-15IP
W85 32.. .02 | .03 .04 | .05	N00 56751	S3574-10IP
W85 44..	N00 56851	S45111-20IP
W86		
W86 18..	N00 56651	S2560-8IP
W86 32..	16301 00537	
W89 VCMT/VBMT		
W89 23..	51560 74551	
W89 32.. .05 | .06	16301 00537	
W89 32.. .07 | .08	N00 57271	S3585-15IP
C79 VBGT | VBGW		
C79 18..	N00 57221	S2553-7IP
C79 32..	N00 57271	S3585-15IP
C83 SCMT		
C83 32..	N00 57261	S3575-15IP
C83 44..	N00 56851	S45111-20IP
C84 TCGT | TCGW		
C84 13..	N00 57660	S/M2,2×4,8-6IP
C84 18..	N00 56651	S2560-8IP
C84 32..	N00 56771	S35102-10IP
C85 CCGT | CCGW		
C85 18..	N00 57221	S2553-7IP
C85 32..	N00 57261	S3575-15IP
C85 44..	N00 56851	S45111-20IP

Insert Size	Clamping screw Order No.	Article
C86 DCGT | DCGW		
C86 18..	N00 56651	S2560-8IP
C86 32..	N00 57261	S3575-15IP
C87 RCGT | RCGW		
C87 34..	N00 57261	S3575-15IP
C88 RCGT | RCGW		
C88 17..	N00 57221	S2553-7IP
C88 24..	N00 57341	S3066-9IP
C88 34..	N00 57261	S3575-15IP
C88 42..	N00 57261	S3575-15IP
C89 VCGT | VCGW		
C89 32..	N00 57271	S3585-15IP
C95 CPGT | CPGW		
C95 09..	N00 57191	S2043-6IP
C95 18..	N00 57221	S2553-7IP
C95 23..	N00 57341	S3066-9IP
C95 32..	N00 57261	S3575-15IP
C95 44..	N00 56851	S45111-20IP
C98 RDHX		
C98 10..	N00 56591	S2247-6IP
C98 20..	N00 57221	S2553-7IP
C98 34..	N00 57261	S3575-15IP
C98 42..	N00 57261	S3575-15IP
H60 | H62 XOHX		
XOHX0802	N00 57660	S/M2,2×4,8-6IP
XOHX1003	N00 57630	S/M3×5,8-8IP
XOHX12T3	N00 57640	S/M3,5×6,9-10IP
XOHX1504	N00 57650	S/M4×8,7-15IP
XOHX2205	N00 57670	S/M5×10,4-20IP
H80 LNHX		
LNHX09T3	N00 57251	S3076-8IP
LNHX1205	N00 57411	S40101-15IP
Q09 SPGW | SPMT | SEHW | SEHT		
Q09 13..	N00 57221	S2553-7IP
Q09 18..	N00 57221	S2553-7IP
Q09 44..	N00 57301	S45100-20IP
Q09 53..	N00 57301	S45100-20IP
Q12 TCAA | TNAA | TCAX | TNAX | TPAX		
Q12 18..	N00 57201	S2536-7IP
	N00 57211	S2542-8IP
	N00 57221	S2553-7IP
Q12 32.. .05 | .06	N00 57231	S3056-8IP
Q12 32.. .07	N00 57241	S3070-8IP
Q12 32.. .08 | .09	N00 57271	S3585-15IP
Q12 32.. .15 | .16 .17	N00 57281	S3598-15IP
Q12 32.. .18 | .19 .20	N00 57251	S3076-8IP

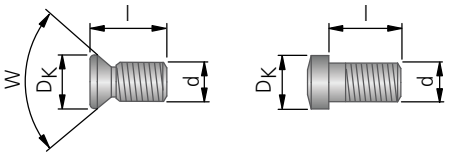
Insert Size	Clamping screw Order No.	Article
Q12 32.. .38 | .41 .42 | .43	N00 57281	S3598-15IP
Q12 32.. .52 | .53	N00 57431	S3066-8IP
Q12 44..	N00 57301	S45100-20IP
Q15 CPMT | CPMW		
Q15 18..	N00 57221	S2553-7IP
Q15 32..	N00 57261	S3575-15IP
Q21		
Q21 24..	N00 57251	S3076-8IP
Q21 32..	N00 57261	S3575-15IP
Q21 44..	N00 57301	S45100-20IP
Q33		
Q33 18..	N00 56651	S2560-8IP
Q33 23..	N00 57241	S3070-8IP
	N00 57251	S3076-8IP
Q36 APKT		
Q36 18..	N00 57321	S2556-8IP
Q36 24..	N00 57341	S3066-9IP
Q36 38..	N00 57411	S40101-15IP
Q40 HOKT | HPCT | HPKT		
Q40 53..	N00 57890	S40110-15IP
Q43 SDHT | SDKT | SDMX		
Q43 28..	N00 57830	S3073-T8-55°
Q43 38.. Ø24,5	N00 57910	S4085-T15-55°
Q43 38.. Ø32,5-92,5	N00 57890	S40110-15IP
Q47 EOMT		
Q47 34.. Ø31,7	N00 57910	S4085-T15-55°
Q47 34.. Ø39,7-99,7	N00 57890	S40110-15IP
Q55 RPMX | RPHX | RDHW | RDHX		
Q55 34..	N00 57840	S3075-10IP
Q55 42.. Ø25-32	N00 57910	S4085-T15-55°
Q55 42.. Ø40-100	N00 57890	S40110-15IP
Q56 XPLT | XDLT | XOLT		
Q56 20..	N00 57820	S2550-T8-55°
Q56 32..	N00 57860	S3572-T15-55°
Q56 46..	N00 57880	S45105-T20-55°
Q63 SOKU		
Q63 46..	N00 57890	S40110-15IP
Q63 53..	N00 57900	S45130-20IP
Q75 RNKU | ROHU		
Q75 42..	N00 57890	S40110-15IP
Q80 LNGU		
Q80 09..	N00 57191	S2043-6IP
Q80 20..	N00 57251	S3076-8IP
Q80 32..	N00 57411	S40101-15IP

* only be used for special tools

** tensile strength 1600 N/mm²

See the next page for more information on the clamping screw.

Clamping screw



Order No.	Article	Packing unit piece	Thread d	Length l	Screw head D_K	Screw head taper angle W	Screw turning slot TorxPlus	Screw turning slot WAF	Screw turning slot Torx	Tightening torque Nm
16301 00537									Tx15	
51560 74551									Tx9	
N00 55050	M3×7,8 /75°	10	3	7,8	4,5	75°		1,5		2,25
N00 55060	M3,5×9,4/60°	10	3,5	9,4	4,6	60°		1,5		2,8
N00 55070	M3,5×11,4/60°	10	3,5	11,4	4,6	60°		1,5		2,8
N00 55100	M4,5×12,4	10	4,5	12,4	5,9			2,5		4,5
N00 55110	M4,5×14,5	10	4,5	14,5	5,9			2,5		4,5
N00 55120	M4,5×16,4	10	4,5	16,4	5,9			2,5		4,5
N00 55130	M4,5×18,7	10	4,5	18,7	5,9			2,5		4,5
N00 55140	M4,5×22,5	10	4,5	22,5	5,9			2,5		4,5
N00 55180	M5,5×29,2	10	5,5	29,2	7,1			3		6,5
N00 55551	M2,5×2,8-8IP	10	2,5	2,8	3,45		8IP			1,28
N00 55561	M2,5×4-8IP	10	2,5	4	3,45		8IP			1,28
N00 55571	M2,5×6-8IP	10	2,5	6	3,45		8IP			1,28
N00 55581	M2,5×4,5-8IP	10	2,5	4,5	3,45		8IP			1,28
N00 55701	M3,5×5-8IP	10	3,5	5	5,15		8IP			2,25
N00 55711	M3,5×7,4-8IP	10	3,5	7,4	5,15		8IP			2,25
N00 55801	M4,5×6-10IP	10	4,5	6	6,05		10IP			4,3
N00 55811	M4,5×7-10IP	10	4,5	7	6,05		10IP			4,3
N00 55821	M4,5×9-10IP	10	4,5	9	6,05		10IP			4,3
N00 55851	M5×13,5-15IP	10	5	13,5	7,25		15IP			6,25
N00 55891	M5,5×8,5-20IP	10	5,5	8,5	7,25		20IP			6,25
N00 55901	M5,5×13,5-20IP	10	5,5	13,5	7,25		20IP			6,25
N00 56011	S/M1,8×2,9-5IP	10	1,8	2,95	2,4	75°	5IP			0,38
N00 56021	S/M2×3,8-6IP	10	2	3,8	2,7	75°	6IP			0,62
N00 56031	S/M2×4,9-6IP	10	2	4,9	2,7	75°	6IP			0,62
N00 56041	S/M2×4,3-6IP	10	2	4,3	2,7	75°	6IP			0,62
N00 56051	S/M1,8×3,8-5IP	10	1,8	3,85	2,4	75°	5IP			0,38
N00 56101	S/M2,6×5,2-8IP	10	2,6	5,2	3,4	75°	8IP			1,28
N00 56111	S/M2,6×6,2-8IP	10	2,6	6,2	3,4	75°	8IP			1,28
N00 56121	S/M2,6×4,7-8IP	10	2,6	4,7	3,4	75°	8IP			1,28
N00 56201	S/M3,5×6,2-10IP	10	3,5	6,2	4,65	75°	10IP			2,8
N00 56211	S/M3,5×7,3-10IP	10	3,5	7,3	4,65	75°	10IP			2,8
N00 56301	S/M4×8-10IP	10	4	8	5,15	75°	10IP			4,3
N00 56401	S/M5×9,4-20IP	10	5	9,4	6,65	75°	20IP			6,25
N00 56411	S/M5×13,4-20IP	10	5	13,4	6,65	75°	20IP			6,25
N00 56591	S2247-6IP	10	2,2	4,7	3,15	60°	6IP			1,01
N00 56651	S2560-8IP	10	2,5	6	3,5	55°	8IP			1,28
N00 56751	S3574-10IP	10	3,5	7,4	5,5	55°	10IP			2,8
N00 56771	S35102-10IP	10	3,5	10,25	5,5	55°	10IP			2,8
N00 56811	S40101-20IP	10	4	10,1	7,2	60°	20IP			4,3
N00 56851	S45111-20IP	10	4,5	11,1	6,9	55°	20IP			6,25
N00 57191	S2043-6IP	10	2	4,3	2,7	55°	6IP			0,62
N00 57201	S2536-7IP	10	2,5	3,6	3,5	55°	7IP			0,90
N00 57211	S2542-8IP	10	2,5	4,2	3,5	55°	8IP			1,28
N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP			0,90

Order No.	Article	Packing unit piece	Thread d	Length l	Screw head D_K	Screw head taper angle W	Screw turning slot TorxPlus	Screw turning slot TORX ®	Tightening torque Nm
N00 57231	S3056-8IP	10	3	5,6	5	55°	8IP		2,25
N00 57241	S3070-8IP	10	3	7	4,3	55°	8IP		2,25
N00 57251	S3076-8IP	10	3	7,6	4,3	55°	8IP		2,25
N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP		2,8
N00 57271	S3585-15IP	10	3,5	8,5	5,5	55°	15IP		2,8
N00 57281	S3598-15IP	10	3,5	9,8	5,5	55°	15IP		2,8
N00 57301	S45100-20IP	10	4,5	10	6,4	55°	20IP		6,25
N00 57321	S2556-8IP	10	2,5	5,6	3,8	50°	8IP		1,28
N00 57341	S3066-9IP	10	3	6,6	4,4	60°	9IP		2,5
N00 57411	S40101-15IP	10	4	10,1	5,5	60°	15IP		4,3
N00 57421	S/M4,5×7,8-15IP	10	4,5	7,8	6,7	60°	15IP		6,25
N00 57431	S3066-8IP	10	3	6,6	5	55°	8IP		2,25
N00 57440	S4089-15IP	10	4	8,9	5,5	55°	15IP		4,3
N00 57450	S50115-20IP	10	5	11,5	7,4	55°	20IP		6,25
N00 57460	S55140-20IP	10	5,5	14	8,2	55°	20IP		6,25
N00 57470	S60160-20IP	10	6	16	8,8	55°	20IP		6,25
N00 57480	S2564-8IP	10	2,5	6,4	3,5	55°	8IP		1,28
N00 57490	S3074-8IP	10	3	7,4	4,3	55°	8IP		2,25
N00 57500	S45105-20IP	10	4,5	10,5	6,4	55°	20IP		6,25
N00 57511	S/M2,5×7,2-8IP	10	2,5	7,2	3,4	75°	8IP		1,28
N00 57521	S/M3,5×7,3-10IP	10	3,5	7,3	5,1	75°	10IP		2,8
N00 57531	S/M4,5×9-15IP	10	4,5	9	6,0	75°	15IP		6,25
N00 57541	S/M5,5×11-20IP	10	5,5	11	7,2	75°	20IP		6,25
N00 57553	S/M2,2×5,5-6IP	10	2,2	5,5	3,1	75°	6IP		1,01
N00 57571	S/M2,5×6,3-8IP	10	2,5	6,3	3,4	75°	8IP		1,28
N00 57611	S/M3,5×6,6-10IP	10	3,5	6,6	5,1	75°	10IP		2,8
N00 57630	S/M3×5,8-8IP	10	3	5,8	3,8	75°	8IP		2,25
N00 57640	S/M3,5×6,9-10IP	10	3,5	6,9	4,6	75°	10IP		2,8
N00 57650	S/M4×8,7-15IP	10	4	8,7	5,3	75°	15IP		4,3
N00 57660	S/M2,2×4,8-6IP	10	2,2	4,8	2,9	75°	6IP		1,01
N00 57670	S/M5×10,4-20IP	10	5	10,4	6,6	75°	20IP		6,25
N00 57710	S3090-9IP	10	3	9	4,4	60°	9IP		2,5
N00 57730	S/M2,5×6,3-8IP	10	2,5	6,3	3,4	75°	8IP		1,28
N00 57740	S/M2,2×5,5-6IP	10	2,2	5,5	3,1	75°	6IP		1,01
N00 57750	S3575-15IP	10	3,5	7,5	5,5	55°	15IP		2,8
N00 57760	S/M2,2×7,5-6IP	10	2,2	7,5	3,1	75°	6IP		1,01
N00 57770	S/M4,5×14-20IP	10	4,5	14	6,1	75°	20IP		6,25
N00 57780	S/M2,5×8,8-8IP	10	2,5	8,8	3,4	75°	8IP		1,28
N00 57790	S/M3,5×7,3-10IP	10	3,5	7,3	5,1	75°	10IP		2,8
N00 57820	S2550-T8-55°	10	2,5	5,0	3,45	55°		T8	1,2
N00 57830	S3073-T8-55°	10	3	7,3	4,1	55°		T8	2
N00 57840	S3075-10IP	10	3	7,5	4,2	55°	10IP		2
N00 57860	S3572-T15-55°	10	3,5	7,2	5,2	55°		T15	3,2
N00 57870	S3586-T15-55°	10	3,5	8,6	5,2	55°		T15	3,2
N00 57880	S45105-T20-55°	10	4,5	10,5	6,6	55°		T20	5
N00 57890	S40110-15IP	10	4	11,0	6,6	55°	15IP		4,3
N00 57900	S45130-20IP	10	4,5	13,0	5,3	55°	20IP		5
N00 57910	S4085-T15-55°	10	4	8,5	5,3	55°		T15	4,25
N00 57920	S40110-T15	10	4	11,0	5,3	55°		T15	4,25

KOMET ®

Screwdriver | Key

To ensure the correct starting torque on screws, the torque key from the TORX PLUS ® system has.
Complies with the following requirements: EN ISO 6789, BS EN 26789, ASME B107.14M (with certificate).

Torque wrench TorqueFix ®
with fixed preset torque
accuracy: ± 6% release torque: + 30%

TorqueFix ®			appropriate replaceable blade
			
Size	Torque	Order No.	Order No.
5IP	0,38 Nm	L05 00901	L05 00700
6IP	0,62 Nm	L05 00911	L05 00710
6IP	1,01 Nm	L05 03301	
7IP	0,90 Nm	L05 00921	L05 00720
8IP	1,28 Nm	L05 00931	L05 00730
8IP	2,25 Nm	L05 03311	
9IP	2,50 Nm	L05 00941	L05 00740
10IP	2,80 Nm	L05 00951	L05 00750
15IP	4,30 Nm	L05 00961	L05 00760
20IP	6,25 Nm	L05 00971	L05 00770

Supply includes: Torque wrench without replaceable blade.

Torque wrench easyTorque
with fixed preset torque
accuracy: ± 10% release torque: unbounded

easyTorque			appropriate replaceable blade
			
Size	Torque	Order No.	Order No.
5IP	0,38 Nm	L05 00902	L05 00700
6IP	0,62 Nm	L05 00912	L05 00710
6IP	1,01 Nm	L05 00922	
8IP	1,28 Nm	L05 00932	L05 00730
8IP	1,8 Nm	L05 03320	
8IP	2,25 Nm	L05 00942	
9IP	2,50 Nm	L05 00952	L05 00740
10IP	2,80 Nm	L05 00962	L05 00750
15IP	4,30 Nm	L05 00972	L05 00760

Supply includes: Torque wrench without replaceable blade.

Torque wrench TorqueVario ®
adjustable with scale

TorqueVario ®				
				
Size	Torque	Order No.	Adjusting key	Replaceable blades
5IP – 7IP	0,38 - 1,01 Nm	L05 00781	L05 00990	L05 00700
				L05 00710
				L05 00720
9IP – 20IP	2,25 - 6,25 Nm	L05 00791	L05 00990	L05 00740
				L05 00750
				L05 00760
				L05 00770

Supply includes:
Torque wrench with adjusting key and replaceable blades.

TORX PLUS ®			
			
Size	Order No.	Size	Order No.
5IP	L05 00800		
6IP	L05 00810		
7IP	L05 00820		
8IP	L05 00830		
9IP	L05 00840		
10IP	L05 00850		
15IP	L05 00860		
20IP	L05 00870		

The old Torx keys do fit the new TORX PLUS ® shape but we recommend only. TORX PLUS ® keys be used for tightening screws.

TORX ® and TORX PLUS ® are registered trademarks for the Acument Intellectual Properties, LLC, Troy Mich., US
TorqueFix ® and TorqueVario ® are registered trademarks for the Wiha Werkzeuge GmbH, Schonach

To ensure the correct starting torque on screws, the torque key from the TORX ® and TORX PLUS ® system has. Complies with the following requirements: EN ISO 6789, BS EN 26789, ASME B107.14M (with certificate).

TORX ®

Torque wrench



Size	Torque	Order No.
T8 – T20	1 – 5 Nm (0,2 Nm)	L05 00600

Replaceable blades

Size	Order No.
T8	L05 00601
T15	L05 00603
T20	L05 00604

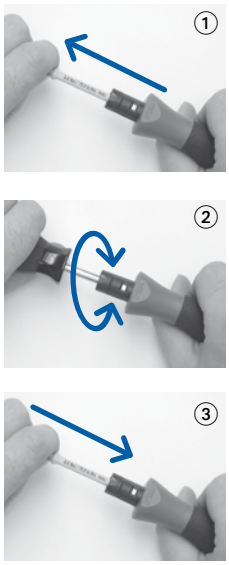
Supply includes: Torque wrench with adjusting key without replaceable blade.

Changing the torque

① Remove blade

② Insert adjusting key in variable torque key handle and turn to set the required torque. The appropriate IP size can be read from the graduated scale.

③ Push blade in again



TORX ®



Size	Order No.
T8	L05 00605

TORX ®



Size	Order No.
T15	L05 00607
T20	L05 00608

Allen key



~ISO 2936L

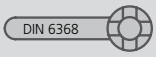
Widht across flats WAF	Order No.
4	18591 10041

Allen key



Widht across flats WAF	Order No.
1,5	18591 10015
2,5	18591 10025
3	18591 10030
4	18591 10040
5	18591 10050
6	18591 10060
10	18591 10100

Key



Size	Order No.
16	18701 80016
22	18701 80022
27	18701 80027
32	18701 80032
40	18701 80040
50	18701 80050

on request

KOMET® APP

Products
Product menu with a short, descriptive text to the portfolio



Cutting data
Cutting data: speed, feed, processing time, power and torque can be calculated.



Calculator screen
Here you can enter the diameter and the cutting speed, is automatically calculated.





Material classification
International translation table for material classification.



Technical dictionary
German/English with full-text search. Many common words from the machining and tool world.



Videos
Links to the KOMET GROUP product videos on YouTube®

KOMET® BRINKHAUS ToolScope APP



App TS-PM | Process monitoring
- Self-learning process monitoring with statistical tolerance bands
- Detection of tool breakages, faulty processes, missing workpieces and/or tools
- Monitoring of compliance with user-defined limit values
- Monitoring of series processes and small batch sizes
- Reduction of rejects, rework, follow-on tool breakages



App TS-Wear | Wear monitoring
- Monitoring actual tool wear based on specific values from the process itself
- Optimum exploitation of tool life quantities
- Counter for the number of times the tool is used



App TS-WLog | Tool change log
- Analysis of tool change times, and of reasons for tool changes
- Analysis of tool life
- Discovery of potential for savings



App TS-CD | Collision detection
- By triggering an emergency stop in the event of a collision, repair costs are significantly reduced
- Reaction time 2 ms
- Lowers expenditure in terms of cost and time in the event of a collision; reduces machine downtime
- Can be of use in reducing the insurance premium for a machine



App TS-Cloud | Cloud function
- Saving of process data by network-push onto company server or network drive
- Analysis at your own workplace
- Process data can be used/analysed from every workplace in the company around the world



App TS-AFC | Adaptive feed control
- Variation in the feed-rate override while taking account of the current torque load on the spindle, in order to:
  a) Cut down on machining time when the spindle is not under heavy load
  b)To protect the tool and machine when the spindle is experiencing overload
- Control range individually adaptable
- Particularly relevant for fluctuations in machining tolerance
- Control of chatter vibration, countermeasures if the machine swings up out of position



App QS-Rep | Quality monitoring / documentation
- Automatic documentation of the process data as a PDF, PNG or Excel file
- Monitoring according to commonly used aviation standards, such as GE-P11TF12, for example
- Automated production of calibration reports
- Informative indicators are oriented according to the requirements of the certifying agent



App TS-BDE | Automatic shift log
- Creation of an automatic shift record, machine at rest, machine in production, machine in fault-mode due to message from ToolScope, ToolScope learns, machine processed in override equal to 100%



App TS-CM | Condition Monitoring
- Monitoring of machine-internal sensor values which allow conclusions to be drawn concerning the condition of the machine
- For example, axis feed-rate torques in order to form a conclusion about the friction generated in bearings (trend values are established)
- Monitoring of vibration on the machine
- Monitoring of dynamic behaviour of axes
- Capture of measurement data by special NC program which is carried out periodically (for example, weekly)



App Opt-Service | Process improvement as a service
- KOMET® is the only tool manufacturer who thoroughly understands tools, processes and process monitoring
- KOMET® optimises the use of tools, process times and production processes
- Shortening cycle time by developing combination tools, modifying NC programs, maintaining the KOMET® assistance system for machining, in order to always guarantee customers the optimum settings and the best possible benefit

TOOLS+IDEAS®

A PLUS for our customers and the environment

The company targets

The KOMET GROUP pursues a consistent policy of investments and achieves long-term and profitable growth via continuous improvement of products and processes as well as via consistent qualification of employees. This increases the value of the company. The KOMET GROUP consistently increases its innovation quota via research and development, offering the market new products every year. The KOMET GROUP is a premium quality manufacturer and motivates employee qualification and customers in their IDEAS FACTORY. The training quota of vocational beginners is exemplary for the entire field of business.

The products and services

KOMET GROUP products and services offer the customer incomparable added value. The KOMET GROUP develops, manufactures and sells the comprehensive, modular portfolio on bore machining as full-range suppliers. The KOMET GROUP offers the innovative technologies, thereby taking the high economic viability, best quality and most attractive designs into account. The KOMET GROUP sees itself not purely as a tool manufacturer, but rather as suppliers of innovative solutions and ideas for the benefit of the customer: TOOLS+IDEAS®.

The customer

The KOMET GROUP places value on long-term, binding customer relations, seeing itself as a partner of the customer in a balance of benefit supplies and benefit harvests.
The KOMET GROUP records customers' demands and then produces the most effective ideas and tool solutions for their machining tasks. The KOMET GROUP offers the customer information and collaboration via their worldwide presence in local Service Centres. The IDEAS FACTORY supports vocation-related training and further qualifications for customers.

The environment / surroundings

The KOMET GROUP feels itself obliged to avoid any wastage, and therefore commits itself to responsible usage of raw materials and careful utilisation of remaining materials.
The KOMET GROUP management is well aware of its responsibilities towards society, and creates the foundations for modern working environments and working conditions. The specifications on ergonomics and work safety are taken into account. Beholden to the founder, Robert Breuning, the KOMET GROUP supports the site at Besigheim, maintaining direct contact to schools and social facilities in the region.

With these claims in mind, the KOMET GROUP has introduced a modern, integrated management system, known as KMS (KOMET Management System), which is certified in accordance with ISO 9001:2008, ISO 14001:2009 and the German „Akkreditierungs-und Zulassungsverordnung Arbeitsförderung – AZAV".

Certification

http://www.kometgroup.com/navigation-top/download/service/zertifikate.html

Energy efficiency and resource conservation

The KOMET GROUP is now also focussing on the issue of „energy efficiency". The reason is that metal machining companies need intelligent products, processes and systems in this regard as well, in order to successfully meet the challenges that the future holds.
Bluecompetence is the sustainability initiative launched by the VDMA (German Engineering Association) with which the KOMET GROUP has also associated itself. By combining the resources, expertise and strengths of all members of the VDMA, the intention is to consolidate and enhance the joint global position as the technology leader in sustainable production and products.

Certified Management System
Quality Management ISO 9001
Environmental Management ISO 14001
Arbeitsmarktinstrumente AZAV
BLUEcoMPETENCE Alliance Member
Partner of the Engineering Industry Sustainability Initiative
MIX Papier aus verantwortungsvollen Quellen FSC® C015194 www.fsc.org
carbon neutral natureOffice.com | DE-266-715056 print production

International material classification (to VDI 3323 standard)

	Material		DIN	AISI / SAAE	BS EN	AFNOR	SS	UNI	UNE	JIS
P	1.0	1.0038	RSt37-2	A570-36	4360 40C	E24-2NE	1311			
	1.0	1.0116	St37-3	A573-81 65	4360 40B	E24-U	1312			
	1.0	1.0144	St44-3	A573-81	4360 43C	E28-4	1412			
	1.0	1.0201	St36	1006		Fd5	1160			
	1.0	1.0345	H1	A515 65	1 501 161	A37CP	1330			
	2.0	1.0401	C15	1015;1016;1017	080M15	CC12	1350	C15C16	F.111	
	2.0	1.0402	C22	1020;1023	055M15;070M20 ... 2C	AF42C20;XC25;1C22	1450	C20; C21; C25	1C22F.112	S20C; S22C
	2.0	1.0436	Ast45	A662C	1 501 224	A48FP	2103			
	2.0	1.0443	GS-45	A27 65-35	A1	E23-45M				
	2.0	1.0473	19Mn6	A537 1	1 501 224	A52CP	2101			
	2.0	1.0501	C35	1035	060A35	CC35	1550	C35	F.113	
	2.0	1.0503	C45	1043	080M46	AF65C45	1650	C45	F.5110	
	2.0	1.0503	C45	1045	080M46	CC45	1650	C45	F.114	
	2.0	1.0511	C40	1040	080M40	AF60C40		C40	F.114.A	
	2.0	1.0535	C55	1055	070M55		1655	C55	F.115	
	2.0	1.0551	GS-52	A27 70-36	A2	280-480M	1505			
	2.0	1.0553	GS-60	A148 80-40	A3	320-560M	1606			
	2.0	1.0577	Ast 52	A738	1 501 224	A52FP	2107			
	2.0	1.0601	C60	1060	080A62 ... 43D	CC55		C60		
	2.0	1.0841	St52-3	5120	150M19	20MC5	2172	Fe52	F.431	
	2.0	1.1121	Ck10	1010	045M10	XC10	1265	C10	F.1510-C10K	
	2.0	1.1133	20Mn5	1022;1518	120M19	20M5	1132	G22Mn3;20Mn7	F.1515-20Mn6	SMnC420
	2.0	1.1141	CK 15	1015, 1017	080M15	XC18	1370		F.1511	
	2.0	1.1158	C25E;Ck25	1025	070M26	2C25;XC25	1450	C25	F.1120-C25k	S25C; S28C
	2.0	1.1183	Cf35	1035	060A35	XC38TS	1572	C36		S35C
	2.0	1.1191	Ck45	1042	080A47	XC45	1660	C45	F.1140	
	2.0	1.1545	C105W1	W110	BW1A	Y105	1880	C36KU	F.5118	SK3
	2.0	1.5415	15Mo3	ASTM A204Gr.A	1501-240	15D3	2912	16Mo3KW	16Mo3	STBA 12
	2.0	1.5423	16Mo5	4520	1503-245-420			16Mo5	16Mo5	
	2.0	1.5622	14Ni6	ASTM A350LF5		16N6		14Ni6	15Ni6	
	2.1	1.0715	9 SMn28	1213	230M07	S250	1912	CF9SMn28	11SMn28	SUM22
	2.1	1.0718	9 SMnPb28	12 L 13		S250Pb	1914	CF9SMnPb28	11SMnPb28	SUM22,3,4L
	2.1	1.0722	10 SPb20	11 L 08		10PbF2		CF10 SPb20	10SPb20	
	2.1	1.0726	35S20	1140	212M36 ... 8M	35M F6	1957		F.210.G	
	2.1	1.0727	45S20	1146		45M F4	1973			
	2.1	1.0736	9SMn36	1215	240M07 ... 1b	S300		CF9SMn36	12SMn35	SUM25
	2.1	1.0737	9SMnPb36	12 L 14		S300Pb	1926	CF9SMnPb36	12SMnP35	
	3.0	1.0904	55Si7	9255	250A53 ... 45	55S7	2085	55Si8	56Si7	
	3.0	1.0961	60SiCr8	9262		60SC6		60SiCr8	60SiCr8	
	3.0	1.1157	40Mn4	1039	150M36 ... 15	35M5				
	3.0	1.1167	36Mn5	1335	150M36	40M5	2120		36Mn5	SMn438(H)
	3.0	1.1170	28Mn6	1330	150M28 ... 14A	20M5		C28Mn		SCMn1
	3.0	1.1203	Ck55	1055	070M55	XC55		C50	F.1203-36MnG	S55C
	3.0	1.1213	Cf53	1050	060A52	XC48TS	1674	C53		S50C
	3.0	1.1221	Ck60	1064	060A62	XC65	1678	C60	F.1150	
	3.0	1.1231	Ck67	1070	070A72	XC68	1770	C70	F.141	
	3.0	1.1248	Ck75	1080	060A78	XC75	1774		F.5107	
	3.0	1.1274	Ck101	1095	060A96	XC100	1870		F.5117	
	3.0	1.2713	55NiCrMoV6	L6		55NCDV7			F.520.S	SKT4
	3.0	1.2721	50NiCr13	L6		55NCV6	2550		F.528.S	
	3.0	1.3401	G-X120Mn12	ASTM A128 75	BW10	Z120M12	2183	GX120Mn12	AM-X120Mn12	SCMnH/1
	3.0	1.3505	100Cr6	52100	534A99 ... 31	100C6	2258	100Cr6	F.131	SUJ2
	3.0	1.5662	X8Ni9	ASM A353	502-650	9 Ni		X10Ni9	F.2645	SL9N60(53)
	3.0	1.5680	12Ni19	2515 (2517)	12Ni19	Z18N5		12Ni19	12Ni19	SL5N60
	3.0	1.5710	36NiCr6	3135	640A35 ... 111A	35NC6				SNC236
	3.0	1.5732	14NiICr10	3415		14NC11		16NiCr11	15NiCr11	SNC415(H)
	3.0	1.5752	14NiICr14	3310	655M13 ... 36A	12NC15				SNC815(H)
	3.0	1.6511	36CrNiMo4	9840	816M40 ... 110	40NCD3		36NiCrMo4(KB)	F.128	
	3.0	1.6523	21NiCrMo2	8620, 8617	805M20 ... 362	20NCD2	2506	20NiCrMo2	20NiCrMo2	SNCM220(H)
	3.0	1.6546	40NiCrMo22	8740, 8640, 8742	311-Type 7	40NCD2		40NiCrMo2(KB)	F.129	SNCM240
	3.0	1.6582	35CrNiMo6	4340	817M40 ... 24	35NCD6	2541	35NiCrMo6(KB)	F.127	
	3.0	1.6587	17CrNiMo6	4317	820A16	18NCD6			14NiCrMo13	
	3.0	1.6657	14NiCrMo13-4	9310	832M13 ... 36C			15NiCrMo13	14NiCrMo131	
	3.0	1.7015	15Cr3	5015	523M15	12C3				SCr415(H)
	3.0	1.7033	34Cr4	5132	530A32 ... 18B	32C4		34Cr4(KB)	35Cr4	SCr430(H)
	3.0	1.7035	41Cr4	5140	530M40 ... 18	42C4		41Cr4	42Cr4	SCr440(H)
	3.0	1.7039	34MoCrS4 G	L1	524A14		2092	105WCR 5		
	3.0	1.7045	42Cr4	5140			2245		42Cr4	SCr440
	3.0	1.7131	16MnCr5	5115	(527M20)	16MC5	2511	16MnCr5	16MnCr5	
	3.0	1.7139	16MnCr5				2127			
	3.0	1.7176	55Cr3	5155	527A60 ... 48	55C3				SUP9(A)
	3.0	1.7218	25CrMo4	4130	1717CDS110	25CD4	2225	25CrMo4(KB)	55Cr3	SCM420/430
	3.0	1.7220	34CrMo4	4135, 4137	34CrMo4	34CD4	2234	35CrMo4	34CrMo4	SCM435TK
	3.0	1.7223	41CrMo4	4142				41CrMo4	42CrMo4	SNB 22-1
	3.0	1.7225	42CrMo4	4140	708M40 ... 19A	42CD4	2244	42CrMo4	42CrMo4	SCM440(H)
	3.0	1.7262	15CrMo5			12CD4	2216		12CrMo4	SCM415(H)
	3.0	1.7335	13CrMo4 4	ASTM A182 F-12				14CrMo4 5	14CrMo45	
	3.0	1.7337	16CrMo44	ASTM A387 12-2	1501 620	15CD 4.5	2216	12CrMo910		
	3.0	1.7361	32CrMo12		722M24 ... 40B	30CD12	2240	32CrMo12	F.124.A	
	3.0	1.7715	14MoV6 3		1503-660-440				13MoCrV6	
	3.0	1.8159	50CrV4	6150				50CrV4	F.143	
	3.0	1.8509	41CrAlMo7	ASTM A290	905M39 ... 41B	40CAD6, 12	2940	41CrAlMo7	41CrAlMo7	
	3.0	1.8515	31 CeMo 12		722M24	30 CD 12	2240	30CrMo12	F.01712	
	3.0	1.8523	39CrMoV13 9		897M39 ... 40C			36CrMoV12		
	4.0	1.2067	100Cr6	L3	BL3	Y100C6			100Cr6	
	4.0	1.2080	X210Cr12	D3	BD3	Z200C12		X210Cr13KU	X210Cr12	SKD1
	4.0	1.2083	X42Cr13			X40Cr14	2314		F.5263	
	4.0	1.2344	X40CrMoV5 1	H13	BH13	Z40CDV5	2242	X40CrMoV511KU	F.5318	SKD61

International material classification (to VDI 3323 standard)

	Material		DIN	AISI / SAAE	BS EN	AFNOR	SS	UNI	UNE	JIS
P	4.0	1.2363	X100CrMoV5 1	A2	BA2	Z100CDV5	2260	X100CrMoV51KU	F.5227	SKD12
	4.0	1.2379	X155CrVMo121	D2	BD2	Z160CDV12	2310	X155CrVMo12 1KU	F.520.A	SKD11
	4.0	1.2419	105WCr6			105WC13	2140	107WCr5	105WCr5	SKS31
	4.0	1.2436	X210 CrW 12	D4 (D6)	BD6	Z200CD12-01	2312	X215CrW12 1KU	F.5213	
	4.0	1.2542	45WCrV7	S1	BS1	45WCrV8	2710	45WCrV8KU	F.524	
	4.0	1.2581	X30WCrV9 3	H21	BH21	Z30WCV9		X30WCrV9 3KU	F.526	SKD5
	4.0	1.2601	X165CrMoV12				2310	X165CrMoW12KU	F.5211	
	4.1	1.3243	S6/5/2/5	M35	BM35	6-5-2-5	2723	HS6 5 2 5	F.5613	SKH55
	4.1	1.3343	S6/5/2	M2	BM2	Z85WDCV	2722	HS6 5 2	F.5604	SKH51
	4.1	1.3348	S2/9/2	M7		2 9 2	2782	HS2 9 2		
S	5.0	–	CoCr22W14	AMS 5772		KC22				
	5.0	1.4362	X2CrNiN23 4	S32304		Z2CN23-04AZ	2327			
	5.0	1.4460	X8CrNiMo27-5	S32900			2324			
	5.0	1.4462	X2CrNiMoN2253	S31803		Z2CND22-05-03	2377			
	5.0	2.4375	NiCu30Al	4676	3072-76					
	5.0	2.4603	NiCr 30 FeMo	5390A		NC22FeD				
	5.0	2.4630	NiCr20Ti		HR5,203-4	NC20T				
	5.0	2.4631	NiCr20TiAk		Hr40,601	NC20TA				
	5.0	2.4856	NiCr22Mo9N	5666		NC22FeDNB				
	5.0	2.4973	NiCr19Co11	AMS 5399		NC19KDT				
	5.0	LW2.467	S-NiCr13A16	5391	3146-3	NC12AD				
	5.0	LW2.466	NiFe35Cr14	5660		ZSNCDT42				
	5.0	LW2.466	NiCr19Fe19	5383	HR8	NC19FeNb				
	5.0	LW2.466	NiCr19Fe19	AMS 5544		NC20K14				
	5.0	LW2.467	NiCo15Cr10	AMS 5397						
	5.0	LW2.496	CoCr20W15	5537C		KC20WN				
	5.1	–	TiAl4Mo4Sn4Si0.5							
	5.1	–	TiAl6V4ELI	AMS R56401	TA11					
	5.1	3.7114	TiAl5Sn2.5	AMS R54520	TA14/17	T-A5E				
	5.1	3.7164	TiAl6V4	AMS R56400	TA10-13/TA2	T-A6V				
M	6.0	1.4000	X7Cr13	403	403S17	Z6C13	2301	X6Cr13	F.3110	SUS403
	6.0	1.4006	X10Cr13	410	410S21 ... 56A	Z10C14	2302	X12Cr13	F.3401	SUS410
	6.0	1.4021	X20Cr13	420	420S37	Z20C13	2303	X20Cr13		
	6.0	1.4034	X46Cr13		420S45 ... 56D	Z40CM	2304	X40Cr14	F.3405	SUS420J2
	6.0	1.4057	X22CrNi17	431	431S29 ... 57	Z15CNi6.02	2321	X16CrNi16	F.3427	SUS431
	6.0	1.4104	X12CrMoS17	430F		Z10CF17	2383	X10CrS17	F.3117	SUS430F
	6.0	1.4112	X90 CrMoV 18	440B						
	6.0	1.4113	X6CrMo17	434	434S17	Z8CD17.01	2325	X8CrMo17		SUS434
	6.0	1.4305	X12CrNiS18 8	303	303S21 ... 58M	Z10CNF18.09	2346	X10CrNiS18.09	F.3508	SUS303
	6.0	1.4306	X2CrNiN18 9	304L	304S12	Z2CrNi18 10	2352	X2CrNi18 11	F.3503	SCS19
	6.0	1.4310	X12CrNi17 7	301		Z12CN17.07	2331	X12CrNi17 07	F.3517	SUS301
	6.0	1.4311	X4CrNiN18 10	304LN	304S62	Z2CN18.10	2371			SUS304LN
	6.0	1.4313	X5CrNi13 4		425C11	Z4CND13.4M				SCS5
	6.0	1.4350	X5CrNi189	304	304S31 ... 58E	Z6CN18.09	2332/2333	X5CrNi18 10	F.3551	SUS304
	6.0	1.4401	X5CrNiMo18 10	316	316S16 ... 58J	Z2CND17.11	2347	X5CrNiMo17 12	F.3543	SUS316
	6.1	1.4429	X2CrNiMoN1813	316LN		Z2CND17.13	2375			SUS316LN
	6.1	1.4435	X2CrNiMo18 12	316L	316S13	Z2CND17.12	2353			X2CrNiMo17 12
	6.1	1.4438	X2CrNiMo18 16	317L	317S12	Z2CND19.15	2367			X2CrNiMo18 16
	6.1	1.4541	X10CrNiTi18 9	321	321S12 ... 58B	Z6CNT18.10	2337	X6CrNiTi18 11	F.3553	SUS321
	6.1	1.4542/1.4548	X5CrNiCuNb17-4-4	630		Z7CNU17-04				
	6.1	1.4550	X10CrNiNb	347	347S17 ... 58F	Z6CNNb18.10	2338	X6CrNiNb18 11	F.3552	SUS347
	6.1	1.4568/1.4504	X12CrNiAl177	17-7PH	316S111			Z8CNA17-07	X2CrNiMo1712	
	6.1	1.4571	X10CrNiMoTi18	316Ti	320S17 ... 58J	Z6NDT17.12	2350	X6CrNiMoTi17 12	F.3535	
	6.1	1.4583	X10CrNiMoNb18	318		Z6CNDNb17 13B		X6CrNiMoNb	17 13	
	7.0	1.4718	X45CrSi9 3	HW 3	401S45 ... 52	Z45CS9		X45CrSi8	F.3220	SUH1
	7.0	1.4724	X10CrA113	405	403S17	Z10C13		X10CrA112	F.311	SUS405
	7.0	1.4742	X10CrA118	430	439S15 ... 60	Z10CAS18		X8Cr17	F.3113	SUS430
	7.0	1.4747	X80CrNiSi20	HNV6	443S65 ... 59	Z80CSN20.02		X80CrSiNi20	F.320B	SUH4
	7.0	1.4762	X10CrA124	446		Z10CAS24	2322	X16Cr26		SUH446
	7.0	1.4828	X15CrNiSi20 12	309	309S24	Z15CNS20.12				SUH309
	7.0	1.4845	X12CrNi25 21	310S	310S24	Z12CN25 20	2361	X6CrNi25 20	F.331	SUH310
	7.0	1.4864	X12NiCrSi	330		Z12NCS35.16				SUH330
	7.0	1.4865	G-X40NiCrSi		330C11			XG50NiCr		SCH15
	7.0	1.4871	X53CrMnNiN219	EV8	349S54	Z52CMN21.09		X53CrMnNiN		SUH35,SUH36
K	8.0	0.6010	GG10	A48 20 B		Ft10D	01 10-00	G10	FG10	
	8.0	0.6015	GG15	A48 25 B	Grade 150	Ft15D	01 15-00	G14	FG15	
	8.0	0.6020	GG20	A48 30 B	Grade 220	Ft20D	01 20-00	G20	FG20	
	8.0	0.6025	GG25	A48 35 B	Grade 260	Ft25D	01 25-00	G25	FG25	
	8.0	0.6030	GG30	A48 45 B	Grade 300	Ft30D	01 30-00	G30	FG30	
	8.0	0.6035	GG35	A48 50 B	Grade 350	Ft35D	01 35-00	G35	FG35	
	8.0	0.6040	GG40	A48 60 B	Grade 400	Ft40D	01 40-00			
	9.0	0.7033	GGG35.3				07 17-1			
	9.0	0.7040	GGG40	60-40-18	SNG420/12	FGS400-12	07 17-0 2	GS400-12		FCD40
	9.0	0.7043	GGG40.3	0.7043	SNG370/17	FGS370-17	07 17-1 5	GSO42/15		
	9.0	0.7050	GGG50	80-55-06	SNG500/7	FGS500-7	07 27-0 2	GS500/7		FCD50
	9.0	0.7060	GGG60		SNG600/3	FGS600-3	07 32-0 3	GS600/3		FCD60
	9.0	0.7070	GGG70	100-70-03	SNG700/2	FGS700-2	07 37-0 1	GS700/2		FCD70
	9.0	0.8135	GTS-35	32510	B340/12	MN35-10	08 15			
	9.0	0.8145	GTS-45	400 10	P440/7		08 52			
	9.0	0.8155	GTS-55	50005	P510/4	MP50-5	08 54			
	9.0	0.8165	GTS-65	70003	P570/3	MP60-3	08 58			
N	14.0	3.2162	GD-AlSi8Cu3	A380.1	LM24		4250			
	14.0	3.2381	G-AlSi10Mg	A360.2	LM9		4253			
	14.0	3.2581	G-AlSi12	A413.2	LM6		4261			
	14.0	3.2583	G-AlSi12(Cu)	A413.1	LM20		4260			
	14.0	3.2982	GD-AlSi12	A413.0			4247			

Numerical index

Order No.	Page
16301 00537	800
18021 01032	791
18021 01040	791
18021 01050	791
18021 01063	791
18021 01080	791
18021 01100	791
18591 10015	803
18591 10025	803
18591 10030	803
18591 10040	803
18591 10041	803
18591 10050	803
18591 10060	803
18591 10080	307
18591 10100	803
51391 00032	791
51391 00040	791
51391 00050	791
51391 00063	791
51391 00080	791
51391 00100	791
51560 74551	800
52710 00053	282
52806 16...	390
52806 20...	390
52806 25...	390
52806 32...	390
52806 33...	390
52911 01010	786
52911 01315	786
52911 01615	786
52911 02515	786
52911 03015	786
52911 04220	786
52911 05030	786
52914 00512	791
52914 00751	791
52914 00920	791
52914 01020	791
52914 01025	791
52914 01320	791
52914 01430	791
52914 01615	282
52914 03015	796
52914 04015	796
55011 03010	787
55011 03016	204
55011 04012	787
55011 04020	204
55011 05012	204
55011 05016	204
55011 05025	204
55011 05030	257
55011 06020	204
55011 06030	204
55011 08035	204
55011 08045	204
55011 10050	204
55011 12060	204
55041 00810	786
55041 01010	786
55041 01215	786
55041 01615	786
55041 03615	786
55051 02505	204
55051 03006	131
55051 03008	176
55051 04008	204

Order No.	Page
55051 04010	131
55051 04010	131
55051 04012	131
55051 05005	307
55051 05008	178
55051 05010	178
55051 06006	310
55051 06008	180
55051 06010	288
55051 06012	204
55051 06020	204
55051 08008	242
55051 08010	307
55051 08020	204
55051 08025	180
55051 08120	242
55051 10010	310
55051 10012	307
55051 10020	204
55051 12012	310
55051 12016	307
55051 16020	307
55051 20025	307
55051 20030	310
55052 06010	288
55052 06012	288
55052 12016	186
55052 12020	186
55231 04017	796
55231 05020	796
55231 07025	796
55231 08025	796
55231 10030	796
55231 12540	796
55391 01240	797
55391 01645	797
55391 02050	797
55391 51640	797
55391 52045	797
55391 52450	797
55392 01240	797
55392 01645	797
55392 02050	797
55392 51640	797
55392 52045	797
55392 52450	797
56771 10053	246
56941 00811	786
56941 01013	786
56941 01215	786
56941 01620	786
58797012000065	472
58797016000088	472
58797020000095	472
58797025000106	472
58797032000110	472
58798012000085	472
58798012000105	472
58798012000125	472
58798016000108	472
58798016000128	472
58798016000148	472
58798016000168	472
58798016000198	472
58798020000110	472
58798020000130	472
58798020000150	472
58798020000170	472
58798020000190	472
58798025000131	472
58798025000156	472

Order No.	Page
58798025000181	472
58798025000206	472
58798025000231	472
58798032000160	472
58798032000210	472
58798032000260	472
58798032000310	472
58798036000160	472
58798036000310	472
75000 12150	282
A01 01130	468
A01 01140	468
A01 01150	468
A01 01160	468
A01 01240	468
A01 01250	468
A01 01260	468
A01 01270	468
A01 01450	468
A01 01460	468
A01 01470	468
A01 01490	468
A01 10151	476
A01 10241	476
A01 10251	476
A01 10261	476
A01 10271	476
A01 10351	476
A01 10361	476
A01 10371	476
A01 10451	476
A01 10461	476
A01 10471	476
A01 11152	474
A01 11252	474
A01 11262	474
A01 11271	474
A01 11352	474
A01 11362	474
A01 11372	474
A01 11452	474
A01 11462	474
A01 11472	474
A01 11482	474
A01 14251	475
A01 14261	475
A01 14351	475
A01 14361	475
A01 14370	475
A01 15450	473
A01 15460	473
A01 15550	473
A01 15560	473
A01 15570	473
A01 15650	473
A01 15660	473
A01 15670	473
A01 15750	473
A01 15760	473
A01 15770	473
A01 15780	473
A05 03140	419
A05 03150	419
A05 03160	419
A05 03340	419
A05 03350	419
A05 03360	419
A05 03370	419
A05 06140	433

Order No.	Page
A05 06150	433
A05 06160	433
A05 06340	433
A05 06350	433
A05 06360	433
A05 06370	433
A05 12071	420
A05 12081	420
A05 12091	420
A05 12101	420
A05 12111	420
A05 12121	420
A05 12131	420
A05 12141	420
A05 12151	420
A05 12161	420
A05 12271	420
A05 12281	420
A05 12291	420
A05 12301	420
A05 12311	420
A05 12321	420
A05 12331	420
A05 12341	420
A05 12351	420
A05 12361	420
A05 13140	418
A05 13151	418
A05 13161	418
A05 13340	418
A05 13351	418
A05 13361	418
A05 13370	418
A05 16140	432
A05 16150	432
A05 16160	432
A05 16340	432
A05 16350	432
A05 16360	432
A05 16370	432
A05 24070	421
A05 24080	421
A05 24090	421
A05 24100	421
A05 24110	421
A05 24120	421
A05 24130	421
A05 24140	421
A05 24150	421
A05 24160	421
A05 24270	421
A05 24280	421
A05 24290	421
A05 24300	421
A05 24310	421
A05 24320	421
A05 24330	421
A05 24340	421
A05 24350	421
A05 24360	421
A05 24370	421
A05 92090	422
A05 92100	422
A05 92120	422
A05 97530	422
A05 97550	422
A05 97570	422
A05 97630	422
A05 97670	422
A05 97690	422
A05 97730	434
A05 97750	434

Order No.	Page
A05 97770	434
A05 97870	434
A05 97890	434
A06 00120	382
A06 00130	382
A06 06010	480
A06 06020	480
A06 06030	480
A06 06040	480
A06 06050	480
A06 06061	480
A06 06071	480
A06 10120	382
A06 10140	382
A06 16040	480
A06 16050	480
A06 16061	480
A06 16071	480
A06 16081	480
A06 16091	480
A06 20121	382
A06 20131	382
A06 20141	382
A06 20151	382
A06 20601	386
A06 20801	386
A06 21001	386
A06 21201	386
A06 21401	386
A06 21601	386
A06 21801	386
A06 22001	386
A06 23301	388
A06 23311	388
A06 23321	388
A06 23331	388
A06 23341	388
A06 23351	388
A06 23361	388
A06 23371	388
A06 23401	390
A06 23431	390
A06 23470	790
A06 23480	400
A06 23530	393
A06 23570	393
A06 23610	399
A06 23620	399
A06 23751	396
A06 23761	396
A06 23771	396
A06 23781	396
A06 26040	480
A06 26050	480
A06 26061	480
A06 26071	480
A06 26081	480
A06 26091	480
A06 26101	480
A06 26111	480
A06 30050	382
A06 30070	382
A06 30120	382
A06 30130	382
A06 30140	382
A06 30150	382
A06 30160	382
A06 30170	382
A06 30220	382
A06 30251	385
A06 30261	385

Order No.	Page
A06 30270	385
A06 30360	383
A06 30600	386
A06 30800	386
A06 31000	386
A06 31200	386
A06 31400	386
A06 31600	386
A06 31800	386
A06 32000	386
A06 32500	386
A06 33200	386
A06 33300	388
A06 33310	388
A06 33320	388
A06 33330	388
A06 33340	388
A06 33350	388
A06 33360	388
A06 33370	388
A06 33380	388
A06 33390	388
A06 33400	390
A06 33410	390
A06 33420	390
A06 33430	390
A06 33440	390
A06 33470	790
A06 33480	400
A06 33500	393
A06 33510	393
A06 33520	393
A06 33530	393
A06 33540	393
A06 33550	393
A06 33560	393
A06 33570	393
A06 33580	393
A06 33590	393
A06 33610	399
A06 33620	399
A06 33650	501
A06 33750	396
A06 33760	396
A06 33770	396
A06 33780	396
A06 33790	396
A06 33902	395
A06 33912	395
A06 33922	395
A06 33932	395
A06 33942	395
A06 34020	398
A06 34030	398
A06 34040	398
A06 34060	387
A06 34080	387
A06 34100	387
A06 34120	387
A06 34140	387
A06 34160	387
A06 34180	387
A06 34200	387
A06 34250	387
A06 34320	387
A06 34400	389
A06 34410	389
A06 34420	389
A06 34430	389
A06 34440	389
A06 34450	389
A06 34460	389

Order No.	Page
A06 34470	389
A06 34480	389
A06 34490	389
A06 34500	390
A06 34520	390
A06 34610	401
A06 34620	401
A06 34630	401
A06 34640	401
A06 34650	401
A06 34660	401
A06 34700	402
A06 34710	402
A06 34770	403
A06 34800	393
A06 34810	393
A06 34820	393
A06 34830	393
A06 34840	393
A06 34850	393
A06 34860	393
A06 34870	393
A06 34880	393
A06 34890	393
A06 34900	393
A06 34910	393
A06 34920	393
A06 34930	393
A06 34940	393
A06 34950	393
A06 34960	393
A06 34970	393
A06 35100	397
A06 35110	397
A06 35120	397
A06 35130	397
A06 35140	397
A06 35150	397
A06 35160	397
A06 35170	397
A06 35180	397
A06 35190	397
A06 35200	397
A06 35210	397
A06 36040	480
A06 36050	480
A06 36061	480
A06 36071	480
A06 36081	480
A06 36091	480
A06 36101	480
A06 36111	480
A06 36121	480
A06 36131	480
A06 36240	481
A06 36250	481
A06 36261	481
A06 36271	481
A06 36281	481
A06 36291	481
A06 36440	481
A06 36450	481
A06 36461	481
A06 36471	481
A06 36481	481
A06 36491	481
A06 36501	481
A06 36511	481
A06 36521	481
A06 36531	481
A06 36730	384
A06 37530	393

Order No.	Page
A06 37550	393
A06 37570	393
A06 40150	382
A06 50050	382
A06 50060	382
A06 50070	382
A06 50120	382
A06 50130	382
A06 50140	382
A06 50150	382
A06 50160	382
A06 50170	382
A06 50180	382
A06 50251	385
A06 50261	385
A06 50270	385
A06 50360	383
A06 50370	383
A06 50380	383
A06 50600	386
A06 50800	386
A06 51000	386
A06 51200	386
A06 51400	386
A06 51600	386
A06 51800	386
A06 52000	386
A06 52500	386
A06 53200	386
A06 53300	388
A06 53310	388
A06 53320	388
A06 53330	388
A06 53340	388
A06 53350	388
A06 53360	388
A06 53370	388
A06 53380	388
A06 53390	388
A06 53400	390
A06 53410	390
A06 53420	390
A06 53430	390
A06 53440	390
A06 53470	790
A06 53480	400
A06 53500	393
A06 53510	393
A06 53520	393
A06 53530	393
A06 53540	393
A06 53550	393
A06 53560	393
A06 53570	393
A06 53580	393
A06 53590	393
A06 53650	501
A06 53750	396
A06 53760	396
A06 53770	396
A06 53780	396
A06 53790	396
A06 53800	396
A06 53902	395
A06 53912	395
A06 53922	395
A06 53932	395
A06 53942	395
A06 53951	395
A06 53961	395
A06 54060	387
A06 54080	387

Order No.	Page
A06 54100	387
A06 54120	387
A06 54140	387
A06 54160	387
A06 54180	387
A06 54200	387
A06 54250	387
A06 54320	387
A06 54400	389
A06 54410	389
A06 54420	389
A06 54430	389
A06 54440	389
A06 54450	389
A06 54460	389
A06 54470	389
A06 54480	389
A06 54490	389
A06 54500	390
A06 54520	390
A06 54790	403
A06 55100	397
A06 55110	397
A06 55120	397
A06 55130	397
A06 55140	397
A06 55150	397
A06 55160	397
A06 55170	397
A06 55180	397
A06 56040	482
A06 56050	482
A06 56061	482
A06 56071	482
A06 56081	482
A06 56091	482
A06 56101	482
A06 56111	482
A06 56121	482
A06 56131	482
A06 56240	483
A06 56250	483
A06 56261	483
A06 56271	483
A06 56281	483
A06 56291	483
A06 56440	483
A06 56450	483
A06 56461	483
A06 56471	483
A06 56481	483
A06 56491	483
A06 56501	483
A06 56511	483
A06 56521	483
A06 56531	483
A06 56730	384
A06 56740	384
A06 57570	393
A06 57590	393
A08 61031	404
A08 61060	406
A08 71031	404
A08 81030	404
A08 91060	406
A10 16010	484
A10 16020	484
A10 16040	484
A10 16050	484
A10 16061	484

Order No.	Page
A10 16071	484
A10 26010	484
A10 26020	484
A10 26040	484
A10 26050	484
A10 26061	484
A10 26071	484
A10 26081	484
A10 26091	484
A10 36010	484
A10 36020	484
A10 36030	484
A10 36040	484
A10 36050	484
A10 36061	484
A10 36071	484
A10 36081	484
A10 36091	484
A10 36101	484
A10 36111	484
A10 46040	484
A10 46050	484
A10 46060	484
A10 46070	484
A10 46080	484
A10 46090	484
A10 46110	484
A20 00020	444
A20 00030	444
A20 00040	444
A20 00050	444
A20 00060	444
A20 00070	444
A20 00080	444
A20 00090	444
A20 00150	444
A20 00160	444
A20 00170	444
A20 00220	444
A20 00230	444
A20 00240	444
A20 00250	444
A20 00260	444
A20 00270	444
A20 00280	444
A20 00290	444
A20 00530	444
A20 00540	444
A20 00550	444
A20 00560	444
A20 00570	444
A20 00580	444
A20 00620	446
A20 00630	446
A20 00651	447
A20 00661	447
A20 00670	447
A20 01060	448
A20 01070	448
A20 01080	448
A20 01160	448
A20 01170	448
A20 01180	448
A20 01220	451
A20 01230	451
A20 01240	450
A20 01250	450
A20 01260	450
A20 01270	450
A20 01320	451
A20 01330	451

Numerical index

Order No.	Page
A20 01420	451
A20 01430	451
A20 05451	445
A20 05461	445
A20 05471	445
A20 05480	445
A20 05640	445
A20 05652	445
A20 05661	445
A20 05671	445
A20 05680	445
A20 05751	445
A20 05760	445
A20 05770	445
A20 05840	445
A20 05851	445
A20 05861	445
A20 05871	445
A20 05880	445
A20 10120	442
A20 10220	442
A20 10230	442
A20 10320	442
A20 10330	442
A20 10340	442
A20 10420	442
A20 10430	442
A20 10440	442
A20 10450	442
A20 10530	442
A20 10540	442
A20 10550	442
A20 10560	442
A20 10650	442
A20 10660	442
A20 10670	442
A20 10770	442
A20 10780	442
A20 11560	449
A20 11670	449
A20 20330	443
A20 20340	443
A20 20450	443
A20 20550	443
A20 20560	443
A20 20650	443
A20 20670	443
A20 21450	443
A20 21560	443
A21 02001	485
A21 02011	485
A21 02021	485
A21 02031	485
A21 02041	485
A21 04001	485
A21 04011	485
A21 04021	485
A21 04031	485
A21 04041	485
A21 06001	485
A21 06011	485
A21 06021	485
A21 06031	485
A21 06041	485
A21 06052	485
A21 06062	485
A25 06010	486
A25 06020	486
A25 06030	486
A25 06041	488

Order No.	Page
A25 06051	488
A25 06061	488
A25 06071	488
A25 06081	488
A25 06091	488
A25 06101	488
A25 06111	488
A25 06121	488
A25 06240	489
A25 06250	489
A25 06261	489
A25 06271	489
A25 06281	489
A25 06291	489
A25 06301	489
A25 06311	489
A25 26040	488
A25 26050	488
A25 26061	488
A25 26071	488
A25 26081	488
A25 26091	488
A25 26101	488
A25 26111	488
A25 26121	488
A25 26131	488
A25 26240	489
A25 26250	489
A25 26261	489
A25 26271	489
A25 26281	489
A25 26291	489
A25 26301	489
A25 26311	489
A25 36040	486
A25 36050	486
A25 36061	486
A25 36071	486
A25 36081	486
A25 36091	486
A25 36101	486
A25 36111	486
A25 36121	486
A25 36440	487
A25 36450	487
A25 36461	487
A25 36471	487
A25 36481	487
A25 36491	487
A25 36501	487
A25 36511	487
A25 86040	490
A25 86050	490
A25 86061	490
A25 86071	490
A25 86081	490
A25 86091	490
A25 86101	490
A25 86111	490
A25 86121	490
A25 86131	490
A25 96040	491
A25 96050	491
A25 96061	491
A25 96071	491
A25 96081	491
A25 96091	491
A25 96101	491
A25 96111	491
A30 10601	452
A30 10801	452

Order No.	Page
A30 11001	452
A30 20601	452
A30 20801	452
A30 21001	452
A30 21201	452
A30 30601	452
A30 30801	452
A30 31001	453
A30 31201	453
A30 31601	453
A30 40601	453
A30 40801	453
A30 41001	453
A30 41201	453
A30 41601	453
A30 42002	453
A30 42502	453
A30 51001	453
A30 51201	453
A30 51601	453
A30 52001	453
A30 52501	453
A30 61601	453
A30 62001	453
A30 62501	453
A30 63201	453
A32 26050	492
A32 26061	492
A32 26071	492
A32 32060	462
A32 32070	462
A32 32080	462
A32 36050	492
A32 36061	492
A32 36071	492
A32 36091	492
A32 40010	454
A32 40020	454
A32 40030	454
A32 40040	454
A32 40050	454
A32 40060	454
A32 40070	454
A32 40080	454
A32 40090	454
A32 40250	455
A32 40260	455
A32 40270	455
A32 42101	462
A32 42110	462
A32 42120	462
A32 42130	462
A32 42140	462
A32 42150	462
A32 42160	462
A32 42170	462
A32 46040	492
A32 46050	492
A32 46061	492
A32 46071	492
A32 46081	492
A32 46091	492
A32 46101	492
A32 46111	492
A32 50040	454
A32 50050	454
A32 50060	454
A32 50070	454
A32 50080	454
A32 50100	454
A32 50110	454

Order No.	Page
A32 50280	455
A32 52180	462
A32 52190	462
A32 52200	462
A32 56081	492
A32 56101	492
A32 56111	492
A32 56121	492
A32 56131	492
A32 60060	454
A32 60070	454
A32 60080	454
A33 11120	460
A33 12130	460
A33 13141	460
A33 14151	460
A33 15161	460
A33 16171	460
A33 52000...	391
A33 52010...	391
A33 53000...	391
A33 53010...	391
A33 54000...	391
A33 54010...	391
A33 55000...	391
A33 55010...	391
A33 56000...	391
A33 56010...	391
A34 05030	456
A34 05040	456
A34 14020	457
A34 14030	457
A34 14040	457
A34 15050	457
A34 24030	467
A34 24040	467
A34 32060	458
A34 33060	458
A34 34060	458
A34 34070	458
A34 35070	458
A34 35080	458
A34 37100	458
A34 91100..	459
A34 91110..	459
A34 91120..	459
A34 91130..	459
A34 91140..	459
A34 91150..	459
A34 91160..	459
A34 91170..	459
A34 91180..	459
A34 92160..	459
A34 92170..	459
A34 92180..	459
A34 92190..	459
A34 92200..	459
A34 92210..	459
A34 92220..	459
A34 93190..	459
A34 93200..	459
A34 93210..	459
A34 93220..	459
A34 93230..	459
A34 93240..	459
A34 93250..	459
A34 93260..	459
A34 93270..	459
A34 94230..	459
A34 94240..	459

Order No.	Page
A34 94250..	459
A34 94260..	459
A34 94270..	459
A34 94280..	459
A34 94290..	459
A34 94300..	459
A34 94310..	459
A34 94320..	459
A34 96100..	459
A34 96110..	459
A34 96120..	459
A34 96130..	459
A34 96140..	459
A34 96150..	459
A34 96160..	459
A34 96170..	459
A34 96180..	459
A34 97160..	459
A34 97170..	459
A34 97180..	459
A34 97190..	459
A34 97200..	459
A34 97210..	459
A34 97220..	459
A34 98190..	459
A34 98200..	459
A34 98210..	459
A34 98220..	459
A34 98230..	459
A34 98240..	459
A34 98250..	459
A34 98260..	459
A34 98270..	459
A34 99230..	459
A34 99240..	459
A34 99250..	459
A34 99260..	459
A34 99270..	459
A34 99280..	459
A34 99290..	459
A34 99300..	459
A34 99310..	459
A34 99320..	459
A36 33050	477
A36 34050	477
A36 35050	477
A36 36050	477
A36 37050	477
A40 04022	466
A40 04032	466
A40 05021	466
A40 05031	466
A40 05041	466
A40 06031	466
A40 06041	466
A40 06051	466
A40 06061	466
A40 16062	465
A40 17062	465
A40 17072	465
A40 24023	465
A40 24034	465
A40 24043	465
A40 24053	465
A40 25032	465
A40 25042	465
A40 25052	465
A40 25062	465
A40 26042	465
A40 26052	465

Order No.	Page
A40 26062	465
A40 27052	465
A40 27062	465
A50 00120	411
A50 00130	411
A50 00140	411
A50 00150	411
A50 00160	411
A50 00320	411
A50 00330	411
A50 00340	411
A50 00350	411
A50 00360	411
A50 00370	411
A50 00380	411
A50 00380.4000	412
A50 00390	411
A50 00650	413
A50 00850	413
A50 00860	413
A50 00870	413
A50 00880	413
A50 01351	415
A50 01361	415
A50 01451	415
A50 01461	415
A50 01470	415
A50 55120	410
A50 55130	410
A50 55140	410
A50 55150	410
A50 55160	410
A50 55250	410
A50 55260	410
A50 55320	410
A50 55330	410
A50 55340	410
A50 55350	410
A50 55360	410
A50 55370	410
A50 55380	410
A50 56150	414
A50 56160	414
A50 56350	414
A50 56360	414
A50 57151	416
A50 57161	416
A50 57351	416
A50 57361	416
A50 57371	416
A50 76350	412
A50 76360	412
A50 76370	412
A51 14100	425
A51 14110	425
A51 14120	425
A51 14130	425
A51 14140	425
A51 14210	425
A51 14220	425
A51 14230	425
A51 14240	425
A51 14250	425
A51 14300	425
A51 14310	425
A51 14320	425
A51 14330	425
A51 14340	425
A51 14410	425
A51 14420	425

Order No.	Page
A51 14430	425
A51 14440	425
A51 14450	425
A51 14500	417
A51 14510	417
A51 14520	417
A51 14530	417
A51 14540	417
A51 14550	417
A51 14560	417
A51 14570	417
A51 14580	417
A51 14590	417
A51 14600	417
A51 14610	417
A51 14620	417
A51 14630	417
A51 14640	417
A51 14700	417
A51 14710	417
A51 14720	417
A51 14730	417
A51 14740	417
A51 14750	417
A51 14760	417
A51 14770	417
A51 14780	417
A51 15000	437
A51 15010	437
A51 15020	437
A51 15030	437
A51 15100	437
A51 15110	437
A51 15120	437
A51 15130	437
A51 15140	437
A51 15210	437
A51 15220	437
A51 15230	437
A51 15240	437
A51 15250	437
A51 15300	437
A51 15310	437
A51 15320	437
A51 15330	437
A51 15340	437
A51 15410	437
A51 15420	437
A51 15430	437
A51 15440	437
A51 15450	437
A51 15500	435
A51 15510	435
A51 15520	435
A51 15530	435
A51 15540	435
A51 15550	435
A51 15560	435
A51 15570	435
A51 15580	435
A51 15590	435
A51 15600	435
A51 15610	435
A51 15620	435
A51 15700	435
A51 15710	435
A51 15720	435
A51 15730	435
A51 15740	435
A51 15750	435
A51 15760	435

Order No.	Page
A54 00140	438
A54 00150	438
A54 00160	438
A54 00330	438
A54 00340	438
A54 00350	438
A54 00360	438
A54 00370	438
A54 00380	438
A54 10850	439
A54 10860	439
A54 10870	439
A54 10880	439
A55 00120	426
A55 00130	426
A55 00140	426
A55 00150	426
A55 00160	426
A55 00330	426
A55 00340	426
A55 00350	426
A55 00360	426
A55 00370	426
A55 00380	426
A55 02150	431
A55 02160	431
A55 02350	431
A55 02360	431
A55 10650	428
A55 10850	428
A55 10860	428
A55 10870	428
A55 50350	427
A55 50360	427
A55 50370	427
A55 55150	427
A55 55160	427
A55 55350	427
A55 55360	427
A55 55370	427
A55 55380	427
A55 56150	430
A55 56160	430
A55 56350	430
A55 56360	430
A55 57121	429
A55 57131	429
A55 57141	429
A55 57151	429
A55 57161	429
A55 57331	429
A55 57341	429
A55 57351	429
A55 57361	429
A55 57371	429
A55 57381	429
A69 04050	471
A69 05050	471
A69 06050	471
A69 06060	471
A69 08050	471
A69 08060	471
A69 08070	471
B00 00680	292
B00 00690	292
B00 15510	290
B00 15530	290
B00 15610	290
B00 15620	290

Order No.	Page
B00 15630	290
B00 15640	290
B00 15650	290
B00 15661	290
B00 15671	290
B00 15681	290
B00 15691	290
B00 15710	290
B00 15751	290
B00 25510	298
B00 25530	298
B00 25540	298
B00 25610	298
B00 25620	298
B00 25630	298
B00 25640	298
B00 25650	298
B00 25661	298
B00 25671	298
B00 25681	298
B00 25691	298
B00 25700	298
B00 25710	298
B00 25810	298
B00 25820	298
B00 25830	298
B00 25840	298
B00 25850	298
B00 25861	298
B00 25871	298
B00 25911	298
B00 30280	292
B00 30290	292
B00 37010	290
B00 37020	290
B05 20100	244/264
B05 20120	244
B05 20140	264
B05 20160	244
B05 20180	264
B05 20220	244/264
B05 20260	264
B10 01011	500
B10 02011	500
B10 03011	500
B10 04011	500
B10 05011	500
B10 06011	500
B10 07011	500
B30 01010	307
B30 01220	307
B30 02010	307
B30 02020	302
B30 02200	307
B30 03010	307
B30 04010	307
B30 05010	307
B30 06010	307
B30 07010	307
B30 11010	310
B30 11020	310
B30 12010	310
B30 12020	310
B30 13010	310
B30 13020	310
B30 14010	310
B30 14020	310
B30 15010	310
B30 15020	310
B30 16010	310

Order No.	Page
B30 16020	310
B30 17010	310
B30 17020	310
B30 17030	310
C79 18960.025510	675
C79 18960.025605	675
C79 18960.045510	675
C79 18960.045605	675
C79 18960.085510	675
C79 18960.085605	675
C79 18970.025510	676
C79 18970.025605	676
C79 18970.045510	676
C79 18970.045605	676
C79 18970.085510	676
C79 18970.085605	676
C79 18980.015510	677
C79 18980.015605	677
C79 18980.025510	677
C79 18980.025605	677
C79 18980.045510	677
C79 18980.045605	677
C79 18980.085510	677
C79 18980.085605	677
C79 18990.015510	678
C79 18990.015605	678
C79 18990.025510	678
C79 18990.025605	678
C79 18990.045510	678
C79 18990.045605	678
C79 18990.085510	678
C79 18990.085605	678
C79 32960.025510	675
C79 32960.025605	675
C79 32960.045510	675
C79 32960.045605	675
C79 32960.085510	675
C79 32960.085605	675
C79 32960.125510	675
C79 32960.125605	675
C79 32970.025510	676
C79 32970.025605	676
C79 32970.045510	676
C79 32970.045605	676
C79 32970.085510	676
C79 32970.085605	676
C79 32970.125510	676
C79 32970.125605	676
C79 32980.015510	677
C79 32980.015605	677
C79 32980.025510	677
C79 32980.025605	677
C79 32980.045510	677
C79 32980.045605	677
C79 32980.085510	677
C79 32980.085605	677
C79 32980.125510	677
C79 32980.125605	677
C79 32990.015510	678
C79 32990.015605	678
C79 32990.025510	678
C79 32990.025605	678
C79 32990.045510	678
C79 32990.045605	678
C79 32990.085510	678
C79 32990.085605	678
C79 32990.125510	678
C79 32990.125605	678
C83 32010.047625	668
C83 32050.046110	668
C83 32050.086110	668

Numerical index

Order No.	Page
C83 32140.047625	668
C83 32140.083215	668
C83 44010.047625	668
C83 44010.087625	668
C83 44050.086110	668
C84 13810.025510	679
C84 13810.025605	679
C84 13810.045510	679
C84 13810.045605	679
C84 13810.085510	679
C84 13810.085605	679
C84 13840.025510	680
C84 13840.025605	680
C84 13840.045510	680
C84 13840.045605	680
C84 13840.085510	680
C84 13840.085605	680
C84 13860.025510	681
C84 13860.025605	681
C84 13860.045510	681
C84 13860.045605	681
C84 13860.085510	681
C84 13860.085605	681
C84 13940.025510	685
C84 13940.025605	685
C84 13940.045510	685
C84 13940.045605	685
C84 13940.085510	685
C84 13940.085605	685
C84 13960.025510	686
C84 13960.025605	686
C84 13960.045510	686
C84 13960.045605	686
C84 13960.085510	686
C84 13960.085605	686
C84 13970.025510	687
C84 13970.025605	687
C84 13970.045510	687
C84 13970.045605	687
C84 13970.085510	687
C84 13970.085605	687
C84 13980.025510	688
C84 13980.025605	688
C84 13980.045510	688
C84 13980.045605	688
C84 13980.085510	688
C84 13980.085605	688
C84 13990.025510	689
C84 13990.025605	689
C84 13990.045510	689
C84 13990.045605	689
C84 13990.085510	689
C84 13990.085605	689
C84 18140.047625	669
C84 18140.087625	669
C84 18810.025510	679
C84 18810.025605	679
C84 18810.045510	679
C84 18810.045605	679
C84 18810.085510	679
C84 18810.085605	679
C84 18810.125510	679
C84 18810.125605	679
C84 18840.025510	680
C84 18840.025605	680
C84 18840.045510	680
C84 18840.045605	680
C84 18840.085510	680
C84 18840.085605	680
C84 18840.125510	680
C84 18840.125605	680
C84 18860.025510	681
C84 18860.025605	681
C84 18860.045510	681
C84 18860.045605	681
C84 18860.085510	681
C84 18860.085605	681
C84 18860.125510	681
C84 18860.125605	681
C84 18880.025510	682
C84 18880.025605	682
C84 18880.045510	682
C84 18880.045605	682
C84 18880.085510	682
C84 18880.085605	682
C84 18890.025510	683
C84 18890.025605	683
C84 18890.045510	683
C84 18890.045605	683
C84 18890.085510	683
C84 18890.085605	683
C84 18900.025510	684
C84 18900.025605	684
C84 18900.045510	684
C84 18900.045605	684
C84 18900.085510	684
C84 18900.085605	684
C84 18940.025510	685
C84 18940.025605	685
C84 18940.045510	685
C84 18940.045605	685
C84 18940.085510	685
C84 18940.085605	685
C84 18940.125510	685
C84 18940.125605	685
C84 18960.025510	686
C84 18960.025605	686
C84 18960.045510	686
C84 18960.045605	686
C84 18960.085510	686
C84 18960.085605	686
C84 18970.025510	687
C84 18970.025605	687
C84 18970.045510	687
C84 18970.045605	687
C84 18970.085510	687
C84 18970.085605	687
C84 18980.025510	688
C84 18980.025605	688
C84 18980.045510	688
C84 18980.045605	688
C84 18980.085510	688
C84 18980.085605	688
C84 18990.025510	689
C84 18990.025605	689
C84 18990.045510	689
C84 18990.045605	689
C84 18990.085510	689
C84 18990.085605	689
C84 32140.087625	669
C84 32810.025510	679
C84 32810.025605	679
C84 32810.045510	679
C84 32810.045605	679
C84 32810.085510	679
C84 32810.085605	679
C84 32810.125510	679
C84 32810.125605	679
C84 32840.025510	680
C84 32840.025605	680
C84 32840.045510	680
C84 32840.045605	680
C84 32840.085510	680
C84 32840.085605	680
C84 32840.125510	680
C84 32840.125605	680
C84 32860.025510	681
C84 32860.025605	681
C84 32860.045510	681
C84 32860.045605	681
C84 32860.085510	681
C84 32860.085605	681
C84 32860.125510	681
C84 32860.125605	681
C84 32940.025510	685
C84 32940.025605	685
C84 32940.045510	685
C84 32940.045605	685
C84 32940.085510	685
C84 32940.085605	685
C84 32940.125510	685
C84 32940.125605	685
C84 32960.025510	686
C84 32960.025605	686
C84 32960.045510	686
C84 32960.045605	686
C84 32960.085510	686
C84 32960.085605	686
C84 32960.125510	686
C84 32960.125605	686
C84 32970.025510	687
C84 32970.025605	687
C84 32970.045510	687
C84 32970.045605	687
C84 32970.085510	687
C84 32970.085605	687
C84 32970.125510	687
C84 32970.125605	687
C84 32980.025510	688
C84 32980.025605	688
C84 32980.045510	688
C84 32980.045605	688
C84 32980.085510	688
C84 32980.085605	688
C84 32980.125510	688
C84 32980.125605	688
C84 32990.025510	689
C84 32990.025605	689
C84 32990.045510	689
C84 32990.045605	689
C84 32990.085510	689
C84 32990.085605	689
C84 32990.125510	689
C84 32990.125605	689
C85 18010.047625	670
C85 18050.046110	670
C85 18120.0222	670
C85 18120.0422	670
C85 18140.023215	670
C85 18140.027625	670
C85 18140.043215	670
C85 18140.047625	670
C85 18150.027925	670
C85 18150.047925	670
C85 18840.025510	690
C85 18840.025605	690
C85 18840.045510	690
C85 18840.045605	690
C85 18840.085510	690
C85 18840.085605	690
C85 18850.025510	691
C85 18850.025605	691
C85 18850.045510	691
C85 18850.045605	691
C85 18850.085510	691
C85 18850.085605	691
C85 18860.025510	692
C85 18860.025605	692
C85 18860.045510	692
C85 18860.045605	692
C85 18860.085510	692
C85 18860.085605	692
C85 18870.025510	693
C85 18870.025605	693
C85 18870.045510	693
C85 18870.045605	693
C85 18870.085510	693
C85 18870.085605	693
C85 18910.025510	694
C85 18910.025605	694
C85 18910.045510	694
C85 18910.045605	694
C85 18910.085510	694
C85 18910.085605	694
C85 18920.025510	695
C85 18920.025605	695
C85 18920.045510	695
C85 18920.045605	695
C85 18920.085510	695
C85 18920.085605	695
C85 18930.025510	696
C85 18930.025605	696
C85 18930.045510	696
C85 18930.045605	696
C85 18930.085510	696
C85 18930.085605	696
C85 18940.025510	697
C85 18940.025605	697
C85 18940.045510	697
C85 18940.045605	697
C85 18940.085510	697
C85 18940.085605	697
C85 18950.025510	698
C85 18950.025605	698
C85 18950.045510	698
C85 18950.045605	698
C85 18950.085510	698
C85 18950.085605	698
C85 18960.025510	699
C85 18960.025605	699
C85 18960.045510	699
C85 18960.045605	699
C85 18960.085510	699
C85 18960.085605	699
C85 18970.025510	700
C85 18970.025605	700
C85 18970.045510	700
C85 18970.045605	700
C85 18970.085510	700
C85 18970.085605	700
C85 18980.025510	701
C85 18980.025605	701
C85 18980.045510	701
C85 18980.045605	701
C85 18980.085510	701
C85 18980.085605	701
C85 18990.025510	702
C85 18990.025605	702
C85 18990.045510	702
C85 18990.045605	702
C85 18990.085510	702
C85 18990.085605	702
C85 32010.047625	670
C85 32010.087625	670
C85 32050.046110	670
C85 32050.086110	670
C85 32120.0822	670
C85 32140.087625	670
C85 32840.045510	690
C85 32840.045605	690
C85 32840.085510	690
C85 32840.085605	690
C85 32840.125510	690
C85 32840.125605	690
C85 32850.045510	691
C85 32850.045605	691
C85 32850.085510	691
C85 32850.085605	691
C85 32850.125510	691
C85 32850.125605	691
C85 32860.045510	692
C85 32860.045605	692
C85 32860.085510	692
C85 32860.085605	692
C85 32860.125510	692
C85 32860.125605	692
C85 32870.045510	693
C85 32870.045605	693
C85 32870.085510	693
C85 32870.085605	693
C85 32870.125510	693
C85 32870.125605	693
C85 32910.025510	694
C85 32910.025605	694
C85 32910.045510	694
C85 32910.045605	694
C85 32910.085510	694
C85 32910.085605	694
C85 32910.125510	694
C85 32910.125605	694
C85 32920.025510	695
C85 32920.025605	695
C85 32920.045510	695
C85 32920.045605	695
C85 32920.085510	695
C85 32920.085605	695
C85 32920.125510	695
C85 32920.125605	695
C85 32930.025510	696
C85 32930.025605	696
C85 32930.045510	696
C85 32930.045605	696
C85 32930.085510	696
C85 32930.085605	696
C85 32930.125510	696
C85 32930.125605	696
C85 32940.045510	697
C85 32940.045605	697
C85 32940.085510	697
C85 32940.085605	697
C85 32940.125510	697
C85 32940.125605	697
C85 32950.045510	698
C85 32950.045605	698
C85 32950.085510	698
C85 32950.085605	698
C85 32950.125510	698
C85 32950.125605	698
C85 32960.025510	699
C85 32960.025605	699
C85 32960.045510	699
C85 32960.045605	699
C85 32960.085510	699
C85 32960.085605	699
C85 32960.125510	699
C85 32960.125605	699
C85 32970.025510	700
C85 32970.025605	700

Numerical index

Order No.	Page
C85 32970.045510	700
C85 32970.045605	700
C85 32970.085510	700
C85 32970.085605	700
C85 32970.125510	700
C85 32970.125605	700
C85 32980.025510	701
C85 32980.025605	701
C85 32980.045510	701
C85 32980.045605	701
C85 32980.085510	701
C85 32980.085605	701
C85 32980.125510	701
C85 32980.125605	701
C85 32990.025510	702
C85 32990.025605	702
C85 32990.045510	702
C85 32990.045605	702
C85 32990.085510	702
C85 32990.085605	702
C85 32990.125510	702
C85 32990.125605	702
C85 44010.047625	670
C85 44010.087625	670
C85 44050.046110	670
C85 44050.086110	670
C85 44050.126110	670
C85 44840.045510	690
C85 44840.045605	690
C85 44840.085510	690
C85 44840.085605	690
C85 44850.045510	691
C85 44850.045605	691
C85 44850.085510	691
C85 44850.085605	691
C85 44860.045510	692
C85 44860.045605	692
C85 44860.085510	692
C85 44860.085605	692
C85 44870.045510	693
C85 44870.045605	693
C85 44870.085510	693
C85 44870.085605	693
C85 44910.025510	694
C85 44910.025605	694
C85 44910.045510	694
C85 44910.045605	694
C85 44910.085510	694
C85 44910.085605	694
C85 44910.125510	694
C85 44910.125605	694
C85 44920.025510	695
C85 44920.025605	695
C85 44920.045510	695
C85 44920.045605	695
C85 44920.085510	695
C85 44920.085605	695
C85 44920.125510	695
C85 44920.125605	695
C85 44930.025510	696
C85 44930.025605	696
C85 44930.045510	696
C85 44930.045605	696
C85 44930.085510	696
C85 44930.085605	696
C85 44930.125510	696
C85 44930.125605	696
C85 44940.045510	697
C85 44940.045605	697
C85 44940.085510	697
C85 44940.085605	697
C85 44950.045510	698

Order No.	Page
C85 44950.045605	698
C85 44950.085510	698
C85 44950.085605	698
C85 44960.025510	699
C85 44960.025605	699
C85 44960.045510	699
C85 44960.045605	699
C85 44960.085510	699
C85 44960.085605	699
C85 44960.125510	699
C85 44960.125605	699
C85 44970.025510	700
C85 44970.025605	700
C85 44970.045510	700
C85 44970.045605	700
C85 44970.085510	700
C85 44970.085605	700
C85 44970.125510	700
C85 44970.125605	700
C85 44980.025510	701
C85 44980.025605	701
C85 44980.045510	701
C85 44980.045605	701
C85 44980.085510	701
C85 44980.085605	701
C85 44990.025510	702
C85 44990.025605	702
C85 44990.045510	702
C85 44990.045605	702
C85 44990.085510	702
C85 44990.085605	702
C85 44990.125510	702
C85 44990.125605	702
C86 18140.047625	671
C86 18910.025510	703
C86 18910.025605	703
C86 18910.045510	703
C86 18910.045605	703
C86 18910.085510	703
C86 18910.085605	703
C86 18920.025510	704
C86 18920.025605	704
C86 18920.045510	704
C86 18920.045605	704
C86 18920.085510	704
C86 18920.085605	704
C86 18930.025510	705
C86 18930.025605	705
C86 18930.045510	705
C86 18930.045605	705
C86 18930.085510	705
C86 18930.085605	705
C86 18960.025510	706
C86 18960.025605	706
C86 18960.045510	706
C86 18960.045605	706
C86 18960.085510	706
C86 18960.085605	706
C86 18970.025510	707
C86 18970.025605	707
C86 18970.045510	707
C86 18970.045605	707
C86 18970.085510	707
C86 18970.085605	707
C86 18980.015510	708
C86 18980.015605	708
C86 18980.025510	708
C86 18980.025605	708
C86 18980.045510	708
C86 18980.045605	708
C86 18980.085510	708

Order No.	Page
C86 18980.085605	708
C86 18990.015510	709
C86 18990.015605	709
C86 18990.025510	709
C86 18990.025605	709
C86 18990.045510	709
C86 18990.045605	709
C86 18990.085510	709
C86 18990.085605	709
C86 32050.046110	671
C86 32050.086110	671
C86 32120.0422	671
C86 32140.043215	671
C86 32140.047625	671
C86 32140.087625	671
C86 32910.025510	703
C86 32910.025605	703
C86 32910.045510	703
C86 32910.045605	703
C86 32910.085510	703
C86 32910.085605	703
C86 32920.025510	704
C86 32920.025605	704
C86 32920.045510	704
C86 32920.045605	704
C86 32920.085510	704
C86 32920.085605	704
C86 32930.025510	705
C86 32930.025605	705
C86 32930.045510	705
C86 32930.045605	705
C86 32930.085510	705
C86 32930.085605	705
C86 32960.025510	706
C86 32960.025605	706
C86 32960.045510	706
C86 32960.045605	706
C86 32960.085510	706
C86 32960.085605	706
C86 32960.125510	706
C86 32960.125605	706
C86 32970.025510	707
C86 32970.025605	707
C86 32970.045510	707
C86 32970.045605	707
C86 32970.085510	707
C86 32970.085605	707
C86 32970.125510	707
C86 32970.125605	707
C86 32980.015510	708
C86 32980.015605	708
C86 32980.025510	708
C86 32980.025605	708
C86 32980.045510	708
C86 32980.045605	708
C86 32980.085510	708
C86 32980.085605	708
C86 32980.125510	708
C86 32980.125605	708
C86 32990.015510	709
C86 32990.015605	709
C86 32990.025510	709
C86 32990.025605	709
C86 32990.045510	709
C86 32990.045605	709
C86 32990.085510	709
C86 32990.085605	709
C86 32990.125510	709
C86 32990.125605	709
C87 34880.005510	710
C87 34880.005605	710

Order No.	Page
C87 34890.005510	711
C87 34890.005605	711
C87 34900.005510	712
C87 34900.005605	712
C88 17880.005510	713
C88 17880.005605	713
C88 17890.005510	714
C88 17890.005605	714
C88 17900.005510	715
C88 17900.005605	715
C88 24880.005510	713
C88 24880.005605	713
C88 24890.005510	714
C88 24890.005605	714
C88 24900.005510	715
C88 24900.005605	715
C88 34880.005510	713
C88 34880.005605	713
C88 34890.005510	714
C88 34890.005605	714
C88 34900.005510	715
C88 34900.005605	715
C88 42880.005510	713
C88 42880.005605	713
C88 42890.005510	714
C88 42890.005605	714
C88 42900.005510	715
C88 42900.005605	715
C89 03960.025510	716
C89 03960.025605	716
C89 03960.045510	716
C89 03960.045605	716
C89 03960.085510	716
C89 03960.085605	716
C89 03970.025510	717
C89 03970.025605	717
C89 03970.045510	717
C89 03970.045605	717
C89 03970.085510	717
C89 03970.085605	717
C89 03980.015510	718
C89 03980.015605	718
C89 03980.025510	718
C89 03980.025605	718
C89 03980.045510	718
C89 03980.045605	718
C89 03980.085510	718
C89 03980.085605	718
C89 03990.015510	719
C89 03990.015605	719
C89 03990.025510	719
C89 03990.025605	719
C89 03990.045510	719
C89 03990.045605	719
C89 03990.085510	719
C89 03990.085605	719
C89 18960.025510	716
C89 18960.025605	716
C89 18960.045510	716
C89 18960.045605	716
C89 18960.085510	716
C89 18960.085605	716
C89 18970.025510	717
C89 18970.025605	717
C89 18970.045510	717
C89 18970.045605	717
C89 18970.085510	717
C89 18970.085605	717
C89 18980.015510	718
C89 18980.015605	718

Order No.	Page
C89 18980.025510	718
C89 18980.025605	718
C89 18980.045510	718
C89 18980.045605	718
C89 18980.085510	718
C89 18980.085605	718
C89 18990.015510	719
C89 18990.015605	719
C89 18990.025510	719
C89 18990.025605	719
C89 18990.045510	719
C89 18990.045605	719
C89 18990.085510	719
C89 18990.085605	719
C89 32960.025510	716
C89 32960.025605	716
C89 32960.045510	716
C89 32960.045605	716
C89 32960.085510	716
C89 32960.085605	716
C89 32960.125510	716
C89 32960.125605	716
C89 32970.025510	717
C89 32970.025605	717
C89 32970.045510	717
C89 32970.045605	717
C89 32970.085510	717
C89 32970.085605	717
C89 32970.125510	717
C89 32970.125605	717
C89 32980.015510	718
C89 32980.015605	718
C89 32980.025510	718
C89 32980.025605	718
C89 32980.045510	718
C89 32980.045605	718
C89 32980.085510	718
C89 32980.085605	718
C89 32980.125510	718
C89 32980.125605	718
C89 32990.015510	719
C89 32990.015605	719
C89 32990.025510	719
C89 32990.025605	719
C89 32990.045510	719
C89 32990.045605	719
C89 32990.085510	719
C89 32990.085605	719
C89 32990.125510	719
C89 32990.125605	719
C95 09840.025510	720
C95 09840.025605	720
C95 09850.025510	721
C95 09850.025605	721
C95 09860.025510	722
C95 09860.025605	722
C95 09870.025510	723
C95 09870.025605	723
C95 09940.025510	724
C95 09940.025605	724
C95 09950.025510	725
C95 09950.025605	725
C95 09960.025510	726
C95 09960.025605	726
C95 09970.025510	727
C95 09970.025605	727
C95 09990.025510	728
C95 09990.025605	728
C95 18840.025510	720
C95 18840.025605	720
C95 18840.045510	720

Numerical index

Order No.	Page
C95 18840.045605	720
C95 18850.025510	721
C95 18850.025605	721
C95 18850.045510	721
C95 18850.045605	721
C95 18860.025510	722
C95 18860.025605	722
C95 18860.045510	722
C95 18860.045605	722
C95 18870.025510	723
C95 18870.025605	723
C95 18870.045510	723
C95 18870.045605	723
C95 18940.025510	724
C95 18940.025605	724
C95 18940.045510	724
C95 18940.045605	724
C95 18950.025510	725
C95 18950.025605	725
C95 18950.045510	725
C95 18950.045605	725
C95 18960.015510	726
C95 18960.015605	726
C95 18960.025510	726
C95 18960.025605	726
C95 18960.045510	726
C95 18960.045605	726
C95 18960.085510	726
C95 18960.085605	726
C95 18970.015510	727
C95 18970.015605	727
C95 18970.025510	727
C95 18970.025605	727
C95 18970.045510	727
C95 18970.045605	727
C95 18970.085510	727
C95 18970.085605	727
C95 18990.015510	728
C95 18990.015605	728
C95 18990.025510	728
C95 18990.025605	728
C95 18990.045510	728
C95 18990.045605	728
C95 18990.085510	728
C95 18990.085605	728
C95 23840.045510	720
C95 23840.045605	720
C95 23850.045510	721
C95 23850.045605	721
C95 23860.045510	722
C95 23860.045605	722
C95 23870.045510	723
C95 23870.045605	723
C95 23940.025510	724
C95 23940.025605	724
C95 23940.045510	724
C95 23940.045605	724
C95 23950.045510	725
C95 23950.045605	725
C95 32840.045510	720
C95 32840.045605	720
C95 32840.085510	720
C95 32840.085605	720
C95 32850.045510	721
C95 32850.045605	721
C95 32850.085510	721
C95 32850.085605	721
C95 32860.045510	722
C95 32860.045605	722
C95 32860.085510	722
C95 32860.085605	722
C95 32870.045510	723

Order No.	Page
C95 32870.045605	723
C95 32870.085510	723
C95 32870.085605	723
C95 32940.045510	724
C95 32940.045605	724
C95 32940.085510	724
C95 32940.085605	724
C95 32950.045510	725
C95 32950.045605	725
C95 32950.085510	725
C95 32950.085605	725
C95 32960.025510	726
C95 32960.025605	726
C95 32960.045510	726
C95 32960.045605	726
C95 32960.085510	726
C95 32960.085605	726
C95 32970.025510	727
C95 32970.025605	727
C95 32970.045510	727
C95 32970.045605	727
C95 32970.085510	727
C95 32970.085605	727
C95 32990.025510	728
C95 32990.025605	728
C95 32990.045510	728
C95 32990.045605	728
C95 32990.085510	728
C95 32990.085605	728
C95 44840.045510	720
C95 44840.045605	720
C95 44840.085510	720
C95 44840.085605	720
C95 44850.045510	721
C95 44850.045605	721
C95 44850.085510	721
C95 44850.085605	721
C95 44860.045510	722
C95 44860.045605	722
C95 44860.085510	722
C95 44860.085605	722
C95 44870.045510	723
C95 44870.045605	723
C95 44870.085510	723
C95 44870.085605	723
C95 44940.045510	724
C95 44940.045605	724
C95 44940.085510	724
C95 44940.085605	724
C95 44950.045510	725
C95 44950.045605	725
C95 44950.085510	725
C95 44950.085605	725
C95 44960.045510	726
C95 44960.045605	726
C95 44960.085510	726
C95 44960.085605	726
C95 44960.125510	726
C95 44960.125605	726
C95 44970.045510	727
C95 44970.045605	727
C95 44970.085510	727
C95 44970.085605	727
C95 44970.125510	727
C95 44970.125605	727
C95 44990.045510	728
C95 44990.045605	728
C95 44990.085510	728
C95 44990.085605	728
C95 44990.125510	728
C95 44990.125605	728

Order No.	Page
C98 10880.005510	729
C98 10880.005605	729
C98 10890.005510	730
C98 10890.005605	730
C98 10900.005510	731
C98 10900.005605	731
C98 20880.005510	729
C98 20880.005605	729
C98 20890.005510	730
C98 20890.005605	730
C98 20900.005510	731
C98 20900.005605	731
C98 34880.005510	729
C98 34880.005605	729
C98 34890.005510	730
C98 34890.005605	730
C98 34900.005510	731
C98 34900.005605	731
C98 42880.005510	729
C98 42880.005605	729
C98 42890.005510	730
C98 42890.005605	730
C98 42900.005510	731
C98 42900.005605	731
D20 00000	547
D20 00020	547
D20 00040	547
D20 00060	547
D20 00091	547
D20 00100	548
D20 00120	548
D20 00140	548
D20 00160	548
D20 00171	548
D20 00191	548
D20 00200	549
D20 00220	549
D20 00240	549
D20 00271	549
D20 00400	550
D20 00420	550
D20 00440	550
D20 00460	550
D20 00471	550
D20 00500	551
D20 00520	551
D20 00600	552
D20 00620	552
D20 00640	552
D20 00660	552
D20 00691	552
D20 00791	553
D20 05000	547
D20 05020	547
D20 05060	547
D20 05071	547
D20 05091	547
D20 05100	548
D20 05120	548
D20 05200	549
D20 05220	549
D20 05240	549
D20 05271	549
D20 05291	549
D20 05400	550
D20 05420	550
D20 05440	550
D20 05471	550
D20 05491	550
D20 05500	551
D20 05520	551

Order No.	Page
D20 05540	551
D20 05560	551
D20 05571	551
D20 05600	552
D20 05620	552
D20 05640	552
D20 05691	552
D20 05700	553
D20 05720	553
D20 05740	553
D20 05760	553
D20 05791	553
D20 05800	553
D20 10030	555
D20 10050	555
D20 10071	555
D20 10091	555
D20 10111	555
D20 10131	555
D20 10610	556
D20 10620	302
D20 10630	556
D20 10650	556
D20 10691	556
D20 10711	556
D20 10731	556
D20 10810	557
D20 10830	557
D20 10850	557
D20 10891	557
D20 15010	555
D20 15030	555
D20 15050	555
D20 15091	555
D20 15111	555
D20 15131	555
D20 15610	556
D20 15671	556
D20 15810	557
D20 15830	557
D20 15891	557
D20 20040	558
D20 20060	558
D20 20081	558
D20 20101	558
D20 20220	559
D20 20240	559
D20 20260	559
D20 20281	559
D20 20301	559
D20 20321	559
D20 40000	533
D20 40010	533
D20 40100	534
D20 40110	534
D20 40210	535
D20 40310	536
D20 40320	536
D20 40410	537
D20 45310	536
D20 50090	547
D20 50120	548
D20 50190	548
D20 50420	550
D20 50490	550
D20 50590	551
D20 50620	552
D20 50690	552
D20 50720	553
D20 50790	553
D20 55090	547
D20 55120	548

Order No.	Page
D20 55490	550
D20 80350	538
D20 80360	538
D20 80460	539
D40 00160	515
D40 00170	515
D40 00180	515
D40 00460	517
D40 00470	517
D40 00670	518
D40 00860	519
D40 00870	519
D40 00970	520
D40 01010	521
D40 01020	521
D40 01040	521
D40 01110	522
D40 01120	522
D40 01140	522
D40 01210	523
D40 01220	523
D40 01240	523
D40 02010	572
D40 02020	572
D40 02030	572
D40 02040	572
D40 05160	515
D40 05170	515
D40 05180	515
D40 05190	515
D40 05260	516
D40 05270	516
D40 05460	517
D40 05470	517
D40 05660	518
D40 05670	518
D40 05860	519
D40 05870	519
D40 05970	520
D40 05980	520
D40 06010	521
D40 06020	521
D40 06040	521
D40 06110	522
D40 06140	522
D40 06210	523
D40 06220	523
D40 06240	523
D40 06410	574
D40 06430	574
D40 06440	574
D40 06500	524
D40 06520	524
D40 06551	524
D40 06600	525
D40 06610	525
D40 06630	525
D40 06640	525
D40 06700	514
D40 06710	514
D40 06801	514
D40 06810	514
D40 06821	514
D40 06901	514
D40 06911	514
D40 06921	514
D40 07000	572
D40 07010	572
D40 07020	572
D40 07030	572
D40 07130	515

Order No.	Page
D40 07140	515
D40 07200	573
D40 07210	573
D40 07220	573
D40 07230	573
D40 07240	573
D40 07250	573
D40 50011	504
D40 50020	504
D40 50120	505
D40 50140	505
D40 50820	512
D40 50920	513
D40 50940	513
D40 55020	504
D40 55040	504
D40 55111	505
D40 55120	505
D40 55140	505
D40 55150	505
D40 55160	505
D40 55170	505
D40 55190	527
D40 55211	506
D40 55220	506
D40 55240	506
D40 55311	507
D40 55320	507
D40 55411	508
D40 55420	508
D40 55440	508
D40 55460	508
D40 55511	509
D40 55520	509
D40 55540	509
D40 55611	510
D40 55620	510
D40 55640	510
D40 55720	511
D40 55740	511
D40 55811	512
D40 55820	512
D40 55911	513
D40 55920	513
D40 55940	513
D40 58000	526
D40 58400	526
D40 65011	529
D40 65081	529
D40 65131	529
D40 65180	527
D40 65190	527
D50 00800	571
D50 00810	571
D50 00820	571
D50 00830	571
D50 00840	571
D50 50300	187
D50 50310	187
D50 55100	131
D50 55110	131
D50 55120	131
D50 55130	131
D50 55300	190
D50 55310	135
D50 55320	135
D50 55330	135
D52 01100	540
D52 01110	540
D52 06110	540

Order No.	Page
D52 50090	541
D52 50100	541
D52 50110	541
D52 50120	541
D52 50130	541
D52 55090	541
D52 55100	541
D52 55130	541
D53 05110	192
D53 05120	192
D53 05310	192
D53 05320	192
D53 51430	531
D53 51440	531
D53 53350	187
D53 53360	186
D53 53370	186
D53 53380	186
D53 53390	186
D53 53400	186
D53 53410	186
D53 53420	186
D53 53430	186
D53 56201	131
D53 56211	131
D53 56221	131
D53 56231	131
D53 56410	531
D53 56430	531
D53 56440	531
D54 60030	206
D54 60040	206
D54 60050	206
D54 60060	206
D54 60070	206
D54 60130	206
D54 60140	206
D54 60150	206
D54 60160	206
D54 60170	206
D54 60330	206
D54 60340	206
D54 60360	206
D54 60370	206
D54 60430	206
D54 60440	206
D54 60450	206
D54 60460	206
D54 60470	206
D54 60510	206
D54 60520	206
D54 60540	206
D54 60550	206
D54 60560	206
D54 60570	206
D54 60610	206
D54 60620	206
D54 60730	206
D54 60760	206
D54 60770	206
E21 20010	328
E21 22010	328
E21 24010	328
E21 26010	328
E21 31010	328
E21 31020	328
E21 33010	328
E21 33020	328
E21 35010	328
E21 35020	328

Order No.	Page
E21 37010	328
E21 37020	328
E32 20021	328
E32 22021	328
E32 24021	328
E32 26021	328
E51 00000	262
E51 00010	262
E52 00000	262
E52 00000.13	262
F10 00051	228
F10 00061	228
F10 00071	228
F10 00081	228
F10 00091	228
F10 00101	228
F10 00350	228
F10 00370	228
F10 00380	228
F10 00390	228
F10 00400	228
F10 10021	226
F10 10031	226
F10 10040	226
F10 10050	226
F10 10060	226
F10 11070	226
F10 11080	226
F10 11090	226
F10 11100	226
F10 11110	226
F10 11120	226
F10 11130	226
G01 23510	324
G01 23520	324
G01 23530	324
G01 23600	324
G01 63531	209
G01 63541	209
G01 63551	209
G01 70521.12	204
G01 70551	206
G01 70561	206
G01 71011.12	204
G01 71021	206
G01 71050.12	204
G01 71071	206
G01 71131	206
G01 71511.12	204
G01 71521	206
G01 71621	206
G01 72011.12	204
G01 72021	206
G01 72121	206
G01 72511.12	204
G01 72521	206
G01 72621	206
G01 73011.12	204
G01 73031	206
G01 73041	206
G01 73121	206
G01 73511.12	204
G01 73561	206
G01 73571	206
G03 10281	209
G03 10291	209
G03 10301	209
G03 50510	208
G03 50520	208

Order No.	Page
G03 50530	208
G03 50540	208
G03 50550	208
G03 50560	208
G03 50570	208
G03 60510	208
G03 60520	208
G03 60530	208
G03 60540	208
G03 60550	208
G03 60560	208
G03 60570	208
G03 70010.11	204
G03 70011	206
G03 70020.11	204
G03 70021	206
G03 70030.11	204
G03 70031	206
G03 70040.11	204
G03 70041	206
G03 70060.11	204
G03 70061	206
G03 70070.11	204
G03 70071	206
G03 70080.11	204
G03 70081	206
G03 70090.11	204
G03 70091	206
G03 70141	206
G03 70150	206
G03 70160	206
G03 70170	206
G03 70180	206
G03 70190	206
G03 70200	206
G03 70210	206
G03 70220	206
G03 70230	206
G03 70240	206
G03 70250	206
G03 70260	206
G03 70330	206
G03 80021	206
G03 80030	206
G03 80040	206
G03 80050	206
G03 80060	206
G03 80070	206
G03 80080	206
G03 80090	206
G03 80100	206
G03 80110	206
G03 80120	206
G03 80310	206
G04 00500	208
G04 01000	208
G04 01000.12	208
G04 01010	208
G04 01500	208
G04 01500.12	208
G04 01510	208
G04 01510.12	208
G04 02000	208
G04 02010	208
G04 02010.12	208
G04 02020	208
G04 02500	208
G04 02500.12	208
G04 02510	208
G04 03000	208
G04 03000.12	208

Order No.	Page
G04 03010	208
G04 03500	208
G04 03500.12	208
G05 00100	223
G05 10100	223
G05 10110	223
G05 20100	223
G10 10111	300
G10 10111.15	300
G10 10121	300
G10 10121.15	300
G10 10131	300
G10 10131.15	300
G10 10141	300
G10 10141.15	300
G10 10151	300
G10 10151.15	300
G10 10161	300
G10 10161.15	300
G10 10611	300
G10 10621	300
G10 10631	300
G10 10641	300
G10 10651	300
G10 10661	300
G10 12060	292
G10 12070	292
G10 12080	292
G10 12621	292
G10 12711	292
G10 12731	292
G10 12841	292
G10 12861	292
H15 11100.21	289
H15 11110.21	289
H15 11120.21	289
H15 11130.21	289
H15 11140.21	289
H15 11150.21	289
H15 11160.21	289
H15 21110.02	289
H15 21110.21	289
H15 21120.02	289
H15 21120.21	289
H15 21130.02	289
H15 21130.21	289
H15 21140.02	289
H15 21140.21	289
H50 21640	294
H50 21680	294
H50 23240	294
H50 23280	294
H51 31100.0182	295
H51 31150.0182	295
H51 31200.0182	295
H51 32100.0182	295
H51 32150.0182	295
H51 32200.0182	295
H51 41100.0182	295
H51 41150.0182	295
H51 41200.0182	295
H51 41250.0182	295
H51 42100.0182	295
H51 42150.0182	295
H51 42200.0182	295
H51 42250.0182	295
H51 51100.0282	295
H51 51150.0282	295

Numerical index

Order No.	Page
H51 51200.0282	295
H51 51250.0282	295
H51 51300.0282	295
H51 52100.0282	295
H51 52150.0282	295
H51 52200.0282	295
H51 52250.0282	295
H51 52300.0282	295
H51 61150.0282	295
H51 61200.0282	295
H51 61250.0282	295
H51 61300.0282	295
H51 61350.0282	295
H51 62150.0282	295
H51 62200.0282	295
H51 62250.0282	295
H51 62300.0282	295
H51 62350.0282	295
H51 81150.0282	295
H51 81200.0282	295
H51 81250.0282	295
H51 81300.0282	295
H51 81350.0282	295
H51 81400.0282	295
H51 82150.0282	295
H51 82200.0282	295
H51 82250.0282	295
H51 82300.0282	295
H51 82350.0282	295
H51 82400.0282	295
H55 31100.0182	296
H55 32100.0182	296
H55 32150.0182	296
H55 41200.0182	296
H55 42150.0182	296
H55 42200.0182	296
H55 51150.0282	296
H55 51200.0282	296
H55 52250.0282	296
H55 61300.0282	296
H55 62200.0282	296
H55 62300.0282	296
H55 81200.0282	296
H55 82400.0282	296
H56 31100.0140	297
H56 32100.0140	297
H56 41121.0140	297
H56 42121.0140	297
H56 51151.0140	297
H56 52151.0140	297
H56 61201.0140	297
H56 62201.0140	297
H56 81251.0140	297
H56 82251.0140	297
H60 17500.2715	732
H60 17500.84	732
H60 17500.8440	732
H60 18000.2715	732
H60 18000.84	732
H60 18000.8440	732
H60 18500.2715	732
H60 18500.84	732
H60 18500.8440	732
H60 19000.2715	732
H60 19000.84	732
H60 19000.8440	732
H60 19500.2715	732
H60 19500.84	732
H60 19500.8440	732
H60 20000.2715	732
H60 20000.84	732
H60 20000.8440	732
H60 20500.2715	732
H60 20500.84	732
H60 20500.8440	732
H60 21000.2715	732
H60 21000.84	732
H60 21000.8440	732
H60 21500.2715	733
H60 21500.84	733
H60 21500.8440	733
H60 22000.2715	733
H60 22000.84	733
H60 22000.8440	733
H60 22500.2715	733
H60 22500.84	733
H60 22500.8440	733
H60 23000.2715	733
H60 23000.84	733
H60 23000.8440	733
H60 23500.2715	733
H60 23500.84	733
H60 23500.8440	733
H60 24000.2715	733
H60 24000.84	733
H60 24000.8440	733
H60 24500.2715	733
H60 24500.84	733
H60 24500.8440	733
H60 25000.2715	733
H60 25000.84	733
H60 25000.8440	733
H60 25500.2715	734
H60 25500.84	734
H60 25500.8440	734
H60 26000.2715	734
H60 26000.84	734
H60 26000.8440	734
H60 26500.2715	734
H60 26500.84	734
H60 26500.8440	734
H60 27000.2715	734
H60 27000.84	734
H60 27000.8440	734
H60 27500.2715	734
H60 27500.84	734
H60 27500.8440	734
H60 28000.2715	734
H60 28000.84	734
H60 28000.8440	734
H60 28500.2715	734
H60 28500.84	734
H60 28500.8440	734
H60 29000.2715	734
H60 29000.84	734
H60 29000.8440	734
H60 29500.2715	735
H60 29500.84	735
H60 29500.8440	735
H60 30000.2715	735
H60 30000.84	735
H60 30000.8440	735
H60 30500.2715	735
H60 30500.84	735
H60 30500.8440	735
H60 31000.2715	735
H60 31000.84	735
H60 31000.8440	735
H60 31500.2715	735
H60 31500.84	735
H60 31500.8440	735
H60 32000.2715	735
H60 32000.84	735
H60 32000.8440	735
H60 32500.2715	735
H60 32500.84	735
H60 32500.8440	735
H60 33000.2715	735
H60 33000.84	735
H60 33000.8440	735
H60 33500.2715	736
H60 33500.84	736
H60 33500.8440	736
H60 34000.2715	736
H60 34000.84	736
H60 34000.8440	736
H60 34500.2715	736
H60 34500.84	736
H60 34500.8440	736
H60 35000.2715	736
H60 35000.84	736
H60 35000.8440	736
H60 35500.2715	736
H60 35500.84	736
H60 35500.8440	736
H60 36000.2715	736
H60 36000.84	736
H60 36000.8440	736
H60 36500.2715	736
H60 36500.84	736
H60 36500.8440	736
H60 37000.2715	736
H60 37000.84	736
H60 37000.8440	736
H60 37500.2715	737
H60 37500.84	737
H60 37500.8440	737
H60 38000.2715	737
H60 38000.84	737
H60 38000.8440	737
H60 38500.2715	737
H60 38500.84	737
H60 38500.8440	737
H60 39000.2715	737
H60 39000.84	737
H60 39000.8440	737
H60 39500.2715	737
H60 39500.84	737
H60 39500.8440	737
H60 40000.2715	737
H60 40000.84	737
H60 40000.8440	737
H60 40500.2715	737
H60 40500.84	737
H60 40500.8440	737
H60 41000.2715	737
H60 41000.84	737
H60 41000.8440	737
H60 41500.2715	738
H60 41500.84	738
H60 41500.8440	738
H60 42000.2715	738
H60 42000.84	738
H60 42000.8440	738
H60 42500.2715	738
H60 42500.84	738
H60 42500.8440	738
H60 43000.2715	738
H60 43000.84	738
H60 43000.8440	738
H60 43500.2715	738
H60 43500.84	738
H60 43500.8440	738
H60 44000.2715	738
H60 44000.84	738
H60 44000.8440	738
H62 17500.7710	732
H62 18000.7710	732
H62 18500.7710	732
H62 19000.7710	732
H62 19500.7710	732
H62 20000.7710	732
H62 20500.7710	732
H62 21000.7710	732
H62 21500.7710	733
H62 22000.7710	733
H62 22500.7710	733
H62 23000.7710	733
H62 23500.7710	733
H62 24000.7710	733
H62 24500.7710	733
H62 25000.7710	733
H62 25500.7710	734
H62 26000.7710	734
H62 26500.7710	734
H62 27000.7710	734
H62 27500.7710	734
H62 28000.7710	734
H62 28500.7710	734
H62 29000.7710	734
H62 29500.7710	735
H62 30000.7710	735
H62 30500.7710	735
H62 31000.7710	735
H62 31500.7710	735
H62 32000.7710	735
H62 32500.7710	735
H62 33000.7710	735
H62 33500.7710	736
H62 34000.7710	736
H62 34500.7710	736
H62 35000.7710	736
H62 35500.7710	736
H62 36000.7710	736
H62 36500.7710	736
H62 37000.7710	736
H62 37500.7710	737
H62 38000.7710	737
H62 38500.7710	737
H62 39000.7710	737
H62 39500.7710	737
H62 40000.7710	737
H62 40500.7710	737
H62 41000.7710	737
H62 41500.7710	738
H62 42000.7710	738
H62 42500.7710	738
H62 43000.7710	738
H62 43500.7710	738
H62 44000.7710	738
H70 10000.018425	50
H70 10100.018425	50
H70 10200.018425	50
H70 10300.018425	50
H70 10400.018425	50
H70 10500.018425	50
H70 10600.018425	50
H70 10700.018425	50
H70 10800.018425	50
H70 10900.018425	50
H70 11000.018425	50
H70 11100.018425	50
H70 11200.018425	50
H70 11300.018425	50
H70 11400.018425	50
H70 11500.018425	50
H70 11600.018425	50
H70 11700.018425	50
H70 11800.018425	50
H70 11900.018425	50
H70 12000.018425	50
H70 12100.018425	50
H70 12200.018425	50
H70 12300.018425	50
H70 12400.018425	50
H70 12500.018425	50
H70 12600.018425	50
H70 12700.018425	50
H70 12800.018425	50
H70 12900.018425	50
H70 13000.018425	53
H70 13100.018425	53
H70 13200.018425	53
H70 13300.018425	53
H70 13400.018425	53
H70 13500.018425	53
H70 13600.018425	53
H70 13700.018425	53
H70 13800.018425	53
H70 13900.018425	53
H70 14000.018425	53
H70 14100.018425	53
H70 14200.018425	53
H70 14300.018425	53
H70 14400.018425	53
H70 14500.018425	53
H70 14600.018425	53
H70 14700.018425	53
H70 14800.018425	53
H70 14900.018425	53
H70 15000.018425	53
H70 15100.018425	53
H70 15200.018425	53
H70 15300.018425	53
H70 15400.018425	53
H70 15500.018425	53
H70 15600.018425	53
H70 15700.018425	53
H70 15800.018425	53
H70 15900.018425	53
H70 16000.018425	55
H70 16100.018425	55
H70 16200.018425	55
H70 16300.018425	55
H70 16400.018425	55
H70 16500.018425	55
H70 16600.018425	55
H70 16700.018425	55
H70 16800.018425	55
H70 16900.018425	55
H70 17000.018425	55
H70 17100.018425	55
H70 17200.018425	55
H70 17300.018425	55
H70 17400.018425	55
H70 17500.018425	55
H70 17600.018425	55
H70 17700.018425	55
H70 17800.018425	55
H70 17900.018425	55
H70 18000.018425	55
H70 18100.018425	55
H70 18200.018425	55
H70 18300.018425	55
H70 18400.018425	55

Order No.	Page
H70 18500.018425	55
H70 18600.018425	55
H70 18700.018425	55
H70 18800.018425	55
H70 18900.018425	55
H70 19000.018425	57
H70 19100.018425	57
H70 19200.018425	57
H70 19300.018425	57
H70 19400.018425	57
H70 19500.018425	57
H70 19600.018425	57
H70 19700.018425	57
H70 19800.018425	57
H70 19900.018425	57
H70 20000.018425	57
H70 20100.018425	57
H70 20200.018425	57
H70 20300.018425	57
H70 20400.018425	57
H70 20500.018425	57
H71 10000.012725	50
H71 10100.012725	50
H71 10200.012725	50
H71 10300.012725	50
H71 10400.012725	50
H71 10500.012725	50
H71 10600.012725	50
H71 10700.012725	50
H71 10800.012725	50
H71 10900.012725	50
H71 11000.012725	50
H71 11100.012725	50
H71 11200.012725	50
H71 11300.012725	50
H71 11400.012725	50
H71 11500.012725	50
H71 11600.012725	50
H71 11700.012725	50
H71 11800.012725	50
H71 11900.012725	50
H71 12000.012725	50
H71 12100.012725	50
H71 12200.012725	50
H71 12300.012725	50
H71 12400.012725	50
H71 12500.012725	50
H71 12600.012725	50
H71 12700.012725	50
H71 12800.012725	50
H71 12900.012725	50
H71 13000.012725	53
H71 13100.012725	53
H71 13200.012725	53
H71 13300.012725	53
H71 13400.012725	53
H71 13500.012725	53
H71 13600.012725	53
H71 13700.012725	53
H71 13800.012725	53
H71 13900.012725	53
H71 14000.012725	53
H71 14100.012725	53
H71 14200.012725	53
H71 14300.012725	53
H71 14400.012725	53
H71 14500.012725	53
H71 14600.012725	53
H71 14700.012725	53
H71 14800.012725	53
H71 14900.012725	53

Order No.	Page
H71 15000.012725	53
H71 15100.012725	53
H71 15200.012725	53
H71 15300.012725	53
H71 15400.012725	53
H71 15500.012725	53
H71 15600.012725	53
H71 15700.012725	53
H71 15800.012725	53
H71 15900.012725	53
H71 16000.012725	55
H71 16100.012725	55
H71 16200.012725	55
H71 16300.012725	55
H71 16400.012725	55
H71 16500.012725	55
H71 16600.012725	55
H71 16700.012725	55
H71 16800.012725	55
H71 16900.012725	55
H71 17000.012725	55
H71 17100.012725	55
H71 17200.012725	55
H71 17300.012725	55
H71 17400.012725	55
H71 17500.012725	55
H71 17600.012725	55
H71 17700.012725	55
H71 17800.012725	55
H71 17900.012725	55
H71 18000.012725	55
H71 18100.012725	55
H71 18200.012725	55
H71 18300.012725	55
H71 18400.012725	55
H71 18500.012725	55
H71 18600.012725	55
H71 18700.012725	55
H71 18800.012725	55
H71 18900.012725	55
H71 19000.012725	57
H71 19100.012725	57
H71 19200.012725	57
H71 19300.012725	57
H71 19400.012725	57
H71 19500.012725	57
H71 19600.012725	57
H71 19700.012725	57
H71 19800.012725	57
H71 19900.012725	57
H71 20000.012725	57
H71 20100.012725	57
H71 20200.012725	57
H71 20300.012725	57
H71 20400.012725	57
H71 20500.012725	57
H80 32000.012710	742
H80 32000.016110	742
H80 35000.012710	742
H80 35000.016110	742
H80 37500.012710	742
H80 37500.016110	742
H80 40000.012710	742
H80 40000.016110	742
H80 42000.012710	742
H80 42000.016110	742
H80 44000.012710	742
H80 44000.016110	742
H80 46000.012710	742
H80 46000.016110	742
H80 48000.012710	742

Order No.	Page
H80 48000.016110	742
H80 50000.012710	742
H80 50000.016110	742
H80 52000.012710	742
H80 52000.016110	742
H80 54000.012710	742
H80 54000.016110	742
H80 56000.012710	742
H80 56000.016110	742
H80 58000.012710	742
H80 58000.016110	742
H80 60000.012710	742
H80 60000.016110	742
H80 62000.012710	742
H80 62000.016110	742
H80 67000.012710	742
H80 67000.016110	742
H80 72000.012710	742
H80 72000.016110	742
H80 77000.012710	742
H80 77000.016110	742
H80 82000.012710	742
H80 82000.016110	742
H80 87000.012710	742
H80 87000.016110	742
H80 92000.012710	742
H80 92000.016110	742
H80 97000.012710	742
H80 97000.016110	742
L01 00001	796
L01 00011	796
L01 00031	796
L01 00041	796
L01 00051	796
L01 00061	796
L01 00800	796
L01 00900	796
L01 00910	796
L01 00930	796
L01 00940	796
L01 00950	796
L01 00960	796
L01 01000	796
L01 01100	796
L01 02011	786
L01 02021	786
L01 02031	786
L01 02041	786
L01 02051	786
L01 02061	786
L01 02071	786
L01 03020	786
L01 03030	786
L01 03040	786
L01 03050	786
L01 03060	786
L01 03070	786
L01 03080	786
L01 04190	176
L01 04240	178
L01 04450	180
L01 10100	288
L01 10110	288
L01 10120	288
L01 10130	288
L01 10140	288
L01 10431	288
L01 10441	288
L01 13201	423
L01 13211	423
L01 13221	423

Order No.	Page
L01 13231	423
L01 13241	423
L01 13251	423
L01 13261	423
L01 13271	423
L01 13281	423
L01 13291	423
L01 13301	423
L01 13311	423
L01 13321	423
L01 13331	423
L01 13500	423
L01 13511	423
L01 13520	423
L01 13531	423
L01 13540	423
L01 13551	423
L01 13561	423
L01 13571	423
L01 13581	423
L01 14201	423
L01 14211	423
L01 14221	423
L01 14231	423
L01 14241	423
L01 14251	423
L01 14261	423
L01 14271	423
L01 14281	423
L01 14291	423
L01 14301	423
L01 14311	423
L01 14321	423
L01 14331	423
L01 14400	423
L01 14410	423
L01 14420	423
L01 14430	423
L01 14440	423
L01 14450	423
L01 14460	423
L01 14470	423
L01 14501	423
L01 14511	423
L01 14521	423
L01 14531	423
L01 14540	423
L01 14551	423
L01 14561	423
L01 14571	423
L01 14581	423
L02 30510	786
L02 30520	786
L02 30530	786
L02 30540	786
L02 30550	786
L05 00600	803
L05 00601	803
L05 00603	803
L05 00604	803
L05 00605	803
L05 00607	803
L05 00608	803
L05 00700	802
L05 00710	802
L05 00720	802
L05 00730	802
L05 00740	802
L05 00750	802
L05 00760	802

Order No.	Page
L05 00770	802
L05 00781	802
L05 00791	802
L05 00800	802
L05 00810	802
L05 00820	802
L05 00830	802
L05 00840	802
L05 00850	802
L05 00860	802
L05 00870	802
L05 00901	802
L05 00902	802
L05 00911	802
L05 00912	802
L05 00921	802
L05 00922	802
L05 00931	802
L05 00932	802
L05 00941	802
L05 00942	802
L05 00951	802
L05 00952	802
L05 00961	802
L05 00962	802
L05 00971	802
L05 00972	802
L05 01020	306
L05 01030	306
L05 01040	306
L05 01050	306
L05 01060	306
L05 01070	306
L05 01590	787
L05 03301	802
L05 03311	802
L05 03320	802
L05 09430	493
L05 09440	493
L05 09450	493
L05 09461	493
L05 09471	493
L05 09480	493
L05 09490	493
L05 09500	493
L05 09510	493
L05 09520	493
L07 01020	793
L07 01030	793
L07 01040	793
L07 01050	793
L07 01060	793
L07 01070	793
L07 01080	793
L07 01430	793
L07 01440	793
L07 01450	793
L07 01460	793
L07 01470	793
L07 01480	793
L07 01730	793
L07 01740	793
L07 01750	793
L07 01761	793
L07 01771	793
L07 01780	793
L07 02040	794
L07 02050	794
L07 02060	794
L07 02070	794
L07 02080	794

Numerical index

Order No.	Page
M01 00000	469
M01 00010	469
M01 00020	469
M03 00115	314
M03 00515	314
M03 01025	316
M03 01535	316
M03 02045	316
M03 02555	316
M03 10011	315
M03 10021	315
M03 10033	248
M03 10043	248
M03 10063	317
M03 10070	321
M03 11100	315
M03 11110	315
M03 11120	248
M03 11130	248
M03 11200	315
M03 11210	315
M03 11220	248
M03 11230	248
M03 11250	317
M03 11260	321
M03 11310	315
M03 11320	248
M03 11330	248
M03 11350	317
M03 12000	315
M03 12020	248
M03 12030	248
M03 12050	317
M03 12100	315
M03 12110	315
M03 12120	248
M03 12130	248
M03 12160	321
M03 12210	315
M03 12220	248
M03 12230	248
M03 12250	317
M03 12260	321
M03 12300	315
M03 12310	315
M03 12320	248
M03 12330	248
M03 12350	317
M03 12360	321
M03 20090	320
M03 20090.15	283
M03 20100	320
M03 20110	320
M03 20120	320
M03 20140	318
M03 20150	284
M03 20150.16	284
M03 20160	284
M03 20170	318
M03 20180	284
M03 20180.16	284
M03 20190	284
M04 00150.11	282
M04 00151	282
M04 00201	282
M04 01310	283
M04 01320	283
M04 10001	262
M05 01000	242

Order No.	Page
M05 20101	245
M05 20110	245
M05 20151	245
M05 20601	265
M05 20610	265
M05 20651	265
M05 21100	248
M05 21150	248
M05 21600	268
M05 21650	268
M05 80101	247
M05 80200	247
M05 80300	247
M05 80400	247
M05 80500	247
M05 80510	247
M05 80520	247
M05 80530	247
M05 80540	247
M05 90100	245
M05 90110	245
M05 90200	256
M05 90210	256
M05 90220	256
M05 90230	256
M05 90240	256
M05 90300	257
M05 90501	246
M10 50010.15	304
M10 50010.16	304
M10 50010.18	304
M10 50011	304
M10 50020.15	304
M10 50020.18	304
M10 50021	304
M10 50030.15	304
M10 50030.18	304
M10 50031	304
M30 00011	562
M30 00021	562
M30 00031	563
M30 00041	563
M30 00051	563
M30 00061	563
M30 00071	563
M30 00081	563
M30 00091	563
M30 00101	563
M30 00111	563
M30 00121	563
M30 00131	563
M30 00141	563
M30 00151	563
M30 00161	563
M30 02011	564
M30 02021	564
M30 02031	576
M30 02041	576
M30 02051	576
M30 02061	576
M30 02071	576
M30 02081	576
M30 02091	565
M30 02101	565
M30 02111	565
M30 02121	565
M30 02131	565
M30 02141	565
M30 02151	565
M30 02161	565

Order No.	Page
M30 02231	307
M30 02241	307
M30 02251	307
M30 02261	307
M30 02271	307
M30 02281	307
M30 02291	307
M30 02301	307
M30 02311	307
M30 02321	307
M30 02331	307
M30 02341	307
M30 02351	307
M30 02361	307
M30 04011	307
M30 04111	307
M30 04121	307
M30 20011	310
M30 20021	310
M30 20031	310
M30 20041	310
M30 20051	310
M30 20061	310
M30 20071	310
M30 20201	577
M30 20211	577
M30 20221	577
M30 50021	563
M30 50031	563
M30 50041	563
M30 50051	563
M30 50061	563
M30 50071	563
M30 51021	563
M30 51031	563
M30 51041	563
M30 51051	563
M30 51061	563
M30 51071	563
M30 52021	307
M30 52031	307
M30 52041	307
M30 52051	307
M30 52061	307
M30 52071	307
M30 52111.21	564
M30 52421	307
M30 52431	307
M30 52441	307
M30 53021	565
M30 53031	565
M30 53041	565
M30 53051	565
M30 53061	565
M30 54011	307
M30 54011	566
M30 54021	307
M30 54021	566
M30 54030	566
M30 54040	566
M31 00022	560
M31 00032	560
M31 00042	560
M31 00122	578
M31 00153	578
M31 00162	578
M31 01022	561
M31 01032	561
M31 01042	561
M31 01122	579
M31 01153	579

Order No.	Page
M31 01162	579
N00 00451	787
N00 00461	787
N00 00471	787
N00 00481	787
N00 00491	787
N00 00501	787
N00 00511	787
N00 00521	787
N00 00530	787
N00 01661	787
N00 01670	787
N00 01680	787
N00 01690	787
N00 01700	787
N00 02052	786
N00 02062	786
N00 02072	786
N00 02082	786
N00 02092	786
N00 02102	786
N00 02112	786
N00 02122	786
N00 02131	786
N00 03052	786
N00 03062	786
N00 03072	786
N00 03082	786
N00 03092	786
N00 03102	786
N00 03112	786
N00 03122	786
N00 03131	786
N00 04050	787
N00 04060	787
N00 04070	787
N00 04080	787
N00 04090	787
N00 04100	787
N00 04110	787
N00 04120	787
N00 04130	787
N00 04250	787
N00 04261	787
N00 04271	787
N00 04281	787
N00 04291	787
N00 04301	787
N00 04311	787
N00 05051	787
N00 05062	787
N00 05072	787
N00 05082	787
N00 05092	787
N00 05102	787
N00 05112	787
N00 05251	787
N00 05262	787
N00 05272	787
N00 05282	787
N00 05292	787
N00 05302	787
N00 05312	787
N00 05480	282
N00 06050	787
N00 06060	787
N00 06070	787
N00 06080	787
N00 06090	787
N00 06100	787
N00 06110	787

Order No.	Page
N00 06120	787
N00 06130	787
N00 06250	787
N00 06260	787
N00 06270	787
N00 06280	787
N00 06290	787
N00 06300	787
N00 07100	786
N00 15251	786
N00 15261	786
N00 15271	786
N00 15281	786
N00 15291	786
N00 15301	786
N00 15311	786
N00 15321	786
N00 15330	786
N00 17651	787
N00 17661	787
N00 17671	787
N00 17681	787
N00 17691	787
N00 17701	787
N00 17711	787
N00 17721	787
N00 17730	787
N00 17851	787
N00 17862	787
N00 17872	787
N00 17882	787
N00 17892	787
N00 17902	787
N00 17912	787
N00 18181	787
N00 18191	787
N00 18201	787
N00 19252	787
N00 19263	787
N00 19273	787
N00 19283	787
N00 19293	787
N00 19303	787
N00 19313	787
N00 20060	787
N00 20070	787
N00 20080	787
N00 20090	787
N00 20100	787
N00 40010	570
N00 40020	570
N00 40030	570
N00 40040	570
N00 40050	570
N00 40060	570
N00 40070	570
N00 52000	190
N00 55050	800
N00 55060	800
N00 55070	800
N00 55100	800
N00 55110	800
N00 55120	800
N00 55130	800
N00 55140	800
N00 55180	800
N00 55551	800
N00 55561	800
N00 55571	800
N00 55581	800
N00 55701	800
N00 55711	800

Numerical index

Order No.	Page
N00 55801	800
N00 55811	800
N00 55821	800
N00 55851	800
N00 55891	800
N00 55901	800
N00 56011	800
N00 56021	800
N00 56031	800
N00 56041	800
N00 56051	800
N00 56101	800
N00 56111	800
N00 56121	800
N00 56201	800
N00 56211	800
N00 56301	800
N00 56401	800
N00 56411	800
N00 56591	800
N00 56651	800
N00 56751	800
N00 56771	800
N00 56811	800
N00 56851	800
N00 57191	800
N00 57201	800
N00 57211	800
N00 57221	800
N00 57231	801
N00 57241	801
N00 57251	801
N00 57261	801
N00 57271	801
N00 57281	801
N00 57301	801
N00 57321	801
N00 57341	801
N00 57411	801
N00 57421	801
N00 57431	801
N00 57440	801
N00 57450	801
N00 57460	801
N00 57470	801
N00 57480	801
N00 57490	801
N00 57500	801
N00 57511	801
N00 57521	801
N00 57531	801
N00 57541	801
N00 57553	801
N00 57571	801
N00 57611	801
N00 57630	801
N00 57640	801
N00 57650	801
N00 57660	801
N00 57670	801
N00 57710	801
N00 57730	801
N00 57740	801
N00 57750	801
N00 57760	801
N00 57770	801
N00 57780	801
N00 57790	801
N00 57820	801
N00 57830	801
N00 57840	801
N00 57860	801
N00 57870	801
N00 57880	801
N00 57890	801
N00 57900	801
N00 57910	801
N00 57920	801
N00 70080	300
N00 70090	300
N00 70140	300
N00 70190	300
N00 70370	186
N00 70380	186
N00 70460	186
N00 70800	186
N00 70900	282
N00 70910	176
N00 70920	176
N00 70930	176
N00 70940	176
N00 70950	178
N00 70960	178
N00 70970	180
N10 11010	131
N10 11200	204
N10 11300	204
N10 11310	204
N10 11400	131
N10 11500	131
N10 11510	131
N10 12010	166
N10 12020	169
N10 12030	169
N10 12050	169
N10 12060	171
N10 30737	793
N10 30738	793
N10 30739	793
N10 30740	793
N10 30741	793
N10 30742	793
N12 20280	787
N12 20290	787
N12 20300	787
N75 80000	787
N75 80010	787
N75 80020	787
N75 80030	787
N75 80040	787
N75 80050	787
N75 80060	787
N75 80070	787
N75 80080	787
N75 80100	787
N75 80110	787
N75 80120	787
N75 80130	787
N75 80140	787
N75 80150	787
N75 80160	787
N75 80170	787
Q09 13000.0103	743
Q09 13000.0122	743
Q09 18000.1722	744
Q09 18000.172725	744
Q09 18000.1787	744
Q09 44000.0222	745
Q09 44000.0237	745
Q09 44000.1537	745
Q09 44000.158425	745
Q09 44000.2364	745
Q12 18000.0122	746
Q12 18000.012715	746
Q12 18000.018425	746
Q12 18000.0222	746
Q12 18000.022715	746
Q12 18000.028425	746
Q12 18000.0322	746
Q12 18000.032715	746
Q12 18000.038425	746
Q12 18000.0422	746
Q12 18000.042715	746
Q12 18000.048425	746
Q12 18000.1022	748
Q12 18000.102715	748
Q12 18000.108425	748
Q12 18000.1122	747
Q12 18000.112715	747
Q12 18000.118425	747
Q12 18000.1222	747
Q12 18000.122715	747
Q12 18000.128425	747
Q12 18000.1322	747
Q12 18000.132715	747
Q12 18000.138425	747
Q12 18000.1422	747
Q12 18000.142715	747
Q12 18000.148425	747
Q12 18000.3122	748
Q12 18000.312715	748
Q12 18000.318425	748
Q12 18000.3222	748
Q12 18000.322715	748
Q12 18000.328425	748
Q12 18000.3322	748
Q12 18000.332715	748
Q12 18000.338425	748
Q12 18000.3422	748
Q12 18000.342715	748
Q12 18000.348425	748
Q12 18000.3622	749
Q12 18000.362715	749
Q12 18000.368425	749
Q12 32000.0522	746
Q12 32000.052715	746
Q12 32000.058425	746
Q12 32000.0622	746
Q12 32000.062715	746
Q12 32000.068425	746
Q12 32000.0722	746
Q12 32000.072715	746
Q12 32000.078425	746
Q12 32000.0822	746
Q12 32000.082715	746
Q12 32000.088425	746
Q12 32000.0922	746
Q12 32000.092715	746
Q12 32000.098425	746
Q12 32000.1522	748
Q12 32000.152715	748
Q12 32000.158425	748
Q12 32000.1622	748
Q12 32000.162715	748
Q12 32000.168425	748
Q12 32000.1722	748
Q12 32000.172715	748
Q12 32000.178425	748
Q12 32000.1822	747
Q12 32000.182715	747
Q12 32000.188425	747
Q12 32000.1922	747
Q12 32000.192715	747
Q12 32000.198425	747
Q12 32000.2022	747
Q12 32000.202715	747
Q12 32000.208425	747
Q12 32000.3822	749
Q12 32000.382715	749
Q12 32000.388425	749
Q12 32000.4122	748
Q12 32000.412715	748
Q12 32000.418425	748
Q12 32000.4222	748
Q12 32000.422715	748
Q12 32000.428425	748
Q12 32000.4322	748
Q12 32000.432715	748
Q12 32000.438425	748
Q12 32000.5222	746
Q12 32000.522715	746
Q12 32000.528425	746
Q12 32000.5322	746
Q12 32000.532715	746
Q12 32000.538425	746
Q12 44000.2122	747
Q12 44000.212715	747
Q12 44000.218425	747
Q12 44000.2222	747
Q12 44000.222715	747
Q12 44000.228425	747
Q12 44000.2322	747
Q12 44000.232715	747
Q12 44000.238425	747
Q12 44000.2522	747
Q12 44000.252715	747
Q12 44000.258425	747
Q12 44000.8422	748
Q12 44000.842715	748
Q12 44000.848425	748
Q12 44000.8522	748
Q12 44000.852715	748
Q12 44000.858425	748
Q12 44000.8622	748
Q12 44000.862715	748
Q12 44000.868425	748
Q12 44000.8722	748
Q12 44000.872715	748
Q12 44000.878425	748
Q15 18000.0104	750
Q15 18000.018425	750
Q15 18000.018440	750
Q15 18000.0261	750
Q15 32000.0322	750
Q15 32000.048425	750
Q15 32000.048440	750
Q36 18000.0103	751
Q36 18000.0121	751
Q36 18000.016110	751
Q36 18000.0164	751
Q36 18000.0168	751
Q36 18000.0178	751
Q36 18000.0180	751
Q36 18000.018425	751
Q36 24000.0203	751
Q36 24000.0221	751
Q36 24000.026110	751
Q36 24000.0264	751
Q36 24000.0268	751
Q36 24000.0278	751
Q36 24000.0280	751
Q36 24000.028425	751
Q36 24000.0421	752
Q36 24000.0464	752
Q36 24000.0468	752
Q36 24000.048425	752
Q36 24000.0521	752
Q36 24000.0564	752
Q36 24000.0568	752
Q36 24000.058425	752
Q36 24000.0621	752
Q36 24000.0664	752
Q36 24000.0668	752
Q36 24000.068425	752
Q36 38000.0703	751
Q36 38000.0721	751
Q36 38000.076110	751
Q36 38000.0764	751
Q36 38000.0778	751
Q36 38000.0780	751
Q36 38000.078425	751
Q40 53010.042735	753
Q40 53010.042740	753
Q40 53010.046130	753
Q40 53010.048425	753
Q40 53050.046110	753
Q40 53120.0423	753
Q40 53210.042740	753
Q40 53210.046435	753
Q40 53210.048425	753
Q43 28010.088425	754
Q43 28050.086110	754
Q43 28120.0823	754
Q43 28210.082740	754
Q43 28210.086435	754
Q43 28210.087740	754
Q43 38010.158425	755
Q43 38050.156110	755
Q43 38210.152740	755
Q43 38250.156435	755
Q43 38250.157740	755
Q47 34210.162740	756
Q47 34210.168425	756
Q55 34010.118425	757
Q55 34020.152710	757
Q55 34050.116110	757
Q55 34120.1523	757
Q55 34210.112740	757
Q55 34250.116435	757
Q55 34250.117740	757
Q55 42010.118425	757
Q55 42020.152710	757
Q55 42050.116110	757
Q55 42120.1523	757
Q55 42210.112740	757
Q55 42250.116435	757
Q55 42250.117740	757
Q55 42260.116110	758
Q55 42260.118425	758
Q55 42460.116435	758
Q55 42460.117740	758
Q56 20010.052740	759
Q56 20010.058425	759
Q56 20210.056435	759
Q56 20210.057740	759
Q56 32010.082740	759
Q56 32010.088425	759
Q56 32050.086110	759

Numerical index

Order No.	Page
Q56 32210.082740	759
Q56 32210.086435	759
Q56 32210.087740	759
Q56 32210.088425	759
Q56 46010.102740	759
Q56 46010.108425	759
Q56 46050.106110	759
Q56 46210.102740	759
Q56 46210.106435	759
Q56 46210.107740	759
Q56 46210.108425	759
Q63 46050.066110	760
Q63 46210.062740	760
Q63 46210.066435	760
Q63 46210.068425	760
Q63 53050.066110	760
Q63 53210.062740	760
Q63 53210.066435	760
Q63 53210.068425	760
Q75 42010.008425	761
Q75 42050.006110	761
Q75 42210.032740	761
Q75 42250.036435	761
Q75 42250.037740	761
Q80 09050.042715	762
Q80 09050.042730	762
Q80 09050.046115	762
Q80 20050.062715	762
Q80 20050.062730	762
Q80 20050.066115	762
Q80 32000.012715	762
Q80 32000.012730	762
Q80 32000.016115	762
Q80 32050.452715	763
Q80 32050.456115	763
Q80 32210.082730	762
Q80 32210.087935	762
U10 01402	69
U10 01502	69
U10 01550	69
U10 01600	69
U10 01700	69
U10 11750	69
U10 11800	69
U10 11850	69
U10 11900	69
U10 11950	69
U10 12000	69
U10 12050	69
U10 12100	69
U10 12200	69
U10 12250	69
U10 12300	69
U10 22400	69
U10 22450	69
U10 22500	69
U10 22600	69
U10 22650	69
U10 22700	69
U10 22800	69
U10 22850	69
U10 22900	69
U10 22950	69
U10 23000	69
U10 23100	69
U10 23150	69
U10 23200	69
U10 23300	69

Order No.	Page
U10 23400	70
U10 23500	70
U10 23600	70
U10 23700	70
U10 23750	70
U10 23800	70
U10 23900	70
U10 23950	70
U10 24000	70
U10 24100	70
U10 24200	70
U10 24300	70
U10 24400	70
U10 33300	69
U10 33400	70
U10 33500	70
U10 33600	70
U10 33700	70
U10 33750	70
U10 33800	70
U10 33900	70
U10 33950	70
U10 34000	70
U10 34100	70
U10 34200	70
U10 34300	70
U10 34400	70
U10 71402	65
U10 71502	65
U10 71550	65
U10 71600	65
U10 71700	65
U10 71750	65
U10 71800	65
U10 71850	65
U10 71900	65
U10 71950	65
U10 72000	65
U10 72050	65
U10 72100	65
U10 72200	65
U10 72250	65
U10 72300	65
U10 72400	65
U10 72450	65
U10 72500	65
U10 72600	65
U10 72650	65
U10 72700	65
U10 72800	65
U10 72850	65
U10 72900	65
U10 72950	65
U10 73000	65
U10 73100	65
U10 73150	65
U10 73200	65
U10 73300	65
U10 73400	67
U10 73500	67
U10 73600	67
U10 73700	67
U10 73750	67
U10 73800	67
U10 73900	67
U10 73950	67
U10 74000	67
U10 74100	67
U10 74200	67
U10 74300	67
U10 74400	67
U10 84500	67

Order No.	Page
U10 84600	67
U10 84700	67
U10 84800	67
U10 84900	67
U10 85000	67
U10 85100	67
U10 85200	67
U10 85300	67
U10 85400	67
U10 95500	67
U10 95600	67
U10 95700	67
U10 95800	67
U10 95900	67
U10 96000	67
U10 96100	67
U10 96200	67
U10 96300	67
U10 96400	67
U10 96500	67
U11 51402	65
U11 51502	65
U11 51550	65
U11 51600	65
U11 51650	65
U11 51700	65
U11 51750	65
U11 51800	65
U11 51850	65
U11 51900	65
U11 51950	65
U11 52000	65
U11 52050	65
U11 52100	65
U11 52200	65
U11 52250	65
U11 52300	65
U11 52400	65
U11 52450	65
U11 52500	65
U11 52600	65
U11 52650	65
U11 52700	65
U11 52800	65
U11 52850	65
U11 52900	65
U11 52950	65
U11 53000	65
U11 53100	65
U11 53150	65
U11 53200	65
U11 53300	65
U11 53400	67
U11 53500	67
U11 53600	67
U11 53700	67
U11 53750	67
U11 53800	67
U11 53900	67
U11 53950	67
U11 54000	67
U11 54100	67
U11 54200	67
U11 54300	67
U11 54400	67
U11 61402	69
U11 61502	69
U11 61550	69
U11 61600	69
U11 61650	69
U11 61700	69

Order No.	Page
U11 71750	69
U11 71800	69
U11 71850	69
U11 71900	69
U11 71950	69
U11 72000	69
U11 72050	69
U11 72100	69
U11 72200	69
U11 72250	69
U11 72300	69
U11 82400	69
U11 82450	69
U11 82500	69
U11 82600	69
U11 82650	69
U11 82700	69
U11 82800	69
U11 82850	69
U11 82900	69
U11 82950	69
U11 83000	69
U11 83100	69
U11 83150	69
U11 83200	69
U11 83300	69
U11 83400	70
U11 83500	70
U11 83600	70
U11 83700	70
U11 83750	70
U11 83800	70
U11 83900	70
U11 83950	70
U11 84000	70
U11 84100	70
U11 84200	70
U11 84300	70
U11 84400	70
U11 93300	69
U11 93400	70
U11 93500	70
U11 93600	70
U11 93700	70
U11 93750	70
U11 93800	70
U11 93900	70
U11 93950	70
U11 94000	70
U11 94100	70
U11 94200	70
U11 94300	70
U11 94400	70
U12 34500	67
U12 34600	67
U12 34700	67
U12 34800	67
U12 34900	67
U12 35000	67
U12 35100	67
U12 35200	67
U12 35300	67
U12 35400	67
U12 45500	67
U12 45600	67
U12 45700	67
U12 45800	67
U12 45900	67
U12 46000	67
U12 46100	67
U12 46200	67

Order No.	Page
U12 46300	67
U12 46400	67
U12 46500	67
U20 01750	145
U20 01800	145
U20 01850	145
U20 01900	145
U20 01950	145
U20 02000	145
U20 02050	145
U20 02100	147
U20 02150	147
U20 02200	147
U20 02250	147
U20 02300	147
U20 02350	147
U20 02400	147
U20 02450	149
U20 02500	149
U20 02550	149
U20 02600	149
U20 02650	149
U20 02700	149
U20 02750	149
U20 02800	151
U20 02850	151
U20 02900	151
U20 02950	151
U20 03000	151
U20 03050	151
U20 03100	151
U20 03150	153
U20 03200	153
U20 03250	153
U20 03300	153
U20 03350	153
U20 03400	153
U20 03450	153
U20 03500	155
U20 03550	155
U20 03600	155
U20 13650	155
U20 13700	155
U20 13750	155
U20 13800	155
U20 13850	157
U20 13900	157
U20 13950	157
U20 14000	157
U20 14050	157
U20 14100	157
U20 14150	157
U20 14200	159
U20 14250	159
U20 14300	159
U20 14350	159
U20 14400	159
U20 71750	145
U20 71800	145
U20 71850	145
U20 71900	145
U20 81950	145
U20 82000	145
U20 82050	145
U20 82100	147
U20 82150	147
U20 82200	147
U20 82250	147
U20 82300	147
U20 82350	147
U20 82400	147

Order No.	Page
U20 82450	149
U20 82500	149
U20 82550	149
U20 82600	149
U20 82650	149
U20 82700	149
U20 92750	149
U20 92800	151
U20 92850	151
U20 92900	151
U20 92950	151
U20 93000	151
U20 93050	151
U20 93100	151
U20 93150	153
U20 93200	153
U20 93250	153
U20 93300	153
U20 93350	153
U20 93400	153
U20 93450	153
U20 93500	155
U20 93550	155
U20 93600	155
U22 21750	161
U22 22100	161
U22 22500	161
U22 23000	161
U22 43650	161
U22 71750	161
U22 82100	161
U22 82500	161
U22 93000	161
U44 01400	89
U44 01430	89
U44 01450	89
U44 01500	89
U44 01510	89
U44 01550	89
U44 01590	89
U44 01600	89
U44 01650	89
U44 01670	89
U44 01700	89
U44 11750	89
U44 11790	89
U44 11800	89
U44 11850	89
U44 11900	89
U44 11910	89
U44 11940	89
U44 11950	89
U44 11980	89
U44 12000	89
U44 12050	89
U44 12060	89
U44 12100	89
U44 12150	89
U44 12200	89
U44 12220	89
U44 12250	89
U44 12300	89
U44 22350	91
U44 22380	91
U44 22400	91
U44 22450	91
U44 22500	91
U44 22540	91
U44 22550	91
U44 22600	91

Order No.	Page
U44 22620	91
U44 22650	91
U44 22700	91
U44 22750	91
U44 22800	91
U44 22820	91
U44 22850	91
U44 22860	91
U44 22900	91
U44 22940	91
U44 22950	91
U44 23000	91
U44 33020	91
U44 33050	91
U44 33090	91
U44 33100	91
U44 33150	91
U44 33180	91
U44 33200	91
U44 33250	91
U44 33300	91
U44 33320	93
U44 33330	93
U44 33350	93
U44 33370	93
U44 33400	93
U44 33450	93
U44 33490	93
U44 33500	93
U44 33550	93
U44 33600	93
U44 33650	93
U44 33700	93
U44 33730	93
U44 33750	93
U44 33800	93
U44 33810	93
U44 33850	93
U44 33900	93
U44 33920	93
U44 33950	93
U44 33970	93
U44 34000	93
U44 34050	93
U44 34100	93
U44 34130	93
U44 34150	93
U44 34200	93
U44 34210	95
U44 34250	95
U44 34290	95
U44 34300	95
U44 34350	95
U44 34400	95
U44 34450	95
U44 34500	95
U44 34550	95
U44 34600	95
U44 51400	81
U44 51430	81
U44 51450	81
U44 51500	81
U44 51510	81
U44 51550	81
U44 51590	81
U44 51600	81
U44 51650	81
U44 51670	81
U44 51700	81
U44 51750	81
U44 51790	81
U44 51800	81

Order No.	Page
U44 51850	81
U44 51900	81
U44 51910	81
U44 51940	81
U44 51950	81
U44 51980	81
U44 52000	81
U44 52050	81
U44 52060	81
U44 52100	81
U44 52150	81
U44 52200	81
U44 52220	81
U44 52250	81
U44 52300	81
U44 52350	83
U44 52380	83
U44 52400	83
U44 52450	83
U44 52500	83
U44 52540	83
U44 52550	83
U44 52600	83
U44 52620	83
U44 52650	83
U44 52700	83
U44 52750	83
U44 52800	83
U44 52820	83
U44 52850	83
U44 52860	83
U44 52900	83
U44 52940	83
U44 52950	83
U44 53000	83
U44 63020	83
U44 63050	83
U44 63090	83
U44 63100	83
U44 63150	83
U44 63180	83
U44 63200	83
U44 63250	83
U44 63300	83
U44 63320	85
U44 63330	85
U44 63350	85
U44 63370	85
U44 63400	85
U44 63450	85
U44 63490	85
U44 63500	85
U44 63550	85
U44 63600	85
U44 63650	85
U44 63700	85
U44 63730	85
U44 63750	85
U44 63800	85
U44 63810	85
U44 63850	85
U44 63900	85
U44 63920	85
U44 63950	85
U44 63970	85
U44 64000	85
U44 64050	85
U44 64100	85
U44 64130	85
U44 64150	85
U44 64200	85
U44 64210	87

Order No.	Page
U44 64250	87
U44 64290	87
U44 64300	87
U44 64350	87
U44 64400	87
U44 64450	87
U44 64500	87
U44 64550	87
U44 64600	87
U45 01400	89
U45 01430	89
U45 01450	89
U45 01500	89
U45 01510	89
U45 01550	89
U45 01590	89
U45 01600	89
U45 01650	89
U45 01670	89
U45 01700	89
U45 11750	89
U45 11790	89
U45 11800	89
U45 11850	89
U45 11900	89
U45 11910	89
U45 11940	89
U45 11950	89
U45 11980	89
U45 12000	89
U45 12050	89
U45 12060	89
U45 12100	89
U45 12150	89
U45 12200	89
U45 12220	89
U45 12250	89
U45 12300	89
U45 22350	91
U45 22380	91
U45 22400	91
U45 22450	91
U45 22500	91
U45 22540	91
U45 22550	91
U45 22600	91
U45 22620	91
U45 22650	91
U45 22700	91
U45 22750	91
U45 22800	91
U45 22820	91
U45 22850	91
U45 22860	91
U45 22900	91
U45 22940	91
U45 22950	91
U45 23000	91
U45 33020	91
U45 33050	91
U45 33090	91
U45 33100	91
U45 33150	91
U45 33180	91
U45 33200	91
U45 33250	91
U45 33300	91
U45 33320	93
U45 33330	93
U45 33350	93
U45 33370	93

Order No.	Page
U45 33400	93
U45 33450	93
U45 33490	93
U45 33500	93
U45 33550	93
U45 33600	93
U45 33650	93
U45 33700	93
U45 33730	93
U45 33750	93
U45 33800	93
U45 33810	93
U45 33850	93
U45 33900	93
U45 33920	93
U45 33950	93
U45 33970	93
U45 34000	93
U45 34050	93
U45 34100	93
U45 34130	93
U45 34150	93
U45 34200	93
U45 34210	95
U45 34250	95
U45 34290	95
U45 34300	95
U45 34350	95
U45 34400	95
U45 34450	95
U45 34500	95
U45 34550	95
U45 34600	95
U45 51400	81
U45 51430	81
U45 51450	81
U45 51500	81
U45 51510	81
U45 51550	81
U45 51590	81
U45 51600	81
U45 51650	81
U45 51670	81
U45 51700	81
U45 51750	81
U45 51790	81
U45 51800	81
U45 51850	81
U45 51900	81
U45 51910	81
U45 51940	81
U45 51950	81
U45 51980	81
U45 52000	81
U45 52050	81
U45 52060	81
U45 52100	81
U45 52150	81
U45 52200	81
U45 52220	81
U45 52250	81
U45 52300	81
U45 52350	83
U45 52380	83
U45 52400	83
U45 52450	83
U45 52500	83
U45 52540	83
U45 52550	83
U45 52600	83
U45 52620	83
U45 52650	83

Numerical index

Order No.	Page
U45 52700	83
U45 52750	83
U45 52800	83
U45 52820	83
U45 52850	83
U45 52860	83
U45 52900	83
U45 52940	83
U45 52950	83
U45 53000	83
U45 63020	83
U45 63050	83
U45 63090	83
U45 63100	83
U45 63150	83
U45 63180	83
U45 63200	83
U45 63250	83
U45 63300	83
U45 63320	85
U45 63330	85
U45 63350	85
U45 63370	85
U45 63400	85
U45 63450	85
U45 63490	85
U45 63500	85
U45 63550	85
U45 63600	85
U45 63650	85
U45 63700	85
U45 63730	85
U45 63750	85
U45 63800	85
U45 63810	85
U45 63850	85
U45 63900	85
U45 63920	85
U45 63950	85
U45 63970	85
U45 64000	85
U45 64050	85
U45 64100	85
U45 64130	85
U45 64150	85
U45 64200	85
U45 64210	87
U45 64250	87
U45 64290	87
U45 64300	87
U45 64350	87
U45 64400	87
U45 64450	87
U45 64500	87
U45 64550	87
U45 64600	87
U53 21000	50
U53 21050	50
U53 21100	50
U53 21150	50
U53 31200	50
U53 31250	50
U53 31300	53
U53 41600	55
U53 41700	55
U53 41800	55
U53 41900	57
U55 21000	50
U55 21050	50
U55 21100	50
U55 21150	50
U55 31200	50
U55 31250	50
U55 31300	53
U55 41600	55
U55 41700	55
U55 41800	55
U55 41900	57
U57 21000	50
U57 21050	50
U57 21100	50
U57 21150	50
U57 31200	50
U57 31250	50
U57 31300	53
U57 31400	53
U57 31500	53
U57 41600	55
U57 41700	55
U57 41800	55
U57 41900	57
V03 03000.112730	16
V03 03000.212730	16
V03 03100.112730	16
V03 03100.212730	16
V03 03200.112730	16
V03 03200.212730	16
V03 03300.112730	16
V03 03300.212730	16
V03 03400.112730	16
V03 03400.212730	16
V03 03500.112730	16
V03 03500.212730	16
V03 03600.112730	16
V03 03600.212730	16
V03 03700.112730	16
V03 03700.212730	16
V03 03800.112730	16
V03 03800.212730	16
V03 03900.112730	16
V03 03900.212730	16
V03 04000.112730	16
V03 04000.212730	16
V03 04100.112730	16
V03 04100.212730	16
V03 04200.112730	16
V03 04200.212730	16
V03 04300.112730	16
V03 04300.212730	16
V03 04400.112730	16
V03 04400.212730	16
V03 04500.112730	16
V03 04500.212730	16
V03 04600.112730	16
V03 04600.212730	16
V03 04700.112730	16
V03 04700.212730	16
V03 04800.112730	16
V03 04800.212730	16
V03 04900.112730	16
V03 04900.212730	16
V03 05000.112730	16
V03 05000.212730	16
V03 05100.112730	16
V03 05100.212730	16
V03 05200.112730	16
V03 05200.212730	16
V03 05300.112730	16
V03 05300.212730	16
V03 05400.112730	16
V03 05400.212730	16
V03 05500.112730	16
V03 05500.212730	16
V03 05540.112730	16
V03 05540.212730	16
V03 05600.112730	16
V03 05600.212730	16
V03 05700.112730	16
V03 05700.212730	16
V03 05800.112730	16
V03 05800.212730	16
V03 05900.112730	16
V03 05900.212730	16
V03 06000.112730	16
V03 06000.145510	45
V03 06000.212730	16
V03 06100.112730	16
V03 06100.212730	16
V03 06200.112730	16
V03 06200.212730	16
V03 06300.112730	16
V03 06300.212730	16
V03 06400.112730	16
V03 06400.212730	16
V03 06500.112730	16
V03 06500.212730	16
V03 06600.112730	16
V03 06600.212730	16
V03 06700.112730	16
V03 06700.212730	16
V03 06800.112730	16
V03 06800.212730	16
V03 06900.112730	16
V03 06900.212730	16
V03 07000.112730	16
V03 07000.212730	16
V03 07100.112730	16
V03 07100.212730	16
V03 07200.112730	16
V03 07200.212730	16
V03 07300.112730	16
V03 07300.212730	16
V03 07400.112730	16
V03 07400.212730	16
V03 07430.112730	16
V03 07430.212730	16
V03 07500.112730	16
V03 07500.212730	16
V03 07600.112730	16
V03 07600.212730	16
V03 07700.112730	16
V03 07700.212730	16
V03 07800.112730	16
V03 07800.212730	16
V03 07900.112730	16
V03 07900.212730	16
V03 08000.112730	16
V03 08000.145510	45
V03 08000.212730	16
V03 08100.112730	16
V03 08100.212730	16
V03 08200.112730	17
V03 08200.212730	17
V03 08300.112730	17
V03 08300.212730	17
V03 08400.112730	17
V03 08400.212730	17
V03 08500.112730	17
V03 08500.212730	17
V03 08600.112730	17
V03 08600.212730	17
V03 08700.112730	17
V03 08700.212730	17
V03 08800.112730	17
V03 08800.212730	17
V03 08900.112730	17
V03 08900.212730	17
V03 09000.112730	17
V03 09000.212730	17
V03 09100.112730	17
V03 09100.212730	17
V03 09200.112730	17
V03 09200.212730	17
V03 09300.112730	17
V03 09300.212730	17
V03 09400.112730	17
V03 09400.212730	17
V03 09500.112730	17
V03 09500.212730	17
V03 09540.112730	17
V03 09540.212730	17
V03 09600.112730	17
V03 09600.212730	17
V03 09700.112730	17
V03 09700.212730	17
V03 09800.112730	17
V03 09800.212730	17
V03 09900.112730	17
V03 09900.212730	17
V03 10000.112730	17
V03 10000.145510	45
V03 10000.212730	17
V03 10100.112730	17
V03 10100.212730	17
V03 10200.112730	17
V03 10200.212730	17
V03 10300.112730	17
V03 10300.212730	17
V03 10400.112730	17
V03 10400.212730	17
V03 10500.112730	17
V03 10500.212730	17
V03 10600.112730	17
V03 10600.212730	17
V03 10700.112730	17
V03 10700.212730	17
V03 10800.112730	17
V03 10800.212730	17
V03 10900.112730	17
V03 10900.212730	17
V03 11000.112730	17
V03 11000.212730	17
V03 11100.112730	17
V03 11100.212730	17
V03 11200.112730	17
V03 11200.212730	17
V03 11300.112730	17
V03 11300.212730	17
V03 11400.112730	17
V03 11400.212730	17
V03 11500.112730	17
V03 11500.212730	17
V03 11540.112730	17
V03 11540.212730	17
V03 11600.112730	17
V03 11600.212730	17
V03 11700.112730	17
V03 11700.212730	17
V03 11800.112730	17
V03 11800.212730	17
V03 11900.112730	17
V03 11900.212730	17
V03 12000.112730	17
V03 12000.212730	17
V03 12500.112730	17
V03 12500.212730	17
V03 12800.112730	17
V03 12800.212730	17
V03 13000.112730	17
V03 13000.212730	17
V03 13300.112730	17
V03 13300.212730	17
V03 13500.112730	17
V03 13500.212730	17
V03 13800.112730	17
V03 13800.212730	17
V03 14000.112730	17
V03 14000.212730	17
V03 14500.112730	17
V03 14500.212730	17
V03 14800.112730	17
V03 14800.212730	17
V03 15000.112730	17
V03 15000.212730	17
V03 15500.112730	17
V03 15500.212730	17
V03 15800.112730	17
V03 15800.212730	17
V03 16000.112730	17
V03 16000.212730	17
V04 03000.112730	18
V04 03000.212730	18
V04 03100.112730	18
V04 03100.212730	18
V04 03200.112730	18
V04 03200.212730	18
V04 03300.112730	18
V04 03300.212730	18
V04 03400.112730	18
V04 03400.212730	18
V04 03500.112730	18
V04 03500.212730	18
V04 03600.112730	18
V04 03600.212730	18
V04 03700.112730	18
V04 03700.212730	18
V04 03800.112730	18
V04 03800.212730	18
V04 03900.112730	18
V04 03900.212730	18
V04 04000.112730	18
V04 04000.212730	18
V04 04100.112730	18
V04 04100.212730	18
V04 04200.112730	18
V04 04200.212730	18
V04 04300.112730	18
V04 04300.212730	18
V04 04400.112730	18
V04 04400.212730	18
V04 04500.112730	18
V04 04500.212730	18
V04 04600.112730	18
V04 04600.212730	18
V04 04700.112730	18
V04 04700.212730	18
V04 04800.112730	18
V04 04800.212730	18
V04 04900.112730	18
V04 04900.212730	18
V04 05000.112730	18
V04 05000.212730	18
V04 05100.112730	18
V04 05100.212730	18
V04 05200.112730	18

Numerical index

Order No.	Page
V04 05200.212730	18
V04 05300.112730	18
V04 05300.212730	18
V04 05400.112730	18
V04 05400.212730	18
V04 05500.112730	18
V04 05500.212730	18
V04 05540.112730	18
V04 05540.212730	18
V04 05600.112730	18
V04 05600.212730	18
V04 05700.112730	18
V04 05700.212730	18
V04 05800.112730	18
V04 05800.212730	18
V04 05900.112730	18
V04 05900.212730	18
V04 06000.112730	18
V04 06000.212730	18
V04 06100.112730	18
V04 06100.212730	18
V04 06200.112730	18
V04 06200.212730	18
V04 06300.112730	18
V04 06300.212730	18
V04 06400.112730	18
V04 06400.212730	18
V04 06500.112730	18
V04 06500.212730	18
V04 06600.112730	18
V04 06600.212730	18
V04 06700.112730	18
V04 06700.212730	18
V04 06800.112730	18
V04 06800.212730	18
V04 06900.112730	18
V04 06900.212730	18
V04 07000.112730	18
V04 07000.212730	18
V04 07100.112730	18
V04 07100.212730	18
V04 07200.112730	18
V04 07200.212730	18
V04 07300.112730	18
V04 07300.212730	18
V04 07400.112730	18
V04 07400.212730	18
V04 07430.112730	18
V04 07430.212730	18
V04 07500.112730	18
V04 07500.212730	18
V04 07600.112730	18
V04 07600.212730	18
V04 07700.112730	18
V04 07700.212730	18
V04 07800.112730	18
V04 07800.212730	18
V04 07900.112730	18
V04 07900.212730	18
V04 08000.112730	18
V04 08000.212730	18
V04 08100.112730	18
V04 08100.212730	18
V04 08200.112730	19
V04 08200.212730	19
V04 08300.112730	19
V04 08300.212730	19
V04 08400.112730	19
V04 08400.212730	19
V04 08500.112730	19
V04 08500.212730	19
V04 08600.112730	19

Order No.	Page
V04 08600.212730	19
V04 08700.112730	19
V04 08700.212730	19
V04 08800.112730	19
V04 08800.212730	19
V04 08900.112730	19
V04 08900.212730	19
V04 09000.112730	19
V04 09000.212730	19
V04 09100.112730	19
V04 09100.212730	19
V04 09200.112730	19
V04 09200.212730	19
V04 09300.112730	19
V04 09300.212730	19
V04 09400.112730	19
V04 09400.212730	19
V04 09500.112730	19
V04 09500.212730	19
V04 09540.112730	19
V04 09540.212730	19
V04 09600.112730	19
V04 09600.212730	19
V04 09700.112730	19
V04 09700.212730	19
V04 09800.112730	19
V04 09800.212730	19
V04 09900.112730	19
V04 09900.212730	19
V04 10000.112730	19
V04 10000.212730	19
V04 10100.112730	19
V04 10100.212730	19
V04 10200.112730	19
V04 10200.212730	19
V04 10300.112730	19
V04 10300.212730	19
V04 10400.112730	19
V04 10400.212730	19
V04 10500.112730	19
V04 10500.212730	19
V04 10600.112730	19
V04 10600.212730	19
V04 10700.112730	19
V04 10700.212730	19
V04 10800.112730	19
V04 10800.212730	19
V04 10900.112730	19
V04 10900.212730	19
V04 11000.112730	19
V04 11000.212730	19
V04 11100.112730	19
V04 11100.212730	19
V04 11200.112730	19
V04 11200.212730	19
V04 11300.112730	19
V04 11300.212730	19
V04 11400.112730	19
V04 11400.212730	19
V04 11500.112730	19
V04 11500.212730	19
V04 11540.112730	19
V04 11540.212730	19
V04 11600.112730	19
V04 11600.212730	19
V04 11700.112730	19
V04 11700.212730	19
V04 11800.112730	19
V04 11800.212730	19
V04 11900.112730	19
V04 11900.212730	19
V04 12000.112730	19

Order No.	Page
V04 12000.212730	19
V04 12500.112730	19
V04 12500.212730	19
V04 12800.112730	19
V04 12800.212730	19
V04 13000.112730	19
V04 13000.212730	19
V04 13300.112730	19
V04 13300.212730	19
V04 13500.112730	19
V04 13500.212730	19
V04 13800.112730	19
V04 13800.212730	19
V04 14000.112730	19
V04 14000.212730	19
V04 14500.112730	19
V04 14500.212730	19
V04 14800.112730	19
V04 14800.212730	19
V04 15000.112730	19
V04 15000.212730	19
V04 15500.112730	19
V04 15500.212730	19
V04 15800.112730	19
V04 15800.212730	19
V04 16000.112730	19
V04 16000.212730	19
V05 03000.117830	27
V05 04000.117830	27
V05 04500.117830	27
V05 05000.117830	27
V05 05500.117830	27
V05 06000.117830	27
V05 06500.117830	27
V05 08000.117830	27
V05 08500.117830	27
V05 09000.117830	27
V05 10000.117830	27
V06 03000.117830	28
V06 04000.117830	28
V06 04500.117830	28
V06 05000.117830	28
V06 05500.117830	28
V06 06000.117830	28
V06 06500.117830	28
V06 08000.117830	28
V07 03000.112730	14
V07 03000.212730	14
V07 03100.112730	14
V07 03100.212730	14
V07 03200.112730	14
V07 03200.212730	14
V07 03300.112730	14
V07 03300.212730	14
V07 03400.112730	14
V07 03400.212730	14
V07 03500.112730	14
V07 03500.212730	14
V07 03600.112730	14
V07 03600.212730	14
V07 03700.112730	14
V07 03700.212730	14
V07 03800.112730	14
V07 03800.212730	14
V07 03900.112730	14
V07 03900.212730	14
V07 04000.112730	14
V07 04000.212730	14
V07 04100.112730	14

Order No.	Page
V07 04100.212730	14
V07 04200.112730	14
V07 04200.212730	14
V07 04300.112730	14
V07 04300.212730	14
V07 04400.112730	14
V07 04400.212730	14
V07 04500.112730	14
V07 04500.212730	14
V07 04600.112730	14
V07 04600.212730	14
V07 04700.112730	14
V07 04700.212730	14
V07 04800.112730	14
V07 04800.212730	14
V07 04900.112730	14
V07 04900.212730	14
V07 05000.112730	14
V07 05000.212730	14
V07 05100.112730	14
V07 05100.212730	14
V07 05200.112730	14
V07 05200.212730	14
V07 05300.112730	14
V07 05300.212730	14
V07 05400.112730	14
V07 05400.212730	14
V07 05500.112730	14
V07 05500.212730	14
V07 05600.112730	14
V07 05600.212730	14
V07 05700.112730	14
V07 05700.212730	14
V07 05800.112730	14
V07 05800.212730	14
V07 05900.112730	14
V07 05900.212730	14
V07 06000.112730	14
V07 06000.212730	14
V07 06100.112730	14
V07 06100.212730	14
V07 06200.112730	14
V07 06200.212730	14
V07 06300.112730	14
V07 06300.212730	14
V07 06400.112730	14
V07 06400.212730	14
V07 06500.112730	14
V07 06500.212730	14
V07 06600.112730	14
V07 06600.212730	14
V07 06700.112730	14
V07 06700.212730	14
V07 06800.112730	14
V07 06800.212730	14
V07 06900.112730	14
V07 06900.212730	14
V07 07000.112730	14
V07 07000.212730	14
V07 07100.112730	14
V07 07100.212730	14
V07 07200.112730	14
V07 07200.212730	14
V07 07300.112730	14
V07 07300.212730	14
V07 07400.112730	14
V07 07400.212730	14
V07 07500.112730	14
V07 07500.212730	14
V07 07600.112730	14
V07 07600.212730	14
V07 07700.112730	14

Order No.	Page
V07 07700.212730	14
V07 07800.112730	14
V07 07800.212730	14
V07 07900.112730	14
V07 07900.212730	14
V07 08000.112730	15
V07 08000.212730	15
V07 08100.112730	15
V07 08100.212730	15
V07 08200.112730	15
V07 08200.212730	15
V07 08300.112730	15
V07 08300.212730	15
V07 08400.112730	15
V07 08400.212730	15
V07 08500.112730	15
V07 08500.212730	15
V07 08600.112730	15
V07 08600.212730	15
V07 08700.112730	15
V07 08700.212730	15
V07 08800.112730	15
V07 08800.212730	15
V07 08900.112730	15
V07 08900.212730	15
V07 09000.112730	15
V07 09000.212730	15
V07 09100.112730	15
V07 09100.212730	15
V07 09200.112730	15
V07 09200.212730	15
V07 09300.112730	15
V07 09300.212730	15
V07 09400.112730	15
V07 09400.212730	15
V07 09500.112730	15
V07 09500.212730	15
V07 09600.112730	15
V07 09600.212730	15
V07 09700.112730	15
V07 09700.212730	15
V07 09800.112730	15
V07 09800.212730	15
V07 09900.112730	15
V07 09900.212730	15
V07 10000.112730	15
V07 10000.212730	15
V07 10100.112730	15
V07 10100.212730	15
V07 10200.112730	15
V07 10200.212730	15
V07 10300.112730	15
V07 10300.212730	15
V07 10400.112730	15
V07 10400.212730	15
V07 10500.112730	15
V07 10500.212730	15
V07 10600.112730	15
V07 10600.212730	15
V07 10700.112730	15
V07 10700.212730	15
V07 10800.112730	15
V07 10800.212730	15
V07 10900.112730	15
V07 10900.212730	15
V07 11000.112730	15
V07 11000.212730	15
V07 11100.112730	15
V07 11100.212730	15
V07 11200.112730	15
V07 11200.212730	15
V07 11300.112730	15

Numerical index

Order No.	Page
V07 11300.212730	15
V07 11400.112730	15
V07 11400.212730	15
V07 11500.112730	15
V07 11500.212730	15
V07 11600.112730	15
V07 11600.212730	15
V07 11700.112730	15
V07 11700.212730	15
V07 11800.112730	15
V07 11800.212730	15
V07 11900.112730	15
V07 11900.212730	15
V07 12000.112730	15
V07 12000.212730	15
V07 12500.112730	15
V07 12500.212730	15
V07 13000.112730	15
V07 13000.212730	15
V07 13500.112730	15
V07 13500.212730	15
V07 14000.112730	15
V07 14000.212730	15
V07 14500.112730	15
V07 14500.212730	15
V07 15000.112730	15
V07 15000.212730	15
V07 15500.112730	15
V07 15500.212730	15
V07 16000.112730	15
V07 16000.212730	15
V09 03000.112930	20
V09 03000.212930	20
V09 03100.112930	20
V09 03100.212930	20
V09 03200.112930	20
V09 03200.212930	20
V09 03300.112930	20
V09 03300.212930	20
V09 03400.112930	20
V09 03400.212930	20
V09 03500.112930	20
V09 03500.212930	20
V09 03600.112930	20
V09 03600.212930	20
V09 03700.112930	20
V09 03700.212930	20
V09 03800.112930	20
V09 03800.212930	20
V09 03900.112930	20
V09 03900.212930	20
V09 04000.112930	20
V09 04000.212930	20
V09 04100.112930	20
V09 04100.212930	20
V09 04200.112930	20
V09 04200.212930	20
V09 04300.112930	20
V09 04300.212930	20
V09 04400.112930	20
V09 04400.212930	20
V09 04500.112930	20
V09 04500.212930	20
V09 04600.112930	20
V09 04600.212930	20
V09 04700.112930	20
V09 04700.212930	20
V09 04800.112930	20
V09 04800.212930	20
V09 04900.112930	20
V09 04900.212930	20

Order No.	Page
V09 05000.112930	20
V09 05000.212930	20
V09 05100.112930	20
V09 05100.212930	20
V09 05200.112930	20
V09 05200.212930	20
V09 05300.112930	20
V09 05300.212930	20
V09 05400.112930	20
V09 05400.212930	20
V09 05500.112930	20
V09 05500.212930	20
V09 05540.112930	20
V09 05540.212930	20
V09 05600.112930	20
V09 05600.212930	20
V09 05700.112930	20
V09 05700.212930	20
V09 05800.112930	20
V09 05800.212930	20
V09 05900.112930	20
V09 05900.212930	20
V09 06000.112930	20
V09 06000.212930	20
V09 06100.112930	20
V09 06100.212930	20
V09 06200.112930	20
V09 06200.212930	20
V09 06300.112930	20
V09 06300.212930	20
V09 06400.112930	20
V09 06400.212930	20
V09 06500.112930	20
V09 06500.212930	20
V09 06600.112930	20
V09 06600.212930	20
V09 06700.112930	20
V09 06700.212930	20
V09 06800.112930	20
V09 06800.212930	20
V09 06900.112930	20
V09 06900.212930	20
V09 07000.112930	20
V09 07000.212930	20
V09 07100.112930	20
V09 07100.212930	20
V09 07200.112930	20
V09 07200.212930	20
V09 07300.112930	20
V09 07300.212930	20
V09 07400.112930	20
V09 07400.212930	20
V09 07430.112930	20
V09 07430.212930	20
V09 07500.112930	20
V09 07500.212930	20
V09 07600.112930	20
V09 07600.212930	20
V09 07700.112930	20
V09 07700.212930	20
V09 07800.112930	20
V09 07800.212930	20
V09 07900.112930	20
V09 07900.212930	20
V09 08000.112930	20
V09 08000.212930	20
V09 08100.112930	20
V09 08100.212930	20
V09 08200.112930	21
V09 08200.212930	21
V09 08300.112930	21
V09 08300.212930	21

Order No.	Page
V09 08400.112930	21
V09 08400.212930	21
V09 08500.112930	21
V09 08500.212930	21
V09 08600.112930	21
V09 08600.212930	21
V09 08700.112930	21
V09 08700.212930	21
V09 08800.112930	21
V09 08800.212930	21
V09 08900.112930	21
V09 08900.212930	21
V09 09000.112930	21
V09 09000.212930	21
V09 09100.112930	21
V09 09100.212930	21
V09 09200.112930	21
V09 09200.212930	21
V09 09300.112930	21
V09 09300.212930	21
V09 09400.112930	21
V09 09400.212930	21
V09 09500.112930	21
V09 09500.212930	21
V09 09540.112930	21
V09 09540.212930	21
V09 09600.112930	21
V09 09600.212930	21
V09 09700.112930	21
V09 09700.212930	21
V09 09800.112930	21
V09 09800.212930	21
V09 09900.112930	21
V09 09900.212930	21
V09 10000.112930	21
V09 10000.212930	21
V09 10100.112930	21
V09 10100.212930	21
V09 10200.112930	21
V09 10200.212930	21
V09 10300.112930	21
V09 10300.212930	21
V09 10400.112930	21
V09 10400.212930	21
V09 10500.112930	21
V09 10500.212930	21
V09 10600.112930	21
V09 10600.212930	21
V09 10700.112930	21
V09 10700.212930	21
V09 10800.112930	21
V09 10800.212930	21
V09 10900.112930	21
V09 10900.212930	21
V09 11000.112930	21
V09 11000.212930	21
V09 11100.112930	21
V09 11100.212930	21
V09 11200.112930	21
V09 11200.212930	21
V09 11300.112930	21
V09 11300.212930	21
V09 11400.112930	21
V09 11400.212930	21
V09 11500.112930	21
V09 11500.212930	21
V09 11540.112930	21
V09 11540.212930	21
V09 11600.112930	21
V09 11600.212930	21
V09 11700.112930	21
V09 11700.212930	21

Order No.	Page
V09 11800.112930	21
V09 11800.212930	21
V09 11900.112930	21
V09 11900.212930	21
V09 12000.112930	21
V09 12000.212930	21
V09 12500.112930	21
V09 12500.212930	21
V09 12800.112930	21
V09 12800.212930	21
V09 13000.112930	21
V09 13000.212930	21
V09 13300.112930	21
V09 13300.212930	21
V09 13500.112930	21
V09 13500.212930	21
V09 13800.112930	21
V09 13800.212930	21
V09 14000.112930	21
V09 14000.212930	21
V09 14500.112930	21
V09 14500.212930	21
V09 14800.112930	21
V09 14800.212930	21
V09 15000.112930	21
V09 15000.212930	21
V09 15500.112930	21
V09 15500.212930	21
V09 15800.112930	21
V09 15800.212930	21
V09 16000.112930	21
V09 16000.212930	21
V11 00800.135210	40
V11 01000.135210	40
V11 01500.135210	40
V11 01600.135210	40
V11 01700.135210	40
V11 01800.135210	40
V11 01900.135210	40
V11 02000.135210	40
V11 02100.135210	40
V11 02200.135210	40
V11 02300.135210	40
V11 02400.135210	40
V11 02500.135210	40
V11 02600.135210	40
V11 02700.135210	40
V11 02800.135210	40
V11 02900.135210	40
V11 03000.135210	40
V11 03100.135210	40
V11 03200.135210	40
V11 03300.135210	40
V11 03400.135210	40
V11 03500.135210	40
V11 03600.135210	40
V11 03700.135210	40
V11 03800.135210	40
V11 03900.135210	40
V11 04000.135210	40
V11 04100.135210	40
V11 04200.135210	40
V11 04300.135210	40
V11 04400.135210	40
V11 04500.135210	40
V11 04600.135210	40
V11 04700.135210	40
V11 04800.135210	40
V11 04830.135210	40
V11 04900.135210	40
V11 04930.135210	40

Order No.	Page
V11 05000.135210	40
V11 05100.135210	40
V11 05200.135210	40
V11 05300.135210	40
V11 05400.135210	40
V11 05500.135210	40
V11 05600.135210	40
V11 05700.135210	40
V11 05800.135210	40
V11 05900.135210	40
V11 06000.135210	40
V11 06000.135510	44
V11 06000.235510	44
V11 06100.135210	40
V11 06200.135210	40
V11 06300.135210	40
V11 06350.135210	40
V11 06400.135210	40
V11 06500.135210	40
V11 06600.135210	40
V11 06700.135210	40
V11 06800.135210	40
V11 06900.135210	40
V11 07000.135210	40
V11 07100.135210	40
V11 07200.135210	41
V11 07300.135210	41
V11 07400.135210	41
V11 07500.135210	41
V11 07600.135210	41
V11 07700.135210	41
V11 07800.135210	41
V11 07900.135210	41
V11 07930.135210	41
V11 08000.135210	41
V11 08000.135510	44
V11 08000.235510	44
V11 08100.135210	41
V11 08200.135210	41
V11 08300.135210	41
V11 08400.135210	41
V11 08500.135210	41
V11 08600.135210	41
V11 08700.135210	41
V11 08800.135210	41
V11 08900.135210	41
V11 09000.135210	41
V11 09100.135210	41
V11 09200.135210	41
V11 09300.135210	41
V11 09400.135210	41
V11 09500.135210	41
V11 09520.135210	41
V11 09600.135210	41
V11 09700.135210	41
V11 09800.135210	41
V11 09900.135210	41
V11 10000.135210	41
V11 10000.135510	44
V11 10000.235510	44
V11 10100.135210	41
V11 10200.135210	41
V11 10300.135210	41
V11 10400.135210	41
V11 10500.135210	41
V11 10600.135210	41
V11 10700.135210	41
V11 10800.135210	41
V11 10900.135210	41
V11 11000.135210	41
V11 11100.135210	41
V11 11200.135210	41

Order No.	Page
V11 11300.135210	41
V11 11400.135210	41
V11 11500.135210	41
V11 11600.135210	41
V11 11700.135210	41
V11 11800.135210	41
V11 11900.135210	41
V11 12000.135210	41
V11 12100.135210	41
V11 12200.135210	41
V11 12300.135210	41
V11 12400.135210	41
V11 12500.135210	41
V11 12600.135210	41
V11 12700.135210	41
V11 12800.135210	41
V11 12900.135210	41
V11 13000.135210	41
V13 34500	135
V13 34600	135
V13 34700	135
V13 34800	135
V13 34900	135
V13 35000	135
V13 35100	135
V13 35200	135
V13 35300	135
V13 35400	135
V13 74500	135
V13 74600	135
V13 74700	135
V13 74800	135
V13 74900	135
V13 75000	135
V13 75100	135
V13 75200	135
V13 75300	135
V13 75400	135
V14 35500	135
V14 35600	135
V14 35700	135
V14 35800	135
V14 35900	135
V14 36000	135
V14 36100	135
V14 36200	135
V14 36300	135
V14 36400	135
V14 36500	135
V14 36600	135
V14 36700	135
V14 36800	135
V14 36900	135
V14 37000	135
V14 37100	135
V14 37200	135
V14 37300	135
V14 37400	135
V14 37500	135
V14 37600	135
V14 37700	135
V14 37800	135
V14 37900	135
V14 38000	135
V14 38100	135
V14 38200	135
V14 75500	135
V14 75600	135
V14 75700	135
V14 75800	135

Order No.	Page
V14 75900	135
V14 76000	135
V14 76100	135
V14 76200	135
V14 76300	135
V14 76400	135
V14 76500	135
V14 76600	135
V14 76700	135
V14 76800	135
V14 76900	135
V14 77000	135
V14 77100	135
V14 77200	135
V14 77300	135
V14 77400	135
V14 77500	135
V14 77600	135
V14 77700	135
V14 77800	135
V14 77900	135
V14 78000	135
V14 78100	135
V14 78200	135
V21 05000.135210	42
V21 05100.135210	42
V21 05200.135210	42
V21 05300.135210	42
V21 05400.135210	42
V21 05500.135210	42
V21 05600.135210	42
V21 05700.135210	42
V21 05800.135210	42
V21 05900.135210	42
V21 06000.135210	42
V21 06100.135210	42
V21 06200.135210	42
V21 06300.135210	42
V21 06400.135210	42
V21 06500.135210	42
V21 06600.135210	42
V21 06700.135210	42
V21 06800.135210	42
V21 06900.135210	42
V21 07000.135210	42
V21 07100.135210	42
V21 07200.135210	42
V21 07300.135210	42
V21 07400.135210	42
V21 07500.135210	42
V21 07600.135210	42
V21 07700.135210	42
V21 07800.135210	42
V21 07900.135210	42
V21 08000.135210	42
V21 08100.135210	42
V21 08200.135210	42
V21 08300.135210	42
V21 08400.135210	42
V21 08500.135210	42
V21 08600.135210	42
V21 08700.135210	42
V21 08800.135210	42
V21 08900.135210	42
V21 09000.135210	43
V21 09100.135210	43
V21 09200.135210	43
V21 09300.135210	43
V21 09400.135210	43
V21 09500.135210	43
V21 09600.135210	43

Order No.	Page
V21 09700.135210	43
V21 09800.135210	43
V21 09900.135210	43
V21 10000.135210	43
V21 10100.135210	43
V21 10200.135210	43
V21 10300.135210	43
V21 10400.135210	43
V21 10500.135210	43
V21 10600.135210	43
V21 10700.135210	43
V21 10800.135210	43
V21 10900.135210	43
V21 11000.135210	43
V21 11100.135210	43
V21 11200.135210	43
V21 11300.135210	43
V21 11400.135210	43
V21 11500.135210	43
V21 11600.135210	43
V21 11700.135210	43
V21 11800.135210	43
V21 11900.135210	43
V21 12000.135210	43
V21 12100.135210	43
V21 12200.135210	43
V21 12300.135210	43
V21 12400.135210	43
V21 12500.135210	43
V21 12600.135210	43
V21 12700.135210	43
V21 12800.135210	43
V21 12900.135210	43
V21 13000.135210	43
V25 03000.117830	26
V25 04000.117830	26
V25 04500.117830	26
V25 05000.117830	26
V25 05500.117830	26
V25 06000.117830	26
V25 06500.117830	26
V25 08000.117830	26
V25 08500.117830	26
V25 09000.117830	26
V25 10000.117830	26
V25 12000.117830	26
V26 03000.1125	22
V26 03000.2125	22
V26 03100.1125	22
V26 03100.2125	22
V26 03200.1125	22
V26 03200.2125	22
V26 03300.1125	22
V26 03300.2125	22
V26 03400.1125	22
V26 03400.2125	22
V26 03500.1125	22
V26 03500.2125	22
V26 03600.1125	22
V26 03600.2125	22
V26 03700.1125	22
V26 03700.2125	22
V26 03800.1125	22
V26 03800.2125	22
V26 03900.1125	22
V26 03900.2125	22
V26 04000.1125	22
V26 04000.2125	22
V26 04100.1125	22
V26 04100.2125	22

Order No.	Page
V26 04200.1125	22
V26 04200.2125	22
V26 04300.1125	22
V26 04300.2125	22
V26 04400.1125	22
V26 04400.2125	22
V26 04500.1125	22
V26 04500.2125	22
V26 04600.1125	22
V26 04600.2125	22
V26 04700.1125	22
V26 04700.2125	22
V26 04800.1125	22
V26 04800.2125	22
V26 04900.1125	22
V26 04900.2125	22
V26 05000.1125	22
V26 05000.2125	22
V26 05100.1125	22
V26 05100.2125	22
V26 05200.1125	22
V26 05200.2125	22
V26 05300.1125	22
V26 05300.2125	22
V26 05400.1125	22
V26 05400.2125	22
V26 05500.1125	22
V26 05500.2125	22
V26 05540.1125	22
V26 05540.2125	22
V26 05600.1125	22
V26 05600.2125	22
V26 05700.1125	22
V26 05700.2125	22
V26 05800.1125	22
V26 05800.2125	22
V26 05900.1125	22
V26 05900.2125	22
V26 06000.1125	22
V26 06000.2125	22
V26 06100.1125	22
V26 06100.2125	22
V26 06200.1125	22
V26 06200.2125	22
V26 06300.1125	22
V26 06300.2125	22
V26 06400.1125	22
V26 06400.2125	22
V26 06500.1125	22
V26 06500.2125	22
V26 06600.1125	22
V26 06600.2125	22
V26 06700.1125	22
V26 06700.2125	22
V26 06800.1125	22
V26 06800.2125	22
V26 06900.1125	22
V26 06900.2125	22
V26 07000.1125	22
V26 07000.2125	22
V26 07100.1125	22
V26 07100.2125	22
V26 07200.1125	22
V26 07200.2125	22
V26 07300.1125	22
V26 07300.2125	22
V26 07400.1125	22
V26 07400.2125	22
V26 07430.1125	22
V26 07430.2125	22
V26 07500.1125	22
V26 07500.2125	22

Order No.	Page
V26 07600.1125	22
V26 07600.2125	22
V26 07700.1125	22
V26 07700.2125	22
V26 07800.1125	22
V26 07800.2125	22
V26 07900.1125	22
V26 07900.2125	22
V26 08000.1125	22
V26 08000.2125	22
V26 08100.1125	22
V26 08100.2125	22
V26 08200.1125	23
V26 08200.2125	23
V26 08300.1125	23
V26 08300.2125	23
V26 08400.1125	23
V26 08400.2125	23
V26 08500.1125	23
V26 08500.2125	23
V26 08600.1125	23
V26 08600.2125	23
V26 08700.1125	23
V26 08700.2125	23
V26 08800.1125	23
V26 08800.2125	23
V26 08900.1125	23
V26 08900.2125	23
V26 09000.1125	23
V26 09000.2125	23
V26 09100.1125	23
V26 09100.2125	23
V26 09200.1125	23
V26 09200.2125	23
V26 09300.1125	23
V26 09300.2125	23
V26 09400.1125	23
V26 09400.2125	23
V26 09500.1125	23
V26 09500.2125	23
V26 09540.1125	23
V26 09540.2125	23
V26 09600.1125	23
V26 09600.2125	23
V26 09700.1125	23
V26 09700.2125	23
V26 09800.1125	23
V26 09800.2125	23
V26 09900.1125	23
V26 09900.2125	23
V26 10000.1125	23
V26 10000.2125	23
V26 10100.1125	23
V26 10100.2125	23
V26 10200.1125	23
V26 10200.2125	23
V26 10300.1125	23
V26 10300.2125	23
V26 10400.1125	23
V26 10400.2125	23
V26 10500.1125	23
V26 10500.2125	23
V26 10600.1125	23
V26 10600.2125	23
V26 10700.1125	23
V26 10700.2125	23
V26 10800.1125	23
V26 10800.2125	23
V26 10900.1125	23
V26 10900.2125	23
V26 11000.1125	23
V26 11000.2125	23

Numerical index

Order No.	Page
V26 11100.1125	23
V26 11100.2125	23
V26 11200.1125	23
V26 11200.2125	23
V26 11300.1125	23
V26 11300.2125	23
V26 11400.1125	23
V26 11400.2125	23
V26 11500.1125	23
V26 11500.2125	23
V26 11540.1125	23
V26 11540.2125	23
V26 11600.1125	23
V26 11600.2125	23
V26 11700.1125	23
V26 11700.2125	23
V26 11800.1125	23
V26 11800.2125	23
V26 11900.1125	23
V26 11900.2125	23
V26 12000.1125	23
V26 12000.2125	23
V26 12500.1125	23
V26 12500.2125	23
V26 12800.1125	23
V26 12800.2125	23
V26 13000.1125	23
V26 13000.2125	23
V26 13300.1125	23
V26 13300.2125	23
V26 13500.1125	23
V26 13500.2125	23
V26 13800.1125	23
V26 13800.2125	23
V26 14000.1125	23
V26 14000.2125	23
V26 14500.1125	23
V26 14500.2125	23
V26 14800.1125	23
V26 14800.2125	23
V26 15000.1125	23
V26 15000.2125	23
V26 15500.1125	23
V26 15500.2125	23
V26 15800.1125	23
V26 15800.2125	23
V26 16000.1125	23
V26 16000.2125	23
V27 03000.1125	24
V27 03000.2125	24
V27 03100.1125	24
V27 03100.2125	24
V27 03200.1125	24
V27 03200.2125	24
V27 03300.1125	24
V27 03300.2125	24
V27 03400.1125	24
V27 03400.2125	24
V27 03500.1125	24
V27 03500.2125	24
V27 03600.1125	24
V27 03600.2125	24
V27 03700.1125	24
V27 03700.2125	24
V27 03800.1125	24
V27 03800.2125	24
V27 03900.1125	24
V27 03900.2125	24
V27 04000.1125	24
V27 04000.2125	24
V27 04100.1125	24

Order No.	Page
V27 04100.2125	24
V27 04200.1125	24
V27 04200.2125	24
V27 04300.1125	24
V27 04300.2125	24
V27 04400.1125	24
V27 04400.2125	24
V27 04500.1125	24
V27 04500.2125	24
V27 04600.1125	24
V27 04600.2125	24
V27 04700.1125	24
V27 04700.2125	24
V27 04800.1125	24
V27 04800.2125	24
V27 04900.1125	24
V27 04900.2125	24
V27 05000.1125	24
V27 05000.2125	24
V27 05100.1125	24
V27 05100.2125	24
V27 05200.1125	24
V27 05200.2125	24
V27 05300.1125	24
V27 05300.2125	24
V27 05400.1125	24
V27 05400.2125	24
V27 05500.1125	24
V27 05500.2125	24
V27 05540.1125	24
V27 05540.2125	24
V27 05600.1125	24
V27 05600.2125	24
V27 05700.1125	24
V27 05700.2125	24
V27 05800.1125	24
V27 05800.2125	24
V27 05900.1125	24
V27 05900.2125	24
V27 06000.1125	24
V27 06000.2125	24
V27 06100.1125	24
V27 06100.2125	24
V27 06200.1125	24
V27 06200.2125	24
V27 06300.1125	24
V27 06300.2125	24
V27 06400.1125	24
V27 06400.2125	24
V27 06500.1125	24
V27 06500.2125	24
V27 06600.1125	24
V27 06600.2125	24
V27 06700.1125	24
V27 06700.2125	24
V27 06800.1125	24
V27 06800.2125	24
V27 06900.1125	24
V27 06900.2125	24
V27 07000.1125	24
V27 07000.2125	24
V27 07100.1125	24
V27 07100.2125	24
V27 07200.1125	24
V27 07200.2125	24
V27 07300.1125	24
V27 07300.2125	24
V27 07400.1125	24
V27 07400.2125	24
V27 07430.1125	24
V27 07430.2125	24
V27 07500.1125	24

Order No.	Page
V27 07500.2125	24
V27 07600.1125	24
V27 07600.2125	24
V27 07700.1125	24
V27 07700.2125	24
V27 07800.1125	24
V27 07800.2125	24
V27 07900.1125	24
V27 07900.2125	24
V27 08000.1125	24
V27 08000.2125	24
V27 08100.1125	24
V27 08100.2125	24
V27 08200.1125	25
V27 08200.2125	25
V27 08300.1125	25
V27 08300.2125	25
V27 08400.1125	25
V27 08400.2125	25
V27 08500.1125	25
V27 08500.2125	25
V27 08600.1125	25
V27 08600.2125	25
V27 08700.1125	25
V27 08700.2125	25
V27 08800.1125	25
V27 08800.2125	25
V27 08900.1125	25
V27 08900.2125	25
V27 09000.1125	25
V27 09000.2125	25
V27 09100.1125	25
V27 09100.2125	25
V27 09200.1125	25
V27 09200.2125	25
V27 09300.1125	25
V27 09300.2125	25
V27 09400.1125	25
V27 09400.2125	25
V27 09500.1125	25
V27 09500.2125	25
V27 09540.1125	25
V27 09540.2125	25
V27 09600.1125	25
V27 09600.2125	25
V27 09700.1125	25
V27 09700.2125	25
V27 09800.1125	25
V27 09800.2125	25
V27 09900.1125	25
V27 09900.2125	25
V27 10000.1125	25
V27 10000.2125	25
V27 10100.1125	25
V27 10100.2125	25
V27 10200.1125	25
V27 10200.2125	25
V27 10300.1125	25
V27 10300.2125	25
V27 10400.1125	25
V27 10400.2125	25
V27 10500.1125	25
V27 10500.2125	25
V27 10600.1125	25
V27 10600.2125	25
V27 10700.1125	25
V27 10700.2125	25
V27 10800.1125	25
V27 10800.2125	25
V27 10900.1125	25
V27 10900.2125	25
V27 11000.1125	25

Order No.	Page
V27 11000.2125	25
V27 11100.1125	25
V27 11100.2125	25
V27 11200.1125	25
V27 11200.2125	25
V27 11300.1125	25
V27 11300.2125	25
V27 11400.1125	25
V27 11400.2125	25
V27 11500.1125	25
V27 11500.2125	25
V27 11540.1125	25
V27 11540.2125	25
V27 11600.1125	25
V27 11600.2125	25
V27 11700.1125	25
V27 11700.2125	25
V27 11800.1125	25
V27 11800.2125	25
V27 11900.1125	25
V27 11900.2125	25
V27 12000.1125	25
V27 12000.2125	25
V27 12500.1125	25
V27 12500.2125	25
V27 12700.1125	25
V27 12700.2125	25
V27 12800.1125	25
V27 12800.2125	25
V27 13000.1125	25
V27 13000.2125	25
V27 13300.1125	25
V27 13300.2125	25
V27 13500.1125	25
V27 13500.2125	25
V27 13800.1125	25
V27 13800.2125	25
V27 14000.1125	25
V27 14000.2125	25
V27 14500.1125	25
V27 14500.2125	25
V27 14800.1125	25
V27 14800.2125	25
V27 15000.1125	25
V27 15000.2125	25
V27 15500.1125	25
V27 15500.2125	25
V27 15800.1125	25
V27 15800.2125	25
V27 16000.1125	25
V27 16000.2125	25
V30 21402	123
V30 21502	123
V30 21600	123
V30 21700	123
V30 21800	123
V30 21900	123
V30 22000	123
V30 22100	123
V30 22200	123
V30 22300	123
V30 22400	123
V30 22500	123
V30 22600	123
V30 22700	123
V30 22800	123
V30 22900	123
V30 23000	123
V30 23100	123
V30 23200	123
V30 23300	123

Order No.	Page
V30 23400	123
V30 23500	123
V30 23600	123
V30 23700	123
V30 23800	123
V30 23900	123
V30 24000	123
V30 24100	123
V30 24200	123
V30 24300	123
V30 24400	123
V30 31403	105
V30 31503	105
V30 31551	105
V30 31601	105
V30 31701	105
V30 31751	105
V30 31801	105
V30 31851	105
V30 31901	105
V30 31951	105
V30 32001	105
V30 32101	105
V30 32201	105
V30 32251	105
V30 32301	105
V30 32401	105
V30 32451	105
V30 32501	105
V30 32601	105
V30 32651	105
V30 32701	105
V30 32801	105
V30 32851	105
V30 32901	105
V30 32951	105
V30 33001	105
V30 33101	105
V30 33151	105
V30 33201	105
V30 33301	105
V30 33401	105
V30 33501	105
V30 33601	105
V30 33701	105
V30 33751	105
V30 33801	105
V30 33901	105
V30 33951	105
V30 34001	105
V30 34101	105
V30 34201	105
V30 34301	105
V30 34401	105
V30 61402	123
V30 61502	123
V30 61600	123
V30 61700	123
V30 61800	123
V30 61900	123
V30 62000	123
V30 62100	123
V30 62200	123
V30 62300	123
V30 62400	123
V30 62500	123
V30 62600	123
V30 62700	123
V30 62800	123
V30 62900	123
V30 63000	123
V30 63100	123

Order No.	Page
V30 63200	123
V30 63300	123
V30 63400	123
V30 63500	123
V30 63600	123
V30 63700	123
V30 63800	123
V30 63900	123
V30 64000	123
V30 64100	123
V30 64200	123
V30 64300	123
V30 64400	123
V30 71403	105
V30 71503	105
V30 71551	105
V30 71601	105
V30 71701	105
V30 71751	105
V30 71801	105
V30 71851	105
V30 71901	105
V30 71951	105
V30 72001	105
V30 72101	105
V30 72201	105
V30 72251	105
V30 72301	105
V30 72401	105
V30 72451	105
V30 72501	105
V30 72601	105
V30 72651	105
V30 72701	105
V30 72801	105
V30 72851	105
V30 72901	105
V30 72951	105
V30 73001	105
V30 73101	105
V30 73151	105
V30 73201	105
V30 73301	105
V30 73401	105
V30 73501	105
V30 73601	105
V30 73701	105
V30 73751	105
V30 73801	105
V30 73901	105
V30 73951	105
V30 74001	105
V30 74101	105
V30 74201	105
V30 74301	105
V30 74401	105
V30 91403	105
V30 91503	105
V30 91551	105
V30 91601	105
V30 91701	105
V30 91751	105
V30 91801	105
V30 91851	105
V30 91901	105
V30 91951	105
V30 92001	105
V30 92101	105
V30 92201	105
V30 92251	105
V30 92301	105
V30 92401	105

Order No.	Page
V30 92451	105
V30 92501	105
V30 92601	105
V30 92651	105
V30 92701	105
V30 92801	105
V30 92851	105
V30 92901	105
V30 92951	105
V30 93001	105
V30 93101	105
V30 93151	105
V30 93201	105
V30 93301	105
V30 93401	105
V30 93501	105
V30 93601	105
V30 93701	105
V30 93751	105
V30 93801	105
V30 93901	105
V30 93951	105
V30 94001	105
V30 94101	105
V30 94201	105
V30 94301	105
V30 94401	105
V36 71402	115
V36 71502	115
V36 71600	115
V36 71700	115
V36 71800	115
V36 71900	115
V36 72000	117
V36 72100	117
V36 72200	117
V36 72300	117
V36 72400	117
V37 61402	126
V37 61502	126
V37 61600	126
V37 61700	126
V37 61800	126
V37 61900	126
V37 62000	126
V37 62100	126
V37 62200	126
V37 62300	126
V37 62400	126
V37 71402	115
V37 71502	115
V37 71600	115
V37 71700	115
V37 71800	115
V37 71900	115
V37 72000	117
V37 72100	117
V37 72200	117
V37 72300	117
V37 72400	117
V37 72600	117
V37 72800	117
V37 72900	117
V38 61402	126
V38 61502	126
V38 61600	126
V38 61700	126
V38 61800	126
V38 61900	126

Order No.	Page
V38 62000	126
V38 62100	126
V38 62200	126
V38 62300	126
V38 62400	126
V38 62500	126
V38 62600	126
V38 62700	126
V38 62800	126
V38 62900	126
V38 63000	126
V38 63100	126
V38 63200	126
V38 63300	126
V38 63400	126
V38 63500	126
V38 63600	126
V38 63700	126
V38 63800	126
V38 63900	126
V38 64000	126
V38 64100	126
V38 64200	126
V38 64300	126
V38 64400	126
V38 71402	115
V38 71502	115
V38 71600	115
V38 71700	115
V38 71800	115
V38 71900	115
V38 72000	117
V38 72100	117
V38 72200	117
V38 72300	117
V38 72400	117
V38 72500	117
V38 72600	117
V38 72700	117
V38 72800	117
V38 72900	117
V38 73000	119
V38 73100	119
V38 73200	119
V38 73300	119
V38 73400	119
V38 73500	119
V38 73600	119
V38 73700	119
V38 73800	119
V38 73900	119
V38 74000	119
V38 74100	119
V38 74200	119
V38 74300	119
V38 74400	119
V38 91402	115
V38 91502	115
V38 91550	115
V38 91600	115
V38 91700	115
V38 91750	115
V38 91800	115
V38 91850	115
V38 91900	115
V38 91950	115
V38 92000	117
V38 92100	117
V38 92200	117
V38 92250	117
V38 92300	117
V38 92400	117

Order No.	Page
V38 92450	117
V38 92500	117
V38 92600	117
V38 92650	117
V38 92700	117
V38 92800	117
V38 92850	117
V38 92900	117
V38 92950	117
V38 93000	119
V38 93100	119
V38 93150	119
V38 93200	119
V38 93300	119
V38 93400	119
V38 93500	119
V38 93600	119
V39 61402	126
V39 61502	126
V39 61600	126
V39 61700	126
V39 61800	126
V39 61900	126
V39 62000	126
V39 62100	126
V39 62200	126
V39 62300	126
V39 62400	126
V39 62500	126
V39 62600	126
V39 62700	126
V39 62800	126
V39 62900	126
V39 63000	126
V39 63100	126
V39 63200	126
V39 63300	126
V39 63400	126
V39 63500	126
V39 63600	126
V39 63700	126
V39 63800	126
V39 63900	126
V39 64000	126
V39 64100	126
V39 64200	126
V39 64300	126
V39 64400	126
V39 71402	115
V39 71502	115
V39 71600	115
V39 71700	115
V39 71800	115
V39 71900	115
V39 72000	117
V39 72100	117
V39 72200	117
V39 72300	117
V39 72400	117
V39 72500	117
V39 72600	117
V39 72700	117
V39 72800	117
V39 72900	117
V39 73000	119
V39 73100	119
V39 73200	119
V39 73300	119
V39 73400	119
V39 73500	119
V39 73600	119

Order No.	Page
V39 73700	119
V39 73800	119
V39 73900	119
V39 74000	119
V39 74100	119
V39 74200	119
V39 74300	119
V39 74400	119
V39 91402	115
V39 91502	115
V39 91550	115
V39 91600	115
V39 91700	115
V39 91750	115
V39 91800	115
V39 91850	115
V39 91900	115
V39 91950	115
V39 92000	117
V39 92100	117
V39 92200	117
V39 92250	117
V39 92300	117
V39 92400	117
V39 92450	117
V39 92500	117
V39 92600	117
V39 92650	117
V39 92700	117
V39 92800	117
V39 92850	117
V39 92900	117
V39 92950	117
V39 93000	119
V39 93100	119
V39 93150	119
V39 93200	119
V39 93300	119
V39 93400	119
V39 93500	119
V39 93600	119
V39 93700	119
V39 93750	119
V39 93800	119
V39 93900	119
V39 93950	119
V39 94000	119
V39 94100	119
V39 94200	119
V39 94300	119
V39 94400	119
V43 31202	109
V43 31272	109
V43 31302	109
V43 31372	109
V43 31404	109
V43 31504	109
V43 31552	109
V43 31602	109
V43 31702	109
V43 31752	109
V43 31802	109
V43 31852	109
V43 31902	109
V43 31952	109
V43 32002	109
V43 32102	109
V43 32202	109
V43 32252	109
V43 32302	109
V43 32402	111

Numerical index

Order No.	Page
V43 32452	111
V43 71202	109
V43 71272	109
V43 71302	109
V43 71372	109
V43 71404	109
V43 71504	109
V43 71552	109
V43 71602	109
V43 71702	109
V43 71752	109
V43 71802	109
V43 71852	109
V43 71902	109
V43 71952	109
V43 72002	109
V43 72102	109
V43 72202	109
V43 72252	109
V43 72302	109
V43 72402	111
V43 72452	111
V43 91404	109
V43 91504	109
V43 91602	109
V43 91702	109
V43 91802	109
V43 91902	109
V44 32002	109
V44 32102	109
V44 32202	109
V44 32252	109
V44 32302	109
V44 32402	111
V44 32452	111
V44 32502	111
V44 32602	111
V44 32652	111
V44 32702	111
V44 32802	111
V44 32852	111
V44 32902	111
V44 32952	111
V44 71404	109
V44 71504	109
V44 71552	109
V44 71602	109
V44 71702	109
V44 71752	109
V44 71802	109
V44 71852	109
V44 71902	109
V44 71952	109
V44 72002	109
V44 72102	109
V44 72202	109
V44 72252	109
V44 72302	109
V44 72402	111
V44 72452	111
V44 72502	111
V44 72602	111
V44 72652	111
V44 72702	111
V44 72802	111
V44 72852	111
V44 72902	111
V44 72952	111
V44 92002	109
V44 92102	109
V44 92202	109
V44 92302	109
V44 92402	111
V44 92452	111
V45 32402	111
V45 32452	111
V45 32502	111
V45 32602	111
V45 32652	111
V45 32702	111
V45 32802	111
V45 32852	111
V45 32902	111
V45 32952	111
V45 33002	111
V45 33102	111
V45 33152	111
V45 33202	111
V45 33302	111
V45 33402	111
V45 33502	111
V45 33602	111
V45 33702	111
V45 33752	111
V45 33802	111
V45 33902	111
V45 33952	111
V45 34002	111
V45 34102	111
V45 34202	111
V45 34302	111
V45 34402	111
V45 72002	109
V45 72102	109
V45 72202	109
V45 72252	109
V45 72302	109
V45 72402	111
V45 72452	111
V45 72502	111
V45 72602	111
V45 72652	111
V45 72702	111
V45 72802	111
V45 72852	111
V45 72902	111
V45 72952	111
V45 73002	111
V45 73102	111
V45 73152	111
V45 73202	111
V45 73302	111
V45 73402	111
V45 73502	111
V45 73602	111
V45 73702	111
V45 73752	111
V45 73802	111
V45 73902	111
V45 73952	111
V45 74002	111
V45 74102	111
V45 74202	111
V45 74302	111
V45 74402	111
V45 92502	111
V45 92602	111
V45 92702	111
V45 92802	111
V45 92902	111
V45 93002	111
V45 93102	111
V45 93202	111
V45 93302	111
V45 93402	111
V45 93502	111
V45 93602	111
V46 22000	166
V46 22100	166
V46 22200	166
V46 22300	166
V46 22400	166
V46 22500	166
V46 22600	166
V46 22700	166
V46 22800	166
V46 22900	166
V46 23000	166
V46 23100	166
V46 23200	166
V46 23300	166
V46 23320	166
V46 23400	166
V46 23500	166
V46 23600	166
V46 23700	166
V46 23800	166
V46 23900	166
V46 23920	166
V46 24000	169
V46 24100	169
V46 24200	169
V46 24300	169
V46 24400	169
V46 24500	169
V46 24600	169
V46 24700	169
V46 24800	169
V46 24900	169
V46 25000	169
V46 25050	169
V46 25100	169
V46 25200	169
V46 25250	169
V46 25300	169
V46 25400	169
V46 25500	169
V46 25600	169
V46 25700	169
V46 25800	169
V46 25900	169
V46 26000	171
V46 26100	171
V46 26200	171
V46 26300	171
V46 26400	171
V46 26500	171
V46 40801	186
V46 40851	186
V46 40901	186
V46 40951	186
V46 41001	186
V46 41051	186
V46 41101	186
V46 41151	186
V46 41201	186
V46 41251	186
V46 41301	186
V46 41351	186
V46 41401	186
V46 41451	186
V46 41501	186
V46 41551	186
V46 50200	176
V46 50210	176
V46 50220	176
V46 50230	176
V46 50240	176
V46 50250	176
V46 50260	176
V46 50270	176
V46 50280	176
V46 50290	176
V46 50300	176
V46 50310	176
V46 50320	176
V46 50330	176
V46 50340	176
V46 50350	176
V46 50360	176
V46 50370	176
V46 50380	176
V46 50390	176
V46 50400	178
V46 50410	178
V46 50420	178
V46 50430	178
V46 50440	178
V46 50450	178
V46 50460	178
V46 50470	178
V46 50480	178
V46 50490	178
V46 50500	178
V46 50510	178
V46 50520	178
V46 50530	178
V46 50540	178
V46 50550	178
V46 50560	178
V46 50570	178
V46 50580	178
V46 50590	178
V46 50600	178
V46 50610	178
V46 50620	178
V46 50630	178
V46 50640	178
V46 50650	180
V46 50660	180
V46 50670	180
V46 50680	180
V46 50690	180
V46 50700	180
V46 50710	180
V46 50720	180
V46 50730	180
V46 50740	180
V46 50750	180
V46 50760	180
V46 50770	180
V46 50780	180
V46 50790	180
V46 50800	180
V46 50810	180
V47 20201	166
V47 20201	176
V47 20261	166
V47 20261	176
V47 20331	166
V47 20331	176
V47 20401	168
V47 20401	178
V47 20461	168
V47 20461	178
V47 20551	168
V47 20551	170
V47 20551	178
V47 20651	170
V47 20651	180
V47 20721	180
V47 40201	166
V47 40201	176
V47 40261	166
V47 40261	176
V47 40331	166
V47 40331	176
V47 40401	168
V47 40401	178
V47 40461	168
V47 40461	178
V47 40551	168
V47 40551	170
V47 40551	178
V47 40651	170
V47 40651	180
V47 40721	180
V47 60201	166
V47 60201	176
V47 60261	166
V47 60261	176
V47 60331	166
V47 60331	176
V47 60401	168
V47 60401	178
V47 60461	168
V47 60461	178
V47 60551	168
V47 60551	170
V47 60551	178
V47 60651	170
V47 60651	180
V47 60721	180
V50 30830	190
V50 30880	190
V50 30930	190
V50 30980	190
V50 31030	190
V50 31080	190
V50 31130	190
V50 31180	190
V50 31230	190
V50 31280	190
V59 64500	126
V59 64600	126
V59 64700	126
V59 64800	126
V59 64900	126
V59 65000	126
V59 65100	126
V59 65400	126
V59 74500	119
V59 74600	119
V59 74700	119
V59 74800	119
V59 74900	119
V59 75000	119
V59 75100	119
V59 75200	119
V59 75300	119
V59 75400	119
V71 00200	192
V71 00210	192

Order No.	Page
V71 00250	192
V71 00260	192
V71 00330	192
V82 73900	131
V82 74000	131
V82 74100	131
V82 74200	131
V82 74300	131
V82 74400	131
V83 74500	131
V83 74600	131
V83 74700	131
V83 74800	131
V83 74900	131
V83 75000	131
V83 75100	131
V83 75200	131
V83 75300	131
V83 75400	131
V84 75500	131
V84 75600	131
V84 75700	131
V84 75800	131
V84 75900	131
V84 76000	131
V84 76100	131
V84 76200	131
V84 76300	131
V84 76400	131
V84 76500	131
V84 76600	131
V84 76700	131
V84 76800	131
V84 76900	131
V84 77000	131
V84 77100	131
V84 77200	131
V84 77300	131
V84 77400	131
V84 77500	131
V84 77600	131
V84 77700	131
V84 77800	131
V84 77900	131
V84 78000	131
V84 78100	131
V95 03060.112730	31
V95 03060.212730	31
V95 03080.112730	31
V95 03080.212730	31
V95 03100.112730	31
V95 03100.212730	31
V95 03120.112730	31
V95 03120.212730	31
V95 03140.112730	31
V95 03140.212730	31
V95 03160.112730	31
V95 03160.212730	31
V95 03200.112730	31
V95 03200.212730	31
V95 04060.112730	31
V95 04060.212730	31
V95 04080.112730	31
V95 04080.212730	31
V95 04100.112730	31
V95 04100.212730	31
V95 04120.112730	31
V95 04120.212730	31

Order No.	Page
V95 04140.112730	31
V95 04140.212730	31
V95 04160.112730	31
V95 04160.212730	31
V95 04200.112730	31
V95 04200.212730	31
V95 05060.112730	31
V95 05060.212730	31
V95 05080.112730	31
V95 05080.212730	31
V95 05100.112730	31
V95 05100.212730	31
V95 05120.112730	31
V95 05120.212730	31
V95 05140.112730	31
V95 05140.212730	31
V95 05160.112730	31
V95 05160.212730	31
V95 05200.112730	31
V95 05200.212730	31
V95 10012.0089	764
V95 10012.0090	764
V95 10022.0089	764
V95 10022.0090	764
V95 10032.0089	764
V95 10032.0090	764
V95 10042.0089	764
V95 10042.0090	764
V95 10050.0089	764
V95 10050.0090	764
V95 10063.0089	764
V95 10063.0090	764
V95 10213.0089	764
V95 10213.0090	764
V95 10310.8450	764
V95 10320.8450	764
V95 10330.8450	764
V95 10340.8450	764
V96 01100.8450	764
V96 01110.8450	764
V96 01120.8450	764
V96 01130.8450	764
V96 01140.8450	764
V96 01150.8450	764
V96 01160.8450	764
W00 04120.0104	596
W00 04120.0121	596
W00 04120.012710	596
W00 04120.016440	596
W00 04120.018440	596
W00 04120.022710	596
W00 04120.028440	596
W00 04420.0104	596
W00 04420.012710	596
W00 04420.016440	596
W00 04420.018440	596
W00 04420.022710	596
W00 04420.028440	596
W01 10060.048425	597
W01 10120.0403	597
W01 10120.0421	597
W01 10120.048425	597
W01 10360.048425	598
W01 10420.048425	598
W01 18120.0421	597
W01 18120.046425	597
W01 18120.048425	597
W01 18360.046425	598

Order No.	Page
W01 18360.048425	598
W01 18420.048425	598
W01 18600.0421	599
W01 18600.047615	599
W01 24060.0203	597
W01 24060.0221	597
W01 24060.026425	597
W01 24060.028425	597
W01 24060.046115	597
W01 24120.0203	597
W01 24120.026425	597
W01 24120.028425	597
W01 24120.0403	597
W01 24120.0421	597
W01 24120.046425	597
W01 24120.048425	597
W01 24360.046115	598
W01 24420.0203	598
W01 24420.0221	598
W01 24420.026425	598
W01 24420.028425	598
W01 24600.0421	599
W01 24600.047615	599
W01 24600.087615	599
W01 24600.756115	602
W01 24600.906115	601
W01 24940.045510	600
W01 24940.0457	600
W01 34060.0203	597
W01 34060.0221	597
W01 34060.026425	597
W01 34060.028425	597
W01 34060.046115	597
W01 34060.048425	597
W01 34120.0203	597
W01 34120.028425	597
W01 34120.0403	597
W01 34120.0421	597
W01 34120.046425	597
W01 34120.048425	597
W01 34360.0203	598
W01 34360.046115	598
W01 34360.3403	603
W01 34360.3421	603
W01 34360.346440	603
W01 34360.3521	603
W01 34420.0203	598
W01 34420.026425	598
W01 34420.028425	598
W01 34600.0421	599
W01 34600.047615	599
W01 34600.087615	599
W01 34600.756115	602
W01 34600.906115	601
W01 34940.045510	600
W01 34940.0457	600
W01 42060.0203	597
W01 42060.026425	597
W01 42060.028425	597
W01 42060.0421	597
W01 42060.046115	597
W01 42120.026425	597
W01 42120.028425	597
W01 42120.0403	597
W01 42120.0421	597
W01 42120.046425	597
W01 42120.048425	597
W01 42360.0203	598
W01 42360.046115	598

Order No.	Page
W01 42360.046425	598
W01 42360.3403	603
W01 42360.3421	603
W01 42420.0203	598
W01 42420.0221	598
W01 42420.026425	598
W01 42420.028425	598
W01 42420.048425	598
W01 42600.047615	599
W01 42600.087615	599
W01 42600.756115	602
W01 42600.906115	601
W01 42940.045510	600
W01 50060.0403	597
W01 50060.0421	597
W01 50060.046425	597
W01 50060.048425	597
W01 50120.0421	597
W01 50120.048425	597
W01 50360.0403	598
W01 50420.0403	598
W01 50420.048425	598
W01 50600.756115	602
W01 50600.906115	601
W01 58060.068425	597
W01 58120.068425	597
W04 34180.0212	604
W04 34480.0212	605
W04 42180.0204	604
W04 42180.0212	604
W04 42180.0221	604
W04 42180.026425	604
W04 42480.0204	605
W04 42480.0212	605
W04 42480.0221	605
W04 42480.026425	605
W04 42480.0412	605
W04 50180.0404	604
W04 50180.0412	604
W04 50180.046425	604
W04 50480.0404	605
W04 50480.0412	605
W04 50480.0421	605
W04 50480.046425	605
W04 58480.0612	605
W27 12000.046440	606
W27 12010.0403	607
W27 12010.0404	607
W27 12010.0421	607
W27 12010.046425	607
W27 12010.046440	607
W27 12010.047615	607
W27 12010.0479	607
W27 12010.0484	607
W27 12100.046440	608
W27 20000.0421	606
W27 20000.046440	606
W27 20010.0403	607
W27 20010.0404	607
W27 20010.0421	607
W27 20010.046425	607
W27 20010.046440	607
W27 20010.047615	607
W27 20010.0479	607
W27 20010.0484	607
W27 20100.046440	608
W27 20100.0479	608
W29 04010.0279	610
W29 04010.028425	610

Order No.	Page
W29 10010.0404	610
W29 10010.0421	610
W29 10010.046115	610
W29 10010.0462	610
W29 10010.0472	610
W29 10010.047615	610
W29 10010.047930	610
W29 10010.048425	610
W29 10030.046425	612
W29 10030.048425	612
W29 10110.0421	613
W29 10110.0450	613
W29 10110.0477	613
W29 10110.047710	613
W29 10130.0404	614
W29 10130.047325	614
W29 10130.0479	614
W29 10130.048425	614
W29 10150.048430	615
W29 10160.0460	616
W29 10160.048430	616
W29 10200.042730	617
W29 10200.048430	617
W29 18010.0404	610
W29 18010.0421	610
W29 18010.046115	610
W29 18010.0462	610
W29 18010.0472	610
W29 18010.047615	610
W29 18010.047930	610
W29 18010.048425	610
W29 18030.046425	612
W29 18030.048425	612
W29 18110.0421	613
W29 18110.0450	613
W29 18110.0477	613
W29 18110.047710	613
W29 18130.0404	614
W29 18130.047325	614
W29 18130.0479	614
W29 18130.048425	614
W29 18150.0460	615
W29 18150.048430	615
W29 18160.0473	616
W29 18160.048430	616
W29 18200.042730	617
W29 18200.048430	617
W29 24000.0403	609
W29 24000.0421	609
W29 24000.046115	609
W29 24000.046425	609
W29 24000.046440	609
W29 24000.047615	609
W29 24000.048425	609
W29 24010.0403	610
W29 24010.0404	610
W29 24010.0421	610
W29 24010.046115	610
W29 24010.0462	610
W29 24010.046420	610
W29 24010.046425	610
W29 24010.046440	610
W29 24010.0472	610
W29 24010.047615	610
W29 24010.047930	610
W29 24010.048425	610
W29 24010.0803	610
W29 24010.0804	610
W29 24010.0821	610
W29 24010.086115	610

Numerical index

Order No.	Page
W29 24010.0862	610
W29 24010.086420	610
W29 24010.086425	610
W29 24010.086440	610
W29 24010.087615	610
W29 24010.0879	610
W29 24010.088425	610
W29 24020.046425	611
W29 24020.046440	611
W29 24020.086440	611
W29 24030.046425	612
W29 24030.048425	612
W29 24030.086425	612
W29 24110.0421	613
W29 24110.0450	613
W29 24110.0477	613
W29 24110.047710	613
W29 24130.0404	614
W29 24130.047325	614
W29 24130.0479	614
W29 24130.048425	614
W29 24150.0460	615
W29 24150.0473	615
W29 24150.048430	615
W29 24160.0460	616
W29 24160.048430	616
W29 24200.042730	617
W29 24200.048430	617
W29 34000.0403	609
W29 34000.0421	609
W29 34000.046115	609
W29 34000.046425	609
W29 34000.046440	609
W29 34000.047615	609
W29 34000.048425	609
W29 34010.0403	610
W29 34010.0404	610
W29 34010.0421	610
W29 34010.046115	610
W29 34010.0462	610
W29 34010.046420	610
W29 34010.046425	610
W29 34010.046440	610
W29 34010.0472	610
W29 34010.047615	610
W29 34010.047930	610
W29 34010.048425	610
W29 34010.0821	610
W29 34010.086115	610
W29 34010.0862	610
W29 34010.086425	610
W29 34010.086440	610
W29 34010.0872	610
W29 34010.087615	610
W29 34010.0879	610
W29 34010.088425	610
W29 34020.046425	611
W29 34020.046440	611
W29 34020.086440	611
W29 34030.0403	612
W29 34030.046425	612
W29 34030.048425	612
W29 34030.086425	612
W29 34030.088425	612
W29 34110.0421	613
W29 34110.0450	613
W29 34110.0477	613
W29 34110.047710	613
W29 34130.047325	614
W29 34130.0479	614
W29 34130.048425	614
W29 34150.0460	615
W29 34150.048430	615
W29 34160.0460	616
W29 34160.0473	616
W29 34160.048430	616
W29 34200.042730	617
W29 34200.048430	617
W29 42000.0403	609
W29 42000.0421	609
W29 42000.046115	609
W29 42000.046425	609
W29 42000.046440	609
W29 42000.047615	609
W29 42000.048425	609
W29 42010.0403	610
W29 42010.0404	610
W29 42010.0421	610
W29 42010.046115	610
W29 42010.0462	610
W29 42010.046420	610
W29 42010.046425	610
W29 42010.046440	610
W29 42010.0472	610
W29 42010.047615	610
W29 42010.047930	610
W29 42010.048425	610
W29 42010.0803	610
W29 42010.0804	610
W29 42010.0821	610
W29 42010.086115	610
W29 42010.0862	610
W29 42010.086420	610
W29 42010.086425	610
W29 42010.086440	610
W29 42010.087615	610
W29 42010.0879	610
W29 42010.088425	610
W29 42020.046440	611
W29 42020.086440	611
W29 42030.0403	612
W29 42030.046425	612
W29 42030.048425	612
W29 42030.086425	612
W29 42030.088425	612
W29 42110.0421	613
W29 42110.0450	613
W29 42110.0477	613
W29 42110.047710	613
W29 42130.0404	614
W29 42130.047325	614
W29 42130.0479	614
W29 42130.048425	614
W29 42150.0460	615
W29 42150.0473	615
W29 42150.048430	615
W29 42160.0460	616
W29 42160.048430	616
W29 42200.042730	617
W29 42200.048430	617
W29 50000.0403	609
W29 50000.0421	609
W29 50000.046115	609
W29 50000.046425	609
W29 50000.046440	609
W29 50000.048425	609
W29 50000.086115	609
W29 50000.086440	609
W29 50010.0403	610
W29 50010.0404	610
W29 50010.0421	610
W29 50010.046115	610
W29 50010.0462	610
W29 50010.046420	610
W29 50010.046425	610
W29 50010.046440	610
W29 50010.0472	610
W29 50010.047615	610
W29 50010.047930	610
W29 50010.048425	610
W29 50010.0803	610
W29 50010.0804	610
W29 50010.0821	610
W29 50010.086115	610
W29 50010.0862	610
W29 50010.086420	610
W29 50010.086425	610
W29 50010.086440	610
W29 50010.0872	610
W29 50010.087615	610
W29 50010.0879	610
W29 50010.088425	610
W29 50020.046440	611
W29 50020.086440	611
W29 50030.0403	612
W29 50030.046425	612
W29 50030.048425	612
W29 50030.086425	612
W29 50030.088425	612
W29 50110.0421	613
W29 50110.0450	613
W29 50110.0477	613
W29 50110.047710	613
W29 50130.047325	614
W29 50130.0479	614
W29 50130.048425	614
W29 50200.042730	617
W29 50200.048430	617
W29 58000.0821	609
W29 58000.086115	609
W29 58000.086425	609
W29 58000.086440	609
W29 58000.088425	609
W29 58010.0803	610
W29 58010.0804	610
W29 58010.0821	610
W29 58010.086115	610
W29 58010.0862	610
W29 58010.086420	610
W29 58010.086425	610
W29 58010.086440	610
W29 58010.0872	610
W29 58010.087615	610
W29 58010.087930	610
W29 58010.088425	610
W29 58020.086440	611
W29 58030.086425	612
W29 58030.088425	612
W29 58130.0804	614
W29 58130.087325	614
W29 58130.0879	614
W29 58130.088425	614
W30 04060.0203	618
W30 04060.0221	618
W30 04060.022710	618
W30 04060.026110	618
W30 04060.026425	618
W30 04060.026440	618
W30 04060.027615	618
W30 04060.028425	618
W30 04060.0303	618
W30 04060.0321	618
W30 04060.032710	618
W30 04060.036110	618
W30 04060.036425	618
W30 04060.036440	618
W30 04060.037615	618
W30 04060.038425	618
W30 04060.0403	618
W30 04060.0421	618
W30 04060.046425	618
W30 04060.046440	618
W30 04060.3021	618
W30 04060.306425	618
W30 04060.308425	618
W30 04060.316425	624
W30 04060.316440	624
W30 04060.317615	624
W30 04120.0203	618
W30 04120.0221	618
W30 04120.0230	618
W30 04120.0232	618
W30 04120.0237	618
W30 04120.0238	618
W30 04120.026425	618
W30 04120.026440	618
W30 04120.028425	618
W30 04120.0303	618
W30 04120.0321	618
W30 04120.0332	618
W30 04120.0337	618
W30 04120.036425	618
W30 04120.036440	618
W30 04120.038425	618
W30 04120.0403	618
W30 04120.0421	618
W30 04120.0430	618
W30 04120.0438	618
W30 04120.046425	618
W30 04120.046440	618
W30 04120.048425	618
W30 04120.306425	618
W30 04120.308425	618
W30 04120.3121	624
W30 04120.3130	624
W30 04120.3138	624
W30 04120.316425	624
W30 04120.318425	624
W30 04120.3230	626
W30 04120.3232	626
W30 04120.3237	626
W30 04120.3238	626
W30 04120.326425	626
W30 04120.326440	626
W30 04120.328425	626
W30 04120.3977	625
W30 04200.0221	618
W30 04200.026425	618
W30 04200.028425	618
W30 04200.0321	618
W30 04200.036425	618
W30 04360.0203	619
W30 04360.0221	619
W30 04360.026425	619
W30 04360.028425	619
W30 04360.0303	619
W30 04360.0321	619
W30 04360.036425	619
W30 04360.036440	619
W30 04360.038425	619
W30 04360.046425	619
W30 04360.048425	619
W30 04420.0203	619
W30 04420.0221	619
W30 04420.0230	619
W30 04420.0232	619
W30 04420.0237	619
W30 04420.0238	619
W30 04420.026425	619
W30 04420.028425	619
W30 04420.0303	619
W30 04420.0321	619
W30 04420.0337	619
W30 04420.036425	619
W30 04420.036440	619
W30 04420.038425	619
W30 04420.0430	619
W30 04420.0438	619
W30 04420.046425	619
W30 04420.048425	619
W30 04500.0221	619
W30 04500.0321	619
W30 04600.0221	620
W30 04600.0303	620
W30 04600.0321	620
W30 04600.036425	620
W30 04600.037615	620
W30 04600.038425	620
W30 04660.0303	621
W30 04660.0321	621
W30 04660.036425	621
W30 04660.036440	621
W30 04660.038425	621
W30 04720.0303	621
W30 04720.0321	621
W30 04720.036425	621
W30 04820.0230	622
W30 04820.0232	622
W30 04820.0238	622
W30 04820.0332	622
W30 04820.0430	622
W30 04820.0438	622
W30 04820.3230	627
W30 04820.3238	627
W30 04830.0232	623
W30 04980.035510	629
W30 04990.0240	630
W30 04990.025510	630
W30 04990.0257	630
W30 04990.035510	630
W30 04990.0357	630
W30 04990.045510	630
W30 14060.0203	618
W30 14060.0221	618
W30 14060.022710	618
W30 14060.026110	618
W30 14060.026425	618
W30 14060.026440	618
W30 14060.027615	618
W30 14060.028425	618
W30 14060.0403	618
W30 14060.0421	618
W30 14060.042710	618
W30 14060.046110	618
W30 14060.046425	618
W30 14060.046440	618
W30 14060.047615	618
W30 14060.048425	618
W30 14060.0821	618
W30 14060.082710	618
W30 14060.086110	618
W30 14060.086425	618
W30 14060.087615	618
W30 14060.088425	618

Order No.	Page
W30 14060.3021	618
W30 14060.306425	618
W30 14060.308425	618
W30 14060.3121	624
W30 14060.316425	624
W30 14060.316440	624
W30 14060.317615	624
W30 14120.0203	618
W30 14120.0221	618
W30 14120.0230	618
W30 14120.0232	618
W30 14120.0237	618
W30 14120.0238	618
W30 14120.026425	618
W30 14120.026440	618
W30 14120.028425	618
W30 14120.0403	618
W30 14120.0421	618
W30 14120.0430	618
W30 14120.0432	618
W30 14120.0437	618
W30 14120.0438	618
W30 14120.046425	618
W30 14120.046440	618
W30 14120.048425	618
W30 14120.0821	618
W30 14120.086425	618
W30 14120.088425	618
W30 14120.3021	618
W30 14120.306425	618
W30 14120.308425	618
W30 14120.3130	624
W30 14120.3138	624
W30 14120.316425	624
W30 14120.316440	624
W30 14120.318425	624
W30 14120.3230	626
W30 14120.3232	626
W30 14120.3237	626
W30 14120.3238	626
W30 14120.326115	626
W30 14120.326425	626
W30 14120.326440	626
W30 14120.328425	626
W30 14120.3977	625
W30 14200.0203	618
W30 14200.0221	618
W30 14200.026425	618
W30 14200.028425	618
W30 14200.0421	618
W30 14200.046425	618
W30 14360.0203	619
W30 14360.0221	619
W30 14360.026425	619
W30 14360.028425	619
W30 14360.0403	619
W30 14360.0421	619
W30 14360.046425	619
W30 14360.046440	619
W30 14360.047615	619
W30 14360.048425	619
W30 14360.3003	619
W30 14420.0203	619
W30 14420.0221	619
W30 14420.0232	619
W30 14420.0237	619
W30 14420.0238	619
W30 14420.026425	619
W30 14420.028425	619
W30 14420.0403	619
W30 14420.0421	619
W30 14420.0430	619
W30 14420.0432	619
W30 14420.0437	619
W30 14420.0438	619
W30 14420.046425	619
W30 14420.046440	619
W30 14420.047615	619
W30 14420.048425	619
W30 14420.3021	619
W30 14500.0221	619
W30 14500.0421	619
W30 14500.046425	619
W30 14600.0221	620
W30 14600.0403	620
W30 14600.0421	620
W30 14600.0462	620
W30 14600.046425	620
W30 14600.047615	620
W30 14600.048425	620
W30 14600.087615	620
W30 14660.028425	621
W30 14660.0403	621
W30 14660.0404	621
W30 14660.0421	621
W30 14660.046425	621
W30 14660.046440	621
W30 14660.047615	621
W30 14660.048425	621
W30 14660.3303	621
W30 14660.3321	621
W30 14660.336425	621
W30 14660.336440	621
W30 14660.338425	621
W30 14720.026425	621
W30 14720.0403	621
W30 14720.0421	621
W30 14720.046425	621
W30 14720.046440	621
W30 14720.048425	621
W30 14800.0421	621
W30 14820.0230	622
W30 14820.0232	622
W30 14820.0238	622
W30 14820.0430	622
W30 14820.0432	622
W30 14820.0438	622
W30 14820.3230	627
W30 14820.3232	627
W30 14820.3238	627
W30 14830.0232	623
W30 14940.045510	628
W30 14940.0457	628
W30 14980.045510	629
W30 14990.0240	630
W30 14990.025510	630
W30 14990.0257	630
W30 14990.0440	630
W30 14990.045510	630
W30 14990.0457	630
W30 14990.085510	630
W30 14990.0857	630
W30 26060.0203	618
W30 26060.0221	618
W30 26060.022710	618
W30 26060.026110	618
W30 26060.026425	618
W30 26060.027615	618
W30 26060.028425	618
W30 26060.0403	618
W30 26060.0421	618
W30 26060.042710	618
W30 26060.046110	618
W30 26060.046425	618
W30 26060.046440	618
W30 26060.047615	618
W30 26060.048425	618
W30 26060.0503	618
W30 26060.0521	618
W30 26060.052710	618
W30 26060.056110	618
W30 26060.056425	618
W30 26060.056440	618
W30 26060.057615	618
W30 26060.058425	618
W30 26060.082710	618
W30 26060.086110	618
W30 26060.086425	618
W30 26060.087615	618
W30 26060.088425	618
W30 26060.3121	624
W30 26060.316425	624
W30 26060.316440	624
W30 26060.317615	624
W30 26060.318425	624
W30 26120.0203	618
W30 26120.0221	618
W30 26120.0221	618
W30 26120.0232	618
W30 26120.0237	618
W30 26120.0238	618
W30 26120.026425	618
W30 26120.026440	618
W30 26120.028425	618
W30 26120.0403	618
W30 26120.0421	618
W30 26120.0421	618
W30 26120.0430	618
W30 26120.0438	618
W30 26120.046425	618
W30 26120.048425	618
W30 26120.0503	618
W30 26120.0521	618
W30 26120.0521	618
W30 26120.0532	618
W30 26120.0537	618
W30 26120.056425	618
W30 26120.056440	618
W30 26120.058425	618
W30 26120.086425	618
W30 26120.088425	618
W30 26120.306425	618
W30 26120.3130	624
W30 26120.316425	624
W30 26120.316440	624
W30 26120.318425	624
W30 26120.3230	626
W30 26120.3232	626
W30 26120.3237	626
W30 26120.3238	626
W30 26120.326425	626
W30 26120.326440	626
W30 26120.328425	626
W30 26120.3977	625
W30 26200.0221	618
W30 26200.0221	618
W30 26200.0421	618
W30 26200.0421	618
W30 26200.0521	618
W30 26200.0521	618
W30 26360.0221	619
W30 26360.028425	619
W30 26360.046425	619
W30 26360.0503	619
W30 26360.0521	619
W30 26360.056425	619
W30 26360.056440	619
W30 26360.058425	619
W30 26420.0221	619
W30 26420.026425	619
W30 26420.0438	619
W30 26420.0503	619
W30 26420.0521	619
W30 26420.0537	619
W30 26420.056425	619
W30 26420.058425	619
W30 26500.058425	619
W30 26600.047615	620
W30 26600.0503	620
W30 26600.0521	620
W30 26600.057615	620
W30 26600.058425	620
W30 26600.0821	620
W30 26600.086425	620
W30 26600.087615	620
W30 26660.0503	621
W30 26660.0521	621
W30 26660.056425	621
W30 26660.056440	621
W30 26660.057615	621
W30 26660.058425	621
W30 26720.0503	621
W30 26720.0521	621
W30 26720.056425	621
W30 26820.0232	622
W30 26820.0238	622
W30 26820.0438	622
W30 26820.0532	622
W30 26820.3230	627
W30 26820.3238	627
W30 26940.055510	628
W30 26940.0557	628
W30 26980.055510	629
W30 26990.025510	630
W30 26990.0257	630
W30 26990.0440	630
W30 26990.045510	630
W30 26990.0457	630
W30 26990.055510	630
W30 26990.0557	630
W30 44060.088425	618
W30 44360.0803	619
W30 44360.088425	619
W30 44420.088425	619
W30 44600.0821	620
W30 44600.087615	620
W30 44660.0803	621
W30 44660.0821	621
W30 44660.086425	621
W30 44660.086440	621
W30 44660.087615	621
W30 44720.0821	621
W30 44720.086425	621
W32 03150.0421	631
W32 03150.0450	631
W32 03150.047710	631
W32 03450.0421	632
W32 03600.0421	633
W32 03600.0450	633
W32 03980.045510	635
W32 03990.045510	636
W32 13150.0421	631
W32 13150.0450	631
W32 13150.047710	631
W32 13150.0821	631
W32 13150.0850	631
W32 13150.087710	631
W32 13450.0421	632
W32 13600.0421	633
W32 13600.0450	633
W32 13600.0821	633
W32 13600.0850	633
W32 13940.045510	634
W32 13980.045510	635
W32 13990.045510	636
W32 18150.0421	631
W32 18150.0450	631
W32 18150.047710	631
W32 18150.0821	631
W32 18150.0850	631
W32 18150.087710	631
W32 18450.0421	632
W32 18600.0421	633
W32 18600.0450	633
W32 18600.0821	633
W32 18600.0850	633
W32 18940.045510	634
W32 18940.085510	634
W32 18980.045510	635
W32 18990.045510	636
W32 23150.0421	631
W32 23150.0450	631
W32 23150.087710	631
W32 23600.0421	633
W32 23600.0450	633
W32 23600.0821	633
W32 23940.045510	634
W32 23980.045510	635
W32 23990.045510	636
W32 32150.0421	631
W32 32150.0450	631
W32 32600.0421	633
W32 32600.0450	633
W32 32600.0821	633
W32 32600.0850	633
W32 32940.045510	634
W32 32980.045510	635
W32 32990.045510	636
W32 44600.0421	633
W32 44600.0821	633
W32 44600.0850	633
W34 18660.0421	637
W34 18660.046425	637
W37 18600.0421	638
W37 18600.0821	638
W37 23600.0821	638
W57 04120.0223	639
W57 04120.027710	639
W57 04140.023210	640
W57 04140.023230	640
W57 04140.0260	640
W57 04140.028430	640
W57 04140.043210	640
W57 04140.043230	640
W57 04140.0460	640
W57 04140.048430	640
W57 04180.0432	641
W57 04180.048430	641
W57 14120.0423	639
W57 14120.047710	639
W57 14140.023210	640
W57 14140.023230	640
W57 14140.0260	640
W57 14140.028430	640

Numerical index

Order No.	Page
W57 14140.043210	640
W57 14140.043230	640
W57 14140.0460	640
W57 14140.048430	640
W57 14180.0432	641
W57 14180.048430	641
W57 26120.0423	639
W57 26120.047710	639
W57 26140.023210	640
W57 26140.023230	640
W57 26140.0260	640
W57 26140.028430	640
W57 26140.043210	640
W57 26140.043230	640
W57 26140.0460	640
W57 26140.048430	640
W57 26180.0432	641
W57 26180.048430	641
W58 03120.0423	642
W58 03120.047710	642
W58 13120.0423	642
W58 13120.047710	642
W58 18120.0423	642
W58 18120.047710	642
W58 23120.0423	642
W58 23120.047710	642
W58 32120.0423	642
W58 32120.047710	642
W59 18050.0403	643
W59 18050.0421	643
W59 18050.046110	643
W59 18050.046425	643
W59 18050.046440	643
W59 18050.047615	643
W59 18050.0479	643
W59 18050.048425	643
W59 32050.0803	643
W59 32050.0821	643
W59 32050.086110	643
W59 32050.086425	643
W59 32050.086440	643
W59 32050.087615	643
W59 32050.0879	643
W59 32050.088425	643
W60 18060.0203	644
W60 18060.046425	644
W60 18120.0203	644
W60 18120.0221	644
W60 18120.022710	644
W60 18120.026425	644
W60 18120.0403	644
W60 18120.0421	644
W60 18120.042710	644
W60 18120.046425	644
W60 18200.0221	644
W60 18360.0203	645
W60 18360.026425	645
W60 18360.046425	645
W60 18420.0203	645
W60 18420.0221	645
W60 18420.026425	645
W60 18420.0403	645
W60 18420.0421	645
W60 18420.046425	645
W60 18500.0221	645
W60 18500.0421	645
W60 18600.0221	646
W60 18600.0421	646
W60 18980.045510	647

Order No.	Page
W60 18990.0240	648
W60 18990.025510	648
W60 18990.0440	648
W60 18990.045510	648
W60 18990.0457	648
W60 32120.0203	644
W60 32120.0221	644
W60 32120.026425	644
W60 32120.0403	644
W60 32120.0421	644
W60 32120.042710	644
W60 32120.046425	644
W60 32120.082710	644
W60 32120.086425	644
W60 32360.086425	645
W60 32420.0203	645
W60 32420.0221	645
W60 32420.026425	645
W60 32420.0403	645
W60 32420.0421	645
W60 32420.046425	645
W60 32420.086425	645
W60 32600.0421	646
W60 32980.045510	647
W60 32990.0240	648
W60 32990.025510	648
W60 32990.0440	648
W60 32990.045510	648
W60 32990.0457	648
W78 18070.0214	649
W78 18070.0266	649
W78 18070.0414	649
W78 18070.0466	649
W78 18980.045510	650
W78 18990.045510	651
W78 18990.0457	651
W78 32070.0414	649
W78 32070.0466	649
W78 32070.0814	649
W78 32070.0866	649
W78 32980.045510	650
W78 32990.085510	651
W78 32990.0857	651
W79 18060.0203	652
W79 18060.0221	652
W79 18060.022710	652
W79 18060.026425	652
W79 18060.026440	652
W79 18060.0403	652
W79 18060.0421	652
W79 18060.042710	652
W79 18060.046425	652
W79 18060.046440	652
W79 18060.047615	652
W79 18060.086425	652
W79 18060.086440	652
W79 32060.0221	652
W79 32060.026425	652
W79 32060.0403	652
W79 32060.0421	652
W79 32060.042710	652
W79 32060.046425	652
W79 32060.046440	652
W79 32060.0821	652
W79 32060.082710	652
W79 32060.086425	652
W79 32060.086440	652
W80 10010.046115	653
W80 10010.046425	653

Order No.	Page
W80 10010.047710	653
W80 10010.047935	653
W80 10010.048425	653
W80 10030.048430	654
W80 12010.046115	653
W80 12010.046425	653
W80 12010.047710	653
W80 12010.047935	653
W80 12010.048425	653
W80 12030.048430	654
W80 18010.066115	653
W80 18010.066425	653
W80 18010.067710	653
W80 18010.067935	653
W80 18010.068425	653
W80 18030.068430	654
W80 20010.086115	653
W80 20010.086425	653
W80 20010.087710	653
W80 20010.087935	653
W80 20010.088425	653
W80 20030.088430	654
W80 24010.086115	653
W80 24010.086425	653
W80 24010.087710	653
W80 24010.087935	653
W80 24010.088425	653
W80 24030.088430	654
W80 28010.086115	653
W80 28010.086425	653
W80 28010.087710	653
W80 28010.087935	653
W80 28010.088425	653
W80 28030.088430	654
W80 32010.086115	653
W80 32010.086425	653
W80 32010.087710	653
W80 32010.087935	653
W80 32010.088425	653
W80 32030.088430	654
W80 38010.086115	653
W80 38010.086425	653
W80 38010.087710	653
W80 38010.087935	653
W80 38010.088425	653
W80 38030.088430	654
W80 42010.086115	653
W80 42010.086425	653
W80 42010.087710	653
W80 42010.087935	653
W80 42010.088425	653
W80 42030.088430	654
W80 46010.086115	653
W80 46010.086425	653
W80 46010.087710	653
W80 46010.087935	653
W80 46010.088425	653
W80 46030.088430	654
W82 32210.048530	655
W82 32210.082730	655
W82 32210.088530	655
W83 13000.016115	656
W83 13000.0174	656
W83 13010.046420	656
W83 13010.047615	656
W83 13010.047935	656
W83 13010.048425	656
W83 13030.046730	657
W83 13030.048430	657
W83 13130.047935	658

Order No.	Page
W83 13130.048425	658
W83 13210.046130	659
W83 13210.047710	659
W83 13210.047935	659
W83 13210.048430	659
W83 13320.047935	660
W83 13320.048425	660
W83 18000.096115	656
W83 18000.0974	656
W83 18000.1074	658
W83 18000.1521	661
W83 18000.1621	661
W83 18010.066420	656
W83 18010.067615	656
W83 18010.067935	656
W83 18010.068425	656
W83 18030.066730	657
W83 18030.068430	657
W83 18130.066420	658
W83 18130.067935	658
W83 18130.068425	658
W83 18130.086420	658
W83 18130.0874	658
W83 18130.087935	658
W83 18130.088425	658
W83 18210.066130	659
W83 18210.067710	659
W83 18210.067935	659
W83 18210.068430	659
W83 18210.086130	659
W83 18210.087710	659
W83 18210.087935	659
W83 18210.088430	659
W83 18320.067935	660
W83 18320.068425	660
W83 23000.016115	656
W83 23000.0174	656
W83 23000.0274	658
W83 23010.086420	656
W83 23010.087615	656
W83 23010.087935	656
W83 23010.088425	656
W83 23030.086730	657
W83 23030.088430	657
W83 23130.086420	658
W83 23130.087935	658
W83 23130.088425	658
W83 23210.086130	659
W83 23210.087710	659
W83 23210.087935	659
W83 23210.088430	659
W83 23330.087935	660
W83 23330.088425	660
W83 32000.145510	662
W83 32000.156115	656
W83 32000.1574	656
W83 32000.1774	658
W83 32000.1821	661
W83 32000.1921	661
W83 32010.086420	656
W83 32010.087615	656
W83 32010.087935	656
W83 32010.088425	656
W83 32030.086730	657
W83 32030.088430	657
W83 32130.086420	658
W83 32130.087935	658
W83 32130.088425	658
W83 32210.086130	659
W83 32210.087710	659
W83 32210.087935	659
W83 32210.088430	659

Order No.	Page
W83 32320.087935	660
W83 32320.088425	660
W83 39130.086420	658
W83 39130.0874	658
W83 39130.087935	658
W83 39130.088425	658
W83 39210.086130	659
W83 39210.087710	659
W83 39210.087935	659
W83 39210.088430	659
W83 44000.186115	656
W83 44000.1874	656
W83 44000.1974	658
W83 44010.086420	656
W83 44010.087615	656
W83 44010.087935	656
W83 44010.088425	656
W83 44030.086730	657
W83 44030.088430	657
W83 44130.086420	658
W83 44130.087935	658
W83 44130.088425	658
W83 44210.086130	659
W83 44210.087710	659
W83 44210.087935	659
W83 44210.088430	659
W83 44320.087935	660
W83 44320.088425	660
W85 09000.0121	663
W85 09000.0321	663
W85 09000.0377	663
W85 09000.1221	663
W85 09000.1321	664
W85 09000.1421	664
W85 18000.0621	663
W85 18000.0821	663
W85 18000.0877	663
W85 18000.1721	665
W85 18000.1821	665
W85 18000.2657	666
W85 18000.2721	664
W85 18000.2821	664
W85 23000.0121	663
W85 23000.0221	663
W85 23000.0321	664
W85 23000.0421	664
W85 32000.2321	663
W85 32000.2350	663
W85 32000.2377	663
W85 32000.2421	663
W85 32000.2450	663
W85 32000.2477	663
W85 32000.2621	665
W85 32000.3140	666
W85 32000.3157	666
W85 32000.3421	664
W85 32000.3521	664
W85 44000.2950	663
W85 44000.2977	663
W85 44000.3077	663
W85 44000.3221	665
W85 44000.3321	665
W85 44000.3657	666
W85 44000.3921	664
W89 32000.0576	667
W89 32000.0675	667
W89 32000.0676	667

Fax Order +49 7143 373233

KOMET GROUP

KomPass – Drilling

Customer No. – please specify	Order No.	Order date	Supplier No.

Company

Contact person (surname) Name

Branch Department/site

Street

Town/city, postcode

Tel. Fax

Date Signature

Delivery address (if different)

Company

Contact person (surname) Name

Branch Department/site

Street

Town/city, postcode

Tel. Fax

Order quantity	Order No.	Tool name / Item Article	Customer material number	Additional information

This order is subject to the KOMET GROUP GmbH conditions of supply and payment.

AR
VORTEX S.R.L.
Pedro Morán 858, Lomas del Mirador, Buenos Aires
Tel. +54-(11) 46 53 01 25 | Fax +54-(11) 44 88 60 72
vortex@vortex.com.ar

AT
KOMET GROUP GmbH
Zeppelinstraße 3, DE-74354 Besigheim
Tel. +43 512 28 35 59 32 | Fax +43 512 28 35 59 99
info.at@kometgroup.com

AU
Rosler International PTY Ltd.
P.O. BOX 696, 12 The Nook, Bayswater, Vic. 3153
Tel. +61-3-97 38 08 89 | Fax +61-3-97 38 08 87

BA
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

BR
KOMET DO BRASIL LTDA.
Alameda dos Tupinás, 33 - Conj. 309/310
04069-000 - Saúde - São Paulo - SP
Tel. +(55 11) 2737-7445 | info.br@kometgroup.com

CA
KOMET of CANADA Tooling Solutions ULC
2775 Slough St., Mississauga, Ontario L4T 1G2,Canada
Tel. +1 (905) 551-1743 | Fax +1 (905) 551-1876
customerservice.ca@kometgroup.com

CH
KOMET GROUP GmbH
Zeppelinstraße 3, DE-74354 Besigheim
Tel. +49 7143 3730 | Fax +49 7143 373233 | info@kometgroup.com

CN
KOMET GROUP Precision Tools (Taicang) Co.,Ltd.
No. 5 Schaeffler Road Taicang, Jiangsu Province, PRC 215400
Tel. +86 512 53575758 | Fax +86 512 53575759
info.cn@kometgroup.com

CZ
KOMET GROUP CZ s.r.o.
Na Hůrce 1041/2, 160 00 Praha 6
Tel. +420 235010010 | Fax +420 235311890
info.cz@kometgroup.com

DE
KOMET GROUP GmbH
Zeppelinstraße 3, 74354 Besigheim
Tel. +49 7143 3730 | Fax +49 7143 373233 | info@kometgroup.com

DK
KOMET Scandinavia AB
Box 9177, SE-200 39 Malmö
Tel. +46-40-49 28 40 | Fax +46-40-49 19 95
scandinavia@kometgroup.com

EG
ZAHRANCO, ENGINEERING TRADE
15, Ali Amer Str. · 6th Sector · Nasr City · Cairo, Egypt
Tel. +20-2-2 75 43 46 | Fax +20-2-2 75 41 83
Telex 2 10 57 YAZCO UN

ES
KOMET IBERICA TOOLS S.L.
Av. Corts Catalanes 9-11 | Planta baja, local 6B
08173 Sant Cugat del Valles
Tel. +34-93-583.96.20 | Fax +34-93-583.96.12
info.es@kometgroup.com

FI
P.Aro Oy
Hallimestarinkatu 9, FI-20780 KAARINA
Tel. +358-(0)20 1474500 | Fax +358-(0)20 1474501 | info@p-aro.com

FR
KOMET S.à.r.l.
8 Chemin du Jubin, 69574 Dardilly CEDEX
Tel. +33(0)4 37 46 09 00 | Fax +33(0)4 78 35 36 57
info.fr@kometgroup.com

GB
KOMET (UK) Ltd.
4 Hamel House, Calico Business Park, Tamworth | B77 4BF
Tel. +44(0)1827 302518 | Fax +44(0)1827 300486
info.uk@kometgroup.com

HR
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

HU
POWER TOOLS KFT
9019 GYOR, Tavirózsa u. 3/F
Tel. +36 96 511 011 | Fax +36 96 511 010 | info@power-tools.hu

ID
KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village, Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556 | info.sea@kometgroup.com

IE
KOMET (UK) Ltd.
4 Hamel House, Calico Business Park, Tamworth, B77 4BF
Tel. +44(0)1827 302518 | Fax +44(0)1827 300486
info.uk@kometgroup.com

IL
ARNOLD TRADING Co., Ltd.
P.O.B. 20180, 6 Hamachtesh St., Ind. Area, Holon 58810
Tel. +9 72-3-5 58 13 13 | Fax +9 72-3-5 58 13 17

IN
KOMET Precision Tools India Pvt. Ltd.
16J, Attibele Industrial Area, BANGALORE - 562 107
Tel. +91 80 6772 8000 | Fax +91 80 6772 8100
info.in@kometgroup.com

IR
SHIVEH TOLID Co. LTD.
270, West Dr. Fatemi Ave., Post Code : 14186, Tehran
Tel. +98 21 6 691 7 691 | Fax +98 21 6 691 7 688
info@shivehtolid.com

IT
KOMET Utensili S.R.L.
Via Massimo Gorki n. 1, 20098 S. Giuliano Mil.
Tel. +39-02-9 84 02 81 | Fax +39-02-9 84 49 62
info.it@kometgroup.com

JP
KOMET GROUP KK
180-0006, 1-22-2 Naka-cho Musashino-shi, Tokyo Japan
Grand Preo Musashino 203
Tel. +81(0)422 50 0682 | Fax +81(0)422 50 0683
info.jp@kometgroup.com



KOMET GROUP

Kosovo
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

KR
KOMET Korea Co.,Ltd.
#201,Lotte IT Castle-2, 98, Gasan digital 2-ro, Geumcheon-gu,
Seoul, Korea 153-768
Tel. +82(0)2.2082-6300 | Fax +82(0)2.2082-6309
info.kr@kometkorea.com

ME
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

MK
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

MX
KOMET de México S. de R. L. de C.V
Acceso 1 Nave 8 No. 116, Fraccionamiento Industrial La Montaña
Querétaro, Qro. C.P 76150 México
Tel. +52 442-210-9020 | customerservice.mx@kometgroup.com

MY
KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village, Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556 | info.sea@kometgroup.com

NL
Roco B.V.
Willem Barentszweg 16, 5928 LM Venlo
Tel. +31-77-3 23 14 00 | Fax +31-77-3 23 14 04
info@roco.nl | www.roco.nl

NO
KOMET Scandinavia AB
Box 9177, SE-200 39 Malmö
Tel. +46-40-49 28 40 | Fax +46-40-49 19 95
scandinavia@kometgroup.com

NZ
Coulson Carbide Limited
Double J Centre, 24 Gum Road, Henderson Valley, Henderson
P.O.Box 21-228, Henderson, Auckland
Tel. +64-9-8 38 50 61 | Fax +64-9-8 37 62 86

PL
KOMET-URPOL Sp. z o.o
ul. Przyjaźni 47 b, PL 47-225 Kędzierzyn-Koźle
Tel. +48 77 405 31 00 | Fax +48 77 405 31 10
info.pl@kometgroup.com

PT
KOMET IBERICA TOOLS S.L.
Av. Corts Catalanes 9-11, Planta baja, local 6B
08173 Sant Cugat del Valles
Tel. +34-93-583.96.20 | Fax +34-93-583.96.12

RO
S.C. INMAACRO S.R.L.
Avram Iancu 86, 505600 Săcele-Braşov
Tel. +40 368 443 500 | Fax +40 368 443 501 | info@inmaacro.com

RS
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

RU
KOMET GROUP GmbH
ul. M.Salimganova 2V, 420107, Kazan
Tel. +7 843 2531430 | Fax +7 843 2120173
info.ru@kometgroup.com

SE
KOMET Scandinavia AB
Box 9177, SE-200 39 Malmö
Tel. +46-40-49 28 40 | Fax +46-40-49 19 95
scandinavia@kometgroup.com

SG
KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village, Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556 | info.sea@kometgroup.com

SK
KOMET GROUP CZ s.r.o.
Na Hůrce 1041/2, CZ-160 00 Praha 6
Tel. +42(0)2 35 01 00 10 | Fax +42(0)2 35 31 18 90
info.cz@kometgroup.com

SI
Schmidt HSC, d.o.o.
Trg celjskih knezov 3, 3000 Celje
Tel. +386 3 49 00 850 | Fax +386 3 49 00 852 | peter@hsc-schmidt.si

TH
KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village, Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556 | info.sea@kometgroup.com

TR
KOMET KESICI TAKIMLAR SAN VE TIC LTD STI
Istanbul World Trade Center · EGS Business Park Block B2 / 127 ·
34149 Yesilköy-Bakirköy / Istanbul
Tel. +90 544 273 1846 | Fax +90 212 465 8447
info.tr@kometgroup.com

TW
Hung Chih Ltd., Co.
No. 37, Chung Cheng Road, Tainan, Taiwan, R.O.C.
Tel. +8 86-6-2 25 22 16 | Fax +8 86-6-2 20 59 93
hchsu@ms26.hinet.net

US
KOMET of America, Inc.
2050 Mitchell Blvd., Schaumburg, IL 60193-4544
Tel. +1 (847) 923-8400 | Tel. +1 (847) 923-84 80
Fax +1 (800) 865-6638 | customerservice.us@kometgroup.com

VN
KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village, Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556 | info.sea@kometgroup.com

ZA
MULTITRADE DISTRIBUTORS
P.O. Box 3511, Kempton Park, 1620
Tel. +27-11-453-8034 | Fax +27-11-453-9696



GERMANY
KOMET GROUP GmbH
Zeppelinstraße 3 · 74354 Besigheim
Tel. +49 7143 3730 · Fax +49 7143 373233 · info@kometgroup.com

KOMET GROUP GmbH · Werk Stuttgart
Ruppmannstraße 32 · 70565 Stuttgart-Vaihingen
Tel. +49 711 788910 · Fax +49 711 7889111

FRANCE
KOMET S.à.r.l.
8 Chemin du Jubin · 69574 Dardilly CEDEX
Tel. +33(0) 4 37 46 09 00 · Fax +33(0) 4 78 35 36 57 · info.fr@kometgroup.com

GREAT BRITAIN
KOMET (UK) Ltd.
4 Hamel House · Calico Business Park · Tamworth · B77 4BF
Tel. +44(0)1827.302518 · Fax +44(0)1827.300486 · info.uk@kometgroup.com

ITALY
KOMET Utensili S.R.L.
Via Massimo Gorki n. 11 · 20098 S. Giuliano Mil.
Tel. +39 02 98 40 28 1 · Fax +39 02 98 44 96 2 · info.it@kometgroup.com

AUSTRIA
KOMET GROUP GmbH
Zeppelinstraße 3 · D-74354 Besigheim
Tel. +43 512 28355932 · Fax +43 512 28355999 · info.at@kometgroup.com

POLAND
KOMET-URPOL Sp. z o.o
ul. Przyjaźni 47 b · PL 47-225 Kędzierzyn-Koźle
Tel. +48 77 405 31 00 · Fax +48 77 405 31 10 · info.pl@kometgroup.com

RUSSIA
KOMET GROUP GmbH
ul. M.Salimganova 2V · 420107, Kazan
Tel. +7 843 2531430 · Fax +7 843 2120173 · info.ru@kometgroup.com

SWITZERLAND
KOMET GROUP GmbH
Zeppelinstraße 3 · D-74354 Besigheim
Tel. +49 7143 3730 · Fax +49 7143 373233 · info@kometgroup.com

SPAIN
KOMET IBERICA TOOLS S.L.
Av. Corts Catalanes 9-11 · Planta baja, local 6B · 08173 Sant Cugat Del Valles
Tel. +34 93 5839620 · Fax +34 93 5839612 · info.es@kometgroup.com

SWEDEN · DENMARK · NORWAY
KOMET Scandinavia AB
Box 9177 · SE-200 39 Malmö
Tel. +46 40 49 28 40 · Fax +46 40 49 19 95 · scandinavia@kometgroup.com

CZECH REPUBLIC
KOMET GROUP CZ s.r.o.
Na Hůrce 1041/2, 160 00 Praha 6
Tel. +420 235010010 · Fax +420 235311890 · info.cz@kometgroup.com

TURKEY
KOMET KESICI TAKIMLAR SAN. VE TIC. LTD. ŞTI
Istanbul World Trade Center · EGS Business Park Block B2 / 127 · 34149 Yesilköy-Bakirköy / Istanbul
Tel. +90 544 273 1846 · Fax +90 212 465 8447 · info.tr@kometgroup.com

USA
KOMET of America, Inc.
2050 Mitchell Blvd. · Schaumburg · IL 60193-4544
Tel. +1 (847) 923-8400 · +1 (847) 923-8480
Fax +1 (800) 865-6638
customerservice.us@kometgroup.com

CANADA
KOMET of CANADA Tooling Solutions ULC
2775 Slough St. · Mississauga, Ontario L4T 1G2 · Canada
Tel. +1 (905) 551-1743 · Fax +1 (905) 551-1876
customerservice.ca@kometgroup.com

MEXICO
KOMET de México S. de R. L. de C.V
Acceso 1 Nave 8 No. 116 · Fraccionamiento Industrial La Montaña
Querétaro, Qro. C.P 76150 México
Tel. +52 442-210-9020
customerservice.mx@kometgroup.com

BRAZIL
KOMET DO BRASIL LTDA.
ALAMEDA DOS TUPINÁS, 33 - CONJ. 309/310
04069-000 - SAÚDE - SÃO PAULO - SP
Tel.: +(55 11) 2737-7445
info.br@kometgroup.com

CHINA
KOMET GROUP Precision Tools (Taicang) Co.,Ltd.
No. 5 Schaeffler Road Taicang, Jiangsu Province, PRC 215400
Tel. +86 512 53575758 · Fax +86 512 53575759
info.cn@kometgroup.com

JAPAN
KOMET GROUP KK
180-0006 · 1-22-2 Naka-cho Musashino-shi
Tokyo Japan · Grand Preo Musashino 203
Tel. +81(0)422 50 0682 · Fax +81(0)422 50 0683
info.jp@kometgroup.com

KOREA
KOMET Korea Co.,Ltd.
#201,Lotte IT Castle-2, 98, Gasan digital 2-ro,
Geumcheon-gu, Seoul, Korea 153-768
Tel. +82(0)2.2082-6300 · Fax +82(0)2.2082-6309
info.kr@kometkorea.com

INDIA
KOMET Precision Tools India Pvt. Ltd.
16J, Attibele Industrial Area · BANGALORE - 562 107
Tel. +91 80 6772 8000 · Fax +91 80 6772 8100
info.in@kometgroup.com

THAILAND
KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village
Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556
info.sea@kometgroup.com

www.kometgroup.com

399 01 026 04-3T-01/16 Printed in Germany www.wachter.de · © 2016 KOMET GROUP GmbH · We reserve the right to make modifications.

TOOLS IDEAS®