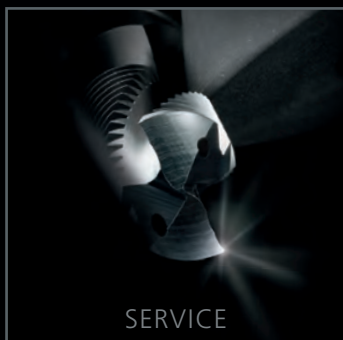
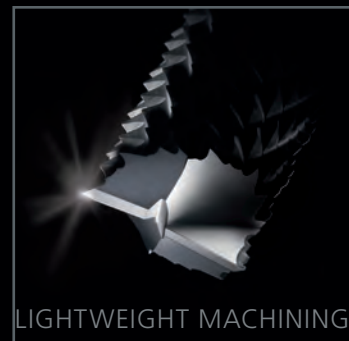


TOOLS PLUS IDEAS



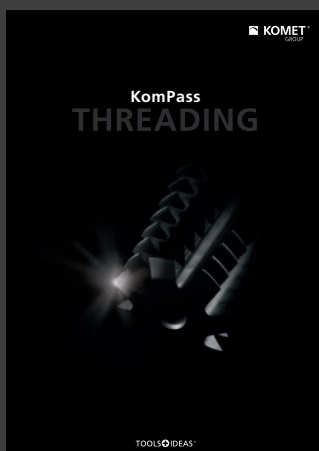
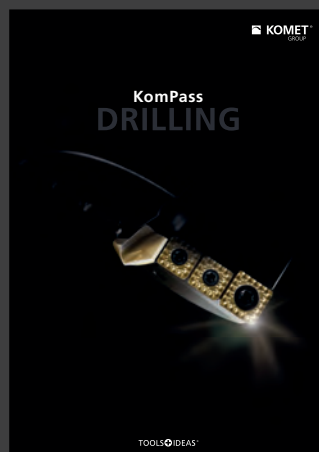
2015 | 2016

With innovative solutions and tool designs for bore machining, the KOMET GROUP holds a leading market role worldwide. Our developments for boring, reaming, tapping and milling contribute enormously to our customers' success.

THE CUTTING EDGE – Solutions for peak performance



In this "TOOLS PLUS IDEAS" catalogue, we provide you with detailed information about our innovations and about the additions of new products to already existing ranges. More extensive information on our various product lines can be found in our specialist catalogues.



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KOMET® Indexable insert mills

Combining an innovative design and the special geometry of their indexable inserts, KOMET® milling cutters make a distinctive difference when machining an extremely wide variety of different materials. Using more than 70 indexable inserts with different topographies, substrates and coatings, which can be combined with a variety of 60 basic body versions, KOMET® provides a versatile, complete range of tools with which all milling tasks from face, shoulder and chamfer milling to milling straight, 45-degree and T-slots, circular and plunge milling, inclined plunge milling as well as free-form milling can be mastered with optimum efficiency.

KOMET® *hi.aeQ*



The innovative KOMET® *hi.aeQ* arbor face milling cutter is excellently suited for reliable face milling of cast iron materials. It features a high number of teeth and low cutting forces.

The Q80 tangential indexable inserts used are designed for counterboring and milling operations. Thanks to a standing-lying arrangement, each insert has eight usable cutting edges. The extremely stable tangential indexable inserts, when combined with selected cutting tool materials and coatings, provide a great economic advantage when machining cast iron materials.

KOMET® Q40-KFM



Highly positive and soft-cutting KOMET® Q40-KFM face-milling cutter with a cutting depth up to 4 mm. Suitable for precision and medium machining. The high-performance cutting tool materials BK6130 and BK2735 increase productivity in steel and cast iron machining.

KOMET® Q63-KFM

The 45° face-milling cutter KOMET® Q63-KFM is ideally designed for middle and roughing operations with a cutting depth of up to 6.5 mm and a tooth feed of up to 0.5 mm. Extremely sturdy design and eight usable cutting edges for working with process reliability.



KOMET® Quatron *hi.feed*



The success enjoyed by our tried and tested KUB Quatron® solid drill range continues in our milling cutter range. With the successful Quatron indexable insert developed from solid drilling technology, we are extending our experience to the KOMET® Quatron *hi.feed* milling cutter. Plunge milling (also known more simply as plunging) is a type of machining particularly suitable for cutting deep grooves and large cavities. Plunge milling can be the ideal solution for large projection lengths and unstable conditions. The KOMET® Quatron *hi.feed* is a high-performance roughing tool for the fast removal of large quantities of cut metal.

KOMET® Q56-KHF

The face-milling cutter KOMET® Q56-KHF is particularly efficient. It was designed for high-feed applications and achieves a very high metal removal rate. Its angled cutting edge also achieves optimum surface quality.



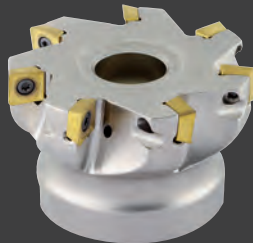
KOMET® *hi.apQ*

A new generation of mills for efficiently processing an extremely wide variety of tasks. The tools are equipped with highly positive APKT indexable inserts and are suitable for shoulder milling, trimming, grooving, inclined plunging and circular interpolation milling. Almost any machining situation can be successfully handled thanks to the wide range of extremely different types of main carrier, e.g. in the form of arbor milling cutters, end milling cutters or screw-in cutters. In addition, a wide selection of cutting materials and coatings is available that can increase your productivity.



KOMET® Q43-KSM

The shoulder milling cutter KOMET® Q43-KSM produces shoulders that are step-free and are exactly at 90 degrees as a result of its soft-cutting geometry.



KOMET® Q55-KCM

The copy-milling cutter KOMET® Q55-KCM is suitable for an extremely wide variety of milling tasks and allows high feed rates combined with maximum stability. Due to the use of further indexable insert shapes such as Q43-SDMX, Q47-EOMT or Q55 circular inserts with wiper geometry on the same basic body, this milling system is an all-rounder as far as machining options are concerned. The KOMET® Q55-KCM can therefore be used for chamfer milling, and used equally well as a high feed-rate milling cutter. Tipped with circular wiper inserts, it ensures particularly good surface quality.



KOMET® Q75-KCM

The copy-milling cutter KOMET® Q75-KCM is suitable for face and slot milling. For applications in highly heat-resistant alloys as well as titanium and titanium alloys, the specially matched topography -25 is available in combination with the coatings BK6435 and BK7740 and, thanks to the eight usable cutting edges, ensures efficient machining of difficult materials.



KOMET® Quatron *Chamfer*

The chamfer milling cutters are optimally matched to your requirements and are suitable for chamfering workpiece edges and large holes, for both forward and reverse machining. The Quatron indexable insert used here has already distinguished itself in a number of applications.



Indexable insert mills

Page

Face milling cutter

KOMET® <i>hi.aeQ</i>	
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Shoulder milling cutter

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Chamfer milling cutter

KOMET® Quatron <i>Chamfer</i>	
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Circular milling cutter

T-slot milling cutter

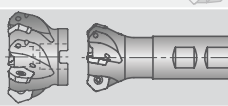
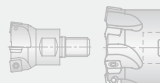
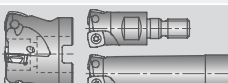
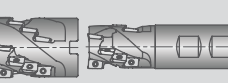
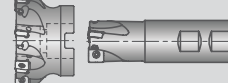
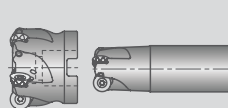
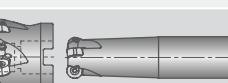
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MILLING



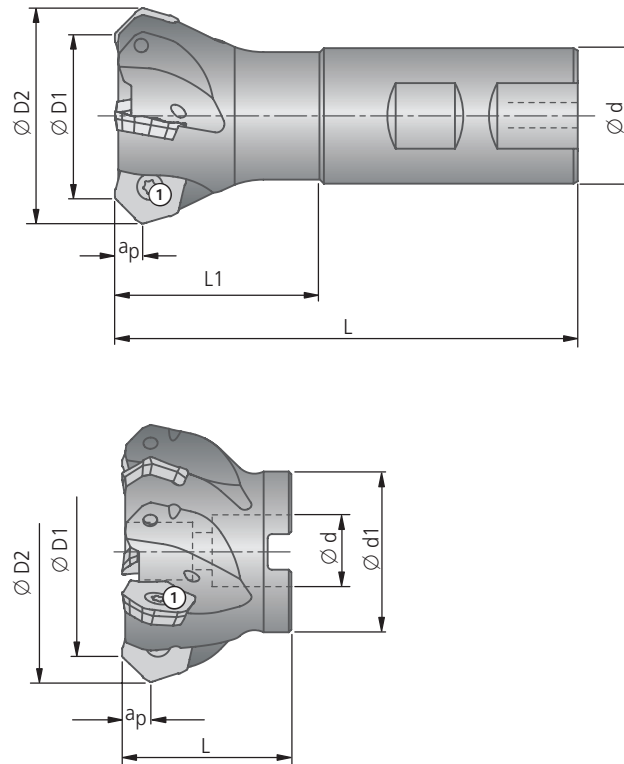
KOMET® Tool selection

Help table for milling

Machining												
Surface milling	Axial plunging	Circular milling	Plunge milling	Slot milling	Shoulder milling	Slot milling 45°	Chamfer milling	Free form milling	Turn milling	Circular turn milling	T-slot milling	
												
●					+ With 45° setting angle from 2016							
●						●	●					
●						●	●					
●						●	●					
●	●	●	●		+ Diameter expansion to 100 mm from 2016							
●	●	●	●	●								
	●	●		●	●							
	●	●		●	●							
●	●	●		●	●							
●	●	●	●	●				●	●			
●	●	●	●	●				●	●			
●						●	●					
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				●				●				
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						●	●					
										●		
											●	

	Material	Ø mm	Indexable insert				Tool		Page
	Mild steel/tool steel Stainless and acid-resistant steel Grey cast iron, spherical cast iron Non-ferrous metals Heat-resistant steels Hardened tool steel P M K N S H		Cutting depth ap max	Setting angle α		ISO code	Cutting edges per indexable insert		
		40-50 63-160	3,0 4,0	88°	 Q80 20.. Q80 32..	LNGU	8	 Face milling cutter KOMET® <i>hi.aeQ</i>	
		40-80	6,0	45°	 Q09 44..	SEHW	4	 Face milling cutter Q09	
		40-125	4,5	45°	 Q40 53..	HOKT HPCT HPKT	6	 Face milling cutter Q40-KFM	8
		40-125 40-125	6,0 6,5	45°	 Q63 46.. Q63 53..	SOKU	8	 Face milling cutter Q63-KFM	10
		20 25 32-35 42-52	0,67 0,72 0,88 1,1	8°	 W83 13.. W83 18.. W83 23.. W83 32..	SOEX	4	 Face milling cutter KOMET® <i>Quatron hi.feed</i>	
		16-25 25-40 35-80	0,8 1,0 2,0	90°	 Q56 20.. Q56 32.. Q56 46..	XPLT XDLT XOLT	4	 Face milling cutter Q56-KHF	12
		12-100 20-100 32-40	9 11 15	90°	 Q36 18.. Q36 24.. Q36 38..	APKT	2	 Shoulder milling cutter KOMET® <i>hi.apQ</i>	
		25-40 32 32-50 40-63 80	26 32 35 42 55	90°	 Q36 18.. Q36 24.. Q36 38..	APKT	2	 Shoulder milling cutter Q36-KSM KOMET® <i>hi.apQ</i>	16
		25-80	8	90°	 Q43 28..	SDKT SDHT	4	 Shoulder milling cutter Q43-KSM	20
		20-50 25-100	5 6	~	 Q55 34.. Q55 42..	RDHW RDHX RPHX RPMX	8	 Copy milling cutter Q55-KCM	22 – 26
		25-100	6	~	 Q55 42..	RPHX RPMX	4		28
		25-100	4	45°	 Q43 48..	SDMX	4		27
		32-100	1,5		 Q47 34..	EOMT	2		29
		25-32	11	90°	 Q36 24..	APKT	2	 Copy milling cutter	
		32-100	4,5	~	 Q75 42..	RNKU ROHU	8	 Copy milling cutter Q75-KCM	30
		12-44	~	45°	 W83 13.. W83 18.. W83 23.. W83 32..	SOEX	4	 Chamfer milling cutter KOMET® <i>Quatron Chamfer</i>	
		10-80	~	~	 Q12 18.. Q12 32.. Q12 44..	TPAX TCAX TNAX	3	 Circular milling cutter	
		17,5-47		90°	 Q09 13.. Q15 18.. Q15 32..	SPGW CPMT CPMW	2	 T-slot milling cutter	

Face milling cutter Q40-KFM



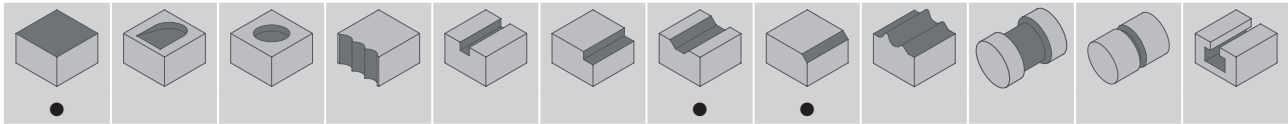
BENEFITS for you:

- Highly positive cutting edge geometry for soft cutting action
- Optimised topographies for different applications on small and medium-sized milling machines
- Six useful cutting edges per indexable insert
- Every cutting edge with wiper geometry

a_p max. 4,5 mm

KOMET®

Face milling cutter Q40-KFM



Z = effective number of teeth for calculating v_f

End milling cutter										Clamping screw	Indexable insert
$\varnothing D1$	$\varnothing D2$	Order No.	$\varnothing d_{h6}$	L	L1	a_p max	Spindle speed max. rpm	Z		① Order No. Article	 Order No. ISO Code
40	52,2	F55 03150	32	110	50	4,5	17.000	4		N00 57890 S40110-15IP-55° 4,25 Nm	Q40 53.. HOKT HPCT HPKT

Arbor milling cutter										Differential screw	Clamping screw	Indexable insert
$\varnothing D1$	$\varnothing D2$	Order No.	$\varnothing d^{H7}$	$\varnothing d1$	L	a_p max	Spindle speed max. rpm	Z		Order No.	① Order No. Article	 Order No. ISO Code
40	52,2	F55 04150	16	38	40	4,5	19.900	4		L02 30990 15Nm	N00 57890 S40110-15IP-55° 4,25 Nm	Q40 53.. HOKT HPCT HPKT
50	62,2	F55 04170	22	38	40	4,5	15.900	5	0,32	—		
63	75,2	F55 04190	22	48	40	4,5	12.600	6	0,56	—		
80	92,2	F55 04210	27	58	50	4,5	9.900	7		—		
100	112,2	F55 04230	32	78	50	4,5	7.900	9		—		
125	137,2	F55 04250	40	88	63	4,5	6.300	10		—		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter $\varnothing 40$ mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

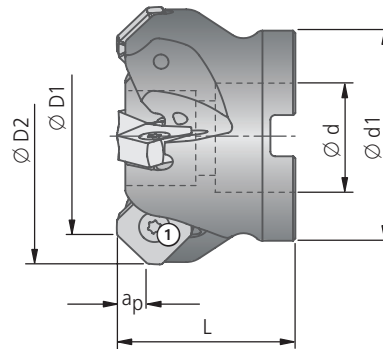
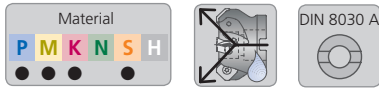
Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo-graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							$\leq 0,1$	$> 0,1 - 0,2$	$> 0,2 - 0,3$	$> 0,3$	
P	For medium roughing operations	-01	BK8425	Q40 53010.048425 HPKT0604AZER-01 BK8425		60-350	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-4,0
	High-performance grade for higher cutting speed	-01	BK6130	Q40 53010.046130 HOKT0604AZER-01 BK6130							
	High-performance grade for tougher steel materials	-01	BK2735	Q40 53010.042735 HOKT0604AZER-01 BK2735							
	For precision-machining and finishing	-21	BK8425	Q40 53210.048425 HPKT0604AZER-21 BK8425							
M	For medium roughing operations	-01	BK2740	Q40 53010.042740 HPKT0604AZER-01 BK2740		60-200	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,1-4,0
	For precision-machining and finishing	-21	BK2740	Q40 53210.042740 HPKT0604AZER-21 BK2740							
K	Specialist for cast iron	-05	BK6110	Q40 53050.046110 HPKT0604AZER-05 BK6110		100-350	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-4,0
	High-performance grade for higher cutting speed	-01	BK6130	Q40 53010.046130 HOKT0604AZER-01 BK6130							
N	Highly polished chip breaker	-12	K10	Q40 53120.0423 HPCT0604AZFR-12 K10		< 2000	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-4,0
S	For highly heat-resistant steels	-21	BK6435	Q40 53210.046435 HPKT0604AZER-21 BK6435		25-75	0,16-0,30	0,12-0,21	0,10-0,15	0,08-0,13	0,1-4,0

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

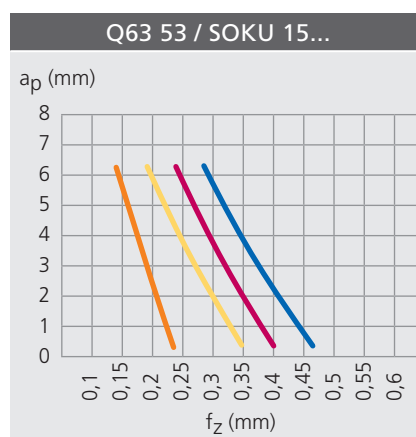
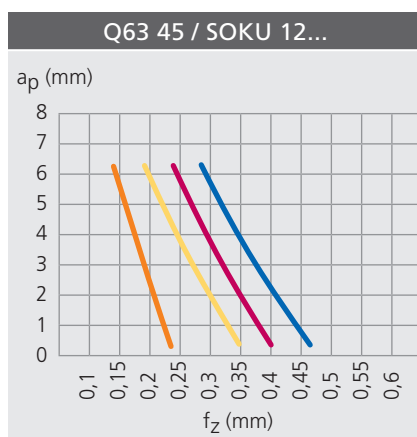
Important: See page 247 for more application details and safety notes !

Face milling cutter Q63-KFM



BENEFITS for you:

- Stable double-sided indexable insert for a_p up to 6.5 mm
- High-quality surface finish thanks to wiper geometry
- Eight cutting edges per indexable insert

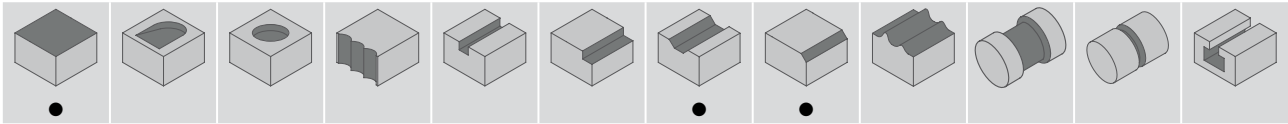


Initial values for $a_e/D \geq 0,4$ in relation to a_p

a_p max. 6 – 6,5 mm

KOMET®

Face milling cutter Q63-KFM



Z = effective number of teeth for calculating v_f

Arbor milling cutter											Indexable insert	
Ø D1	Ø D2	Order No.	Ø d ^{H7}	Ø d1	L	a _p max.	Spindle speed max. rpm	 Z	 kg	Differential screw  Order No.	Clamping screw  Order No. Article	 Order No. ISO Code
40	52,4	F55 01150	16	38	45	6	19.900	4		L02 30990 15Nm	N00 57920 S40110-T15-55° 4,25 Nm	Q63 46.. SOKU 12..
50	62,4	F55 01170	22	43	45	6	15.900	5		–		
63	75,4	F55 01190	22	48	45	6	12.600	6		–		
80	92,4	F55 01210	27	58	50	6	9.900	8		–		
100	112,4	F55 01230	32	78	50	6	7.900	10		–		
125	137,4	F55 01250	40	88	63	6	6.300	12		–		
40	55	F55 02150	16	48	45	6,5	15.900	4		L02 30990 15Nm	N00 57900 S45130-20IP-55° 5 Nm	Q63 53.. SOKU 15..
50	65	F55 02170	22	53	45	6,5	12.700	4	0,42	–		
63	78	F55 02190	22	58	45	6,5	10.100	5	0,62	–		
80	95	F55 02210	27	63	50	6,5	7.900	6		–		
100	115	F55 02230	32	78	50	6,5	6.300	7	1,82	–		
125	140	F55 02250	40	88	63	6,5	5.000	8		–		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter $\varnothing 40$ mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

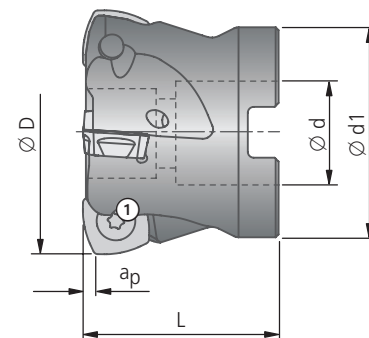
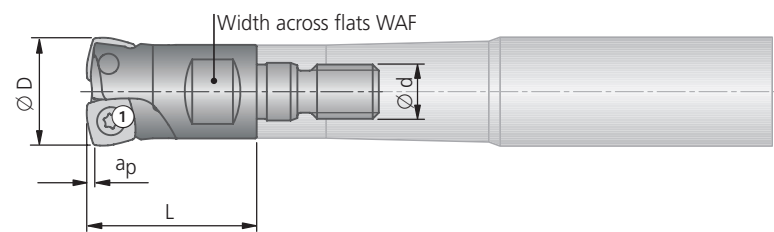
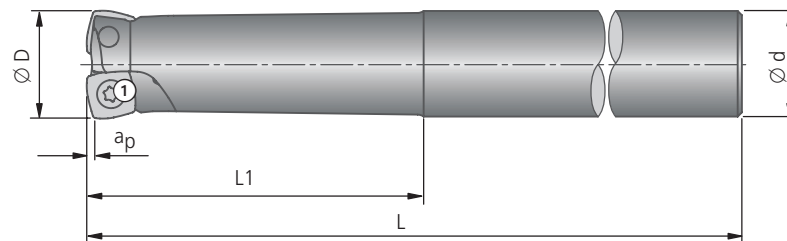
Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							$\leq 0,1$	$> 0,1 - 0,2$	$> 0,2 - 0,3$	$> 0,3$	
Q63 46 / SOKU 12...											
P	For medium roughing operations	-21	BK8425	Q63 46210.068425 SOKU1205AZ-21 BK8425		60-350	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-6,0
M	For medium roughing operations	-21	BK2740	Q63 46210.062740 SOKU1205AZ-21 BK2740		60-200	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,1-6,0
K	Specialist for cast iron	-05	BK6110	Q63 46050.066110 SOKU1205AZ-05 BK6110		60-300	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-6,0
S	For highly heat-resistant steels	-21	BK6435	Q63 46210.066435 SOKU1205AZ-21 BK6435		25-75	0,16-0,30	0,12-0,21	0,10-0,15	0,08-0,13	0,1-6,0
Q63 53 / SOKU 15...											
P	For medium roughing operations	-21	BK8425	Q63 53210.068425 SOKU1505AZ-21 BK8425		60-350	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-6,5
M	For medium roughing operations	-21	BK2740	Q63 53210.062740 SOKU1505AZ-21 BK2740		60-200	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,1-6,5
K	Specialist for cast iron	-05	BK6110	Q63 53050.066110 SOKU1505AZ-05 BK6110		60-300	0,21-0,35	0,15-0,25	0,12-0,18	0,10-0,15	0,1-6,5
S	For highly heat-resistant steels	-21	BK6435	Q63 53210.066435 SOKU1505AZ-21 BK6435		25-75	0,16-0,30	0,12-0,21	0,10-0,15	0,08-0,13	0,1-6,5

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

Important: See page 247 for more application details and safety notes !

Face milling cutter Q56-KHF



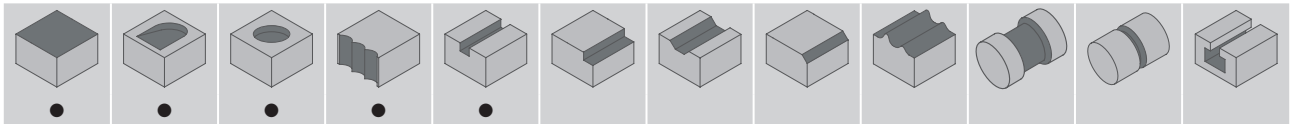
BENEFITS for you:

- High feed-rate milling
- High metal removal rate achievable because tooth feed rate of up to 3 mm possible
- Soft-cutting geometry reduces vibration
- Angled cutting edge for outstanding surface quality
- Creation of a 90° shoulder

a_p max. 0,8 – 2,0 mm

KOMET®

Face milling cutter Q56-KHF



Z = effective number of teeth for calculating v_f

End milling cutter										Indexable insert
Ø D	Order No.	Ø d _{h6}	L	L1	a_p max	Spindle speed max. rpm	Z		Clamping screw ① Order No. Article	 Order No. ISO Code
16	F55 05070	16	200	50	0,8	4.600	2		N00 57820 S2550-T8-55° 1,2 Nm	Q56 20.. XPLT 07..
20	F55 05090	20	200	50	0,8	4.200	3			
25	F55 05110	25	200	50	0,8	4.600	4			
25	F55 07110	25	225	50	1,0	9.000	3	0,76	N00 57860 S3572-T15-55° 3,2 Nm	Q56 32.. XDLT 10..
32	F55 09140	32	250	63	2,0	6.400	3		N00 57880 S45105-T20-55° 5 Nm	Q56 46.. XOLT 13..

Screw-in cutter										Indexable insert	
Ø D	Order No.	Ø d	L	a _p max	Spindle speed max. rpm	Width across flats WAF	Tightening torque Nm	Z		  ① Order No. Article	 Order No. ISO Code Size
16	F55 06070	M8	25	0,8	20.800	10	25	2		N00 57820 S2550-T8-55° 1,2 Nm	Q56 20.. XPLT 07..
20	F55 06090	M10	30	0,8	19.800	15	40	3			
25	F55 06110	M12	35	0,8	18.700	17	60	4			

Arbor milling cutter											
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a _p max	Spindle speed max. rpm				Clamping screw	
									Order No.	Order No. Article	
40	F55 08150	16	38	40	1,0	26.400	4		L02 30990 15Nm	N00 57870 S3586-T15-55° 3,2 Nm	Q56 32.. XDLT 10..
50	F55 08170	22	43	40	1,0	23.500	5		–		
63	F55 08190	22	48	40	1,0	20.500	6		–		
50	F55 10170	22	43	40	2,0	18.800	4		–	N00 57880 S45105-T20-55° 5 Nm	Q56 46.. XOLT 13..
63	F55 10190	22	48	40	2,0	16.400	5		–		
80	F55 10210	27	58	50	2,0	14.000	7		–		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

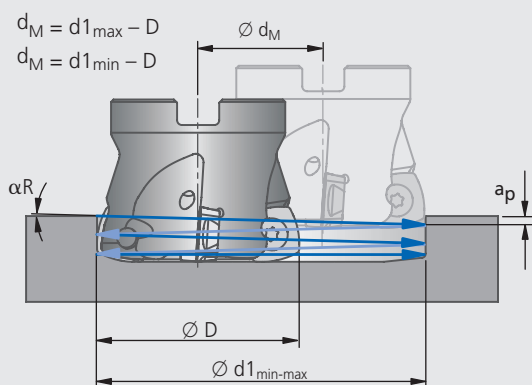
Supply includes arbor milling cutter Ø 40 mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw. Please order insert separately. Screwdriver see page 47.

Application example face milling cutter Q56-KHF



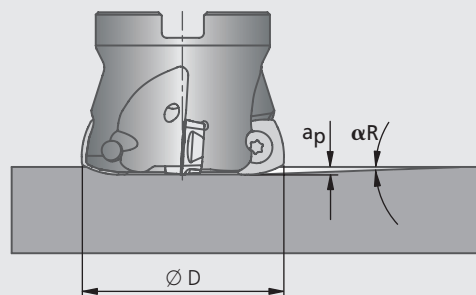
Circular plunging



Milling cutter dia. $\varnothing D$	ISO code indexable insert	Machining dia. $\varnothing d1$ min-max	Ramping angle α_R max	Cutting depth a_p max
End milling cutter				
16	XPLT 07	22 - 31	4,5°	0,8
20	XPLT 07	30 - 39	2,3°	0,8
25	XPLT 07	40 - 49	1,3°	0,8
25	XDLT 10	35 - 48	3,1°	1,0
35	XOLT 13	50 - 68	3,7°	2,0
Screw-in cutter				
16	XPLT 07	22 - 31	4,5°	0,8
20	XPLT 07	30 - 39	2,3°	0,8
25	XPLT 07	40 - 49	1,3°	0,8
Arbor milling cutter				
40	XDLT 10	65 - 78	1,0°	1,0
50	XDLT 10	85 - 98	0,8°	1,0
63	XDLT 10	111 - 124	0,7°	1,0
50	XOLT 13	80 - 98	1,3°	2,0
63	XOLT 13	106 - 124	0,9°	2,0
80	XOLT 13	140 - 158	1,1°	2,0



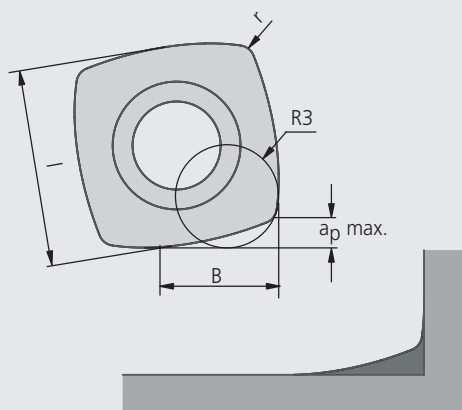
Inclined plunging



Milling cutter dia. $\varnothing D$	ISO code indexable insert	Ramping angle α_R max	Cutting depth a_p max
End milling cutter			
16	XPLT 07	5,9°	0,8
20	XPLT 07	3,2°	0,8
25	XPLT 07	2,0°	0,8
25	XDLT 10	3,6°	1,0
35	XOLT 13	4,4°	2,0
Screw-in cutter			
16	XPLT 07	5,9°	0,8
20	XPLT 07	3,2°	0,8
25	XPLT 07	2,0°	0,8
Arbor milling cutter			
40	XDLT 10	1,2°	1,0
50	XDLT 10	0,9°	1,0
63	XDLT 10	0,8°	1,0
50	XOLT 13	1,5°	2,0
63	XOLT 13	1,1°	2,0
80	XOLT 13	1,3°	2,0



Profile for shoulder and groove milling
Program radius and residual material

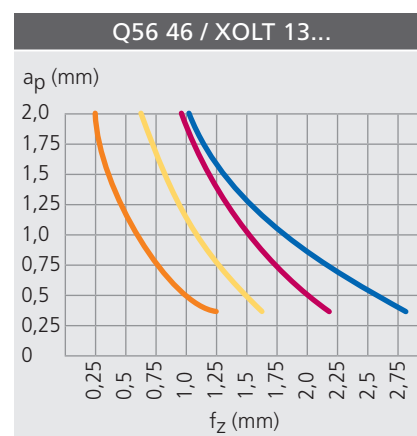
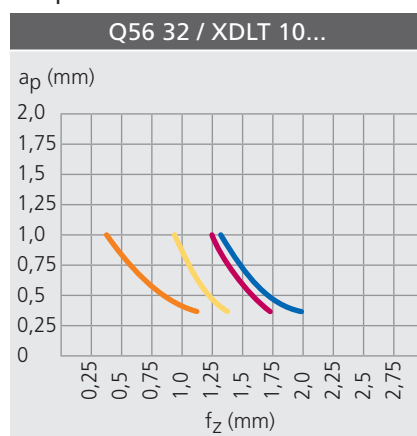
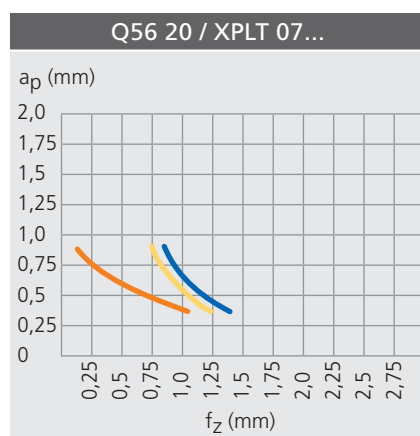


ISO code indexable insert	I	Program radius R	B	r	Cutting depth a_p max
XPLT 07	7	1,2	4,3	0,5	0,8
XDLT 10	10	2	5,9	0,8	1,0
XOLT 13	13	3	8,5	1	2,0

Recommended
 $f_z \geq 0,5$ mm/tooth

Recommended cutting data face milling cutter Q56-KHF

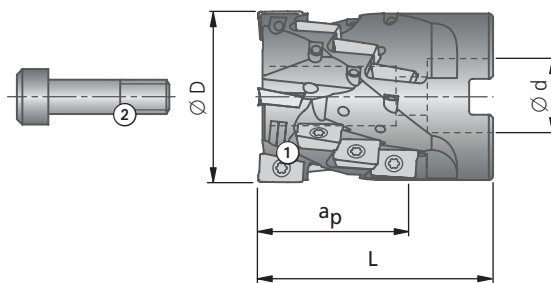
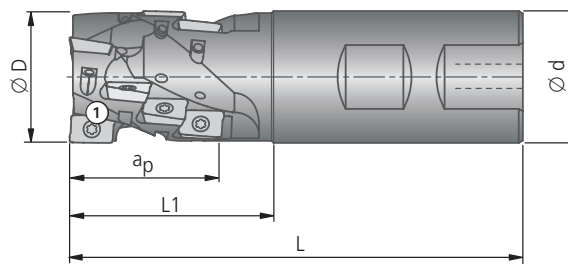
Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							$\leq 0,1$	$> 0,1 - 0,2$	$> 0,2 - 0,3$	$> 0,3$	
Q56 20 / XPLT 07...											
P	For medium roughing operations	-01	BK8425	Q56 20010.058425 XPLT070305-01 BK8425		100-280	0,82-1,50	0,59-1,07	0,49-0,77	0,40-0,64	0,1-0,8
M	For medium roughing operations	-01	BK2740	Q56 20010.052740 XPLT070305-01 BK2740		140-260	0,82-1,50	0,59-1,07	0,49-0,77	0,40-0,64	0,1-0,8
S	For highly heat-resistant steels	-21	BK6435	Q56 20210.056435 XPLT070305-21 BK6435		25-75	0,62-0,80	0,44-0,57	0,37-0,41	0,30-0,34	0,1-0,8
	For titanium / titanium alloys	-21	BK7740	Q56 20210.057740 XPLT070305-21 BK7740							
Q56 32 / XDLT 10...											
P	For medium roughing operations	-01	BK8425	Q56 32010.088425 XDLT10T308-01 BK8425		100-280	0,82-2,50	0,59-1,78	0,49-1,29	0,40-1,07	0,1-1,0
	For precision-machining and finishing	-21	BK8425	Q56 32210.088425 XDLT10T308-21 BK8425							
M	For medium roughing operations	-01	BK2740	Q56 32010.082740 XDLT10T308-01 BK2740		140-260	0,82-2,50	0,59-1,78	0,49-1,29	0,40-1,07	0,1-1,0
	For precision-machining and finishing	-21	BK2740	Q56 32210.082740 XDLT10T308-21 BK2740							
K	Specialist for cast iron	-05	BK6110	Q56 32050.086110 XDLT10T308-05 BK6110		110-230	0,82-2,50	0,59-1,78	0,49-1,29	0,40-1,07	0,1-1,0
S	For highly heat-resistant steels	-21	BK6435	Q56 32210.086435 XDLT10T308-21 BK6435		25-75	0,62-0,80	0,44-0,57	0,37-0,41	0,30-0,34	0,1-1,0
	For titanium / titanium alloys	-21	BK7740	Q56 32210.087740 XDLT10T308-21 BK7740							
Q56 46 / XOLT 13...											
P	For medium roughing operations	-01	BK8425	Q56 46010.108425 XOLT130410-01 BK8425		100-280	0,82-3,00	0,59-2,14	0,49-1,54	0,40-1,28	0,1-2,0
	For precision-machining and finishing	-21	BK8425	Q56 46210.108425 XOLT130410-21 BK8425							
M	For medium roughing operations	-01	BK2740	Q56 46010.102740 XOLT130410-01 BK2740		140-260	0,82-3,00	0,59-2,14	0,49-1,54	0,40-1,28	0,1-2,0
	For precision-machining and finishing	-21	BK2740	Q56 46210.102740 XOLT130410-21 BK2740							
K	Specialist for cast iron	-05	BK6110	Q56 46050.106110 XOLT130410-05 BK6110		110-230	0,82-3,00	0,59-2,14	0,49-1,54	0,40-1,28	0,1-2,0
S	For highly heat-resistant steels	-21	BK6435	Q56 46210.106435 XOLT130410-21 BK6435		25-75	0,62-1,00	0,44-0,71	0,37-0,51	0,30-0,43	0,1-1,0
	For titanium / titanium alloys	-21	BK7740	Q56 46210.107740 XOLT130410-21 BK7740							

Initial values for $a_e/D \geq 0,4$ in relation to a_p 

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

Important: See page 247 for more application details and safety notes !

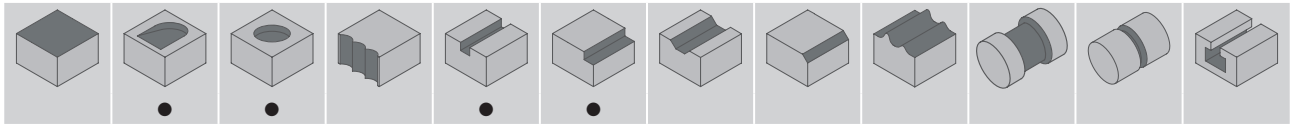
Shoulder milling cutter Q36-KSM



a_p max. 26 – 55 mm

KOMET® *hi.apQ*

Shoulder milling cutter Q36-KSM



Y = number of inserts

Z = effective number of teeth for calculating v_f

End milling cutter										Clamping screw	Indexable insert
Ø D	Order No.	Ød _{h6}	L	L1	a _p max.	Spindle speed max. rpm	Y	Z	kg	Order No. Article	Order No. ISO Code ▽▽ Size
25	F51 40321	25	100	44	26	22.000	6	2	0,30	N00 57321 S2556-8IP 1,28 Nm	Q36 18000.01.... APKT 1003PD-R
32	F51 40370	32	110	49	26	20.000	6	2	0,57		
32	F51 40361	32	110	49	35	20.000	12	3	0,54		
32	F51 40400	32	119	50	32	19.000	6	2	0,53	N00 57341 S3066-9IP 2,25 Nm	Q36 24000.02.... APKT 1203PD-R
40	F51 40410	40	130	59	42	17.000	12	3	1,01		

For further details on selecting the cutting material, see page 19. Enter cutting material code ▲

Arbor milling cutter												
Ø D	Order No.	Ød ^{H7}	L	a _p max.	Spindle speed max. rpm	Y	Z		Cylindrical screw	Clamping screw	Indexable insert	
									 ② Order No. Article	 ① Order No. Article	 Order No. ISO Code ▽▽ Size	
40	F51 42200	16	45	26	17.000	9	3	0,28	55011 08040 M8x40	N00 57321 S2556-8IP 1,28 Nm	Q36 18000.01.... APKT 1003PD-R	
40	F51 42210*	16	55	35	17.000	16	4	0,31				
50	F51 42220	22	55	32	15.000	9	3	0,51	55011 10050 M10x50	N00 57341 S3066-9IP 2,25 Nm	Q36 24000.02.... APKT 1203PD-R	
50	F51 42230*	22	60	42	15.000	16	4	0,52				
63	F51 42061	27	70	42	11.000	9	3	1,07	55011 12050 M12x50	N00 57411 S40101-15IP 4,3 Nm	Q36 38000.07.... APKT 1605PD-R	
80	F51 42081	32	80	55	10.000	16	4	2,03				

For further details on selecting the cutting material, see page 19. Enter cutting material code ▲

* only suitable for contour milling

Supply includes:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter:

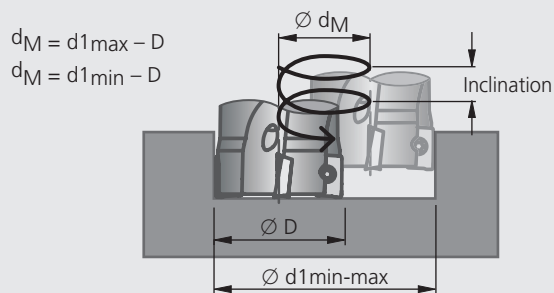
Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and cylindrical screw ②.

Please order insert separately. Screwdriver see page 248.

Application example shoulder milling cutter Q36-KSM



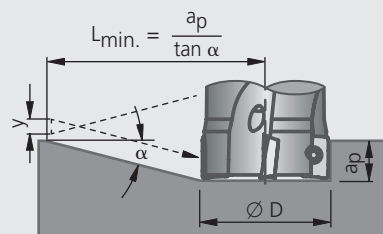
Circular plunging into solid material



Ø D	ap max.	Ø d1 min		Ø d1 max	
		Ø d1 min	Inclination (mm/rev)	Ø d1 max	Inclination (mm/rev)
Q39 18..					
12	9	21,8	1,9	23	2,2
14	9	25,8	2,0	27	2,2
16	9	29,4	1,9	31	2,1
20	9	37,4	1,7	39	1,9
25	9 / 26	47,4	1,6	49	1,7
32	9 / 26 / 35	61,4	3,1	63	3,2
40	9 / 26 / 35	77,4	2,9	79	3,0
42	9	81,4	2,8	83	2,9
50	9	97,4	2,6	99	2,7
63	9	123,4	2,6	125	2,7
80	9	157,4	2,5	159	2,6
100	9	197,4	2,1	199	2,2
Q36 24..					
20	11	35,4	3,8	38,4	4,5
25	11	45,2	3,3	48,4	3,9
32	11 / 32	59	3,0	62,4	3,3
40	11 / 42	75	2,9	78,4	3,2
42	11	79	2,8	82,4	3,1
50	11 / 32 / 42	95	2,7	98,4	2,9
63	11	121	2,5	124,4	2,7
80	11	155	2,5	158,4	2,6
100	11	195	2,6	198,4	2,7
Q36 38..					
32	15	89	4,3	62	4,8
40	15	75	3,8	78	4,2
63	15 / 42	121	3,5	124	3,7
80	15 / 55	155	3,3	158	3,4



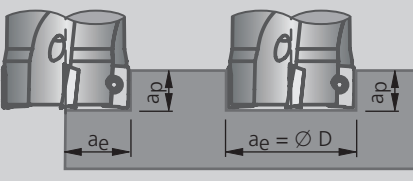
Inclined plunging



Ø D	a _p max.	Lift from work- piece if direction is reversed y	Ramping angle α max.	L min.
Q39 18..				
12	9	0,4	3,6	143
14	9	0,4	3,1	166
16	9	0,4	2,6	198
20	9	0,4	1,8	286
25	9 / 26	0,4	1,3	397
32	9 / 26 / 35	0,8	1,9	271
40	9 / 26 / 35	0,8	1,4	368
42	9	0,8	1,3	397
50	9	0,8	1	516
63	9	0,8	0,8	645
80	9	0,8	0,6	859
100	9	0,8	0,4	1289
Q36 24..				
20	35,4	0,8	4,5	140
25	45,2	0,8	3	210
32	59	0,8	2	315
40	75	0,8	1,5	420
42	79	0,8	1,4	450
50	95	0,8	1,1	573
63	121	0,8	0,8	788
80	155	0,8	0,6	1050
100	195	0,8	0,5	1260
Q36 38..				
32	15	1	2,9	296
40	15	1	2	430
63	15 / 42	1	1,1	781
80	15 / 55	1	0,8	1074

For reasons of safety, the recommended maximum speed must not be exceeded. For shoulder milling, the feed rate/tooth and cutting speed should be increased in comparison to milling with full cutting edge engagement.

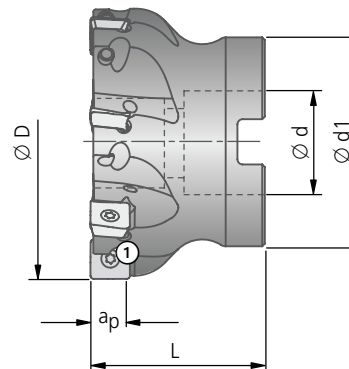
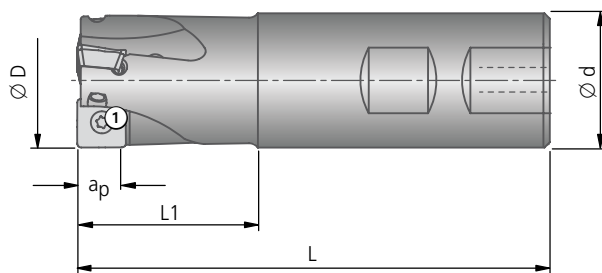
Recommended cutting data shoulder milling cutter Q36-KSM

Feed f_z (mm/tooth) at a_e/D				
	$\leq 0,1$	$> 0,1 - 0,2$	$> 0,2 - 0,3$	$> 0,3$
	P 0,16 - 0,29	0,12 - 0,21	0,10 - 0,17	0,07 - 0,15
	S 0,16 - 0,23	0,12 - 0,16	0,10 - 0,14	0,07 - 0,12
	M 0,16 - 0,23	0,12 - 0,16	0,10 - 0,14	0,07 - 0,12
	K 0,39 - 0,61	0,28 - 0,44	0,23 - 0,37	0,18 - 0,33
	N 0,55 - 0,61	0,39 - 0,44	0,33 - 0,37	0,25 - 0,33
	H			

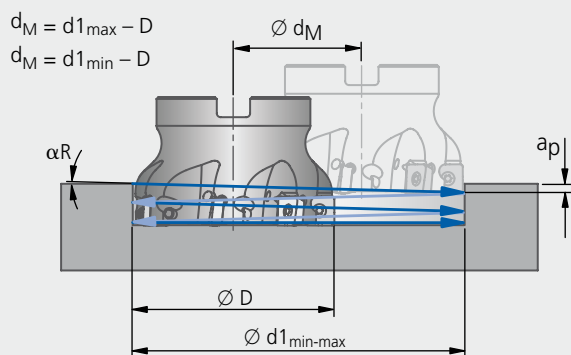
Cutting speed v_c can be increased by reducing the width of cutting edge engagement a_e

Cutting speed v_c (m/min)													
Cutting material designation					P25M	K10	BK6110	BK64	BK68	BK78	BK80	BK8425	
Cutting material code					03	21	6110	64	68	78	80	8425	
Material	Material example, material code DIN	Strength R_m (N/mm ²)	Hardness HB	Material group									
non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	≤500		P	60-120			100-180	170-280	160-230	120-180	150-280	
non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	500-900			50-100			80-150	80-200	120-200	90-150	100-220	
lead alloys	1.0718 (11SMnPb30)	<500			60-120			100-180	170-280	160-230	120-180	150-280	
low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	>900			40-90			60-140	70-160	90-160	70-140	70-220	
high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	>900			40-80			60-120	60-120	70-150	50-120	70-180	
HSS				4.1	—			—	—	—	—	—	
special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		250	S		30-60					20-60		
titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	400			5.1	30-120					30-60		
stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	≤600		M				100-180	160-320	120-220	100-180	120-220	
stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	<900			6.1				80-160	140-280	100-190	100-160	80-190
stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	>900			7.0				60-110	100-190	70-130	80-120	60-130
gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	K		100-150	180-350		100-240	80-180	90-160	100-200	
alloy gray cast iron	0.6660 (GGL-NiCr20 2)		250		8.1		60-100	130-230		80-160	80-150	60-120	80-130
spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	≤600	130	K		80-120	150-280		130-190	100-170	90-130	110-160	
spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)		230		9.1		80-120	150-280		130-190	100-170	90-130	110-160
spheroidal graphite cast iron, perlitic, malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	>600	250		10.0		60-100	120-210		80-160	80-150	80-120	80-130
alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		200		10.1		50-70	100-170		80-120	70-100	60-90	50-100
vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		300	10.2		40-60	90-140		70-110	50-90	50-80	50-90	
copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		90	N		250-500							
copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100		12.1		200-375						
wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		60	N		300-650							
cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		75		13.1		220-450						
cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		100		14.0		200-375						
hardened steels < 45 HRC		1400		H									
hardened steels > 45 HRC		1800			16.0								

Shoulder milling cutter Q43-KSM



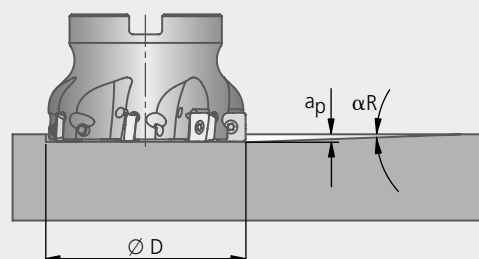
Circular plunging



Milling cutter		Machining dia.	Ramping angle	Cutting depth
Ø D	Order No.	Ø d1 min-max	α_R max	a_p max
End milling cutter				
25	F55 18110	37 - 48	4,4°	8
32	F55 18130	47 - 62	2,2°	8
Arbor milling cutter				
40	F55 19150	63 - 78	0,75°	8
50	F55 19170	83 - 98	0,5°	8
63	F55 19190	109 - 124	0,35°	8
80	F55 19210	143 - 158	0,25°	8



Inclined plunging

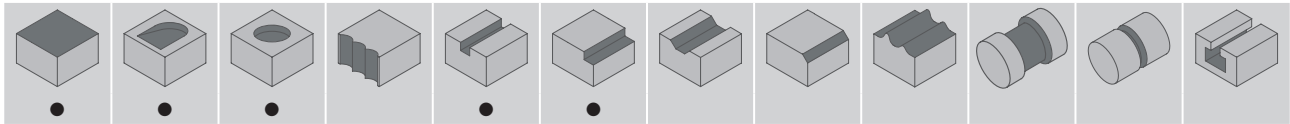


Milling cutter		Ramping angle	Cutting depth
Ø D	Order No.	α_R max	a_p max
End milling cutter			
25	F55 18110	4,4°	8
32	F55 18130	2,2°	8
Arbor milling cutter			
40	F55 19150	0,75°	8
50	F55 19170	0,5°	8
63	F55 19190	0,35°	8
80	F55 19210	0,25°	8

a_p max. 8 mm

KOMET®

Shoulder milling cutter Q43-KSM



Z = effective number of teeth for calculating v_f

End milling cutter										
$\varnothing D$	Order No.	$\varnothing d_{h6}$	L	L1	a_p max.	Spindle speed max. rpm	 Z		Clamping screw  ① Order No. Article	Indexable insert  Order No. ISO Code Size
25	F55 18110	25	88	32	8	23.700	3		N00 57830 S3073-T8-55° 2 Nm	Q43 28.. SDHT SDKT 09..
32	F55 18130	32	100	40	8	19.700	4			

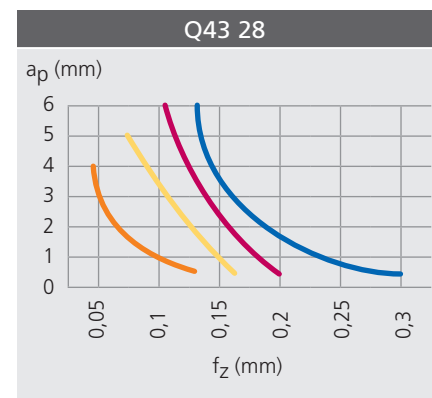
Arbor milling cutter											
$\varnothing$ D	Order No.	$\varnothing$ d ^{H7}	$\varnothing$ d1	L	a _p max.	Spindle speed max. rpm			Differential screw 	Clamping screw  ①	Indexable insert 
							Z		Order No.	Order No. Article	Order No. ISO Code Size
40	F55 19150	16	38	40	8	17.000	5	0,24	L02 30990 15Nm	N00 57830 S3073-T8-55° 2 Nm	Q43 28.. SDHT SDKT 09..
50	F55 19170	22	43	40	8	14.800	6	0,30	–		
63	F55 19190	22	48	40	8	12.850	7	0,50	–		
80	F55 19210	27	58	50	8	11.250	9		–		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter $\varnothing 40$ mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

Please order insert separately. Screwdriver see page 47.



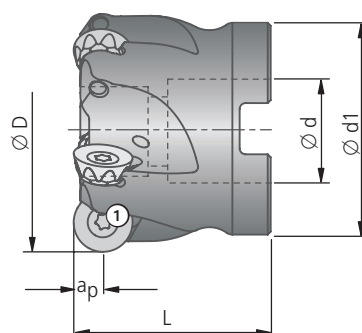
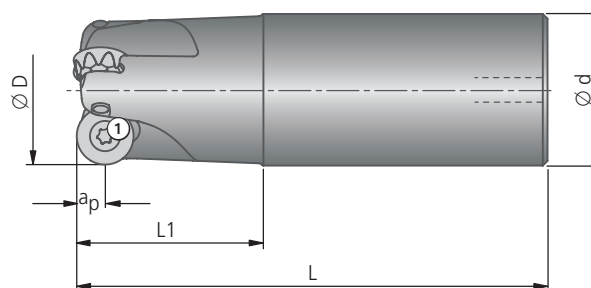
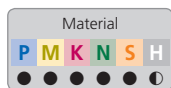
Initial values for $a_e/D \geq 0,4$ in relation to a_p

Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							$\leq 0,1$	$> 0,1 - 0,2$	$> 0,2 - 0,3$	$> 0,3$	
P	For medium roughing operations	-01	BK8425	Q43 28010.088425 SDKT09T308SR-01 BK8425		80-380	0,14-0,25	0,10-0,18	0,09-0,13	0,07-0,11	0,1-4,0
M	For precision-machining and finishing	-21	BK2740	Q43 28210.082740 SDKT09T308SR-21 BK2740		80-280	0,14-0,25	0,10-0,18	0,09-0,13	0,07-0,11	0,1-4,0
K	Specialist for cast iron	-05	BK6110	Q43 28050.086110 SDKT09T308SR-05 BK6110		120-280	0,14-0,25	0,10-0,18	0,09-0,13	0,07-0,11	0,1-4,0
N	Highly polished chip breaker	-12	K10	Q43 28120.0823 SDHT09T308FR-12 K10		< 2000	0,14-0,25	0,10-0,21	0,09-0,15	0,07-0,13	0,1-4,0
S	For highly heat-resistant steels	-21	BK6435	Q43 28210.086435 SDKT09T308SR-21 BK6435		15-115	0,10-0,15	0,07-0,11	0,06-0,08	0,05-0,06	0,1-4,0
	For titanium / titanium alloys	-21	BK7740	Q43 28210.087740 SDKT09T308SR-21 BK7740							

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

Important: See page 247 for more application details and safety notes !

Copy milling cutter Q55-KCM



BENEFITS for you:

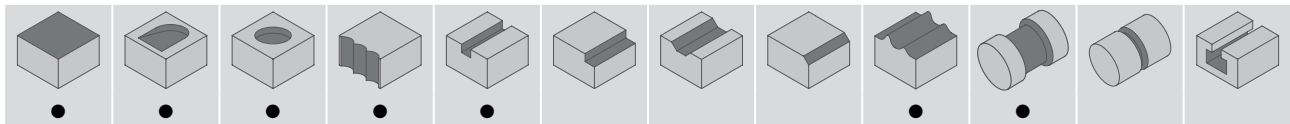
- High feed rates with maximum stability
- 8 indexing positions for maximum cost-efficiency

Recommended feed		
4-fold		8-fold
a_p	$a_{p \text{ max.}}$	$a_{p \text{ max.}}$
2,5	4,5	1,4

a_p max. 5 mm

KOMET®

Copy milling cutter Q55-KCM



Z = effective number of teeth for calculating v_f

End milling cutter										
Ø D	Order No.	Ød _{h6}	L	L1	a _p max.	Spindle speed max. rpm	 Z	 kg	Clamping screw	Indexable insert
									 ① Order No. Article	 Order No. ISO Code
20	F55 11090	20	102	50	5	31.800	2		N00 57840 M3×7,5-10IP 2 Nm	Q55 34.. RP.. / RD.. 10
	F55 12090		165			22.260				
25	F55 11110	25	116	60	5	20.000	3			
	F55 12110		165			20.000				
32	F55 11130	32	130	70	5	19.000	4			
	F55 12130		165			18.000				

Arbor milling cutter										Differential screw	Clamping screw	Indexable insert
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a_p max.	Spindle speed max. rpm	Z			Order No.	Order No. Article	Order No. ISO Code
40	F55 13150	16	38	40	5	15.900	4			L02 30990 15Nm	N00 57840 M3×7,5-10IP 2 Nm	Q55 34.. RP.. / RD.. 10
50	F55 13170	22	43	40	5	12.700	5			–		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter Ø 40 mm:

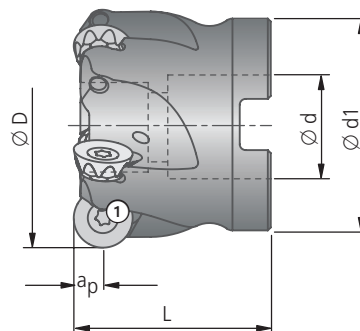
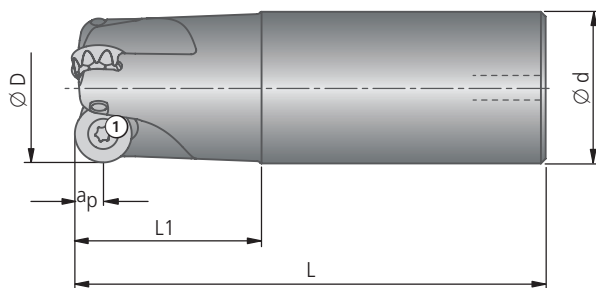
Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.
Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	
P	For medium roughing operations	-01	BK8425	Q55 34010.118425 RPMX10T3MO-01 BK8425		180-350	0,41-0,80	0,30-0,57	0,25-0,41	0,20-0,34	0,5-3,0
M	For precision-machining and finishing	-21	BK2740	Q55 34210.112740 RPMX10T3MO-21 BK2740		80-250	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	0,5-3,0
K	Specialist for cast iron	-05	BK6110	Q55 34050.116110 RPMX10T3MO-05 BK6110		100-350	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	0,5-3,0
N	Highly polished chip breaker	-12	K10	Q55 34120.1523 RDHX10T3MO-12 K10		< 2000	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	0,5-3,0
S	For highly heat-resistant steels	-25	BK6435	Q55 34250.116435 RPHX10T3MO-25 BK6435		25-75	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,5-3,0
	For titanium / titanium alloys	-25	BK7740	Q55 34250.117740 RPHX10T3MO-25 BK7710							
H	For hard machining	-02	BK2710	Q55 34020.152710 RDHW10T3MO-02 BK2710		100-180	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,1-0,5

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

Important: See page 247 for more application details and safety notes !

Copy milling cutter Q55-KCM



Ihr PLUS:

- High feed rates with maximum stability
- 8 indexing positions for maximum cost-efficiency
- Selection of further indexable inserts on same basic body for high feed-rate milling, face and chamfer milling and with wiper geometry for high-quality surface finish

Recommended feed		
4-fold	8-fold	
ap	ap max.	ap max.
3,0	5,5	1,7

Q47.. | EOMT
High feed-rate milling
Page 29

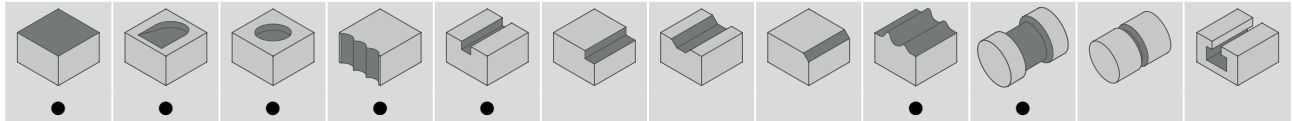
Q43.. | SDMX
For face and chamfer milling
Page 27

Q55 42.. | RP.12
Wiper geometry for
high-quality surface finish
Page 28

ap max. 6 mm

KOMET®

Copy milling cutter Q55-KCM



Z = effective number of teeth for calculating v_f

End milling cutter										Indexable insert
Ø D	Order No.	Ø d _{h6}	L	L1	a _p max.	Spindle speed max. rpm	Z		Clamping screw ① Order No. Article	Order No. ISO Code
25	F55 14110	25	86	30	6	25.000	2			Q55 42.. RP.. / RD.. 12
	F55 15110		116	60		18.000				
32	F55 14130	32	100	40	6	19.000	3		N00 57910 S4085-T15-55° 4,25 Nm	
	F55 15130		130	70		17.000				

Arbor milling cutter											
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a _p max.	Spindle speed max. rpm			Differential screw 	Clamping screw  ①	Indexable insert 
									Order No.	Order No. Article	Order No. ISO Code
40	F55 16150	16	38	40	6	15.900	4		L02 30990 15Nm	N00 57890 S40110-15IP-55° 4,25 Nm	Q55 42.. RP.. / RD.. 12
50	F55 16170	22	43	40	6	12.700	5		–		
63	F55 16190	22	48	40	6	10.100	6		–		
80	F55 16210	27	58	50	6	7.950	8		–		
100	F55 16230	32	78	50	6	6.350	10		–		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter Ø 40 mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v _c m/min	Feed f _z (mm/tooth) at a _e /D				Cutting depth a _p mm
							≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	
P	For medium roughing operations	-01	BK8425	Q55 42010.118425 RPMX1204MO-01 BK8425		180-350	0,41-0,80	0,30-0,57	0,25-0,41	0,20-0,34	0,5-4,0
M	For precision-machining and finishing	-21	BK2740	Q55 42210.112740 RPMX1204MO-21 BK2740		80-250	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	0,5-4,0
K	Specialist for cast iron	-05	BK6110	Q55 42050.116110 RPMX1204MO-05 BK6110		100-350	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	0,5-4,0
N	Highly polished chip breaker	-12	K10	Q55 42120.1523 RDHX1204MO-12 K10		< 2000	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	0,5-4,0
S	For highly heat-resistant steels	-25	BK6435	Q55 42250.116435 RPHX1204MO-25 BK6435		25-75	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,5-4,0
	For titanium / titanium alloys	-25	BK7740	Q55 42250.117740 RPHX1204MO-25 BK7740							
H	For hard machining	-02	BK2710	Q55 42020.152710 RDHW1204MO-02 BK2710		100-180	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	0,1-0,7

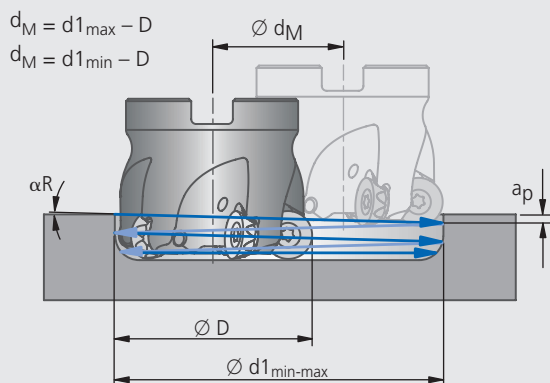
Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

Important: See page 247 for more application details and safety notes !

Application example copy milling cutter Q55-KCM



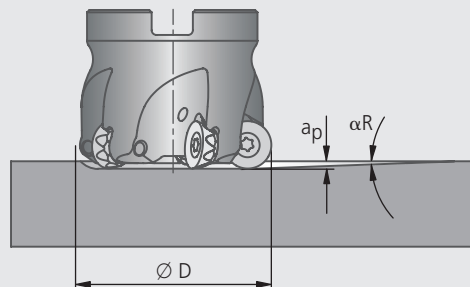
Circular plunging



Milling cutter dia. Ø D	ISO code indexable insert	Machining dia. Ø d1 min-max	Ramping angle αR max	Cutting depth ap max
End milling cutter				
20	RP.. / RD.. 10	26 - 30	1,3	5
25	RP.. / RD.. 10	37 - 40	1,8	5
32	RP.. / RD.. 10	50 - 54	1,5	5
25	RP.. / RD.. 12	31 - 38	2,2	6
32	RP.. / RD.. 12	46 - 52	1,7	6
Arbor milling cutter				
40	RP.. / RD.. 10	64 - 70	1,1	5
50	RP.. / RD.. 10	68 - 74	1,1	5
40	RP.. / RD.. 12	62 - 68	1,4	6
50	RP.. / RD.. 12	81 - 88	1,1	6
63	RP.. / RD.. 12	107 - 114	0,9	6
80	RP.. / RD.. 12	142 - 148	0,7	6
100	RP.. / RD.. 12	181 - 188	0,5	6



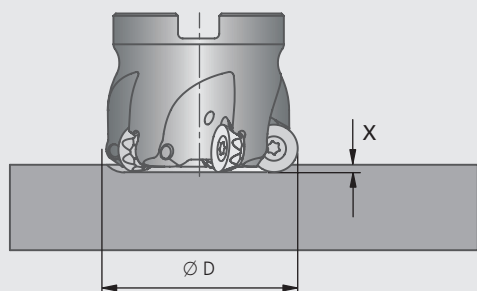
Inclined plunging



Milling cutter dia. Ø D	ISO code indexable insert	Ramping angle αR max	Cutting depth ap max
End milling cutter			
20	RP.. / RD.. 10	1,3	5
25	RP.. / RD.. 10	2,0	5
32	RP.. / RD.. 10	3,0	5
25	RP.. / RD.. 12	6,4	6
32	RP.. / RD.. 12	4,0	6
Arbor milling cutter			
40	RP.. / RD.. 10	3,3	5
50	RP.. / RD.. 10	2,4	5
40	RP.. / RD.. 12	2,8	6
50	RP.. / RD.. 12	2,6	6
63	RP.. / RD.. 12	1,9	6
80	RP.. / RD.. 12	1,3	6
100	RP.. / RD.. 12	1,0	6



Axial plunging

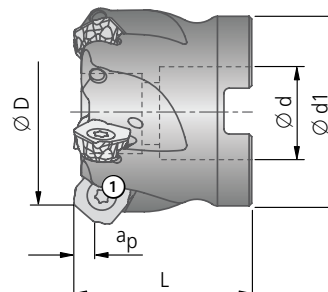
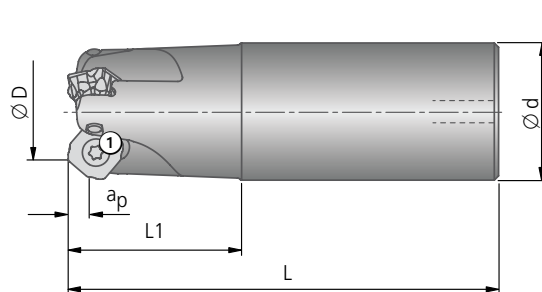
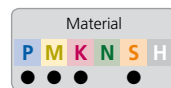


Milling cutter dia. Ø D	ISO code indexable insert	X max
End milling cutter		
20	RP.. / RD.. 10	0,2
25	RP.. / RD.. 10	0,4
32	RP.. / RD.. 10	0,8
25	RP.. / RD.. 12	1,0
32	RP.. / RD.. 12	1,1
Arbor milling cutter		
40	RP.. / RD.. 10	1,5
50	RP.. / RD.. 10	1,5
40	RP.. / RD.. 12	1,2
50	RP.. / RD.. 12	1,5
63	RP.. / RD.. 12	1,5
80	RP.. / RD.. 12	1,5
100	RP.. / RD.. 12	1,5

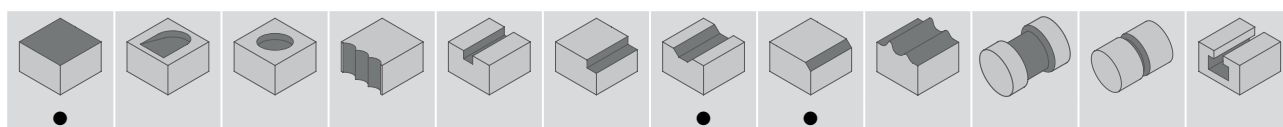
a_p max. 4 mm

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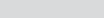
Copy milling cutter Q55-KCM



Z = effective number of teeth for calculating v_f



End milling cutter										Indexable insert
Ø D	Order No.	Ø d _{h6}	L	L1	a _p max.	Spindle speed max. rpm	Z	kg	Clamping screw	Order No. ISO Code
24,5	F55 14130	32	100,3	40,3	4	19.000	3		Order No. Article N00 57910	Q43 38..
	F55 15130		130,3	70,3		17.000			S4085-T15-55° 4,25 Nm	SDMX 11

Arbor milling cutter											Indexable insert
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a _p max.	Spindle speed max. rpm			 Order No.	 Order No. Article	 Order No. ISO Code
32,5	F55 16150	16	38	40,3	4	15.900	4		L02 30990 15Nm	N00 57890 S40110-15IP-55° 4,25 Nm	Q43 38.. SDMX 11
42,5	F55 16170	22	43	40,3	4	12.700	5		—		
55,5	F55 16190	22	48	40,3	4	10.100	6		—		
72,5	F55 16210	27	58	50,3	4	7.950	8		—		
92 5	F55 16230	32	78	50 3	4	6 350	10		—		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter Ø 40 mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
P	For medium roughing operations	-01	BK8425	Q43 38010.158425 SDMX1105AE-01 BK8425		180-350	≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	4
M	For precision-machining and finishing	-21	BK2740	Q43 38210.152740 SDMX1105AE-21 BK2740		80-250	≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	4
K	Specialist for cast iron	-05	BK6110	Q43 38050.156110 SDMX1105AE-05 BK6110		100-350	≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	4
S	For highly heat-resistant steels	-25	BK6435	Q43 38250.156435 SDMX1105AE-25 BK6435		25-75	≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	4
	For titanium / titanium alloys	-25	BK7740	Q43 38250.157740 SDMX1105AE-25 BK7740		25-75	≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	4

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

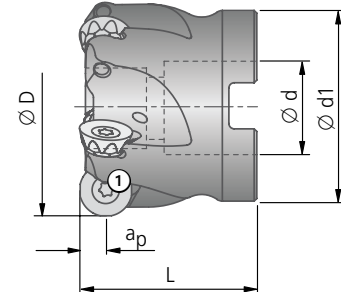
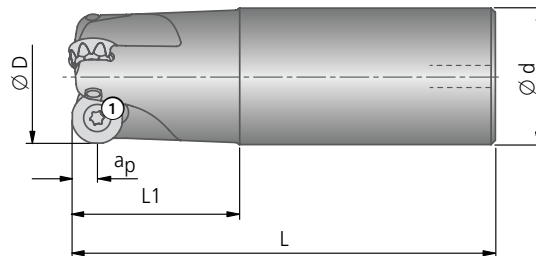
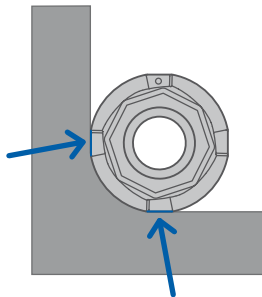
Important: See page 247 for more application details and safety notes !

Copy milling cutter Q55-KCM

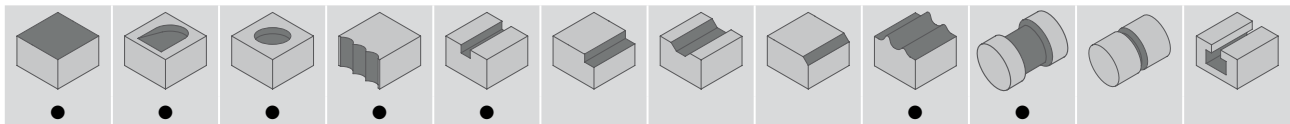


High-quality surface finish thanks to wiper geometry.

In order to guarantee the function of the wiper geometry, the milling cutter must be fully equipped.



Z = effective number of teeth for calculating v_f



End milling cutter										Clamping screw	Indexable insert
Ø D	Order No.	Ø d _{h6}	L	L1	a_p max.	Spindle speed max. rpm	Z	kg		Order No. Article	Order No. ISO Code
24,75	F55 14110	25	85,87	29,87	6	25.000	2			N00 57910 S4085-T15-55° 4,25 Nm	Q55 42260.11.... Q55 42460.11.... RP. 12
	F55 15110		115,87	59,87	6	18.000	2				
31,75	F55 14130	32	99,87	39,87	6	19.000	3				
	F55 15130		129,87	69,87	6	17.000	3				

Arbor milling cutter										Differential screw	Clamping screw	Indexable insert
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a_p max.	Spindle speed max. rpm	Z	kg		Order No.	Order No. Article	Order No. ISO Code
39,75	F55 16150	16	38	39,87	6	15.900	4		L02 30990 15Nm		N00 57890 S40110-15IP-55° 4,25 Nm	Q55 42260.11.... Q55 42460.11.... RP. 12
49,75	F55 16170	22	43	39,87	6	12.700	5		–			
62,75	F55 16190	22	48	39,87	6	10.100	6		–			
79,75	F55 16210	27	58	49,87	6	7.950	8		–			
99,75	F55 16230	32	78	49,87	6	6.350	10		–			

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter Ø 40 mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

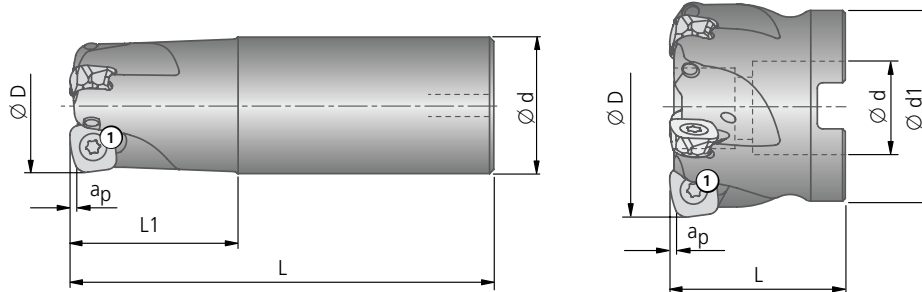
Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo-graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	
P	For medium roughing operations	-26	BK8425	Q55 42260.118425 RPMX1204MO-26 BK8425		180-350	0,41-0,80	0,30-0,57	0,25-0,41	0,20-0,34	6
K	Specialist for cast iron	-26	BK6110	Q55 42260.116110 RPMX1204MO-26 BK6110		100-350	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	6
S	For highly heat-resistant steels	-46	BK6435	Q55 42460.116435 RPHX1204MO-46 BK6435		25-75	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	6
	For titanium / titanium alloys	-46	BK7740	Q55 42460.117740 RPHX1204MO-46 BK7740							

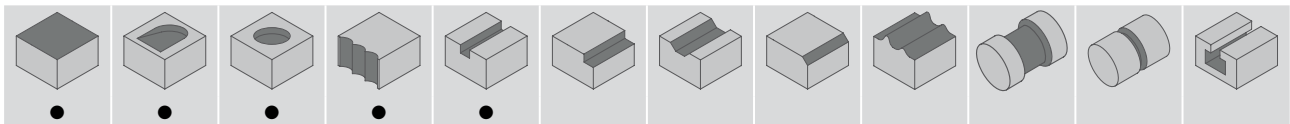
a_p max. 1,5 mm

KOMET®

Copy milling cutter Q55-KCM



Z = effective number of teeth for calculating v_f



End milling cutter										Indexable insert
Ø D	Order No.	Ø d _{h6}	L	L1	a_p max.	Spindle speed max. rpm	Z	kg	Clamping screw Order No. Article	Order No. ISO Code
31,7	F55 14130	32	99,5	39,5	1,5	19.000	3		N00 57910 S4085-T15-55° 4,25 Nm	Q47 34.. EOMT
	F55 15130		129,5	69,5		17.000				

Arbor milling cutter											
						Spindle speed max. rpm			Differential screw 	Clamping screw 	Indexable insert 
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a _p max.		Z		Order No.	Order No. Article	Order No. ISO Code
39,7	F55 16150	16	38	39,5	1,5	15.900	4		L02 30990 15Nm	N00 57890 S40110-15IP-55° 4,25 Nm	Q47 34.. EOMT
49,7	F55 16170	22	43	39,5	1,5	12.700	5		–		
62,7	F55 16190	22	48	39,5	1,5	10.100	6		–		
79,7	F55 16210	27	58	49,5	1,5	7.950	8		–		
99,7	F55 16230	32	78	49,5	1,5	6.350	10		–		

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter Ø 40 mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw.

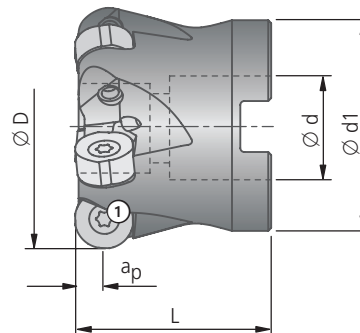
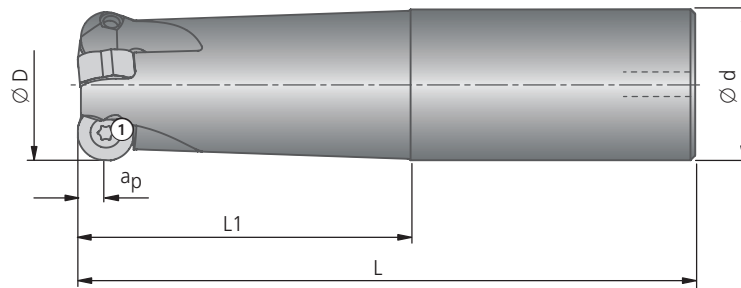
Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo-graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	
P	For medium roughing operations	-21	BK8425	Q47 34210.168425 EOMT120416-21 BK8425		180-350	0,82-2,50	0,59-1,78	0,49-1,29	0,40-1,07	1,5
M	For precision-machining and finishing	-21	BK2740	Q47 34210.162740 EOMT120416-21 BK2740		80-250	0,82-2,50	0,59-1,78	0,49-1,29	0,40-1,07	1,5

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

Important: See page 247 for more application details and safety notes !

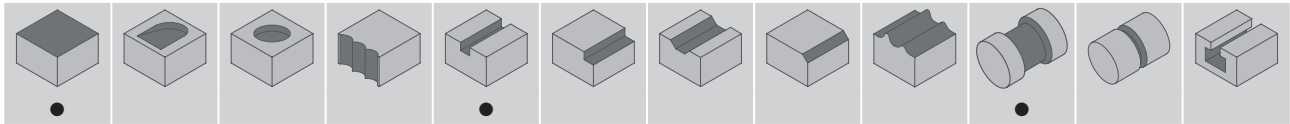
Copy milling cutter Q75-KCM



a_p max. 4,5 mm

KOMET®

Recommended cutting data copy milling cutter Q75-KCM



Z = effective number of teeth for calculating v_f

End milling cutter										Indexable insert
Ø D	Order No.	Ø d _{h6}	L	L1	a_p max.	Spindle speed max. rpm	Z		Clamping screw ① Order No. Article	Order No. ISO Code
32	F55 20130 F55 21130	32	131 165	70	4,5	19.000 17.000	3		N00 57890 S40110-T15-55° 4,25 Nm	Q75 42.. RNKU ROHU

Arbor milling cutter											
Ø D	Order No.	Ø d ^{H7}	Ø d1	L	a _p max.	Spindle speed max. rpm			Differential screw	Clamping screw	Indexable insert
											
									Order No.	Order No. Article	Order No. ISO Code
									L02 30990 15Nm	N00 57890 S40110-T15-55° 4,25 Nm	Q75 42.. RNKU ROHU
									–		
									–		
–											
–											

Supply includes: Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter Ø 40 mm:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and differential screw. Please order insert separately. Screwdriver see page 47.

Recommended cutting data											
Material		Topo- graphy	Coating	Order No. ISO code		Cutting speed v_c m/min	Feed f_z (mm/tooth) at a_e/D				Cutting depth a_p mm
							≤ 0,1	> 0,1 - 0,2	> 0,2 - 0,3	> 0,3	
P	For medium roughing operations	-01	BK8425	Q75 42010.008425 RNKU1204MO-01 BK8425		180-350	0,41-0,80	0,30-0,57	0,25-0,41	0,20-0,34	4,5
M	For precision-machining and finishing	-21	BK2740	Q75 42210.032740 ROHU1204MO-21 BK2740		80-250	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	4,5
K	Specialist for cast iron	-05	BK6110	Q75 42050.006110 RNKU1204MO-05 BK6110		100-350	0,21-0,45	0,15-0,32	0,12-0,23	0,10-0,19	4,5
S	For highly heat-resistant steels	-25	BK6435	Q75 42250.036435 ROHU1204MO-25 BK6435		25-75	0,21-0,30	0,15-0,21	0,12-0,15	0,10-0,13	4,5
	For titanium / titanium alloys	-25	BK7740	Q75 42250.037740 ROHU1204MO-25 BK7740							

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

Important: See page 247 for more application details and safety notes !

Recommended cutting data for Q40 | Q43 | Q55 | Q56 | Q63 | Q75

Guideline values for milling					Cutting speed v_c (m/min)							
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	BK8425		BK6110		K10		BK2740	
					dry	wet	dry	wet	dry	wet	dry	wet
P	1.0	≤500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	100-220	70-180					150-260	90-180
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	80-220	70-170					80-200	70-160
	2.1	<500	lead alloys	1.0718 (11SMnPb30)	100-220	70-170					150-260	90-180
	3.0	>900	non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	80-200	70-160					90-180	70-140
	4.0	>900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr- MoV12)	80-170	70-150					120-200	60-140
	4.1		HSS		80-140	60-120					70-180	60-130
S	5.0	250	special alloys: Inconel, Hastelloy, Nimonic, etc.	2.4668 (NiuCr19Fe19N- b5Mo3) 2.4631 (Nimonic 80A)								20-60
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)								20-70
M	6.0	≤600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNi- Mo17-12-2)	160-220	70-140					160-250	60-140
	6.1	<900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo- Ti17-12-2)	70-140	70-140					150-220	60-140
	7.0	>900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	70-140	70-140					100-250	60-140
	8.0		gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)			140-350	140-350		80-160		
K	8.1		alloy gray cast iron	0.6660 (GGL-NiCr20 2)			120-320	120-320		80-160		
	9.0	≤600	spheroidal graphite cast iron, ferritic	0.7040 (EN- GJS-400-15)			100-250	100-250		80-160		
	9.1		spheroidal graphite cast iron, ferritic / perlite	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)			120-320	120-320		80-160		
	10.0	>600	spheroidal graphite cast iron, perlite malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)			120-320	120-320		80-160		
	10.1		alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA- XNiCr20-2)			120-320	120-320		80-160		
	10.2		vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2			100-250	100-250		80-160		
	12.0		copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G- CuPb15Sn)						300-1000		
	12.1		copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)						300-1000		
N	13.0		wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)							200-3000	
	13.1		cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)							300-500	
	14.0		cast alum.alloy: Si-content >10%	3.2381.01 (G-Al- Si10Mg)							300-400	
	15.0		hardened steels < 45 HRC									
H	16.0	1400	hardened steels > 45 HRC									

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

Recommended cutting data for Q40 | Q43 | Q55 | Q56 | Q63 | Q75

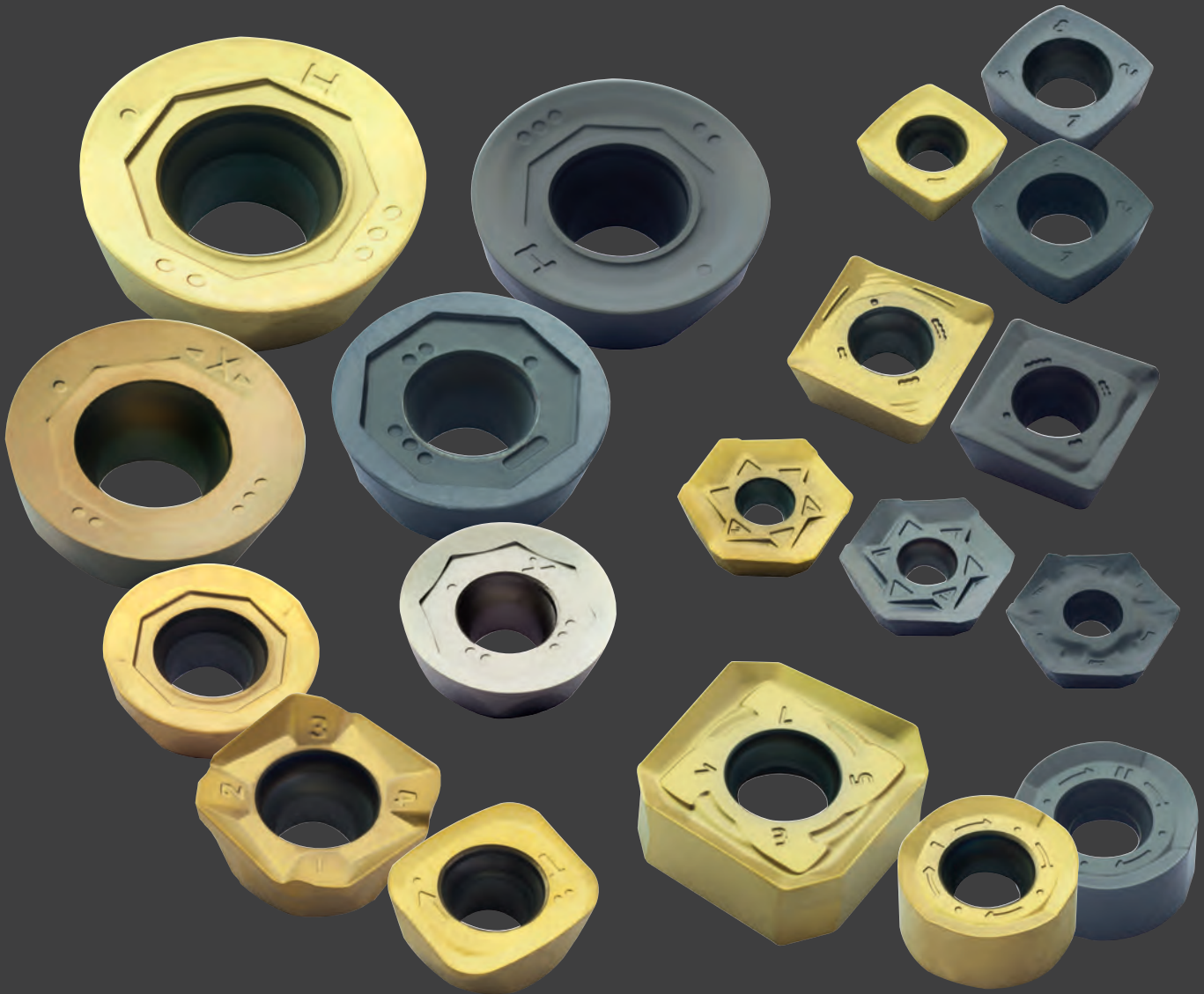
Cutting speed v_c (m/min)											
BK6435		BK7740		BK2710		BK6130		BK2735			
dry	wet	dry	wet	dry	wet	dry	wet	dry	wet		
						120-280	80-150	160-240	100-140	1.0	P
						80-250	70-140	120-220	90-120	2.0	
						120-280	80-150	160-240	100-140	2.1	
						80-220	70-140	120-220	90-120	3.0	
	60-140					80-130	60-90	80-110	60-80	4.0	
	60-140					80-140	60-120	80-140	60-120	4.1	
			10-60							5.0	S
			40-80							5.1	
220-350	60-180							120	110	6.0	M
220-350	60-140							110	100	6.1	
150-240	60-140							100	90	7.0	
				180-350	180-350	180-350	140-190			8.0	K
				100-250	100-250	180-350	140-190			8.1	
				100-250	100-250	130-210	80-120			9.0	
				100-250	100-250	130-210	80-120			9.1	
				120-250	120-250	160-200	90-120			10.0	
				120-250	120-250	180-250	100-180			10.1	
				100-250	100-250	100-160	80-120			10.2	N
										12.0	
										12.1	
										13.0	
										13.1	
										14.0	
				40-60						15.0	H
				30-50						16.0	

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

Important: See page 247 for more application details and safety notes !

More than 70 new indexable inserts are available for the new milling cutters – from extremely soft-cutting topographies for low spindle-stress machining on small to medium-sized machines through to extremely sturdy cutting edges for hard machining.

Four new kinds of high-performance cutting tool material which ensure an even longer tool life when machining steel and cast iron materials, high-strength or high-temperature resistant steels and titanium and titanium alloys are particularly notable. These are accompanied by high-performance coatings which extend the range of standard coatings which already have very good properties.



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
- 26 Wiper geometry for outstanding surface finish for steel, cast steel
- 46 Wiper geometry for outstanding surface finish for exotic materials

Summary and list of codes																		
Cutting material designation	Code	Norm code	Application range												Properties	Cutting element		
			Wear resistance						Toughness factor									
			01	05	10	15	20	25	30	35	40	45	50					
P25M	03	HW-P25	P														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
		M																
		K																
		N																
		S																
K10	21	HW-K10	P														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
		M																
		K																
		N																
		S																
K10 / fine grain	23	HW-M10 HW-K15	P														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..
		M																
		K																
		N																
		S																
BK2710	2710	HC-K10	P														PVD-TiAlN coated: • 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..
		M																
		K																
		N																
		S																
BK2735	2735	HC-P35 HC-M30	P														PVD-TiAlTiN coated: • extremely tough grade with outstanding coating adhesion and wear resistance • post-treated	Q40..
		M																
		K																
		N																
		S																
BK2740	2740	HC-P35	P														PVD-TiAlN coated: • 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..
		M																
		K																
		N																
		S																
BK6110	6110	HC-P10 HC-K10	P														CVD-TiCN-TiN-Al ₂ O ₃ coated: • for final machining bores in cast iron and steel materials • excellent dimensional stability due to combination of wear resistant substrate and ceramic, surface treated coating	W30 Q36 W59 Q40 H80 Q43 Q55 Q56 Q63 Q75
		M																
		K																
		N																
		S																
BK6130	6130	HC-P30	P														CVD-TiCN-TiN-Al ₂ O ₃ coated: • high quality, surface treated coating • mainly for machining cast iron materials • thanks to stabilised cutting edge excellent suitability for steel and stainless steel	W83..21 Q40..
		M																
		K																
		N																
		S																
				01	05	10	15	20	25	30	35	40	45	50	 main area of application  suitable in some cases			

Summary and list of codes																
Cutting material designation	Code	Norm code	Application range										Properties	Cutting element		
			Wear resistance													
			Toughness factor													
			01	05	10	15	20	25	30	35	40	45	50			
BK64	64	HC-P35	P												CVD-TiC-TiN coated: • multiple coating on P 40 carbide base • suitable for interrupted cut	Q09.. Q36..
		HC-M15	M													
			K													
			N													
			S													
			H													
BK6435	6435	HC-M35	P												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..
			M													
			K													
			N													
		HC-S35	S													
			H													
BK68	68	HC-P20	P												CVD-TiCN coated: • 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..
			M													
			K													
			N													
			S													
			H													
BK7740	7740	HC-M40	P												CVD-TiN+TiB2 coated: • very tough and wear-resistant grade for use in titanium alloys and special materials	Q43 Q55.. Q56.. Q75..
			M													
			K													
			N													
		HC-S40	S													
			H													
BK78	78	HC-P25	P												PVD-TiAlN coated: • 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..
			M													
			K													
			N													
			S													
			H													
BK80	80	HC-P35	P												PVD-TiCN coated: • for milling with a wide range of applications in steel and cast iron materials • excellent balance between wear resistance and strength makes this suitable for universal use	Q36..
			M													
			K													
			N													
			S													
			H													
BK8425	8425	HC-P25	P												PVD-TiAlN/TiN coated: • universally usable grade with increased wear resistance thanks to innovative multi-layer design of PVD coating	W01 Q15 W29 Q36 W30 Q40 W59 Q43 W80 Q47 W83 Q55 H70 Q56 Q09 Q63 Q12 Q75
			M													
			K													
			N													
			S													
			H													
			01	05	10	15	20	25	30	35	40	45	50	main area of application suitable in some cases		

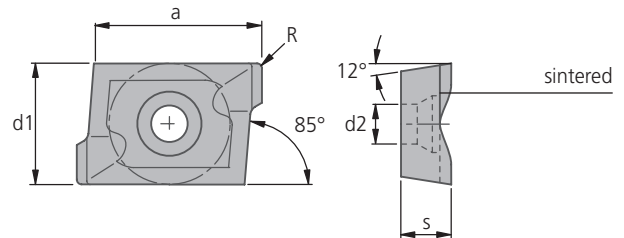


Application range:

Shoulder 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	Order No.									d1	d2	s	a	R
RM = Reinforced cutting edge	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: ISO Code APKT 1003PD-RM Cutting material P25M Order No. Q36 18000.0103				
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													

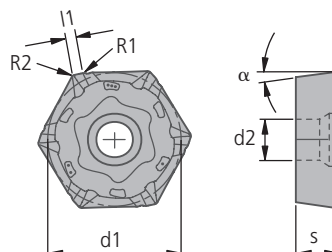
Indexable insert

Application range:
Face milling cutter Q40-KFM

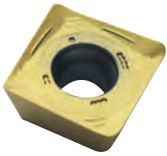
Six useful cutting edges, each cutting edge with wiper cutting edge.

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: ISO code HOKT 0604AZ-01 Cutting material K10 Order No. Q40 53010.0423						
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														

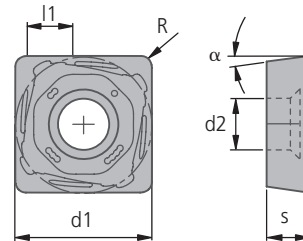


Application range:

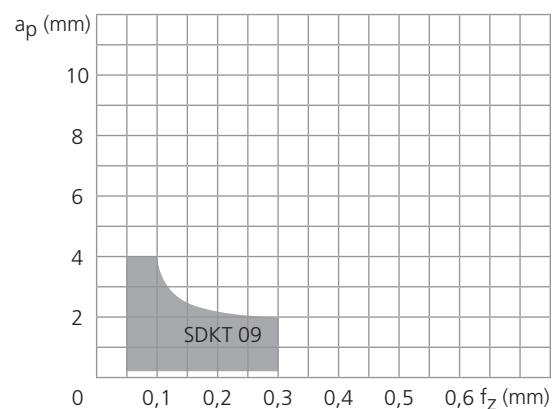
Shoulder milling cutter Q43-KSM

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: ISO code SDHT 09T308FR-12 Cutting material K10 Order No. Q43 28120.0823										
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																	



Indexable insert

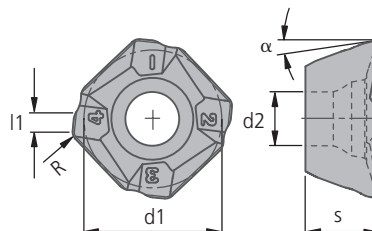


Application range:

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																

EOMT

KOMET® Q47

Indexable insert

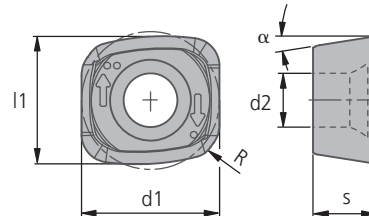


Application range:

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	●	●						

Indexable insert



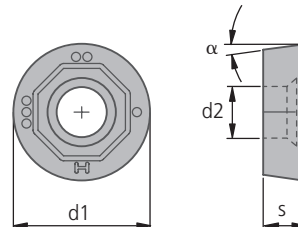
Application range:

Copy milling cutter Q55-KCM

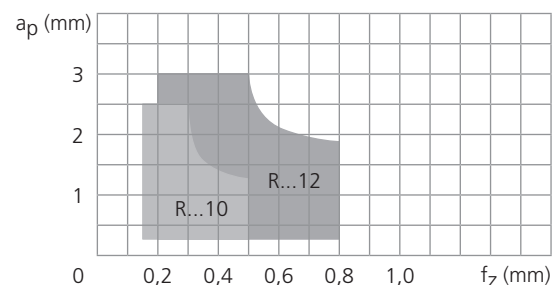
Eight useful cutting edges per indexable insert.
Use of different indexable insert clearance angles.

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..						▲	▲	10	3,4	3,97	15°
RDHW 10T3MO-02	Q55 34020.15..				▲							
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..						▲	▲	12	4,4	4,76	15°
RDHW 1204MO-02	Q55 42020.15..				▲							
RDHX 1204MO-12	Q55 42120.15..	▲										
Mild steel/tool steel	P		●	●					Order example: ISO code RPMX 10T3MO-01 Cutting material BK8425 Order No. Q55 34010.118425			
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				●							



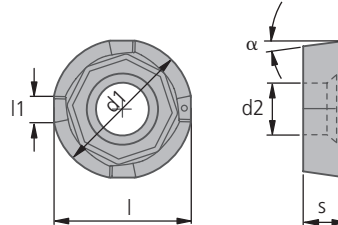


Application range:

Copy milling cutter Q55-KCM

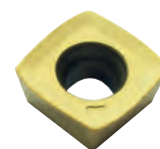
Wiper geometry for outstanding surface finish.

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: ISO code RPMX 1204MO-26 Cutting material BK8425 Order No. Q55 42260.118425					
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										

Indexable insert

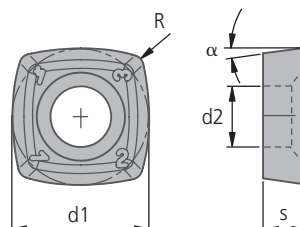


Application range:

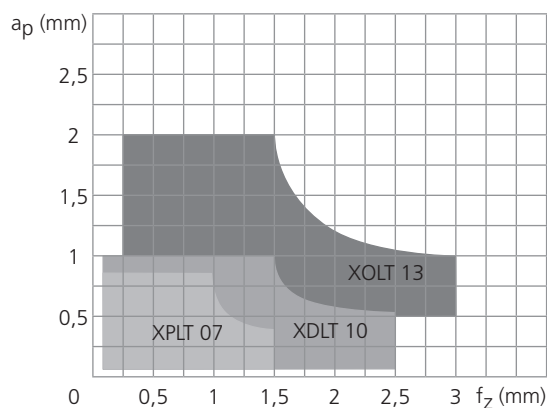
Face milling cutter Q56-KHF

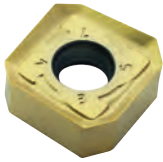
Four useful cutting edges per indexable insert.
High metal removal rate achievable because tooth feed rate of up to 3 mm possible.
Soft-cutting geometry reduces vibration during machining.
Premium-grade coatings for highly heat-resistant alloys and titanium materials.
Angled cutting edge for excellent 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: ISO code XPLT 070305-01 Cutting material BK8425 Order No. Q56 20010.058425				
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										



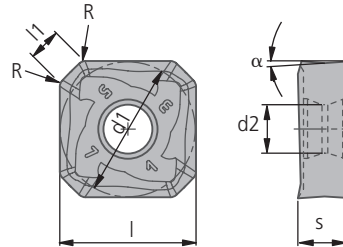


Application range:

Face milling cutter Q63-KFM

Eight useful cutting edges with positive clearance angle per indexable insert.
Stable double-sided indexable insert for a_p 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	●	●	●	●	Order example: ISO code SOKU 1205AZ-21 Cutting material BK8425 Order No. Q63 46210.068425						
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											

Indexable insert

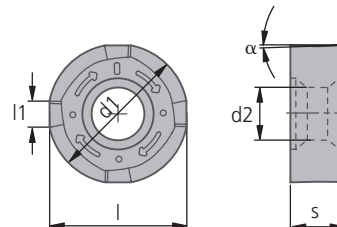


Application range:

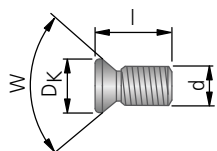
Copy milling cutter Q75-KCM

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..	▲										0°
ROHU 1204MO-21	Q75 42210.03..		▲									3°
RNKU 1204MO-05	Q75 42050.00..			▲			12	4,5	5,9	11,8	2,3	0°
ROHU 1204MO-25	Q75 42250.03..				▲	▲						3°
Mild steel/tool steel	P	●	●				Order example: ISO code RNKU 1204MO-01 Cutting material BK8425 Order No. Q75 42010.008425					
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											



Clamping screw | Screwdriver | Key

Clamping screw		Packing unit	Thread	Length	Screw head taper angle		Screw turning slot		Tightening torque
Order No.	Article	piece	d	l	DK	W	TORX®	TORX PLUS®	Nm
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-55°	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	5,3	55°	T20		5
N00 57890	S40110-15IP-55°	10	4	11,0	6,6	55°		15IP	4,25
N00 57900	S45130-20IP-55°	10	4,5	13,0	5,3	55°		20IP	5
N00 57910	S4085-T15-55°	10	4	8,5	6,6	55°	T15		4,25
N00 57920	S40110-T15-55°	10	4	11,0	6,6	55°	T15		4,25

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).

Torque wrench TorqueVario® adjustable with scale

TORX®			Replaceable blades	
Torque wrench			Size	
Size	Torque	Order No.	Size	Order No.
T8 – T20	1 – 5 Nm (0,2 Nm)	L05 00600	T8	L05 00601
			T15	L05 00603
			T20	L05 00604

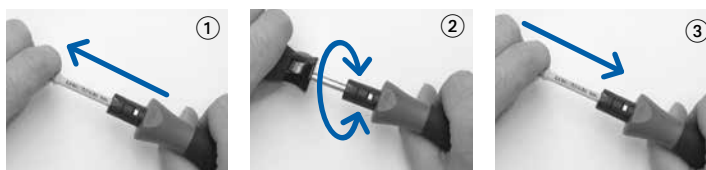
Supply includes: Torque wrench with adjusting key without replaceable blade.

TorqueVario®				
Size	Torque	Order No.	Adjusting key	Replaceable blades
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.

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 or T size can be read from the graduated scale.
- 3 Push blade in again

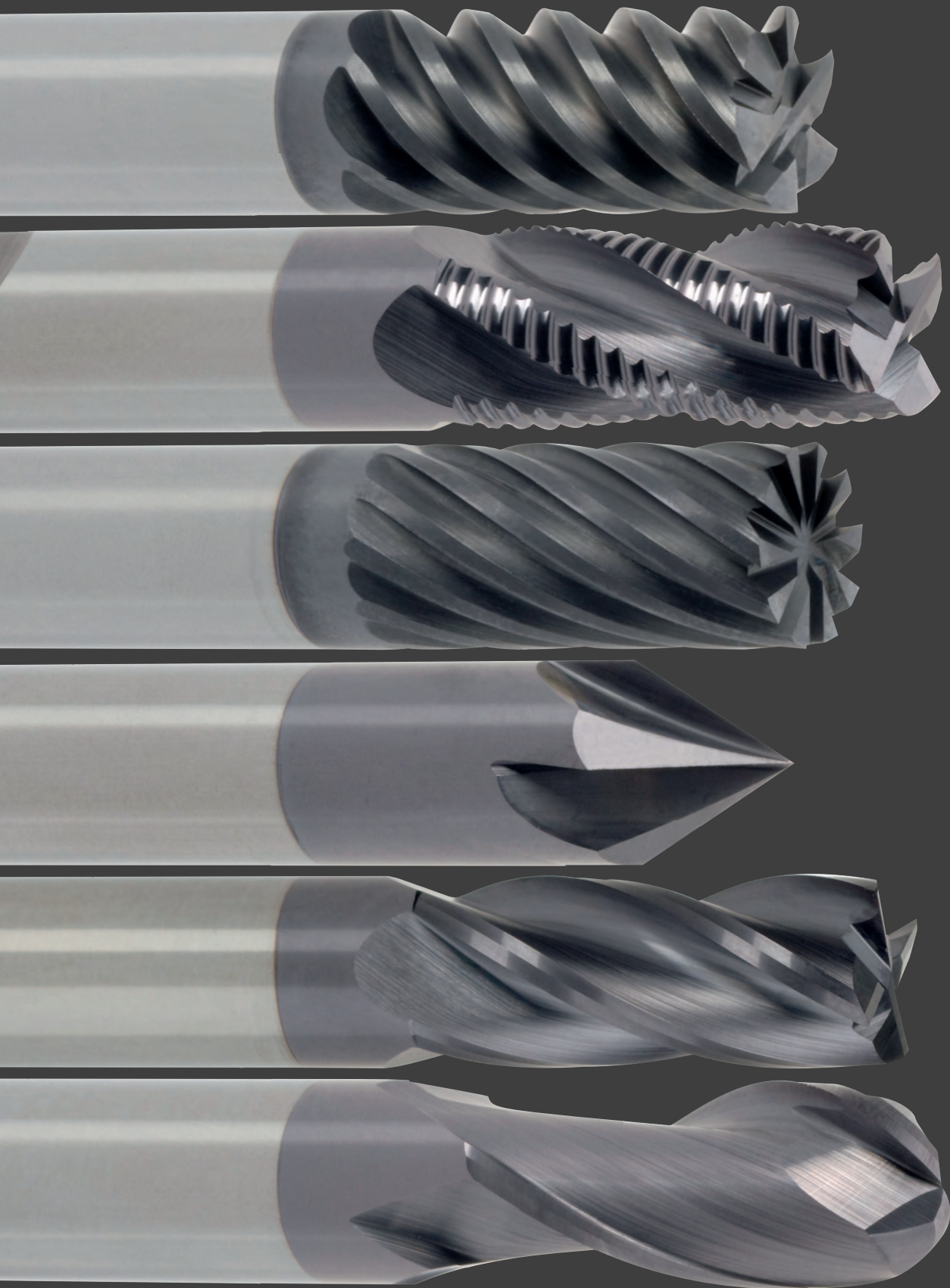


TORX®	
Size	Order No.
T8	L05 00605

TORX®	
Size	Order No.
T15	L05 00607
T20	L05 00608

TORX PLUS®	
Size	Order No.
15IP	L05 00860
20IP	L05 00870

Allen key	
Widht across flats WAF	Order No.
4	18591 10041





KOMET JEL® Solid carbide milling cutter

The new solid carbide shank milling cutter range provides tools to meet all demands in the 1.0 - 25.0 mm diameter range.

They are used in cast iron and steel materials; soft and hard machining (up to 65 HRC); and in mould and die making.

The product range is completed with tools for aluminium and non-ferrous metal working.

BENEFITS for you:

- Comprehensive standard range from stock
- High productivity due to the perfectly tuned grade profile and coating for all of the workpiece materials

F.line Solid carbide milling cutter Page

Programme summary 50 – 51

Universal use

End milling cutter F044 UNI Ø 3 – 20 mm
 End milling cutter F064 UNI Ø 1 – 20 mm
 End milling cutter HPC Ø 6 – 20 mm
 End milling cutter F144 Ø 2 – 20 mm (corner radius)
 Spherical cutter F344 Ø 1 – 20 mm 52

Roughing

Roughing end mill F544 with cord profile Ø 6 – 20 mm
 End milling cutter F054 D Ø 2 – 25 mm
 End milling cutter F154 Ø 2 – 20 mm (corner radius) 53

Finishing

End milling cutter F054 F Ø 6 – 25 mm

Chamfering and deburring

Chamfer milling cutter FK02 Ø 6 – 12 mm
 Radius milling cutter FZ02 Ø 6 – 8 mm

Machining on hardened steel (46-56 HRC)

End milling cutter F072 XH Ø 1 – 20 mm 54
 End milling cutter F142 XH Ø 4 – 10 mm (corner radius) 55
 Torus milling cutter F742 XH Ø 6 – 12 mm

Machining on hardened steel (50-65 HRC)

End milling cutter F041 XH Ø 6 – 16 mm
 End milling cutter F170 XH Ø 6 – 10 mm (corner radius)
 Spherical cutter F322 XH Ø 1 – 16 mm 56
 Spherical cutter F942 XH Ø 6 – 16 mm (conical)
 Spherical cutter F642 XH Ø 6 – 16 mm (conical)

Aluminium machining

End milling cutter F066 HF Ø 6 – 25 mm
 End milling cutter F071 AL Ø 3 – 20 mm 57
 End milling cutter F171 AL Ø 3 – 20 mm (corner radius) 58
 Spherical cutter F371 AL Ø 3 – 20 mm 59
 End milling cutter FJ AL Ø 4 – 8 mm 60

Graphite machining

End milling cutter F044 D Ø 3 – 16 mm
 End milling cutter F144 D Ø 3 – 16 mm (corner radius) 61
 Spherical cutter F344 D Ø 3 – 16 mm
 Spherical cutter F944 D Ø 4 – 16 mm (conical)

Recommended cutting data 62 – 63

KOMET SERVICE® – Page 236

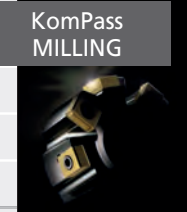
The KOMET SERVICE® TOOL lifeBox icon describes tools that are available for the high quality cost-efficient refurbishment of tools.





Machining				Universal use					Roughing			Finishing	Chamfering deburring		
Material Group	Strength Rm (N/mm²)	Hardness HB	F.line	F044UNI	F064UNI	HPC	F144	F344	F544	F054 D	F154 D	F054 F	FK02	FZ02	
			Diameter (mm)	Ø 3-20	Ø 1-20	Ø 6-20	Ø 2-20	Ø 1-20	Ø 6-20	Ø 2-25	Ø 3-20	Ø 6-25	Ø 6-12	Ø 6-8	
			No. of teeth	2 3 4	2 4	4	2 4	2 4	4	4	4	6	3 4	4	
			Shank DIN 6535 ..	HA HB	HA HB	HB	HA HB	HA HB	HB	HA HB	HA HB	HA HB	HA HB	HA HB	
			Coating	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	AlCrN	AlCrN	AlCrN	TiAlN	TiAlN	TiAlN	
Facet (mm)	0,05-0,35	0,05-0,35	0,2-0,5	–	–	0,3-0,5	0,1-0,35	–	0,05-0,15	–	–	–	–	–	
Corner radius (mm)	–	–	–	0,5-2,0	0,5-10	–	–	–	–	–	–	–	–	0,5-6,0	
Page								52			53				
Material															
P	1.1	≤400	≤120	Magnetic soft iron											
	1.2	≤700	≤200	Structural, case hardened steel											
	1.3	≤850	≤250	Carbon steel											
	1.4	≤850	≤250	Alloy steel											
	1.5	≤850 ≤1200	≤250 ≤350	Alloy/heat treated steel											
	1.6	>1200	>350	Alloy/heat treated steel											
H	1.7	≤1400	≤400	Hardened steel to 56 HRC											
	1.8	≤2200	≤600	Hardened steel to 65 HRC											
M	2.1	≤850	≤250	Stainless steel, sulphu- retted											
	2.2	≤850	≤250	Austenitic											
	2.3	≤1000	≤300	Ferritic, ferritic & austen- tic, mart.											
K	3.1	≤500	≤150	Grey cast iron											
	3.2	>500 ≤1000	>150 ≤300	Grey cast iron , heat treated											
	3.3	400- 500	200- 250	Vermicular cast iron											
	3.4	≤700	≤200	Spher. graph. cast iron											
	3.5	>700 ≤1000	>200 ≤300	Spher. graph. cast iron, heat treated											
	3.6	≤700	≤200	Malleable iron											
	3.7	>700 ≤1000	>200 ≤300	Malleable iron, heat treated											
S	4.1	≤700	≤200	Pure titanium											
	4.2	≤900	≤270	Titanium alloys											
	4.3	>900 ≤1250	>270 ≤300	Titanium alloys											
	5.1	≤500	≤150	Pure nickel											
	5.2	≤900	<270	Nickel alloys, heat resistant											
5.3	>900 ≤1200	>270 ≤350	Nickel alloys, high heat resistant												
N	6.1	≤350	≤100	Non-alloy copper											
	6.2	≤700	≤200	short chip, brass, bronze, red brass											
	6.3	≤700	≤200	long chip brass											
	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)											
	7.1	≤350	≤100	Alu, Mg non-alloy											
	7.2	≤600	≤180	Alu wrought all., break. strain (A5) <14 %											
	7.3	≤600	≤180	Alu wrought all., break. strain (A5) ≥14 %											
	7.4	≤600	≤180	Alu cast alloy, Si <10 %											
	7.5	≤600	≤180	Alu cast alloy, Si ≥10 %											
				Fibre reinforced plastics											
				Graphite											

Overview of the solid carbide milling cutter



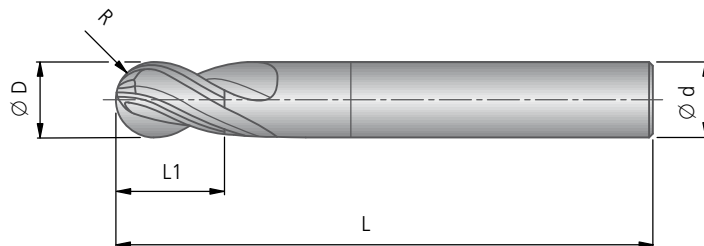
KOMET
THE WAY TO THE FUTURE

KomPass MILLING



TOOLS & IDEAS

Spherical cutter for universal use



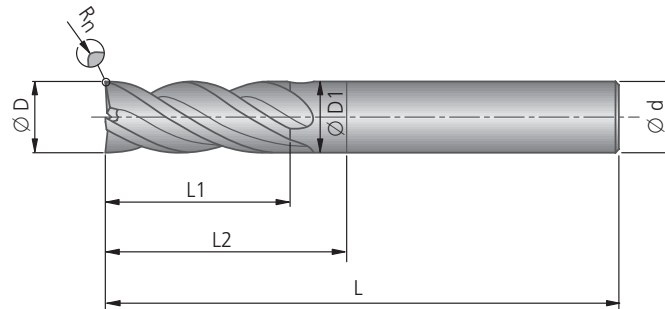
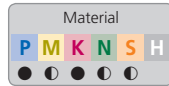
F.line F344					Z = 2 30°		Z = 4 30°	
Ø Dh10	Ø dh6	L	L1	R±0,02	DIN 6535 HA Order No.	DIN 6535 HB Order No.	DIN 6535 HA Order No.	DIN 6535 HB Order No.
1	4	50	2	0,5	78950450020100		78951450040100	
1	6	60	2	0,5	78950460020100	70950460020100		
1,5	4	50	3	0,75	78950011020150		78950011040150	
2	4	50	4	1	78950450020200	70950450020200	78951450040200	70951450040200
2	6	60	4	1	78950460020200	70950460020200		
3	4	50	6	1,5	78950450020300	70950450020300	78951450040300	70951450040300
3	6	60	6	1,5	78950460020300	70950460020300		
4	4	50	8	2	78950450020400	70950450020400	78951450040400	70951450040400
4	6	75	8	2	78950475020400	70950475020400		
5	6	50	10	2,5	78950450020500	70950450020500	78951450040500	70951450040500
5	6	75	10	2,5	78950475020500	70950475020500		
6	6	50	12	3	78950450020600	70950450020600	78951450040600	70951450040600
6	6	75	12	3	78950475020600	70950475020600		
8	8	60	16	4	78950460020800	70950460020800	78951460040800	70951460040800
8	8	100	16	4	78950400020800	70950400020800		
10	10	75	20	5	78950475021000	70950475021000	78951475041000	70951475041000
10	10	100	20	5	78950400021000	70950400021000		
12	12	82	26	6	78950482021200	70950482021200	78951482041200	70951482041200
12	12	105	30	6	78950405021200	70950405021200	78951405041200	70951405041200
14	14	82	26	7	78950482021400	70950482021400	78951482041400	70951482041400
14	14	105	30	7	78950405021400	70950405021400	78951405041400	70951405041400
16	16	92	32	8	78950492021600	70950492021600	78951492041600	70951492041600
16	16	160	40	8	78950460021600	70950460021600	78951460041600	70951460041600
18	18	92	32	9	78950492021800	70950492021800	78951492041800	70951492041800
18	18	160	40	9	78950460021800	70950460021800	78951460041800	70951460041800
20	20	105	38	10	78950405022000	70950405022000	78951405042000	70951405042000
20	20	160	55	10	78950460022000	70950460022000	78951460042000	70951460042000



Ø 3 – 20 mm

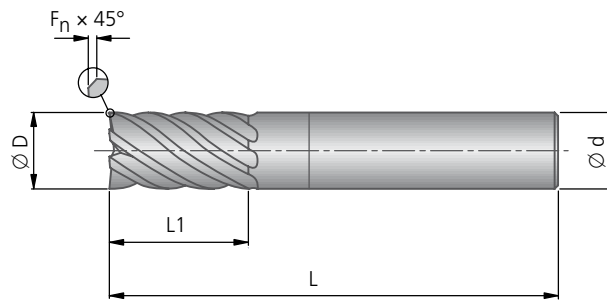
KOMET JEL® F.line F154 D

End milling cutter HPC for roughing



F.line F154 D							Z = 4 ~45°	
Ø Dh10	Ø dh6	Ø D1	L	L1	L2	Rn±0,02	DIN 6535 HA Order No.	DIN 6535 HB Order No.
3	6	2,9	58	8	14	0,2	78921011250300	70921011250300
3	6	2,9	58	8	14	0,3	78921011260300	70921011260300
3	6	2,9	58	8	14	0,5	78921011280300	70921011280300
4	6	3,8	58	11	20	0,2	78921011250400	70921011250400
4	6	3,8	58	11	20	0,4	78921011270400	70921011270400
4	6	3,8	58	11	20	0,5	78921011280400	70921011280400
5	6	4,8	58	12	20	0,2	78921011250500	70921011250500
5	6	4,8	58	12	20	0,5	78921011280500	70921011280500
5	6	4,8	58	12	20	1,0	78921011310500	70921011310500
6	6	5,8	58	13	21	0,2	78921011250600	70921011250600
6	6	5,8	58	13	21	0,5	78921011280600	70921011280600
6	6	5,8	58	13	21	1,0	78921011310600	70921011310600
8	8	7,7	64	19	27	0,2	78921011250800	70921011250800
8	8	7,7	64	19	27	0,5	78921011280800	70921011280800
8	8	7,7	64	19	27	1,0	78921011310800	70921011310800
8	8	7,7	64	19	27	2,0	78921011330800	70921011330800
10	10	9,5	73	22	32	0,2	78921011251000	70921011251000
10	10	9,5	73	22	32	0,5	78921011281000	70921011281000
10	10	9,5	73	22	32	1,0	78921011311000	70921011311000
10	10	9,5	73	22	32	1,5	78921011321000	70921011321000
10	10	9,5	73	22	32	2,0	78921011331000	70921011331000
12	12	11,5	84	26	42	0,2	78921011251200	70921011251200
12	12	11,5	84	26	42	0,5	78921011281200	70921011281200
12	12	11,5	84	26	42	1,0	78921011311200	70921011311200
12	12	11,5	84	26	42	1,5	78921011321200	70921011321200
12	12	11,5	84	26	42	2,0	78921011331200	70921011331200
14	14	13,5	84	28	38	1,0	78921011311400	70921011311400
16	16	15,5	93	32	44	0,3	78921011261600	70921011261600
16	16	15,5	93	32	44	0,5	78921011281600	70921011281600
16	16	15,5	93	32	44	1,0	78921011311600	70921011311600
16	16	15,5	93	32	44	2,0	78921011331600	70921011331600
16	16	15,5	93	32	44	4,0	78921011361600	70921011361600
20	20	19,4	105	40	54	0,3	78921011262000	70921011262000
20	20	19,4	105	40	54	0,5	78921011282000	70921011282000
20	20	19,4	105	40	54	1,0	78921011312000	70921011312000
20	20	19,4	105	40	54	2,0	78921011332000	70921011332000

End milling cutter for finish machining on hardened steel



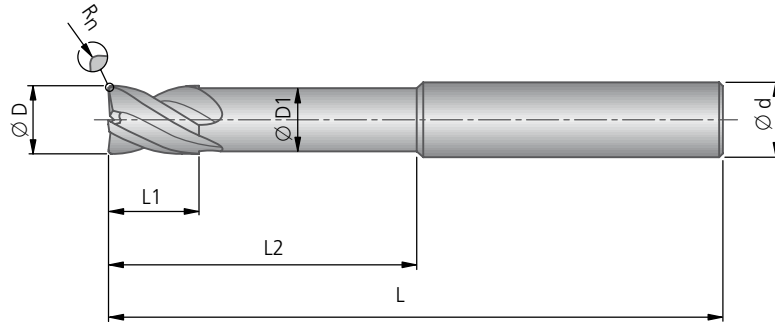
F.line F072 XH								
Ø D _{h10}	Ø d _{h6}	L	L1	F _n	λ	Z	DIN 6535 HA  Order No.	DIN 6535 HB  Order No.
1	4	50	1,5	–	35°	4	78910011040100	
1,5	4	50	2	–	35°	4	78910011040150	
2	4	50	3	–	35°	4	78910250040200	
3	6	50	4	–	50°	4	78910250040300	70910250040300
4	6	50	5	–	50°	4	78910250040400	70910250040400
6	6	57	13	–	50°	6	78910257060600	70910257060600
8	8	63	19	–	50°	6	78910263060800	70910263060800
8	8	100	25	–	50°	6	78910200060800	70910200060800
10	10	72	22	0,1	50°	6	78910272061000	70910272061000
10	10	105	25	0,1	50°	6	78910205061000	70910205061000
12	12	82	26	0,1	50°	6	78910282061200	70910282061200
12	12	105	30	0,1	50°	6	78910205061200	70910205061200
16	16	92	32	0,2	50°	8	78910292081600	70910292081600
16	16	160	40	0,2	50°	8	78910260081600	70910260081600
18	18	92	32	0,2	50°	8	78910292081800	70910292081800
18	18	160	40	0,2	50°	8	78910260081800	70910260081800
20	20	105	38	0,2	50°	8	78910205082000	70910205082000
20	20	160	55	0,2	50°	8	78910260082000	70910260082000



Ø 4 – 10 mm

KOMET JEL® F.line F142 XH

End milling cutter for use on hardened steel



F.line F142 XH							Z = 2 35°		Z = 4 35°	
Ø Dh10	Ø dh6	Ø D1	L	L1	L2	Rn±0,02	DIN 6535 HA Order No.	DIN 6535 HB Order No.	DIN 6535 HA Order No.	DIN 6535 HB Order No.
+	4	6	3,7	50	4	10	0,2	78912011250400	70912011250400	
	4	6	3,7	50	4	10	0,5	78912250020402	70912250020402	
	4	6	3,7	75	4	10	0,5		78913275040402	70913275040402
+	5	6	4,7	75	5	13	0,5		78912011280500	70912011280500
	5	6	4,7	75	5	13	1,0		78912011310500	70912011310500
	6	6	5,6	50	6	15	0,5	78912250020602	70912250020602	
	6	6	5,6	75	6	15	0,5		78913275040602	70913275040602
	6	6	5,6	75	6	15	1,0		78913275040603	70913275040603
	8	8	7,6	60	8	20	0,5	78912260020802	70912260020802	
	8	8	7,6	60	8	20	1,0	78912260020803	70912260020803	
	8	8	7,6	60	8	20	2,0	78912260020805	70912260020805	
	8	8	7,6	100	8	20	0,5		78913200040802	70913200040802
	8	8	7,6	100	8	20	1,0		78913200040803	70913200040803
	10	10	9,6	75	10	25	0,5	78912275021002	70912275021002	
	10	10	9,6	75	10	25	1,0	78912275021003	70912275021003	
	10	10	9,6	75	10	25	2,0	78912275021005	70912275021005	
	10	10	9,6	100	10	25	1,0		78913200041003	70913200041003
	10	10	9,6	100	10	25	2,0		78913200041005	70913200041005

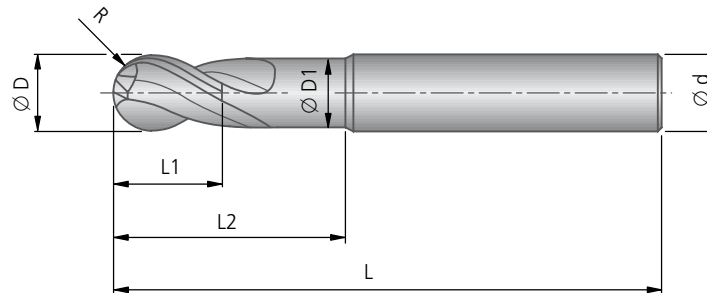
Spherical cutter for use on hardened steel



front cutting technology for plunging



≥ Ø 6 mm
with neck groove



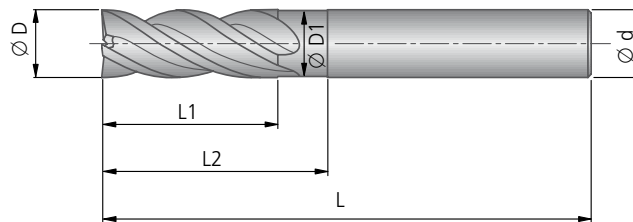
F.line F322 XH								Z = 2	
Ø D _{h10}	Ø d _{h6}	Ø D1	L	L1	L2	R±0,02	λ	DIN 6535 HA Order No.	DIN 6535 HB Order No.
1	4	–	50	1,5	8	0,5	35°	78951011020100	
1,5	4	–	50	2	10	0,75	35°	78951011020150	
2	4	–	50	3	10	1	35°	78952450020200	
3	6	–	50	4	10	1,5	20°	78952450020300	70952450020300
4	6	–	50	5	16	2	20°	78952450020400	70952450020400
6	6	5,6	80	6	20	3	20°	78952480020600	70952480020600
8	8	7,6	80	8	25	4	20°	78952480020800	70952480020800
10	10	9,6	105	10	30	5	20°	78952405021000	70952405021000
12	12	11,6	105	12	32	6	20°	78952405021200	70952405021200
16	16	15,6	105	16	36	8	20°	78952405021600	70952405021600



Ø 3 – 20 mm

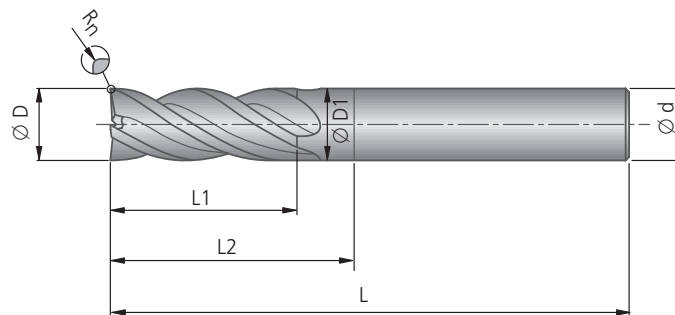
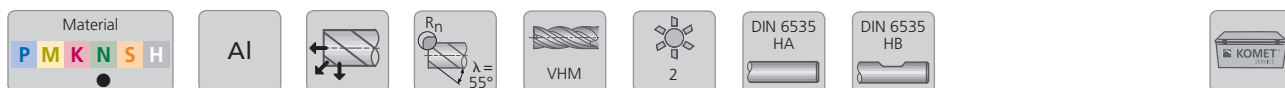
KOMET JEL® F.line F071 AL

End milling cutter for aluminium machining



F.line F071 AL						Z = 2 55°		Z = 3 45°	
Ø D _{h10}	Ø d _{h6}	Ø D1	L	L1	L2	DIN 6535 HA Order No.	DIN 6535 HB Order No.	DIN 6535 HA Order No.	DIN 6535 HB Order No.
3	6	2,8	58	5	17	78907011020300	70907011020300	78907011030300	70907011030300
3	6	2,8	58	8	17	78907012020300	70907012020300		
3	6	2,8	64	12	25			78907012030300	70907012030300
4	6	3,7	58	6	19	78907011020400	70907011020400		
4	6	3,7	58	11	19	78907012020400	70907012020400	78907011030400	70907011030400
4	6	3,7	64	17	26			78907012030400	70907012030400
5	6	4,6	58	8	20	78907011020500	70907011020500		
5	6	4,6	58	13	20	78907012020500	70907012020500	78907011030500	70907011030500
5	6	4,6	64	19	26			78907012030500	70907012030500
6	6	5,5	58	8	21	78907011020600	70907011020600		
6	6	5,5	58	13	21	78907012020600	70907012020600	78907011030600	70907011030600
6	6	5,5	64	19	27			78907012030600	70907012030600
6	6	5,5	81	26	44			78907022030600	70907022030600
8	8	7,4	64	10	27	78907011020800	70907011020800		
8	8	7,4	64	19	27	78907012020800	70907012020800	78907011030800	70907011030800
8	8	7,4	81	28	44			78907012030800	70907012030800
8	8	7,4	81	36	44			78907022030800	70907022030800
10	10	9,2	73	12	32	78907011021000	70907011021000		
10	10	9,2	73	22	32	78907012021000	70907012021000	78907011031000	70907011031000
10	10	9,2	81	34	40			78907012031000	70907012031000
10	10	9,2	109	45	68			78907022031000	70907022031000
12	12	11	84	14	38	78907011021200	70907011021200		
12	12	11	84	26	38	78907012021200	70907012021200	78907011031200	70907011031200
12	12	11	109	40	63			78907012031200	70907012031200
12	12	11	109	53	63			78907022031200	70907022031200
16	16	15	93	18	44	78907011021600	70907011021600		
16	16	15	93	32	44	78907012021600	70907012021600	78907011031600	70907011031600
16	16	15	109	48	60			78907012031600	70907012031600
16	16	15	160	63	110			78907022031600	70907022031600
20	20	19	105	22	55	78907011022000	70907011022000		
20	20	19	105	38	55	78907012022000	70907012022000	78907011032000	70907011032000
20	20	19	160	56	110			78907012032000	70907012032000
20	20	19	160	75	110			78907022032000	70907022032000

End milling cutter for aluminium machining

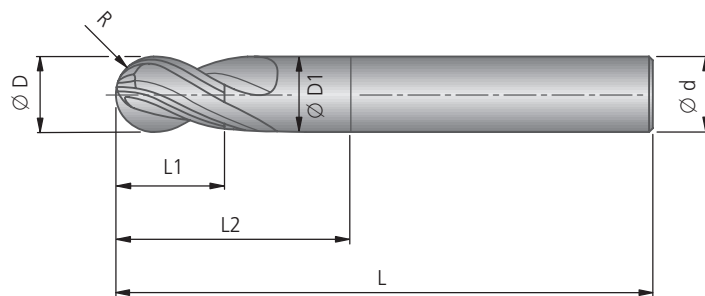


F.line F171 AL							Z = 2 55°	
Ø D _{h10}	Ø d _{h6}	Ø D1	L	L1	L2	R _n ±0,02	DIN 6535 HA  Order No.	DIN 6535 HB  Order No.
3	6	2,8	58	8	17	0,5	78908012280300	70908012280300
4	6	3,7	58	11	19	0,5	78908012280400	70908012280400
5	6	4,6	58	13	20	0,5	78908012280500	70908012280500
6	6	5,5	58	13	21	0,5	78908012280600	70908012280600
6	6	5,5	58	13	21	1,0	78908012310600	70908012310600
8	8	7,4	64	19	27	0,5	78908012280800	70908012280800
8	8	7,4	64	19	27	1,0	78908012310800	70908012310800
10	10	9,2	73	22	32	0,5	78908012281000	70908012281000
10	10	9,2	73	22	32	1,0	78908012311000	70908012311000
10	10	9,2	73	22	32	1,5	78908012321000	70908012321000
12	12	11	84	26	38	0,5	78908012281200	70908012281200
12	12	11	84	26	38	1,0	78908012311200	70908012311200
12	12	11	84	26	38	1,5	78908012321200	70908012321200
12	12	11	84	26	38	2,0	78908012331200	70908012331200
16	16	15	93	32	44	1,0	78908012311600	70908012311600
16	16	15	93	32	44	1,5	78908012321600	70908012321600
16	16	15	93	32	44	2,0	78908012331600	70908012331600
16	16	15	93	32	44	2,5	78908012341600	70908012341600
20	20	19	105	38	55	2,0	78908012332000	70908012332000
20	20	19	105	38	55	2,5	78908012342000	70908012342000
20	20	19	105	38	55	3,0	78908012352000	70908012352000
20	20	19	105	38	55	4,0	78908012362000	70908012362000

Ø 3 – 20 mm

KOMET JEL® F.line F371 AL

Spherical cutter for aluminium machining

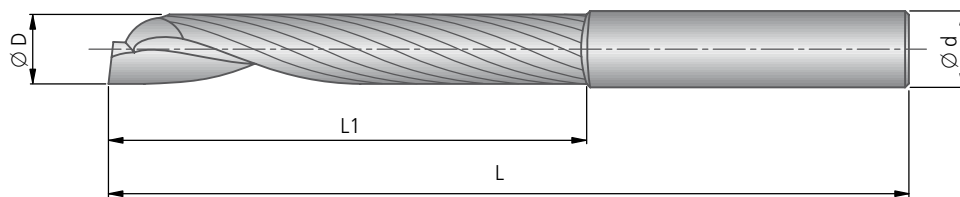


F.line F371 AL							Z = 2 55°	
Ø D _{h10}	Ø d _{h6}	Ø D1	L	L1	L2	R±0,02	DIN 6535 HA Order No.	DIN 6535 HB Order No.
3	6	2,8	58	8	17	1,5	78909012320300	70909012320300
3	6	2,8	64	8	25	1,5	78909022320300	70909022320300
4	6	3,7	58	11	19	2	78909012330400	70909012330400
4	6	3,7	64	11	26	2	78909022330400	70909022330400
5	6	4,6	58	13	20	2,5	78909012340500	70909012340500
5	6	4,6	64	13	26	2,5	78909022340500	70909022340500
6	6	5,5	58	13	21	3	78909012350600	70909012350600
6	6	5,5	81	13	44	3	78909022350600	70909022350600
8	8	7,4	64	19	27	4	78909012360800	70909012360800
8	8	7,4	81	19	44	4	78909022360800	70909022360800
10	10	9,2	73	22	32	5	78909012371000	70909012371000
10	10	9,2	109	22	68	5	78909022371000	70909022371000
12	12	11	84	26	38	6	78909012381200	70909012381200
12	12	11	109	26	63	6	78909022381200	70909022381200
16	16	15	93	32	44	8	78909012401600	70909012401600
16	16	15	160	32	110	8	78909022401600	70909022401600
20	20	19	105	38	55	10	78909012422000	70909012422000
20	20	19	160	38	110	10	78909022422000	70909022422000

End milling cutter with special geometry for aluminium and plastic machining



contour milling
1 cutting edge



F.line FJ AL				Z = 1 L.H. cutting		Z = 1 R.H. cutting	
Ø D _{h10}	Ø d _{h6}	L	L1	DIN 6535 HA Order No.	DIN 6535 HB Order No.	DIN 6535 HA Order No.	DIN 6535 HB Order No.
4	4	51	12	78913111010400		78913011010400	
4	4	81	20	78913122010400		78913022010400	
5	5	51	16	78913111010500		78913011010500	
5	5	81	28	78913122010500		78913022010500	
6	6	58	18	78913111010600	70913111010600	78913011010600	70913011010600
6	6	81	53	78913122010600	70913122010600	78913022010600	70913022010600
8	8	64	20	78913111010800	70913111010800	78913011010800	70913011010800
8	8	81	40	78913122010800	70913122010800	78913022010800	70913022010800

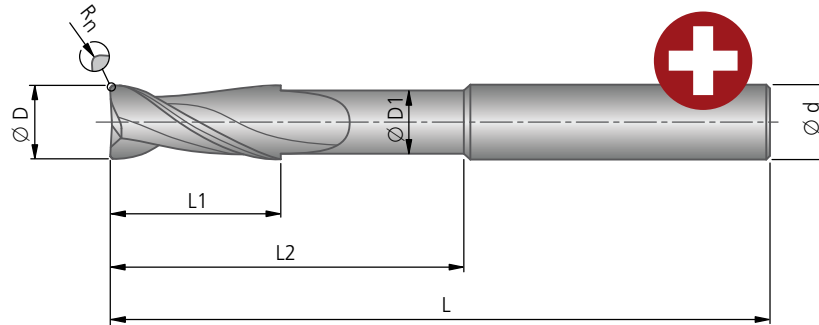
Ø 3 – 16 mm

KOMET JEL® F.line F144 D

End milling cutter for machining graphite



with neck groove



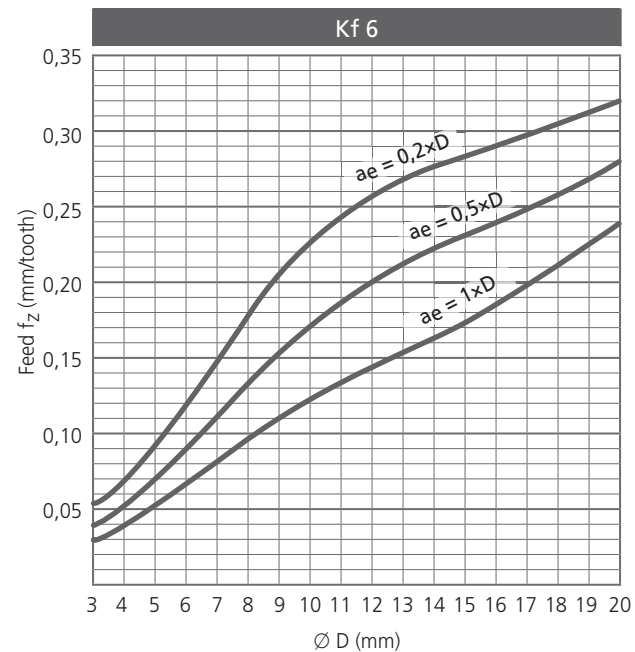
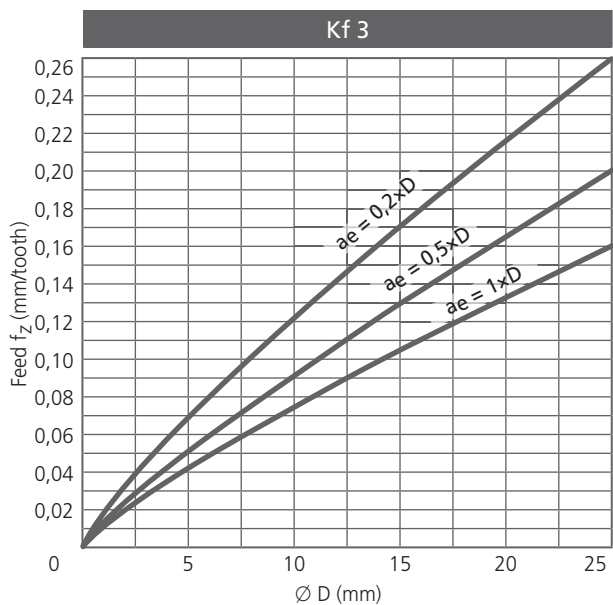
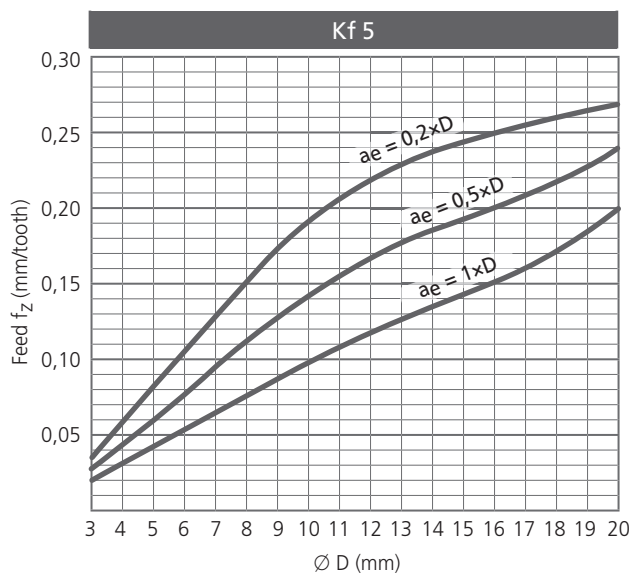
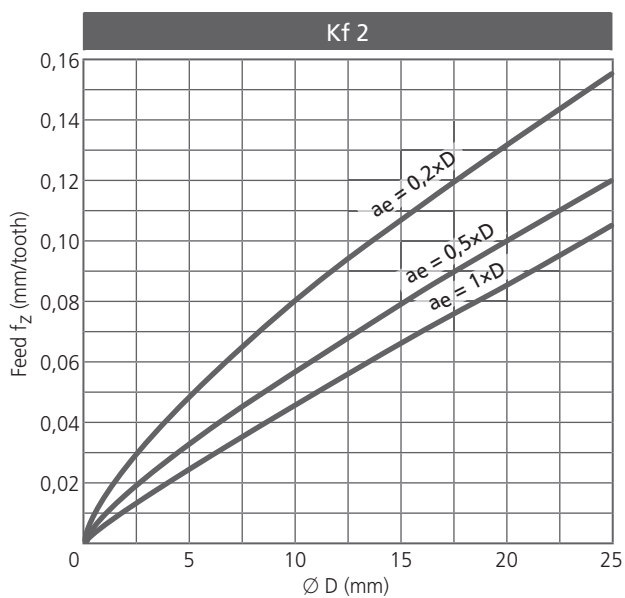
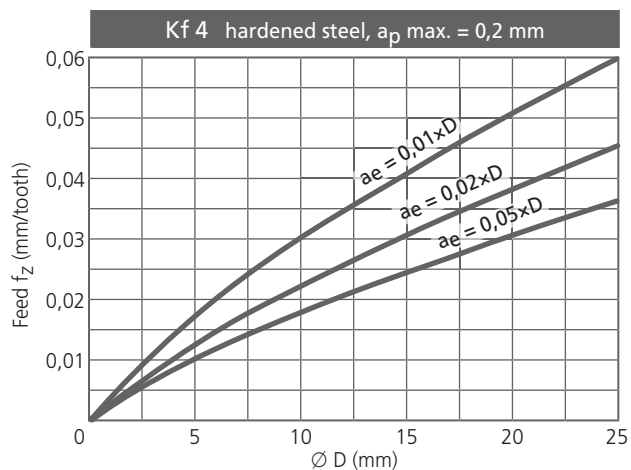
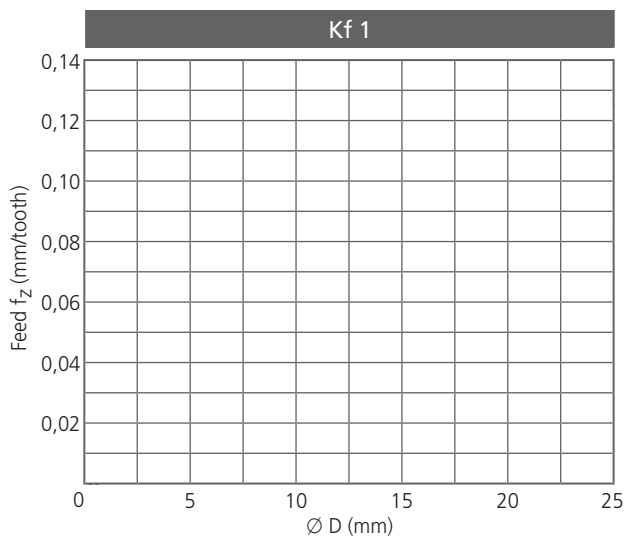
F.line F144 D							Z = 2 30°	
Ø D _{h10}	Ø d _{h6}	Ø D1	L	L1	L2	R _n ±0,02	DIN 6535 HA Order No.	DIN 6535 HB Order No.
3	3	2,8	50	7	13	0,3	78904012260300	
4	4	3,7	50	8	14	0,3	78904012260400	
4	4	3,7	80	8	28	0,3	78904022260400	
5	5	4,7	50	10	16	0,5	78904012280500	
5	5	4,7	100	10	30	0,5	78904022280500	
6	6	5,6	57	13	25	0,5	78904012280600	70904012280600
6	6	5,6	100	20	40	0,5	78904022280600	70904022280600
8	8	7,6	63	19	31	0,5	78904012280800	70904012280800
8	8	7,6	100	25	45	0,5	78904022280800	70904022280800
10	10	9,6	72	22	34	0,5	78904012281000	70904012281000
10	10	9,6	160	25	45	0,5	78904022281000	70904022281000
12	12	11,6	82	26	38	1,0	78904012311200	70904012311200
12	12	11,6	160	30	42	1,0	78904022311200	70904022311200
16	16	15,6	92	32	44	2,0	78904012331600	70904012331600
16	16	15,6	160	40	60	2,0	78904022331600	70904022331600

Recommended cutting data

Machining				Universal use										Roughing						Finishing		Chamfering deburring		
Material Group	Strength Rm (N/mm²)	Hardness HB	F.line	F044UNI	F064UNI	HPC	F144	F344	F544	F054 D	F154 D	F054 F	FK02	FZ02										
			Diameter (mm)	Ø 3-20	Ø 1-20	Ø 6-20	Ø 2-20	Ø 1-20	Ø 6-20	Ø 2-25	Ø 3-20	Ø 6-25	Ø 6-12	Ø 6-8										
			No. of teeth	2 3 4	2 4	4	2 4	2 4	4	4	4	6	3 4	4										
			Shank DIN 6535 ..	HA HB	HA HB	HB	HA HB	HA HB	HB	HA HB	HA HB	HA HB	HA HB	HA HB	HA HB									
Coating	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	52	AlCrN	AlCrN	AlCrN	53														
Page																								
Material	v _c	Kf	v _c	Kf	v _c	Kf	v _c	Kf	v _c	Kf	v _c	Kf	v _c	Kf	v _c	Kf	v _c	v _c						
P	1.1	≤400	≤120	Magnetic soft iron	165	2	165	2	180	2	165	2	170	p4	165	2	165	2	165	2				
	1.2	≤700	≤200	Structural, case hardened steel	135	2	135	2	160	2	135	2	160	p4	150	2	150	2	150	2				
	1.3	≤850	≤250	Carbon steel	125	2	125	2	140	2	125	2	150	p4	140	2	145	2	145	2				
	1.4	≤850	≤250	Alloy steel	125	2	125	2	140	2	125	2	150	p4	140	2	145	2	145	2				
	1.5	≤850 ≤1200	≤250 ≤350	Alloy/heat treated steel	100	1	100	1	120	1	100	1	130	p4	120	1	120	1	120	1				
	1.6	>1200	>350	Alloy/heat treated steel	90	1	90	1	100	1	90	1	95	p3	100	1	90	1	90	1				
H	1.7	≤1400	≤400	Hardened steel to 56 HRC																				
	1.8	≤2200	≤600	Hardened steel to 65 HRC																				
M	2.1	≤850	≤250	Stainless steel, sulphu- retted	75	1	75	1	110	1	75	1	95	p3	80	1	105	1	105	1				
	2.2	≤850	≤250	Austentic	65	1	65	1	110	1	65	1	85	p2	70	1	75	1	75	1				
	2.3	≤1000	≤300	Ferritic, ferritic & austen- tic, mart.	70	1	70	1	110	1	70	1	75	p3	60	1	100	1	100	1				
K	3.1	≤500	≤150	Grey cast iron	150	2	150	2	150	2	150	2	225	p4	160	2	120	2	120	2				
	3.2	>500 ≤1000	>150 ≤300	Grey cast iron , heat treated	130	2	130	2	130	2	130	2	210	p4	140	2	100	2	100	2				
	3.3	400- 500	200- 250	Vermicular cast iron	130	2	130	2	130	2	130	2	210	p4	140	2	100	2	100	2				
	3.4	≤700	≤200	Spher. graph. cast iron	130	2	130	2	130	2	130	2	190	p4	140	2	120	2	100	2				
	3.5	>700 ≤1000	>200 ≤300	Spher. graph. cast iron, heat treated	110	2	110	2	110	2	110	2	160	p4	120	2	100	2	100	2				
	3.6	≤700	≤200	Malleable iron	110	2	110	2	110	2	110	2	145	p4	120	2	100	2	100	2				
	3.7	>700 ≤1000	>200 ≤300	Malleable iron, heat treated	110	2	110	2	110	2	110	2	145	p4	120	2								
S	4.1	≤700	≤200	Pure titanium	60	1	60	1	60	1	60	1			65	1	60	1	60	1				
	4.2	≤900	≤270	Titanium alloys	60	1	60	1	60	1	60	1			65	1	60	1	60	1				
	4.3	>900 ≤1250	>270 ≤300	Titanium alloys	55	1	55	1	55	1	55	1			60	1	55	1	55	1				
	5.1	≤500	≤150	Pure nickel	45	1	45	1	45	1	45	1	55	p2			45	1	45	1				
	5.2	≤900	<270	Nickel alloys, heat resistant	35	1	35	1	35	1	35	1	55	p2			45	1	45	1				
5.3	>900 ≤1200	>270 ≤350	Nickel alloys, high heat resistant	30	1	30	1	30	1	30	1	45	p2											
N	6.1	≤350	≤100	Non-alloy copper	175	3	175	3			175	3	145	p5	190	3								
	6.2	≤700	≤200	short chip, brass, bronze, red brass	160	3	160	3			160	3	140	p5	180	3								
	6.3	≤700	≤200	long chip brass	175	3	175	3			175	3	145	p5	190	3								
	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)	100	3	100	3			100	3	80	p5	110	3								
	7.1	≤350	≤100	Alu, Mg non-alloy	280	3	280	3			280	3	520	p5	310	3								
	7.2	≤600	≤180	Alu wrought all., break. strain (A5) <14 %	260	3	260	3			260	3	460	p5	285	3								
	7.3	≤600	≤180	Alu wrought all., break. strain (A5) ≥14 %	260	3	260	3			260	3	460	p5	285	3								
	7.4	≤600	≤180	Alu cast alloy, Si <10 %	240	3	240	3			240	3	270	p5	270	3								
	7.5	≤600	≤180	Alu cast alloy, Si ≥10 %	200	3	200	3			200	3	220	p5	220	3								
				Fibre reinforced plastics	145	3	145	3			145	3	190	p5	160	3								
				Graphite	175	3	175	3			175	3	225	p5	190	3								

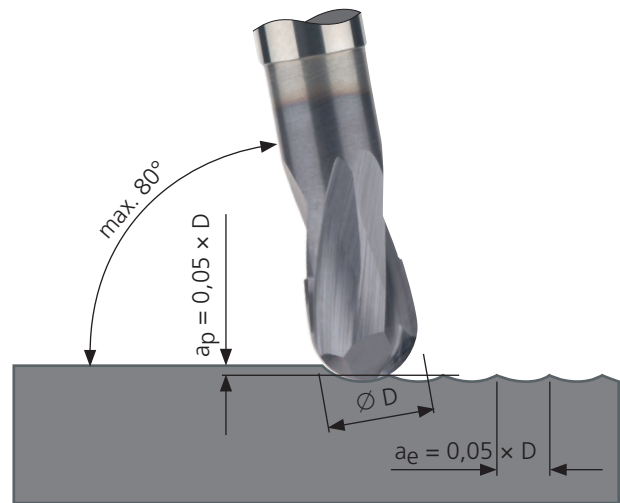
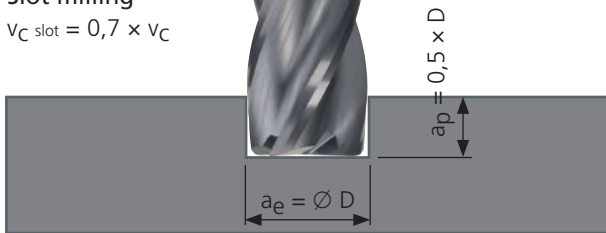
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Correction factor Kf for feed f_z



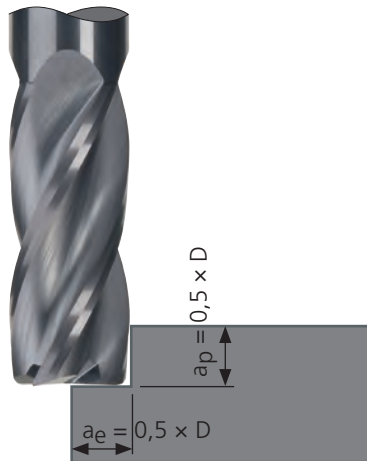
Slot milling

$$v_{C \text{ slot}} = 0,7 \times v_C$$



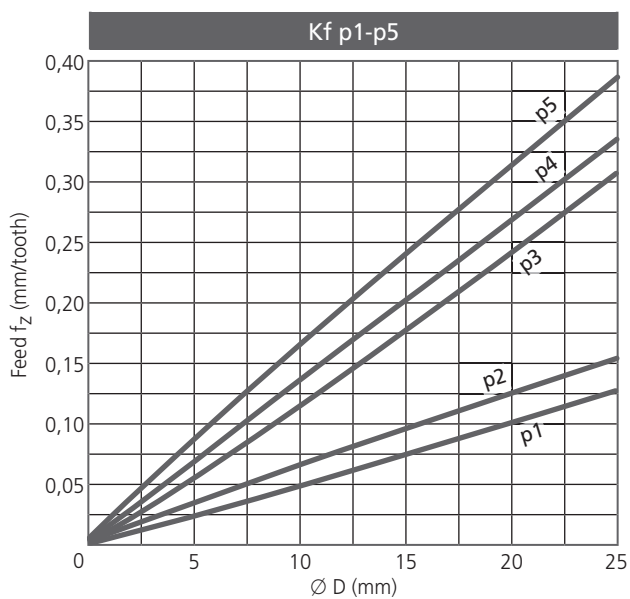
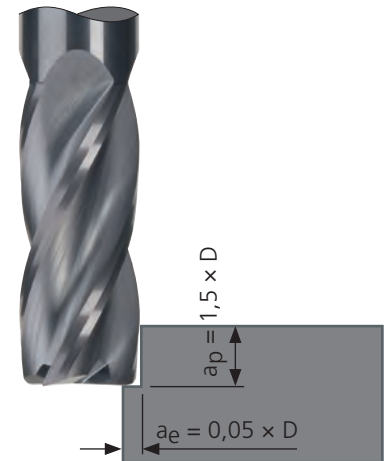
Rough milling

$$v_{C \text{ rough}} = v_C$$



Finish milling

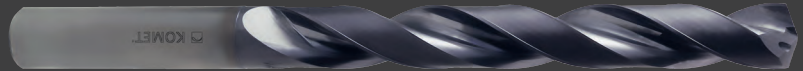
$$v_{C \text{ finish}} = 1,5 \times v_C$$



Coefficients cutting speed and feed		
	short version	$v_C = 100\%$ $f_Z = 100\%$
	long version	$v_C = 60\%$ ($v_C \times 0,6$) $f_Z = 75\%$ ($f_Z \times 0,75$)
	very long version	$v_C = 40\%$ ($v_C \times 0,4$) $f_Z = 30\%$ ($f_Z \times 0,3$)

KOMET KUB® Drillmax High-performance solid carbide drill

KOMET KUB® Drillmax 3xD | 5xD | 7-8xD



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 3xD, 5xD and 7-8xD. 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 12xD | 20xD | 30xD

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 12xD in diameters of 3.0 to 12.0 mm, 20xD in diameters of 3.0 to 10.0 mm and for 30xD in diameters of 3.0 to 8.0 mm. The spiral-fluted deep-hole drills have four guide chamfers, ensuring good guidance.

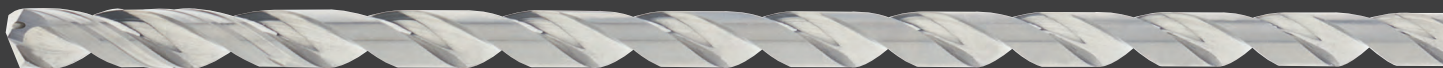
BENEFITS for you:

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



KOMET KUB® Drillmax XL ALU 40xD

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.

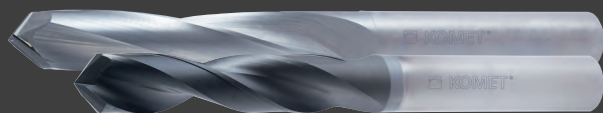
**KomPass
DRILLING**

**KOMET KUB® Drillmax VA
5xD**

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

3xD | Ø 3 – 16 mm | R.H. cutting
5xD | Ø 3 – 16 mm | R.H. cutting
7-8xD | Ø 3 – 16 mm | R.H. cutting

KOMET KUB® Drillmax VA

Cylindrical shank DIN 6535 HA / HE

5xD | Ø 3 – 16 mm | R.H. cutting

KOMET KUB® Drillmax ALU

Cylindrical shank DIN 6535 HA / HE

5xD | Ø 3 – 16 mm | R.H. cutting 70 – 71
8xD | Ø 3 – 16 mm | R.H. cutting 72 – 73

KOMET KUB® Drillmax XL

Cylindrical shank DIN 6535 HA

12xD | Ø 3 – 12 mm | R.H. cutting
20xD | Ø 3 – 10 mm | R.H. cutting
30xD | Ø 3 – 8 mm | R.H. cutting

KOMET® Solid carbide spot drill

Ø 6 – 20 mm | 90° | 120° | 142° 74 – 75

Recommended cutting data 76 – 77

Technical informations 78 – 79

KOMET RHOBEST® Drillmax

NCD High-performance drill

5xD | Ø 0,8 – 13 mm | DIN 6535 HA
7xD | Ø 5 – 13 mm | DIN 6535 HA

PCD High-performance drill

5xD | Ø 6 – 10 mm | DIN 6535 HA / HE

Recommended cutting data

KOMET SERVICE® – Page 236

The KOMET SERVICE® TOOL lifeBoxicon 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

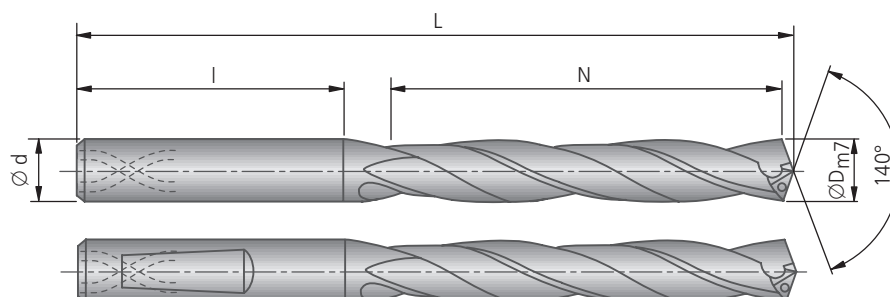
					KUB® Drillmax			
Material Group	Strength Rm (N/mm²)	Hardness HB	LxD		3xD V07 .. solid carbide TiAlN	5xD V03 .. solid carbide TiAlN	7-8xD V04 .. solid carbide TiAlN	
			Material	Cutting material Coating Page Cutting data				
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	●	●	●	
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	●	●	●	
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	●	●	●	
	3.0	> 900 - 1200	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	●	●	●	
	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, etc.	2.4668 (NiuCr19Fe19Nb-5Mo3) 2.4631 (Nimonic 80A)				
	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)	●	●	●	
	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)	●	●	●	
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	●	●	●	
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	●	●	●	
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	●	●	●	
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	●	●	●	
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	●	●	●	
	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)				
	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)				
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)				
	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					

KOMET KUB® Drillmax

Overview of the high-performance solid carbide drill

	KUB® Drillmax VA	KUB® Drillmax ALU		KUB® Drillmax XL			Solid carbide spot drill
	5xD V09 .. solid carbide TiAlN	5xD V26 .. solid carbide – 70 – 71 77	8xD V27 .. solid carbide – 72 – 73 77	12xD V25 .. solid carbide TiAlN	20xD V05.. solid carbide TiAlN	30xD V06 .. solid carbide TiAlN	V95.. solid carbide PVD 74 – 75 –
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							

High-performance solid carbide drill



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

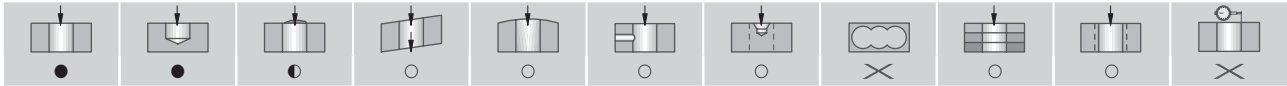
5xD						
D _{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d x l	L	N	kg
5,6	V26 05600.1125	V26 05600.2125	6 x 36	82	35	0,023
5,7	V26 05700.1125	V26 05700.2125	6 x 36	82	35	0,024
5,8	V26 05800.1125	V26 05800.2125	6 x 36	82	35	0,024
5,9	V26 05900.1125	V26 05900.2125	6 x 36	82	35	0,025
6,0	V26 06000.1125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

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example **HB**: V26 xxxxx.3125).
Delivery time 1 week (minimum purchase: 3 pieces)

5xD

KOMET KUB® Drillmax ALU

High-performance solid carbide drill

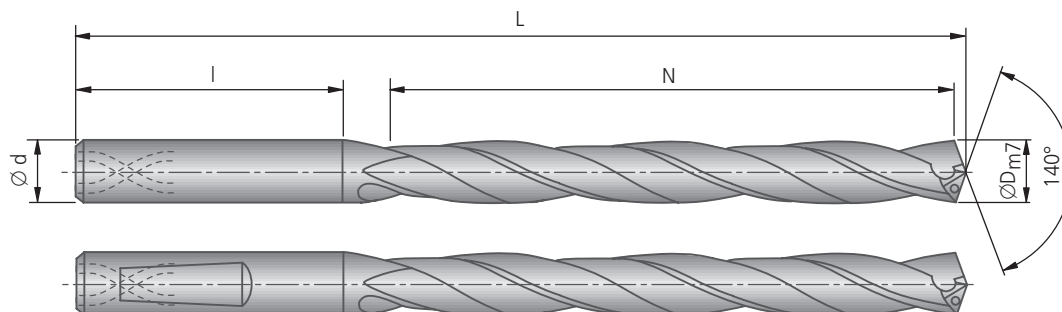


5xD						
D _{m7}	DIN 6535 HA  Order No.	DIN 6535 HE  Order No.	d×l	L	N	 kg
8,2	V26 08200.1125	V26 08200.2125	10×40	103	49	0,045
8,3	V26 08300.1125	V26 08300.2125	10×40	103	49	0,047
8,4	V26 08400.1125	V26 08400.2125	10×40	103	49	0,047
8,5	V26 08500.1125	V26 08500.2125	10×40	103	49	0,050
8,6	V26 08600.1125	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

5xD						
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.

High-performance solid carbide drill



8xD						
D _{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d x l	L	N	kg
3,0	V27 03000.1125	V27 03000.2125	6x36	72	29	0,017
3,1	V27 03100.1125	V27 03100.2125	6x36	72	29	0,017
3,2	V27 03200.1125	V27 03200.2125	6x36	72	29	0,017
3,3	V27 03300.1125	V27 03300.2125	6x36	72	29	0,017
3,4	V27 03400.1125	V27 03400.2125	6x36	72	29	0,018
3,5	V27 03500.1125	V27 03500.2125	6x36	72	29	0,018
3,6	V27 03600.1125	V27 03600.2125	6x36	72	29	0,018
3,7	V27 03700.1125	V27 03700.2125	6x36	72	29	0,018
3,8	V27 03800.1125	V27 03800.2125	6x36	81	36	0,019
3,9	V27 03900.1125	V27 03900.2125	6x36	81	36	0,019
4,0	V27 04000.1125	V27 04000.2125	6x36	81	36	0,019
4,1	V27 04100.1125	V27 04100.2125	6x36	81	36	0,020
4,2	V27 04200.1125	V27 04200.2125	6x36	81	36	0,020
4,3	V27 04300.1125	V27 04300.2125	6x36	81	36	0,020
4,4	V27 04400.1125	V27 04400.2125	6x36	81	36	0,021
4,5	V27 04500.1125	V27 04500.2125	6x36	81	36	0,021
4,6	V27 04600.1125	V27 04600.2125	6x36	81	36	0,021
4,7	V27 04700.1125	V27 04700.2125	6x36	81	36	0,021
4,8	V27 04800.1125	V27 04800.2125	6x36	95	48	0,023
4,9	V27 04900.1125	V27 04900.2125	6x36	95	48	0,023
5,0	V27 05000.1125	V27 05000.2125	6x36	95	48	0,024
5,1	V27 05100.1125	V27 05100.2125	6x36	95	48	0,025
5,2	V27 05200.1125	V27 05200.2125	6x36	95	48	0,025
5,3	V27 05300.1125	V27 05300.2125	6x36	95	48	0,026
5,4	V27 05400.1125	V27 05400.2125	6x36	95	48	0,027
5,5	V27 05500.1125	V27 05500.2125	6x36	95	48	0,027
5,54	V27 05540.1125	V27 05540.2125	6x36	95	48	0,027

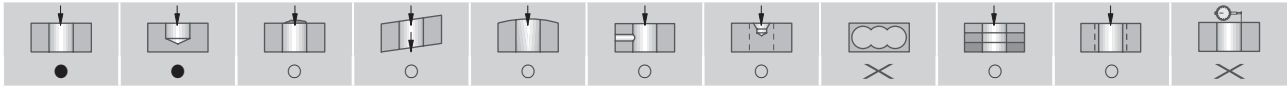
8xD						
D _{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d x l	L	N	kg
5,6	V27 05600.1125	V27 05600.2125	6x36	95	48	0,028
5,7	V27 05700.1125	V27 05700.2125	6x36	95	48	0,029
5,8	V27 05800.1125	V27 05800.2125	6x36	95	48	0,030
5,9	V27 05900.1125	V27 05900.2125	6x36	95	48	0,030
6,0	V27 06000.1125	V27 06000.2125	6x36	95	48	0,031
6,1	V27 06100.1125	V27 06100.2125	8x36	114	64	0,032
6,2	V27 06200.1125	V27 06200.2125	8x36	114	64	0,034
6,3	V27 06300.1125	V27 06300.2125	8x36	114	64	0,036
6,4	V27 06400.1125	V27 06400.2125	8x36	114	64	0,038
6,5	V27 06500.1125	V27 06500.2125	8x36	114	64	0,039
6,6	V27 06600.1125	V27 06600.2125	8x36	114	64	0,040
6,7	V27 06700.1125	V27 06700.2125	8x36	114	64	0,041
6,8	V27 06800.1125	V27 06800.2125	8x36	114	64	0,043
6,9	V27 06900.1125	V27 06900.2125	8x36	114	64	0,045
7,0	V27 07000.1125	V27 07000.2125	8x36	114	64	0,045
7,1	V27 07100.1125	V27 07100.2125	8x36	114	64	0,046
7,2	V27 07200.1125	V27 07200.2125	8x36	114	64	0,047
7,3	V27 07300.1125	V27 07300.2125	8x36	114	64	0,047
7,4	V27 07400.1125	V27 07400.2125	8x36	114	64	0,048
7,43	V27 07430.1125	V27 07430.2125	8x36	114	64	0,048
7,5	V27 07500.1125	V27 07500.2125	8x36	114	64	0,049
7,6	V27 07600.1125	V27 07600.2125	8x36	114	64	0,050
7,7	V27 07700.1125	V27 07700.2125	8x36	114	64	0,050
7,8	V27 07800.1125	V27 07800.2125	8x36	114	64	0,051
7,9	V27 07900.1125	V27 07900.2125	8x36	114	64	0,052
8,0	V27 08000.1125	V27 08000.2125	8x36	114	64	0,053
8,1	V27 08100.1125	V27 08100.2125	10x40	142	80	0,055

Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example **HB**: V04 xxxxx.3125).
Delivery time 1 week (minimum purchase: 3 pieces)

8xD

KOMET KUB® Drillmax ALU

High-performance solid carbide drill

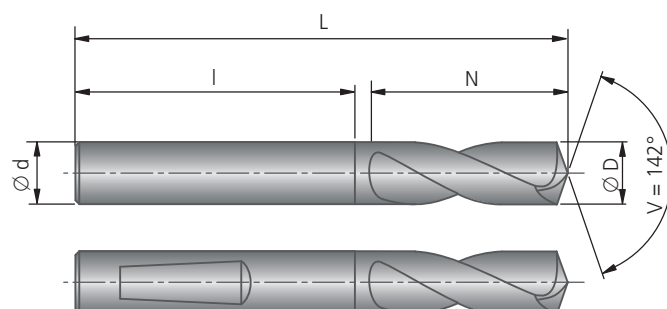
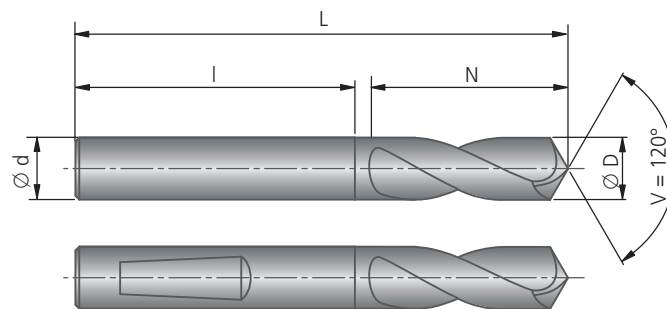
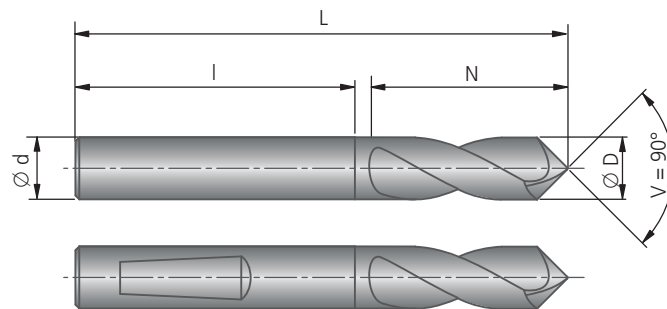


8xD						
D _{m7}	DIN 6535 HA Order No.	DIN 6535 HE Order No.	d×l	L	N	kg
8,2	V27 08200.1125	V27 08200.2125	10×40	142	80	0,057
8,3	V27 08300.1125	V27 08300.2125	10×40	142	80	0,060
8,4	V27 08400.1125	V27 08400.2125	10×40	142	80	0,062
8,5	V27 08500.1125	V27 08500.2125	10×40	142	80	0,065
8,6	V27 08600.1125	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.

8xD						
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

Solid carbide spot drill



Solid carbide spot drill

V = 90°						
D _{m7}	d _{h6} ×l	L	N		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		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		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 3xD 5xD 7–8xD													
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			
					min opt. max	min opt. max	min opt. max	min opt. max	min opt. max	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	0,20 0,28 0,35	0,25 0,30 0,40	0,25 0,33 0,40	0,30 0,38 0,45					
	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 0,25 0,30	0,20 0,28 0,35	0,20 0,28 0,35	0,25 0,33 0,40	0,30 0,44 0,48					
	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	0,25 0,33 0,40	0,30 0,38 0,45	0,35 0,44 0,52						
	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	0,30 0,38 0,45	0,35 0,44 0,52					
	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 0,23 0,30	0,20 0,28 0,35	0,25 0,33 0,40	0,30 0,38 0,45	0,35 0,44 0,52					
	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)														
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	0,25 0,33 0,40	0,30 0,38 0,45	0,35 0,44 0,52					
	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	0,25 0,33 0,40	0,30 0,38 0,45					
	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	0,10 0,17 0,22	0,12 0,20 0,25	0,14 0,22 0,28	0,16 0,24 0,30	0,20 0,28 0,35	0,25 0,33 0,40				
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 0,35 0,45	0,30 0,40 0,50	0,35 0,45 0,55	0,40 0,50 0,60	0,45 0,55 0,65					
	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 0,35 0,45	0,30 0,40 0,50	0,35 0,45 0,55	0,40 0,50 0,60	0,45 0,55 0,65					
	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	0,20 0,30 0,40	0,25 0,35 0,45	0,30 0,40 0,50	0,35 0,45 0,55	0,40 0,50 0,60	0,45 0,55 0,65					
	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 0,25 0,30	0,22 0,30 0,35	0,28 0,38 0,45	0,33 0,44 0,52	0,38 0,48 0,58					
	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 0,25 0,30	0,22 0,30 0,35	0,28 0,38 0,45	0,33 0,44 0,52	0,38 0,48 0,58					
	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 0,25 0,30	0,22 0,30 0,35	0,28 0,38 0,45	0,33 0,44 0,52	0,38 0,48 0,58					
	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 0,25 0,30	0,22 0,30 0,35	0,28 0,38 0,45	0,33 0,44 0,52	0,38 0,48 0,58					
	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)														
13.1			75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)														
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															

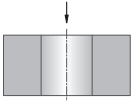
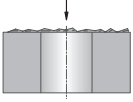
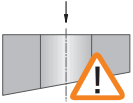
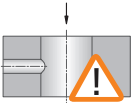
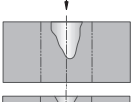
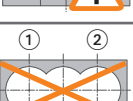
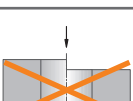
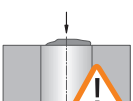
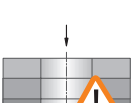
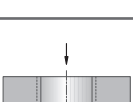
Cutting values shown are relating to the basic recommendations for cutting materials given.

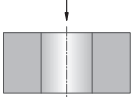
KOMET KUB® Drillmax VA | KOMET KUB® Drillmax ALU

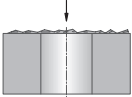
Recommended cutting data

										KUB® Drillmax VA 5xD										KUB® Drillmax ALU 5xD 8xD									
										Cutting speed v _c (m/min)		Feed f (mm/rev)								Cutting speed v _c (m/min)		Feed f (mm/rev)							
										min opt.	max	min opt.	max	min opt.	max	min opt.	max	min opt.	max	min opt.	max	min opt.	max	min opt.	max	min opt.	max		
										95	115	0,08	0,14	0,15	0,20	0,25	0,15	0,20	0,23	0,30	0,20	0,28	0,33	0,40	0,30	0,38	0,45		
										70	85	0,06	0,12	0,12	0,17	0,22	0,15	0,20	0,23	0,25	0,20	0,28	0,33	0,40	0,30	0,44	0,48		
										70	85	0,06	0,12	0,10	0,18	0,25	0,20	0,28	0,35	0,25	0,30	0,38	0,45	0,35	0,40	0,52	0,45		
										70	75	0,05	0,10	0,10	0,15	0,20	0,12	0,19	0,25	0,20	0,25	0,28	0,35	0,40	0,35	0,40	0,45		
										45	60	0,05	0,09	0,10	0,13	0,18	0,12	0,18	0,23	0,20	0,25	0,25	0,32	0,35	0,20	0,28	0,35		
										20	35	0,03	0,04	0,06	0,08	0,10	0,08	0,10	0,12	0,12	0,12	0,15	0,18	0,15	0,15	0,18	0,18		
										40	55	0,06	0,12	0,12	0,17	0,22	0,15	0,20	0,25	0,20	0,25	0,28	0,35	0,30	0,30	0,40	0,40		
										25	45	0,05	0,08	0,09	0,15	0,20	0,11	0,17	0,22	0,14	0,20	0,23	0,30	0,25	0,22	0,35	0,35		
										15	30	0,05	0,08	0,06	0,10	0,14	0,08	0,13	0,18	0,12	0,20	0,20	0,26	0,20	0,16	0,30	0,30		
										90	115	0,10	0,18	0,15	0,23	0,30	0,20	0,30	0,40	0,25	0,35	0,45	0,40	0,50	0,30	0,40	0,50		
										70	95	0,10	0,18	0,15	0,23	0,30	0,20	0,30	0,40	0,25	0,35	0,45	0,40	0,50	0,30	0,40	0,50		
										100	120	0,08	0,14	0,15	0,20	0,25	0,15	0,23	0,30	0,25	0,33	0,40	0,45	0,40	0,45	0,45	0,45		
										80	100	0,06	0,12	0,10	0,15	0,20	0,14	0,20	0,25	0,20	0,28	0,35	0,30	0,40	0,30	0,40	0,40		
										70	90	0,06	0,12	0,10	0,15	0,20	0,14	0,20	0,25	0,20	0,28	0,35	0,30	0,40	0,30	0,40	0,40		
										60	70	0,06	0,12	0,10	0,15	0,20	0,14	0,20	0,25	0,20	0,28	0,35	0,30	0,40	0,30	0,40	0,40		
										60	70	0,06	0,12	0,10	0,15	0,20	0,14	0,20	0,25	0,20	0,28	0,35	0,30	0,40	0,30	0,40	0,40		
										100	200	0,10	0,18	0,15	0,25	0,35	0,25	0,35	0,45	0,25	0,40	0,50	0,40	0,50	0,30	0,40	0,50		
												0,10	0,18	0,25	0,35	0,45	0,25	0,35	0										
										120	200	0,10	0,18	0,15	0,25	0,35	0,25	0,35	0,45	0,25	0,40	0,50	0,40	0,50	0,30	0,40	0,50		
										120	200	0,10	0,18	0,15	0,25	0,35	0,25	0,35	0,45	0,25	0,40	0,50	0,40	0,50	0,30	0,40	0,50		
										100	250	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	280	0,28	0,38	0,38	0,48	0,55	0,38	0,48	0,55	0,38	0,48	0,55	0,38	0,48	0,55	0,38	0,48		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3		
										250	400	0,35	0,45	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55	0,65	0,45	0,55		
										100	150	0,15	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2		
										200	300	0,2	0,3	0,3	0,3	0,3													

Technical informations

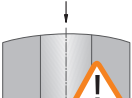
-
1.  **Starting on straight, machined surfaces**
- starting without feed rate reduction
 - no need for chip removal cycles and pre-centring
 - Please note: If centring has already been performed, care should be taken to ensure that the centring is concentric with the drilling axis and the centring angle 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 3xD: 2° $\triangle$ 80°, 4° $\triangle$ 70°, 6° $\triangle$ 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**
- 3xD and 5xD possible
-

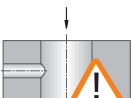
-
1.  **Starting on straight, machined surfaces**
 - when starting up to a drilling depth of $0.25 \times D$, reduce feed rate to below 50% of the normal feed rate
 - no need for chip removal cycles and pre-centring

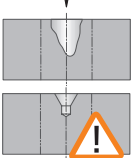
 2.  **Starting on uneven surfaces (cast surfaces)**
 - depending on the quality of the surface or when spot drilling, reduce the feed
 - Please note: Cast workpieces can have mould contours inclined up to an angle of 5° (see 3.)

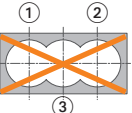
 3.  **Starting on angled surfaces**
 - spot face surface before starting bore

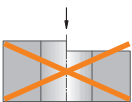
 4.  **Angled bore exit**
 - reduce feed by 50 % in the exit area

 5.  **Starting on cambered surfaces**
 - spot face surface before starting bore

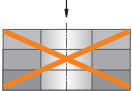
 6.  **Drilling through a cross bore**
 - drilling through a cross bore or interrupted cut is generally problematic
 - half feed rate at interruption

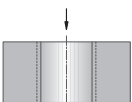
 7.  **Starting on a groove or large centering bore**
 - end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
 - possible under certain conditions. Reduce feed where necessary

 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**
 - 7-8xD possible
-

KOMET MicroKom® *hi.flex*

Fine adjustment system for diameters 0.5 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 0.5 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	84
Boring bar Ø 6 - 25 mm	86
Serrated body Ø 25 - 63 mm	87
Insert holder Ø 63 - 93 mm	88
Bridge / insert holder Ø 90 - 365 mm	89
Mounting bridge for external machining	99

Recommended cutting data

96

Alternative inserts

97

Adaptor

MicroKom® <i>hi.flex</i> Adaptor	98
ABS® Adaptor	274
UniTurn® Adaptor	280

Boring bar with cylindrical shank

Ø 0,5 - 9,0 mm
Ø 5,6 - 24 mm
Ø 5,6 - 26 mm, low-vibration

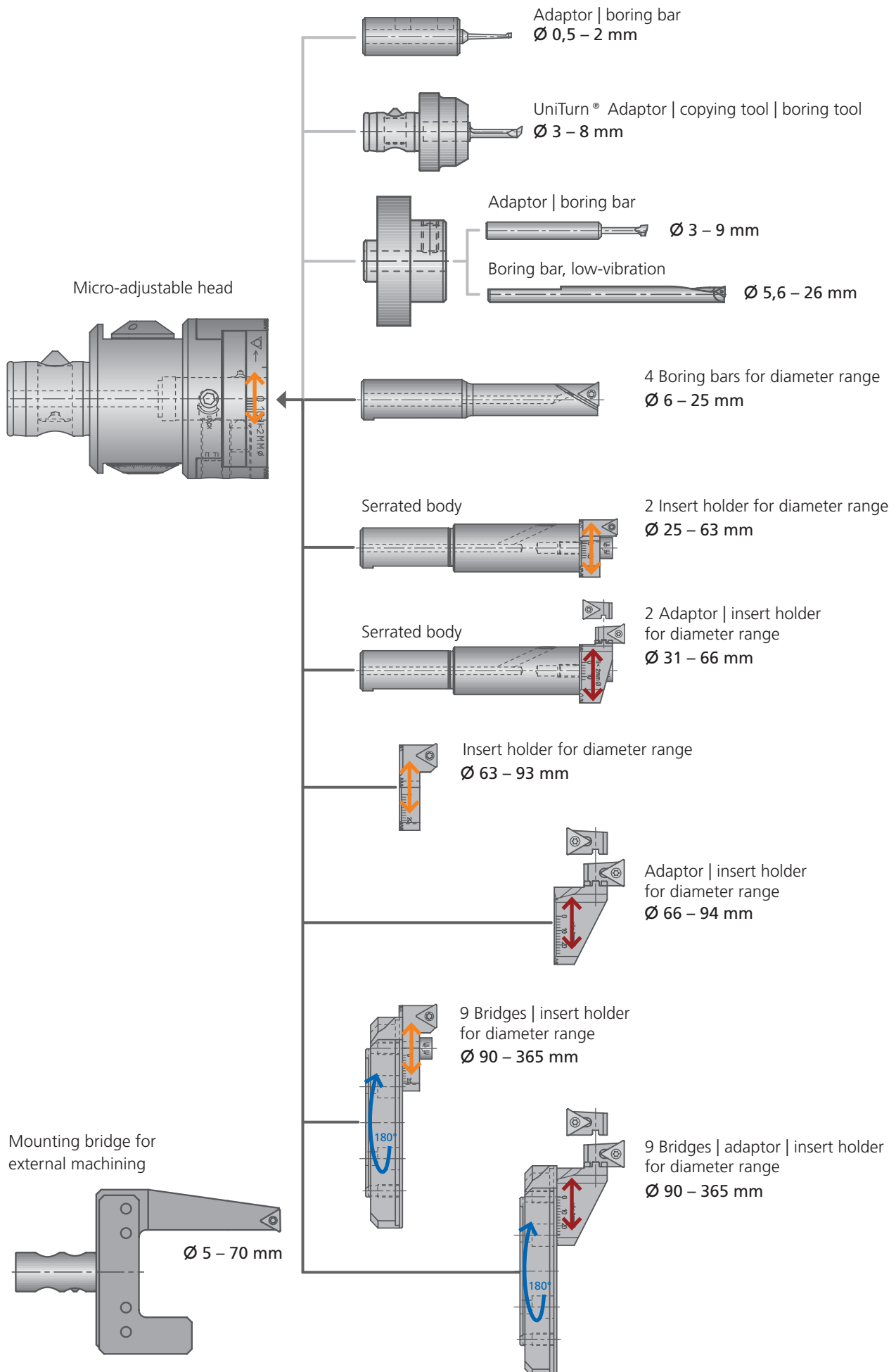
Boring bar with ABS® connection

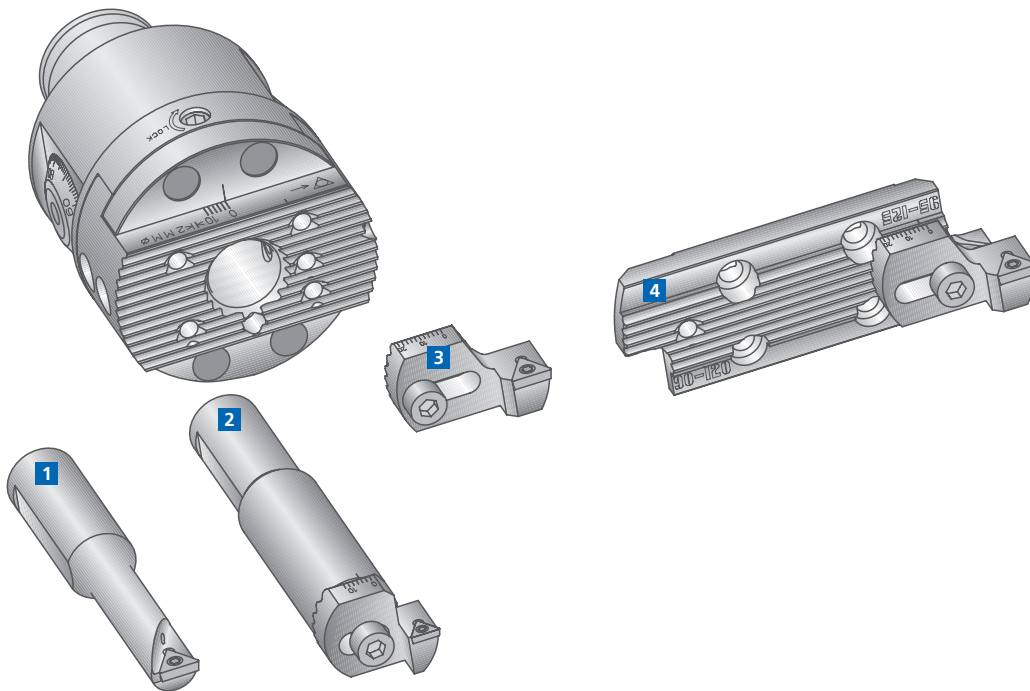
Ø 8 - 28 mm
Ø 11,9 - 30 mm
Ø 28 - 44 mm

KOMET
KomPass
DRILLING



Variation options





Fine adjustment system for diameters 6 to 365 mm:

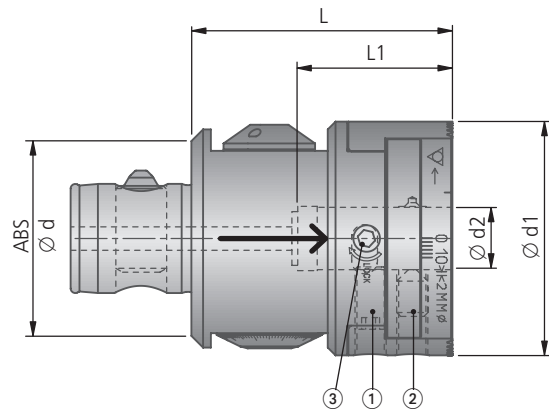
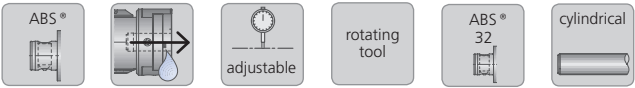
- | | | |
|----------|---------------|--|
| 1 | Ø 6 – 25 mm | achievable with 4 different boring bars |
| 2 | Ø 25 – 63 mm | achievable with serrated body and 2 different insert holders |
| 3 | Ø 63 – 93 mm | achievable with insert holder |
| 4 | Ø 90 – 365 mm | achievable with bridge and insert holder |

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 Ø
- Adjustment accuracy 0.002 mm Ø 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 Ø 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		Clamping screw ①	Clamping screw ②	Gripper screw ③
								 DIN913 Order No. Article	 Order No. Article	 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.

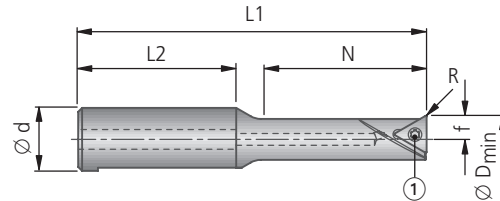
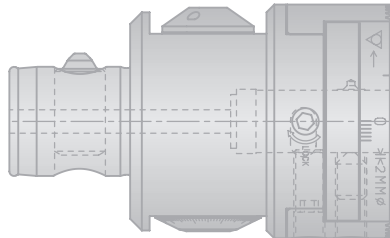
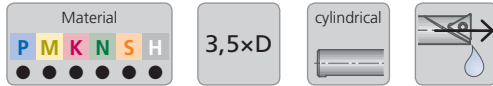
Supply includes micro-adjustable head: with screws ①, ② and ③.



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

Boring bar



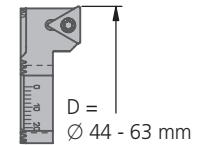
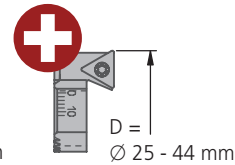
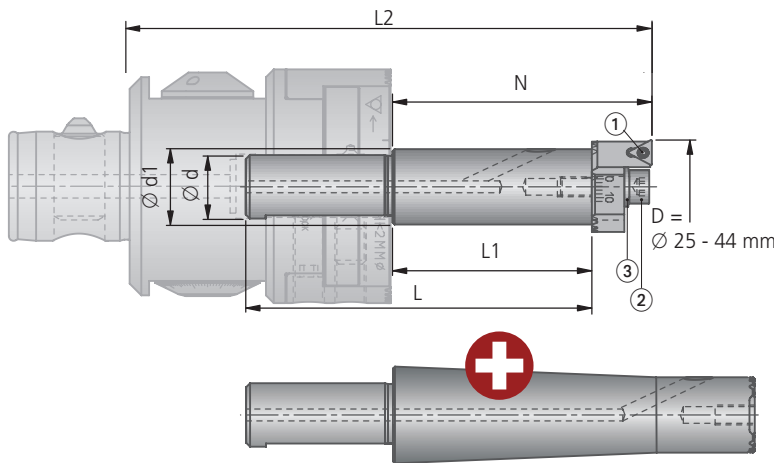
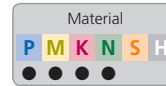
3,5xD																																																																																																																			
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Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see page 248.

Ø 25 – 63 mm

KOMET MicroKom® *hi.flex*

Serrated body | Insert holder



3,5xD									
Serrated body									
								Location screw 	Cup spring
Order No.	d	d1	N	L	L1	L2	kg	Order No. Article	Order No. Article
M05 90100	16	19	65	88,5	51,5	130,73	0,163	55011 05016	56771 10053
M05 90110	16	24	105	129,12	92,12	172	0,296	M5x16 ISO4762	D10x5,2x0,3

Supply includes serrated body: with location screw ② and cup spring ③.

Insert holder				Basic recommendation			
Ø D	Order No.	kg	Clamping screw Order No. Article	Indexable insert Order No. ▽▽ size	ISO Code	for workpiece material	
25 – 44	M05 20101	0,019	N00 56031 S/M2x4,9-6IP 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/M2,6x6,2-8IP 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.

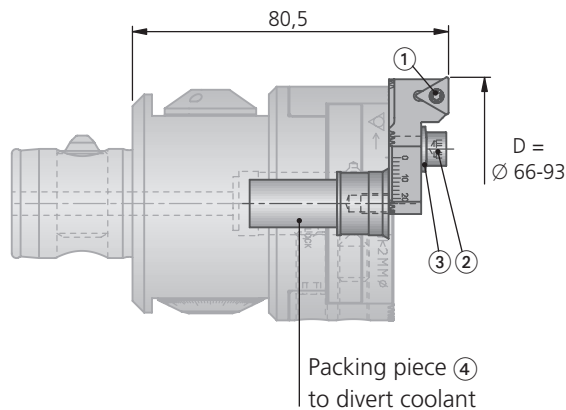
Supply includes insert holder M05 20110: with with clamping screw ① and location screw L02 30180 (M5x16)

Please order insert separately. Screwdriver see page 248.

● very good | ● good | ○ possible | ✗ not possible

Guideline values for fine boring and alternative inserts: Pages 96 – 97.

Insert holder



3,5xD									
Insert holder				Basic recommendation					
Ø D	Order No.	kg	Clamping screw ① Order No. Article	Indexable insert		for workpiece material			
								P	M
				-14	-12	W30		K	N
				Order No.	ISO Code			S	H
				WV size					
66 – 93	M05 20151	0,026	N00 56111 S/M2,6x6,2-8IP 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				

Supply includes insert holder: with with clamping screw ①.

Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.

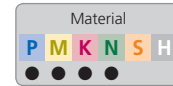
Screwdriver see page 248.

Accessories		
Location screw	Cup spring	Packing piece
Order No. Article	Order No.	Order No.
55011 05016 M5x16 ISO 4762	56771 10053	M05 90501

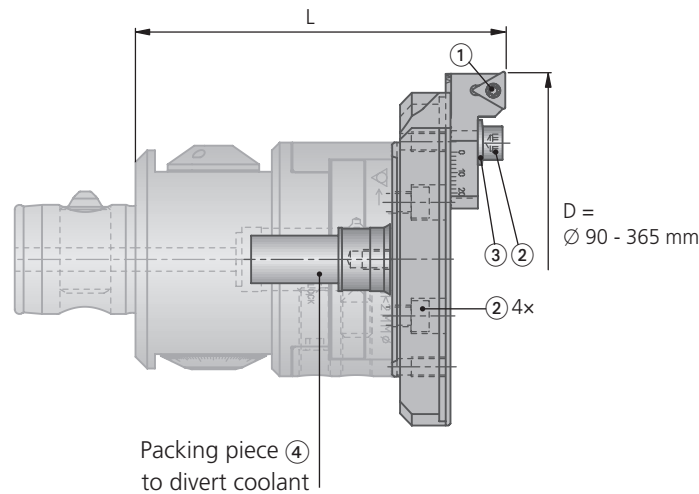
Ø 90 – 365 mm

KOMET MicroKom® *hi.flex*

Bridge | Insert holder



3,5xD



3,5xD								
Ø D	L	Bridge Order No.	Insert holder Order No.	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ISO Code ▽▽ size	Basic recommendation for workpiece material 		
90 - 125	94,62	M05 80101 0,147	M05 20151 0,026	N00 56111 S/M2,6x6,2-8IP 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						

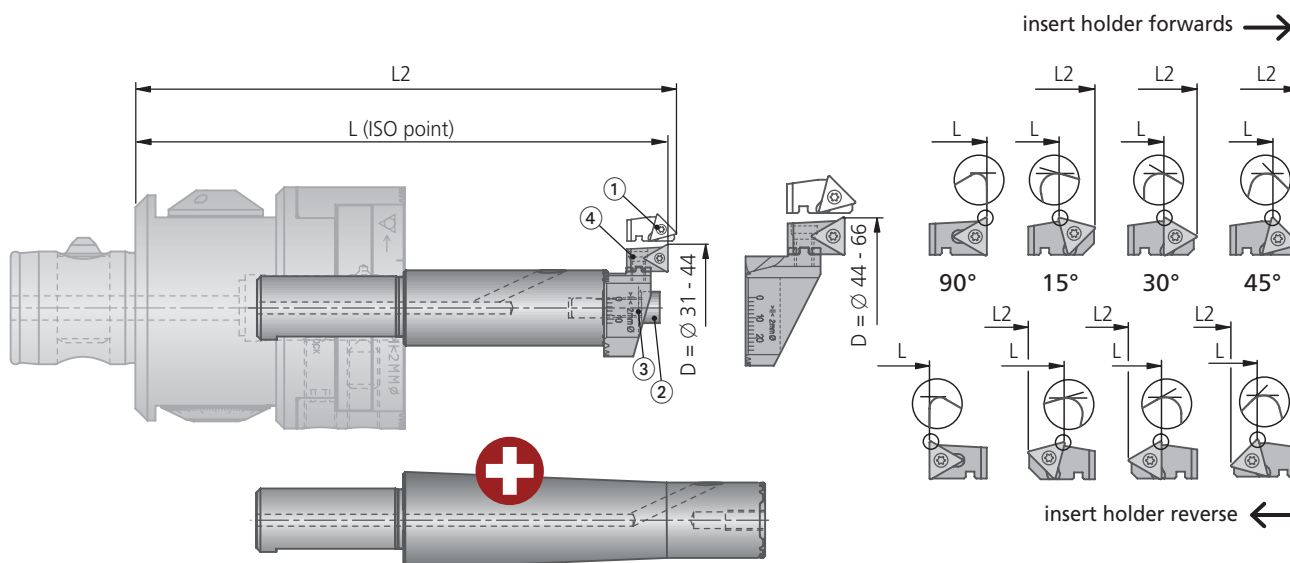
Supply includes insert holder: with with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and
packing piece ④ separately.
Screwdriver see page 248.

Accessories		
Location screw	Cup spring	Packing piece
②	③	④
Order No. Article	Order No.	Order No.
55011 05016 M5x16 ISO 4762	56771 10053 D10x5,2x0,3	M05 90501

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

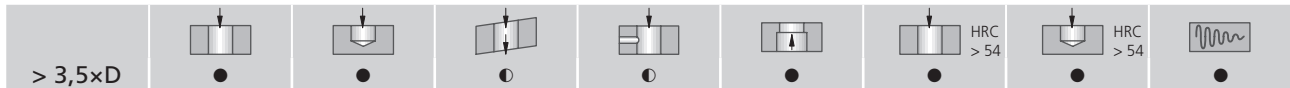
Guideline values for fine boring and alternative inserts: Pages 96 – 97.

Serrated body | Adaptor | Insert holder



		Serrated body		Adaptor		→ Insert holder forwards					
Ø D mm inch	Order No.	Location screw ②	Cup spring ③	Order No. mm · inch	Location screw ④	90°			15°		
		Order No. Article	Order No. Article		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					
Ø D mm inch	Order No.	Location screw ②	Cup spring ③	Order No. mm · inch	Location screw ④	90°			15°		
		Order No. Article	Order No. Article		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



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.

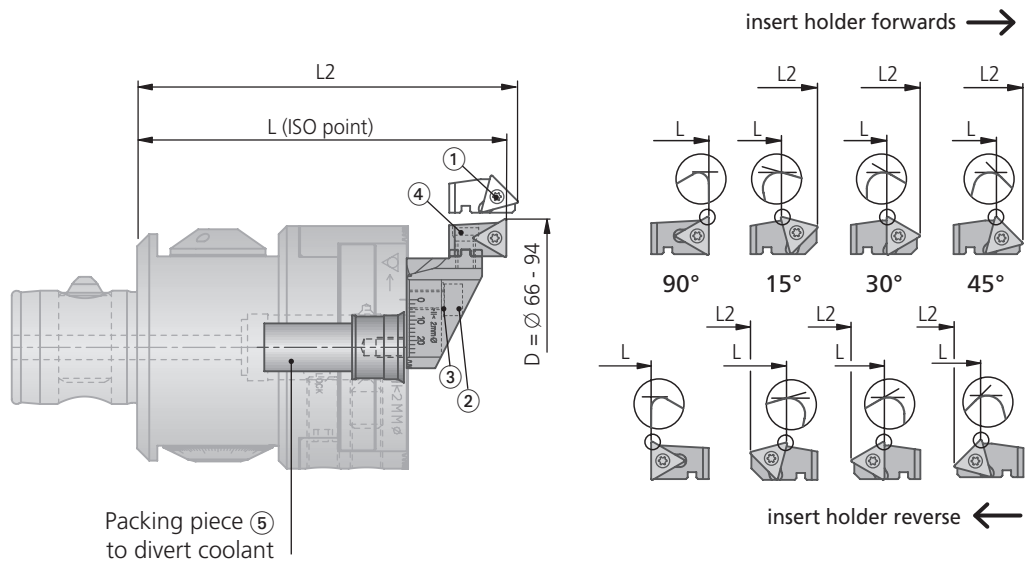
Please order insert separately. Screwdriver see page 248.

							Basic recommendation	
30°			45°			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
Order No.	L	L2	Order No.	L	L2			
M03 11220	128,3	138,3	M03 11320	129,3	138,3	0,002 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 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			

							Basic recommendation	
30°			45°			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
Order No.	L	L2	Order No.	L	L2			
M03 12220	121,2	115,7	M03 12320	120,2	115,7	0,002 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	
	162,52	156,97		161,52	156,99			
M03 12230	126,2	118,7	M03 12330	123,7	117,6	0,005 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	
	167,52	160,02		165,02	158,90			

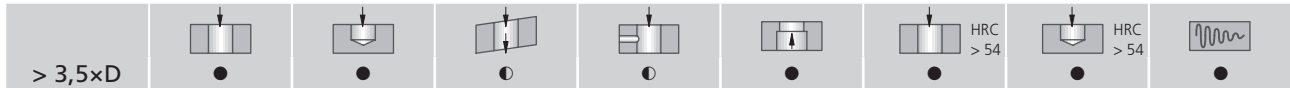
● very good | ● good | ○ possible | ✗ not possible

Adaptor | Insert holder



Adaptor			➔ Insert holder forwards					
Ø D	 Order No.	Location screw ④  Order No. Article	90° 			15° 		
			Order No.	L	L2	Order No.	L	L2
66 - 94	M05 21150	N00 56211 S/M3,5x7,3-10IP	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° 			15° 		
			Order No.	L	L2	Order No.	L	L2
66 - 94	M05 21150	N00 56211 S/M3,5x7,3-10IP	M03 12030	70,7	–	M03 12130	77,2	68,8



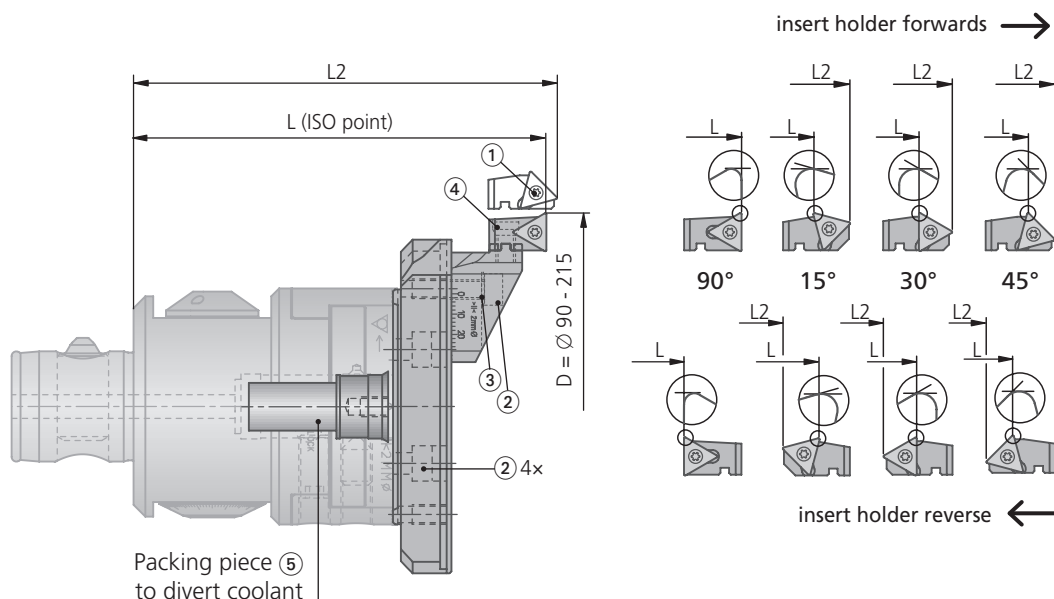
Supply includes adaptor: with location screw ④.
 Supply includes insert holder: with clamping screw ①.
 Please order insert, location screw ②, cup spring ③ and packing piece ⑤ separately.
 Screwdriver see page 248.

Accessories		
Location screw	Cup spring	Packing piece
		
Order No. Article	Order No.	Order No.
55011 05016 M5x16 ISO 4762	56771 10053	M05 90501

30°				45°				Clamping screw ①  Order No. Article	Basic recommendation	
Order No.	L	L2		Order No.	L	L2			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/M2,6x5,2-8IP 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  Order No. Article	Basic recommendation	
Order No.	L	L2		Order No.	L	L2			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/M2,6x5,2-8IP 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	

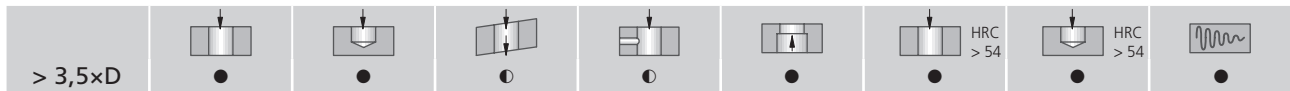
Bridge | Adaptor | Insert holder



	Bridge		Adaptor		→ Insert holder forwards						
Ø D	 Order No.	 kg	 Order No.	Location screw ④  Order No. Article	 90°			 15°			
					Order No.	L	L2	Order No.	L	L2	
90 - 125	M05 80101	0,147	M05 21150	N00 56211 S/M3,5x7,3-10IP	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					
Ø D				Location screw 						
	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/M3,5x7,3-10IP	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								



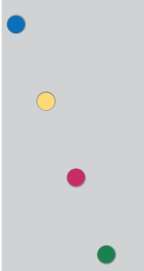
Supply includes adaptor: with location screw ④.

Supply includes insert holder: with clamping screw ①.

Please order insert, 5x location screw ②, cup spring ③ and packing piece ⑤ separately.

Screwdriver see page 248.

Accessories		
Location screw	Cup spring	Packing piece
		
Order No. Article	Order No.	Order No.
55011 05016 M5x16 ISO 4762	56771 10053	M05 90501

							Basic recommendation		
30°			45°			kg	Clamping screw ①	Indexable insert -14 -12 W30	for workpiece material
Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	P M K N S H
M03 11230	99,2	106,7	M03 11330	101,5	107,6	0,009	N00 56101 S/M2,6x5,2-8IP 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	
	101,2	108,7		103,5	109,6				
	103,2	110,7		105,5	111,6				
	106,2	113,7		108,5	114,6				

							Basic recommendation		
30°			45°			kg	Clamping screw ①	Indexable insert -14 -12 W30	for workpiece material
Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	P M K N S H
M03 12230	91,2	81,7	M03 12330	86,7	80,6	0,009	N00 56101 S/M2,6x5,2-8IP 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	
	92,2	84,7		89,7	83,6				
	94,2	86,7		91,7	85,6				
	97,2	89,7		94,7	88,6				

● very good | ● good | ○ possible | ✗ not possible

Recommended cutting data

Guideline values for fine boring					V _C	f (mm/rev)					
Material group	Strength R _m (N/mm ²)	Hardness HB	Material	Material example, material code DIN		max. feed 3,5×D					
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	Ø 6 – 7,9	Ø 8 – 11,9	Ø 12 – 25	Ø 25 – 44	Ø 44 – 94	Ø 90 – 365
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250						
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	300						
	3.0	> 900	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240						
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	200						
	4.1		HSS		120						
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, etc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50						
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	30						
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200						
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	180						
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120						
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240						
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200						
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180						
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180						
	10.0	> 600	250 spheroidal graphite cast iron, perlite malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160						
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140						
	10.2		300 vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120						
N	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400						
	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300						
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500						
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350						
	14.0		100 cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300						
H	15.0	1400	hardened steels < 45 HRC		80						
	16.0	1800	hardened steels > 45 HRC		60						

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

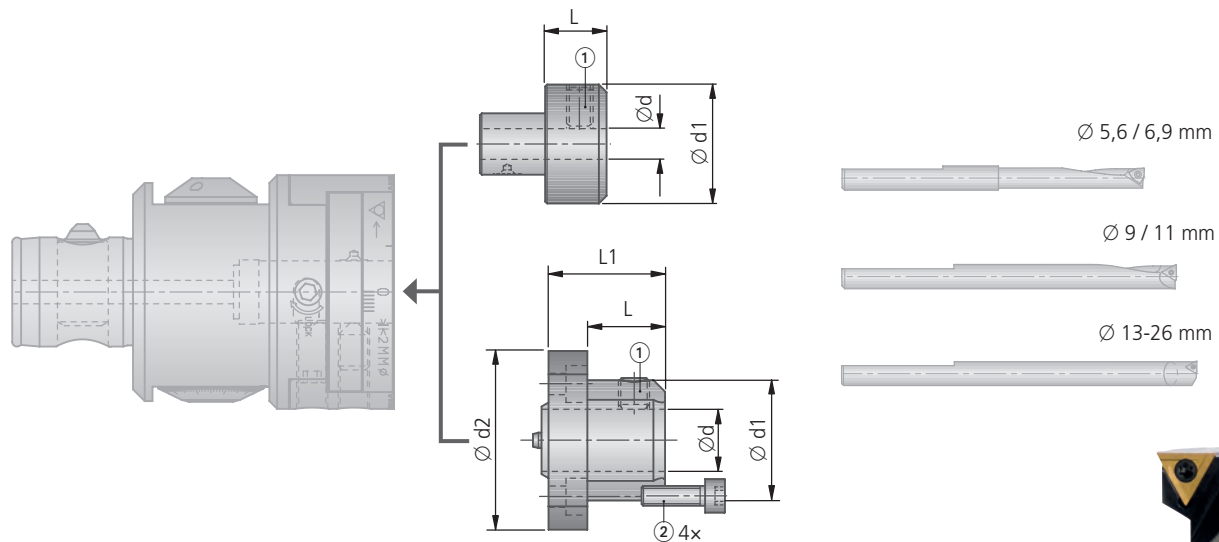
Important: See page 247 for more application details and safety notes !

Alternative inserts

for better chip control			
Insert size	Indexable insert		for workpiece material
	Order No.	ISO-Code	
			P M K N S H
W..04...	→ only for forward machining: W30 04120.3232 W30 04120.3977	TOHX 06T102EL-US12 CK32 TOHX 06T1ZZEL-39G12 BK77	
W..14...	→ only for forward machining: W30 14120.3232 W30 14120.3977	TOHX 090202EL-US12 CK32 TOHX 0902ZZEL-39G12 BK77	
W..26...	→ only for forward machining: W30 26120.3232 W30 26120.3977	TOHX 140304-US12 CK32 TOHX 1403ZZEL-39G12 BK77	
for better surface			
W..04...	W57 04180.048430 W57 04180.0432	TOGX 060104 EN-18 BK8430 TOGX 060104 EN-18 CK32	
W..14...	W57 14180.048430 W57 14180.0432	TOGX 090204 EN-18 BK8430 TOGX 090204 EN-18 CK32	
W..26...	W57 26180.048430 W57 26180.0432	TOGX 140304 EN-18 BK8430 TOGX 140304 EN-18 CK32	

for higher cutting speed			
Insert size	Indexable insert		for workpiece material
	Order No.	ISO-Code	
			P M K N S H
W..04...	W57 04140.023210 W30 04990.0257 W30 04990.0255 W57 04120.027710 → only for forward machining: W30 04120.0238	TOGX 06T102EN-14 CK3210 TOGX 06T102TN CBN57 TOGX 06T102FN PKD55 TOGX 06T102FN-12 BK7710 TOHX 06T102EL-G12 CK38	
W..14...	W57 14140.043210 W30 14990.0457 W30 14990.0455 W57 14120.047710 → only for forward machining: W30 14120.0238	TOGX 090204EN-14 CK3210 TOGX 090204TN CBN57 TOGX 090204FN PKD55 TOGX 090204FN-12 BK7710 TOHX 090202EL-G12 CK38	
W..26...	W57 26140.043210 W30 26990.0457 W30 26990.0455 W57 26120.047710 → only for forward machining: W30 26120.0438	TOGX 140304EN-14 CK3210 TOGX 140304TN CBN57 TOGX 140304FN PKD55 TOGX 140304FN-12 BK7710 TOHX 140304EL-G12 CK38	
for greater strength			
W..04...	W57 04140.023210 W30 04990.0255 → only for forward machining: W30 04060.036110 W30 04200.0321	TOGX 06T102EN-14 CK3210 TOGX 06T102FN PKD55 TOHX 06T103EL-G06 BK6110 TOHX 06T103FL-G20 K10	
W..14...	W57 14140.043210 W30 14990.0255 → only for forward machining: W30 14060.046110 W30 14200.0421	TOGX 090204EN-14 CK3210 TOGX 090204FN PKD55 TOHX 090204EL-G06 BK6110 TOHX 090204FL-G20 K10	
W..26...	W57 26140.043210 W30 26990.0455 → only for forward machining: W30 26060.046110 W30 26200.0521	TOGX 140304EN-14 CK3210 TOGX 140304FN PKD55 TOHX 140304EL-G06 BK6110 TOHX 140305FL-G20 K10	

Adaptor for clamping vibration dampened fine boring bars



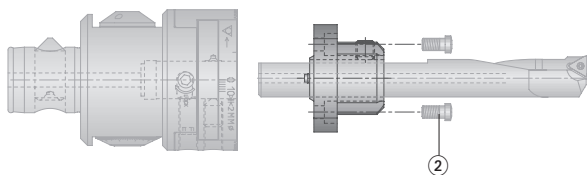
Adaptor									Accessories
Order No.	Ø d	Ø d1	Ø d2	L	L1		Clamping screw ①		Location screw
							 DIN913	Order No.	 ②
M05 90200	6	31	–	16	–	0,112	M8x10	55051 08010	–
M05 90210	8	31	–	16	–	0,107	M8x10	55051 08010	
M05 90220	10	31	46	15	25	0,155	M8x10	55051 08010	55011 05016 M5x16 ISO 4762
M05 90230	12	31	46	15	25	0,147	M8x10	55051 08010	
M05 90240	16	31	46	20	30	0,146	M8x8	55051 08008	

Supply includes: Adaptor with clamping screw ①. Please order location screw ② separately.

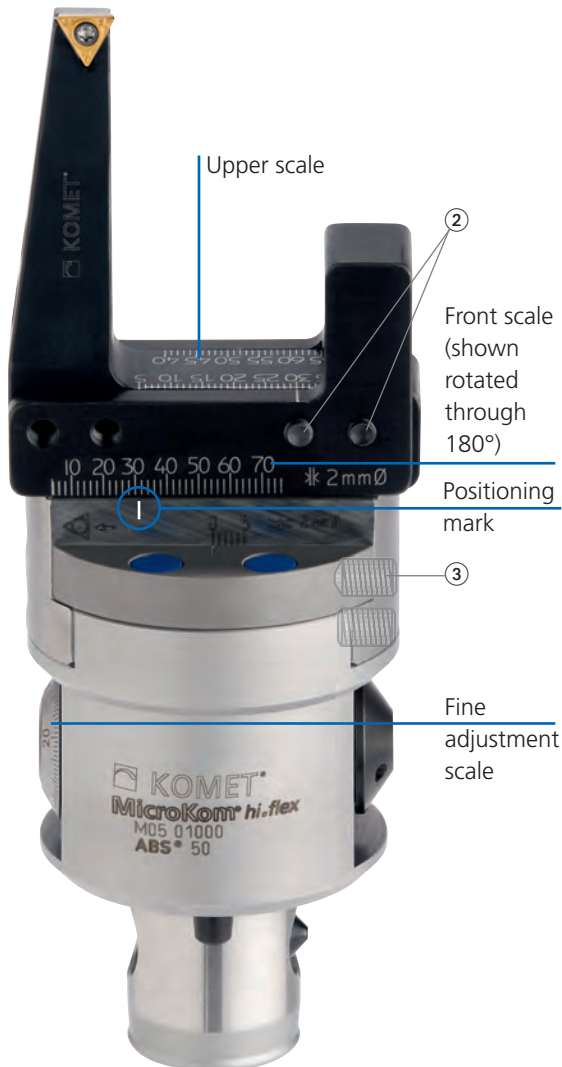
Instruction for adaptor M05 90240

Please note:

Before tightening the location screw ②, centre the adaptor with shank diameter for the boring bar on the micro-adjustable head.

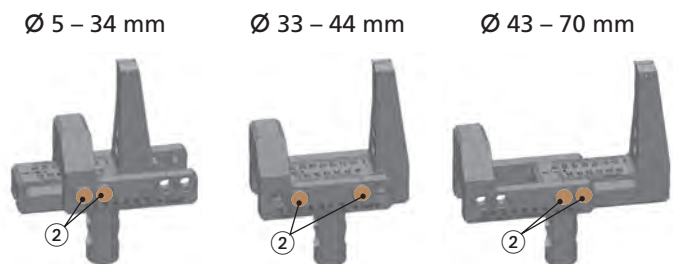


Mounting bridge for external machining Ø 5 – 70 mm

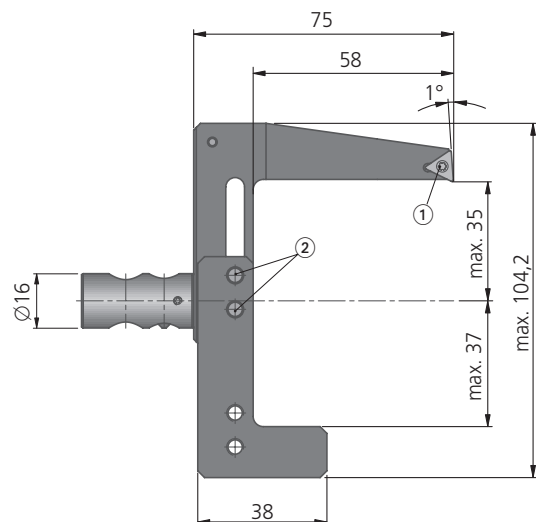


Setting the diameter

- 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!**



- 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		
Ø D	Order No.	Clamping screw ①  Order No. Article	Cylindrical screw ② Order No. Article	 -12 Order No. ▽▽ size	 -14  W30 ISO Code	for workpiece material
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.

KOMET MicroKom *BluFlex*®

Page

Precision boring system

Micro-adjustable head with ABS® connection	104
Boring bar Ø 6 - 26 mm	106
Serrated body Ø 25 - 66 mm	107
Insert holder Ø 66 - 94 mm	108
Bridge / insert holder Ø 90 - 365 mm	109

Recommended cutting data

116

Alternative inserts

117

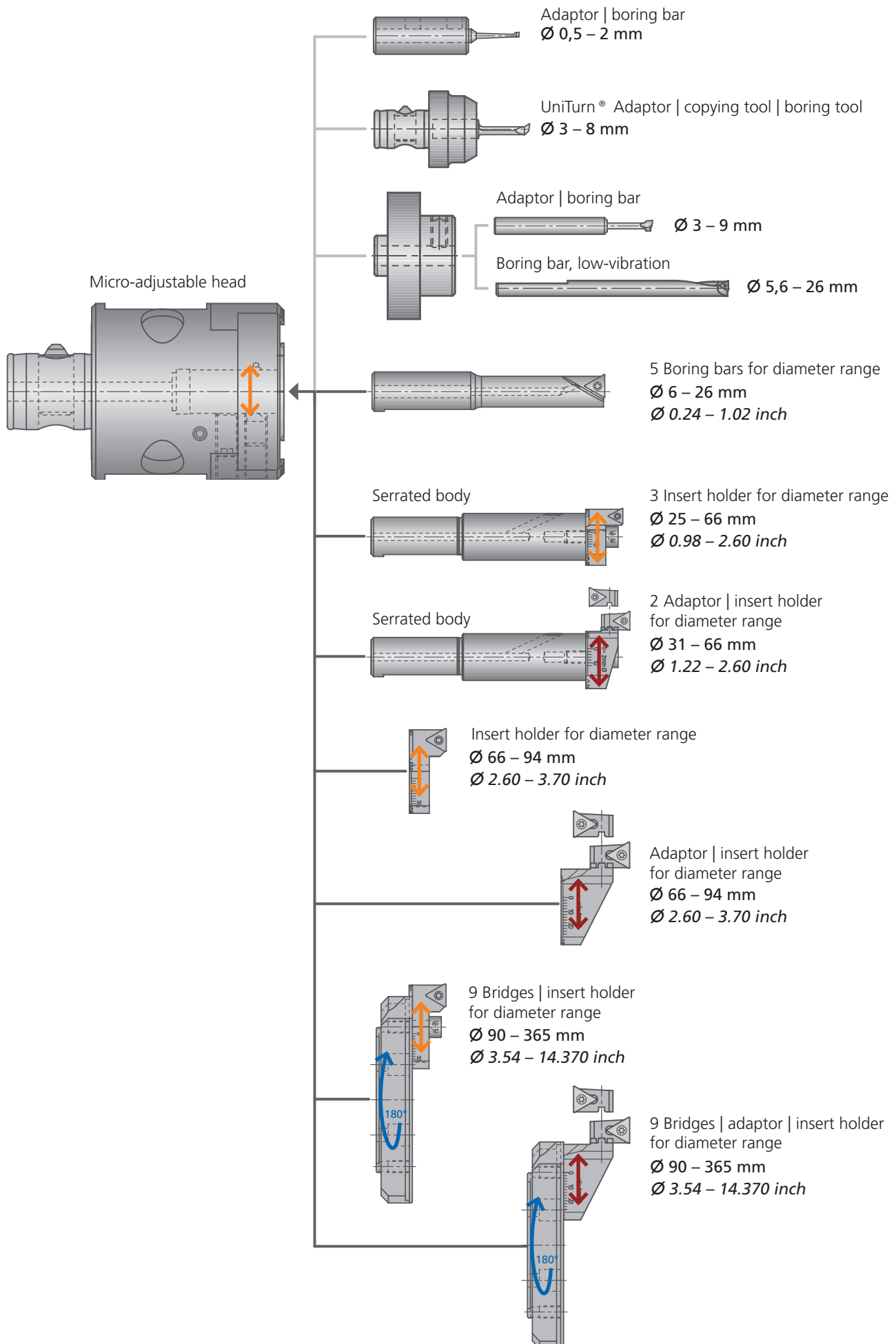
BENEFITS for you:

- 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



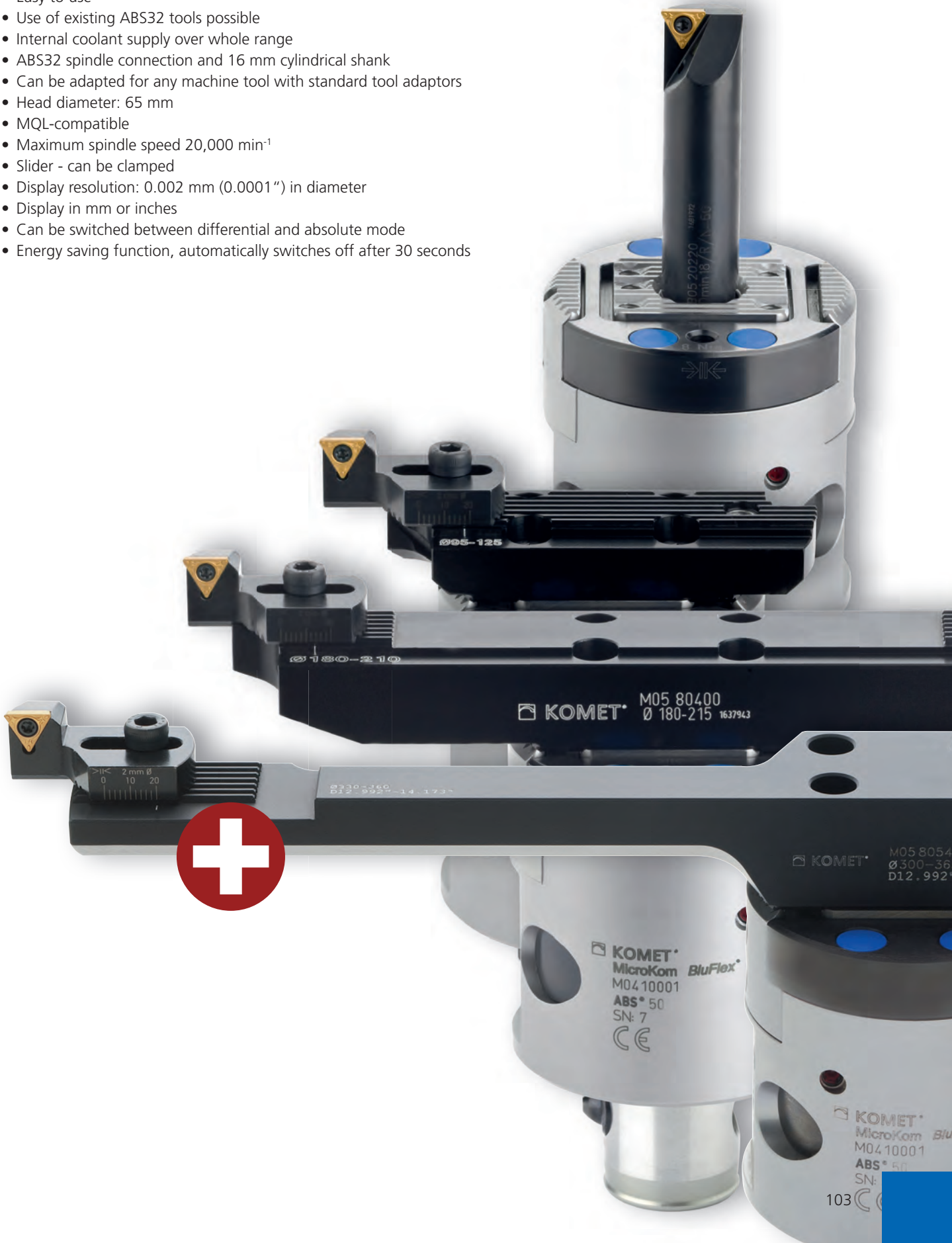
Finger on the pulse of time –
The clever alternative:
„MicroKom *BluFlex*“ APP for use as
display unit in Google Play™ for
Android™ smartphones.

Variation options



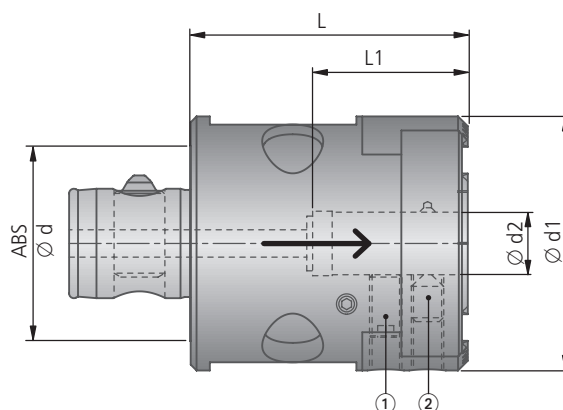
Features:

- Diameter range 0.5-365 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		Clamping screw	Gripper screw
									①	②
									 DIN913	
									Order No. Article	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

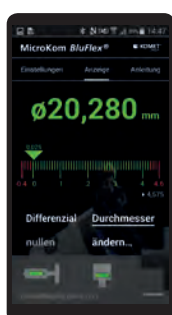
Adjustment must be in line with cutting parameters and spindle speed.



Display unit	
	Rubber sleeve with clip ④
Order No.	Order No.
E51 00000	E51 00010



Adjustment key	
	Sleeve ⑤
Order No.	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.



Basic set

Order No. M04 10010

Components:

- 1× Micro-adjustable head
- 1× Display unit
- 1× Adjustment key
- 1× Operating Instructions
- 6× Batteries

Tool set

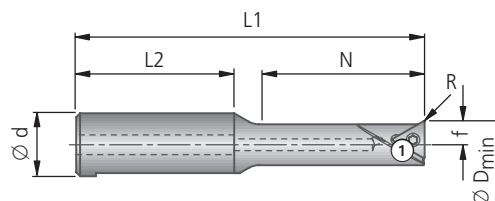
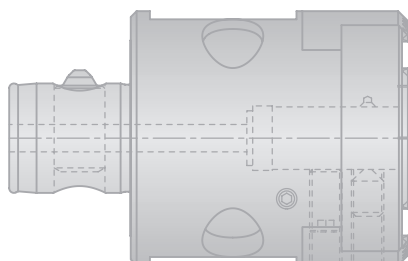
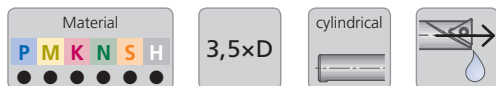
Ø 6 – 125 mm

Order No. M04 10020



Components	Qty.	Article
M05 20101	1	Insert holder Ø 25-44
M05 20151	1	Insert holder Ø 44-125
M05 80101	1	Bridge Ø 90-125
M05 90100	1	Serrated body
M05 90501	1	Packing piece
B05 20100	1	Boring bar Ø 6-10
B05 20140	1	Boring bar Ø 10-14
B05 20180	1	Boring bar Ø 14-18
B05 20220	1	Boring bar Ø 18-22
B05 20260	1	Boring bar Ø 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

Boring bar



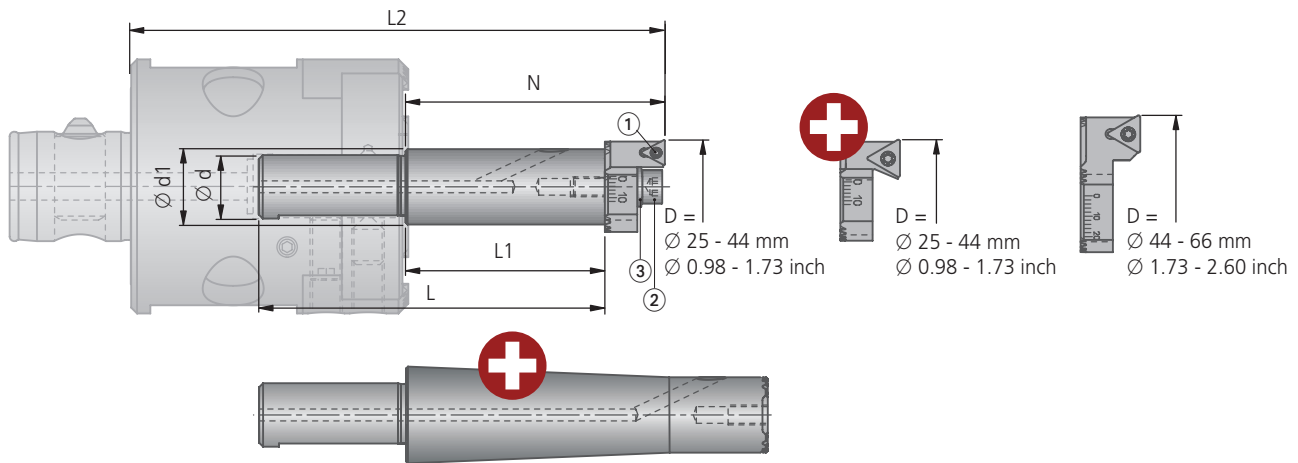
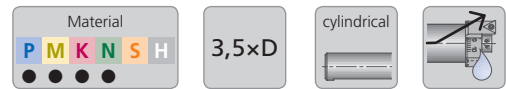
3,5xD																			
Boring bar										Basic recommendation									
Ø D mm inch	Order No.	Ød	L1	L2	N	f	R		 ① Order No. Article	 Order No. ▽▽ size		ISO Code		for workpiece material P M K N S H					
6 0.24	B05 20100	16	71,7	40	21 0.83	3	0,1	0,06	N00 56011 S/M1,8x2,9-5IP 0,38 Nm	W00 04120.018440 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/M2,6x5,2-8IP 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								
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/M3,5x7,3-10IP 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								

Supply includes boring bar: with clamping screw ①.
Please order insert separately. Screwdriver see page 248.

Ø 25 – 66 mm

KOMET MicroKom *BluFlex*®

Serrated body | Insert holder



3,5xD									
Serrated body									
								Location screw 	Cup spring
Order No.	d	d1	N	L	L1	L2		Order No. Article	Order No. Article
M05 90100	16	19	65	88,5	51,5	134,73	0,163	55011 05016	56771 10053
M05 90110	16	24	105	129,12	92,12	176	0,296	M5x16 ISO4762	D10x5,2x0,3

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 Order No. Article	 Order No. ▽▽ size	 ISO Code	for workpiece material	
25 – 44	M05 20101	0,019	N00 56031 S/M2x4,9-6IP 0,62 Nm	W57 04140.0260	TOGX 06T102EN-14 BK60		
0.98 – 1.73	M05 20601			W30 04060.032710 W30 04060.037615 W57 04120.0223	TOHX 06T103EL-G06 BK2730 TOHX 06T103EL-G06 BK7615 TOGX 06T102FN-12 K10		
25 – 44	M05 20110	0,019	N00 56111 S/M2,6x6,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60		
0.98 – 1.73	M05 20610			W30 14060.042710 W30 14060.047615 W57 14120.0423	TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10		
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:

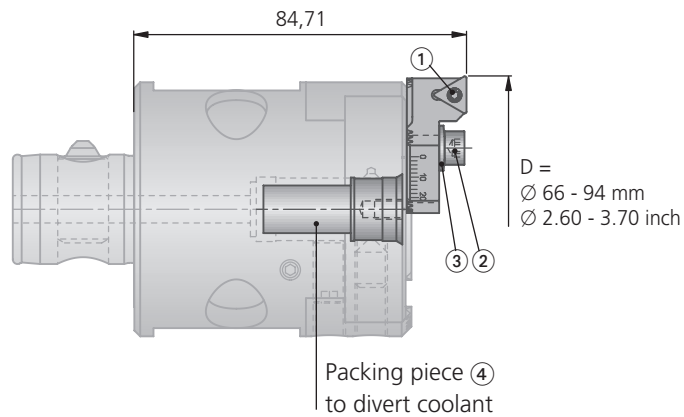
with with clamping screw ① and location screw L02 30180 (M5x16)

Please order insert separately. Screwdriver see page 248.

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

Guideline values for fine boring and alternative inserts: Pages 116-117.

Insert holder



3,5xD								
Insert holder				Basic recommendation				
Ø D mm inch	 Order No.	 kg	Clamping screw ①	Indexable insert			for workpiece material	
			 Order No. Article	-14 Order No. ▽ size	-12 ISO Code	W30		
66 – 94	M05 20151	0,026	N00 56111 S/M2,6x6,2-8IP 1,28 Nm	W57 14140.0460	TOGX 090204EN-14 BK60			
2.60 – 3.70	M05 20651			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.

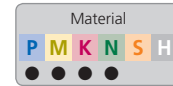
Screwdriver see page 248.

Accessories		
Location screw 	Cup spring 	Packing piece
Order No. Article	Order No.	Order No.
55011 05016 M5x16 ISO 4762	56771 10053 D10x5,2x0,3	M05 90501

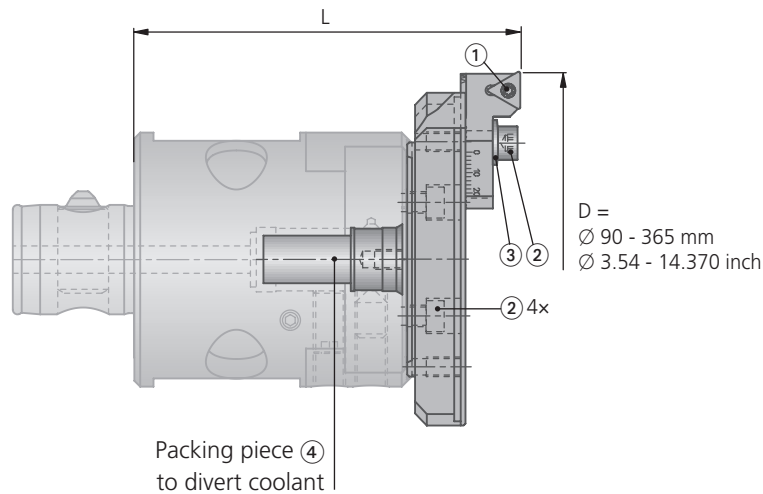
Ø 90 – 365 mm

KOMET MicroKom *BluFlex*®

Bridge | Insert holder



3,5xD



3,5xD								
Ø D mm inch	L	Bridge Order No.	Insert holder Order No. mm inch	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ISO Code ▽▽ size	Basic recommendation for workpiece material 		
90 - 125 3.54 - 4.92	98,72	M05 80101 0,147	M05 20151 M05 20651 0,026	N00 56111 S/M2,6x6,2-8IP 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						

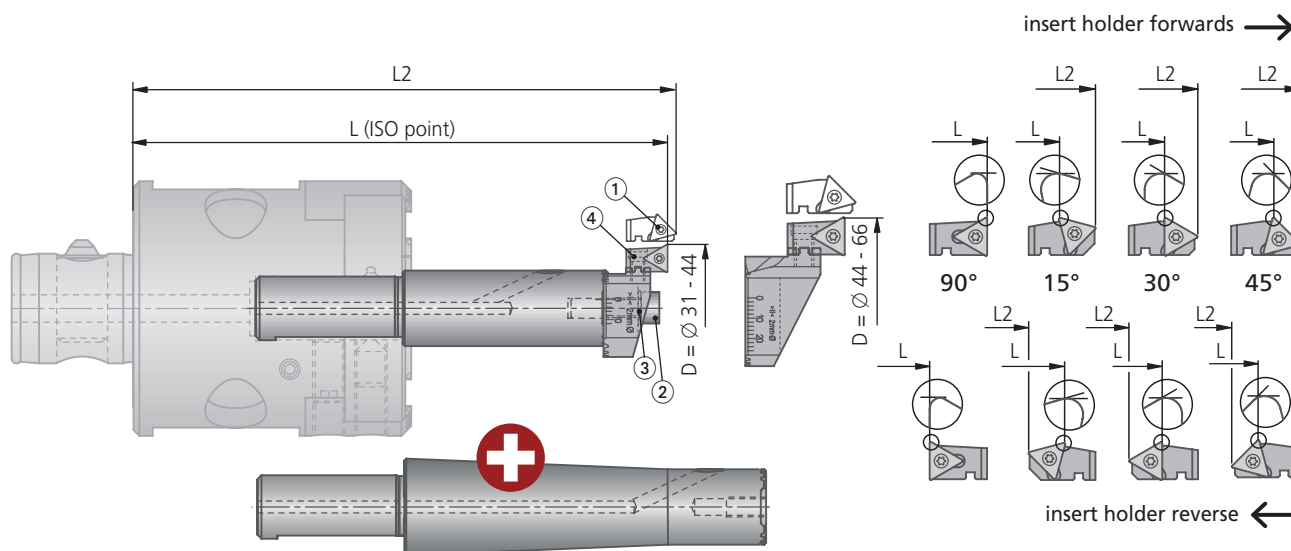
Supply includes insert holder: with with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and
packing piece ④ separately.
Screwdriver see page 248.

Accessories		
Location screw	Cup spring	Packing piece
 Order No. Article	 Order No.	 Order No.
55011 05016 M5x16 ISO 4762	56771 10053 D10x5,2x0,3	M05 90501

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

Guideline values for fine boring and alternative inserts: Pages 116-117.

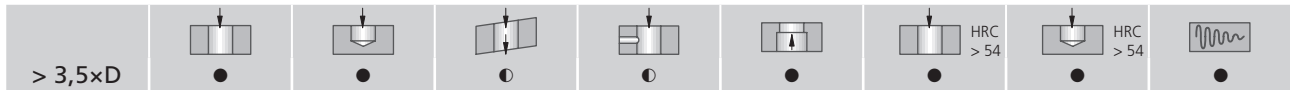
Serrated body | Adaptor | Insert holder



		Serrated body		Adaptor		→ Insert holder forwards					
Ø D mm inch	Order No.	Location screw ②	Cup spring ③	Order No. mm · inch	Location screw ④	90°			15°		
		Order No. Article	Order No. Article		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					
Ø D mm inch	Order No.	Location screw ②	Cup spring ③	Order No. mm · inch	Location screw ④	90°			15°		
		Order No. Article	Order No. Article		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

Serrated body | Adaptor | Insert holder



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.

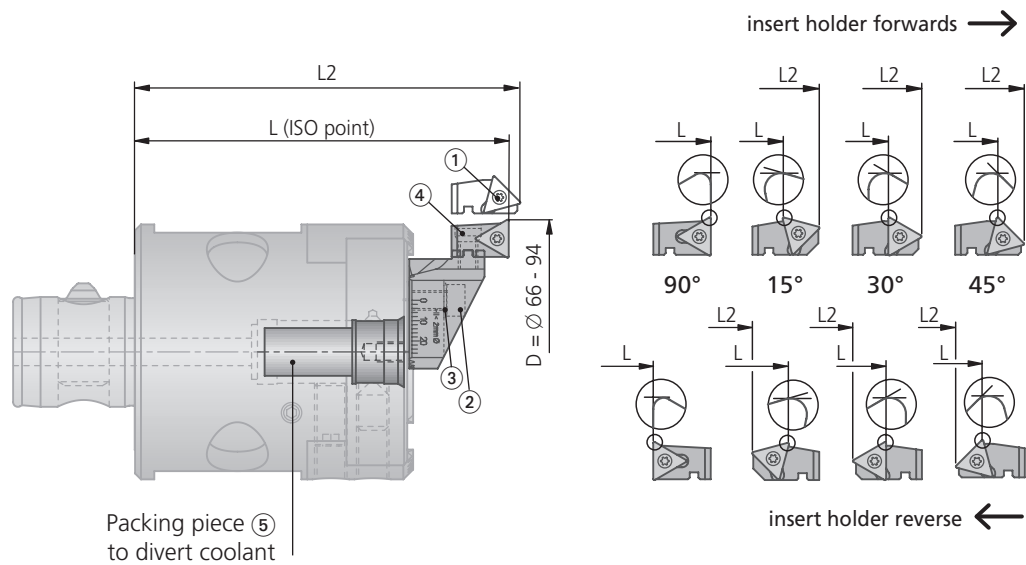
Please order insert separately. Screwdriver see page 248.

							Basic recommendation	
30°			45°			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
Order No.	L	L2	Order No.	L	L2			
M03 11220	132,35	142,35	M03 11320	133,35	142,35	0,002 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 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			

							Basic recommendation	
30°			45°			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
Order No.	L	L2	Order No.	L	L2			
M03 12220	125,25	119,75	M03 12320	124,25	119,75	0,002 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	
	166,52	160,97		165,52	160,99			
M03 12230	130,25	122,75	M03 12330	127,75	121,65	0,005 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	
	171,52	164,02		169,02	162,90			

● very good | ● good | ○ possible | ✗ not possible

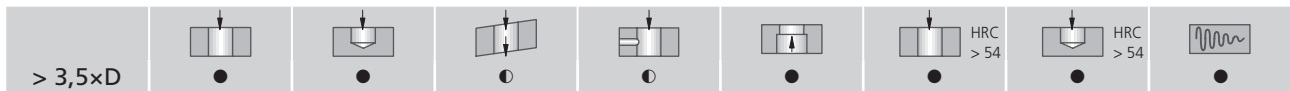
Adaptor | Insert holder



Adaptor			→ Insert holder forwards					
Ø D mm inch	 Order No. mm · inch	Location screw ④  Order No. Article	90° 			15° 		
			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					
Ø D mm inch	 Order No. mm · inch	Location screw ④  Order No. Article	90° 			15° 		
			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

Adaptor | Insert holder



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 page 248.

Accessories		
Location screw	Cup spring	Packing piece
		
Order No. Article	Order No.	Order No.
55011 05016 M5×16 ISO 4762	56771 10053	M05 90501

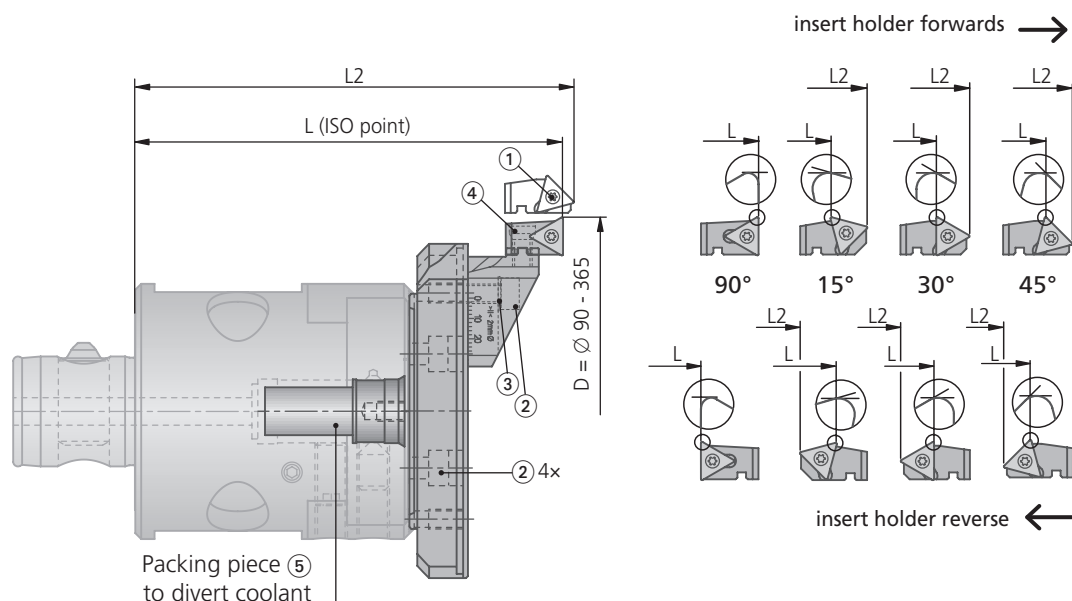
								Basic recommendation	
30° 			45° 				Clamping screw ① 	 -14  -12  W30	for workpiece material 
Order No.	L	L2	Order No.	L	L2				
M03 11230	89,23	96,73	M03 11330	91,53	97,63	0,005	N00 56101 S/M2,6x5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14060.042710 TOHX 090204EL-G06 BK2710 W30 14060.047615 TOHX 090204EL-G06 BK7615 W57 14120.0423 TOGX 090204FN-12 K10	

								Basic recommendation	
30° 			45° 			 kg	Clamping screw ①  Order No. Article	 -14  -12  W30 Order No. ISO code ▽▽ size	for workpiece material 
Order No.	L	L2	Order No.	L	L2				
M03 12230	80,23	72,73	M03 12330	77,73	71,63	0,005	N00 56101 S/M2,6x5,2-8IP 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	

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

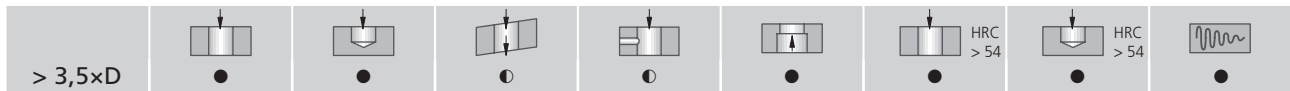
Guideline values for fine boring and alternative inserts: Pages 116-117.

Bridge | Adaptor | Insert holder



	Bridge		Adaptor		→ Insert holder forwards						
Ø D mm inch	 Order No.	 kg	 Order No. mm · inch	Location screw ④  Order No. Article	90° 			15° 			
					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						
Ø D mm inch	 Order No.	 kg	 Order No. mm · inch	Location screw ④  Order No. Article	 90° Order No. L L2			 15° 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									



Supply includes adaptor: with location screw ④.

Supply includes insert holder: with clamping screw ①.

Please order insert, 5x location screw ②, cup spring ③ and packing piece ⑤ separately.

Screwdriver see page 248.

Accessories		
Location screw	Cup spring	Packing piece
 ②	 ③	 ⑤
Order No. Article	Order No.	Order No.
55011 05016 M5x16 ISO 4762	56771 10053	M05 90501

							Basic recommendation			
	30° 			45° 			 kg	Clamping screw ①  	 Indexable insert  -14  -12 W30	for workpiece material
	Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	P M K N S H
	M03 11230	103,24	110,74		105,54	111,64		N00 56101 S/M2,6×5,2-8IP 1,28 Nm 0,009	 W30	   
		105,24	112,74		107,54	113,64				
		107,24	114,74		109,54	115,64				
		110,24	117,74	112,54	118,64					
							Order No. ISO code ▽▽ size			
							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			

							Basic recommendation			
	30° 			45° 				Clamping screw ① 	 Indexable insert -14 -12 W30	for workpiece material
	Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	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				
		101,24	93,74		98,74	92,64				
							W30 14420.047615 TOHX 090204ER-G12 BK7615			
							W57 14120.0423 TOGX 090204FN-12 K10			
							W30 14990.0440 TOGX 090204TN CBN40			

● very good | ○ good | ○ possible | ✗ not possible

Recommended cutting data

Guideline values for fine boring					V _C	f (mm/rev)					
Material group	Strength R _m (N/mm ²)	Hardness HB	Material	Material example, material code DIN		max. feed 3,5×D					
					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 page 247 for more application details and safety notes !

3,5 × D

KOMET MicroKom *BluFlex*®

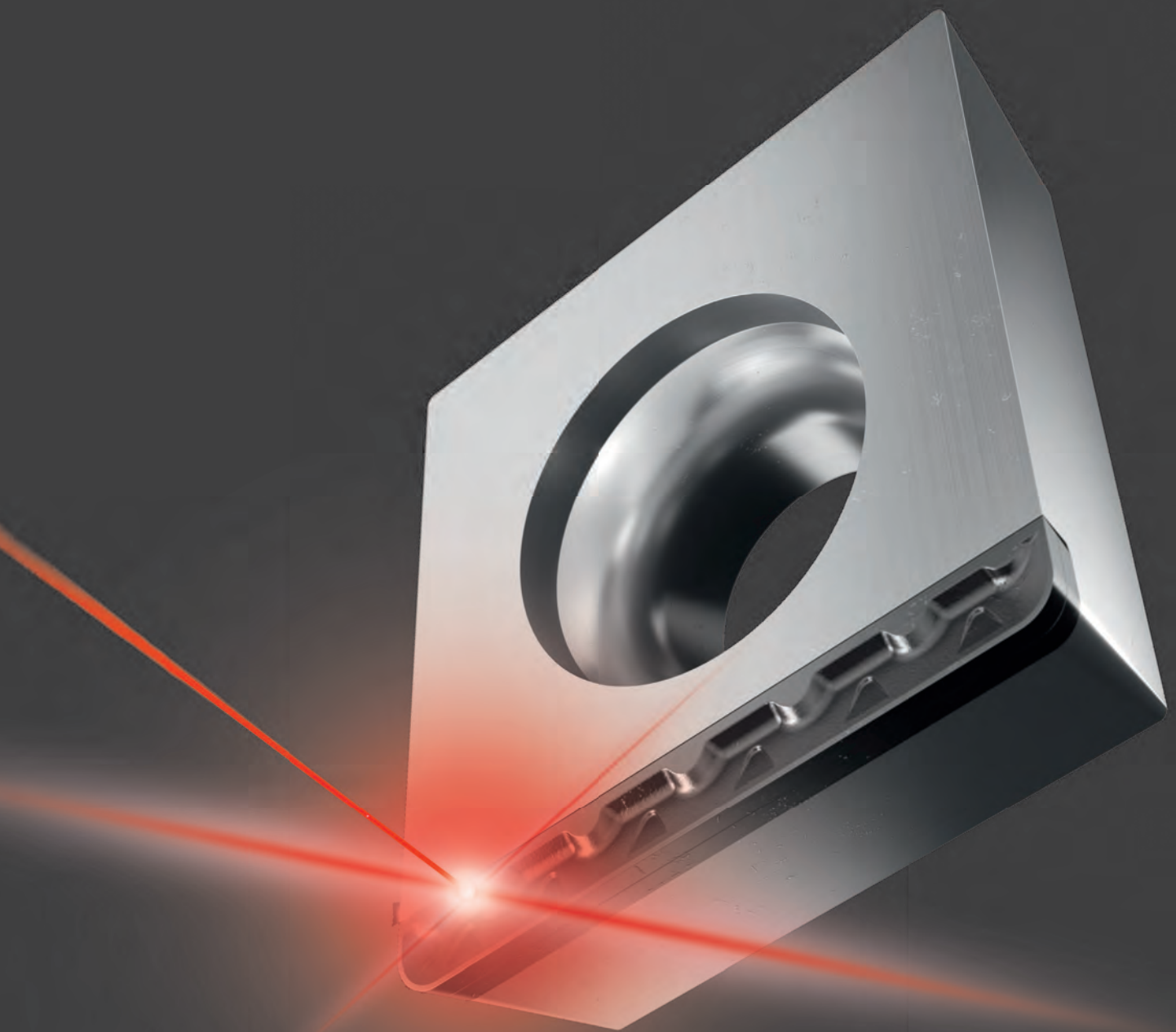
Alternative inserts

for better chip control			
Insert size	Indexable insert		for workpiece material
	Order No.	ISO-Code	
			P M K N S H
W..04...	→ only for forward machining: W30 04120.3232 W30 04120.3977	TOHX 06T102EL-US12 CK32 TOHX 06T1ZZEL-39G12 BK77	
W..14...	→ only for forward machining: W30 14120.3232 W30 14120.3977	TOHX 090202EL-US12 CK32 TOHX 0902ZZEL-39G12 BK77	
W..26...	→ only for forward machining: W30 26120.3232 W30 26120.3977	TOHX 140304-US12 CK32 TOHX 1403ZZEL-39G12 BK77	
for better surface			
W..04...	W57 04180.048430 W57 04180.0432	TOGX 060104 EN-18 BK8430 TOGX 060104 EN-18 CK32	
W..14...	W57 14180.048430 W57 14180.0432	TOGX 090204 EN-18 BK8430 TOGX 090204 EN-18 CK32	
W..26...	W57 26180.048430 W57 26180.0432	TOGX 140304 EN-18 BK8430 TOGX 140304 EN-18 CK32	

for higher cutting speed			
Insert size	Indexable insert		for workpiece material
	Order No.	ISO-Code	
			P M K N S H
W..04...	W57 04140.023210 W30 04990.0257 W30 04990.0255 W57 04120.027710 → only for forward machining: W30 04120.0238	TOGX 06T102EN-14 CK3210 TOGX 06T102TN CBN57 TOGX 06T102FN PKD55 TOGX 06T102FN-12 BK7710 TOHX 06T102EL-G12 CK38	
W..14...	W57 14140.043210 W30 14990.0457 W30 14990.0455 W57 14120.047710 → only for forward machining: W30 14120.0238	TOGX 090204EN-14 CK3210 TOGX 090204TN CBN57 TOGX 090204FN PKD55 TOGX 090204FN-12 BK7710 TOHX 090202EL-G12 CK38	
W..26...	W57 26140.043210 W30 26990.0457 W30 26990.0455 W57 26120.047710 → only for forward machining: W30 26120.0438	TOGX 140304EN-14 CK3210 TOGX 140304TN CBN57 TOGX 140304FN PKD55 TOGX 140304FN-12 BK7710 TOHX 140304EL-G12 CK38	
for greater strength			
W..04...	W57 04140.023210 W30 04990.0255 → only for forward machining: W30 04060.036110 W30 04200.0321	TOGX 06T102EN-14 CK3210 TOGX 06T102FN PKD55 TOHX 06T103EL-G06 BK6110 TOHX 06T103FL-G20 K10	
W..14...	W57 14140.043210 W30 14990.0255 → only for forward machining: W30 14060.046110 W30 14200.0421	TOGX 090204EN-14 CK3210 TOGX 090204FN PKD55 TOHX 090204EL-G06 BK6110 TOHX 090204FL-G20 K10	
W..26...	W57 26140.043210 W30 26990.0455 → only for forward machining: W30 26060.046110 W30 26200.0521	TOGX 140304EN-14 CK3210 TOGX 140304FN PKD55 TOHX 140304EL-G06 BK6110 TOHX 140305FL-G20 K10	

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.

Summary and list of codes

PKD5510

Polycrystalline diamond cutting tool material for machining aluminium materials, abrasive materials, plastics and composite materials with high cutting speeds.

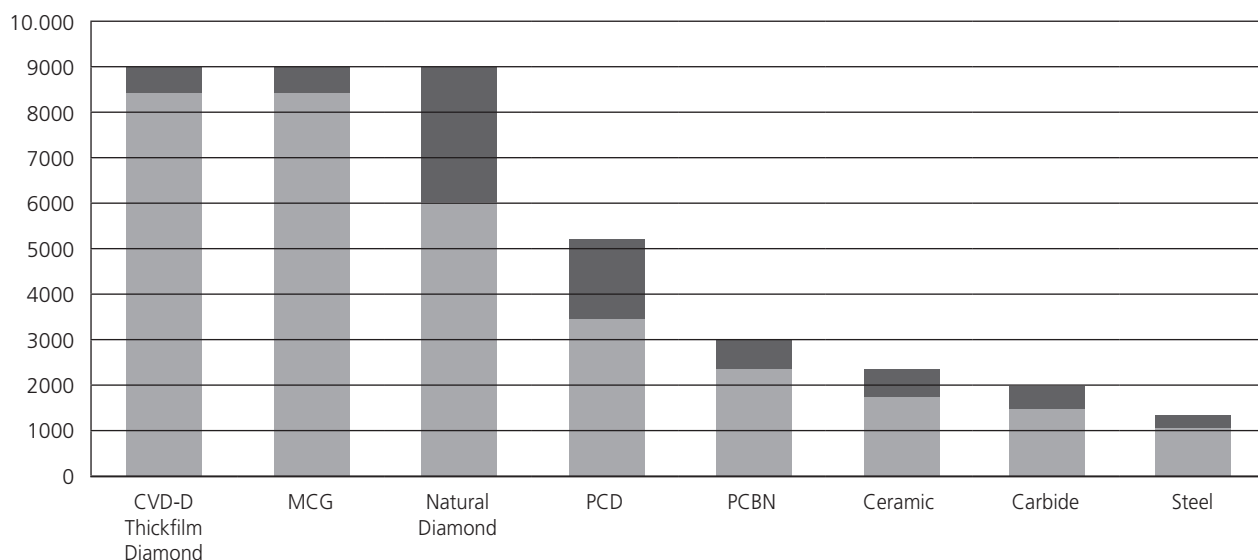
DSD5605

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.

Super-Hard PCD																
Cutting material designation	Code	Norm code	Application range												Properties	Cutting element
			Wear resistance						Toughness factor							
			01	05	10	15	20	25	30	35	40	45	50			
PKD5510	5510	P												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.. C84.. C85.. C86.. C87.. C88.. C89.. C95.. C98..	
		M														
		K														
		N														
		S														
		H														
Super-Hard CVD-D (thickfilm diamond)																
DSD5605	5605	P												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..	
		M														
		K														
		N														
		S														
		H														
			01	05	10	15	20	25	30	35	40	45	50	main area of application suitable in some cases		

Hardness

 min.
 Hardness scattering



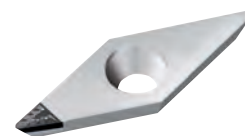
Portfolio overview – ISO PCD/CVD-D Indexable inserts

CCGT				CPGT			DCGT	
 C85..96 ▽▽▽ ▶ 146	 C85..92 ▽▽▽ Wiper ▶ 142	 C85..84 ▽▽▽ L.H. cutting form ▶ 137	 C85..85 ▽▽▽ R.H. cutting form ▶ 138	 C95..96 ▽▽▽ ▶ 173	 C95..84 ▽▽▽ L.H. cutting form ▶ 167	 C95..85 ▽▽▽ R.H. cutting form ▶ 168	 C86..96 ▽▽▽ ▶ 153	 C86..92 ▽▽▽ Wiper ▶ 151
 C85..97 ▽ ▶ 147	 C85..93 ▽ Wiper ▶ 143	 C85..86 ▽ L.H. cutting form ▶ 139	 C85..87 ▽ R.H. cutting form ▶ 140	 C95..97 ▽ ▶ 174	 C95..86 ▽ L.H. cutting form ▶ 169	 C95..87 ▽ R.H. cutting form ▶ 170	 C86..97 ▽ ▶ 154	 C86..93 ▽ Wiper ▶ 152
 C85..98 ▶ 148							 C86..98 ▶ 155	
CCGW				CPGW			DCGW	
 C85..99 ▶ 149	 C85..91 Wiper ▶ 141	 C85..94 L.H. cutting form ▶ 144	 C85..95 R.H. cutting form ▶ 145	 C95..99 ▶ 175	 C95..94 L.H. cutting form ▶ 171	 C95..95 R.H. cutting form ▶ 172	 C86..99 ▶ 156	 C86..91 Wiper ▶ 150

RCGT		RDHX	TCGT			VBGT	VCGT
 C87..89 ▽▽▽ standard ▶ 158	 C88..89 ▽▽▽ strengthened ▶ 161	 C98..89 ▽▽▽ ▶ 177	 C84..84 ▽▽▽ ▶ 127	 C84..96 ▽▽▽ ▶ 133	 C84..89 ▽▽▽ ▶ 130	 C79..96 ▽▽▽ ▶ 122	 C89..96 ▽▽▽ ▶ 163
 C87..90 ▽ standard ▶ 159	 C88..90 ▽ strengthened ▶ 162	 C98..90 ▽ ▶ 178	 C84..86 ▽ ▶ 128	 C84..97 ▽ ▶ 134	 C84..90 ▽ ▶ 131	 C79..97 ▽ ▶ 123	 C89..97 ▽ ▶ 164
RCGW		RDHX	TCGW			VBGW	VCGW
 C87..88 standard ▶ 157	 C88..88 strengthened ▶ 160	 C98..88 ▶ 176	 C84..99 ▶ 136	 C84..94 ▶ 132	 C84..88 ▶ 129	 C79..99 ▶ 125	 C89..99 ▶ 166

▽ 3-D chip breaker for roughing

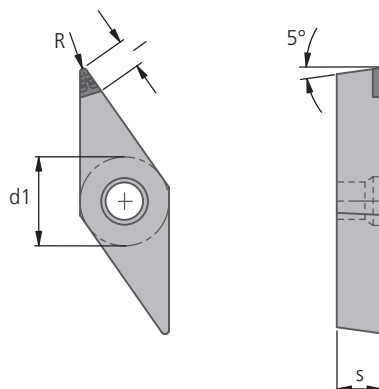
▽▽▽ 3-D chip breaker for finishing



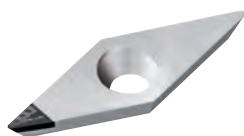
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



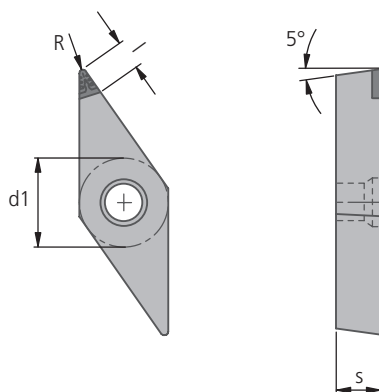
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
VBGT110202FN-96	C79 18960.02..	▲	▲				
VBGT110204FN-96	C79 18960.04..	▲	▲				
VBGT110208FN-96	C79 18960.08..	▲	▲	6,35	2,38	3,0	0,2
VBGT160402FN-96	C79 32960.02..	▲	▲				0,4
VBGT160404FN-96	C79 32960.04..	▲	▲				0,8
VBGT160408FN-96	C79 32960.08..	▲	▲	9,52	4,76	3,0	0,2
VBGT160412FN-96	C79 32960.12..	▲	▲				0,4
							0,8
Mild steel/tool steel	P			Order example: ISO Code VBGT110202FN-96 Cutting material PKD5510 Order No. C79 18960.025510			
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						



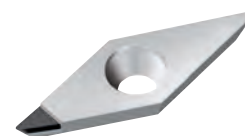
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

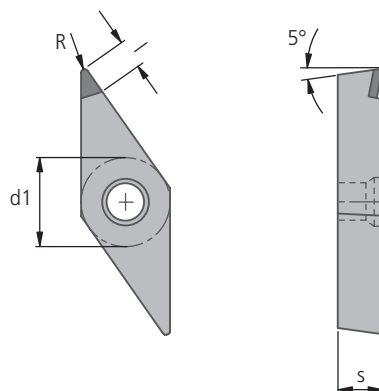


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605	6,35	2,38	3,0	
VBGT110202FN-97	C79 18970.02..	▲	▲				0,2
VBGT110204FN-97	C79 18970.04..	▲	▲				0,4
VBGT110208FN-97	C79 18970.08..	▲	▲	9,52	4,76	3,0	0,8
VBGT160402FN-97	C79 32970.02..	▲	▲				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		Order example: ISO Code VBGT110202FN-97 Cutting material PKD5510 Order No. C79 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					

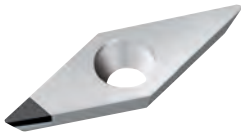


Cutter geometry:

positive rake angle
sharp cutting edge

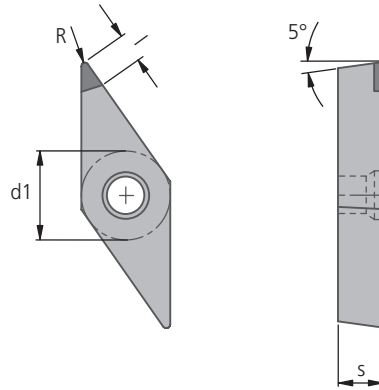


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
VBGT110201FN-98	C79 18980.01..	▲	▲	6,35	2,38	3,0	0,1
VBGT110202FN-98	C79 18980.02..	▲	▲				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	●	●	Order example: ISO Code VBGT110201FN-98 Cutting material PKD5510 Order No. C79 18980.015510			
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						

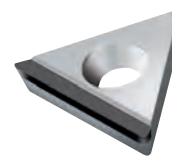


Cutter geometry:

sharp cutting edge

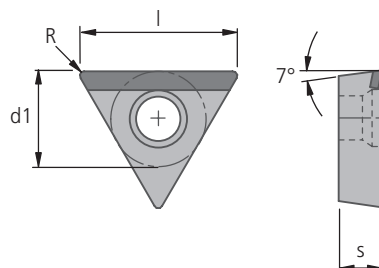


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
VBGW110201FN-99	C79 18990.01..	▲	▲	6,35	2,38	3,0	0,1
VBGW110202FN-99	C79 18990.02..	▲	▲				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	●	●	Order example: ISO Code VBGW110201FN-99 Cutting material PKD5510 Order No. C79 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						

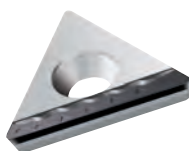


Cutter geometry:

positive rake angle
sharp cutting edge



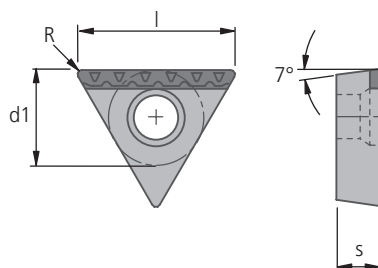
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT090202F-81	C84 13810.02..	▲	▲	5,56	2,38	9,34	0,2
TCGT090204F-81	C84 13810.04..	▲	▲			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		●	●	Order example: ISO Code TCGT090202F-81 Cutting material PKD5510 Order No. C84 13810.025510			
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							



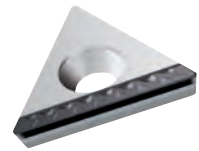
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



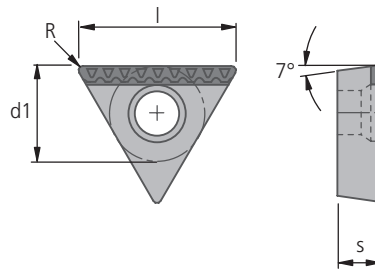
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT090202F-84	C84 13840.02..	▲	▲	5,56	2,38	9,34	0,2
TCGT090204F-84	C84 13840.04..	▲	▲			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		●	●	Order example: ISO Code TCGT090202F-84 Cutting material PKD5510 Order No. C84 13840.025510			
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							



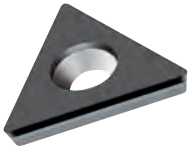
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

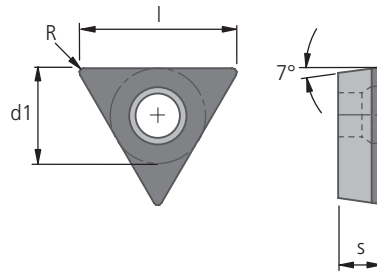


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT090202F-86	C84 13860.02..	▲	▲	5,56	2,38	9,34	0,2
TCGT090204F-86	C84 13860.04..	▲	▲			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	●	●	Order example: ISO Code TCGT090202F-86 Cutting material PKD5510 Order No. C84 13860.025510			
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						

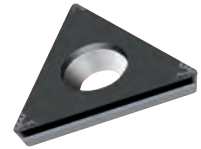


Cutter geometry:

sharp cutting edge



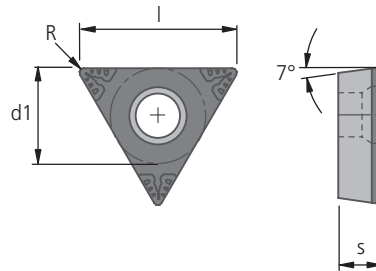
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGW110202FN-88F	C84 18880.02..	▲	▲	6,35	2,38	10,71	0,2
TCGW110204FN-88F	C84 18880.04..	▲	▲			10,41	0,4
TCGW110208FN-88F	C84 18880.08..	▲	▲			9,83	0,8
Mild steel/tool steel P				Order example: ISO Code TCGW110202FN-88F Cutting material PKD5510 Order No. C84 18880.025510			
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							



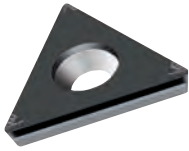
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



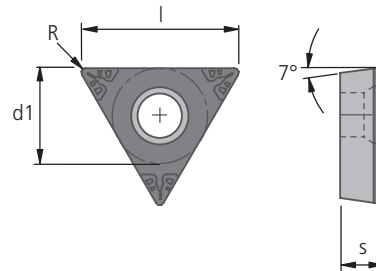
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT110202FN-89F	C84 18890.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204FN-89F	C84 18890.04..	▲	▲			10,41	0,4
TCGT110208FN-89F	C84 18890.08..	▲	▲			9,83	0,8
Mild steel/tool steel	P	●	●	Order example: ISO Code TCGT110202FN-89F Cutting material PKD5510 Order No. C84 18890.025510			
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						



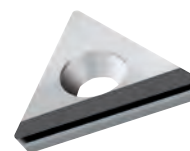
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

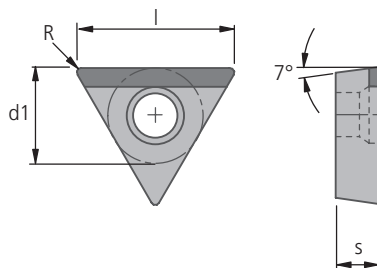


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
TCGT110202FN-90F	C84 18900.02..	▲	▲	6,35	2,38	10,71	0,2
TCGT110204FN-90F	C84 18900.04..	▲	▲			10,41	0,4
TCGT110208FN-90F	C84 18900.08..	▲	▲			9,83	0,8
Mild steel/tool steel	P	●	●	Order example: ISO Code TCGT110202FN-90F Cutting material PKD5510 Order No. C84 18890.025510			
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						

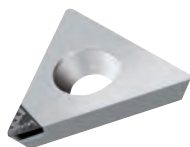


Cutter geometry:

sharp cutting edge



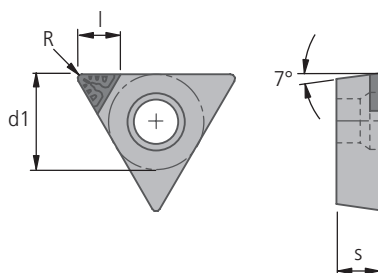
Substrate		PCD	CVD-D				
Coating type		—	—	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.						
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGW090202F-94	C84 13940.02..	▲	▲	5,56	2,38	9,34	0,2
TCGW090204F-94	C84 13940.04..	▲	▲			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			Order example: ISO Code TCGW090202F-94 Cutting material PKD5510 Order No. C84 13940.025510			
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						



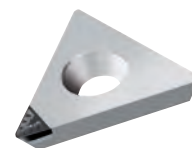
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



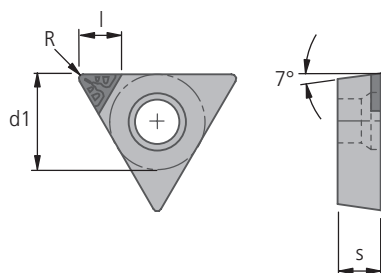
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT090202FN-96	C84 13960.02..	▲	▲	5,56	2,38	3,0	0,2
TCGT090204FN-96	C84 13960.04..	▲	▲				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				Order example: ISO Code TCGT090202FN-96 Cutting material PKD5510 Order No. C84 13960.025510			
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							



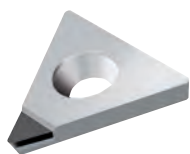
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

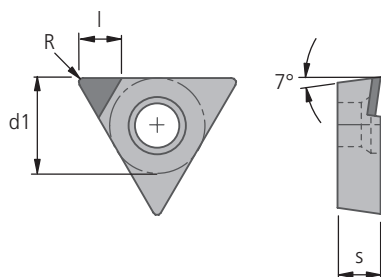


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT090202FN-97	C84 13970.02..	▲	▲	5,56	2,38	3,0	0,2
TCGT090204FN-97	C84 13970.04..	▲	▲				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			Order example: ISO Code TCGT090202FN-97 Cutting material PKD5510 Order No. C84 13970.025510			
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						

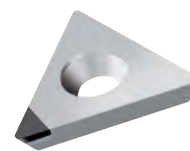


Cutter geometry:

positive rake angle
sharp cutting edge

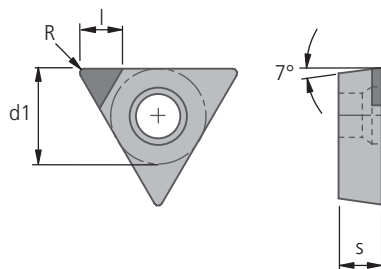


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
TCGT090202FN-98	C84 13980.02..	▲	▲	5,56	2,38	3,0	0,2
TCGT090204FN-98	C84 13980.04..	▲	▲				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			Order example: ISO Code TCGT090202FN-98 Cutting material PKD5510 Order No. C84 13980.025510			
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						

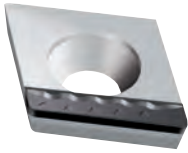


Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
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				Order example: ISO Code TCGW090202FN-99 Cutting material PKD5510 Order No. C84 13990.025510			
Stainless and acid-resistant steel							
Grey cast iron, spheroidal cast iron							
Non-ferrous metals							
Heat-resistant steels							
Hardened tool steel							



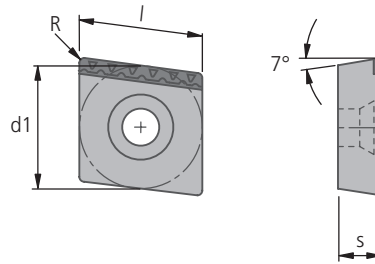
ISO PCD/CVD-D Indexable inserts

L.H. cutting form „L“

Cutter geometry:



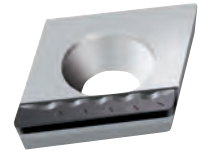
3-D chip breaker for finishing
sharp cutting edge

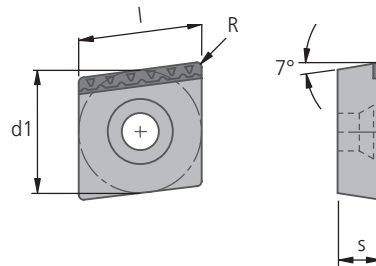


Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CCGT060202FL-84	C85 18840.02..	▲	▲	6,35	2,38	6,5	0,2		
CCGT060204FL-84	C85 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	●	●	Order example: ISO Code CCGT060202FL-84 Cutting material PKD5510 Order No. C85 18840.025510					
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								

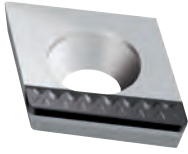
ISO PCD/CVD-D Indexable inserts

R.H. cutting form „R“


Cutter geometry:

 3-D chip breaker for finishing
sharp cutting edge


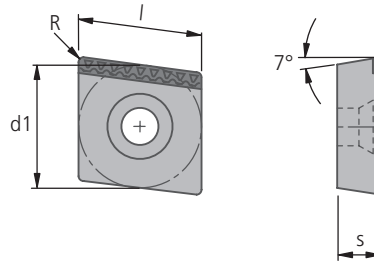
Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CCGT060202FR-85	C85 18850.02..	▲	▲	6,35	2,38	6,5	0,2		
CCGT060204FR-85	C85 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	●	●	Order example: ISO Code CCGT060202FR-85 Cutting material PKD5510 Order No. C85 18850.025510					
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								



Cutter geometry:



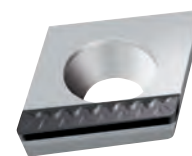
3-D chip breaker for roughing
sharp cutting edge

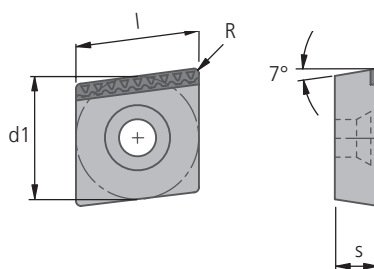


Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CCGT060202FL-86	C85 18860.02..	▲	▲	6,35	2,38	6,5	0,2		
CCGT060204FL-86	C85 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			Order example: ISO Code CCGT060202FL-86 Cutting material PKD5510 Order No. C85 18860.025510					
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								

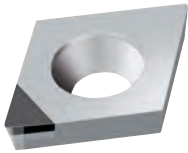
ISO PCD/CVD-D Indexable inserts

R.H. cutting form „R“


Cutter geometry:

 3-D chip breaker for roughing
sharp cutting edge


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CCGT060202FR-87	C85 18870.02..	▲	▲				
CCGT060204FR-87	C85 18870.04..	▲	▲	6,35	2,38	6,5	0,2
CCGT060208FR-87	C85 18870.08..	▲	▲				0,4
CCGT09T304FR-87	C85 32870.04..	▲	▲				0,8
CCGT09T308FR-87	C85 32870.08..	▲	▲	9,52	3,97	9,7	0,4
CCGT09T312FR-87	C85 32870.12..	▲	▲				0,8
CCGT120404FR-87	C85 44870.04..	▲	▲				1,2
CCGT120408FR-87	C85 44870.08..	▲	▲	12,7	4,76	12,9	0,4
							0,8
Mild steel/tool steel		P		Order example: ISO Code CCGT060202FR-87 Cutting material PKD5510 Order No. C85 18870.025510			
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					

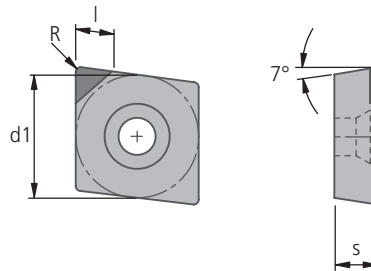


Cutter geometry:

Wiper

sharp cutting edge with

Wiper geometry for setting angle $\alpha = 95^\circ$



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
CCGW060202FN-91W	C85 18910.02..	▲	▲				0,2
CCGW060204FN-91W	C85 18910.04..	▲	▲	6,35	2,38	3,0	0,4
CCGW060208FN-91W	C85 18910.08..	▲	▲				0,8
CCGW09T302FN-91W	C85 32910.02..	▲	▲				0,2
CCGW09T304FN-91W	C85 32910.04..	▲	▲				0,4
CCGW09T308FN-91W	C85 32910.08..	▲	▲	9,52	3,97	3,0	0,8
CCGW09T312FN-91W	C85 32910.12..	▲	▲				1,2
CCGW120402FN-91W	C85 44910.02..	▲	▲				0,2
CCGW120404FN-91W	C85 44910.04..	▲	▲				0,4
CCGW120408FN-91W	C85 44910.08..	▲	▲	12,7	4,76	3,0	0,8
CCGW120412FN-91W	C85 44910.12..	▲	▲				1,2
Mild steel/tool steel	P	●	●	Order example: ISO Code CCGW060202FN-91W Cutting material PKD5510 Order No. C85 18910.025510			
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						

Surface comparison

■ R0,4

■ R0,8

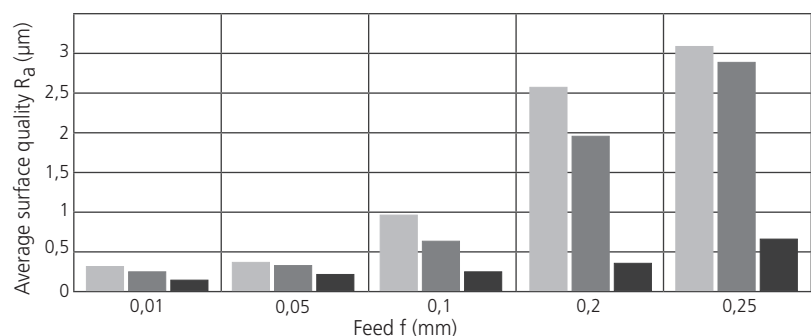
■ R0,4 Wiper $\alpha = 95^\circ$

Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

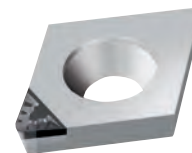
Cutting speed: $v_c = 1000$ m/min

Cutting depth: $a_p = 0,5$ mm



● Main area of application ● Suitable in some cases

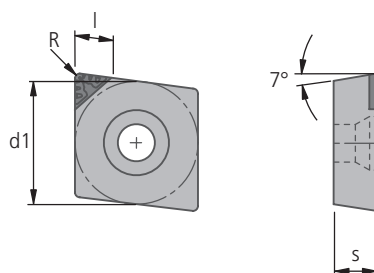
Important: See page 247 for more application details and safety notes !



Cutter geometry:

Wiper

3-D chip breaker for finishing with
Wiper geometry for setting angle $\alpha = 95^\circ$
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
CCGT060202FN-92W	C85 18920.02..	▲	▲				0,2
CCGT060204FN-92W	C85 18920.04..	▲	▲	6,35	2,38	3,0	0,4
CCGT060208FN-92W	C85 18920.08..	▲	▲				0,8
CCGT09T302FN-92W	C85 32920.02..	▲	▲				0,2
CCGT09T304FN-92W	C85 32920.04..	▲	▲				0,4
CCGT09T308FN-92W	C85 32920.08..	▲	▲	9,52	3,97	3,0	0,8
CCGT09T312FN-92W	C85 32920.12..	▲	▲				1,2
CCGT120402FN-92W	C85 44920.02..	▲	▲				0,2
CCGT120404FN-92W	C85 44920.04..	▲	▲				0,4
CCGT120408FN-92W	C85 44920.08..	▲	▲	12,7	4,76	3,0	0,8
CCGT120412FN-92W	C85 44920.12..	▲	▲				1,2
Mild steel/tool steel	P	●	●	Order example: ISO Code CCGT060202FN-92W Cutting material PKD5510 Order No. C85 18920.025510			
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						

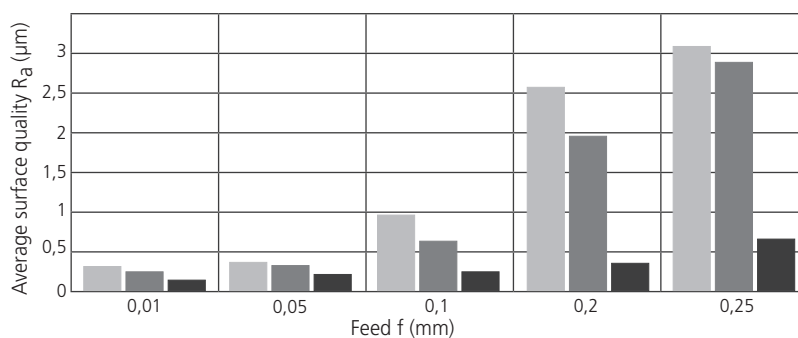
Surface comparison

R0,4

R0,8

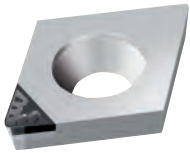
 R0,4 Wiper $\alpha = 95^\circ$
Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

Cutting speed: $v_c = 1000$ m/minCutting depth: $a_p = 0,5$ mm

Recommended cutting data: page 179.

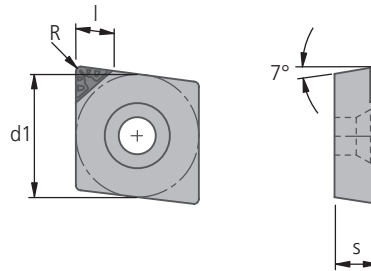
▲ Availability: for delivery see current price and stock list



Cutter geometry:

▽ Wiper

3-D chip breaker for roughing with
Wiper geometry for setting angle $\alpha = 95^\circ$
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
CCGT060202FN-93W	C85 18930.02..	▲	▲				0,2
CCGT060204FN-93W	C85 18930.04..	▲	▲	6,35	2,38	3,0	0,4
CCGT060208FN-93W	C85 18930.08..	▲	▲				0,8
CCGT09T302FN-93W	C85 32930.02..	▲	▲				0,2
CCGT09T304FN-93W	C85 32930.04..	▲	▲				0,4
CCGT09T308FN-93W	C85 32930.08..	▲	▲	9,52	3,97	3,0	0,8
CCGT09T312FN-93W	C85 32930.12..	▲	▲				1,2
CCGT120402FN-93W	C85 44930.02..	▲	▲				0,2
CCGT120404FN-93W	C85 44930.04..	▲	▲				0,4
CCGT120408FN-93W	C85 44930.08..	▲	▲	12,7	4,76	3,0	0,8
CCGT120412FN-93W	C85 44930.12..	▲	▲				1,2
Mild steel/tool steel	P	●	●	Order example: ISO Code CCGT060202FN-93W Cutting material PKD5510 Order No. C85 18930.025510			
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						

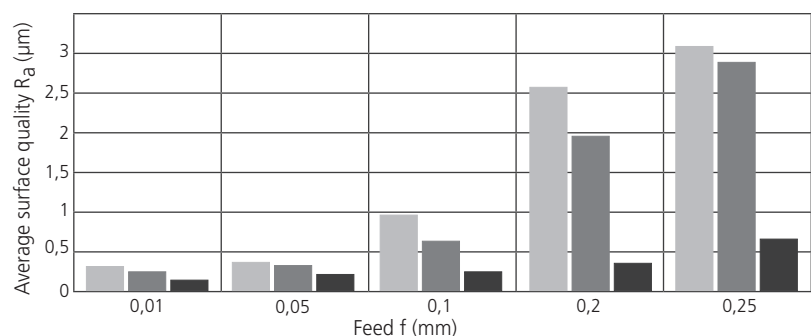
Surface comparison

R0,4

R0,8

R0,4 Wiper $\alpha = 95^\circ$ Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

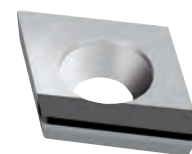
Cutting speed: $v_c = 1000$ m/minCutting depth: $a_p = 0,5$ mm

● Main area of application ● Suitable in some cases

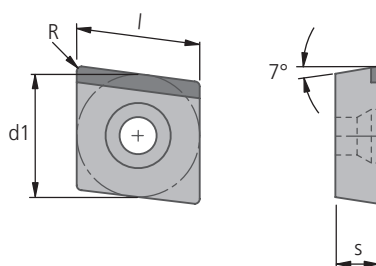
Important: See page 247 for more application details and safety notes !

ISO PCD/CVD-D Indexable inserts

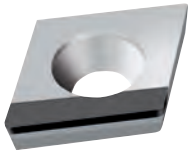
L.H. cutting form „L“


Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
CCGW060202FL-94	C85 18940.02..	▲	▲				
CCGW060204FL-94	C85 18940.04..	▲	▲	6,35	2,38	6,5	0,2
CCGW060208FL-94	C85 18940.08..	▲	▲				0,4
CCGW09T304FL-94	C85 32940.04..	▲	▲	9,52	3,97	9,7	0,8
CCGW09T308FL-94	C85 32940.08..	▲	▲				0,4
CCGW09T312FL-94	C85 32940.12..	▲	▲				0,8
CCGW120404FL-94	C85 44940.04..	▲	▲				1,2
CCGW120408FL-94	C85 44940.08..	▲	▲	12,7	4,76	12,9	0,4
							0,8
Mild steel/tool steel	P	●	●	Order example: ISO Code CCGW060202FL-94 Cutting material PKD5510 Order No. C85 18940.025510			
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						

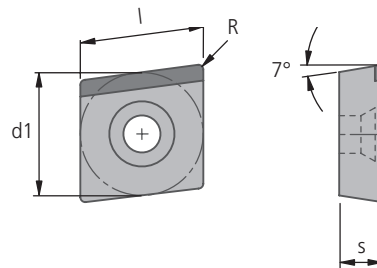


ISO PCD/CVD-D Indexable inserts

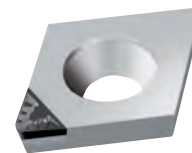
R.H. cutting form „R“

Cutter geometry:

sharp cutting edge



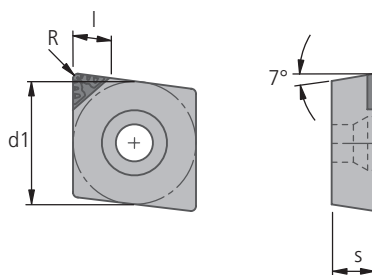
Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CCGW060202FR-95	C85 18950.02..	▲	▲	6,35	2,38	6,5	0,2		
CCGW060204FR-95	C85 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			Order example: ISO Code CCGW060202FR-95 Cutting material PKD5510 Order No. C85 18950.025510					
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								



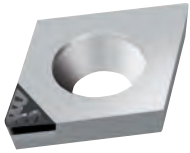
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



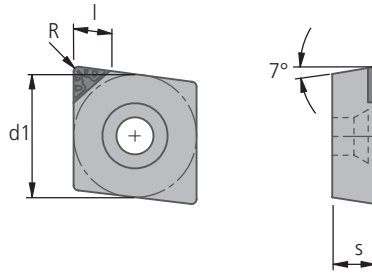
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CCGT060202FN-96	C85 18960.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-96	C85 18960.04..	▲	▲				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	●	●	Order example: ISO Code CCGT060202FN-96 Cutting material PKD5510 Order No. C85 18960.025510			
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						



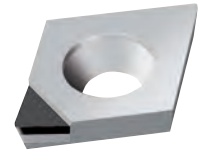
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

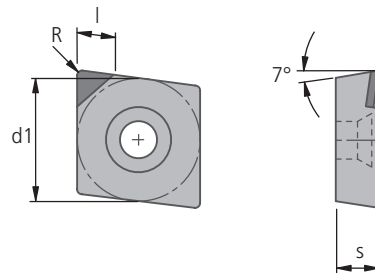


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CCGT060202FN-97	C85 18970.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-97	C85 18970.04..	▲	▲				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			Order example: ISO Code CCGT060202FN-97 Cutting material PKD5510 Order No. C85 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						

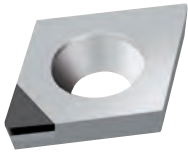


Cutter geometry:

positive rake angle
sharp cutting edge

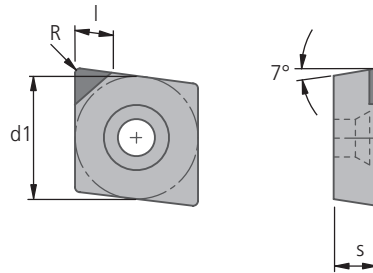


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CCGT060202FN-98	C85 18980.02..	▲	▲	6,35	2,38	3,0	0,2
CCGT060204FN-98	C85 18980.04..	▲	▲				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				Order example: ISO Code CCGT060202FN-98 Cutting material PKD5510 Order No. C85 18980.025510			
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							

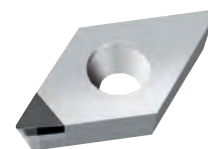


Cutter geometry:

sharp cutting edge



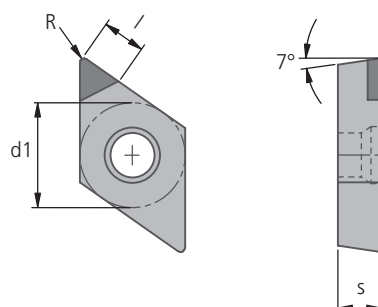
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CCGW060202FN-99	C85 18990.02..	▲	▲	6,35	2,38	3,0	0,2
CCGW060204FN-99	C85 18990.04..	▲	▲				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	●	●	Order example: ISO Code CCGW060202FN-99 Cutting material PKD5510 Order No. C85 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						

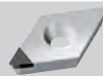


Cutter geometry:

Wiper

sharp cutting edge with

Wiper geometry for setting angle $\alpha = 93^\circ$ 

Substrate		PCD	CVD-D				
Coating type		—	—	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.						
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
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			Order example: ISO Code DCGW070202FN-91W Cutting material PKD5510 Order No. C86 18910.025510			
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						

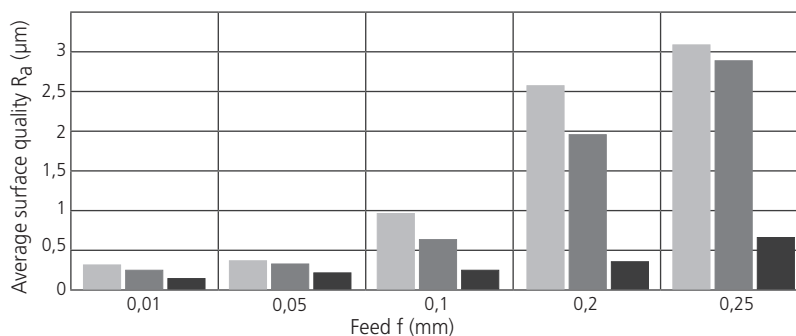
Surface comparison

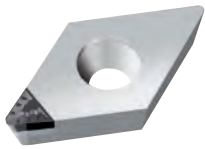
R0,4

R0,8

R0,4 Wiper $\alpha = 93^\circ$ Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

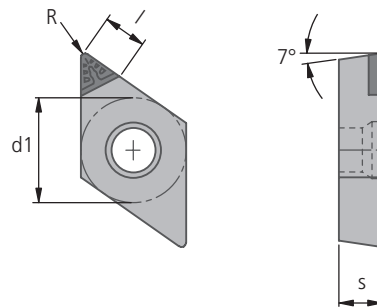
Cutting speed: $v_c = 1000$ m/minCutting depth: $a_p = 0,5$ mm



Cutter geometry:

Wiper

3-D chip breaker for finishing with
Wiper geometry for setting angle $\alpha = 93^\circ$
sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
DCGT070202FN-92W	C86 18920.02..	▲	▲				
DCGT070204FN-92W	C86 18920.04..	▲	▲	6,35	2,38	3,0	0,2
DCGT070208FN-92W	C86 18920.08..	▲	▲				0,4
DCGT11T302FN-92W	C86 32920.02..	▲	▲	9,52	3,97	3,0	0,8
DCGT11T304FN-92W	C86 32920.04..	▲	▲				0,2
DCGT11T308FN-92W	C86 32920.08..	▲	▲				0,4
Mild steel/tool steel P		●	●	Order example: ISO Code DCGT070202FN-92W Cutting material PKD5510 Order No. C86 18920.025510			
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							

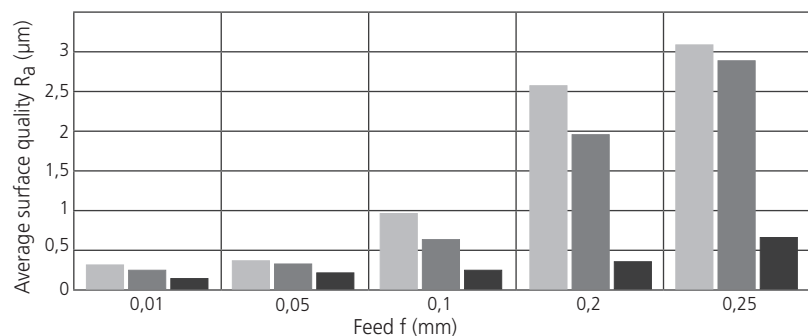
Surface comparison

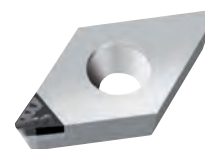
R0,4

R0,8

 R0,4 Wiper $\alpha = 93^\circ$
Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

Cutting speed: $v_c = 1000$ m/minCutting depth: $a_p = 0,5$ mm



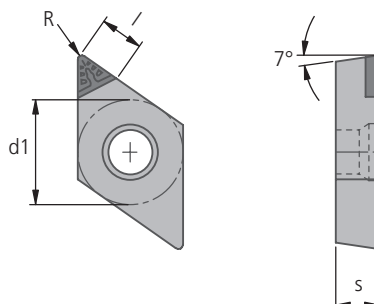
Cutter geometry:

▽ Wiper

3-D chip breaker for roughing with

Wiper geometry for setting angle $\alpha = 93^\circ$

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
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			Order example: ISO Code DCGT070202FN-93W Cutting material PKD5510 Order No. C86 18930.025510			
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						

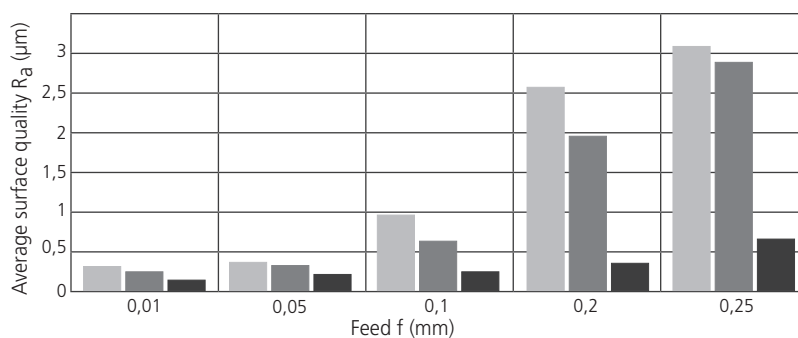
Surface comparison

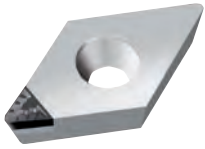
R0,4

R0,8

R0,4 Wiper $\alpha = 93^\circ$ Average surface quality R_a

Material: G-AlSi9Cu4Mg (~ 3.2573)

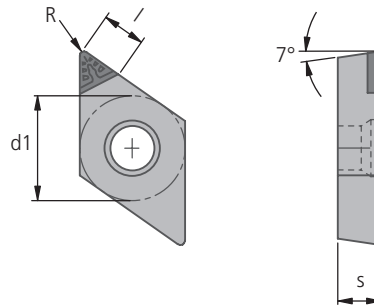
Cutting speed: $v_c = 1000$ m/minCutting depth: $a_p = 0,5$ mm



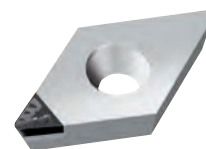
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



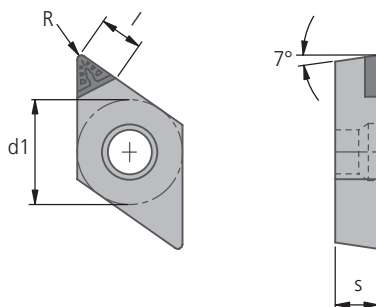
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
DCGT070202FN-96	C86 18960.02..	▲	▲	6,35	2,38	3,0	0,2
DCGT070204FN-96	C86 18960.04..	▲	▲				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			Order example: ISO Code DCGT070202FN-96 Cutting material PKD5510 Order No. C86 18960.025510			
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						

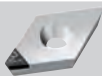
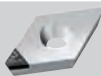


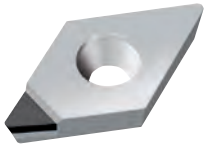
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

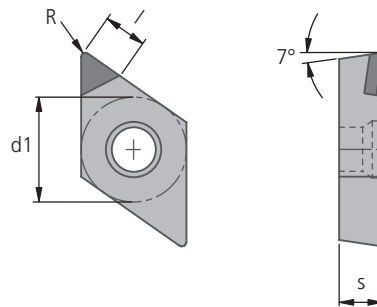


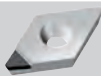
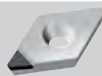
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
DCGT070202FN-97	C86 18970.02..	▲	▲	6,35	2,38	3,0	0,2
DCGT070204FN-97	C86 18970.04..	▲	▲				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							

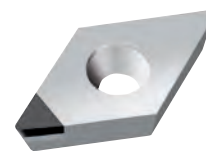


Cutter geometry:

positive rake angle
sharp cutting edge

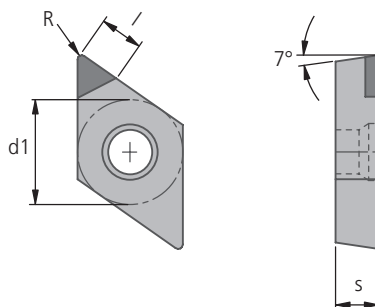


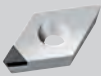
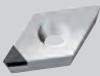
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
DCGT070201FN-98	C86 18980.01..	▲	▲	6,35	2,38	3,0	0,1
DCGT070202FN-98	C86 18980.02..	▲	▲				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			Order example: ISO Code DCGT070201FN-98 Cutting material PKD5510 Order No. C86 18980.015510			
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						



Cutter geometry:

sharp cutting edge

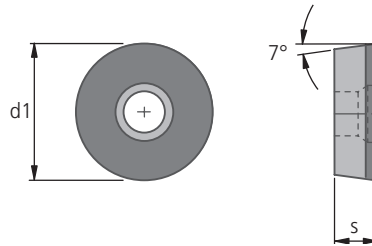


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
DCGW070201FN-99	C86 18990.01..	▲	▲	6,35	2,38	3,0	0,1
DCGW070202FN-99	C86 18990.02..	▲	▲				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						



Cutter geometry:

sharp cutting edge



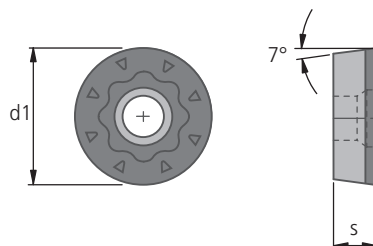
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RCGW1003M0FN-88F	C87 34880.00..	▲	▲	10,0	3,18
Mild steel/tool steel	P	●	●	Order example: ISO Code RCGW1003M0FN-88F Cutting material PKD5510 Order No. C87 34880.005510	
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				



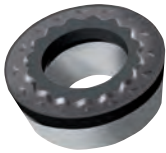
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



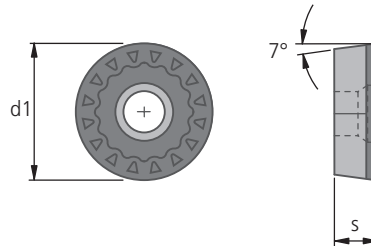
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RCGT1003M0FN-89F	C87 34890.00..	▲	▲	10,0	3,18
Mild steel/tool steel	P	●	●	Order example: ISO Code RCGT1003M0FN-89F Cutting material PKD5510 Order No. C87 34890.005510	
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				



Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

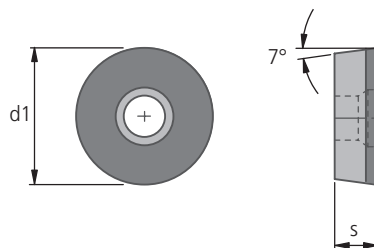


Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RCGT1003M0FN-90F	C87 34900.00..	▲	▲	10,0	3,18
Mild steel/tool steel	P	●	●	Order example: ISO Code RCGT1003M0FN-90F 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				



Cutter geometry:

sharp cutting edge



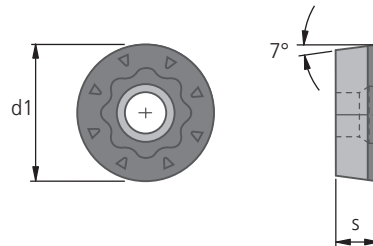
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RCGW0602M0FN-88F	C88 17880.00..	▲	▲	6,0	2,38
RCGW0803M0FN-88F	C88 24880.00..	▲	▲	8,0	3,18
RCGW10T3M0FN-88F	C88 34880.00..	▲	▲	10,0	3,97
RCGW1204M0FN-88F	C88 42880.00..	▲	▲	12,0	4,76
Mild steel/tool steel	P	●	●	Order example: ISO Code RCGW0602M0FN-88F Cutting material PKD5510 Order No. C88 17880.005510	
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				



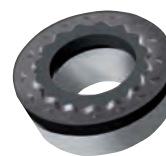
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



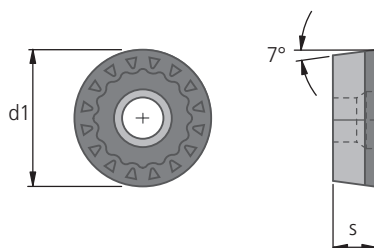
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RCGT0602M0FN-89F	C88 17890.00..	▲	▲	6,0	2,38
RCGT0803M0FN-89F	C88 24890.00..	▲	▲	8,0	3,18
RCGT10T3M0FN-89F	C88 34890.00..	▲	▲	10,0	3,97
RCGT1204M0FN-89F	C88 42890.00..	▲	▲	12,0	4,76
Mild steel/tool steel	P	●	●	Order example: ISO Code RCGT0602M0FN-89F Cutting material PKD5510 Order No. C88 17890.005510	
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				



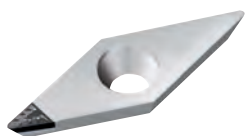
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge



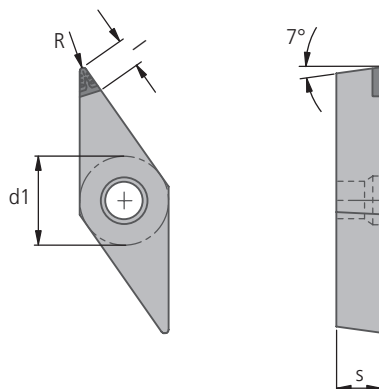
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RCGT0602M0FN-90F	C88 17900.00..	▲	▲	6,0	2,38
RCGT0803M0FN-90F	C88 24900.00..	▲	▲	8,0	3,18
RCGT10T3M0FN-90F	C88 34900.00..	▲	▲	10,0	3,97
RCGT1204M0FN-90F	C88 42900.00..	▲	▲	12,0	4,76
Mild steel/tool steel	P	●	●	Order example: ISO Code RCGT0602M0FN-90F Cutting material PKD5510 Order No. C88 17900.005510	
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				



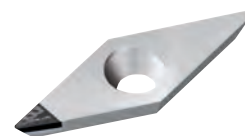
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



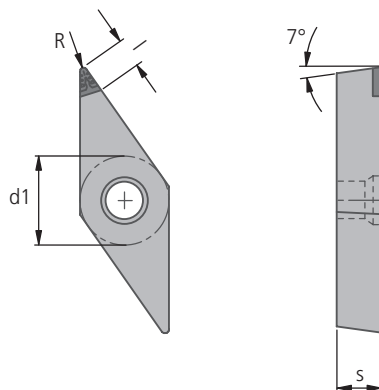
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
VCGT070202FN-96	C89 03960.02..	▲	▲	3,97	2,38	3,0	0,2
VCGT070204FN-96	C89 03960.04..	▲	▲				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				Order example: ISO Code VCGT070202FN-96 Cutting material PKD5510 Order No. C89 03960.025510			
Stainless and acid-resistant steel							
Grey cast iron, spheroidal cast iron							
Non-ferrous metals							
Heat-resistant steels							
Hardened tool steel							

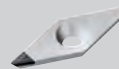


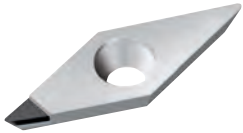
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

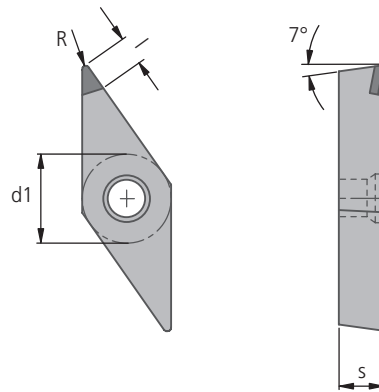


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
VCGT070202FN-97	C89 03970.02..	▲	▲	3,97	2,38	3,0	0,2
VCGT070204FN-97	C89 03970.04..	▲	▲				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				Order example: ISO Code VCGT070202FN-97 Cutting material PKD5510 Order No. C89 03970.025510			
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							

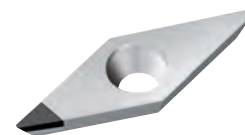


Cutter geometry:

positive rake angle
sharp cutting edge

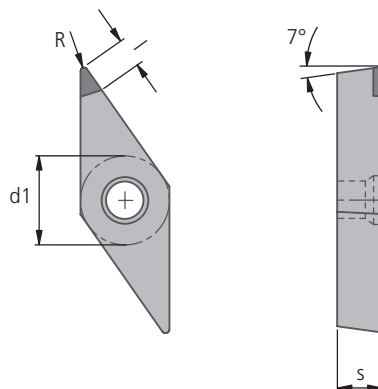


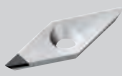
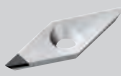
Substrate		PCD	CVD-D				
Coating type		—	—	d1	s	l	R
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
VCGT070201FN-98	C89 03980.01..	▲	▲	3,97	2,38	3,0	0,1
VCGT070202FN-98	C89 03980.02..	▲	▲				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	●	●	Order example: ISO Code VCGT070201FN-98 Cutting material PKD5510 Order No. C89 03980.015510			
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						

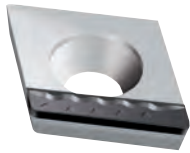


Cutter geometry:

sharp cutting edge



Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp	Enter code	5510	5605				
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	●	●	Order example: ISO Code VCGW070201FN-99 Cutting material PKD5510 Order No. C89 03990.015510			
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						



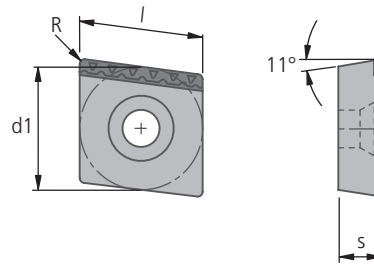
ISO PCD/CVD-D Indexable inserts

L.H. cutting form „L“

Cutter geometry:



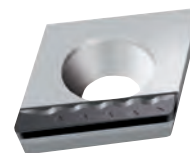
3-D chip breaker for finishing
sharp cutting edge

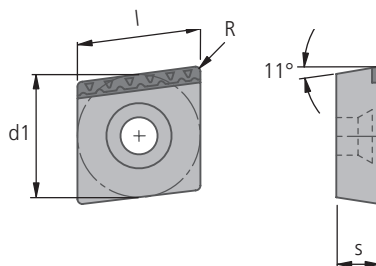


Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CPGT04T102FL-84	C95 09840.02..	▲	▲	4,76	1,98	4,8	0,2		
CPGT060202FL-84	C95 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	●	●	Order example: ISO Code CPGT04T102FL-84 Cutting material PKD5510 Order No. C95 09840.025510					
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								

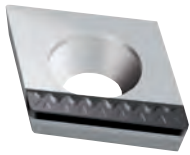
ISO PCD/CVD-D Indexable inserts

R.H. cutting form „R“


Cutter geometry:

 3-D chip breaker for finishing
sharp cutting edge


Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
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	●	●	Order example: ISO Code CPGT04T102FR-85 Cutting material PKD5510 Order No. C95 09850.025510					
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								



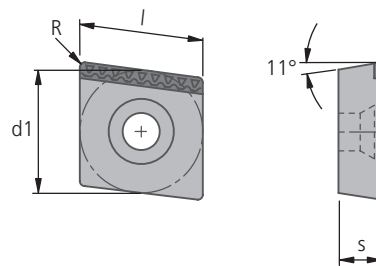
ISO PCD/CVD-D Indexable inserts

L.H. cutting form „L“

Cutter geometry:



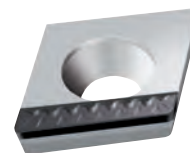
3-D chip breaker for roughing
sharp cutting edge

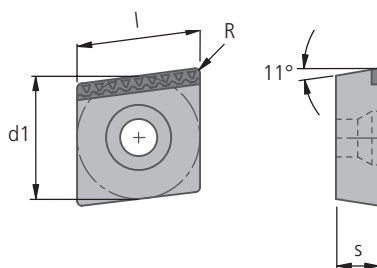


Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CPGT04T102FL-86	C95 09860.02..	▲	▲	4,76	1,98	4,8	0,2		
CPGT060202FL-86	C95 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		●	●	Order example: ISO Code CPGT04T102FL-86 Cutting material PKD5510 Order No. C95 09860.025510					
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									

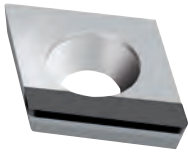
ISO PCD/CVD-D Indexable inserts

R.H. cutting form „R“


Cutter geometry:

 3-D chip breaker for roughing
sharp cutting edge


Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
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	●	●	Order example: ISO Code CPGT04T102FR-87 Cutting material PKD5510 Order No. C95 09870.025510					
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								

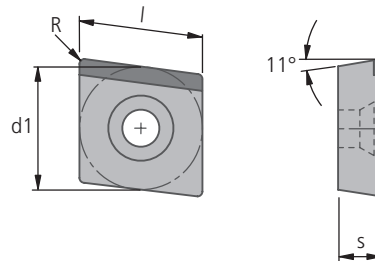


ISO PCD/CVD-D Indexable inserts

L.H. cutting form „L“

Cutter geometry:

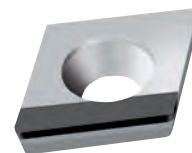
sharp cutting edge



Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CPGW04T102FL-94	C95 09940.02..	▲	▲	4,76	1,98	4,8	0,2		
CPGW060204FL-94	C95 18940.04..	▲	▲	6,35	2,38	6,5	0,4		
CPGW080304FL-94	C95 23940.04..	▲	▲	7,94	3,18	8,1	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			Order example: ISO Code CPGW04T102FL-94 Cutting material PKD5510 Order No. C95 09940.025510					
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								

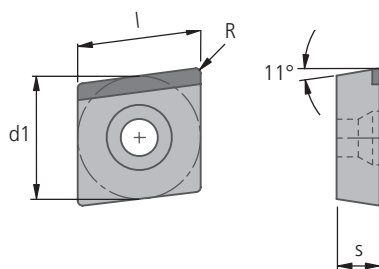
ISO PCD/CVD-D Indexable inserts

R.H. cutting form „R”

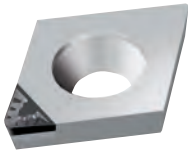


Cutter geometry:

sharp cutting edge



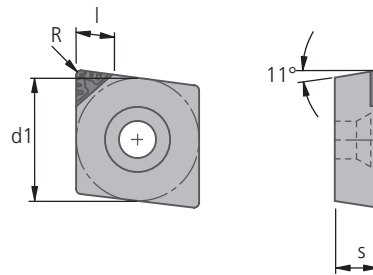
Substrate		PCD	CVD-D						
Coating type		—	—						
Cutting material designation		PKD5510	DSD5605						
Cutting edge design		F	F						
ISO Code	Order No.			d1	s	l	R		
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605						
CPGW04T102FR-95	C95 09950.02..	▲	▲	4,76	1,98	4,8	0,2		
CPGW060202FR-95	C95 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	●	●	Order example: ISO Code CPGW04T102FR-95 Cutting material PKD5510 Order No. C95 09950.025510					
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								



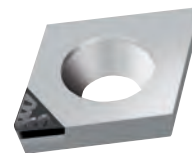
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



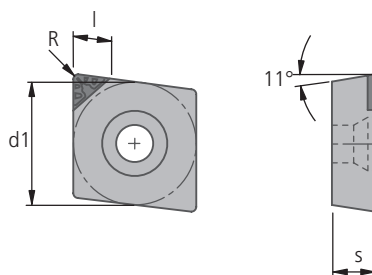
Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CPGT04T102FN-96	C95 09960.02..	▲	▲	4,76	1,98	2,0	0,2
CPGT060201FN-96	C95 18960.01..	▲	▲	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				Order example: ISO Code CPGT04T102FN-96 Cutting material PKD5510 Order No. C95 09960.025510			
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							



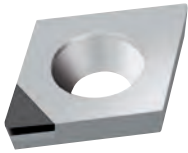
Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

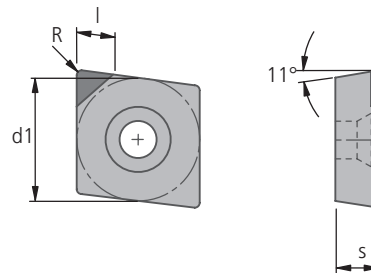


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CPGT04T102FN-97	C95 09970.02..	▲	▲	4,76	1,98	2,0	0,2
CPGT060201FN-97	C95 18970.01..	▲	▲	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				Order example: ISO Code CPGT04T102FN-97 Cutting material PKD5510 Order No. C95 09970.025510			
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							



Cutter geometry:

sharp cutting edge

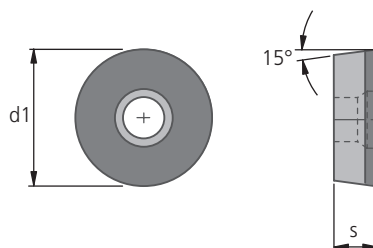


Substrate		PCD	CVD-D				
Coating type		—	—				
Cutting material designation		PKD5510	DSD5605				
Cutting edge design		F	F				
ISO Code	Order No.			d1	s	l	R
Cutting edge design F = sharp ▼	Enter code ▼	5510	5605				
CPGW04T102FN-99	C95 09990.02..	▲	▲	4,76	1,98	2,0	0,2
CPGW060201FN-99	C95 18990.01..	▲	▲	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	●	●	Order example: ISO Code CPGW 04T102 FN Cutting material PKD5510 Order No. C95 09990.025510			
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						



Cutter geometry:

sharp cutting edge



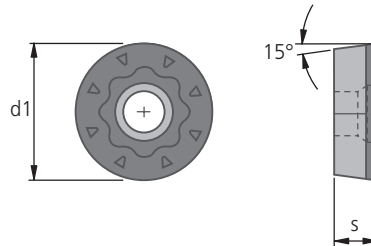
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RDHX0501M0FN-88F	C98 10880.00..	▲	▲	5,0	1,59
RDHX0702M0FN-88F	C98 20880.00..	▲	▲	7,0	2,38
RDHX1003M0FN-88F	C98 34880.00..	▲	▲	10,0	3,18
RDHX12T3M0FN-88F	C98 42880.00..	▲	▲	12,0	3,97
Mild steel/tool steel	P	●	●	Order example: ISO Code RDHX0501M0FN-88F Cutting material PKD5510 Order No. C98 10880.005510	
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				



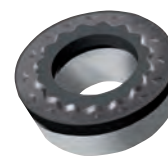
Cutter geometry:



3-D chip breaker for finishing
sharp cutting edge



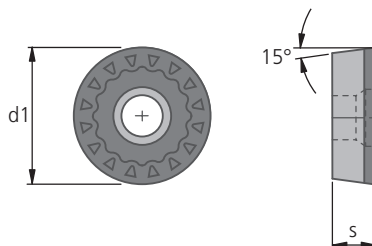
Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RDHX0501M0FN-89F	C98 10890.00..	▲	▲	5,0	1,59
RDHX0702M0FN-89F	C98 20890.00..	▲	▲	7,0	2,38
RDHX1003M0FN-89F	C98 34890.00..	▲	▲	10,0	3,18
RDHX12T3M0FN-89F	C98 42890.00..	▲	▲	12,0	3,97
Mild steel/tool steel	P	●	●	Order example: ISO Code RDHX0501M0FN-89F Cutting material PKD5510 Order No. C98 10890.005510	
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				



Cutter geometry:



3-D chip breaker for roughing
sharp cutting edge

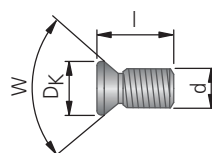


Substrate		PCD	CVD-D		
Coating type		—	—		
Cutting material designation		PKD5510	DSD5605		
Cutting edge design		F	F		
ISO Code	Order No.			d1	s
Cutting edge design F = sharp	Enter code	5510	5605		
RDHX0501M0FN-90F	C98 10900.00..	▲	▲	5,0	1,59
RDHX0702M0FN-90F	C98 20900.00..	▲	▲	7,0	2,38
RDHX1003M0FN-90F	C98 34900.00..	▲	▲	10,0	3,18
RDHX12T3M0FN-90F	C98 42900.00..	▲	▲	12,0	3,97
Mild steel/tool steel	P	●	●	Order example: ISO Code RDHX0501M0FN-90F Cutting material PKD5510 Order No. C98 10900.005510	
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

		Cutting depth a_p (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)	
Aluminium alloys Si < 1%	300 - 6000
Aluminium alloys Si < 12%	300 - 4000
Aluminium alloys Si > 12%	300 - 2000
Copper-brass alloys	300 - 3000
Graphite	100 - 3000
Glas-carbon fibre reinforced	100 - 4000
Ceramics generally	12 - 55
Carbide G20-G55	12 - 55
Glass, quartz glass	140 - 200



Clamping screw

Schwredriver see page 248.

Insert		Clamping screw		Packing unit piece	Thread d	Length l	Screw head		Screw turning slot TorxPlus	Tightening torque Nm
		Order No.	Article				D_K	taper angle W		
C79	C79 18.. VBGT / VBGW	N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP	0,90
	C79 32.. VBGT / VBGW	N00 57271	S3585-15IP	10	3,5	8,5	5,5	55°	15IP	2,8
C84	C84 13.. TCGT / TCGW	N00 57660	S/M2,2x4,8-6IP	10	2,2	4,8	2,9	75°	6IP	1,01
	C84 18.. TCGT / TCGW	N00 56651	S2560-8IP	10	2,5	6	3,5	55°	8IP	1,28
	C84 32.. TCGT / TCGW	N00 56771	S35102-10IP	10	3,5	10,25	5,5	55°	10IP	2,8
C85	C85 18.. CCGT / CCGW	N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP	0,90
	C85 32.. CCGT / CCGW	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
	C85 44.. CCGT / CCGW	N00 56851	S45111-20IP	10	4,5	11,1	6,9	55°	20IP	6,25
C86	C86 18.. DCGT / DCGW	N00 56651	S2560-8IP	10	2,5	6	3,5	55°	8IP	1,28
	C86 32.. DCGT / DCGW	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
C87	C87 34.. RCGT / RCGW	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
C88	C88 17.. RCGT / RCGW	N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP	0,90
	C88 24.. RCGT / RCGW	N00 57341	S3066-9IP	10	3	6,6	4,4	60°	9IP	2,5
	C88 34.. RCGT / RCGW	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
	C88 42.. RCGT / RCGW	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
C89	C89 03.. VCGT / VCGW	N00 56031	S/M2x4,9-6IP	10	2	4,9	2,7	75°	6IP	0,62
	C89 18.. VCGT / VCGW	N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP	0,90
	C89 32.. VCGT / VCGW	N00 57271	S3585-15IP	10	3,5	8,5	5,5	55°	15IP	2,8
C95	C95 09.. CPGT / CPGW	N00 57191	S2043-6IP	10	2	4,3	2,7	55°	6IP	0,62
	C95 18.. CPGT / CPGW	N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP	0,90
	C95 23.. CPGT / CPGW	N00 57341	S3066-9IP	10	3	6,6	4,4	60°	9IP	2,5
	C95 32.. CPGT / CPGW	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
	C95 44.. CPGT / CPGW	N00 56851	S45111-20IP	10	4,5	11,1	6,9	55°	20IP	6,25
C98	C98 10.. RDHX	N00 56591	S2247-6IP	10	2,2	4,7	3,15	60°	6IP	1,01
	C98 20.. RDHX	N00 57221	S2553-7IP	10	2,5	5,3	3,5	55°	7IP	0,90
	C98 34.. RDHX	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8
	C98 42.. RDHX	N00 57261	S3575-15IP	10	3,5	7,5	5,5	55°	15IP	2,8

● Main area of application ○ Suitable in some cases

Important: See page 247 for more application details and safety notes !

Numerical coding for ISO inserts

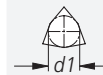
C	8	6	3	2	9	9	0	.	0	4	5	6	0	5
①	②	③	④	⑤					⑥		⑦			

① Main group for standard inserts
Code

②	Secondary group number 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°

③ Inscribed circle *d1*

Code	
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



④ Topography

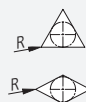
Code	
	HM ISO range
01	Roughing operations Universal HM ISO range
05	Iron casting roughing and semi-machining operations HM ISO range
12	Semi-machining operations Highly positive (NF metal) HM ISO range
14	Finishing operations Chip control HM ISO range
15	Semi-finishing Chip control HM ISO range
82 ... 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)

⑤ Modification code

1 ... 9 Code

⑥ Geometry of cutting edge

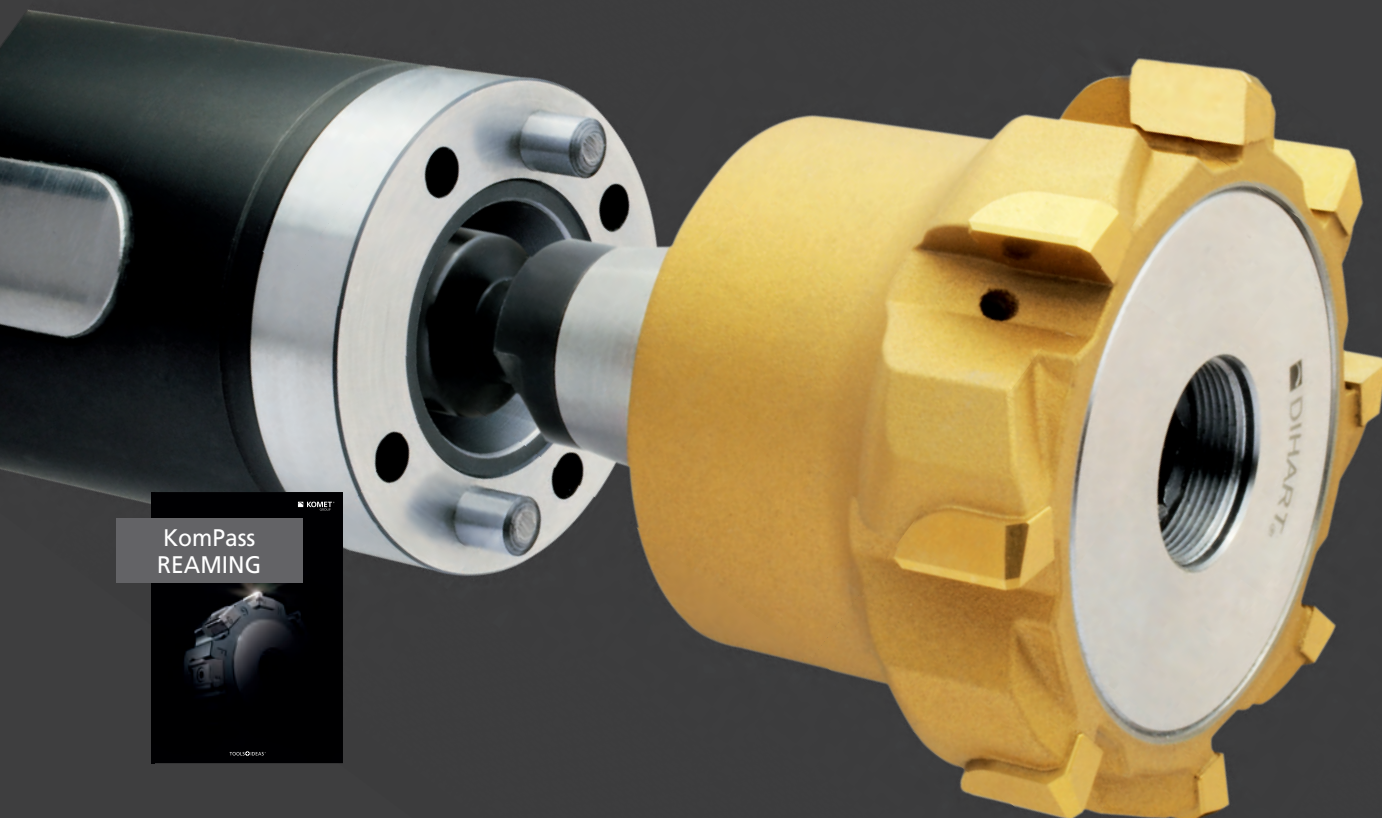
Code	
00	Round insert
01	R 0,1
02	R 0,2
04	R 0,4
08	R 0,8
12	R 1,2
...	



⑦ Material grade

Code	
5510	PKD5510
5605	DSD5605
...	

KOMET DIHART REAMAX® TS



Modular Reaming System

Unlimited flexibility and cost-effectiveness:

KOMET DIHART REAMAX® TS is a uniform clamping system with a standardised separation point for all reaming heads, offering flexibility and cost-effectiveness thanks to fast and high-precision tool changing.

KOMET DIHART REAMAX® TS guarantees a maximum of system modularity thanks to a versatile and clearly structured range of reaming heads which can handle all commonly encountered diameter ranges and machining requirements. Tool costs and logistical expenditure are thereby reduced to a minimum.

Application:

- All current materials
- Through holes and blind bores
- Small bore tolerances
- Up to $5 \times D$
- High speed – up to 300 m/min
- Feed – up to 2.4 mm/rev

A connection for maximum production reliability

This high-precision connection guarantees safer transfer of the torque which occurs during reaming and the concentricity required for precision machining.

KOMET DIHART REAMAX® TS is designed for high speed machining.

Multi-flute tools

Adjustable for small tolerances

To compensate for wear and to meet tolerances as small as IT4, all KOMET DIHART REAMAX® TS multi-flute tools are adjustable. Maximum repeatable accuracy is achieved without pre-setting, i.e.

- Longer tool life
- Maximum performance
- Extremely tight bore tolerances
- Less machine down time

With internal coolant system

The coolant is supplied through the tool with radial or central outlet.

BENEFITS for you:

- High-precision ground for the highest quality
- Modular tool system for the highest flexibility
- Compensation for wear through simple readjustment
- Integrated concentricity adjustment for short lengths
- Can be adjusted for extremely small hole

KOMET DIHART REAMAX® TS Duo

The use of inserts is revolutionising reaming with multiple blade reamers and setting new levels in precision and function.

Each insert has two effective cutting edges. Unlike boring tools, inserts for reaming tools are ground as a complete set directly on the basic element in their specific insert pocket.

The positions of the individual cutting edges on an insert are precisely defined during manufacturing and application. Cutting edges ground in a single operation ensure the degree of precision required for high precision bore machining.

Numerous cutting materials and coatings for machining an extremely wide variety of materials.

KOMET DIHART REAMAX® TS Page

Tool recommendation

Reaming head

Ø 18,000 – 65,000 mm

Recommended cutting data

KOMET DIHART REAMAX® TS Duo

Tool recommendation 184 – 185

Indexable insert reaming head

Ø 42,000 – 70,000 mm 186 – 187

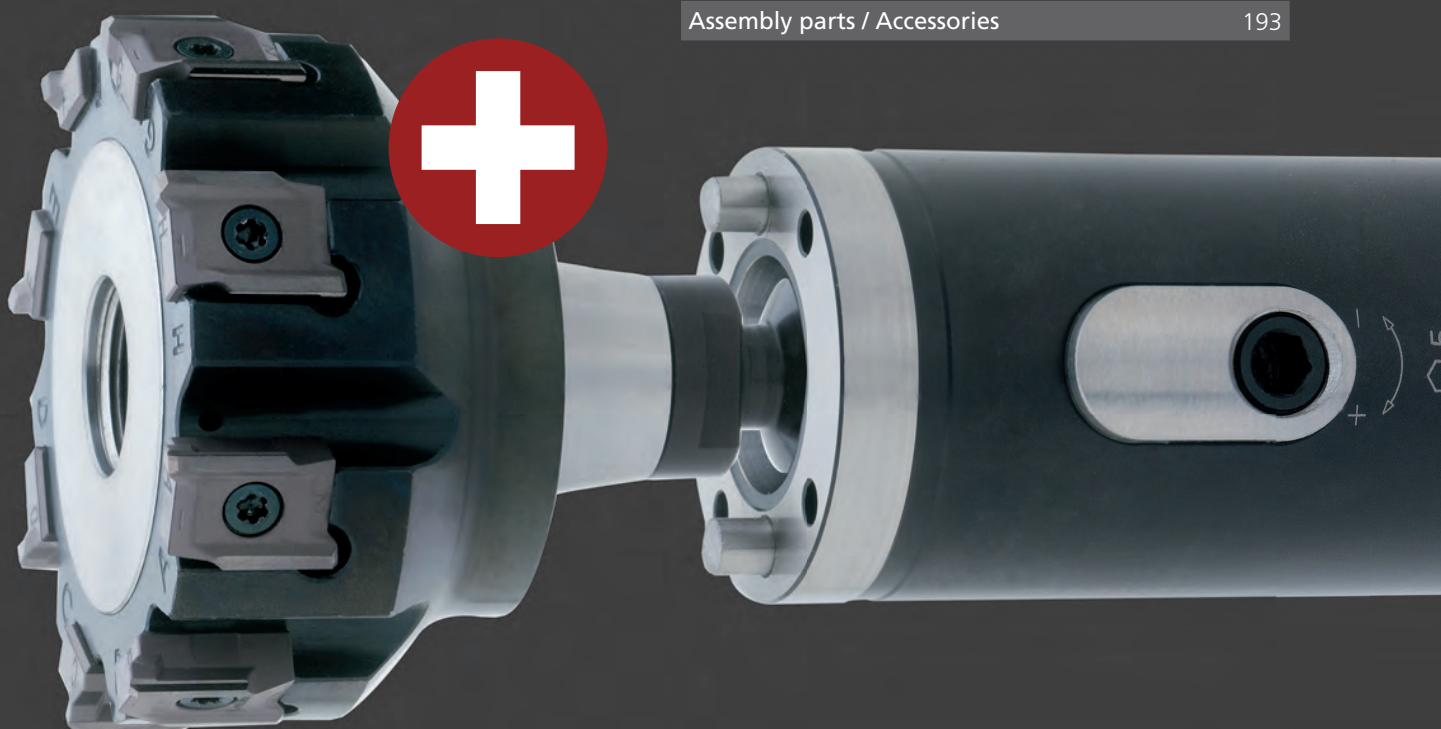
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Holder

Cylindrical shank	188
DAH® Zero adaptor	189
ABS® adaptor	190
DAH® adaptor	191

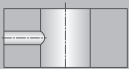
Assembly instruction 192 – 193

Assembly parts / Accessories 193

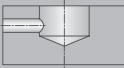
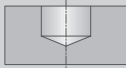


KOMET DIHART REAMAX® TS Duo

Tool recommendation

					High-speed machining						
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN							
					Order No.	Cutting geometry (ASG)	Cutting material/coating	Order No.	Cutting geometry (ASG)	Cutting material/coating	
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	76J.93 77J.93	ASG4000	DST	76J.71 77J.71	ASG4000	TiN	
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	76J.93 77J.93	ASG4000	DST	76J.71 77J.71	ASG4000	TiN	
	2.1	< 500	lead alloys	1.0718 (115MnPb30)	76J.93 77J.93	ASG4000	DST	76J.71 77J.71	ASG4000	TiN	
	3.0	> 900	non alloy / low alloy steels; heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	76J.93 77J.93	ASG4000	DST	76J.71 77J.71	ASG3000	TiN	
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	76J.71 77J.71	ASG0106	TiN	76J.71 77J.71	ASG0106	TiN	
	4.1		HSS								
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							
	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)	76J.47 77J.47	ASG0106	DBF	76J.47 77J.47	ASG0106	DBF	
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	76J.47 77J.47	ASG0106	DBF	76J.47 77J.47	ASG0106	DBF	
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	76J.47 77J.47	ASG0106	DBF	76J.47 77J.47	ASG0106	DBF	
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	76J.37 77J.37	ASG3000	DBG-N	76J.37 77J.37	ASG3000	DBG-N	
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	76J.37 77J.37	ASG3000	DBG-N	76J.37 77J.37	ASG3000	DBG-N	
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	76J.93 77J.93	ASG3000	DST	76J.47 77J.47	ASG3000	DBF	
	9.1		230 spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	76J.93 77J.93	ASG3000	DST	76J.47 77J.47	ASG3000	DBF	
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	76J.93 77J.93	ASG3000	DST	76J.47 77J.47	ASG3000	DBF	
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	76J.37 77J.37	ASG3000	DBG-N	76J.37 77J.37	ASG3000	DBG-N	
	10.2		300 vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	76J.37 77J.37	ASG3000	DBG-N	76J.37 77J.37	ASG3000	DBG-N	
	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	76J.93 77J.93	ASG3000	DST	76J.93 77J.93	ASG3000	TiN	
N	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	76J.71 77J.71	ASG3000	TiN	76J.71 77J.71	ASG3000	TiN	
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	76J.17 77J.17	ASG0706	DBC	76J.17 77J.17	ASG0706	DBC	
	13.1		75 cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	76J.17 77J.17	ASG0706	DBC	76J.17 77J.17	ASG0706	DBC	
	14.0		100 cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	76J.17 77J.17	ASG0706	DBC	76J.17 77J.17	ASG0706	DBC	
H	15.0	1400	hardened steels < 45 HRC								
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC								

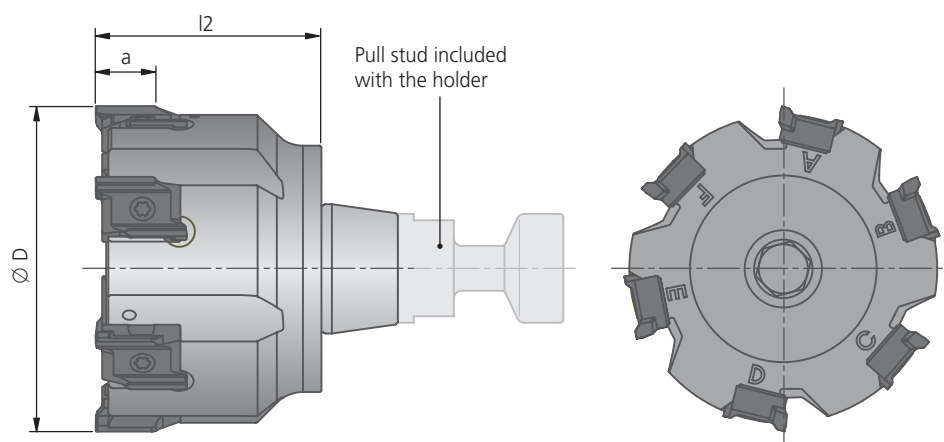
We are happy to take inquiries concerning tools for materials without a recommendation.

High-speed machining							Conventional machining with carbide					
												
	Order No.	Cutting geometry (ASG)	Cutting material/coating	Order No.	Cutting geometry (ASG)	Cutting material/coating	Order No.	Cutting geometry (ASG)	Cutting material	Order No.	Cutting geometry (ASG)	Cutting material
	76H.93 77H.93	ASG3000	DST	76H.71 77H.71	ASG3000	TiN	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.93 77H.93	ASG3000	DST	76H.71 77H.71	ASG3000	TiN	76J.21 77J.21	ASG02	HM	76H.21 77H.21	ASG02	HM
	76H.93 77H.93	ASG3000	DST	76H.71 77H.71	ASG3000	TiN	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.93 77H.93	ASG3000	DST	76H.71 77H.71	ASG3000	TiN	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.71 77H.71	ASG0106	TiN	76H.71 77H.71	ASG0106	TiN	76J.21 77J.21	ASG0106	HM	76H.21 77H.21	ASG0106	HM
							76J.21 77J.21	ASG03	HM	76H.21 77H.21	ASG03	HM
	76H.47 77H.47	ASG0106	DBF	76H.47 77H.47	ASG0106	DBF	76J.21 77J.21	ASG0106	HM	76H.21 77H.21	ASG0106	HM
	76H.47 77H.47	ASG0106	DBF	76H.47 77H.47	ASG0106	DBF	76J.21 77J.21	ASG0106	HM	76H.21 77H.21	ASG0106	HM
	76H.47 77H.47	ASG0106	DBF	76H.47 77H.47	ASG0106	DBF	76J.21 77J.21	ASG0106	HM	76H.21 77H.21	ASG0106	HM
	76H.37 77H.37	ASG3000	DBG-N	76H.37 77H.37	ASG3000	DBG-N	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.37 77H.37	ASG3000	DBG-N	76H.37 77H.37	ASG3000	DBG-N	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.93 77H.93	ASG3000	DST	76H.47 77H.47	ASG3000	DBF	76J.21 77J.21	ASG02	HM	76H.21 77H.21	ASG02	HM
	76H.93 77H.93	ASG3000	DST	76H.47 77H.47	ASG3000	DBF	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.93 77H.93	ASG3000	DST	76H.47 77H.47	ASG3000	DBF	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.37 77H.37	ASG3000	DBG-N	76H.37 77H.37	ASG3000	DBG-N	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.37 77H.37	ASG3000	DBG-N	76H.37 77H.37	ASG3000	DBG-N	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.93 77H.93	ASG3000	DST	76H.93 77H.93	ASG3000	TiN	76J.21 77J.21	ASG0106	HM	76H.21 77H.21	ASG0106	HM
	76H.71 77H.71	ASG3000	TiN	76H.71 77H.71	ASG3000	TiN	76J.21 77J.21	ASG0106	HM	76H.21 77H.21	ASG0106	HM
	76H.17 77H.17	ASG0706	DBC	76H.17 77H.17	ASG0706	DBC	76J.21 77J.21	ASG02	HM	76H.21 77H.21	ASG02	HM
	76H.17 77H.17	ASG0706	DBC	76H.17 77H.17	ASG0706	DBC	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM
	76H.17 77H.17	ASG0706	DBC	76H.17 77H.17	ASG0706	DBC	76J.21 77J.21	ASG3000	HM	76H.21 77H.21	ASG3000	HM

Cutting speed and feed see pages 194-195.

Important: See page 247 for more application details and safety notes !

Indexable insert reaming head – expandable



Custom reaming head – selection options!

Selection: Cutting material, material, coolant supply						Selection: Dimensions				
Order No.	Order No.	Cutting material, coating	for material		for material		Ø D	a ~	l2 ~	Z
76J.21	76H.21	HM	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾	42,000 - 51,999	9,0	30	6
76J.71	76H.71	TiN	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾	52,000 - 55,999	9,0	35	6
76J.37	76H.37	DBG-N	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾	56,000 - 70,000	9,0	35	8
76J.47	76H.47	DBF	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
76J.17	76H.17	DBC	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
76J.93	76H.93	DST	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
76J.67	76H.67	DJC	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
76J.87	76H.87	DJF	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				

¹⁾ conventional machining · ²⁾ GJS (spheroidal graphite cast iron) · ³⁾ material group 12.0 · ⁴⁾ material group 12.1 · ⁵⁾ material group 12.0&12.1

New tool order example: Example Order No. **76J.93**

Bore diameter 65 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG4000 (Cutting geometry page 184-185).

Supply includes: Reaming head mounted with inserts and clamping screws N00 57710 (S3090-9IP 2,25Nm).

Retipping order example: Example Order No. **76R.93**

A reaming head sent back to KOMET by the customer will be delivered fitted with indexable inserts and clamping screws. It is also possible to order one or two indexable insert sets for this reaming head (example Order No. **76S.93**).

Screwdriver see page 248.

Assembly instructions inserts



Cleaning:

Make sure that the insert seats ③ and inserts are absolutely clean/grease-free. If necessary, use compressed air to remove dust particles!

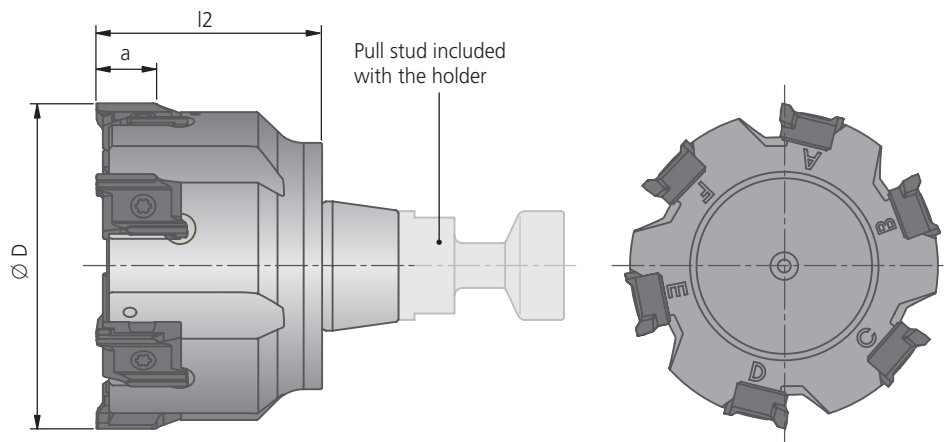
Montage:

- All inserts and insert seats are marked with letters ①. This ensures correct assignment to the insert seat.
- The number markings ② ensure that all inserts are positioned correctly.
- Tighten the screw ④ (order no. N00 57710) to 2.25 Nm. Torque wrench order no. L05 03311

Ø 42,000 – 70,000 mm

KOMET DIHART REAMAX® TS Duo

Indexable insert reaming head – fix



Custom reaming head – selection options!

Selection: Cutting material, material, coolant supply						Selection: Dimensions				
Order No.	Order No.	Cutting material, coating	for material		for material		Ø D	a ~	l2 ~	Z
77J.21	77H.21	HM	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾	42,000 - 51,999	9,0	30	6
77J.71	77H.71	TiN	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾	52,000 - 55,999	9,0	35	6
77J.37	77H.37	DBG-N	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾	56,000 - 70,000	9,0	35	8
77J.47	77H.47	DBF	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
77J.17	77H.17	DBC	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
77J.93	77H.93	DST	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
77J.67	77H.67	DJC	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				
77J.87	77H.87	DJF	P ¹⁾	M ¹⁾	K ¹⁾	N ¹⁾				

¹⁾ conventional machining · ²⁾ GJS (spheroidal graphite cast iron) · ³⁾ material group 12.0 · ⁴⁾ material group 12.1 · ⁵⁾ material group 12.0&12.1

New tool order example: Example Order No. 77J.93

Bore diameter 65 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG4000 (Cutting geometry page 184-185).

Supply includes: Reaming head mounted with inserts and clamping screws N00 57710 (S3090-9IP 2,25Nm).

Retipping order example: Example Order No. 77R.93

A reaming head sent back to KOMET by the customer will be delivered fitted with indexable inserts and clamping screws. It is also possible to order one or two indexable insert sets for this reaming head (example Order No. 77S.93).

Screwdriver see page 248.

Measuring the diameter:

The measuring tooth is located at letter A and is also marked on the holder with a spot.

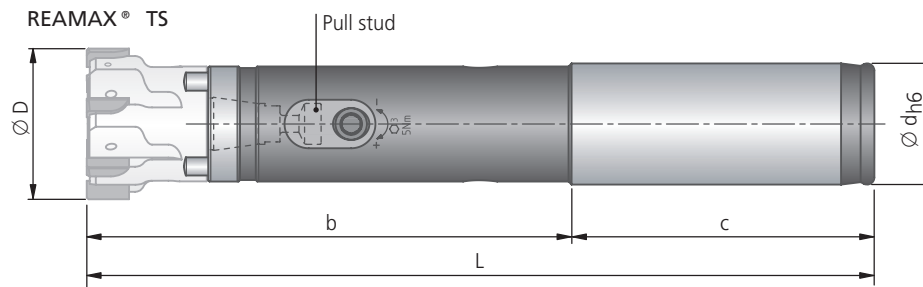
Caution!

- Uneven angle division !
- Two cutting edges are at 180° from each other = measuring tooth A.
- Measure the diameter at the front of the reaming head (due to tapering, see illustration).
- Avoid damaging the cutting edges
- When indexing the insert, the diameter must be readjusted.
- Delivery includes: REAMAX® TS Duo with mounted inserts.

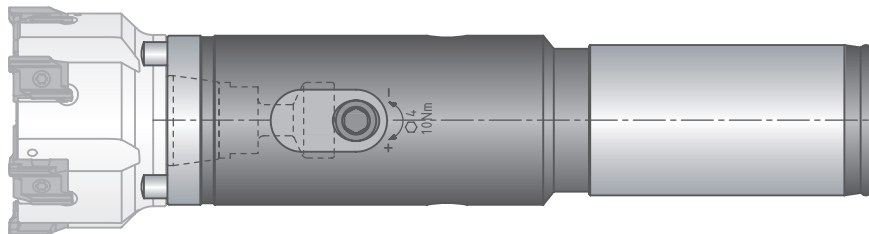


KOMET DIHART REAMAX® TS | REAMAX® TS Duo

Holder for Ø 18,000 – 70,000 mm



REAMAX® TS Duo



≈ DIN 1835													
for Ø D	for Ø D ^{H7}	short version						long version					
		Order No.	L	b	c	Ø d		Order No.	L	b	c	Ø d	
18,000 – 19,999	18 ^{H7}	75A.40.13010	130	80	50	20	0,2	75A.40.15010	190	140	50	20	0,3
20,000 – 21,999	20 ^{H7}	75A.40.13020	130	80	50	20	0,2	75A.40.15020	190	140	50	20	0,3
22,000 – 26,999	22 ^{H7}	75A.40.13030	130	80	50	20	0,3	75A.40.15030	210	160	50	20	0,4
	24 ^{H7}												
	25 ^{H7}												
27,000 – 34,999	28 ^{H7}	75A.40.13040	176	120	56	25	0,5	75A.40.15040	236	180	56	25	0,7
	30 ^{H7}												
	32 ^{H7}												
35,000 – 41,999	35 ^{H7}	75A.40.13050	176	120	56	25	0,6	75A.40.15050	256	200	56	25	1,0
	40 ^{H7}												
42,000 – 51,999	50 ^{H7}	75A.40.13060	180	120	60	32	0,9	75A.40.15060	280	220	60	32	1,5
52,000 – 70,000		75A.40.13070	180	120	60	32	1,0	75A.40.15070	280	220	60	32	1,0

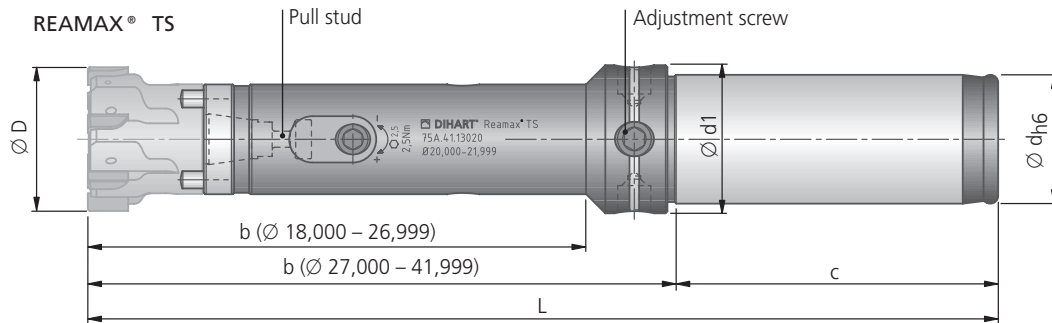
Supply includes:

Holder with operating key, pull stud and open-end wrench (→ page 193). Please order reaming head separately.

KOMET DIHART REAMAX® TS

DAH® Zero Holder for Ø 18,000 – 41,999 mm

⚠ Please note:
Holder is pre-clamped and set to a concentricity of < 0.005 mm



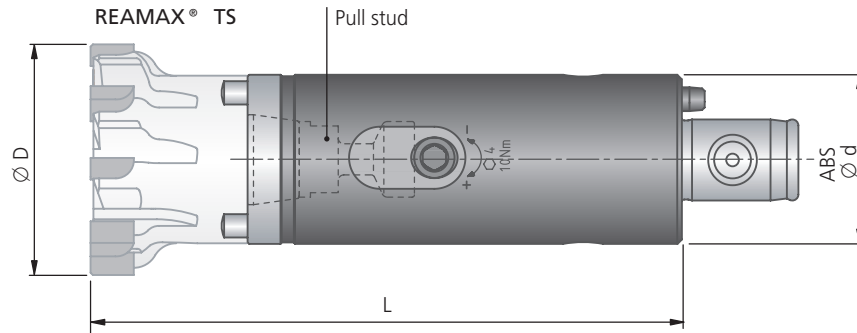
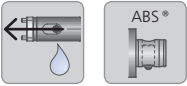
DAH® Zero															
for Ø D	for Ø D ^{H7}	short version							long version						
		Order No.	L	b	c	Ø d	Ø d1	kg	Order No.	L	b	c	Ø d	Ø d1	kg
18,000 – 19,999	18 ^{H7}	75A.41.13010	145	80	50	20	24	0,2	75A.41.15010	205	140	50	20	24	0,3
20,000 – 21,999	20 ^{H7}	75A.41.13020	145	80	50	20	25	0,3	75A.41.15020	205	140	50	20	25	0,4
22,000 – 26,999	22 ^{H7}	75A.41.13030	145	80	50	20	26,5	0,3	75A.41.15030	225	160	50	20	26,5	0,4
	24 ^{H7}														
	25 ^{H7}														
27,000 – 34,999	28 ^{H7}	75A.41.13040	176	120	56	25	26	0,5	75A.41.15040	236	180	56	25	26	0,7
	30 ^{H7}														
	32 ^{H7}														
35,000 – 41,999	35 ^{H7}	75A.41.13050	176	120	56	25	29	0,5	75A.41.15050	256	200	56	25	29	1,05
	40 ^{H7}														

Supply includes:

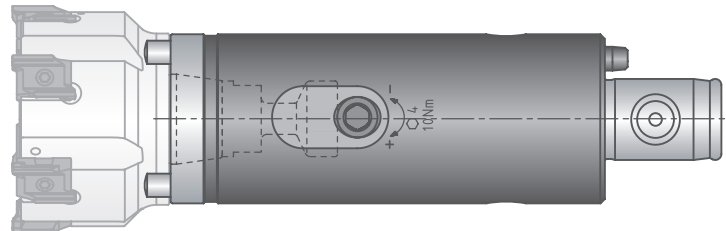
Holder with operating key, pull stud and open-end wrench (→ page 193). Please order reaming head separately.

KOMET DIHART REAMAX® TS | REAMAX® TS Duo

ABS® Holder for Ø 35,000 – 70,000 mm



REAMAX® TS Duo

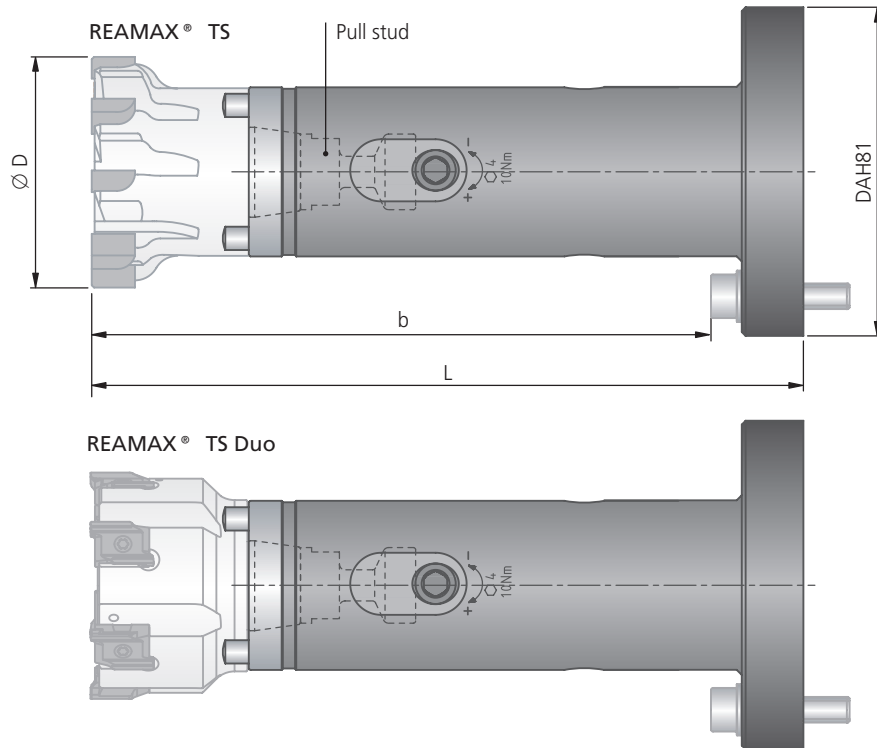


ABS®					
for Ø D	for Ø D ^{H7}	Order No.	L	ABS Ø d	
35,000 – 41,999	35 ^{H7}	75A.60.13050	110	32	0,42
	40 ^{H7}				
42,000 – 51,999	50 ^{H7}	75A.60.13060	115	32	0,53
52,000 – 70,000		75A.60.13070	125	40	0,83

Supply includes:
Holder with operating key, pull stud and open-end wrench (→ page 193). Please order reaming head separately.
ABS® adaptors see catalogue "KomPass DRILLING".

KOMET DIHART REAMAX® TS | REAMAX® TS Duo

DAH® Holder for Ø 42,000 – 70,000 mm



DAH®											
for Ø D	for Ø D ^{H7}	short version					long version				
		Order No.	L	b	DAH		Order No.	L	b	DAH	
42,000 – 51,999	50 ^{H7}	75A.30.13060	138	120	81	0,9	75A.30.15060	238	220	81	1,5
52,000 – 70,000		75A.30.13070	138	120	81	1,0	75A.30.15070	238	220	81	2,0

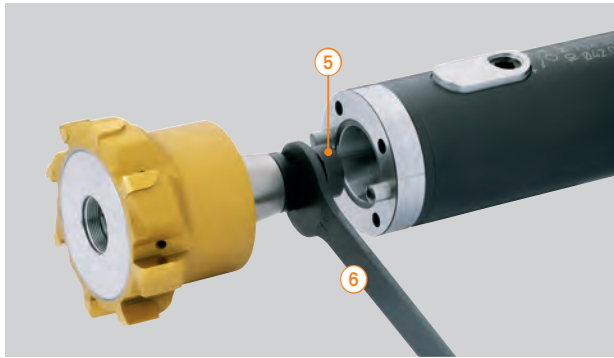
Supply includes:

Holder with operating key, pull stud and open-end wrench (→ page 193). Please order reaming head separately.

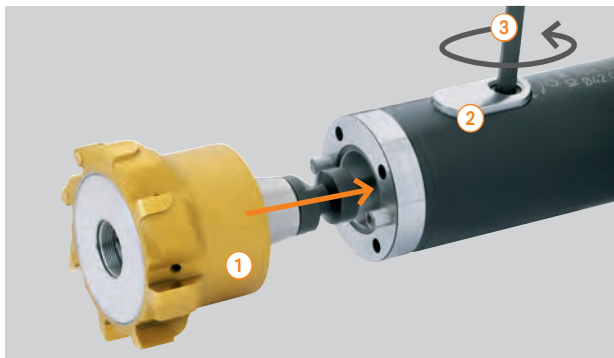
DAH® compensation holder see "KomPass REAMING".

KOMET DIHART REAMAX® TS | REAMAX® TS Duo

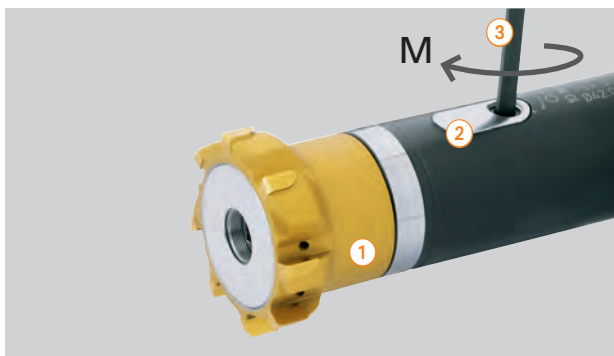
Assembly instructions



Clean taper/contact face thoroughly (grease free).
Screw pull stud ⑤ into reaming head and tighten with open-end wrench ⑥.

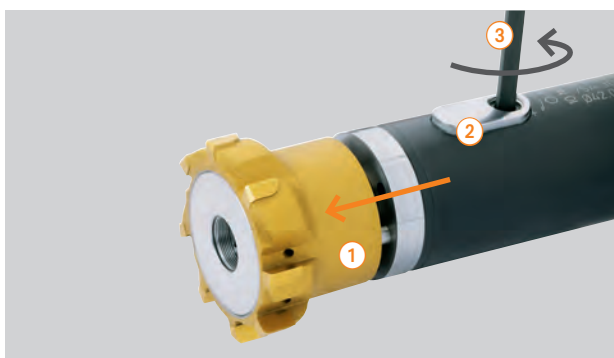


Without fully releasing them, open clamping jaws ② with key ③. Insert reaming head ①.

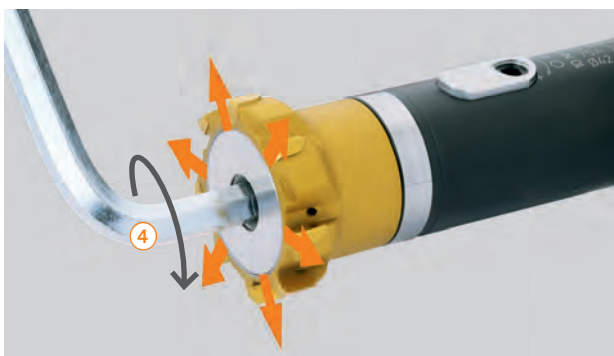


Close clamping jaws ② with key ③, using recommended torque.
When inserting the reaming head ① it is drawn into its final position by closing the clamping jaws ②.

Dia. range	Starting torque M
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 70,000	13 Nm



When removing the reaming head ① it is pushed out of its position by the clamping jaws ② which allows for easy removal from the holder: Without fully releasing them, open clamping jaws ② with the key ③, remove the reaming head ①.



Adjusting to compensate for wear

Bore tolerances up to IT4 can be achieved by readjusting the reaming head using the hexagonal key ④.

KOMET DIHART REAMAX® TS

Operating Instruction DAH® Zero

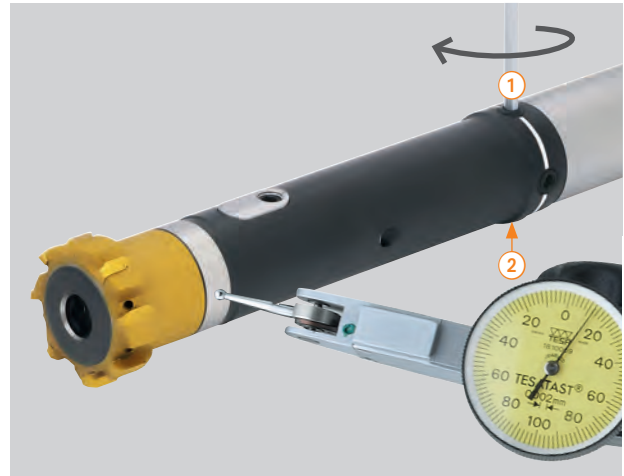
Aligning the DAH® Zero holder:

The tool is recommended for a maximum radial alignment of 20 µm.

1. Loosen all adjustment screws and pretension to 1 Nm (new tools are delivered already adjusted).
2. Place µm dial against the steady rest bearing position.
3. Using the dial, determine the point of greatest runout error by turning the tool.
4. Using an Allen key, turn the appropriate adjustment screw clockwise ① until half of the runout error is corrected. Then over-tension by approx. 5 µm.
5. Loosen the opposite adjustment screw ② by the amount of over-tension.
6. Set all 4 adjustment screws until runout is less than 2 µm.

Please note:

- Based on adjustment steps 1 to 6, the runout must be checked and, if necessary, realigned when the adapter is exchanged, the application is changed, every time after wear compensation is adjusted and before every re-use.
- When in use, adjustment screws must always be tightened to 1 Nm.
- The max. readjustment torque is 4.5 Nm.



Assembly parts / Accessories

for Ø D	for Ø DH7	③ Operating key 				④ Hexagonal key* 	⑤ Pull studs 	⑥ Open-end wrench for pull studs 	
		Size	Order No.	L	Starting torque M			Width across flats	Order No.
18,000 – 19,999	18 ^{H7}	8IP	L05 01240		1,5 Nm	SW 4	15E.30.10010	SW 5	18589 10005
20,000 – 21,999	20 ^{H7}	SW 2,5	18050 10025	100	2,5 Nm	SW 5	15E.30.10020	SW 5	18589 10005
22,000 – 26,999	22 ^{H7}	SW 3	18050 10030	100	4 Nm	SW 5	15E.30.10030	SW 6	18589 10006
	24 ^{H7}								
	25 ^{H7}								
27,000 – 34,999	28 ^{H7}	SW 3	18050 10030	100	5 Nm	SW 8	15E.30.10040	SW 8	18589 10008
	30 ^{H7}								
	32 ^{H7}								
35,000 – 41,999	35 ^{H7}	SW 3	18050 10030	100	6 Nm	SW 6	15E.30.10050	SW 10	18589 10010
	40 ^{H7}								
42,000 – 51,999	50 ^{H7}	SW 4	18050 10040	100	10 Nm	SW 8	15E.30.10050	SW 10	18589 10010
52,000 – 70,000		SW 5	18050 10050		13 Nm	SW 10	15E.30.10070	SW 13	18589 10013

* not included in supply

KOMET DIHART REAMAX® TS Duo

Recommended cutting data

Guideline values for reaming					Cutting speed v_c (m/min)																
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	optimum · maximum								optimum · maximum								
					3×D Reamers short								5×D Reamers long								
					HM	TiN	DBG-N	DBF	DBC	DST	DJC	DJF	HM	TiN	DBG-N	DBF	DBC	DST	DJC	DJF	
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	8 10	100 140				150 200	150 200		8 10	80 120				120 160	120 160		
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	8 10	100 140				150 200	150 200		8 10	80 120				120 160	120 160		
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	30 45	100 140				150 200	150 200		30 45	80 120				120 160	120 160		
	3.0	> 900	non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	7 9	100 140				150 200	150 200		7 9	80 120				120 160	120 160		
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45							5 7	30 45							
	4.1		HSS																		
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.																	
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	8 12								8 12								
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	6 8	30 40		45 60					6 8	30 40		45 60					
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	5 6	20 35		30 50					5 6	20 35		30 50					
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	5 6	20 35		30 50					5 6	20 35		30 50					
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	15 25	80 130	150 220	150 220				15 25	80 120	120 150	120 150					
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	10 15	50 90	90 130	90 130				10 15	50 90	90 120	90 120					
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	12 18		175 300	175 300		175 300	175 300	175 300	12 18		150 180	150 180		150 180	150 180	150 180
	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	12 18		150 250	150 250		150 250	150 250	150 250	12 18		120 160	120 160		120 160	120 160	120 160
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	12 15		120 180	120 180		120 180	120 180	120 180	12 15		120 150	120 150		120 150	120 150	120 150
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	9 12	40 60	70 100	70 100					9 12	40 60	70 100	70 100				
10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	9 12	50 70	80 130	80 130					9 12	50 70	80 130	80 130					
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	15 30	120 200				150 320		15 30	120 150				150 200			
	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150						12 20	80 120							
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30			150 300				15 30				150 200				
	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	15 30			200 300				15 30				150 200				
	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	12 20			200 300				12 20				150 200				
H	15.0	1400	hardened steels < 45 HRC																		
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC																		

Reaming allowance in diameter (mm)

KOMET DIHART REAMAX® TS Duo

Recommended cutting data

Feed f (mm/rev) – with face cut, feed reduced by 30%				
	optimum · maximum		optimum · maximum	
	ASG3000, ASG0106, ASG03, ASG0706 ASG07, ASG02		ASG4000, ASG1402 ASG09, ASG1405, ASG1406	
	Ø 42 - 55,999 ✱ 6	Ø 56 - 70 ✱ 8	Ø 42 - 55,999 ✱ 6	Ø 56 - 70 ✱ 8
	1,00 1,40	1,50 2,30	1,20 1,70	1,90 2,70
	1,00 1,40	1,50 2,30	1,20 1,70	1,90 2,70
	1,00 1,40	1,50 2,30	1,20 1,70	1,90 2,70
	1,00 1,40	1,50 2,30	1,20 1,70	1,90 2,70
	0,70 1,00	1,10 1,60		
	0,70 1,00	1,10 1,60		
	0,60 0,80	0,90 1,30		
	0,80 1,20	1,30 1,90		
	0,80 1,10	1,20 1,80		
	0,80 1,10	1,20 1,80		
	0,80 1,10	1,20 1,80		
	1,20 1,70	1,90 2,70		
	1,00 1,40	1,50 2,30		
	1,20 1,70	1,90 2,70		
	1,20 1,70	1,90 2,70		
	1,00 1,40	1,50 2,30		
	0,80 1,10	1,20 1,80		
	0,80 1,10	1,20 1,80		
	1,10 1,70	1,70 2,50		
	0,90 1,40	1,40 2,10		
	1,10 1,70	1,70 2,70		
	1,10 1,70	1,70 2,70		
	1,10 1,70	1,70 2,70		
	0,30 - 0,40	0,30 - 0,50	0,30 - 0,40	0,30 - 0,50

KOMET JEL® MKG

Thread milling tool with deburring edge

During the thread-milling operation itself, the KOMET JEL® MKG thread milling cutter with deburring cutting edge removes the otherwise uncompleted part at the start of the thread – without taking any extra time. This is particularly appreciated during work on hydraulic systems when, for reasons of maintenance, parts have to be fitted and removed relatively frequently. This uncompleted part is thereby prevented from becoming detached, entering the system and causing damage.

Thread milling is the only method of creating an internal thread that offers the possibility of, starting from the tool nominal thread, cutting every larger-sized thread with the same pitch and the same tool. By using the deburring cutting edge, the effective length of the thread is completely defined and invariable.

Tools are therefore selected in relation to thread length TL and pitch t.

Our range offers a standard tool for all commonly used thread lengths in the thread pitches of 1.0 mm and 1.5 mm. Available with parallel shank DIN 6535 HA or with clamping surface DIN 6535 HE, in bare metal or TiCN-coated.



How to select the right tool for YOUR machining operation? Here are some examples:

1 M8x1 | Thread length 10 -1 mm

Can be created with thread milling cutter MKG M6 80700001030018 – achievable thread length 9,5 mm

2 M10 | Thread length 17 +1 mm and

3 M20x1,5 | Thread length 18 -1 mm

Can be created with thread milling cutter MKG M10 88700001020022 – achievable thread length 17,2 mm

4 M16x1 | Thread length 14 +1 mm

Can be created with thread milling cutter MKG M10x1 88703002060094 – achievable thread length 14,5 mm

M-MKG													DIN 6535 HE		DIN 6535 HA	
Nominal Ø	D	t	D1	I3	d2	AD	Z	KN	I1	BT min.	TL	t1	uncoated 	TiCN 	uncoated 	TiCN
													Order No.	Order No.	Order No.	Order No.
M6	1,00	5,0	36	6	4,68	3	3		55,0	12,8	12,5	1,0	80700001000018	80703001000018	88700001000018	88703001000018
									54,0	11,8	11,5	1,0	80700001010018	80703001010018	88700001010018	88703001010018
									53,0	10,8	10,5	1,0	80700001020018	80703001020018	88700001020018	88703001020018
									52,0	9,8	9,5	1,0	80700001030018	80703001030018	88700001030018	88703001030018
									51,0	8,8	8,5	1,0	80700001040018	80703001040018	88700001040018	88703001040018
									50,0	7,8	7,5	1,0	80700001050018	80703001050018	88700001050018	88703001050018
									49,0	6,8	6,5	1,0	80700001060018	80703001060018	88700001060018	88703001060018
									74,0	20,65	20,2	1,5	80700001000022	80703001000022	88700001000022	88703001000022
M10	1,50	8,5	40	10	7,79	3	3		72,5	19,15	18,7	1,5	80700001010022	80703001010022	88700001010022	88703001010022
									71,0	17,65	17,2	1,5	80700001020022	80703001020022	88700001020022	88703001020022
									69,5	16,15	15,7	1,5	80700001030022	80703001030022	88700001030022	88703001030022
									68,0	14,65	14,2	1,5	80700001040022	80703001040022	88700001040022	88703001040022
									74,0	20,8	20,5	1,0	80700002000094	80703002000094	88700002000094	88703002000094
									73,0	19,8	19,5	1,0	80700002010094	80703002010094	88700002010094	88703002010094
									72,0	18,8	18,5	1,0	80700002020094	80703002020094	88700002020094	88703002020094
									71,0	17,8	17,5	1,0	80700002030094	80703002030094	88700002030094	88703002030094
M10x1	1,00	9,0	40	10	7,79	3	3		70,0	16,8	16,5	1,0	80700002040094	80703002040094	88700002040094	88703002040094
									69,0	15,8	15,5	1,0	80700002050094	80703002050094	88700002050094	88703002050094
									68,0	14,8	14,5	1,0	80700002060094	80703002060094	88700002060094	88703002060094
									67,0	13,85	13,5	1,0	80700002070094	80703002070094	88700002070094	88703002070094
									66,0	12,8	12,5	1,0	80700002080094	80703002080094	88700002080094	88703002080094
									65,0	11,8	11,5	1,0	80700002090094	80703002090094	88700002090094	88703002090094
									64,0	10,8	10,5	1,0	80700002091094	80703002091094	88700002091094	88703002091094
									64,0	10,8	10,5	1,0	80700002091094	80703002091094	88700002091094	88703002091094

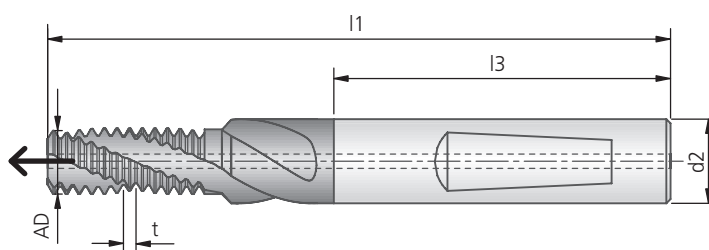
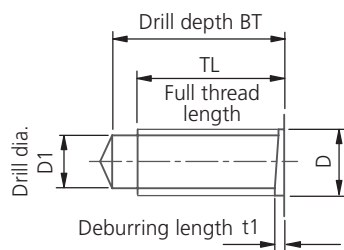
KOMET SERVICE® – Page 236

The KOMET SERVICE® TOOL lifeBoxicon describes tools that are available for the high quality cost-efficient refurbishment of tools.



KOMET JEL® M-MKG

Thread milling tool with deburring edge

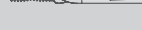
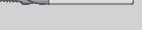


Use for:

M6 for M6, M7, M8x1,...

M10 for M10, M11, M12x1,5,...

Note max. thread length TL

M-MKG												DIN 6535 HE		DIN 6535 HA		
Nominal Ø												uncoated	TiCN	uncoated	TiCN	
	D	t	D1	l3	d2	AD	Z	KN	l1	BT min.	TL	t1				
													Order No.	Order No.	Order No.	Order No.
M6	1,00	5,0	36	6	4,68	3	3		55,0	12,8	12,5	1,0	80700001000018	80703001000018	88700001000018	88703001000018
									54,0	11,8	11,5	1,0	80700001010018	80703001010018	88700001010018	88703001010018
									53,0	10,8	10,5	1,0	80700001020018	80703001020018	88700001020018	88703001020018
									52,0	9,8	9,5	1,0	80700001030018	80703001030018	88700001030018	88703001030018
									51,0	8,8	8,5	1,0	80700001040018	80703001040018	88700001040018	88703001040018
									50,0	7,8	7,5	1,0	80700001050018	80703001050018	88700001050018	88703001050018
									49,0	6,8	6,5	1,0	80700001060018	80703001060018	88700001060018	88703001060018
M10	1,50	8,5	40	10	7,79	3	3		74,0	20,65	20,2	1,5	80700001000022	80703001000022	88700001000022	88703001000022
									72,5	19,15	18,7	1,5	80700001010022	80703001010022	88700001010022	88703001010022
									71,0	17,65	17,2	1,5	80700001020022	80703001020022	88700001020022	88703001020022
									69,5	16,15	15,7	1,5	80700001030022	80703001030022	88700001030022	88703001030022
									68,0	14,65	14,2	1,5	80700001040022	80703001040022	88700001040022	88703001040022
									66,5	13,15	12,7	1,5	80700001050022	80703001050022	88700001050022	88703001050022
									65,0	11,65	11,2	1,5	80700001060022	80703001060022	88700001060022	88703001060022
									63,5	10,15	9,7	1,5	80700001070022	80703001070022	88700001070022	88703001070022

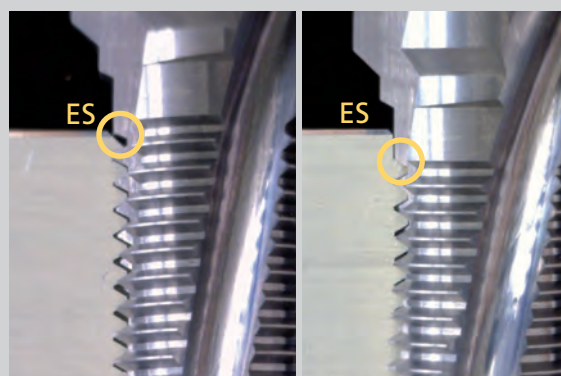
How the deburring edge works

Every thread, whether cut or formed, begins as a burr. The full thread profile is obtained as the pitch progresses when plunged into the solid material.

In screwed connections that are frequently unscrewed and then reconnected, this burr can come away and cause damage - to hydraulic components, for example.

In order to prevent this, the burr can – as with a thread mating plug gauge – be removed at the start of the thread as the thread is milled, without requiring any additional time, so that the thread starts with a full profile thread.

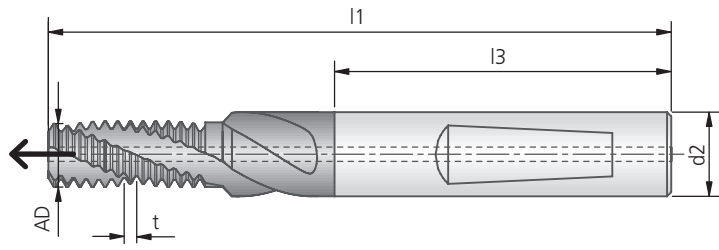
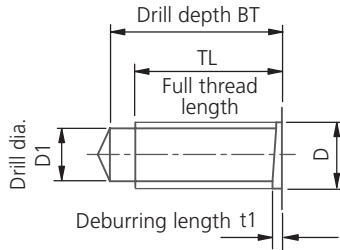
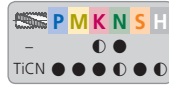
This is done with what is known as a deburring edge (ES), which is positioned on the tool behind the thread profile. The amount of material removed depends on the position where the edge is applied.



Start position

End position

Thread milling tool with deburring edge



Use for:
M10x1 for M10, M12x1,...
Note max. thread length TL

MF-MKG												DIN 6535 HE		DIN 6535 HA	
Nominal Ø												uncoated	TiCN	uncoated	TiCN
	D	t	D1	l3	d2	AD	Z	KN	l1	BT min.	TL	t1			
												Order No.	Order No.	Order No.	Order No.
M10x1	1,00	9,0	40	10	7,79	3	3	74,0	20,8	20,5	1,0	80700002000094	80703002000094	88700002000094	88703002000094
								73,0	19,8	19,5	1,0	80700002010094	80703002010094	88700002010094	88703002010094
								72,0	18,8	18,5	1,0	80700002020094	80703002020094	88700002020094	88703002020094
								71,0	17,8	17,5	1,0	80700002030094	80703002030094	88700002030094	88703002030094
								70,0	16,8	16,5	1,0	80700002040094	80703002040094	88700002040094	88703002040094
								69,0	15,8	15,5	1,0	80700002050094	80703002050094	88700002050094	88703002050094
								68,0	14,8	14,5	1,0	80700002060094	80703002060094	88700002060094	88703002060094
								67,0	13,85	13,5	1,0	80700002070094	80703002070094	88700002070094	88703002070094
								66,0	12,8	12,5	1,0	80700002080094	80703002080094	88700002080094	88703002080094
								65,0	11,8	11,5	1,0	80700002090094	80703002090094	88700002090094	88703002090094
								64,0	10,8	10,5	1,0	80700002091094	80703002091094	88700002091094	88703002091094

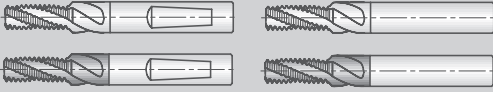


Risk of burr formation and of the burr becoming detached at the transition between the thread and the countersink – the risk is particularly high for lead-free aluminium alloys

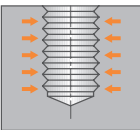


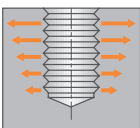
Thread with maximum deburring edge effect at a depth of 1xP

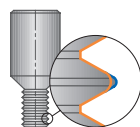
Recommended cutting data

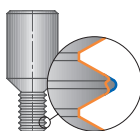
Guideline values for thread milling									
Material group		Strength Rm (N/mm²)	Hardness HB	Material	v_c (m/min) = Cutting speed f_z (mm/tooth) = Milling feed 				
					Surface	uncoated v_c m/min	TiCN v_c m/min	$\leq \varnothing 6$ f_z mm/tooth	$\leq \varnothing 12$ f_z mm/tooth
P	1.1	≤ 400	≤ 120	magnetic soft iron			80-150	0,015-0,04	0,04-0,06
	1.2	≤ 700	≤ 200	structural, case hardened steel			80-100	0,015-0,04	0,04-0,06
	1.3	≤ 850	≤ 250	carbon steel			80-100	0,015-0,04	0,04-0,06
	1.4	≤ 850	≤ 250	alloy steel			80-100	0,015-0,04	0,04-0,06
	1.5	> 850 ≤ 1200	> 250 ≤ 350	alloy/heat treated steel			60-80	0,01-0,03	0,04-0,06
	1.6	> 1200	> 350	alloy/heat treated steel			50-60	0,01-0,025	0,03-0,05
H	1.7	≤ 1400	≤ 400	hardened steel to 45 HRC			30-50	0,01-0,015	0,015-0,02
	1.8	≤ 2200	≤ 600	hardened steel to 58 HRC			20-40	0,01-0,015	0,015-0,02
M	2.1	≤ 850	≤ 250	stainless steel, sulphuretted			60-80	0,015-0,03	0,03-0,05
	2.2	≤ 850	≤ 250	austenitic			60-80	0,015-0,03	0,03-0,05
	2.3	≤ 1000	≤ 300	ferritic, ferritic & austenitic, martensitic			60-80	0,01-0,025	0,02-0,04
K	3.1	≤ 500	≤ 150	grey cast iron		50-80	80-120	0,02-0,04	0,04-0,10
	3.2	> 500 ≤ 1000	> 150 ≤ 300	grey cast iron, heat treated		50-80	80-120	0,02-0,03	0,04-0,08
	3.3	400-500	200-250	vermicular cast iron			80-100	0,02-0,04	0,04-0,08
	3.4	≤ 700	≤ 200	spheroidal graphite cast iron			80-120	0,02-0,04	0,04-0,10
	3.5	> 700 ≤ 1000	> 200 ≤ 300	spheroidal graphite cast iron, heat treated			80-100	0,02-0,03	0,04-0,08
	3.6	≤ 700	≤ 200	malleable iron			80-100	0,02-0,04	0,04-0,10
	3.7	> 700 < 1000	> 200 ≤ 300	malleable iron heat treated			80-100	0,02-0,03	0,04-0,08
S	4.1	≤ 700	≤ 200	pure titanium			40-100	0,015-0,03	0,03-0,08
	4.2	≤ 900	≤ 270	titanium alloys			40-100	0,015-0,03	0,03-0,08
	4.3	> 900 ≤ 1250	> 270 ≤ 300	titanium alloys			40-80	0,015-0,02	0,03-0,06
	5.1	≤ 500	≤ 150	pure nickel			50-60	0,02-0,04	0,04-0,06
	5.2	≤ 900	< 270	nickel alloys, heat resistant			30-40	0,02-0,04	0,04-0,06
N	5.3	> 900 ≤ 1200	> 270 ≤ 350	nickel alloys, high heat resistance			10-30	0,015-0,03	0,03-0,05
	6.1	≤ 350	≤ 100	non-alloy copper		100-300	100-400	0,04-0,07	0,07-0,12
	6.2	≤ 700	≤ 200	short chip, brass, bronze, red brass		100-300	100-400	0,04-0,07	0,07-0,12
	6.3	≤ 700	≤ 200	long chip brass		100-300	100-400	0,04-0,07	0,07-0,12
	6.4	≤ 500	≤ 470	Cu-Al-Fe alloy (Ampco)		60-80	60-80	0,02-0,04	0,03-0,06
	7.1	≤ 350	≤ 100	Al, Mg non-alloy		100-400	100-400	0,03-0,07	0,07-0,12
	7.2	≤ 600	≤ 180	Al wrought alloy, breaking strain (A 5) < 14 %		100-400	100-400	0,03-0,07	0,07-0,12
	7.3	≤ 600	≤ 180	Al wrought alloy, breaking strain (A 5) ≥ 14 %		100-400	100-400	0,03-0,07	0,07-0,12
	7.4	≤ 600	≤ 180	Al cast alloy, Si < 10 %		100-300	100-400	0,03-0,07	0,07-0,12
	7.5	≤ 600	≤ 180	Al cast alloy, Si ≥ 10 %		100-200	100-250	0,03-0,07	0,07-0,12
8	8.1			thermoplastics		80-100	100-120	0,04-0,06	0,06-0,12
	8.2			thermosetting plastics		80-100	100-120	0,04-0,06	0,06-0,12
	8.3			fibre reinforced plastics		50-60	60-80	0,04-0,06	0,06-0,12

1.  **Chips packed or glued at the thread profile**
- poor coolant
→ improve coolant (i.e. add flood coolant, lateral flute coolant supply for through holes)
→ add coolant flutes on shank

2.  **Thread go-gage doesn't fit**
- thread too small → reduce tool radius in offset register
 - chips in thread → improve coolant

3.  **Thread is getting tapered**
- poor tool clamping → improve tool holding (i.e. shrink fit holders)
 - thread milling feed too high → reduce thread milling feed

4.  **Erratic tool wear**
- tool run out too high → use better tool holders (i.e. shrink fit holders), check material for homogeneity

5.  **Chippage, tool breakage**
- feed rate thread milling too high → reduce thread milling feed
 - vibrations → check tool holder (don't use modular systems!!), change feeds and speeds

6.  **Poor thread surface**
- tool overhang too long → check part clamping and fixture.
Use multiple cuts when part is clamped weak
 - non-suitable tool for this application → reduce cutting speed, increase feed/tooth, prefer conventional milling

KOMET JEL® GG HML

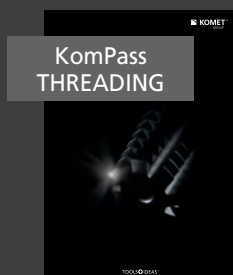
HSS-E Taps with carbide strips

Taps with carbide strips

Taps with carbide strips combine the benefits of a flexible HSS shank and hard cutting edge. As a result, slight alignment faults can be compensated for and at the same time, long tool life achieved. This tap is the specialist for machining vermicular cast iron (CGI) and grey cast iron. When used by our customers, it has so far proven itself on machining centres and transfer lines with flying colours: With a tool life of up to 75,000 threads in vermicular cast iron (GJV), this tap is the ideal tool for reliable and efficient machining.

BENEFITS for you:

- Compensation of slight alignment faults
- Long tool life
- Fewer machine downtimes

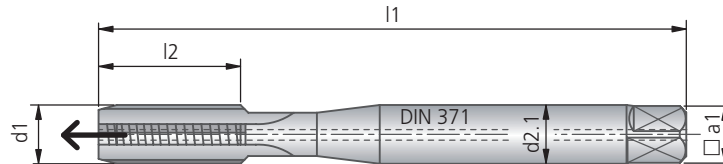


HSS-E Taps with carbide strips

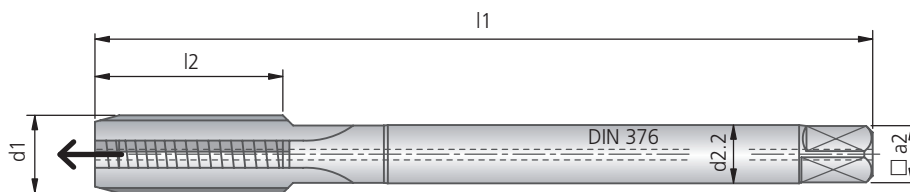


benefits of a flexible HSS shank and hard cutting edge in one tool
especially for CGI and grey cast iron

M6 - M10



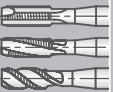
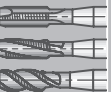
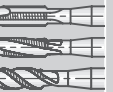
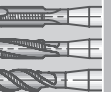
M12



						GG HML _{IK}
Cutting material ▶ Surface ▶ Shank Ø DIN 371 ▶						HSS-E, carbide tipped uncoated 
Nominal Ø d1	P	l1	l2	d2.1	a1	Order No.
M6	1,00	80	18,0	6,0	4,9	90456001000018
M8	1,25	90	18,0	8,0	6,2	90456001000020
M10	1,50	100	21,0	10,0	8,0	90456001000022
Shank Ø DIN 376 ▶						
Nominal Ø d1	P	l1	l2	d2.2	a2	Order No.
M12	1,75	110	24,0	9,0	7,0	90457001000024

KOMET JEL® Taps

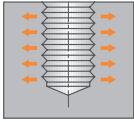
Recommended cutting data

Guideline values for tapping				Cutting speed					Coolant			
Material group	Strength Rm (N/mm²)	Hardness HB	Cutting material	Surface					Emulsion	Oil	Dry	Air
			Material	uncoated	HSS-E coated	with carbide strips	uncoated	coated				
				 V _C m/min	 V _C m/min	 V _C m/min	 V _C m/min	 V _C m/min				
P	1.1	≤400	magnetic soft iron	15 - 30	20 - 50				✓	✓		
	1.2	≤700	structural, case hardened steel	15 - 25	20 - 40				✓	✓		
	1.3	≤850	carbon steel	15 - 20	20 - 35				✓	✓		
	1.4	≤850	alloy steel	10 - 15	20 - 30				✓	✓		
	1.5	>850 ≤1200	alloy/heat treated steel	5 - 10	15 - 20				✓	✓		
	1.6	>1200	alloy/heat treated steel	2 - 5	10 - 15					✓		
	1.7	≤1400	hardened steel to 45 HRC					2 - 8		✓		
H	1.8	≤2200	hardened steel to 58 HRC					2 - 5		✓		
	2.1	≤850	stainless steel, sulphuretted	5 - 10	10 - 25					✓		
M	2.2	≤850	austenitic	4 - 8	10 - 20					✓		
	2.3	≤1000	ferritic, ferritic & austenitic, martensitic	3 - 5	7 - 12					✓		
K	3.1	≤500	grey cast iron	10 - 20	20 - 25	20 - 50	20 - 50		✓		✓	
	3.2	>500 ≤1000	grey cast iron, heat treated	5 - 10	15 - 20	20 - 50	20 - 50		✓			
	3.3	400- 500	vermicular cast iron			20 - 40			✓			
	3.4	≤700	spheroidal graphite cast iron	10 - 20	20 - 40		20 - 50		✓			
	3.5	>700 ≤1000	spheroidal graphite cast iron, heat treated	5 - 10	10 - 15		20 - 50		✓	✓		
	3.6	≤700	malleable iron	10 - 15	30 - 40		20 - 50		✓	✓		
	3.7	>700 ≤1000	malleable iron heat treated	5 - 10	10 - 20		20 - 50		✓	✓		
S	4.1	≤700	pure titanium	5 - 15	10 - 15				✓	✓		
	4.2	≤900	titanium alloys	3 - 10	10 - 15				✓	✓		
	4.3	>900 ≤1250	titanium alloys	1 - 5	5 - 10					✓		
	5.1	≤500	pure nickel	7 - 10	10 - 15					✓		
	5.2	≤900	nickel alloys, heat resistant	4 - 8	5 - 10					✓		
	5.3	>900 ≤1200	nickel alloys, high heat resistance	3 - 5	4 - 7					✓		
	6.1	≤350	non-alloy copper	10 - 15	15 - 20				✓	✓		
N	6.2	≤700	short chip, brass, bronze, red brass	25 - 30	40 - 50		25 - 60		✓		✓	
	6.3	≤700	long chip brass	10 - 20	30 - 40				✓	✓		
	6.4	≤500	Cu-Al-Fe alloy (Ampco)	2 - 5	5 - 8		5 - 9		✓	✓		
	7.1	≤350	Al, Mg non-alloy	10 - 15	20 - 50				✓			
	7.2	≤600	Al wrought alloy, breaking strain (A 5) <14 %	15 - 20	20 - 40				✓			
	7.3	≤600	Al wrought alloy, breaking strain (A 5) ≥14 %	10 - 15	20 - 40				✓			
	7.4	≤600	Al cast alloy, Si <10 %	20 - 30	25 - 50		25 - 80		✓			
	7.5	≤600	Al cast alloy, Si ≥10 %	15 - 25	20 - 30		20 - 60		✓			
	8.1		thermoplastics	15 - 25	20 - 30				✓		✓	
	8.2		thermosetting plastics	5 - 10	10 - 15		10 - 30		✓			✓
8.3			fibre reinforced plastics	3 - 5	8 - 12		8 - 25		✓			

Oversized thread

- wrong tools → select the right tools as shown in the catalogue
- cutting edge geometry not suitable for materials to be machined → select the right tools as shown in the catalogue
- material built-up at tap flanks
→ improve coolant system
→ use coated tap
- minor diameter too small, tool is cutting full profile → select correct core diameter
- chip jam
→ blind bore: increase spindle speed. Correct tool selection (spiral flute)
→ through hole: correct tool selection (spiral point)
- tolerance of tap drill to thread gauge does not agree → use tap drill with right tolerance
- angular or positional error in core bore → adjust workpiece clamping, use tapping chuck with axis parallel float

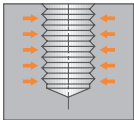
1.



Thread too tight

- tolerance of tap drill to thread gauge does not agree → use tap drill with right tolerance
- wrong tool type → select the right tools as shown in the catalogue

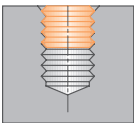
2.



Thread is cut wrongly axially

- cutting lead pressure on tapping chuck too great → select the right cutting lead pressure

3.

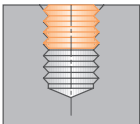


Pitch distortion

(plug gauge cannot be screwed in over full thread length on the workpiece)

- tap is not cutting true to pitch
→ select right tool
→ select right cutting lead pressure
→ with length adjustment chucks reduce feed to 95%

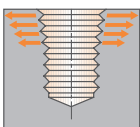
4.



Thread oversize at the entry

- wrong cutting lead pressure
→ use compensation chuck(tension)
→ use lead screw
→ select right tool

5.



Thread surface not clean

- wrong tool type → select right tool
- chip jam → see "thread too large – chip jam"
- core diameter too small → select right core diameter
- material built-up on thread flanks
→ use tools with surface treatment
→ improve coolant system
- cutting speed too low → increase cutting speed

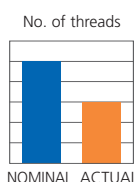
6.



Tool life too short

- wrong tool type → select right tool type
- cutting speed too high or too low → adjust cutting speed
- composition and supply of coolant inadequate → provide suitable, sufficient coolant
- premature wear due to lack of or unsuitable surface treatment → use coated tools, if necessary solid carbide tools

7.



KOMET JEL® JSF

Synchro tapping chuck



Modern CNC machines allow synchronous thread tapping without a compensating chuck, also called "rigid tapping".

The backlash of the spindle causes stress to one side of the cut tap or form tap, respectively. This may result in a reduced tool life and lack of quality in the surface of the thread.

KOMET JEL® synchro tapping chucks compensate for the length errors caused by the backlash and create the prerequisites for achieving optimum performance from your tapping tools.

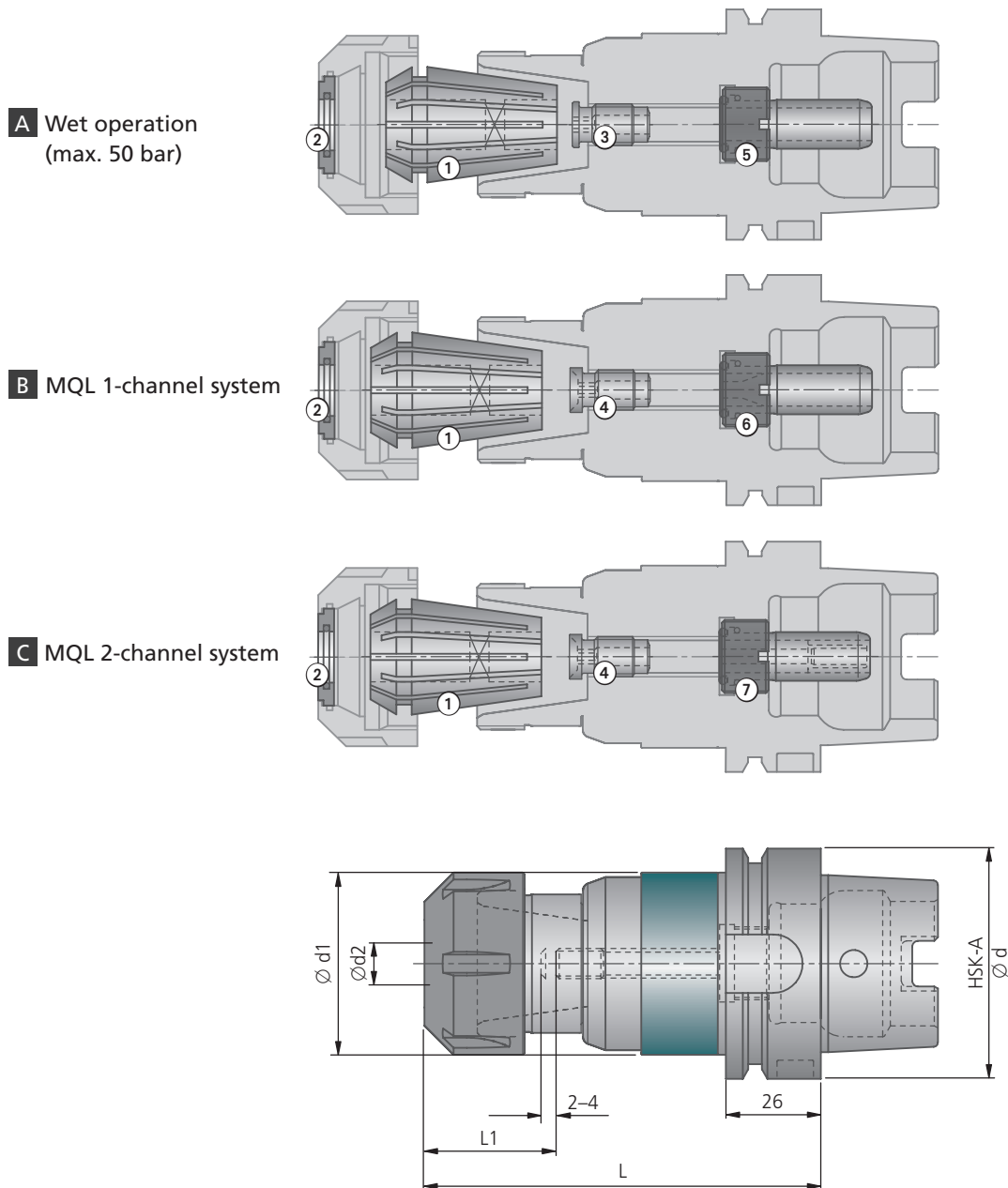
BENEFITS for you:

- Optimum tool performance
- Lengths can be adjusted from both sides
- Maximum tool life
- Wet operation, MQL 1-channel system or MQL 2-channel system

Synchro tapping chuck	Page
HSK-A adaptor	208
ABS® adaptor	210
Cylindrical shank DIN 1835	211
Accessories	209
Collet, coolant supply unit	

Synchro tapping chuck with HSK-A adaptor ISO 12164-1

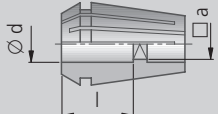
A synchro tapping chuck for three types of cooling lubricant supply: By choosing the appropriate cooling lubricant delivery set and adjustment screw, the synchro tapping chuck can be used in wet operation, in the MQL 1-channel system and the MQL 2-channel system.

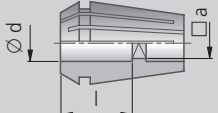


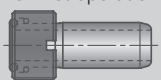
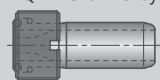
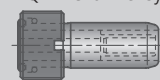
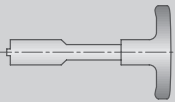
JSF HSK-A							A	B	C	
for thread	HSK-A Ø d	Ø d1	Clamping range for collet Ø d2	L	Adjustment range L1		Wet operation	MQL 1-channel system	MQL 2-channel system	Collet Size
							Order No. Article	Order No. Article	Order No. Article	
M4 – M12	63	34	4,5 – 11,2	96	26	0,98	50795126002000 JSF-HSK-A63-20-96	50795226002000 JSF-HSK-A63-20-96	50795326002000 JSF-HSK-A63-20-96	ER20
M4 – M12	63	34	4,5 – 11,2	160	26	1,40	50796126002000 JSF-HSK-A63-20-160	50796226002000 JSF-HSK-A63-20-160	50796326002000 JSF-HSK-A63-20-160	ER20
M4 – M20	63	50	4,5 – 18,0	109	26	1,48	50795126003200 JSF-HSK-A63-32-109	50795226003200 JSF-HSK-A63-32-109	50795326003200 JSF-HSK-A63-32-109	ER32

Supply includes: Synchro tapping chuck with collet nut, coolant supply unit (5), (6) or (7) and Allen key for adjusting screw. Please order separately: collet (1), seal disc (2) and adjusting screw (3) or (4).

Accessories for synchro tapping chuck

ER20							
				Collet ① with square drive	 Seal disc ② for collet nut	 Adjusting screw ③ for wet operation	 Adjusting screw ④ for MQL
Ø d	a	l	Norm	Order No.	Order No.	Order No.	Order No.
4,5	3,4	14/18	DIN	52805 20045	52806 20045	51391 20002	51391 30002
5,0	4,3	18	DIN	52805 20055	52806 20055	51391 20003	51391 30003
6,0	4,9	18	DIN	52805 20060	52806 20060	51391 20001	51391 30001
7,0	5,5	18	DIN	52805 20070	52806 20070	51391 20004	51391 30004
8,0	6,2	18	DIN	52805 20080	52806 20080	51391 20005	51391 30005
9,0	7,0	22	DIN	52805 20090	52806 20090	51391 20006	51391 30006
10,0	8,0	22	DIN	52805 20100	52806 20100	51391 20007	51391 30007
11,0	9,0	25	DIN	52805 20110	52806 20110	51391 20008	51391 30008

ER32							
				Collet ① with square drive	 Seal disc ② for collet nut	 Adjusting screw ③ for wet operation	 Adjusting screw ④ for MQL
Ø d	a	l	Norm	Order No.	Order No.	Order No.	Order No.
6,0	4,9	18	DIN	52805 32060	52806 32060	51391 20014	51391 30014
7,0	5,5	18	DIN	52805 32070	52806 32070	51391 20015	51391 30015
8,0	6,2	18	DIN	52805 32080	52806 32080	51391 20016	51391 30016
9,0	7,0	22	DIN	52805 32090	52806 32090	51391 20009	51391 30009
10,0	8,0	22	DIN	52805 32100	52806 32100	51391 20010	51391 30010
11,0	9,0	25	DIN	52805 32110	52806 32110	51391 20011	51391 30011
12,0	9,0	25	DIN	52805 32120	52806 32120	51391 20011	51391 30011
14,0	11,0	25	DIN	52805 32140	52806 32140	51391 20012	51391 30012
16,0	12,0	25	DIN	52805 32160	52806 32160	51391 20013	51391 30013

Coolant supply unit			Key
⑤ for wet operation  Order No.	⑥ for MQL 1-channel system  Order No.	⑦ for MQL 2-channel system  Order No.	 Order No.
61000 00387	61000 00388	61000 00389	18021 01063

Supply coolant supply unit includes: Coolant tube, locking collar and two O rings.

Note re. supply: Only use the keys listed for assembly.

This will prevent coolant flowing back into the machine spindle/clamping system.

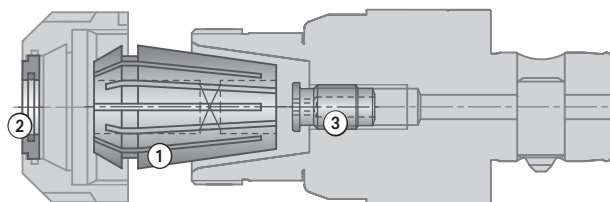
A specific coolant hose for the machine can also be fitted on all HSK adaptors.

KOMET JEL® JSF

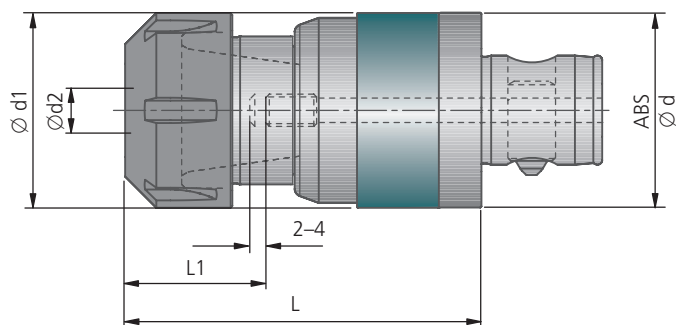
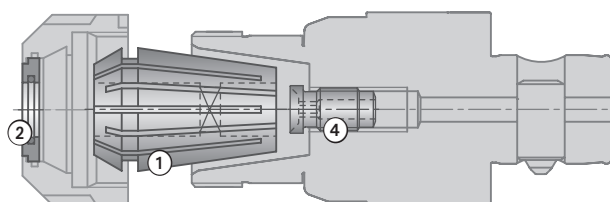
Synchro tapping chuck with ABS® adaptor

A synchro tapping chuck for two types of cooling lubricant supply: By choosing the appropriate adjustment screw, the synchro tapping chuck can be used in wet operation and in the MQL 1-channel system.

A Wet operation
(max. 50 bar)



B MQL 1-channel system

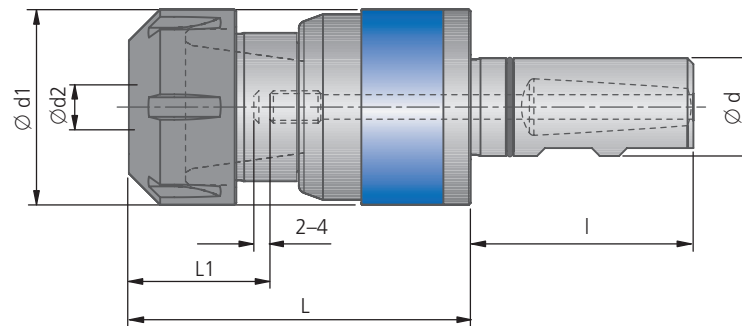
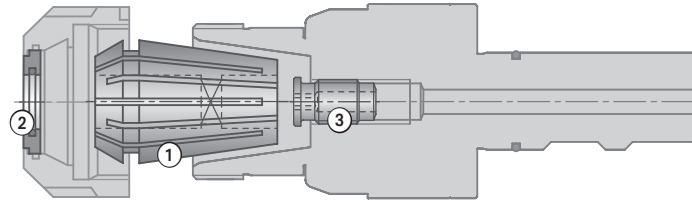


JSF ABS®							A B		
for thread	ABS Ø d	Ø d1	Clamping range for collet Ø d2	L	Adjust- ment range L1		Wet operation and MQL 1-channel system		Collet Size
							Article	Order No.	
M4 – M12	32	34	4,5 – 11,2	78	26	0,41	JSF ABS32-20-78	50795131002000	ER20
M4 – M12	50	34	4,5 – 11,2	84,5	26	0,69	JSF ABS50-20-84,5	50795135002000	ER20
M4 – M20	50	50	4,5 – 18,0	90,5	26	1,01	JSF ABS50-32-90,5	50795135003200	ER32

Supply includes: Synchro tapping chuck with collet nut and Allen key for adjusting screw.
Please order separately: collet ①, seal disc ② and adjusting screw ③ or ④ (page 209).

Synchro tapping chuck with cylindrical shank DIN 1835

A Wet operation
(max. 50 bar)



JSF ZS							A		
for thread	Cylindrical shank Ø d × l	Ø d1	Clamping range for collet Ø d2	L	Adjust- ment range L1		Wet operation		Collet Size
							Article	Order No.	
M4 – M12	25 × 57	34	4,5 – 11,2	73	26	0,54	JSF-ZS1835-20-71	50795104002000	ER20
M4 – M12	25 × 57	50	4,5 – 18,0	87,5	26	0,65	JSF-ZS1835-32-88	50795104003200	ER32

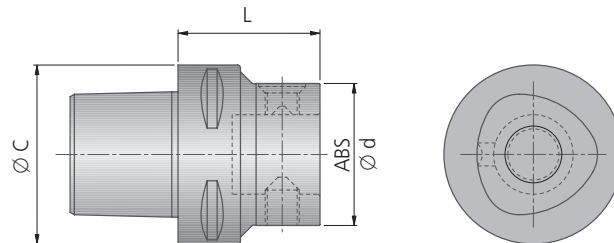
Supply includes: Synchro tapping chuck with collet nut and Allen key for adjusting screw.
Please order separately: collet ①, seal disc ② and adjusting screw ③ (page 209).



PSC Adaptor with
ABS® connection



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.

U-Axis System – Optional with linear encoder

Thanks to their low weight and minimal size and the relatively large adjustment path for the tool, the KOMET KomTronic® U-axis systems already represent the latest level of development. With a modular system, we are now offering a new supplemental direct encoder. In comparison with the normal indirect encoder, this offers significantly improved repeat accuracy, which also characterises the mechatronic tool systems by KOMET® as state-of-the-art products.

The mechatronic KomTronic® U-axis systems essentially consist of a compact facing head that is driven by a servo motor. The power and data are transmitted contact-free and inductively to the U axis head via a segment-shaped stator that is fitted to the spindle. This transmission occurs independently from the spindle speed. The mechatronic U-axis systems are therefore automatically exchangeable NC axes. The movement of the steel blade is interpolated with the Z axis. This enables contour machining and longitudinal turning on parts that are not rotationally symmetrical. Through the combined use of customised

snap-on tools and optimally selected indexable inserts, it is possible to machine contours in bores as well as external contours. The mechatronic tool systems enable a significant shortening of production times, better surface quality, and improved dimensional accuracy. In addition, fewer different tools are required and there is no need to procure moulding tools.

1:1 position measurement on slider

Otherwise, the mechatronic tooling systems work with an indirect encoder. The new direct encoder also takes into account interferences to mechanical elements. Thanks to the direct encoder on the slider, the control can be used to react immediately. Although precision was already high, this still constitutes yet another significant improvement in repeat accuracy. The fact that this optional method of position measurement can be chosen by customers on request is another advantage of the consistent modular philosophy, a mindset which is applied to the standard range of KomTronic® U-axis systems.

BENEFITS for you:

- Direct encoder
- Higher level of positioning accuracy for even more precise machining
- Immediate reaction to the machine control system
- Interferences to mechanical components, such as backlash, wear, heat cycle, etc., are taken into account
- Further improvement of repeat accuracy

Flexibility straight from the toolbox – KomTronic® U-axis system -115 with direct encoder

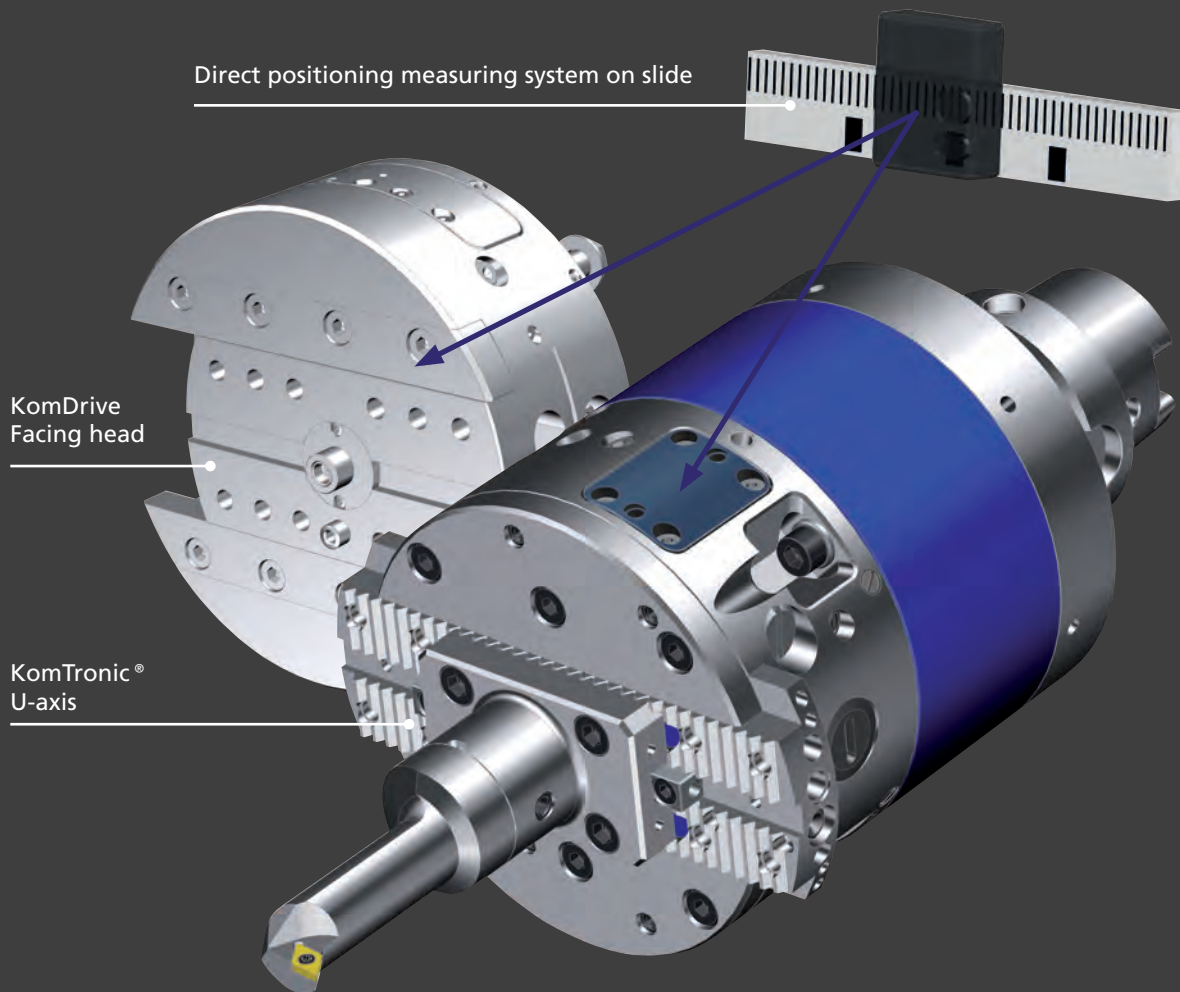
HPS-115 (high-performance system) U-axis head with balance compensation

- Low weight and minimum size (6.8 kg)
- Balance compensation for speeds up to 8000 rpm
- ± 4 mm radial stroke
- With high-resolution direct encoder

UAS-115 with single slide for a larger radial stroke:

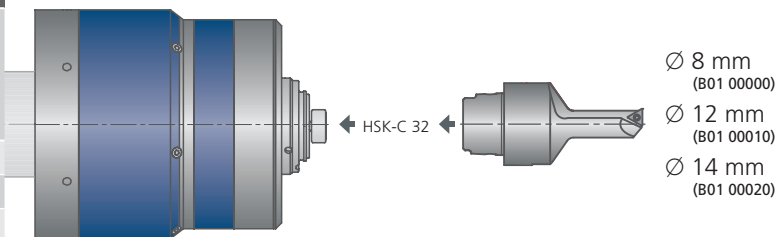
- Low weight and minimum size (6.4 kg)
- ± 11 mm radial stroke
- Optionally available with high-resolution direct encoder
- Combinable with draw bar tools for special machining operations, e.g. as an exchangeable honing tool, as described on page 217.

It is possible to have a direct positioning measuring system on KomDrive facing heads and KomTronic® U-axes.

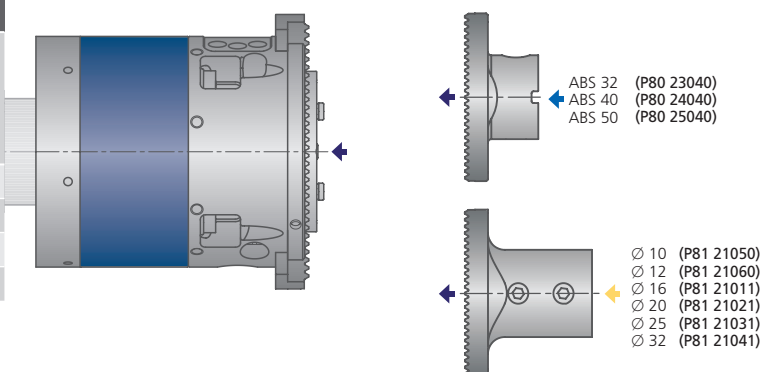


Attachment tool range for U-axis

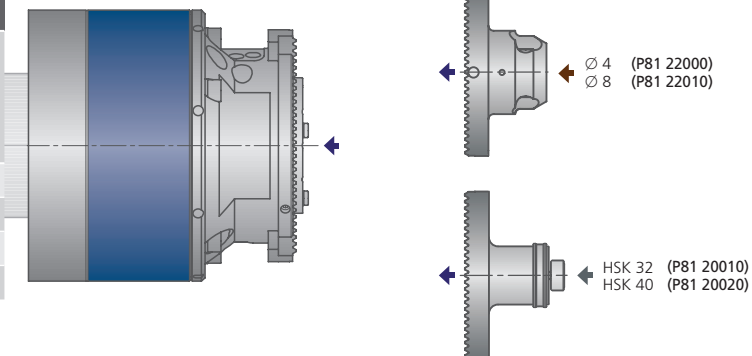
KomTronic® HPS 115		
Connection	Article	Order No.
HSK 63	HPS-115-HSK63-U-HSK32-8-2	E32 20021
SK 40	HPS-115-SK40-U-HSK32-8-2	E32 22021
CAT 40	HPS-115-CAT40-U-HSK32-8-2	E32 24021
BT 40	HPS-115-BT40-U-HSK32-8-2	E32 26021



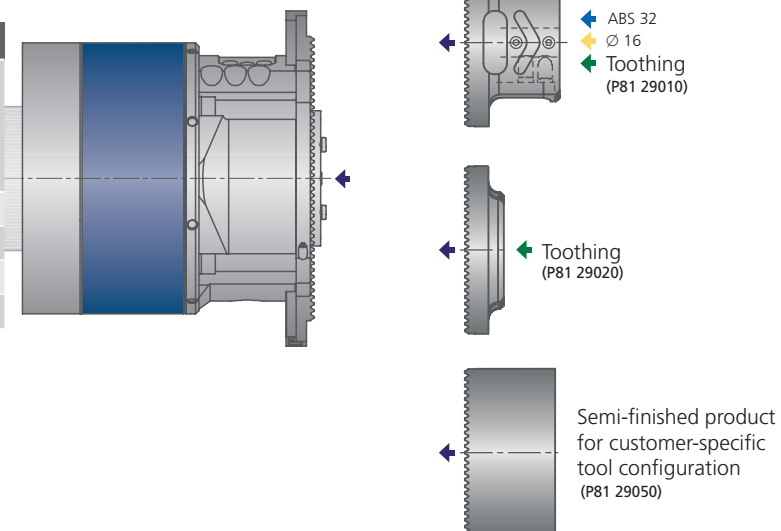
KomTronic® UAS-115-22		
Connection	Article	Order No.
HSK 63	UAS-115-HSK63-E-Z-22-2	E21 20010
SK 40	UAS-115-SK40-E-Z-22-2	E21 22010
CAT 40	UAS-115-CAT40-E-Z-22-2	E21 24010
BT 40	UAS-115-BT40-E-Z-22-2	E21 26010



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

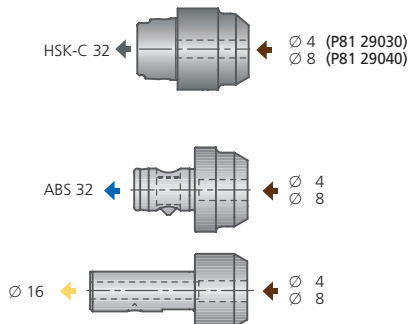


KomTronic® UAS-160-50		
Connection	Article	Order No.
HSK 100	UAS-160-HSK100-E-Z-50-1	E21 31020
SK 50	UAS-160-SK50-E-Z-50-1	E21 33020
CAT 50	UAS-160-CAT50-E-Z-50-1	E21 35020
BT 50	UAS-160-BT50-E-Z-50-1	E21 37020

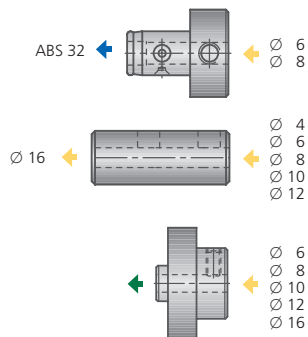


The functionality of the tool combinations depends on the L/D ratio, weight and cutting parameter.

UniTurn® Adaptor



Adaptor



Boring bar



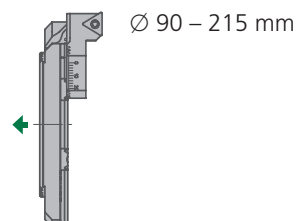
Serrated body + Insert holder



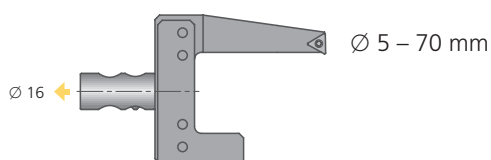
Insert holder



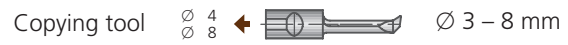
Bridge + Insert holder



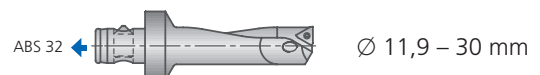
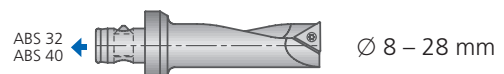
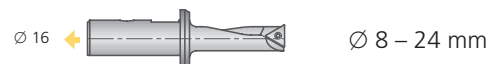
Mounting bridge for external machining



UniTurn®

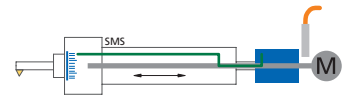


Boring bars



Key

- ➡ ABS® connection
- ➡ Cylindrical connection
- ➡ Tothing
- ➡ HSK connection
- ➡ UniTurn® connection



Produce turning contours economically when working with a stationary workpiece

- Facing heads with direct encoder on the slide
- KomTronic® systems for spindle integration with own drive

Based on decades of experience producing facing heads for special purpose machines, KOMET® is expanding its product range to include KomTronic® systems for spindle integration for different installation and usage requirements for facing heads.

Conventional facing heads with direct encoder (SMS)

KomDrive facing heads fitted with measuring system are conventionally operated with a drawbar. A high-resolution measuring system attached directly on the slide increases the level of positioning accuracy. Mechanical tolerances of the drive elements and the temperature range can be compensated. This results in machining accuracy that cannot be achieved with facing heads without measuring system.

BENEFITS for you:

- Direct measuring system on slide increases positioning accuracy and thus machining quality
- Suppression of backlash, even in the case of wear-related change
- Reduced influence of wear on machining quality
- Possible to compensate for heat cycle of draw bar drive
- Process capability is improved

Direct KomTronic® encoding in drawbar-actuated facing heads

For the first time, the slide movement in the facing head can be measured directly and therefore controlled directly. The slide in the facing head is moved with draw and push bar via a drive on the machine side. The measuring signals are transmitted through contact-free power and data transfer at the spindle end. Signal lines must be fed through the spindle body to connect the sensors in the facing head.

Adaption into machine tool control and spindle see page 222.

Prior to integration in the machine tool, the following points must be clarified with the machine tool manufacturer:

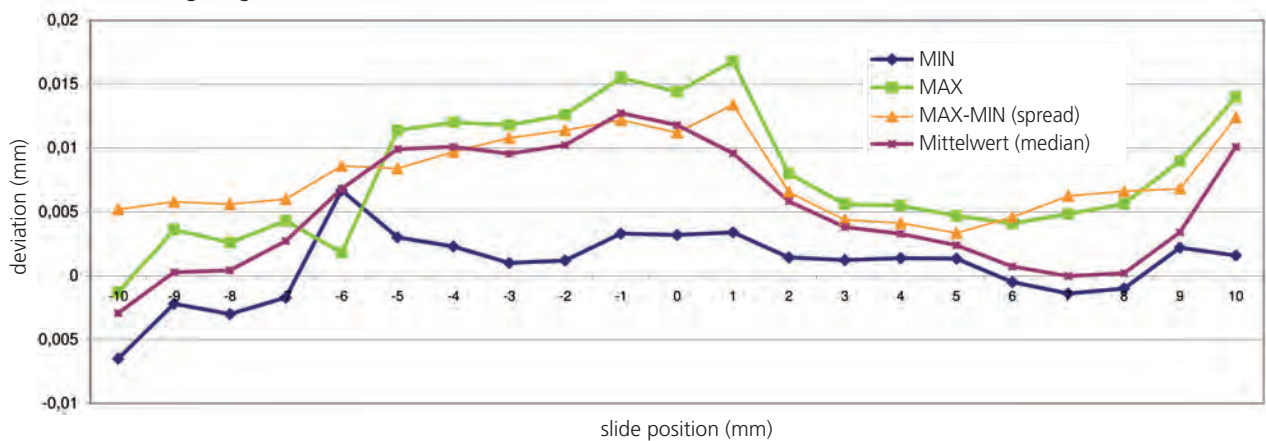
- Housing of electronic components
- Integrating the electronics carrier and fitting the stator
- Feeding of cables through the spindle from the facing head to the electronics carrier
- Lubrication type and connection
- Setting of NC axis parameters and connection of position feedback system to the NC

The facing heads can be customised for special machining tasks. The details concerning technical data for draw bar tools that can be integrated into a spindle differ depending on the combination selected. This is therefore not covered at this point. Planning for draw bar tools that can be integrated into a spindle is carried out in close coordination between machine manufacturer, spindle manufacturer and KOMET®.

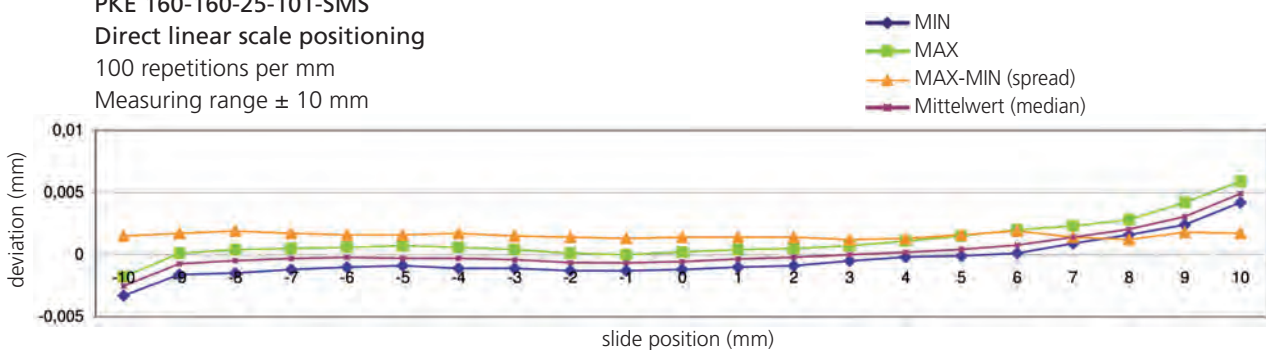


Example:

PKE 160-160-25-101-SMS
Motor-encoder positioning
 100 repetitions per mm
 Measuring range ± 10 mm



PKE 160-160-25-101-SMS
Direct linear scale positioning
 100 repetitions per mm
 Measuring range ± 10 mm





KomTronic® U-axis systems for spindle integration

KomTronic® systems are typically used as exchangeable U-axis systems on machining centres. The modular design of these systems enable it to be integrated in special purpose machine spindles. With this solution, the KomTronic® facing head drive is integrated in/fitted on the machine spindle. This drive rotates with the spindle. As a result, drive elements through the machine spindle are not required.

The facing heads can be customised for special machining tasks. The details concerning technical data for draw bar tools that can be integrated into a spindle differ depending on the combination selected. This is therefore not covered at this point. Planning for draw bar tools that can be integrated into a spindle is carried out in close coordination between machine manufacturer, spindle manufacturer and KOMET®.

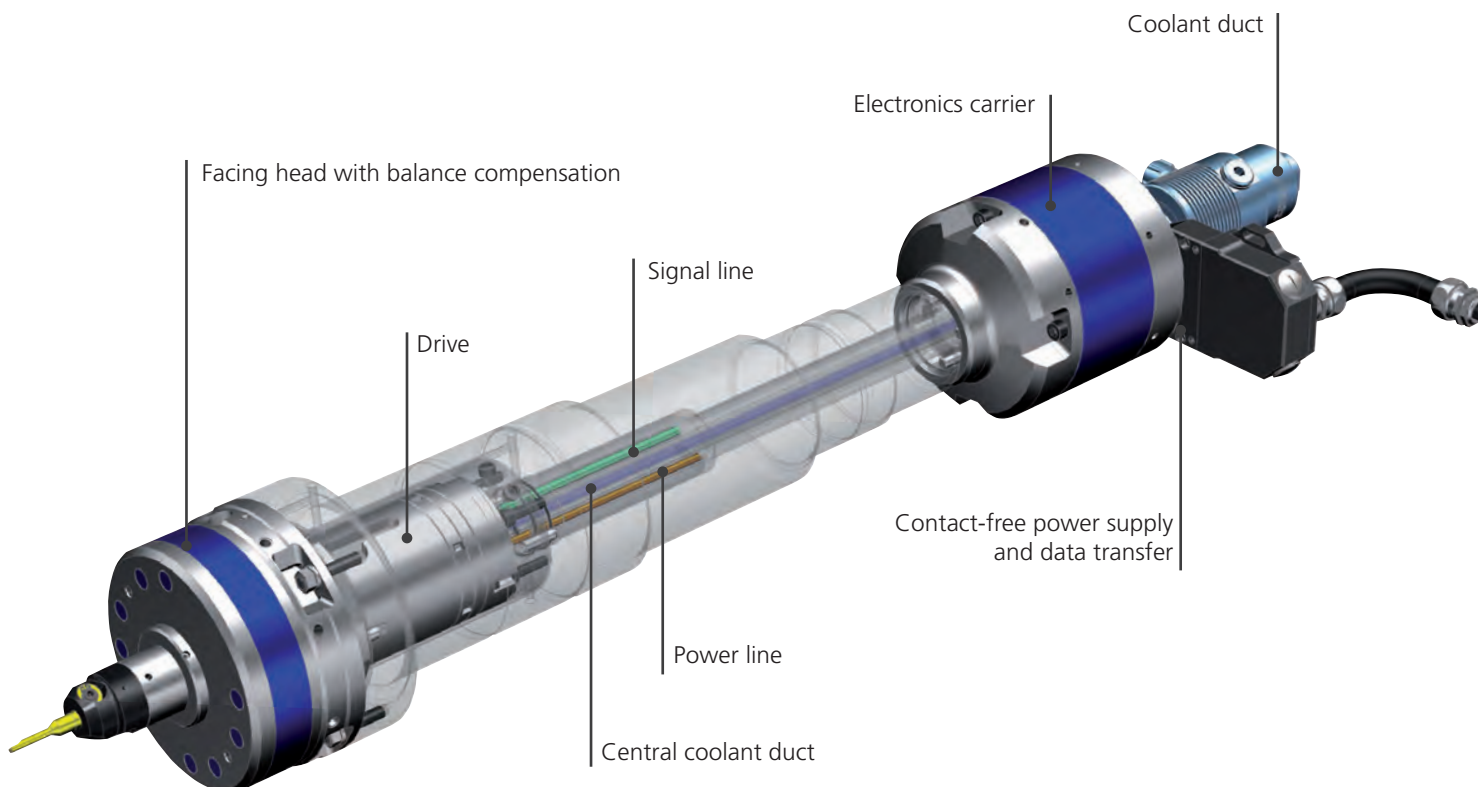
KomTronic® UAC system for spindle integration

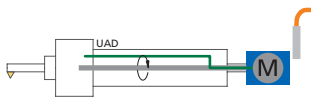
In the KomTronic® UAC system, the drive is combined with a draw bar tool. Here, the servo motor projects into the matched internal contour of the machine spindle.

BENEFITS for you:

- KomTronic® drive on the facing head integrated in the front side of the spindle
- No drive elements through the spindle (hollow centre, makes it easier for the media, e.g. MQL, to flow through), as a result bearing points are also not required.
- Short projection, maximum rigidity, special spindle design (bearings)
- Optionally available with direct encoder on the slide for increased accuracy requirements
- Simple installation of the draw bar tool with drive unit
- Suitable for higher speeds (for facing heads with balancing compensation)
- No positioning movement is introduced into the rotating spindle from outside, therefore there is no additional stress on spindle connection design

Adaption into machine tool control and spindle see page 223.





KomTronic® UAD system for spindle integration

In the KomTronic® UAD system, the drive sits in the rotating KomTronic® electronics carrier at the spindle end. The draw bar tool is fitted on the front side of the spindle.

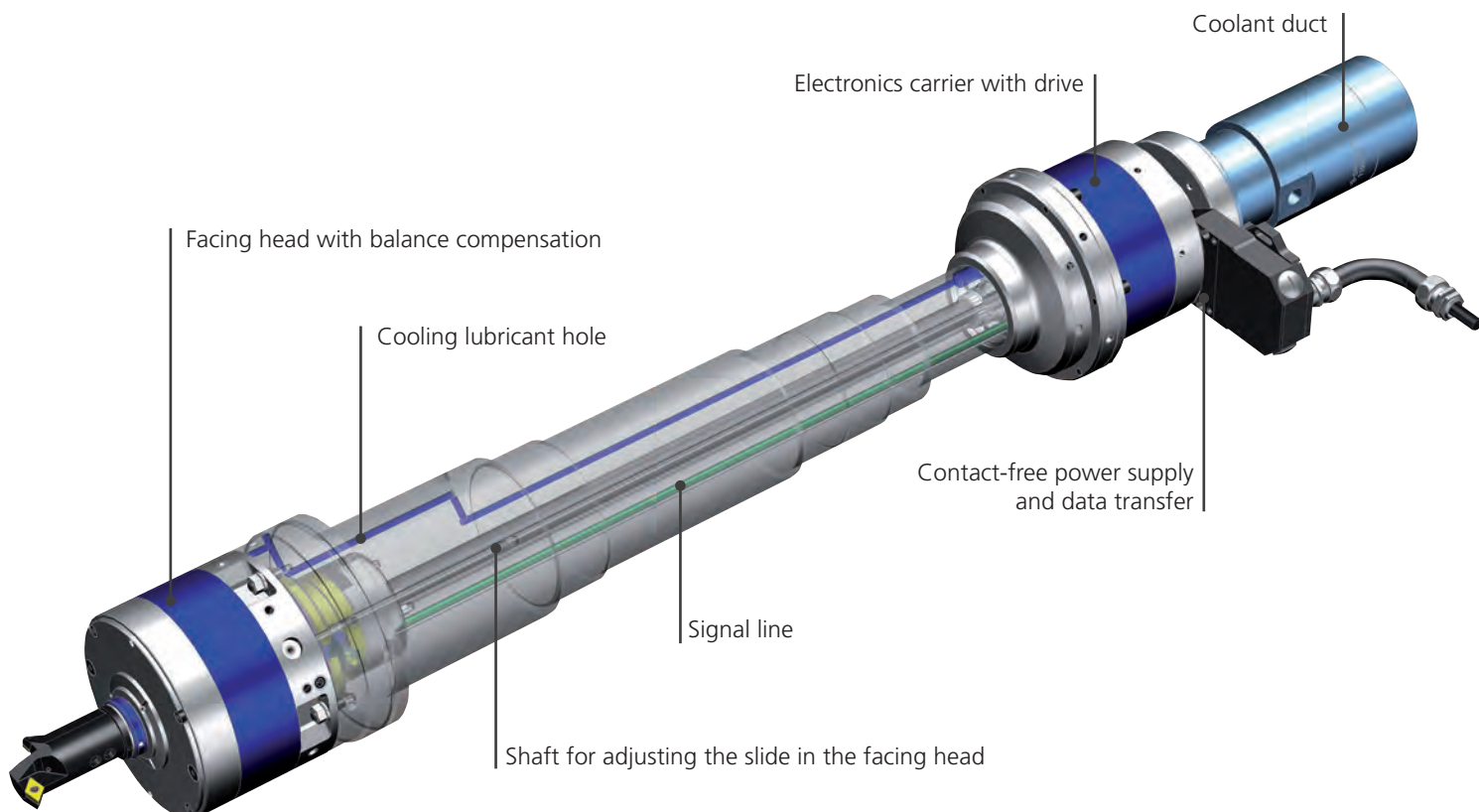
The movement is transferred into the facing head using a rotating shaft in the spindle centre. Referencing is carried out using a reference switch in the facing head.

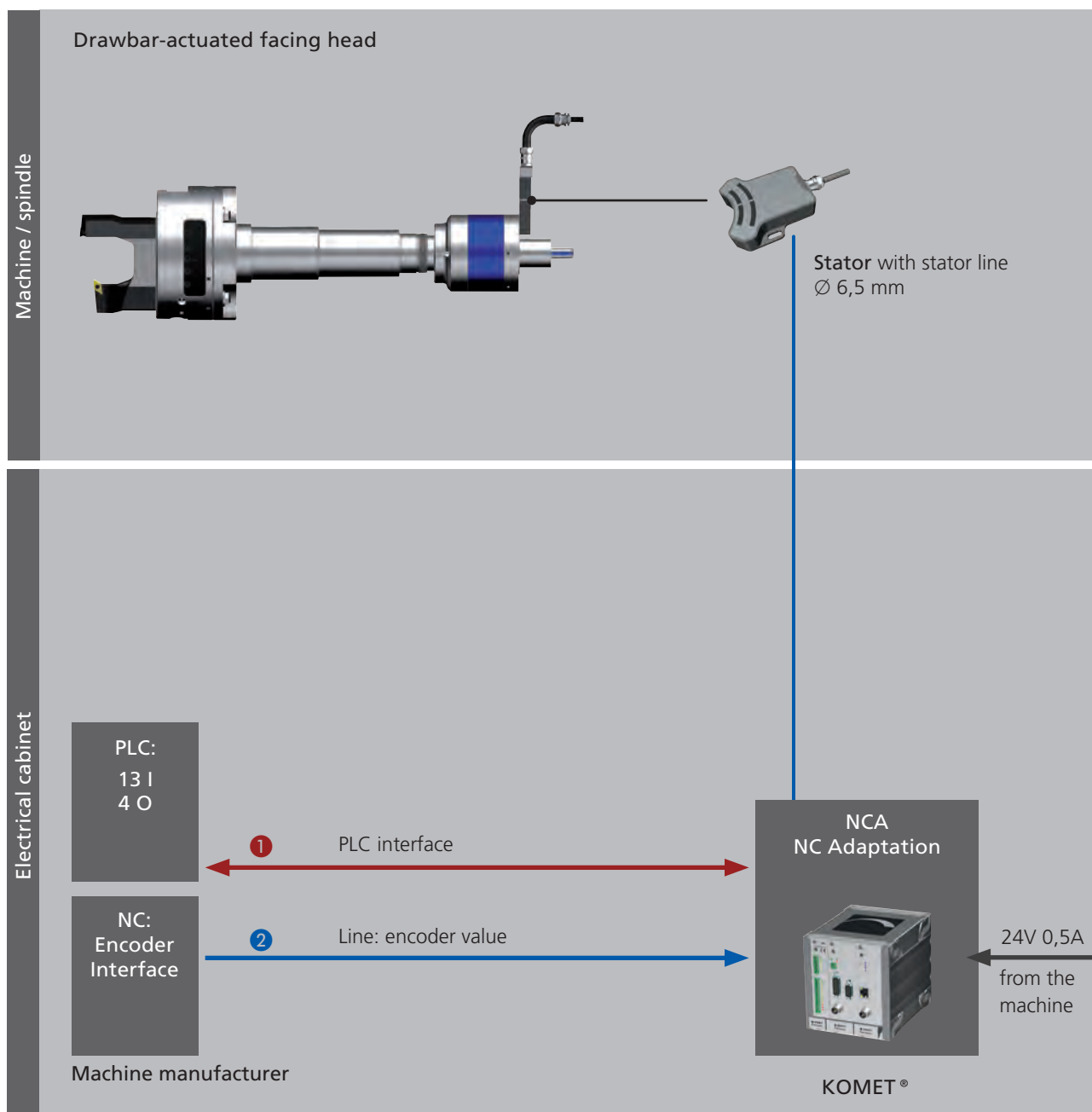
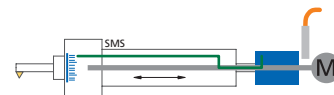
The required signal lines are fed through the spindle. Depending on the facing head/draw bar tool used, a direct encoder can also be installed on the slide.

Adaption into machine tool control and spindle see page 223.

BENEFITS for you:

- Electronics carrier with integrated servo motor (also rotating on the spindle end)
- No adjustment movements introduced into the spindle from outside. As a result, loads on the spindle system are reduced. The integrated electric servo drive on the spindle end also rotates and is supplied with electrical energy via a transformer that is also rotating. The data is also exchanged contact-free via the transformer that is also rotating.
- Well suited for "slide boring bars". The rotation of the shaft is converted in the slide boring bar into a translational movement.
- Optionally available with direct encoder on the slide for increased accuracy requirements
- Only a signal line through the machine spindle is required
- Small spindle bearing diameter possible





1 PLC connection

13 inputs and 4 outputs are required on the PLC.

3 M-codes are necessary for activation, deactivating and status information.

2 Incremental actual position value

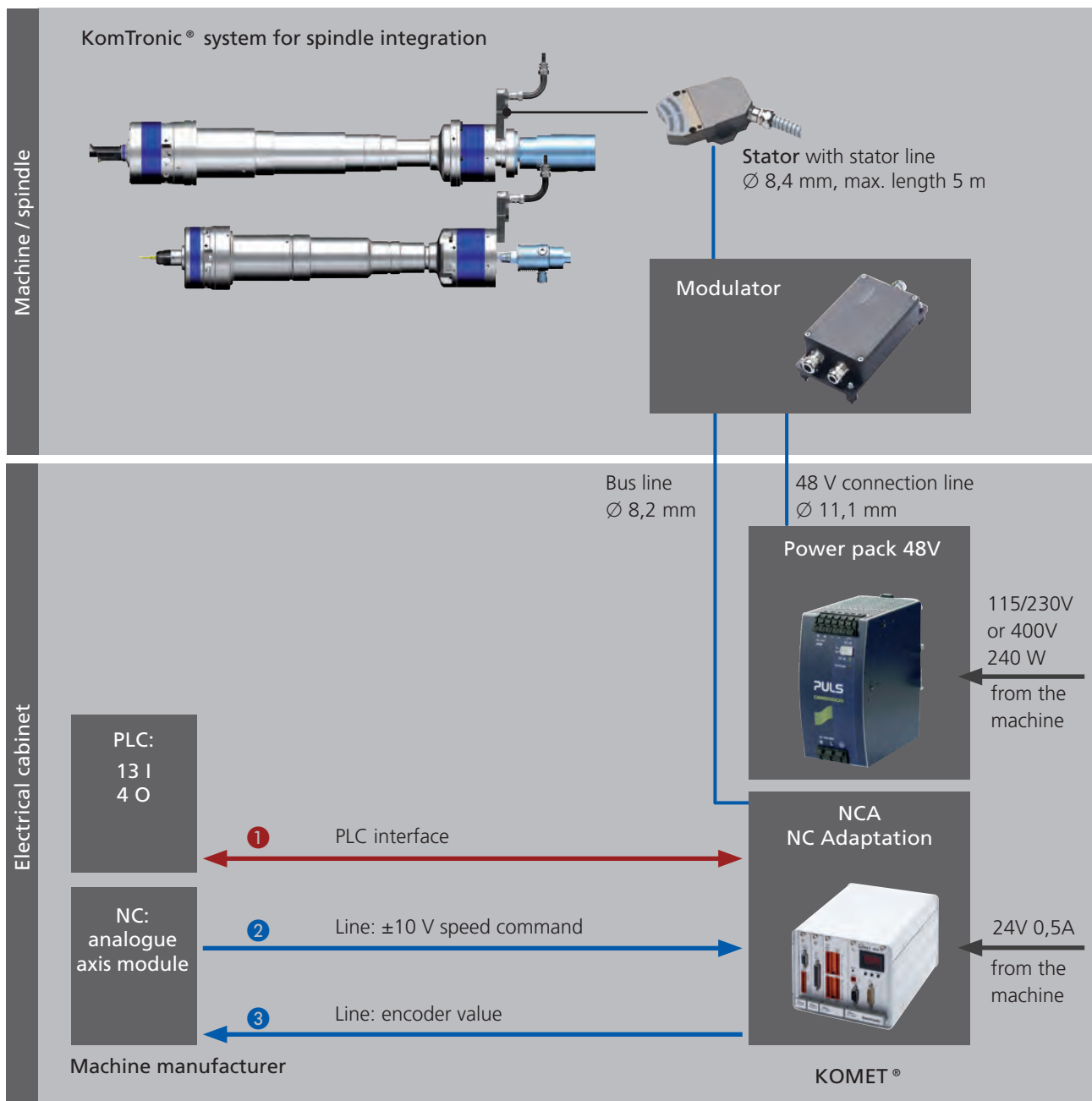
The current position is transmitted from the KOMET® NCA to the position feed back interface for the NC control. The following signal forms are available

- TTL level in acc. with RS 422, interpolated
- 1 Vpp (1 V peak to peak)



KOMET KomTronic® UAC, UAD

Adaption into machine tool control and spindle



1 PLC connection

13 inputs and 4 outputs are required on the PLC.
3 M-commands are required for selecting U-Axis functions.

2 Nominal value requirement

±10 V nominal speed value from analogue axis module of NC control to the KOMET® NCA.

3 Incremental actual position value

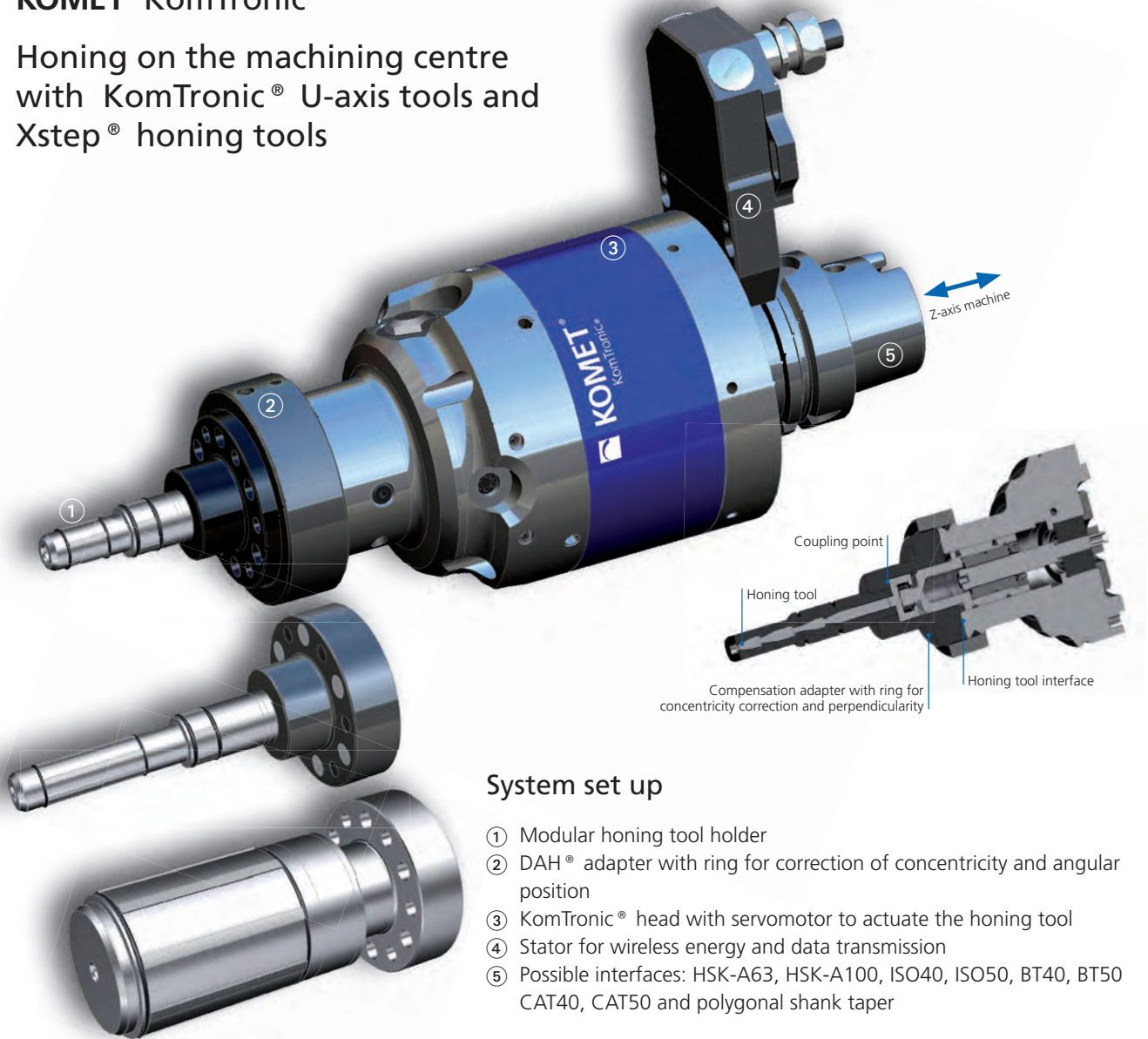
The current position is transmitted from the KOMET® NCA to the analogue axis module for the NC control. The following signal forms are available

- TTL level in acc. with RS 422, interpolated, square signal form
- 1 Vpp (1 V peak to peak), sine signal form

The KomTronic® U-Axis system does not need a power unit on the NC control.

KOMET KomTronic®

Honing on the machining centre with KomTronic® U-axis tools and Xstep® honing tools



System set up

- ① Modular honing tool holder
- ② DAH® adapter with ring for correction of concentricity and angular position
- ③ KomTronic® head with servomotor to actuate the honing tool
- ④ Stator for wireless energy and data transmission
- ⑤ Possible interfaces: HSK-A63, HSK-A100, ISO40, ISO50, BT40, BT50 CAT40, CAT50 and polygonal shank taper

This combination allows machining centres to be used for path-controlled honing, too. This has enormous economic and quality-related advantages.

Honing is a fine machining process for the high-precision machining of cylindrical or slightly out-of-round holes that must have optimum surface sliding properties. The material is removed with honing stones with an abrasive coating.

In order to do this extremely precisely, the honing stone retainer of the Xstep® honing tools, whose outer surface line reproduces the cylinder to be machined, are very finely adjusted mechanically to compensate for wear on the honing stone retainer and the required removal of material. The positioning measurement is determined by means of a measurement step following honing (post-process measurement), whereby the process itself is always terminated at the same end diameter and it is only necessary to compensate for the wearing of the honing stones.

It must be possible to set the adjustment speed to best suit the process at hand with regard to surface quality, wear, and measurement precision. This is achieved by the precision small drives integrated into the KomTronic® drive units.

The rotation of the motor shaft is converted into a pull movement for the adjustment of the honing stones. The concentricity of the honing stones can be set directly on the honing tool holder. The pre-machining of the diameter to be honed should also be very accurate in order to avoid empty strokes. Manually adjustable fine spindle tools from the KOMET range can be used for this.

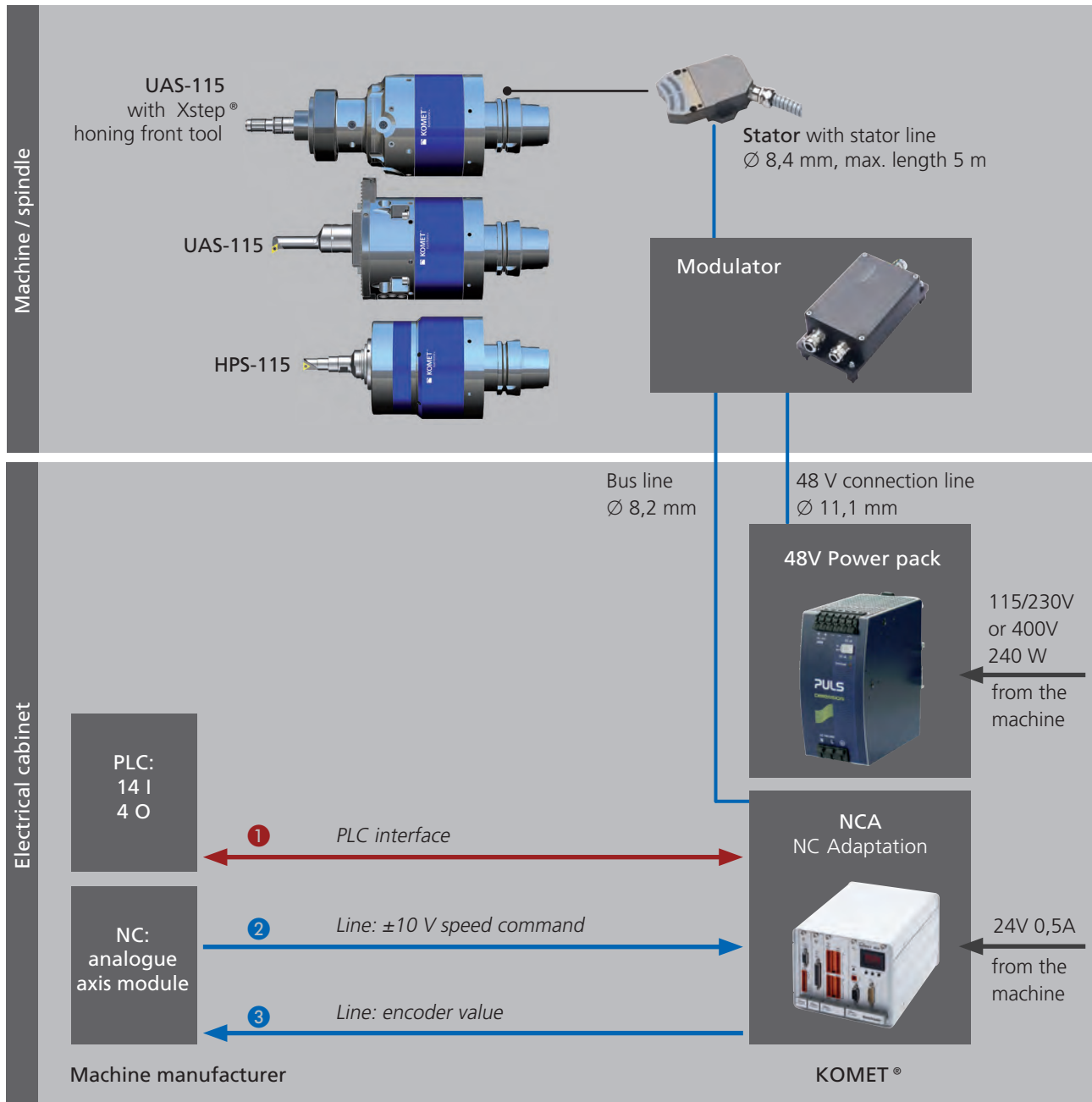
Examples: MicroKom® M040 or MicroKom *BluFlex*®. If tool adjustment is to be carried out automatically, a KomTronic® U-axis head can be used.

BENEFITS for you:

- Small and medium series can be finished and honed on the machining centre profitably
- Pre-machining and honing can take place in a single clamping operation: Only one clamping unit required, no loss of precision or time due to reclamping, short processing times (single set-up), smaller honing offsets required

Xstep is a DIAHON brand name

Adaption into machine tool control and spindle



① **PLC connection**

14 inputs and 4 outputs are required on the PLC. 3 M-commands are required for selecting U-axis functions.

② **Nominal value requirement:** ±10 V nominal speed value from analogue axis module of NC control to the KOMET® NCA.

③ **Incremental actual position value:** The current position is transmitted from the KOMET® NCA to the analogue axis module for the NC control. The following signal forms are available

- TTL level in acc. with RS 422, interpolated
- 1 Vpp (1 V peak to peak)

The KomTronic® U-axis system does not need a power unit on the NC control.

Service indicator on the facing head

How long has it been in use?

Draw bar tools in highly productive, expensive machines should not be first maintained when production quality decreases due to wear. It is often difficult to establish how long tools have been in use, when they are not in continuous use. As a result, it may also not be possible to draw conclusions about possible wear. Maintenance intervals can thus not be determined in advance.

Preventative maintenance

Using the KomTronic® service indicator, the period of use and displacement travelled can be directly read on the tool. In this way, the draw bar tools can be maintained at defined intervals. This leads to an increase in component quality and in the reliability of the draw bar tool.



BENEFITS for you:

- An increase in production reliability through maintenance intervals that can be scheduled
- A reduction in costs thanks to timely maintenance of wear parts
- Avoidance of losses in quality
- Can be integrated in new and existing draw bar tools

Installation support

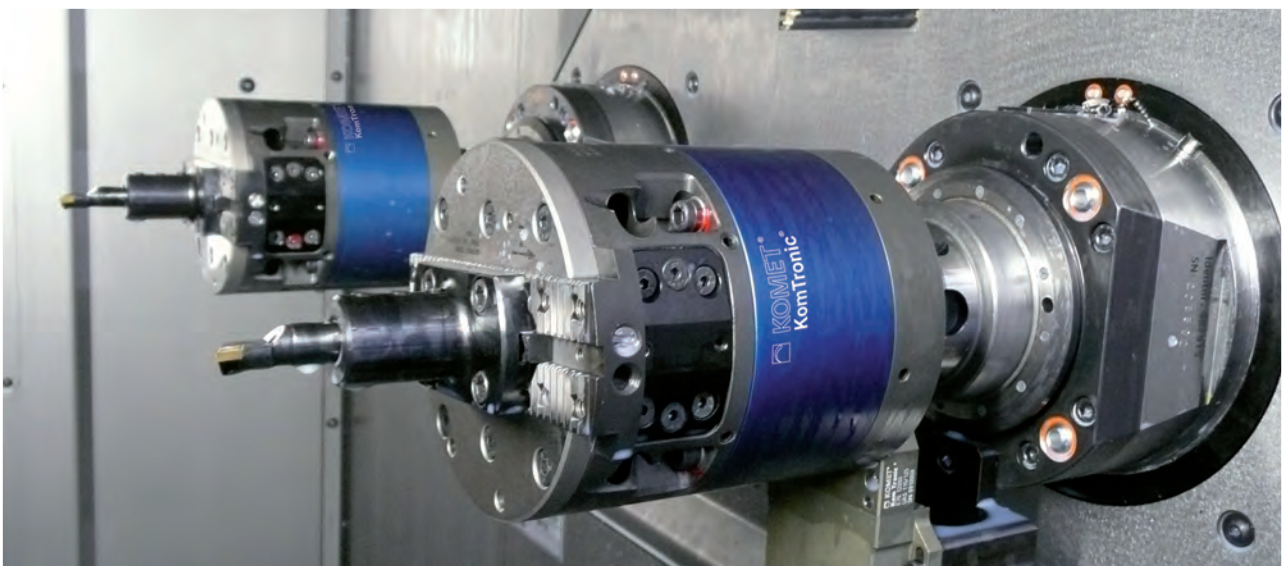
In order to ensure that the KomTronic® U-Axis system is correctly incorporated into the machine and is able to carry out the required functions, the customer must provide clarification and comply with the necessary requirements:

1. Fitting the stator for non-contact power and data transmission to the KomTronic® U-Axis system. Care should be taken to ensure that no conflict occurs with other parts of the machine, the tool changer or similar units. KOMET's obligations do not include provision of the adaptor element for the stator unit.
2. The customer will supply the inputs and outputs required for the KomTronic® U-Axis system on the machine side. The

analogue axis unit required for operation with the U-Axis must be provided and configured for the machine control system by the customer.

3. The customer must carry out the necessary software adjustments for the machine sequence control before the installation.
4. Function clarification: Process requirements must be met with reference to machine and processing concept. For example cycle times and machining data must be clarified. The tool changer must be designed for the tool weight and the tool must fit into the tool magazine.

KOMET® will provide the necessary assistance for clarification of the tasks as stated.

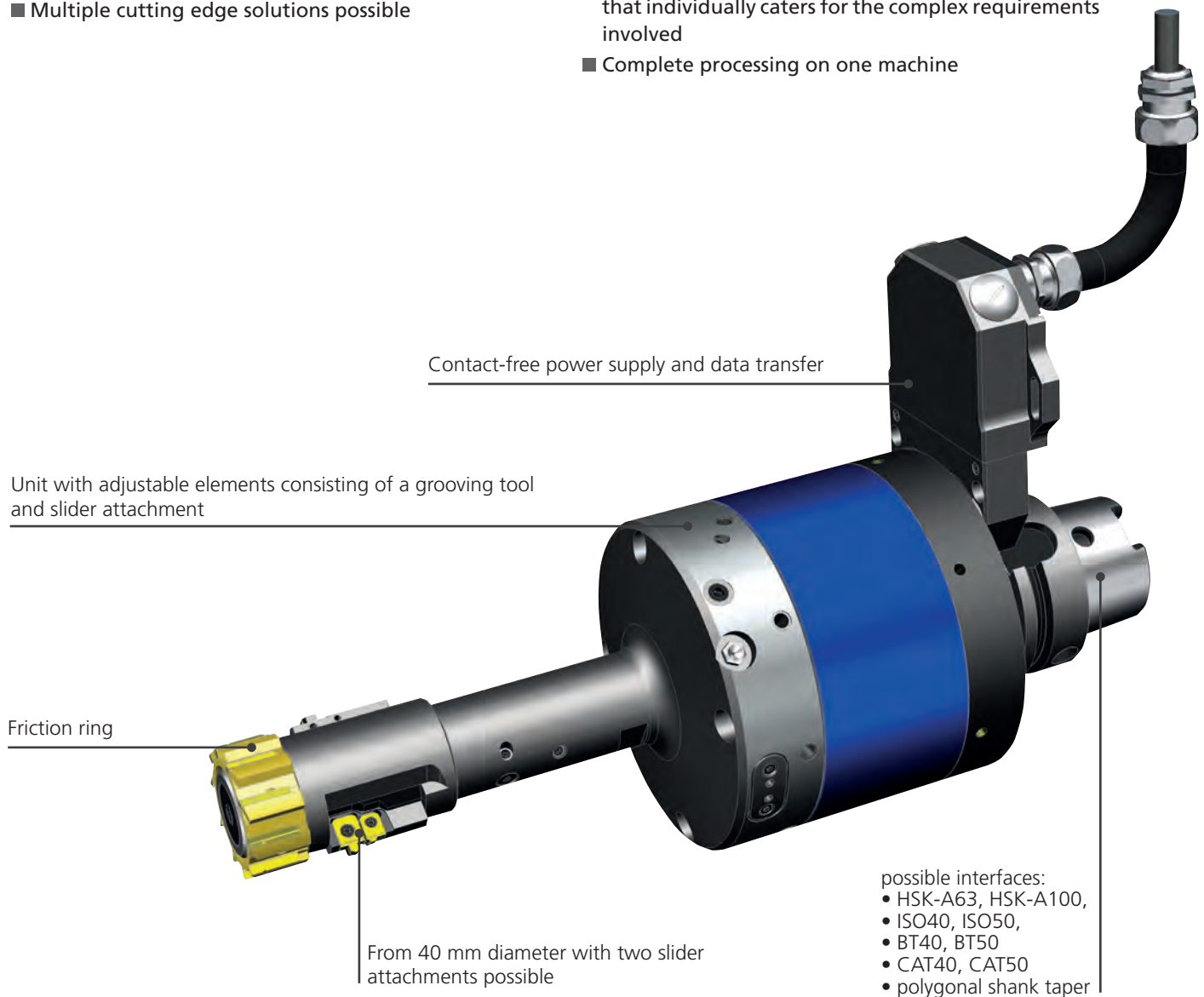


Grooving and boring out on machining centres with exchangeable KomTronic® U-axis tool

In addition to facing and honing attachments, slide attachments for radial grooving are now also available for KomTronic® U-axis drive units. As a result, grooves can now be created on machining centres in an extremely wide variety of components. Such machining is particularly effective in combination with a friction ring for machining brake callipers. The U-axis can also be easily replaced with U-axes for other turning operations on the machining centre.

BENEFITS for you:

- Slide attachment for machining radial grooves cost-efficiently
- Contour machining bores to produce chamfers, tapers and undercuts, etc.
- Multiple cutting edge solutions possible
- Can be combined with friction ring. As a result, machining operations with long projection lengths are also possible
- Particularly suitable for machining brake callipers
- Variable grooving contours with a wide range of inserts that individually caters for the complex requirements involved
- Complete processing on one machine



KOMET® KomDrive HQB-Technology (High Quality Balance)

KOMET® KomDrive HQB Facing head

With our new HQB technology, we have overcome the design challenge of moving the balancing weights in front of the slide on a plane close to the overall centre of gravity for the tool and slide.

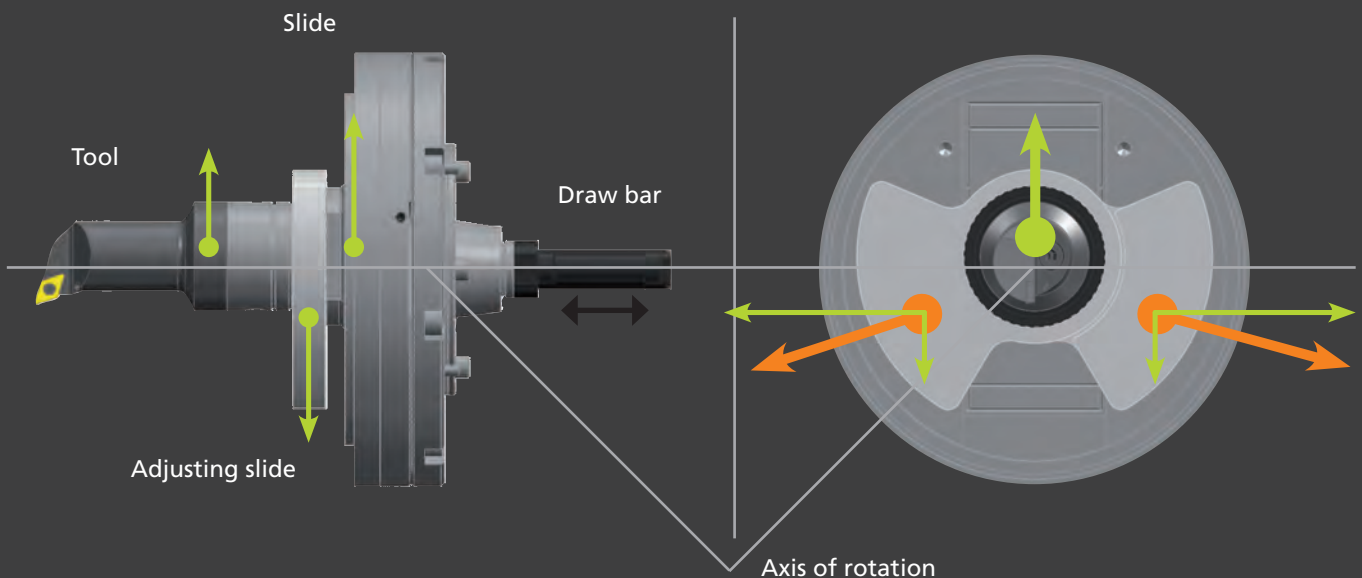
This has made it possible to achieve almost multi-plane (dynamic) balancing by using balancing weights on a single plane, which - owing to the construction - has been achieved independently of the radial stroke.

BENEFITS for you:

- Increased speeds = Increased productivity
- Flat action slide principle
(no contour distortion after radial stroke)
- Maximum geometric accuracy
- Compact design
- Extremely quiet running thanks to optimum balance

Balancing on a centre gravity plane

Function principle centrifugal force components

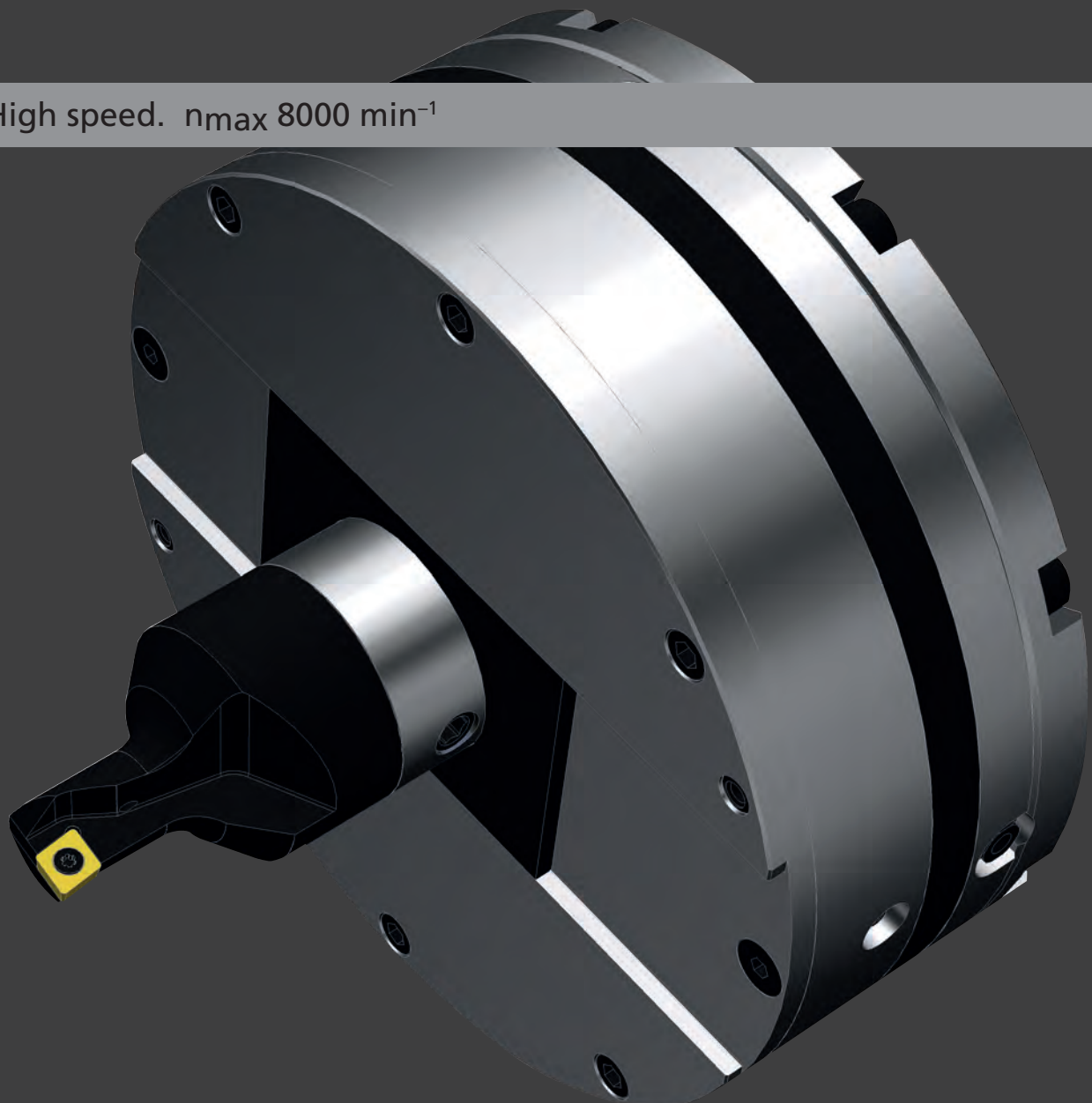


In practice, when used in KOMET® flat-action facing heads, HQB technology means a considerable reduction in wobble; that is the rotational bending moment. Regardless of the adaptor tool being used, this bending moment can be reduced by up to 100%.

This results in perfectly balanced systems.

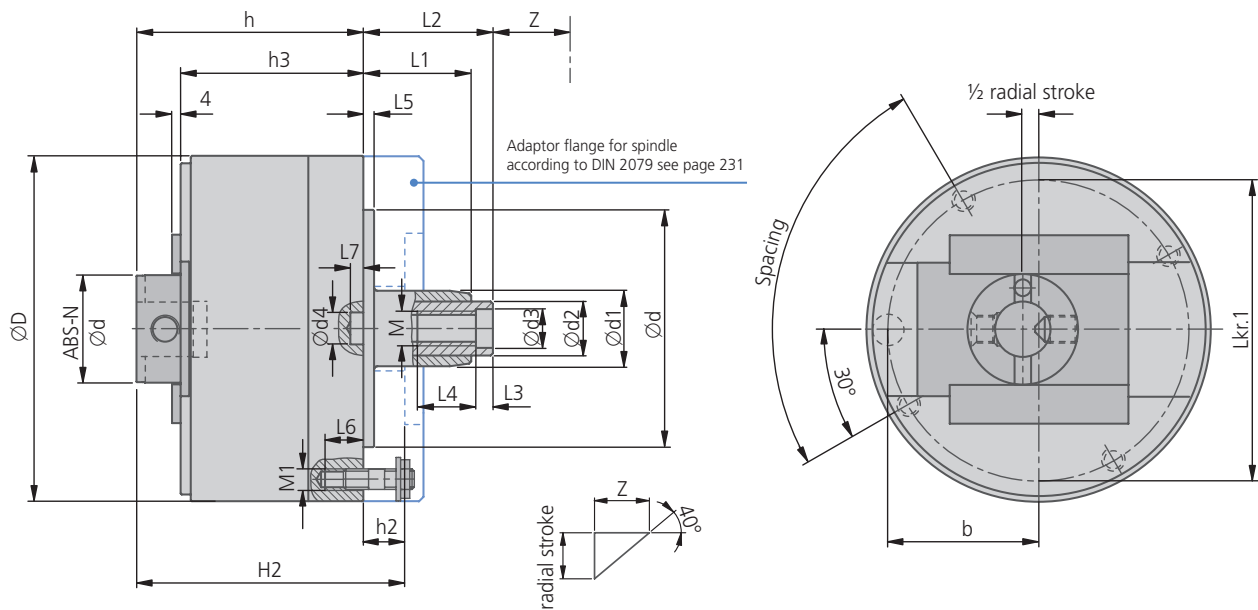
KOMET® KomDrive facing heads with HQB technology are used successfully for rapid and exacting applications, such as machining journals or turning conrods. They are facing slide tools with eccentric adjustment at least coequal, if not superior.

 High speed. $n_{\max} 8000 \text{ min}^{-1}$



KOMET® KomDrive HQB-103

Facing head with single slide with integrated ABS® N connection

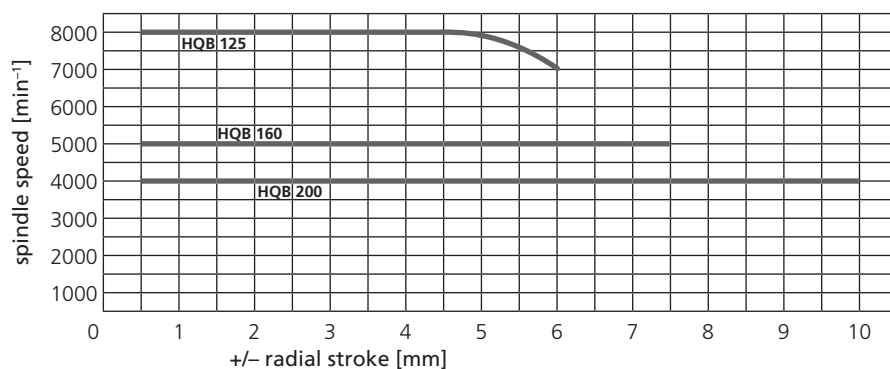


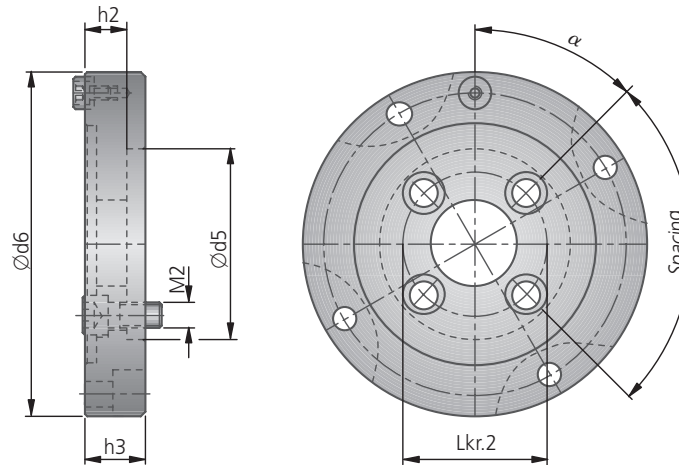
Article	Order No.	External dimensions										Slide dimensions	
		ØD _{h6}	radial stroke	Z	h	h3	Ød _{h6}	Ød1	Ød2	Ød3 ^{H7}	Ød4 ^{+0,1}	ABS-N Ø d	½ radial stroke
HQB125-Z-12-103	P21 20030	125	12	14,3	93	76	90	30	20	14	14,6	40	6,0
HQB160-Z-15-103	P21 30030	160	15	17,9	105	84,5	110	35	25	18	14,6	50	7,5
HQB200-Z-20-103	P21 40030	200	20	23,8	121	94,5	150	44	32	18	16,2	63	10,0

Article	Mounting dimensions														DIN 2079
	M	M1	L1	L2±1	L3	L4	L5	L6	L7	b±0,1	Bolthole circle		Adaptor flange		Spindle size
											Lkr.1	Spacing	H2	h2	
HQB125...103	M12×1,5L	M8	37	47	8	16	4	12	6	54	110	6×60°	110	17	40
HQB160...103	M16×1,5L	M10	50	60	10	25	5	15	6	70	140	4×90°	125	20	40
HQB200...103	M16×1,5L	M12	70	80	10	25	5	18	6	87,5	175	4×90°	146	25	50

Order example: Facing head Ø 125 mm, radial stroke 12 mm, type 103: Article HQB125-Z-12-103, Order No. P21 20030

Max. radial stroke/spindle speed diagram





for Ø D	Order No.	Mounting dimensions, spindle								DIN 2079
		Ø d5 ^{H6}	Ø d6	h3	h2	α	M2	Bolthole circle		Spindle size
80	P00 00300	69,832	80	26	18	15°	10	54	4x90°	30
100	P00 10300	69,832	100	23	15	15°	10	54	4x90°	30
125	P00 20400	88,882	125	25	17	45°	12	66,7	4x90°	40
160	P00 30400	88,882	160	28	20	45°	12	66,7	4x90°	40
200	P00 40500	128,57	200	35	25	45°	16	101,6	4x90°	50
250	P00 50500	128,57	250	35	25	45°	16	101,6	4x90°	50
320	P00 60600	221,44	320	41	26	45°	20	177,8	4x90°	60

A comprehensive Industry 4.0 solution for manufacturing

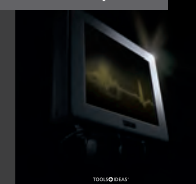
With the introduction of firmware version 10, the ToolScope monitoring system developed by KOMET® BRINKHAUS has become a comprehensive KOMET® assistance system for production machining. It includes a large number of applications, known as apps, which make it easy for users to access and utilise the recorded machine, operating and process data.

KOMET® BRINKHAUS ToolScope monitors and documents signals internal to the machine during the process, such as the torque of a spindle or the feed force of an axis. Furthermore, it also records results, such as tool changes or machine downtimes. In conjunction with knowledge of what are referred to as process identifiers, such as range, tool, batch number, etc., which are read from the control system, the software is able to provide process-related or tool-related documentation illustrating the average and maximum tool life in the form of candlestick charts, for example. Potential savings on tool costs can be determined from this in conjunction with a table about reasons for tool changes.

In order to offer independent added value to customers, KOMET® BRINKHAUS has developed applications, known as apps, which are easy to license and activate, can be called up on the user interface and provide various services: They have the function of an automatic shift record (TS-BDE app) or a log of tool changes (TS-WLog app), take over adaptive feed-rate regulation (TS-AFC app), provide an independent cloud database function (TS-Cloud app), are used to identify collisions (TS-CD app) and monitor processes (TS-PM app), and much more.



Process monitoring
ToolScope





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



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.

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A network of local partners that provide professional tool refurbishment, trade tools and manufacture customized solid carbide special tools

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ToolScope – Next generation process monitoring

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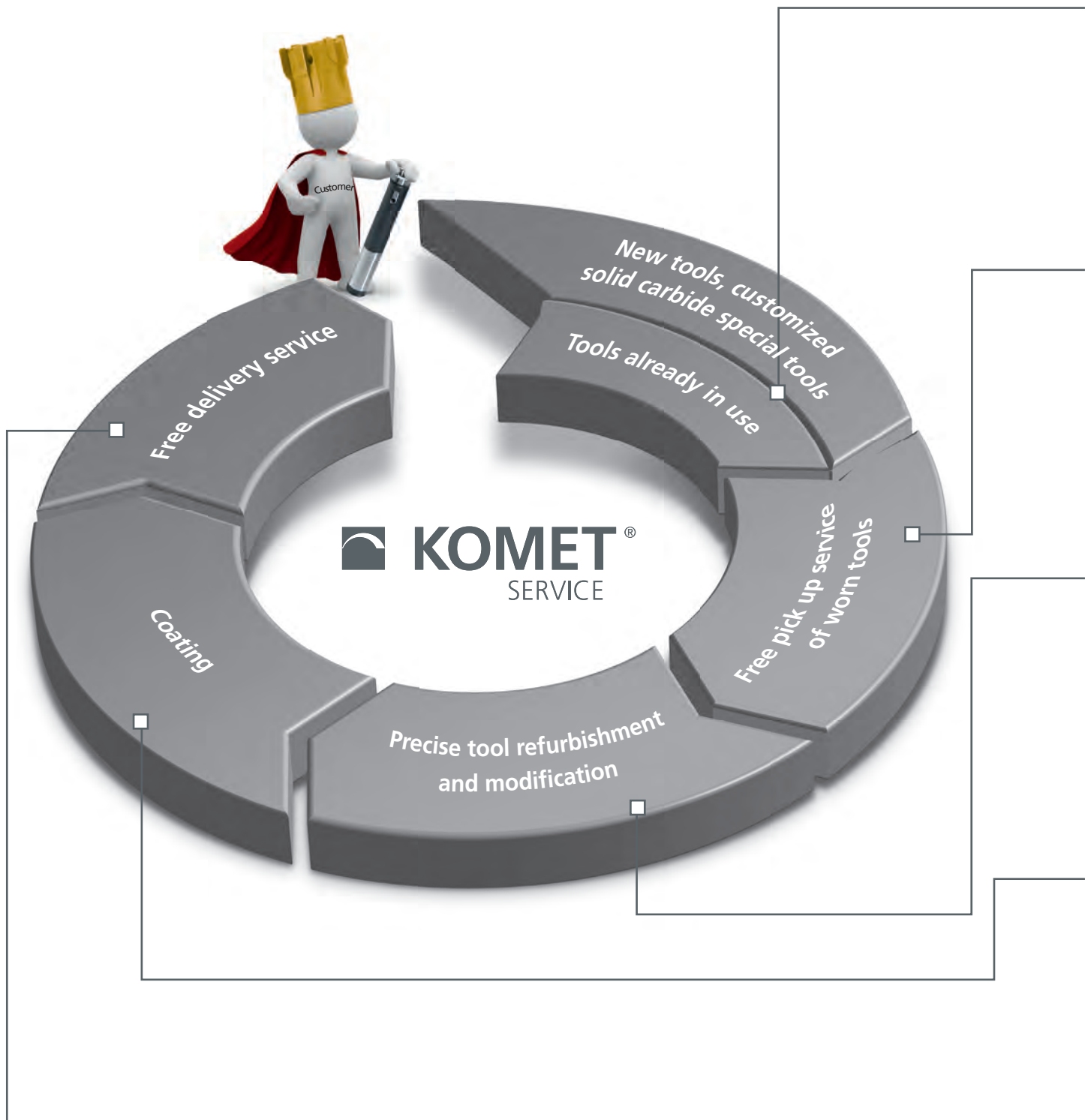
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KOMET SERVICE®

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 *TOOLlife* 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.



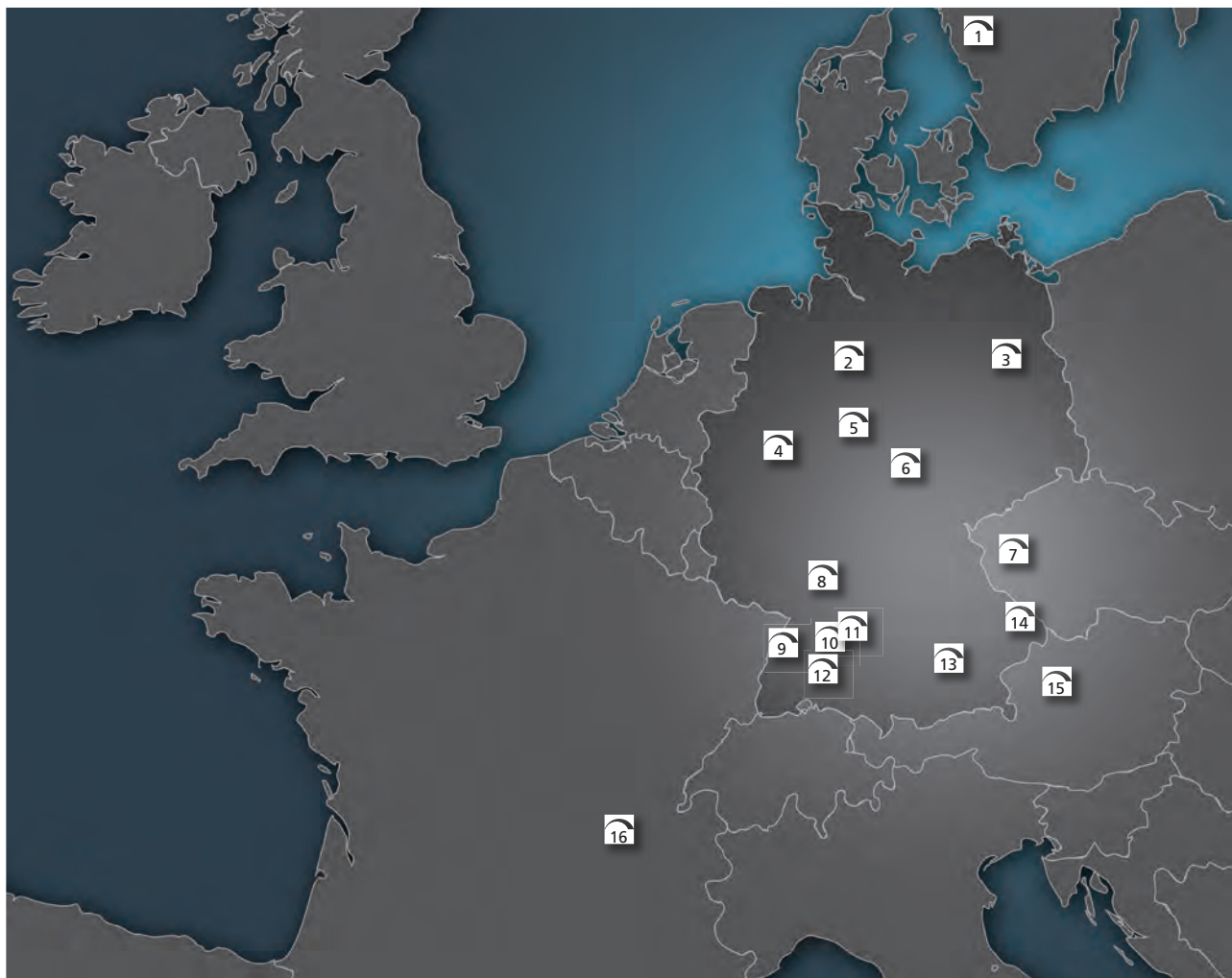
Coating – fully customized

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® *TOOLlife* box.



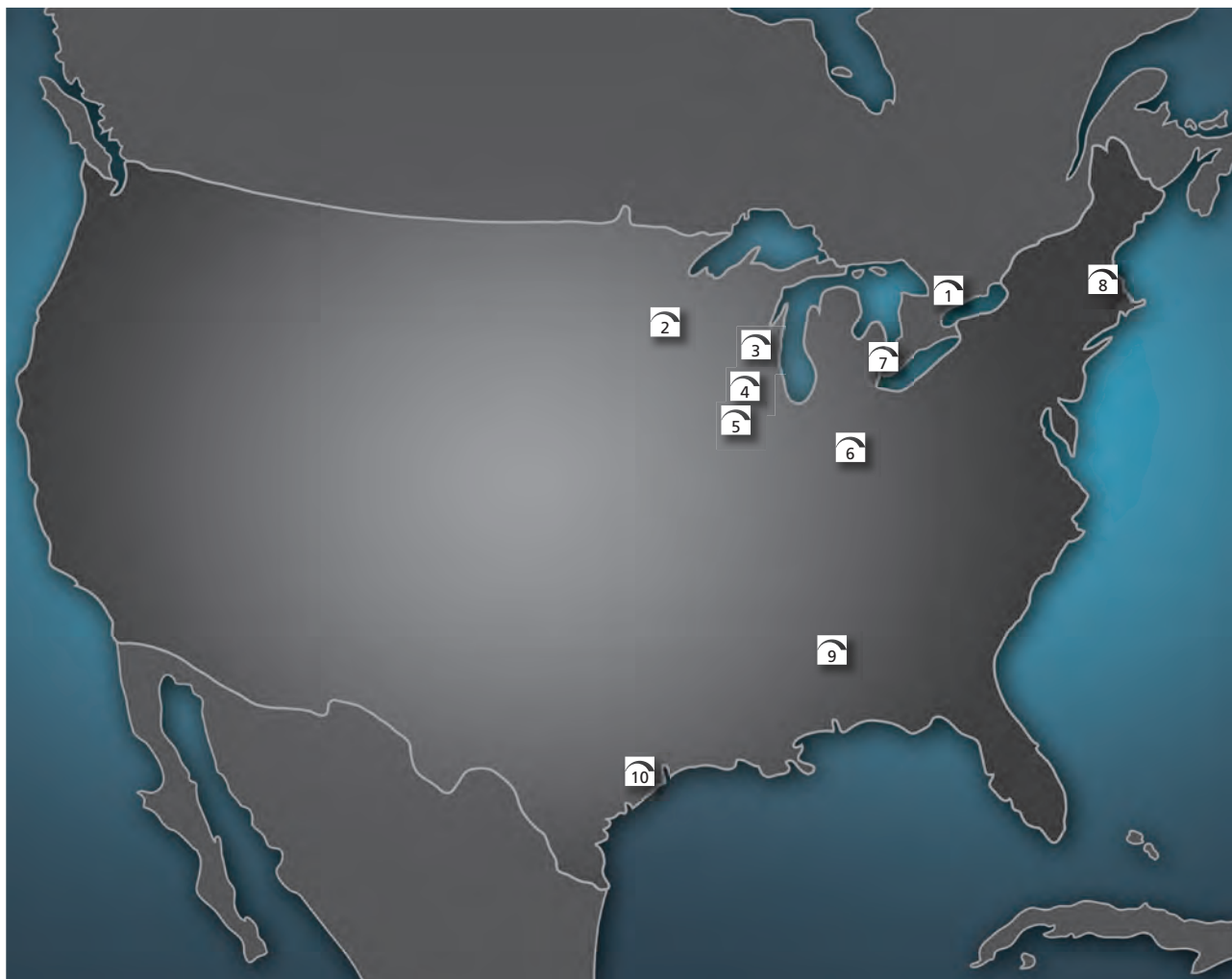
1	Görans Slipservice AB Ångpannegatan 3 SE-417 05 Göteborg Tel. +46 31 232060 Fax +46 31 229684 gorans@kometservice.com
2	Werkzeugservice Wulf e.K. Inhaber: Karsten Wulf Industriestr. 40 D-30900 Wedemark Tel. +49 5130 37670 Fax +49 5130 376729 wulf@kometservice.com
3	Herbert Schaubе Werkzeugschleiferei Alt-Blankenburg 25 D-13129 Berlin Tel. +49 30 47471037 Fax +49 30 4744194 schaube@kometservice.com
4	D. Hermes GmbH & Co. KG Otto-Hahn-Str. 8 D-58739 Wickede Tel. +49 2377 92810 Fax +49 2377 1470 hermes@kometservice.com
5	Kanne Werkzeugtechnik GmbH Borsigstr. 29 D-37154 Northeim Tel. +49 5551 988060 Fax +49 5551 9880666 kanne@kometservice.com
6	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

7	Zero systems, s.r.o. Pod Trati 493/16 CZ-32200 Plzeň Tel. +420 377927171 Fax +420 377983910 zero@kometservice.com
8	Andre Woitschach GmbH Max-Berk-Straße 2 D-69226 Nussloch Tel. +49 6224 16334 Fax +49 6224 16365 woitschach@kometservice.com
9	Schnebelt Präzision Burdastr. 21 D-77746 Schutterwald Tel. +49 781 960444 Fax +49 781 960450 schnebelt@kometservice.com
10	Werkzeugschleiferei Liebrich Obere Brandstr. 10 D-70567 Stuttgart Tel. +49 711 714995 Fax +49 711 712645 liebrich@kometservice.com
11	Werkzeugschleiferei Schlenker GmbH Mögglinger Str. 64 D-73560 Böbingen Tel. +49 7173 929073 Fax +49 7173 5757 schlenker@kometservice.com
12	NB Werkzeugtechnik Im Anwandel 12 D-72459 Albstadt Tel. +49 7432 2009422 Fax +49 7432 2009424 nb@kometservice.com

13	WEMA GmbH Raiffeisenstraße 9 D-85276 Pfaffenhofen Tel. +49 8441 859160 Fax +49 8441 8591620 wema@kometservice.com
14	Schneidwerkzeuge Schleiftechnik Moser Hauptstr. 21 D-94556 Schönanger-Neuschönau Tel. +49 8558 663 Fax +49 8558 671 moser@kometservice.com
15	Gradauer G.M.B.H. Ternberger Straße 1a A-4596 Steinbach/Steyr Tel. +43 7257 7366 Fax +43 7257 7366 gradauer@kometservice.com
16	AFly, Affûtage Lyonnais S.A.S. 200 rue Léon Blum F-69100 Villeurbanne Tel. +33 472 148939 Fax +33 472 140320 afly@kometservice.com

Fast, flexible and always close to you

www.kometservice.com



1 Castelar Tool & Grinding Inc.
2775 Slough St.
L4T 1G2, Mississauga, Ontario, Canada
Tel. +1 905 677 3090
Fax +1 905 677 3091
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. +1 586 779 1122
Fax +1 586 779 0157
breckers@kometservice.com

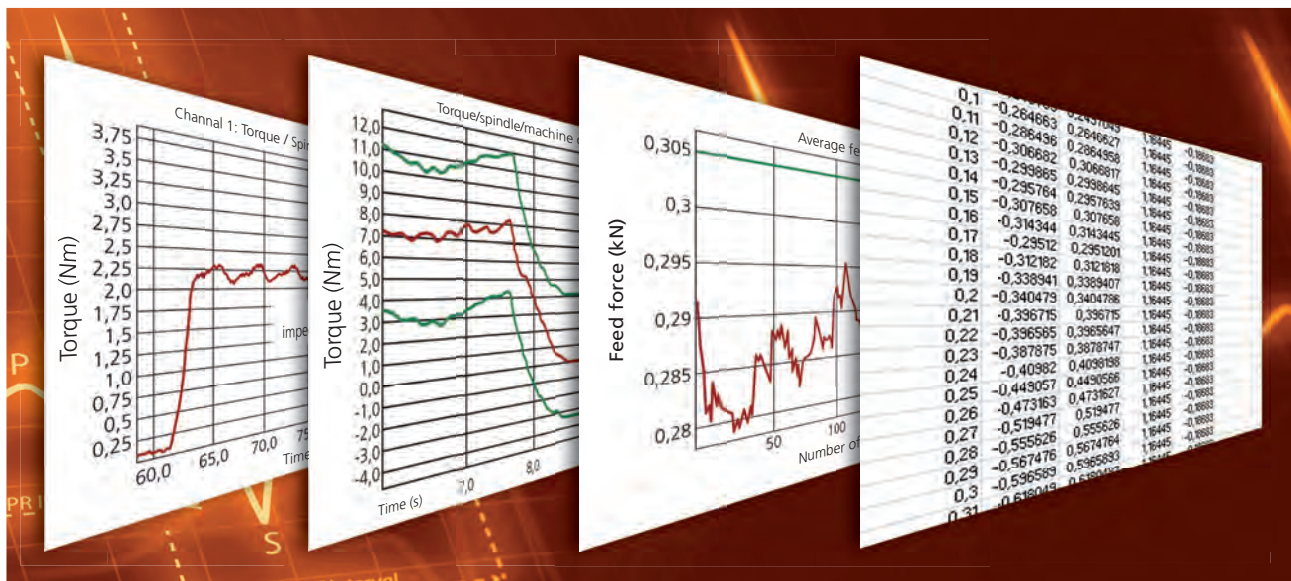
8 Razor Tool, Inc.
41 Elm Street
Stoneham, MA 02180, USA
Tel. +1 781 654 1582
razortool@kometservice.com

9 Cutting Tool Engineers, Inc.
208 Commerce Parkway
Pelham, AL 35124, USA
Tel. +1 205 733 0100
Fax +1 205 733 0191
CTE@kometservice.com

10 Grinding Technology, LLC
220 Barren Springs Drive
Houston, TX 77090, USA
Tel. +1 713 910 7719
Fax +1 713 910 7554
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 monitoring 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 (WxDxH)	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
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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 continuously 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 constant 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 significantly 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-learning.

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
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Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

SIMODRIVE® and SINUMERIK® are registered trademarks of Siemens AG.



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.

*praxis*FORUM

The KOMET GROUP's *praxis*FORUM+

provides well-founded information and practical expertise on subjects from a range of different disciplines.

The *praxis*FORUM+ provides thought-provoking ideas and scores points with a clear and professional profile. The series of events organised by the KOMET GROUP provides a platform for topics and questions arising from a range of different disciplines. Renowned speakers provide an insight into the various aspects of a selected range of topics. Emphasis is placed on communicating practice-based expertise.

More detailed information can be found at

www.daspraxisforum.de

The forthcoming forum scheduled for 22nd October 2015 from 9.00 am until 5.00 pm in the IDEEN-FABRIK+ in Besigheim is being held under title of "The optimisation of milling processes as a factor in technological competitiveness".



The development of milling technologies is racing further ahead driven by the demand for increasingly shorter production times and higher productivity. Hard milling offers a corresponding potential and enables a significant reduction in throughput times in production. Due to the use of efficient precision tools with state-of-the-art carbide metals and surface coatings, as well as an optimised machining environment, tools now can be machined dry without difficulty or incident.

The experienced consultants and speakers Frank Stahl and Dr. Reinhard Durst (KOMET GROUP GmbH), Benjamin Bergmann (IFW), Michael Kraft (SCHUNK GmbH & Co. KG), Sascha Frenzel (bielomatik Leuze GmbH + Co. KG), Reinhard Beyer (Hoffmann Nürnberg GmbH) and Dr. Kristian Arntz (Fraunhofer IPT) will be illuminating the topic from a variety of different perspectives. They will be discussing what increases in efficiency can be achieved in hard milling and what sort of concrete machining parameters can lead to success. In addition, current and forward-looking trends in hard milling operations will be presented. Apart from interesting lectures and speeches, processing operations will be demonstrated live on actual machinery.

Questions from participants and attendees have been expressly requested. During the event, there will be sufficient space and time for an exchange of views and ideas at a fully professional level.





Einladung

Hartfräsen

Frässtrategien für ein optimiertes Bearbeitungsumfeld



***praxis*FORUM **

AUS DER PRAXIS FÜR DIE PRAXIS

22. OKTOBER 2015 | IDEEN-FABRIK+ | BESIGHEIM

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®



Find the suitable thread milling tool – App for iPhone and Android™

Software for thread milling tools

Quick and easy tool selection, and generation of CNC programmes for standard thread milling cutters and thread mills manufactured by the KOMET GROUP:

24 hours a day, across the globe, at <http://tpt.kometgroup.com>

Benefits:

- Free service
- Simply register, and you will instantly be provided with a password
- Program is ready to use



BENEFITS for you:

- You can enter the machining task
- All possible tools will be proposed, with the machining time given for each
- Tool drawings will be displayed
- CNC programs for six different control systems in six different languages, in metric or imperial

CNC programs for various control systems can be configured online at <http://tpt.kometgroup.com> or can be obtained on request by telephoning: +49 711 788910.

Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

iPhone and iPad are registered trademarks of Apple Inc.
App Store is a trademark of Apple Inc.
Google Play and Android are registered trademarks of Google Inc.



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.

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: $\pm 6\%$ 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	L05 00710
7IP	0,90 Nm	L05 00921	L05 00720
8IP	1,28 Nm	L05 00931	L05 00730
8IP	2,25 Nm	L05 03311	L05 00730
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: $\pm 10\%$ 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	L05 00710
8IP	1,28 Nm	L05 00932	L05 00730
8IP	1,8 Nm	L05 03320	L05 00730
8IP	2,25 Nm	L05 00942	L05 00730
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

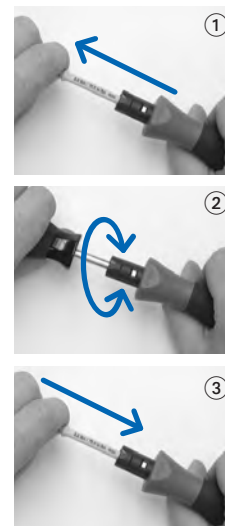
TorqueVario®				
				
Size	Torque	Order No.	Adjusting key	Replaceable blades
5IP – 7IP	0,38 - 1,01 Nm	L05 00781	L05 00990	L05 00700
				L05 00710
				L05 00720
9IP – 20IP	2,25 - 6,25 Nm	L05 00791	L05 00990	L05 00740
				L05 00750
				L05 00760
				L05 00770

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

Supply includes:

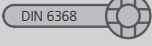
Torque wrench with adjusting key and replaceable blades.



TORX PLUS®			
			
Size	Order No.	Size	Order No.
5IP	L05 00800	9IP	L05 00840
6IP	L05 00810	10IP	L05 00850
7IP	L05 00820	15IP	L05 00860
8IP	L05 00830	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.

Allen key	
	
Width 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

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18589 10008	193	61000 00387	209	70910250040400	54	70950482021200	52	78904012331600	61
18589 10010	193	61000 00388	209	70910257060600	54	70950482021400	52	78904022260400	61
18589 10010	193	61000 00389	209	70910260081600	54	70950492021600	52	78904022280500	61
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C86 32990.02..	156	C95 23950.04..	172	F55 02210	11	L05 00901	248	P81 21060	216
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Company	
Contact person (surname)	Name
Branch	Department/site
Street	
Town/city, postcode	
Tel.	Fax
Date	Signature

Company	
Contact person (surname)	Name
Branch	Department/site
Street	
Town/city, postcode	
Tel.	Fax

[illegible]

	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
	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
	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
	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
	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
	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
	KOMET GROUP GmbH Zeppelinstraße 3, DE-74354 Besigheim Tel. +49 7143 3730 Fax +49 7143 373233 info@kometgroup.com
	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
	KOMET GROUP CZ s.r.o. Na Hůrce 1041/2, 160 00 Praha 6 Tel. +420 235010010 Fax +420 235311890 info.cz@kometgroup.com
	KOMET GROUP GmbH Zeppelinstraße 3, 74354 Besigheim Tel. +49 7143 3730 Fax +49 7143 373233 info@kometgroup.com
	KOMET Scandinavia AB Box 9177, SE-200 39 Malmö Tel. +46-40-49 28 40 Fax +46-40-49 19 95 scandinavia@kometgroup.com
	ZAHFRANCO, 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
	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

	P.Aro Oy Hallimestarinkatu 9, FI-20780 KAARINA Tel. +358-(0)20 1474500 Fax +358-(0)20 1474501 info@p-aro.com
	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
	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
	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
	POWER TOOLS KFT 9019 GYOR, Tavrózsza u. 3/F Tel. +36 96 511 011 Fax +36 96 511 010 info@power-tools.hu
	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
	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
	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
	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
	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
	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
	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

 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

 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

 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

 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

 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

 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

 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

 KOMET Scandinavia AB
Box 9177, SE-200 39 Malmö
Tel. +46-40-49 28 40 | Fax +46-40-49 19 95
scandinavia@kometgroup.com

 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

 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

 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

 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

 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

 KOMET GROUP GmbH
ul. M.Salimganova 2V, 420107, Kazan
Tel. +7 843 2531430 | Fax +7 843 2120173
info.ru@kometgroup.com

 KOMET Scandinavia AB
Box 9177, SE-200 39 Malmö
Tel. +46-40-49 28 40 | Fax +46-40-49 19 95
scandinavia@kometgroup.com

 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

 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

 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

 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

 KOMET KESICI TAKIMLAR SAN VE TIC LTD STI
Yenikoy Mahallesi Koybasi cad., Akbas Sokak no 7 Sariyer ISTANBUL
Tel. +90 212 346 01 34 | Tel. +90 212 346 01 70
Fax +90 212 346 01 64 | info.tr@kometgroup.com

 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
hclhsu@ms26.hinet.net

 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

 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

 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 STI
Yenikoy Mahallesi Koybasi cad. · Akbas Sokak no 7 Sariyer · ISTANBUL
Tel. +90 212 346 01 34 · Tel. +90 212 346 01 70 · Fax +90 212 346 01 64 · 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

SOUTHEAST ASIA

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

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