KOMET GROUP

KomPass
REAMING

TOOLS + IDEAS®

KomPass REAMING – BENEFITS for you

Perfect reaming technology to new dimensions.

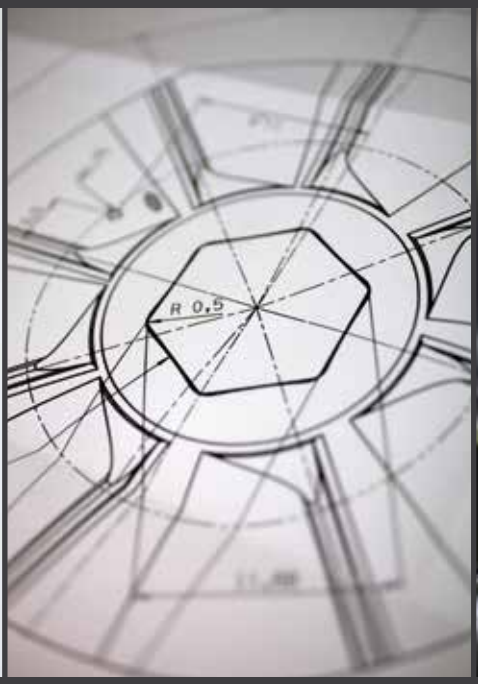
For the economic fine machining of bores, the comprehensive tool programme of standardised KOMET DIHART Monomax® monoblock tools, KOMET DIHART® Fullmax solid carbide reamers and tailor-made multiblade stepped reamers and on to customer-specific special tools, guarantees accurate, economic and reliable machining.

Innovative solutions for fine bore machining:

- KOMET DIHART REAMAX® TS – Modular reaming system
- Reaming with indexable insert technology
- Compensating holder KOMET DIHART DAH® for µ-accurate concentricity

KOMET DIHART®

Innovative solutions for precision finishing of bores



The KOMET GROUP is a leading global provider of reaming tools for the economical ultraprecision machining of bores. Our innovative solution potential, comprehensive performance range and personal commitment are the basis for successful partnerships with our customers.

For more than 60 years DIHART® has been synonymous for high-precision reaming. We are successfully meeting the increasing demand for customer-specific special solutions and flexible standard tools we have been continuously expanding our solution competency and our innovative edge. Our leading market position is the result of consistently higher quality and continuous development.

The KOMET GROUP also offers the complete range of services internationally. You can find us wherever you manufacture your products with an exacting claim for quality.

The standardised tool range and the customer-specific special tools guarantee precise, economical and reliable machining.

With new product and logistics concepts such as the modular high-speed reaming tools KOMET DIHART REAMAX® TS, sets standards especially in the standard range. Our knowledge of customer-specific solutions offers unique perspectives.

KOMET DIHART® is the brand of the KOMET GROUP for perfect reaming in new dimensions.

Index

KOMET DIHART® Tool selection

This selection aid guides you quickly and easily to the tool system that is suitable for you requirements.

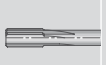
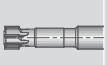
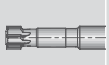
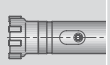
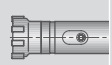
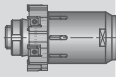
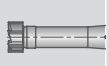
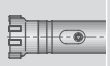
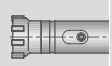
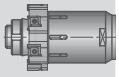
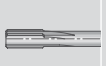
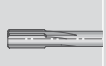
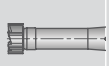
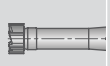
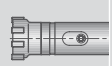
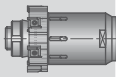
Our recommendation for a tool system suitable for you, which takes tolerance and diameter into consideration, can be found on page 7.

Example

Diameter 20^{H7} to be machined leads to REAMAX® TS tooling system

KOMET DIHART® Tool selection

Tool recommendation

IT-Tolerance	Ø 2,96 – 5,59	Ø 5,60 – 11,99	Ø 12,00 – 17,99	Ø 18 – 40	Ø 40 – 65	Ø 65 – 110
IT 5 – IT 6	 KOMET DIHART® Fullmax	 KOMET DIHART® Monomax®	 KOMET DIHART® Monomax®	 KOMET DIHART® REAMAX® TS	 KOMET DIHART® REAMAX® TS	 KOMET DIHART® Duomax
IT 7	 KOMET DIHART® Fullmax	 KOMET DIHART® Monomax®	 KOMET DIHART® REAMAX®	 KOMET DIHART® REAMAX® TS	 KOMET DIHART® REAMAX® TS	 KOMET DIHART® Duomax
≥ IT 8	 KOMET DIHART® Fullmax	 KOMET DIHART® Fullmax	 KOMET DIHART® REAMAX®	 KOMET DIHART® REAMAX®	 KOMET DIHART® REAMAX® TS	 KOMET DIHART® Duomax

IT-Tolerance class see chapter 9

According to the type of bore and material to be machined, you will be guided to the appropriate/ matching tool. The best cutting geometry (ASG) can be seen from the table "Tool recommendation" in each section.

Example

Material: 1.0037 (S235JR)
non-alloy steel
Bore type:
Through bore

Tool recommendation:
DST cutting material
Order No.: 75J.93
Cutting geometry: ASG4000

KOMET DIHART REAMAX® TS

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
						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)	75J.93	ASG4000	DST	75J.71	ASG4000	TiN
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	75J.93	ASG4000	DST	75J.71	ASG4000	TiN
	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	75J.93	ASG4000	DST	75J.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)	75J.93	ASG4000	DST	75J.71	ASG3000	TiN

Recommended cutting data:

Cutting speed:
optimum v_C = 150 m/min
maximum v_C = 200 m/min

Feed for ∅ 20,000 mm:
optimum f = 1,00 mm/rev
maximum f = 1,30 mm/rev

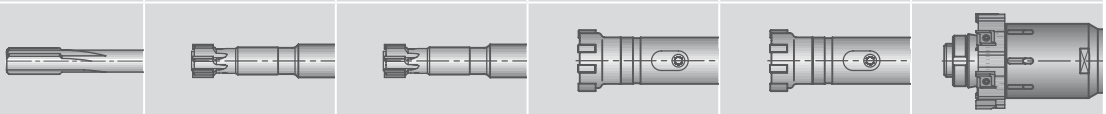
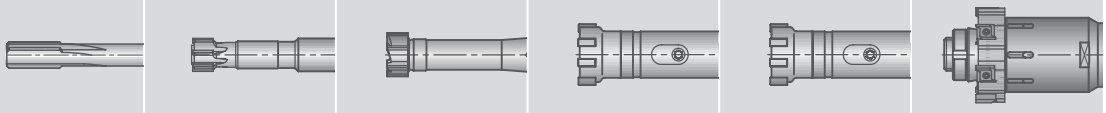
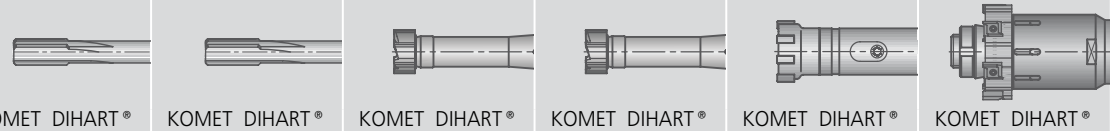
KOMET DIHART REAMAX® TS

Recommended cutting data

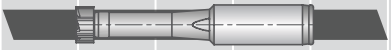
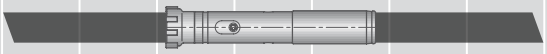
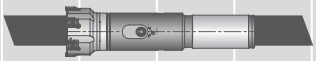
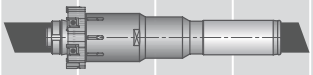
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	Cutting speed v_C (m/min) optimum · maximum — 3×D Reamers short								Cutting speed v_C (m/min) optimum · maximum — 5×D Reamers long							
						HM	TiN	DBG-N	DBF	DBC	DST	DJC	DJF	HM	TiN	DBG-N	DBF	DBC	DST	DJC	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	

Feed f (mm/rev) – with face cut, feed reduced by 30%

optimum · maximum — ASG3000, ASG0106, ASG03, ASG0706, ASG07, ASG02				optimum · maximum — ASG4000, ASG09B, ASG1402, ASG09, ASG1405, ASG1406			
Ø 18 - 21,999 ✲ 6	Ø 22 - 31,799 ✲ 6	Ø 31,8 - 51,999 ✲ 8	Ø 52 - 65 ✲ 10	Ø 18 - 21,999 ✲ 6	Ø 22 - 31,799 ✲ 6	Ø 31,8 - 51,999 ✲ 8	Ø 52 - 65 ✲ 10
0,80 1,10	1,00 1,40	1,30 1,90	1,90 2,80	1,00 1,30	1,20 1,70	1,70 2,30	2,40 3,40
0,80 1,10	1,00 1,40	1,30 1,90	1,90 2,80	1,00 1,30	1,20 1,70	1,70 2,30	2,40 3,40

Tool recommendation						
IT-Tolerance	∅ 2,96 – 5,59	∅ 5,60 – 11,99	∅ 12,00 – 17,99	∅ 18 – 40	∅ 40 – 65	∅ 65 – 110
IT 5 – IT 6	 KOMET DIHART® Fullmax	KOMET DIHART® Monomax®	KOMET DIHART® Monomax®	KOMET DIHART® REAMAX® TS	KOMET DIHART® REAMAX® TS	KOMET DIHART® Duomax
IT 7	 KOMET DIHART® Fullmax	KOMET DIHART® Monomax®	KOMET DIHART® REAMAX®	KOMET DIHART® REAMAX® TS	KOMET DIHART® REAMAX® TS	KOMET DIHART® Duomax
≥ IT 8	 KOMET DIHART® Fullmax	KOMET DIHART® Fullmax	KOMET DIHART® REAMAX®	KOMET DIHART® REAMAX®	KOMET DIHART® REAMAX® TS	KOMET DIHART® Duomax

IT-Tolerance class see chapter 9

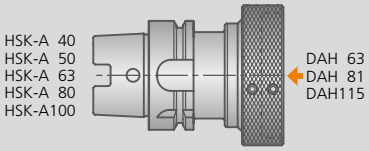
Overview standard reamers													
∅ 2,960	∅ 5,600	∅ 9,600	∅ 12,000	∅ 18,000	∅ 20,050	∅ 25,899	∅ 40,000	∅ 42,000	∅ 60,600	∅ 65,000	∅ 70,000	∅ 110,599	Tool attachement
 KOMET DIHART® Fullmax													DIN 6535 HA
 KOMET DIHART Monomax®													≈ DIN 1835 / DIN 228 Form A
KOMET DIHART REAMAX® 													≈ DIN 1835
KOMET DIHART REAMAX® TS 													≈ DIN 1835 / DAH® / ABS®
KOMET DIHART REAMAX® TS Duo 													≈ DIN 1835 / DAH® / ABS®
KOMET DIHART® Duomax 													≈ DIN 1835 / DAH® / ABS®

If you do not find a standard tool in this catalogue for your machining needs, we are happy to offer you a customer-specific tool.

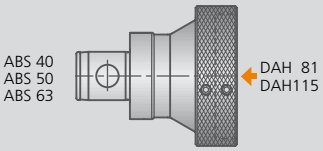
KOMET DIHART® Programme summary

Adaptors

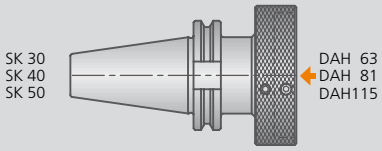
DAH® Compensating Holder
with HSK adaptor DIN 69893 A
▸ 90



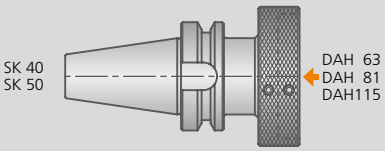
with ABS® adaptor
▸ 90



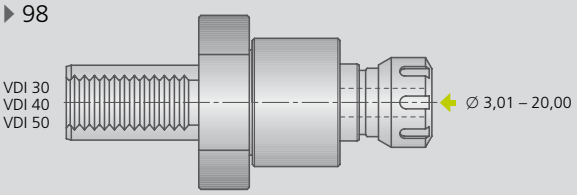
with taper shank DIN 69871 AD/B
▸ 91



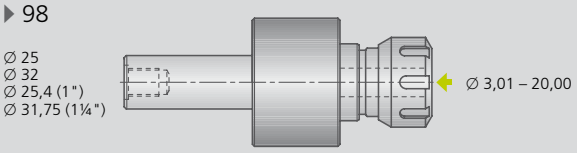
with taper shank JIS B 6339 AD/B
▸91



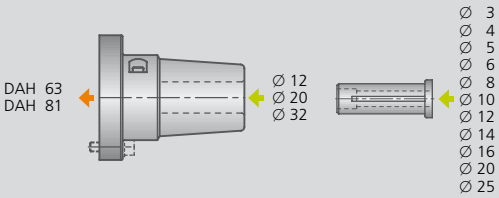
DPS Floating Holder
with VDI connection DIN 69880
▸ 98



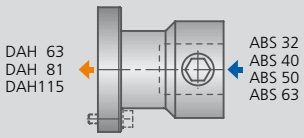
with cylindrical shank similar to DIN 1835
▸ 98



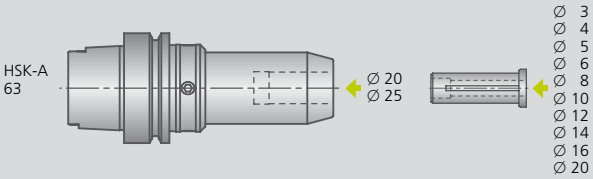
DAH® Expanding chuck
for tools with cylindrical shank
▸ 94



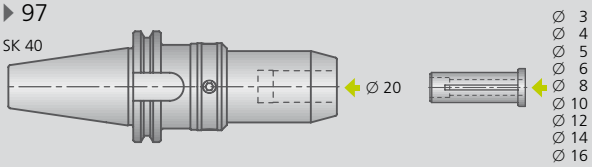
DAH® Adaptor
for tools with ABS® connection
▸ 94



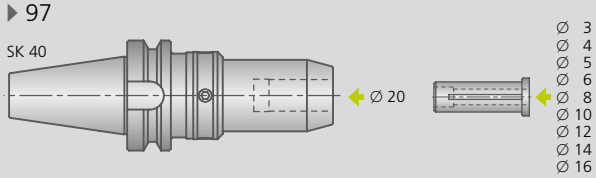
DAH® 50 HS Compensating Holder
with HSK adaptor DIN 69893 A
▸ 97



with taper shank DIN 69871 AD
▸ 97



with taper shank JIS B 6339 AD
▸ 97



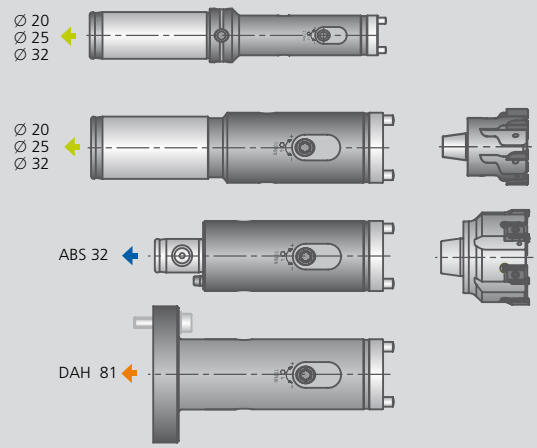
Reaming tools

Cylindrical shank
similar to DIN 1835
▸ 21

▸ 20

ABS® connection
▸ 22

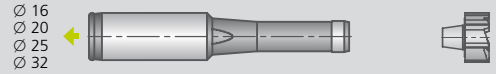
DAH® connection
▸ 23



KOMET DIHART REAMAX® TS
Ø 18,000 – 65,000 mm
▸ 16

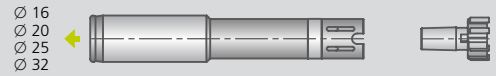
KOMET DIHART REAMAX® TS Duo
Ø 42,000 – 70,000 mm
▸ 18

Cylindrical shank
similar to DIN 1835
▸ 35



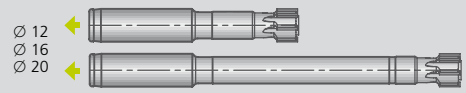
KOMET DIHART REAMAX®
Ø 12,000 – 40,000 mm
▸ 34

Cylindrical shank
similar to DIN 1835
▸ 105



KOMET DIHART® Rapid set head
Ø 9,60 – 60,00 mm
▸ 104

Cylindrical shank
similar to DIN 1835

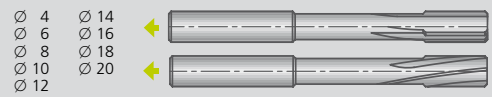


KOMET DIHART Monomax®
Ø 5,600 – 25,899 mm
▸ 46 – 49

Morse taper DIN 228
form A

Ø 5,600 – 25,899 mm
▸ 50

Cylindrical shank
DIN 6535 HA

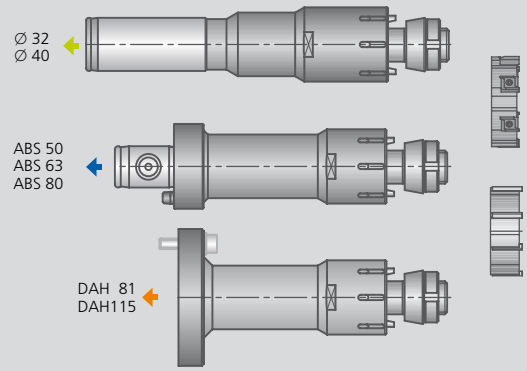


KOMET DIHART® Fullmax
Ø 2,96 – 20,05 mm
▸ 58 – 61

Cylindrical shank
similar to DIN 1835
▸ 70

ABS® connection
▸ 72

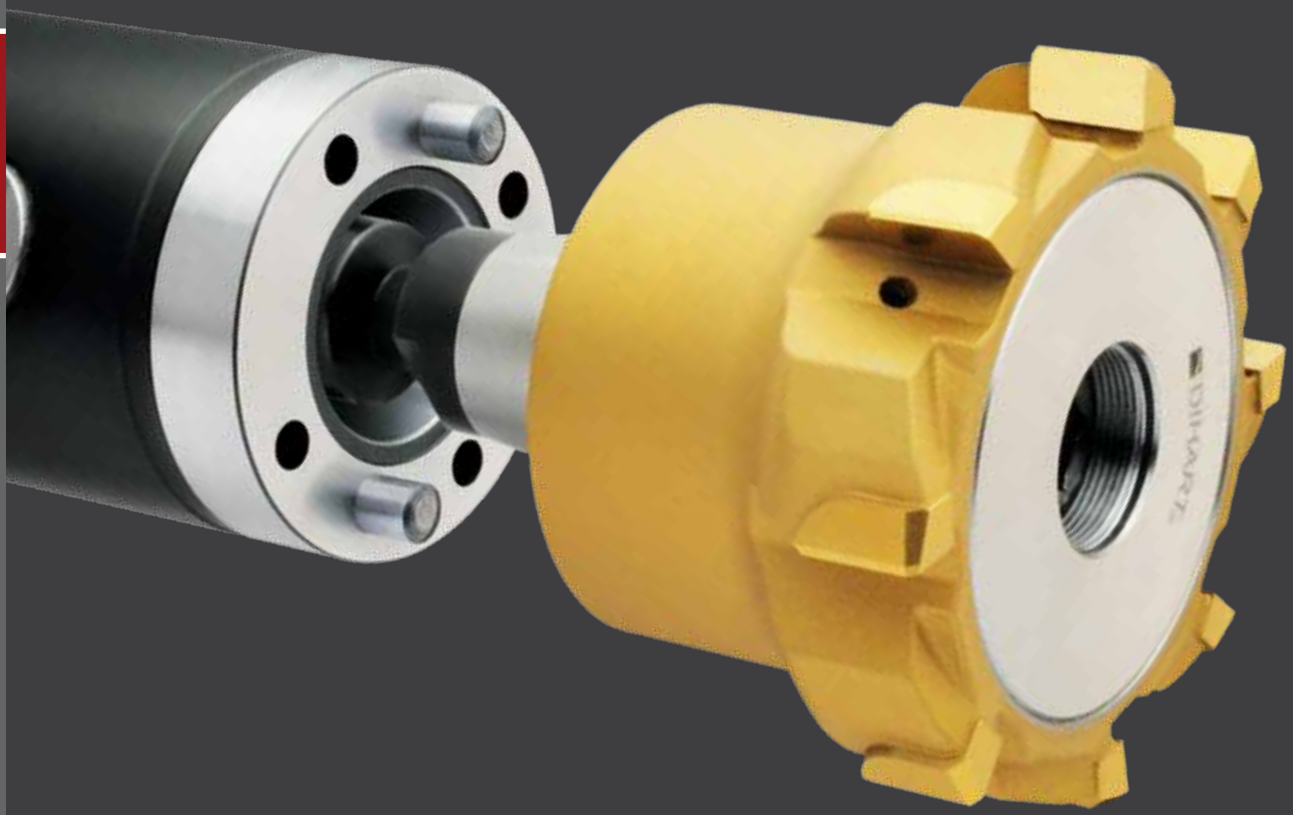
DAH® connection
▸ 71



KOMET DIHART® Duomax
Ø 60,600 – 100,599 mm
▸ 68

KOMET DIHART® Cutting ring
Ø 60,600 – 100,599 mm
▸ 112

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 × 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.

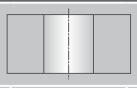
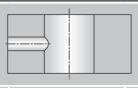
Each insert has two effective cutting edges.
Unlike boring tools, inserts for reaming tools are ground as a complete set directly on the basic element in their specific insert pocket.

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.

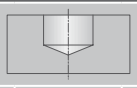
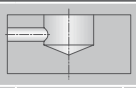
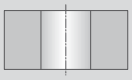
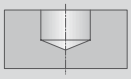
Numerous cutting materials and coatings for machining an extremely wide variety of materials.

KOMET DIHART REAMAX® TS

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						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)	75J.93	ASG4000	DST	75J.71	ASG4000	TiN
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	75J.93	ASG4000	DST	75J.71	ASG4000	TiN
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	75J.93	ASG4000	DST	75J.71	ASG4000	TiN
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	75J.93	ASG4000	DST	75J.71	ASG3000	TiN
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	75J.71	ASG0106	TiN	75J.71	ASG0106	TiN
P	4.1			HSS							
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)						
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)						
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	75J.47	ASG0106	DBF	75J.47	ASG0106	DBF
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	75J.47	ASG0106	DBF	75J.47	ASG0106	DBF
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	75J.47	ASG0106	DBF	75J.47	ASG0106	DBF
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	75J.37	ASG3000	DBG-N	75J.37	ASG3000	DBG-N
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	75J.37	ASG3000	DBG-N	75J.37	ASG3000	DBG-N
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	75J.93	ASG3000	DST	75J.47	ASG3000	DBF
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	75J.93	ASG3000	DST	75J.47	ASG3000	DBF
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	75J.93	ASG3000	DST	75J.47	ASG3000	DBF
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	75J.37	ASG3000	DBG-N	75J.37	ASG3000	DBG-N
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	75J.37	ASG3000	DBG-N	75J.37	ASG3000	DBG-N
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	75J.93	ASG3000	DST	75J.71	ASG3000	TiN
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	75J.71	ASG3000	TiN	75J.71	ASG3000	TiN
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	75J.17	ASG0706	DBC	75J.17	ASG0706	DBC
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	75J.17	ASG0706	DBC	75J.17	ASG0706	DBC
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	75J.17	ASG0706	DBC	75J.17	ASG0706	DBC
H	15.0	1400		hardened steels < 45 HRC							
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC							

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

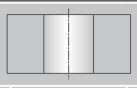
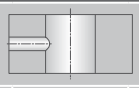
High-speed machining						Conventional machining with carbide					
											
Order No.	Cutting geometry (ASG)	Cutting material/ coating	Order No.	Cutting geometry (ASG)	Cutting material/ coating	Order No.	Cutting geometry (ASG)	Cutting material	Order No.	Cutting geometry (ASG)	Cutting material
75H.93	ASG3000	DST	75H.71	ASG3000	TiN	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.93	ASG3000	DST	75H.71	ASG3000	TiN	75J.21	ASG02	HM	75H.21	ASG02	HM
75H.93	ASG3000	DST	75H.71	ASG3000	TiN	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.93	ASG3000	DST	75H.71	ASG3000	TiN	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.71	ASG0106	TiN	75H.71	ASG0106	TiN	75J.21	ASG0106	HM	75H.21	ASG0106	HM
						75J.21	ASG03	HM	75H.21	ASG03	HM
75H.47	ASG0106	DBF	75H.47	ASG0106	DBF	75J.21	ASG0106	HM	75H.21	ASG0106	HM
75H.47	ASG0106	DBF	75H.47	ASG0106	DBF	75J.21	ASG0106	HM	75H.21	ASG0106	HM
75H.47	ASG0106	DBF	75H.47	ASG0106	DBF	75J.21	ASG0106	HM	75H.21	ASG0106	HM
75H.37	ASG3000	DBG-N	75H.37	ASG3000	DBG-N	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.37	ASG3000	DBG-N	75H.37	ASG3000	DBG-N	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.93	ASG3000	DST	75H.47	ASG3000	DBF	75J.21	ASG02	HM	75H.21	ASG02	HM
75H.93	ASG3000	DST	75H.47	ASG3000	DBF	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.93	ASG3000	DST	75H.47	ASG3000	DBF	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.37	ASG3000	DBG-N	75H.37	ASG3000	DBG-N	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.37	ASG3000	DBG-N	75H.37	ASG3000	DBG-N	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.93	ASG3000	DST	75H.71	ASG3000	TiN	75J.21	ASG0106	HM	75H.21	ASG0106	HM
75H.71	ASG3000	TiN	75H.71	ASG3000	TiN	75J.21	ASG0106	HM	75H.21	ASG0106	HM
75H.17	ASG0706	DBC	75H.17	ASG0706	DBC	75J.21	ASG02	HM	75H.21	ASG02	HM
75H.17	ASG0706	DBC	75H.17	ASG0706	DBC	75J.21	ASG3000	HM	75H.21	ASG3000	HM
75H.17	ASG0706	DBC	75H.17	ASG0706	DBC	75J.21	ASG3000	HM	75H.21	ASG3000	HM

Cutting speed and feed see pages 26-27.

Important: See chapter 9 for more application details and safety notes !

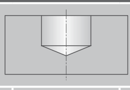
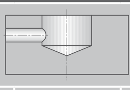
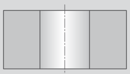
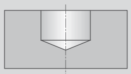
KOMET DIHART REAMAX® TS Duo

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						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 (11SMnPb30)	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
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
	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.

Patented design

	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

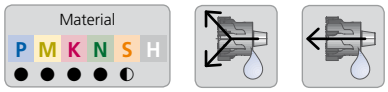
Cutting speed and feed see pages 28-29.

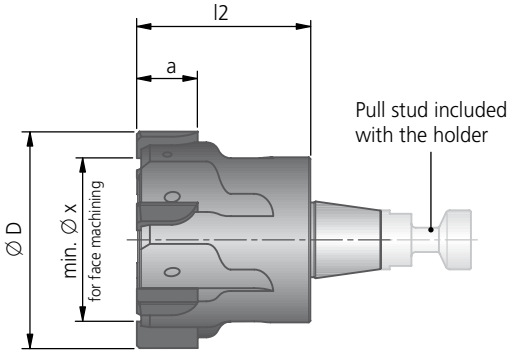
Important: See chapter 9 for more application details and safety notes !

KOMET DIHART REAMAX® TS

Ø 18,000 – 65,000 mm

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 P M K N S H	for material P M K N S H	Ø D	min. diameter for face machining Ø x ~	a ~	l2 ~	Z	kg
75J.21	75H.21	HM	◐[1] ◑[1] ◐[1] ◐[1] ◑[1]	◐[1] ◑[1] ◐[1] ◐[1] ◑[1]	18,000 - 19,999	ØD – 4,0	6,0	20	6	0,03
75J.71	75H.71	TiN	◐ ◑ ◐[4] ◑	● ◑ ◐[5] ◑	20,000 - 21,999	ØD – 4,0	6,0	20	6	0,03
75J.37	75H.37	DBG-N	◐	◐ ◐	22,000 - 26,999	ØD – 4,2	6,0	20	6	0,04
75J.47	75H.47	DBF	◑ ●	◐ ◑ ●	27,000 - 31,799	ØD – 5,4	6,0	25	6	0,04
75J.17	75H.17	DBC	●	●	31,800 - 34,999	ØD – 6,0	6,0	25	8	0,05
75J.93	75H.93	DST	● ◐[2] ◐[3]		35,000 - 41,999	ØD – 6,9	6,0	25	8	0,13 - 0,15
75J.67	75H.67	DJC	◐[2]		42,000 - 51,999	ØD – 7,5	6,0	30	8	0,20 - 0,25
75J.87	75H.87	DJF	◐		52,000 - 65,000	ØD – 8,8	8,0	35	10	0,35 - 0,45

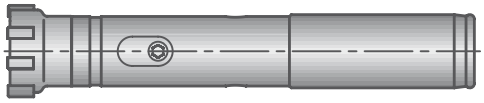
Order example: Order No. 75J.93 · Bore diameter 65 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG4000 (Cutting geometry page 12-13)

Diameter H7 – available from stock

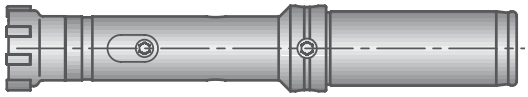
Cutting material / coating						TiN						DBG-N					
for material						P	M	K	N	S	H	P	M	K	N	S	H
without interruption						◐	◑		◐[4]	◑		◐	◑		◐[4]	◑		◐		◐			
with interruption						●	◑		◐[5]	◑		●	◑		◐[5]	◑		◐		◐			
Ø D	Ø x ~	a ~	l2 ~	Z	kg	Cutting geometry ASG 3000 Order No.						Cutting geometry or through hole machining ASG4000 Order No.						Cutting geometry ASG 3000 Order No.					
18H7	14	6	20	6	0,026	75J.71.18H7N						75J.71.18H7D						75J.37. 18H7N					
20H7	16	6	20	6	0,033	75J.71.20H7N						75J.71.20H7D						75J.37. 20H7N					
22H7	17,8	6	20	6	0,039	75J.71.22H7N						75J.71.22H7D						75J.37. 22H7N					
24H7	19,8	6	20	6	0,043	75J.71.24H7N						75J.71.24H7D						75J.37. 24H7N					
25H7	20,8	6	20	6	0,044	75J.71.25H7N						75J.71.25H7D						75J.37. 25H7N					
28H7	22,6	6	25	6	0,078	75J.71.28H7N						75J.71.28H7D						75J.37. 28H7N					
30H7	24,6	6	25	6	0,080	75J.71.30H7N						75J.71.30H7D						75J.37. 30H7N					
32H7	26	6	25	8	0,090	75J.71.32H7N						75J.71.32H7D						75J.37. 32H7N					
35H7	28,1	6	25	8	0,130	75J.71.35H7N						75J.71.35H7D						75J.37. 35H7N					
40H7	33,1	6	25	8	0,144	75J.71.40H7N						75J.71.40H7D						75J.37. 40H7N					
50H7	42,5	6	30	8	0,226	75J.71.50H7N						75J.71.50H7D						75J.37. 50H7N					

[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

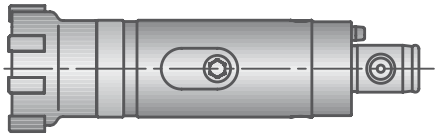
Holder with cylindrical shank similar to DIN 1835
for Ø 18,000 – 65,000 mm
▸ 20



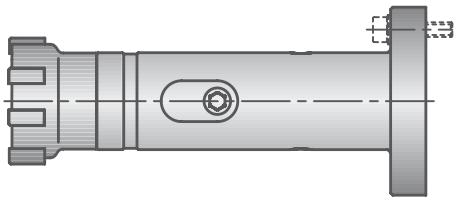
DAH® Zero Holder with cylindrical shank similar to DIN 1835
for Ø 18,000 – 41,999 mm
▸ 21

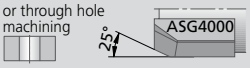


Holder with ABS® connection
for Ø 35,000 – 65,000 mm
▸ 22



Holder with DAH® connection
for Ø 42,000 – 65,000 mm
▸ 23



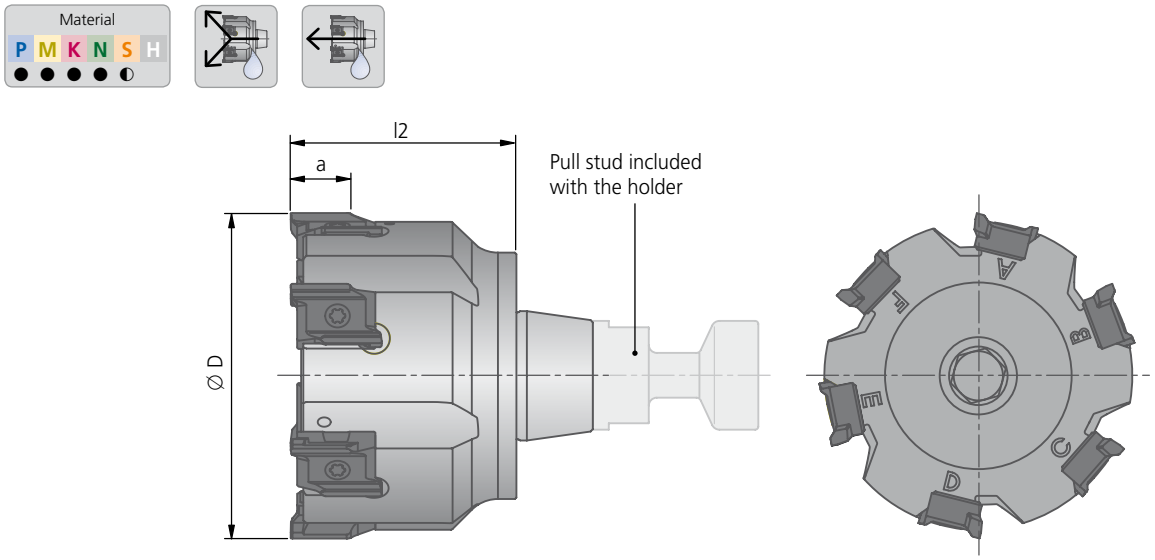
	Diameter H7 – available from stock				
	DBF	DBC	DST		DJF
	P M K N S H	P M K N S H	P M K N S H	P M K N S H	P M K N S H
	◐ ●	●	● ◐[2] ◐[3]	● ◐[2] ◐[3]	◐
	◐ ◐ ●	●			
	Cutting geometry  Order No.	Cutting geometry  Order No.	Cutting geometry  Order No.	Cutting geometry or through hole machining  Order No.	Cutting geometry  Order No.
	75J.47.18H7N	75J.17.18H7G	75J.93.18H7N	75J.93.18H7D	75J.87.18H7N
	75J.47.20H7N	75J.17.20H7G	75J.93.20H7N	75J.93.20H7D	75J.87.20H7N
	75J.47.22H7N	75J.17.22H7G	75J.93.22H7N	75J.93.22H7D	75J.87.22H7N
	75J.47.24H7N	75J.17.24H7G	75J.93.24H7N	75J.93.24H7D	75J.87.24H7N
	75J.47.25H7N	75J.17.25H7G	75J.93.25H7N	75J.93.25H7D	75J.87.25H7N
	75J.47.28H7N	75J.17.28H7G	75J.93.28H7N	75J.93.28H7D	75J.87.28H7N
	75J.47.30H7N	75J.17.30H7G	75J.93.30H7N	75J.93.30H7D	75J.87.30H7N
	75J.47.32H7N	75J.17.32H7G	75J.93.32H7N	75J.93.32H7D	75J.87.32H7N
	75J.47.35H7N	75J.17.35H7G	75J.93.35H7N	75J.93.35H7D	75J.87.35H7N
	75J.47.40H7N	75J.17.40H7G	75J.93.40H7N	75J.93.40H7D	75J.87.40H7N
	75J.47.50H7N	75J.17.50H7G	75J.93.50H7N	75J.93.50H7D	75J.87.50H7N

● very good | ◐ good

Patented design

KOMET DIHART REAMAX® TS Duo Ø 42,000 – 70,000 mm

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	kg
			P	M	K	N	S	H	P	M	K	N	S	H					
76J.21	76H.21	HM	◐[1]	◑[1]	◐[1]	◐[1]	◑[1]		◐[1]	◑[1]	◐[1]	◐[1]	◑[1]		42,000 - 51,999	9,0	30	6	
76J.71	76H.71	TiN	◐	◑		◐[4]	◑		●	◑		◐[5]	◑						
76J.37	76H.37	DBG-N			◐				◐		◐				52,000 – 55,999	9,0	35	6	
76J.47	76H.47	DBF		◑	●				◐	◑	●								
76J.17	76H.17	DBC				●						●			56,000 - 70,000	9,0	35	8	
76J.93	76H.93	DST	●		◐[2]	◐[3]													
76J.67	76H.67	DJC			◐[2]														
76J.87	76H.87	DJF			◐														

[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 14-15).
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 chapter 9.

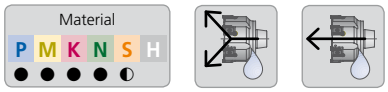
Assembly instructions inserts

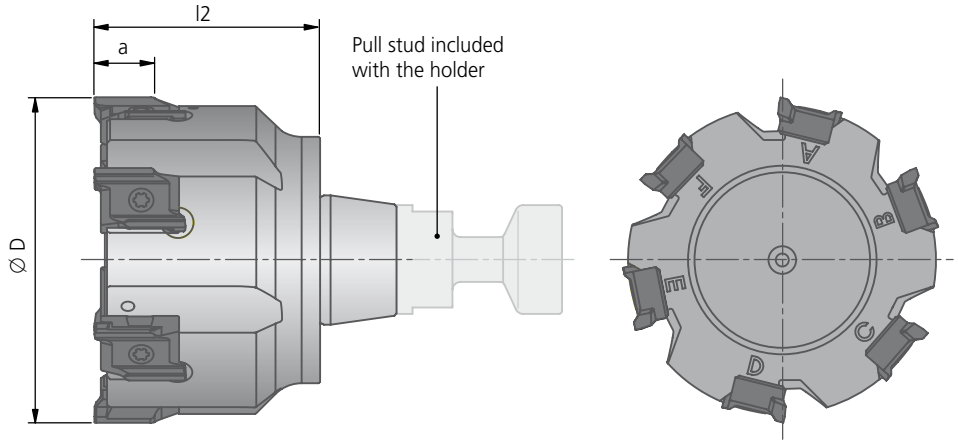
Cleaning:
Make sure that the insert seats ③ and inserts are absolutely clean/grease-free. If necessary, use compressed air to remove dust particles!

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

Patented design

Indexable insert reaming head – fix





Custom reaming head – selection options!

Selection: Cutting material, material, coolant supply

Order No.	Order No.	Cutting material, coating	for material P	M	K	N	S	H	for material P	M	K	N	S	H
77J.21	77H.21	HM	◐[1]	◑[1]	◐[1]	◐[1]	◐[1]		◐[1]	◑[1]	◐[1]	◐[1]	◐[1]	
77J.71	77H.71	TiN	◐	◑		◐[4]	◐		●	◑		◐[5]	◐	
77J.37	77H.37	DBG-N			◐				◐		◐			
77J.47	77H.47	DBF		◑	●				◐	◑	●			
77J.17	77H.17	DBC				●						●		
77J.93	77H.93	DST	●		◐[2]	◐[3]								
77J.67	77H.67	DJC			◐[2]									
77J.87	77H.87	DJF			◐									

Selection: Dimensions

Ø D	a ~	l2 ~	Z	kg
42,000 - 51,999	9,0	30	6	
52,000 – 55,999	9,0	35	6	
56,000 - 70,000	9,0	35	8	

[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 14-15).
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**).

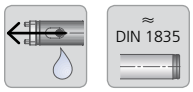
Screwdriver see chapter 9.

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

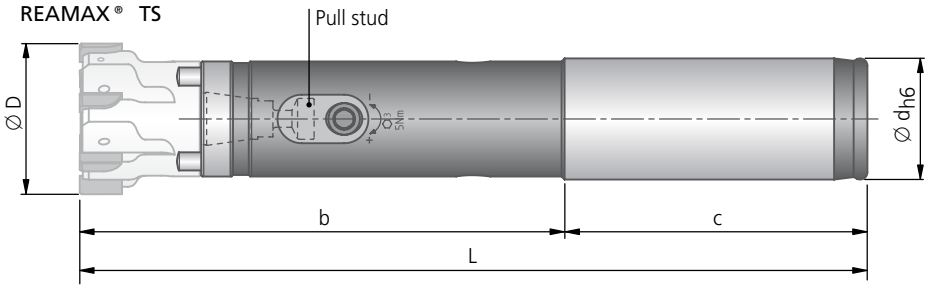
Caution!
- Uneven angle division !
- Two cutting edges are at 180° from each other = measuring tooth A.
- Measure the diameter at the front of the reaming head (due to tapering, see illustration).
- Avoid damaging the cutting edges
- When indexing the insert, the diameter must be readjusted.
- Delivery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

KOMET DIHART REAMAX® TS | REAMAX® TS Duo

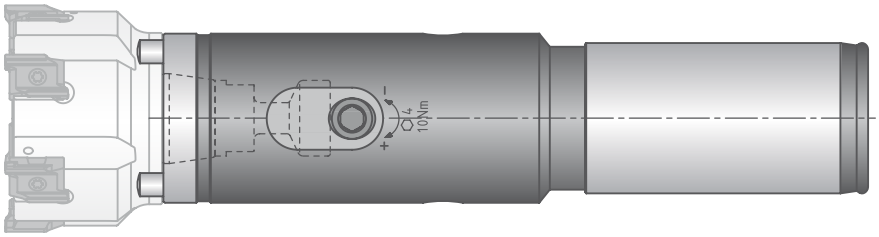
Holder for Ø 18,000 – 70,000 mm



REAMAX® TS



REAMAX® TS Duo

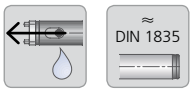


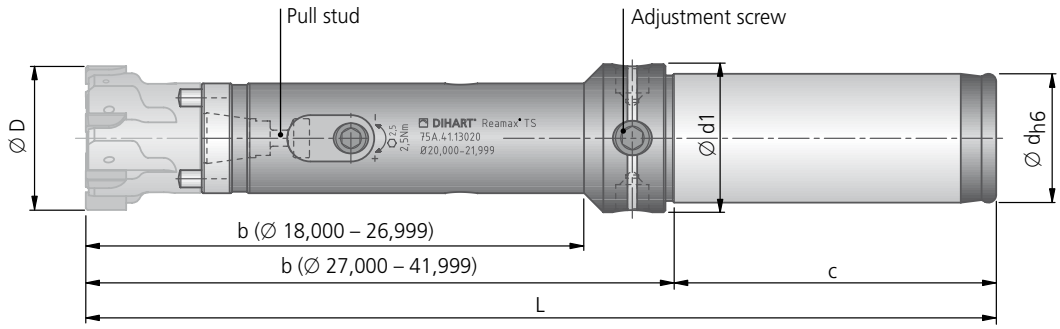
≈ DIN 1835													
		short version						long version					
for Ø D	for Ø D^{H7}	Order No.	L	b	c	Ø d	kg	Order No.	L	b	c	Ø d	kg
18,000 – 19,999	18^{H7}	**75A.40.13010**	130	80	50	20	0,2	**75A.40.15010**	190	140	50	20	0,3
20,000 – 21,999	20^{H7}	**75A.40.13020**	130	80	50	20	0,2	**75A.40.15020**	190	140	50	20	0,3
22,000 – 26,999	22^{H7} 24^{H7} 25^{H7}	**75A.40.13030**	130	80	50	20	0,3	**75A.40.15030**	210	160	50	20	0,4
27,000 – 34,999	28^{H7} 30^{H7} 32^{H7}	**75A.40.13040**	176	120	56	25	0,5	**75A.40.15040**	236	180	56	25	0,7
35,000 – 41,999	35^{H7} 40^{H7}	**75A.40.13050**	176	120	56	25	0,6	**75A.40.15050**	256	200	56	25	1,0
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 25). Please order reaming head separately.

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





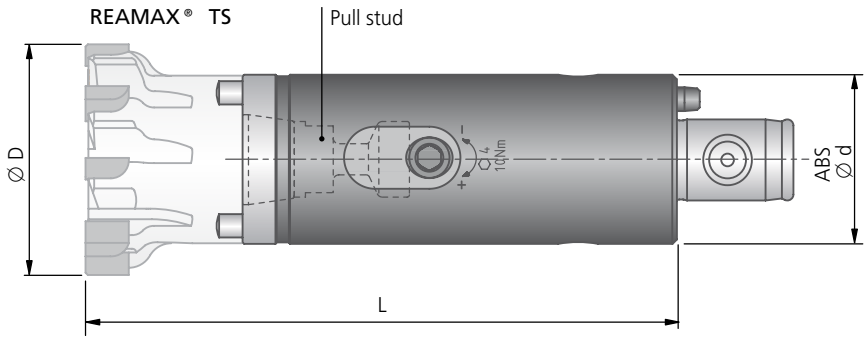
DAH® Zero																
		short version							long version							
for Ø D	for Ø D^{H7}	Order No.	L	b	c	Ø d	Ø d1	kg	Order No.	L	b	c	Ø d	Ø d1	kg
18,000 – 19,999	18^{H7}	**75A.41.13010**	145	80	50	20	24	0,2	**75A.41.15010**	205	140	50	20	24	0,3
20,000 – 21,999	20^{H7}	**75A.41.13020**	145	80	50	20	25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

Supply includes:
Holder with operating key, pull stud and open-end wrench (→ page 25). Please order reaming head separately.

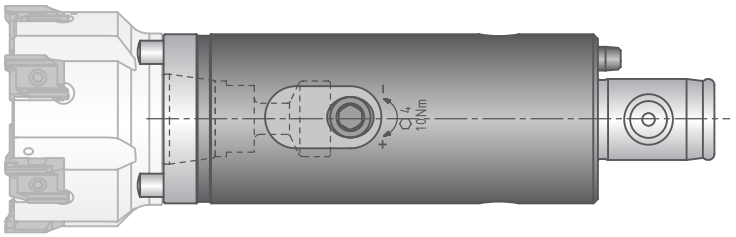
KOMET DIHART REAMAX® TS | REAMAX® TS Duo

ABS® Holder for Ø 35,000 – 70,000 mm

REAMAX® TS



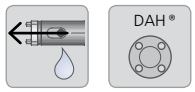
REAMAX® TS Duo

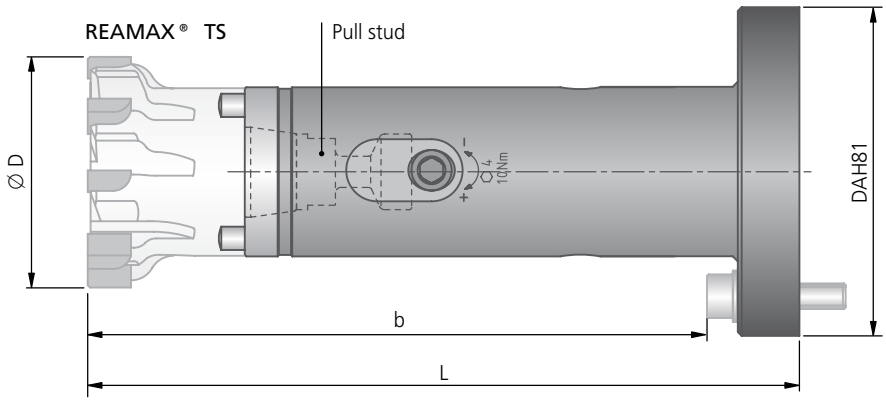


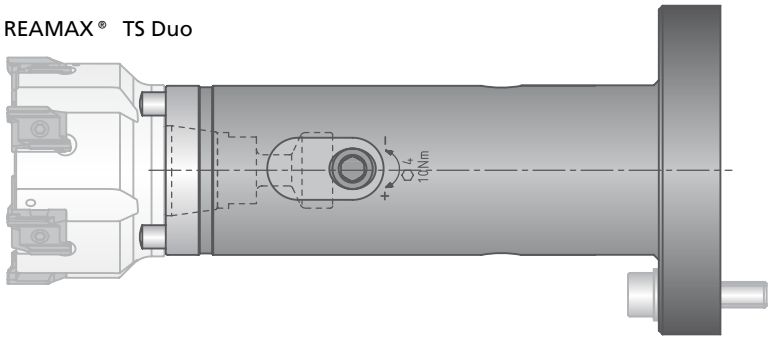
ABS®					
for Ø D	for Ø D^{H7}	Order No.	L	ABS Ø d	kg
35,000 – 41,999	35^{H7}	**75A.60.13050**	110	32	0,42
	40^{H7}				
42,000 – 51,999	50^{H7}	**75A.60.13060**	115	32	0,53
52,000 – 70,000		**75A.60.13070**	125	40	0,83

Supply includes:
Holder with operating key, pull stud and open-end wrench (→ page 25). Please order reaming head separately.
ABS® adaptors see catalogue "KomPass DRILLING".

DAH® Holder for Ø 42,000 – 70,000 mm



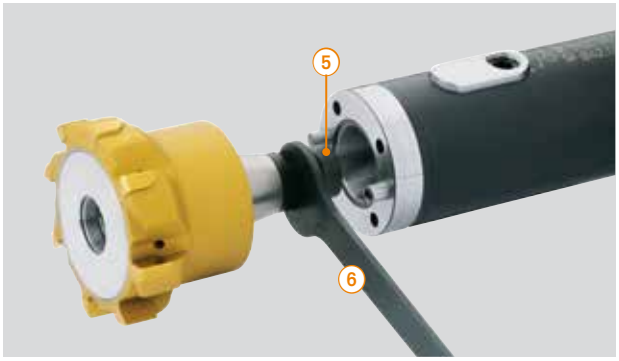




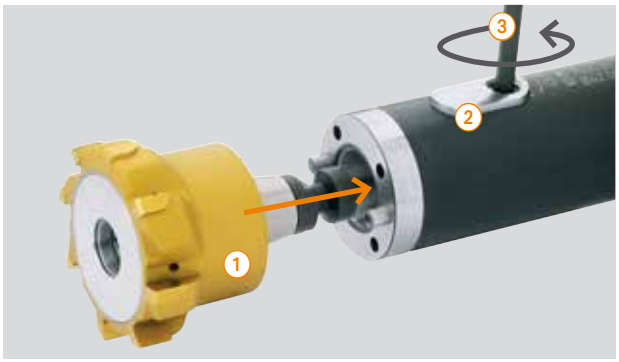
DAH®											
		short version					long version				
for Ø D	for Ø D^{H7}	Order No.	L	b	DAH	kg	Order No.	L	b	DAH	kg
42,000 – 51,999	50^{H7}	**75A.30.13060**	138	120	81	0,9	**75A.30.15060**	238	220	81	1,5
52,000 – 70,000		**75A.30.13070**	138	120	81	1,0	**75A.30.15070**	238	220	81	2,0

Supply includes:
Holder with operating key, pull stud and open-end wrench (→ page 25). Please order reaming head separately.
DAH® compensation holder see chapter 7.

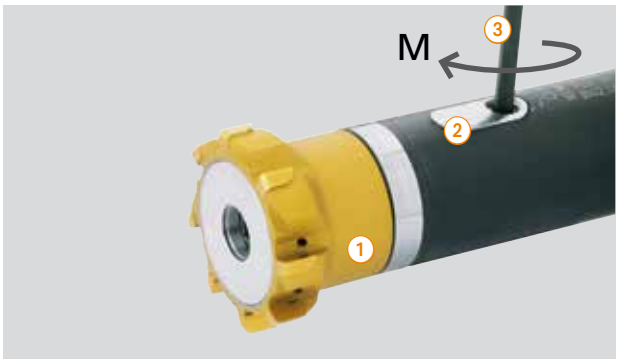
Assembly instructions



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

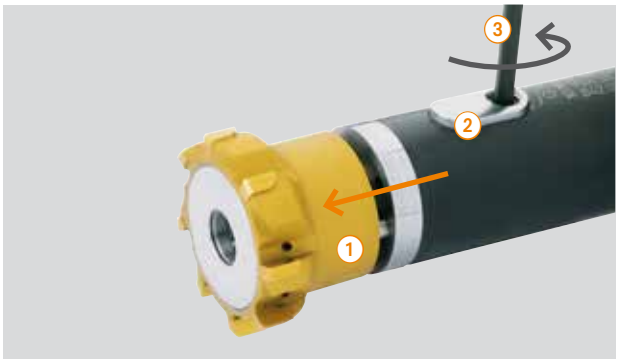


Without fully releasing them, open clamping jaws ② with key ③. Insert reaming head ①.

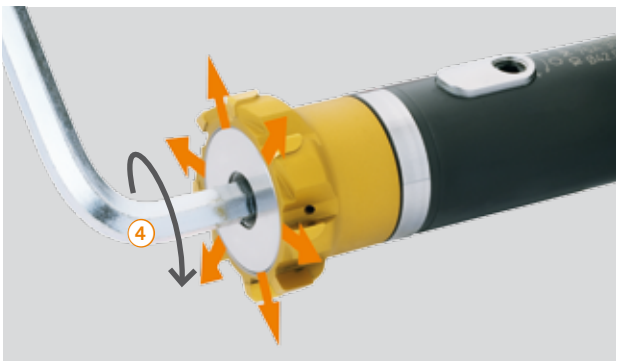


Close clamping jaws ② with key ③, using recommended torque. When inserting the reaming head ① it is drawn into its final position by closing the clamping jaws ②.

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

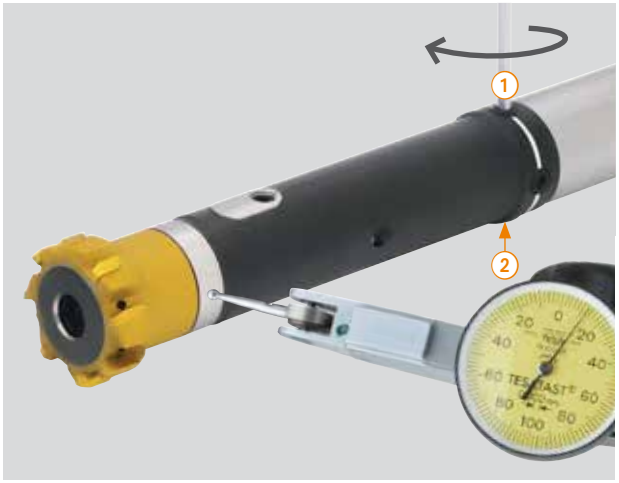
Bore tolerances up to IT4 can be achieved by readjusting the reaming head using the hexagonal key ④.

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 µ.

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

		③				④	⑤	⑥	
		Operating key				Hexagonal key*	Pull studs	Open-end wrench for pull studs	
for Ø D	for Ø D^{H7}	Size	Order No.	L	Starting torque M	Width across flats	Order No.	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

Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)															
						optimum · maximum								optimum · maximum							
						3×D Reamers short								5×D Reamers long							
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	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	
P	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	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	30 45	100 140				150 200	150 200		30 45	80 120				120 160	120 160	
P	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	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45							5 7	30 45						
P	4.1			HSS																	
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)																
S	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				
M	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				
M	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				
K	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				
K	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
K	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
K	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
K	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				
K	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		
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150							12 20	80 120						
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30				150 300				15 30				150 200			
N	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			
N	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																	
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC																	

Reaming allowance in diameter (mm)

	Feed f (mm/rev) – with face cut, feed reduced by 30%							
	optimum · maximum ASG3000, ASG0106, ASG03, ASG0706 ASG07, ASG02				optimum · maximum ASG4000, ASG09B, ASG1402 ASG09, ASG1405, ASG1406			
	Ø 18 - 21,999 6	Ø 22 - 31,799 6	Ø 31,8 - 51,999 8	Ø 52 - 65 10	Ø 18 - 21,999 6	Ø 22 - 31,799 6	Ø 31,8 - 51,999 8	Ø 52 - 65 10
	0,80 1,10	**1,00** 1,40	**1,30** 1,90	**1,90** 2,80	**1,00** 1,30	**1,20** 1,70	**1,70** 2,30	**2,40** 3,40
	0,80 1,10	**1,00** 1,40	**1,30** 1,90	**1,90** 2,80	**1,00** 1,30	**1,20** 1,70	**1,70** 2,30	**2,40** 3,40
	0,80 1,10	**1,00** 1,40	**1,30** 1,90	**1,90** 2,80	**1,00** 1,30	**1,20** 1,70	**1,70** 2,30	**2,40** 3,40
	0,80 1,10	**1,00** 1,40	**1,30** 1,90	**1,90** 2,80	**1,00** 1,30	**1,20** 1,70	**1,70** 2,30	**2,40** 3,40
	0,50 0,80	**0,70** 1,00	**0,90** 1,30	**1,30** 2,00				
	0,50 0,80	**0,70** 1,00	**0,90** 1,30	**1,30** 2,00				
	0,40 0,60	**0,60** 0,80	**0,80** 1,10	**1,10** 1,70				
	0,60 0,90	**0,80** 1,20	**1,10** 1,60	**1,60** 2,40				
	0,60 0,90	**0,80** 1,10	**1,10** 1,50	**1,50** 2,30				
	0,60 0,90	**0,80** 1,10	**1,10** 1,50	**1,50** 2,30				
	0,60 0,90	**0,80** 1,10	**1,10** 1,50	**1,50** 2,30				
	0,90 1,30	**1,20** 1,70	**1,60** 2,30	**2,30** 3,40				
	0,80 1,10	**1,00** 1,40	**1,30** 1,90	**1,90** 2,80				
	0,90 1,30	**1,20** 1,70	**1,60** 2,30	**2,30** 3,40	**1,20** 1,60	**1,50** 2,00	**2,00** 2,70	**2,90** 4,10
	0,90 1,30	**1,20** 1,70	**1,60** 2,30	**2,30** 3,40	**1,20** 1,60	**1,50** 2,00	**2,00** 2,70	**2,90** 4,10
	0,80 1,10	**1,00** 1,40	**1,30** 1,90	**1,90** 2,80	**1,00** 1,30	**1,20** 1,70	**1,70** 2,30	**2,40** 3,40
	0,60 0,90	**0,80** 1,10	**1,10** 1,50	**1,50** 2,30				
	0,60 0,90	**0,80** 1,10	**1,10** 1,50	**1,50** 2,30				
	0,90 1,30	**1,10** 1,70	**1,50** 2,30	**2,10** 3,10				
	0,70 1,10	**0,90** 1,40	**1,20** 1,90	**1,70** 2,60				
	0,90 1,30	**1,10** 1,70	**1,50** 2,30	**2,20** 3,40				
	0,90 1,30	**1,10** 1,70	**1,50** 2,30	**2,20** 3,40				
	0,90 1,30	**1,10** 1,70	**1,50** 2,30	**2,20** 3,40				
	0,20 - 0,30	0,20 - 0,30	0,30 - 0,40	0,30 - 0,50	0,20 - 0,30	0,20 - 0,30	0,30 - 0,40	0,30 - 0,50

Important: See chapter 9 for more application details and safety notes !

KOMET DIHART REAMAX® TS Duo

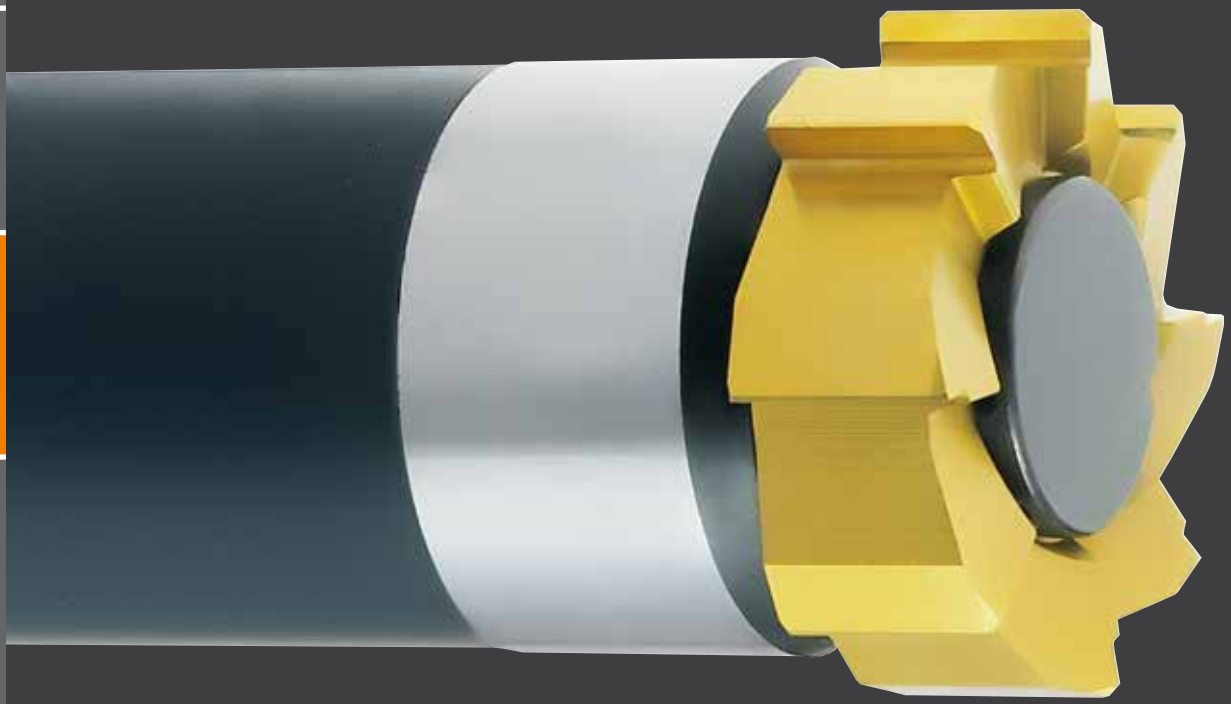
Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)															
						optimum · maximum								optimum · maximum							
						3×D Reamers short								5×D Reamers long							
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	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	
P	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	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	30 45	100 140				150 200	150 200		30 45	80 120				120 160	120 160	
P	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	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45							5 7	30 45						
P	4.1			HSS																	
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)																
S	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				
M	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				
M	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				
K	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				
K	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
K	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
K	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
K	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				
K	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		
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150							12 20	80 120						
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30				150 300				15 30				150 200			
N	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			
N	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																	
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC																	

Reaming allowance in diameter (mm)

	Feed f (mm/rev) – with face cut, feed reduced by 30%			
	optimum · maximum ASG3000, ASG0106, ASG03, ASG0706 ASG07, ASG02		optimum · maximum 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 DIHART REAMAX®



The new dimension in high performance reaming

More performance. More flexibility.

The modular reaming tool consists of a tool holder with cylindrical shaft and the KOMET DIHART REAMAX® -replaceable insert. A high precision short taper ensures the connection between the replaceable insert and the collet. Precise repeatability of the diameters and an immediate continuation of machining with a new insert are guaranteed.

The high-speed reaming tools KOMET DIHART REAMAX® provide maximum cutting capacity through multiple cutting edges and offers all the advantages of replaceable cutting inserts in one system.

- Maximum efficiency and complete process reliability
- Low vibrations during maximum cutting speed
- No re-setting when blades are replaced
- Maximum flexibility for combining cutting materials and coatings along with diameters and geometry of the replaceable inserts are available and can be chosen for each specific application
- Made to measure, available within the shortest time
- Precise repeatability
- Maximum replacement accuracy
- Designed especially for inner coolant supply and minimal lubrication

Simple possible replacement

The KOMET DIHART REAMAX® replaceable insert is fixed on to the tool holder with a tie-rod and a clamping nut. There is no need for time and cost intensive setting to the final size as the inserts are manufactured specifically for each application to the exact diameter and tolerance.

With KOMET DIHART REAMAX® replacement time is no idle time.

Application:

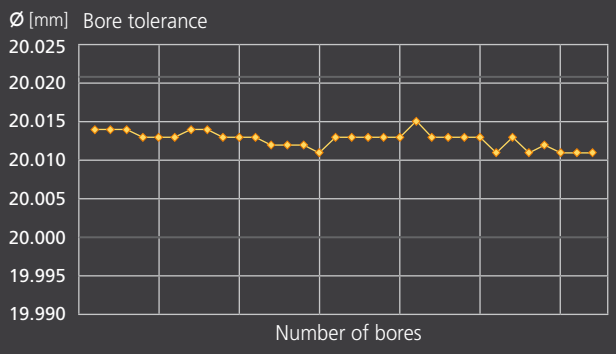
- All current materials
- Through holes and blind bores
- 3 × D and 5 × D
- High speed – up to 300 m/min
- Feed – up to 2.4 mm/rev

BENEFITS for you:

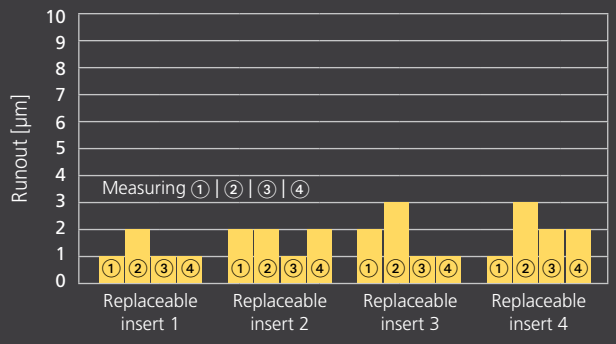
- Precision ground for guaranteed qualityModular tool system
- Maximum stability through tensile stress for the most demanding machining tasks
- Extremely high repeatability through a tapered flat bearing face
- Extremely high machining performance for the greatest efficiency
- Minimum quantity lubrication (MQL) optimised for environmentally friendly use

Maximum process efficiency and accurate repeatability

Result in steel with
KOMET DIHART REAMAX® -replaceable insert



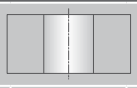
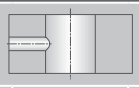
Replacement precision of the
KOMET DIHART REAMAX® -interface



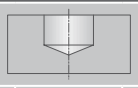
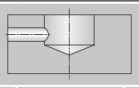
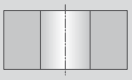
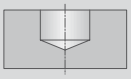
KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL*life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET DIHART REAMAX®

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						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)	640.92	ASG05	DST	640.70	ASG05	TiN
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	640.92	ASG05	DST	640.70	ASG05	TiN
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	640.92	ASG05	DST	640.70	ASG05	TiN
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	640.92	ASG05	DST	640.71	ASG3000	TiN
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	640.71	ASG0106	TiN	640.71	ASG0106	TiN
P	4.1			HSS							
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)						
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)						
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	640.49	ASG0106	DBF	640.49	ASG0106	DBF
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	640.49	ASG0106	DBF	640.49	ASG0106	DBF
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	640.49	ASG0106	DBF	640.49	ASG0106	DBF
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	640.93	ASG3000	DST	640.49	ASG3000	DBF
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	640.93	ASG3000	DST	640.49	ASG3000	DBF
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	640.93	ASG3000	DST	640.49	ASG3000	DBF
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	640.93	ASG3000	DST	640.71	ASG3000	TiN
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	640.71	ASG3000	TiN	640.71	ASG3000	TiN
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	640.27	ASG0706	DBC	640.27	ASG0706	DBC
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	640.27	ASG0706	DBC	640.27	ASG0706	DBC
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	640.27	ASG0706	DBC	640.27	ASG0706	DBC
H	15.0	1400		hardened steels < 45 HRC		640.37	ASG2360	DBG-N			
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC		640.37	ASG2360	DBG-N			

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
	640.93	ASG3000	DST	640.71	ASG3000	TiN	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.93	ASG3000	DST	640.71	ASG3000	TiN	640.21	ASG02	HM	640.21	ASG02	HM
	640.93	ASG3000	DST	640.71	ASG3000	TiN	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.93	ASG3000	DST	640.71	ASG3000	TiN	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.71	ASG0106	TiN	640.71	ASG0106	TiN	640.21	ASG0106	HM	640.21	ASG0106	HM
							640.21	ASG03	HM	640.21	ASG03	HM
	640.49	ASG0106	DBF	640.49	ASG0106	DBF	640.21	ASG0106	HM	640.21	ASG0106	HM
	640.49	ASG0106	DBF	640.49	ASG0106	DBF	640.21	ASG0106	HM	640.21	ASG0106	HM
	640.49	ASG0106	DBF	640.49	ASG0106	DBF	640.21	ASG0106	HM	640.21	ASG0106	HM
	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.93	ASG3000	DST	640.49	ASG3000	DBF	640.21	ASG02	HM	640.21	ASG02	HM
	640.93	ASG3000	DST	640.49	ASG3000	DBF	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.93	ASG3000	DST	640.49	ASG3000	DBF	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.37	ASG3000	DBG-N	640.37	ASG3000	DBG-N	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.93	ASG3000	DST	640.71	ASG3000	TiN	640.21	ASG0106	HM	640.21	ASG0106	HM
	640.71	ASG3000	TiN	640.71	ASG3000	TiN	640.21	ASG0106	HM	640.21	ASG0106	HM
	640.27	ASG0706	DBC	640.27	ASG0706	DBC	640.21	ASG02	HM	640.21	ASG02	HM
	640.27	ASG0706	DBC	640.27	ASG0706	DBC	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.27	ASG0706	DBC	640.27	ASG0706	DBC	640.21	ASG3000	HM	640.21	ASG3000	HM
	640.37	ASG2360	DBG-N									
	640.37	ASG2360	DBG-N									

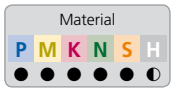
Cutting speed and feed see pages 38-39.

Important: See chapter 9 for more application details and safety notes !

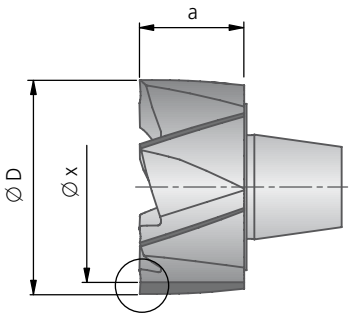
KOMET DIHART REAMAX®

Ø 12,000 – 40,000 mm

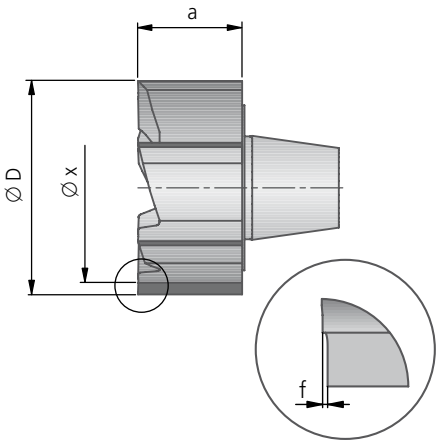
Replaceable insert



⚠ **Please note:**
Don't use Ø 12,000 - 12,500 for blind hole machining



for through hole machining



Custom reaming head – selection options!

Selection: Cutting material, material, coolant supply													Selection: Dimensions					
Order No.	Order No.	Cutting material, coating	for material P	M	K	N	S	H	for material P	M	K	N	S	H	Ø D	min. diameter for face machining Ø x ~	a ~	f ~	Z	kg
640.20	640.21	HM	●[1]	◔[1]	●[1]	◐[1]	◐[1]		●[1]	◔[1]	●[1]	◐[1]	◐[1]		12,000-15,999	ØD – 2,5	9,0	0,5	6	
640.70	640.71	TiN	◐	◔		◐[4]	◐		●	◔		◐[5]	◐		16,000-21,999	ØD – 3,0	9,0	0,5	6	
640.36	640.37	DBG-N			●			◔	◐		●			◔	22,000-25,999	ØD – 3,0	9,0	0,5	8	
640.48	640.49	DBF		◔	●				◐	◔	●				26,000-32,000	ØD – 4,0	9,0	0,5	8	
640.26	640.27	DBC				●						●			32,001-40,000	ØD – 4,0	9,0	0,5	8	
640.92	640.93	DST	●			◐[3]														
640.66	640.67	DJC			◐[2]															

Order example: Order No. 640.93 · Bore diameter 21 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG3000 (Cutting geometry page 32-33)

Diameter H7 – available from stock

Cutting material / coating							DBG-N						DST					
for material							P	M	K	N	S	H	P	M	K	N	S	H
without interruption									●			◔	●		◐[3]			
with interruption							◐		●			◔						
Ø D	Ø x ~	a ~	f ~	Z	kg		Cutting geometry ASG 3000 Order No.						Cutting geometry ASG 3000 Order No.					
15H7	12,5	9	0,5	6			640.37.15H7N						640.93.15H7N					
16H7	13	9	0,5	6			640.37.16H7N						640.93.16H7N					
18H7	15	9	0,5	6			640.37.18H7N						640.93.18H7N					
20H7	17	9	0,5	6			640.37.20H7N						640.93.20H7N					
22H7	19	9	0,5	8			640.37.22H7N						640.93.22H7N					
24H7	21	9	0,5	8			640.37.24H7N						640.93.24H7N					
25H7	22	9	0,5	8			640.37.25H7N						640.93.25H7N					
28H7	24	9	0,5	8			640.37.28H7N						640.93.28H7N					
30H7	26	9	0,5	8			640.37.30H7N						640.93.30H7N					

Cutting geometry or through hole machining: ASG4000

[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

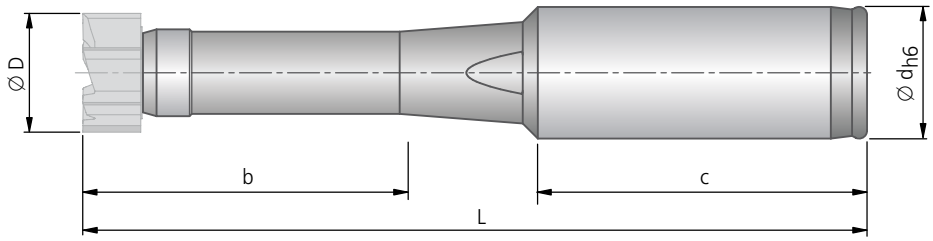
● very good | ◐ good

Holder for Ø 12 – 40 mm

⚠ **Please note:**
Not suitable for shrinking

suitable for MQL

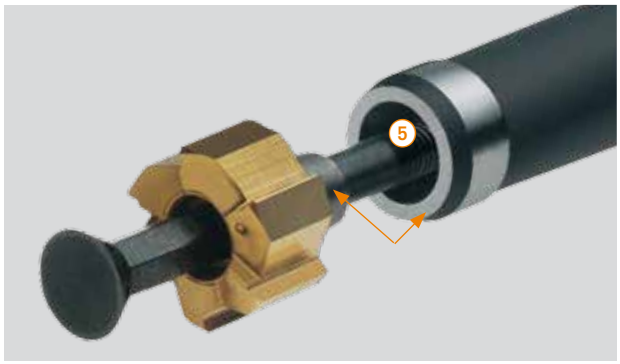
≈ DIN 1835



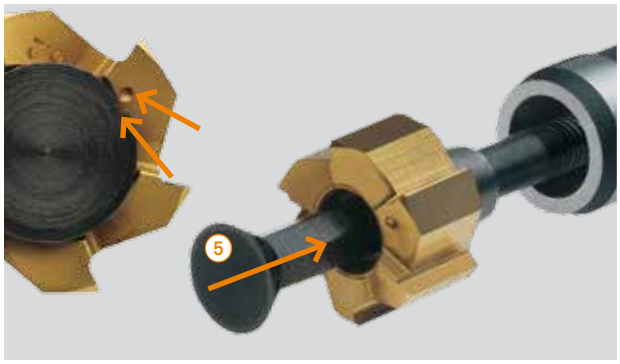
		short version						long version					
for Ø D	for Ø D^{H7}	Order No.	L	b	c	Ø d	kg	Order No.	L	b	c	Ø d	kg
12,000 – 15,999	15^{H7}	**640.01.001**	107	3×D	48	16	0,11	**640.81.001**	137	5×D	48	16	0,13
16,000 – 21,999	16^{H7}	**640.01.002**	119	3×D	50	20	0,18	**640.81.002**	169	5×D	50	20	0,23
	18^{H7}												
	20^{H7}												
22,000 – 25,999	22^{H7}	**640.01.003**	140	3×D	56	25	0,34	**640.81.003**	196	5×D	56	25	0,44
	24^{H7}												
	25^{H7}												
26,000 – 32,000	28^{H7}	**640.01.005**	160	3×D	56	25	0,46	**640.81.005**	226	5×D	56	25	0,65
	30^{H7}												
32,001 – 40,000		**640.01.006**	199	3×D	60	32	0,86	**640.81.006**	270	5×D	60	32	1,13

Supply includes: Holder with assembly parts / accessories (page 37). Please order replaceable insert separately.

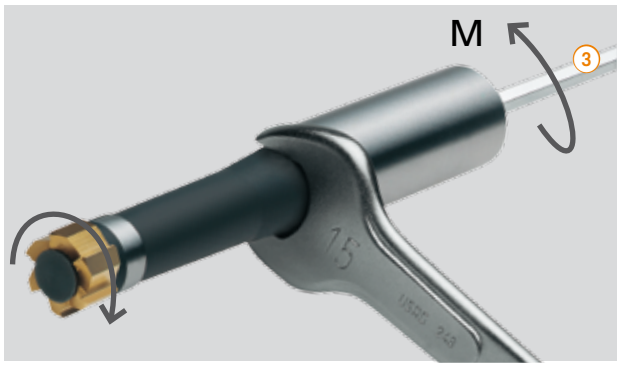
Assembly instructions



Clean taper/contactface thoroughly (grease free).
Apply light grease on tie bar thread ⑤.



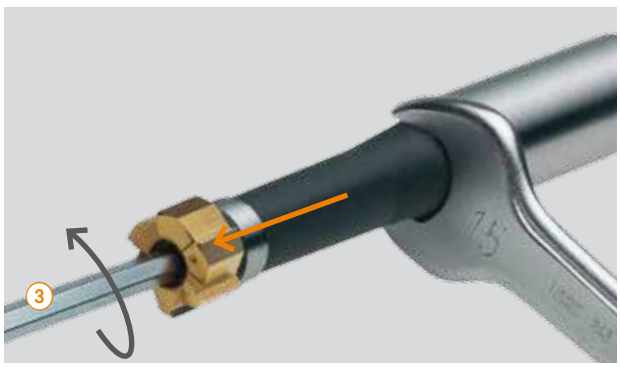
Locate tie bar ⑤ on insert and holder.
Important note: for nominal size 3, 4 and 5, fit with marking on tie bar and insert aligned.



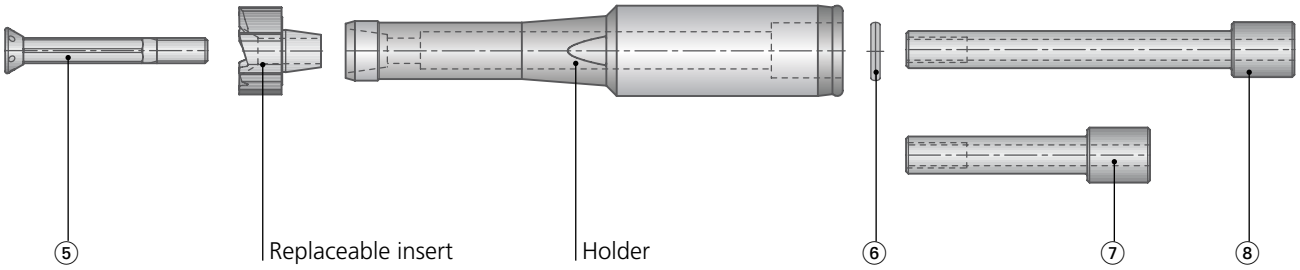
Draw in tie bar with the clamping nut. Before tightening, turn insert and tie bar clockwise until it stops.
Tighten the clamping nut as far as possible using the torque key to the specified starting torque M.

Dia. range	Starting torque M
12,000 – 15,999	4-5 Nm
16,000 – 21,999	6-7 Nm
22,000 – 25,999	10-12 Nm
26,000 – 32,000	18-20 Nm
32,001 – 40,000	26-28 Nm

Removing the replaceable insert:
Loosen the clamping screw.
Pull tie bar from holder and insert.



Locate operating key ③ in insert and loosen insert by turning.



		③						④	
		Operating key						Open-end wrench	
for Ø D	for Ø D^{H7}	Width across flats	Short version Order No.	L	Long version Order No.	L	Starting torque M	Width across flats	Order No.
12,000 – 15,999	15^{H7}	SW 4	**18050 10040**	100	**18050 20040**	200	4-5 Nm	SW 12	**18589 00012**
16,000 – 21,999	16^{H7} 18^{H7} 20^{H7}	SW 5	**18050 10050**	100	**18050 35050**	350	6-7 Nm	SW 14	**18589 00014**
22,000 – 25,999	22^{H7} 24^{H7} 25^{H7}	SW 7	**18050 10070**	100	**18050 35070**	350	10-12 Nm	SW 19	**18589 00019**
26,000 – 32,000	28^{H7} 30^{H7}	SW 8	**18050 10080**	100	**18050 35080**	350	18-20 Nm	SW 22	**18589 00022**
32,001 – 40,000		SW 10	**18050 20100**	200	**18050 35100**	350	26-28 Nm	SW 27	**18589 00027**

		⑤	⑥	⑦	⑧
		Tie bar	Seeger ring DIN 472	Clamping nut short version	Clamping nut long version
for Ø D	for Ø D^{H7}	Order No.	Order No.	Order No.	Order No.
12,000 – 15,999	15^{H7}	**640.03.001**	**55232 01010**	**640.04.001**	**640.84.001**
16,000 – 21,999	16^{H7} 18^{H7} 20^{H7}	**640.03.002**	**55232 01210**	**640.04.002**	**640.84.002**
22,000 – 25,999	22^{H7} 24^{H7} 25^{H7}	**640.03.003**	**55232 01610**	**640.04.003**	**640.84.003**
26,000 – 32,000	28^{H7} 30^{H7}	**640.03.004**	**55232 01610**	**640.04.005**	**640.84.005**
32,001 – 40,000		**640.03.005**	**55232 02210**	**640.04.006**	**640.84.006**

Supply includes holder: Operating key, open-end wrench, tie-rod, Seeger ring and clamping nut.

KOMET DIHART REAMAX®

Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)												
						optimum · maximum							optimum · maximum					
						3×D Reamers short							5×D Reamers long					
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	HM	TiN	DBG-N	DBF	DBC	DST	DJC	HM	TiN	DBG-N	DBF	DBC	DST	DJC
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
P	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
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	30 45	100 140				150 200	150 200	30 45	80 120				120 160	120 160
P	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
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45						5 7	30 45					
P	4.1			HSS															
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)														
S	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			
M	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			
M	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			
K	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			
K	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	12 18		150 180	150 180		150 180	150 180
K	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	12 18		120 160	120 160		120 160	120 160
K	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	12 15		120 150	120 150		120 150	120 150
K	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			
K	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	
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150						12 20	80 120					
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30				150 300			15 30				150 200		
N	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		
N	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				40 60							40 60				
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC				30 50							30 50				

Reaming allowance in diameter (mm)

	Feed f (mm/rev)								
	optimum · maximum ASG3000, ASG0106, ASG03 ASG07, ASG02			optimum · maximum ASG4000, ASG09B, ASG1402 ASG09, ASG1405 ASG1406			optimum · maximum ASG05, ASG0502, ASG04		
	Ø 12 - 21,999 6	Ø 22 - 32,000 8	Ø 32,001 - 40 8	Ø 12 - 21,999 6	Ø 22 - 32,000 8	Ø 32,001 - 40 8	Ø 12 - 21,999 6	Ø 22 - 32,000 8	Ø 32,001 - 40 8
	0,90 1,20	1,50 2,00	1,50 2,00	1,10 1,40	1,80 2,40	1,80 2,40	1,10 1,40	1,80 2,40	1,80 2,40
	0,90 1,20	1,50 2,00	1,50 2,00	1,10 1,40	1,80 2,40	1,80 2,40	1,10 1,40	1,80 2,40	1,80 2,40
	0,90 1,20	1,50 2,00	1,50 2,00	1,10 1,40	1,80 2,40	1,80 2,40	1,10 1,40	1,80 2,40	1,80 2,40
	0,90 1,20	1,50 2,00	1,50 2,00	1,10 1,40	1,80 2,40	1,80 2,40	1,10 1,40	1,80 2,40	1,80 2,40
	0,60 0,80	1,00 1,40	1,00 1,40						
	0,60 0,80	1,00 1,40	1,00 1,40						
	0,50 0,70	0,90 1,20	0,90 1,20						
	0,70 1,00	1,20 1,60	1,20 1,60						
	0,70 0,90	1,20 1,60	1,20 1,60						
	0,70 0,90	1,20 1,60	1,20 1,60						
	0,70 0,90	1,20 1,60	1,20 1,60						
	1,00 1,40	1,80 2,40	1,80 2,40						
	0,90 1,20	1,50 2,00	1,50 2,00						
	1,00 1,40	1,80 2,40	1,80 2,40						
	1,00 1,40	1,80 2,40	1,80 2,40						
	0,90 1,20	1,50 2,00	1,50 2,00						
	0,70 0,90	1,20 1,60	1,20 1,60						
	0,70 0,90	1,20 1,60	1,20 1,60						
	1,00 1,40	1,70 2,40	1,70 2,40						
	0,80 1,20	1,40 2,00	1,40 2,00						
	1,00 1,40	1,70 2,40	1,70 2,40						
	1,00 1,40	1,70 2,40	1,70 2,40						
	1,00 1,40	1,70 2,40	1,70 2,40						
	0,40 0,80	0,60 1,00	0,60 1,00						
	0,40 0,80	0,60 1,00	0,60 1,00						
	0,10 - 0,30	0,20 - 0,40	0,20 - 0,40	0,10 - 0,30	0,20 - 0,40	0,20 - 0,40	0,10 - 0,30	0,20 - 0,40	0,20 - 0,40

Important: See chapter 9 for more application details and safety notes !

KOMET DIHART Monomax®

One-piece tools – known as monoblock tools – are one of KOMET®'s specialities. The demands which have been made over decades are reflected in an enormous number of types and variations. This successful tool programme has been completely revised and standardised by efficient manufacturing.

BENEFITS for you:

- Designed for small hole diameters
- Can be adjusted for extremely small hole tolerances
- Extremely high process reliability through mono construction
- Precision ground to size

Application:

- Non-alloy and low alloy steels
- Stainless, heat resistant and high alloy steels
- Grey cast iron and spheroidal graphite cast iron
- Copper alloys, brass and bronze
- Aluminium
- Titanium, titanium alloys, CGI and plastic on request

Versions:

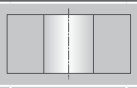
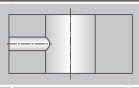
- Short and long versions
- Lateral and central coolant outlet for best possible use
- Cutting materials, uncoated and coated carbide or DST
- Diameter 5,600 – 25,899 mm

KOMET DIHART Monomax®

KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL*life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

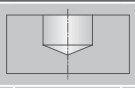
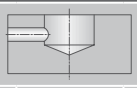
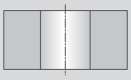
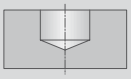
KOMET DIHART Monomax®

Tool recommendation – short version

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating	Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	56J.93	ASG4000	DST	56J.71	ASG4000	TiN
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	56J.93	ASG4000	DST	56J.71	ASG4000	TiN
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	56J.93	ASG4000	DST	56J.71	ASG4000	TiN
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	56J.93	ASG4000	DST	56J.71	ASG3000	TiN
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	56J.71	ASG0106	TiN	56J.71	ASG0106	TiN
P	4.1			HSS							
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)						
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)						
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	56J.47	ASG0106	DBF	56J.47	ASG0106	DBF
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	56J.47	ASG0106	DBF	56J.47	ASG0106	DBF
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	56J.47	ASG0106	DBF	56J.47	ASG0106	DBF
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	56J.37	ASG3000	DBG-N	56J.37	ASG3000	DBG-N
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	56J.37	ASG3000	DBG-N	56J.37	ASG3000	DBG-N
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	56J.93	ASG3000	DST	56J.47	ASG3000	DBF
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	56J.93	ASG3000	DST	56J.47	ASG3000	DBF
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	56J.93	ASG3000	DST	56J.47	ASG3000	DBF
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	56J.37	ASG3000	DBG-N	56J.37	ASG3000	DBG-N
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	56J.37	ASG3000	DBG-N	56J.37	ASG3000	DBG-N
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	56J.93	ASG3000	DST	56J.71	ASG3000	TiN
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	56J.71	ASG3000	TiN	56J.71	ASG3000	TiN
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	56J.17	ASG0706	DBC	56J.17	ASG0706	DBC
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	56J.17	ASG0706	DBC	56J.17	ASG0706	DBC
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	56J.17	ASG0706	DBC	56J.17	ASG0706	DBC
H	15.0	1400		hardened steels < 45 HRC							
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC							

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

Patented design

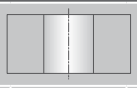
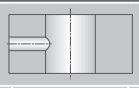
	High-speed machining						Conventional machining with carbide					
												
	Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating	Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating	Order No. short *long*	Cutting geometry (ASG)	Cutting material	Order No. short *long*	Cutting geometry (ASG)	Cutting material
	56H.93	ASG3000	DST	56H.71	ASG3000	TiN	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.93	ASG3000	DST	56H.71	ASG3000	TiN	56J.21	ASG02	HM	56H.21	ASG02	HM
	56H.93	ASG3000	DST	56H.71	ASG3000	TiN	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.93	ASG3000	DST	56H.71	ASG3000	TiN	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.71	ASG0106	TiN	56H.71	ASG0106	TiN	56J.21	ASG0106	HM	56H.21	ASG0106	HM
							56J.21	ASG03	HM	56H.21	ASG03	HM
	56H.47	ASG0106	DBF	56H.47	ASG0106	DBF	56J.21	ASG0106	HM	56H.21	ASG0106	HM
	56H.47	ASG0106	DBF	56H.47	ASG0106	DBF	56J.21	ASG0106	HM	56H.21	ASG0106	HM
	56H.47	ASG0106	DBF	56H.47	ASG0106	DBF	56J.21	ASG0106	HM	56H.21	ASG0106	HM
	56H.37	ASG3000	DBG-N	56H.37	ASG3000	DBG-N	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.37	ASG3000	DBG-N	56H.37	ASG3000	DBG-N	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.93	ASG3000	DST	56H.47	ASG3000	DBF	56J.21	ASG02	HM	56H.21	ASG02	HM
	56H.93	ASG3000	DST	56H.47	ASG3000	DBF	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.93	ASG3000	DST	56H.47	ASG3000	DBF	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.37	ASG3000	DBG-N	56H.37	ASG3000	DBG-N	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.37	ASG3000	DBG-N	56H.37	ASG3000	DBG-N	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.93	ASG3000	DST	56H.71	ASG3000	TiN	56J.21	ASG0106	HM	56H.21	ASG0106	HM
	56H.71	ASG3000	TiN	56H.71	ASG3000	TiN	56J.21	ASG0106	HM	56H.21	ASG0106	HM
	56H.17	ASG0706	DBC	56H.17	ASG0706	DBC	56J.21	ASG02	HM	56H.21	ASG02	HM
	56H.17	ASG0706	DBC	56H.17	ASG0706	DBC	56J.21	ASG3000	HM	56H.21	ASG3000	HM
	56H.17	ASG0706	DBC	56H.17	ASG0706	DBC	56J.21	ASG3000	HM	56H.21	ASG3000	HM

Cutting speed and feed see pages 52-53.

Important: See chapter 9 for more application details and safety notes !

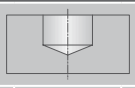
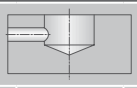
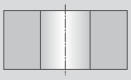
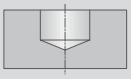
KOMET DIHART Monomax®

Tool recommendation – long version

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating	Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	56R.93	ASG4000	DST	56R.71	ASG4000	TiN
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	56R.93	ASG4000	DST	56R.71	ASG4000	TiN
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	56R.93	ASG4000	DST	56R.71	ASG4000	TiN
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	56R.93	ASG4000	DST	56R.71	ASG3000	TiN
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	56R.71	ASG0106	TiN	56R.71	ASG0106	TiN
P	4.1			HSS							
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)						
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)						
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	56R.47	ASG0106	DBF	56R.47	ASG0106	DBF
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	56R.47	ASG0106	DBF	56R.47	ASG0106	DBF
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	56R.47	ASG0106	DBF	56R.47	ASG0106	DBF
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	56R.37	ASG3000	DBG-N	56R.37	ASG3000	DBG-N
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	56R.37	ASG3000	DBG-N	56R.37	ASG3000	DBG-N
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	56R.93	ASG3000	DST	56R.47	ASG3000	DBF
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	56R.93	ASG3000	DST	56R.47	ASG3000	DBF
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	56R.93	ASG3000	DST	56R.47	ASG3000	DBF
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	56R.37	ASG3000	DBG-N	56R.37	ASG3000	DBG-N
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	56R.37	ASG3000	DBG-N	56R.37	ASG3000	DBG-N
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	56R.93	ASG3000	DST	56R.71	ASG3000	TiN
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	56R.71	ASG3000	TiN	56R.71	ASG3000	TiN
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	56R.17	ASG0706	DBC	56R.17	ASG0706	DBC
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	56R.17	ASG0706	DBC	56R.17	ASG0706	DBC
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	56R.17	ASG0706	DBC	56R.17	ASG0706	DBC
H	15.0	1400		hardened steels < 45 HRC							
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC							

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

Patented design

	High-speed machining						Conventional machining with carbide					
												
	Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating	Order No. short *long*	Cutting geometry (ASG)	Cutting material/ coating	Order No. short *long*	Cutting geometry (ASG)	Cutting material	Order No. short *long*	Cutting geometry (ASG)	Cutting material
	56Q.93	ASG3000	DST	56Q.71	ASG3000	TiN	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.93	ASG3000	DST	56Q.71	ASG3000	TiN	56R.21	ASG02	HM	56Q.21	ASG02	HM
	56Q.93	ASG3000	DST	56Q.71	ASG3000	TiN	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.93	ASG3000	DST	56Q.71	ASG3000	TiN	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.71	ASG0106	TiN	56Q.71	ASG0106	TiN	56R.21	ASG0106	HM	56Q.21	ASG0106	HM
							56R.21	ASG03	HM	56Q.21	ASG03	HM
	56Q.47	ASG0106	DBF	56Q.47	ASG0106	DBF	56R.21	ASG0106	HM	56Q.21	ASG0106	HM
	56Q.47	ASG0106	DBF	56Q.47	ASG0106	DBF	56R.21	ASG0106	HM	56Q.21	ASG0106	HM
	56Q.47	ASG0106	DBF	56Q.47	ASG0106	DBF	56R.21	ASG0106	HM	56Q.21	ASG0106	HM
	56Q.37	ASG3000	DBG-N	56Q.37	ASG3000	DBG-N	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.37	ASG3000	DBG-N	56Q.37	ASG3000	DBG-N	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.93	ASG3000	DST	56Q.47	ASG3000	DBF	56R.21	ASG02	HM	56Q.21	ASG02	HM
	56Q.93	ASG3000	DST	56Q.47	ASG3000	DBF	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.93	ASG3000	DST	56Q.47	ASG3000	DBF	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.37	ASG3000	DBG-N	56Q.37	ASG3000	DBG-N	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.37	ASG3000	DBG-N	56Q.37	ASG3000	DBG-N	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.93	ASG3000	DST	56Q.71	ASG3000	TiN	56R.21	ASG0106	HM	56Q.21	ASG0106	HM
	56Q.71	ASG3000	TiN	56Q.71	ASG3000	TiN	56R.21	ASG0106	HM	56Q.21	ASG0106	HM
	56Q.17	ASG0706	DBC	56Q.17	ASG0706	DBC	56R.21	ASG02	HM	56Q.21	ASG02	HM
	56Q.17	ASG0706	DBC	56Q.17	ASG0706	DBC	56R.21	ASG3000	HM	56Q.21	ASG3000	HM
	56Q.17	ASG0706	DBC	56Q.17	ASG0706	DBC	56R.21	ASG3000	HM	56Q.21	ASG3000	HM

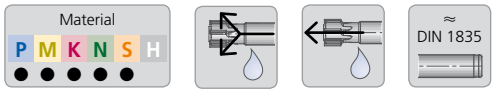
Cutting speed and feed see pages 52-53.

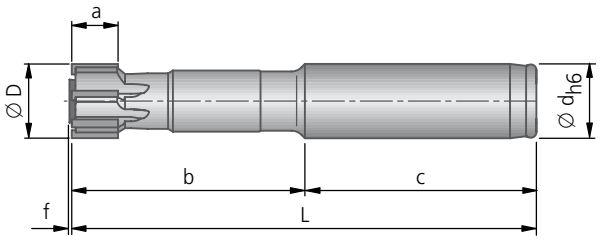
Important: See chapter 9 for more application details and safety notes !

KOMET DIHART Monomax®

Ø 5,600– 25,899 mm

Reaming tool – expandable





Diameter H7 – available from stock									
Cutting material / coating								TiN	
for material								P M K N S H	P M K N S H
without interruption								◐ ◐ ◐[4] ◐	◐ ◐ ◐[4] ◐
with interruption								● ◐ ◐[5] ◐	● ◐ ◐[5] ◐
Ø D	Ø d × c	L	b	f ~	a ~	Z	kg	Cutting geometry ASG 3000 Order No.	Cutting geometry or through hole machining ASG4000 Order No.
6H7	12 × 45	85	40	0,1	9,5	4		56J.71.06H7N	56J.71.06H7D
8H7	12 × 45	85	40	0,1	9,5	4		56J.71.08H7N	56J.71.08H7D
10H7	12 × 45	95	50	0,1	9,5	6		56J.71.10H7N	56J.71.10H7D
12H7	12 × 45	95	50	0,1	9,5	6		56J.71.12H7N	56J.71.12H7D
14H7	12 × 45	95	50	0,1	9,5	6		56J.71.14H7N	56J.71.14H7D
15H7	12 × 45	95	50	0,1	9,5	6		56J.71.15H7N	56J.71.15H7D
16H7	16 × 50	100	50	0,1	9,5	6		56J.71.16H7N	56J.71.16H7D
18H7	16 × 50	100	50	0,1	9,5	6		56J.71.18H7N	56J.71.18H7D
20H7	20 × 60	120	60	0,1	9,5	6		56J.71.20H7N	56J.71.20H7D

[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

Patented design

Custom reaming tool – selection options!

Selection: Cutting material, material, coolant supply

Order No.	Order No.	Cutting material, coating	for material P	M	K	N	S	H	for material P	M	K	N	S	H
56J.21	56H.21	HM	●[1]	◔[1]	●[1]	●[1]	●[1]		●[1]	◔[1]	●[1]	●[1]	●[1]	
56J.71	56H.71	TiN	◐	◔		◐[4]	◐		●	◔		◐[5]	◐	
56J.37	56H.37	DBG-N			◐				◐		◐			
56J.47	56H.47	DBF		◔	●				◐	◔	●			
56J.17	56H.17	DBC				●						●		
56J.93	56H.93	DST	●			◐[3]								
56J.67	56H.67	DJC			◐[2]									

Selection: Dimensions

Ø D	Cylindrical shank Ød×c	L	b	f ~	a ~	Z	kg
5,600-8,899	12×45	85	40	0,1	9,5	4	
8,900-15,899	12×45	95	50	0,1	9,5	6	
15,900-18,899	16×50	100	50	0,1	9,5	6	
18,900-25,899	20×60	120	60	0,1	9,5	6	

Order example: Order No. 56H.93 · Bore diameter 21 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG3000 (Cutting geometry page 42-43)

Diameter H7 – available from stock

DBG-N P	M	K	N	S	H	DBF P	M	K	N	S	H	DST P	M	K	N	S	H	P	M	K	N	S	H
		◐					◔	●				●			◐[3]			●			◐[3]		
◐		◐				◐	◔	●															

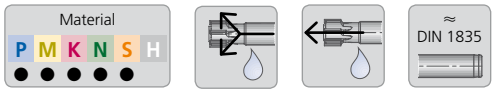
Cutting geometry ASG 3000 Order No.	Cutting geometry ASG 3000 Order No.	Cutting geometry ASG 3000 Order No.	Cutting geometry or through hole machining ASG4000 Order No.
56J.37.06H7N	56J.47.06H7N	56J.93.06H7N	56J.93.06H7D
56J.37.08H7N	56J.47.08H7N	56J.93.08H7N	56J.93.08H7D
56J.37.10H7N	56J.47.10H7N	56J.93.10H7N	56J.93.10H7D
56J.37.12H7N	56J.47.12H7N	56J.93.12H7N	56J.93.12H7D
56J.37.14H7N	56J.47.14H7N	56J.93.14H7N	56J.93.14H7D
56J.37.15H7N	56J.47.15H7N	56J.93.15H7N	56J.93.15H7D
56J.37.16H7N	56J.47.16H7N	56J.93.16H7N	56J.93.16H7D
56J.37.18H7N	56J.47.18H7N	56J.93.18H7N	56J.93.18H7D
56J.37.20H7N	56J.47.20H7N	56J.93.20H7N	56J.93.20H7D

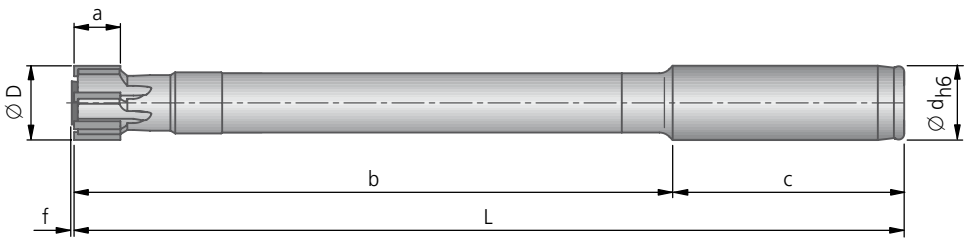
● very good | ◐ good

KOMET DIHART Monomax®

Reaming tool – expandable

Ø 5,600– 25,899 mm





Diameter H7 – available from stock									
Cutting material / coating								TiN	
for material								P M K N S H	P M K N S H
without interruption								◐ ◐ ◐[4] ◐	◐ ◐ ◐[4] ◐
with interruption								● ◐ ◐[5] ◐	● ◐ ◐[5] ◐
Ø D	Ø d × c	L	b	f ~	a ~	Z	kg	Cutting geometry ASG 3000 Order No.	Cutting geometry or through hole machining ASG4000 Order No.
6H7	12 × 45	130	85	0,1	9,5	4		56R.71.06H7N	56R.71.06H7D
8H7	12 × 45	130	85	0,1	9,5	4		56R.71.08H7N	56R.71.08H7D
10H7	12 × 45	160	115	0,1	9,5	6		56R.71.10H7N	56R.71.10H7D
12H7	12 × 45	160	115	0,1	9,5	6		56R.71.12H7N	56R.71.12H7D
14H7	12 × 45	160	115	0,1	9,5	6		56R.71.14H7N	56R.71.14H7D
15H7	12 × 45	160	115	0,1	9,5	6		56R.71.15H7N	56R.71.15H7D
16H7	16 × 50	180	130	0,1	9,5	6		56R.71.16H7N	56R.71.16H7D
18H7	16 × 50	180	130	0,1	9,5	6		56R.71.18H7N	56R.71.18H7D
20H7	20 × 60	200	140	0,1	9,5	6		56R.71.20H7N	56R.71.20H7D

[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

Patented design

Custom reaming tool – selection options!

Selection: Cutting material, material, coolant supply

Order No.	Order No.	Cutting material, coating	for material P	M	K	N	S	H	for material P	M	K	N	S	H
56R.21	56Q.21	HM	●[1]	◔[1]	●[1]	●[1]	●[1]		●[1]	◔[1]	●[1]	●[1]	●[1]	
56R.71	56Q.71	TiN	◐	◔		◐[4]	◐		●	◔		◐[5]	◐	
56R.37	56Q.37	DBG-N			◐				◐		◐			
56R.47	56Q.47	DBF		◔	●				◐	◔	●			
56R.17	56Q.17	DBC				●						●		
56R.93	56Q.93	DST	●			◐[3]								
56R.67	56Q.67	DJC			◐[2]									

Selection: Dimensions

Ø D	Cylindrical shank Ød×c	L	b	f ~	a ~	Z	kg
5,600-8,899	12×45	130	85	0,1	9,5	4	
8,900-9,899	12×45	130	85	0,1	9,5	6	
9,900-15,899	12×45	160	115	0,1	9,5	6	
15,900-18,899	16×50	180	130	0,1	9,5	6	
18,900-25,899	20×60	200	140	0,1	9,5	6	

Order example: Order No. 56Q.93 · Bore diameter 21 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG3000 (Cutting geometry page 44-45)

Diameter H7 – available from stock

DBG-N P	M	K	N	S	H	DBF P	M	K	N	S	H	DST P	M	K	N	S	H	P	M	K	N	S	H
		◐					◔	●				●			●[3]			●			●[3]		
◐		◐				◐	◔	●															

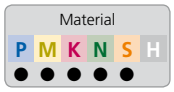
Cutting geometry ASG 3000 Order No.	Cutting geometry ASG 3000 Order No.	Cutting geometry ASG 3000 Order No.	Cutting geometry or through hole machining ASG4000 Order No.
56R.37.06H7N	56R.47.06H7N	56R.93.06H7N	56R.93.06H7D
56R.37.08H7N	56R.47.08H7N	56R.93.08H7N	56R.93.08H7D
56R.37.10H7N	56R.47.10H7N	56R.93.10H7N	56R.93.10H7D
56R.37.12H7N	56R.47.12H7N	56R.93.12H7N	56R.93.12H7D
56R.37.14H7N	56R.47.14H7N	56R.93.14H7N	56R.93.14H7D
56R.37.15H7N	56R.47.15H7N	56R.93.15H7N	56R.93.15H7D
56R.37.16H7N	56R.47.16H7N	56R.93.16H7N	56R.93.16H7D
56R.37.18H7N	56R.47.18H7N	56R.93.18H7N	56R.93.18H7D
56R.37.20H7N	56R.47.20H7N	56R.93.20H7N	56R.93.20H7D

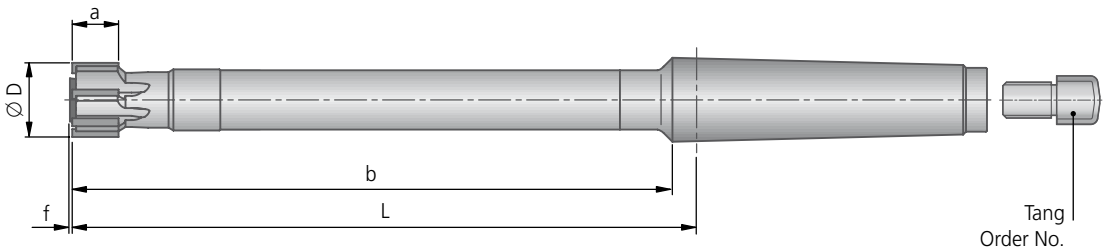
● very good | ◐ good

KOMET DIHART Monomax®

Ø 5,600 – 25,899 mm

Reaming tool – expandable





Custom reaming tool – selection options!

Selection: Cutting material, material				Selection: Dimensions							
Order No.	Cutting material	for material P M K N S H	for material P M K N S H	Ø D	Morse taper MK	L	b	a ~	f ~	Z	kg
56X.21	HM	●[1] ●[1] ●[1] ●[1] ●[1]	●[1] ●[1] ●[1] ●[1] ●[1]	5,600-8,899	2	90	85	9,5	0,1	4	
				8,900-9,899	2	90	85	9,5	0,1	6	
				9,900-15,899	2	120	115	9,5	0,1	6	
				15,900-18,899	2	135	130	9,5	0,1	6	
				18,900-25,899	2	145	140	9,5	0,1	6	

Order example: Order No. 56Q.93 · Bore diameter 21 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG3000 (Cutting geometry page 44-45)

[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

● very good | ◐ good

Design your own tool!

Is there no solution in the standard range? Are the dimensions not what you require?

Easy Special makes it possible for you create your own combination of standard modules in the widest variety of dimensions. Select the basic type, define the effective length and choose the desired adapter for the tool.

Examples:

Extra long Monomax® reamer
with cylindrical shank

Monomax® reamer
with DAH® / HSK adaptor

KOMET DIHART Monomax®

Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)												
						optimum · maximum							optimum · maximum					
						3×D Reamers short							5×D Reamers long					
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	HM	TiN	DBG-N	DBF	DBC	DST	DJC	HM	TiN	DBG-N	DBF	DBC	DST	DJC
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
P	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
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	30 45	100 140				150 200	150 200	30 45	80 120				120 160	120 160
P	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
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45						5 7	30 45					
P	4.1			HSS															
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)														
S	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			
M	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			
M	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			
K	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			
K	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	12 18		150 180	150 180		150 180	150 180
K	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	12 18		120 160	120 160		120 160	120 160
K	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	12 15		120 150	120 150		120 150	120 150
K	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			
K	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	
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150						12 20	80 120					
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30				150 300			15 30				150 200		
N	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		
N	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															
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC															

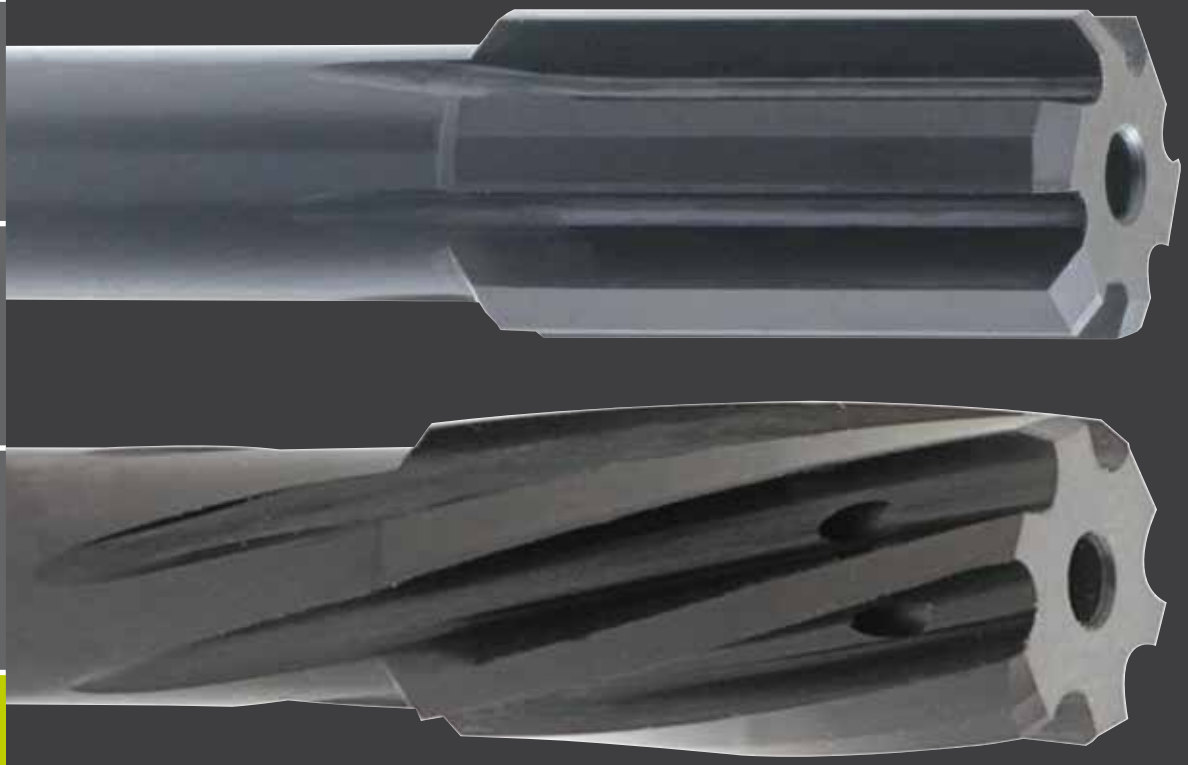
Reaming allowance in diameter (mm)

	Feed f (mm/rev)							
	optimum · maximum ASG3000, ASG0106, ASG03 ASG07, ASG02				optimum · maximum ASG4000, ASG09B ASG09, ASG1405, ASG1406			
	Ø 5,6 - 8,899 4	Ø 8,9 - 12,00 6	Ø 12,01 - 22,00 6	Ø 22,01 - 25,899 6	Ø 5,6 - 8,899 4	Ø 8,9 - 12,00 6	Ø 12,01 - 22,00 6	Ø 22,01 - 25,899 6
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30	**0,40** 0,60	**0,70** 0,90	**0,90** 1,20	**1,20** 1,50
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30	**0,40** 0,60	**0,70** 0,90	**0,90** 1,20	**1,20** 1,50
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30	**0,40** 0,60	**0,70** 0,90	**0,90** 1,20	**1,20** 1,50
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30	**0,40** 0,60	**0,70** 0,90	**0,90** 1,20	**1,20** 1,50
	0,20 0,30	**0,40** 0,50	**0,50** 0,70	**0,60** 0,90				
	0,20 0,30	**0,40** 0,50	**0,50** 0,70	**0,60** 0,90				
	0,20 0,30	**0,30** 0,40	**0,40** 0,60	**0,50** 0,70				
	0,30 0,40	**0,40** 0,60	**0,60** 0,80	**0,80** 1,10				
	0,30 0,40	**0,40** 0,60	**0,60** 0,80	**0,70** 1,00				
	0,30 0,40	**0,40** 0,60	**0,60** 0,80	**0,70** 1,00				
	0,30 0,40	**0,40** 0,60	**0,60** 0,80	**0,70** 1,00				
	0,40 0,60	**0,70** 0,90	**0,90** 1,20	**1,10** 1,50				
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30				
	0,40 0,60	**0,70** 0,90	**0,90** 1,20	**1,10** 1,50				
	0,40 0,60	**0,70** 0,90	**0,90** 1,20	**1,10** 1,50				
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30				
	0,30 0,40	**0,40** 0,60	**0,60** 0,80	**0,70** 1,00				
	0,30 0,40	**0,40** 0,60	**0,60** 0,80	**0,70** 1,00				
	0,40 0,60	**0,60** 0,90	**0,80** 1,20	**1,10** 1,50				
	0,30 0,50	**0,50** 0,70	**0,70** 1,00	**0,90** 1,30				
	0,40 0,60	**0,60** 0,90	**0,80** 1,20	**1,10** 1,50				
	0,40 0,60	**0,60** 0,90	**0,80** 1,20	**1,10** 1,50				
	0,40 0,60	**0,60** 0,90	**0,80** 1,20	**1,10** 1,50				
	0,10 - 0,20	0,10 - 0,30	0,20 - 0,30	0,20 - 0,40	0,10 - 0,20	0,10 - 0,30	0,20 - 0,30	0,20 - 0,40

Important: See chapter 9 for more application details and safety notes !

1 2 3 4 5 6 7 8 CLASSIC TOOLS 9

KOMET DIHART® Fullmax



KOMET DIHART® Fullmax solid carbide reaming
Diameter 2,96 to 20,05 mm

High performance for universal use

KOMET DIHART® is expanding its solid carbide reaming range with a completely overhauled universal reaming tool, available from stock in the main dimensions both with H7 tolerance and in 1/100 dimensions.

The combination of knowledge and experience gained with the previous product line has enabled us to systematically develop the cutting geometry and achieve incredibly high cutting performance in various different materials – even those hardened up to HRC62. At the same time, the modified cutting edge pitch reduces chatter marks and improves chip formation. In addition to optimal cutting edge cooling, the targeted coolant also aids smooth evacuation of chips that are formed.

A high-performance coating completes the new design, and can be used for various different materials, thus also contributing to longer tool life, as a result of significant improved wear resistance.

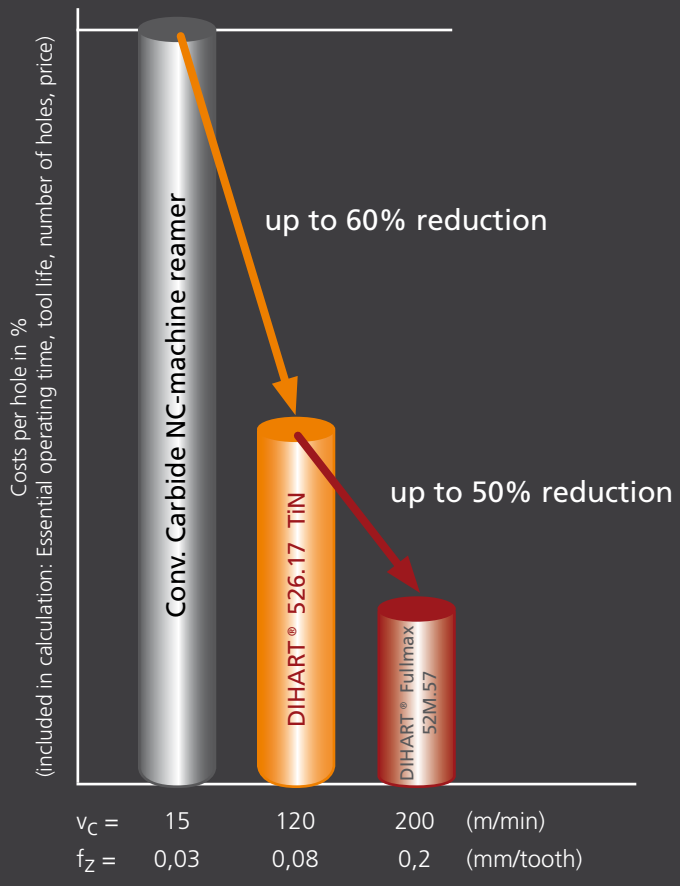
These characteristics and properties combine to create the kind of precision for which KOMET® is known on the market, as well as its high standards of dimensional accuracy and surface finish quality.

Individually configurable dimensions can be supplied in the diameter range from 2,96 to 20,05 mm. In addition, preferred ranges are available from stock for diameters 4 | 5 | 6 | 8 | 10 | 12 mm. There are separate variants matched to blind hole and through hole machining.

BENEFITS for you:

- Top performance for many different materials
- New high-performance for universal use
- Optimised geometry for top cutting performance
- Minimal costs per hole as a result of high cutting data and tool life
- Available from stock with dimensions H7 and 1/100 mm

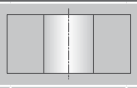
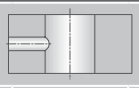
Practical example: ∅ 10^{H7} in 1.7225 (42CrMo4), blind hole with $R_Z < 6.3$



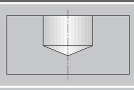
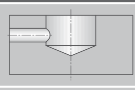
KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL *life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

KOMET DIHART® Fullmax

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining						
												
						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)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
P	4.1			HSS								
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	52P.57	ASG2210	DBG-U	52P.57	ASG2210	DBG-U	
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)							
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)							
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)							
H	15.0	1400		hardened steels < 45 HRC		52P.57	ASG2210	DBG-U				
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC		52P.57	ASG2210	DBG-U				

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

	High-speed machining					
						
	Order No.	Cutting geometry (ASG)	Cutting material/ coating	Order No.	Cutting geometry (ASG)	Cutting material/ coating
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**	52M.57	ASG2110	**DBG-U**
	52M.57	ASG2110	**DBG-U**			
	52M.57	ASG2110	**DBG-U**			

Cutting speed and feed see pages 62-63.

Important: See chapter 9 for more application details and safety notes !

KOMET DIHART® Fullmax Ø 2,96 – 20,05 mm

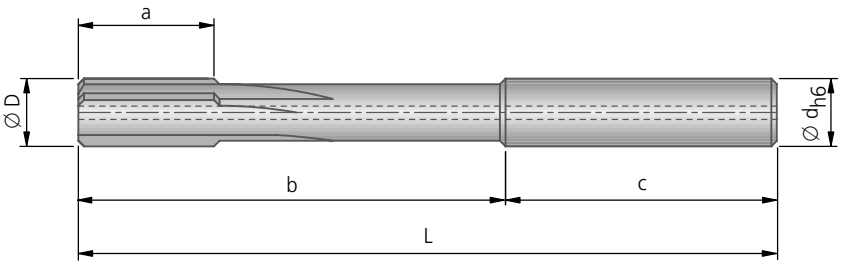
Solid carbide reamer

Material P M K N S H

≥ Ø3

DIN 6535 HA

for blind hole machining



Custom reaming tool – selection options!

Selection: material			Selection: Dimensions					
Order No.	Coating	for material P M K N S H	Ø D	Cylindrical shank Ø d×c	L	b	a ~	Z
52M.57	DBG-U	● ◐ ◐ ◐ ◐ ◐	2,96 - 4,05	4×28	60	32	12	4
			4,06 - 6,05	6×36	76	40	12	4
			6,06 - 8,05	8×36	101	65	16	6
			8,06 - 10,05	10×40	108	68	16	6
			10,06 - 12,05	12×45	130	85	20	6
			12,06 - 14,05	14×45	130	85	20	6
			14,06 - 16,05	16×48	150	102	20	6
			16,06 - 18,05	18×48	150	102	20	6
			18,06 - 20,05	20×50	160	110	20	6

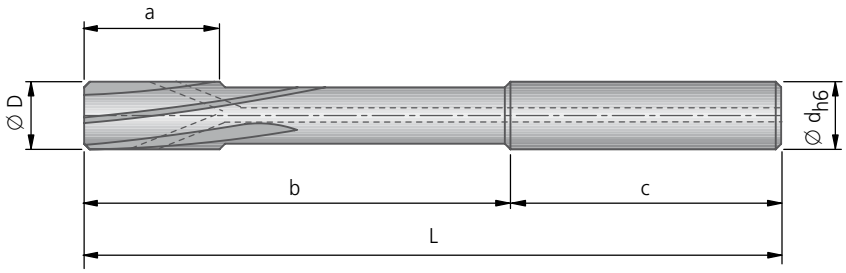
Order example: Order No. 52M.57 · Bore diameter 4,02 mm · Bore tolerance $^{+0,05}_{-0}$ · Material EN-GJS-400-15

Material P M K N S H

≥ Ø3

DIN 6535 HA

for through hole machining



Custom reaming tool – selection options!

Selection: material			Selection: Dimensions					
Order No.	Coating	for material P M K N S H	Ø D	Cylindrical shank Ø d×c	L	b	a ~	Z
52P.57	DBG-U	● ◐ ◐ ◐ ◐ ◐	2,96 - 4,05	4×28	60	32	12	4
			4,06 - 6,05	6×36	76	40	12	4
			6,06 - 8,05	8×36	101	65	16	6
			8,06 - 10,05	10×40	108	68	16	6
			10,06 - 12,05	12×45	130	85	20	6
			12,06 - 14,05	14×45	130	85	20	6
			14,06 - 16,05	16×48	150	102	20	6
			16,06 - 18,05	18×48	150	102	20	6
			18,06 - 20,05	20×50	160	110	20	6

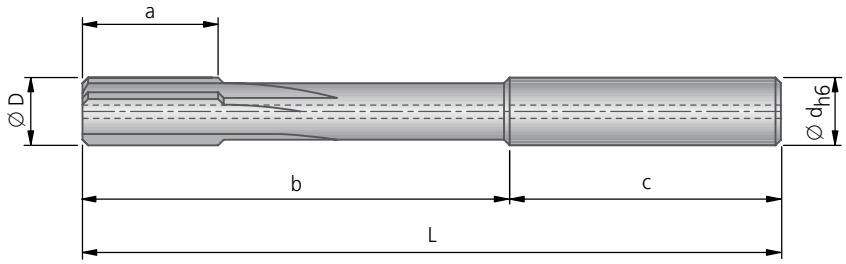
Order example: Order No. 52P.57 · Bore diameter 4,02 mm · Bore tolerance $^{+0,05}_{-0}$ · Material EN-GJS-400-15

● sehr gut · *very good* ◐ gut · *good*

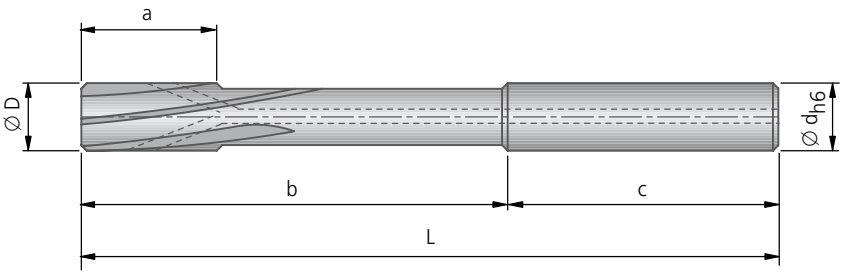
KOMET DIHART® Fullmax

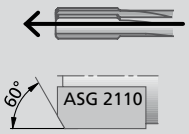
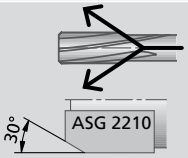
Diameter H7 – available from stock

for blind hole machining

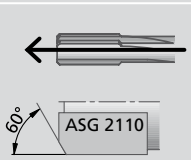
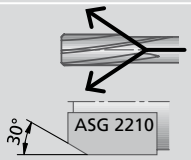


for through hole machining



Diameter H7 – available from stock							
Ø D	Ø d×c	L	b	a ~	Z	 Order No.	 Order No.
4^{H7}	4 × 28	60	32	12	4	52M.57.04H7	52P.57.04H7
5^{H7}	6 × 36	76	40	12	4	52M.57.05H7	52P.57.05H7
6^{H7}	6 × 36	76	40	12	4	52M.57.06H7	52P.57.06H7
8^{H7}	8 × 36	101	65	16	6	52M.57.08H7	52P.57.08H7
10^{H7}	10 × 40	108	68	16	6	52M.57.10H7	52P.57.10H7
12^{H7}	12 × 45	130	85	20	6	52M.57.12H7	52P.57.12H7

● sehr gut · *very good* ◐ gut · *good*

1/100 dimensions – available from stock									
Ø D	Fit sizes which can be used	 Order No.	 Order No.	Ø d×c	L	b	a ~	Z	kg ~
3,97	U7 X7	52M.57.0397	52P.57.0397	4 × 28	60	32	12	4	0,070
3,98	N10 N11 R7	52M.57.0398	52P.57.0398						
3,99	M8 N7 N8 N9	52M.57.0399	52P.57.0399						
4,00	J7 J8 JS7 JS8 JS9	52M.57.0400	52P.57.0400						
4,01	G7 H8	52M.57.0401	52P.57.0401						
4,02	F8 H9	52M.57.0402	52P.57.0402						
4,03	E8 F9 H10	52M.57.0403	52P.57.0403						
4,97	U7 X7	52M.57.0497	52P.57.0497	6 × 36	76	40	12	4	0,070
4,98	N10 N11 R7	52M.57.0498	52P.57.0498						
4,99	M8 N7 N8 N9	52M.57.0499	52P.57.0499						
5,00	J7 J8 JS7 JS8 JS9	52M.57.0500	52P.57.0500						
5,01	G7 H8	52M.57.0501	52P.57.0501						
5,02	F8 H9	52M.57.0502	52P.57.0502						
5,03	E8 F9 H10	52M.57.0503	52P.57.0503						
5,97	U7 X7	52M.57.0597	52P.57.0597	6 × 36	76	40	12	4	0,075
5,98	N10 N11 R7	52M.57.0598	52P.57.0598						
5,99	M8 N7 N8 N9	52M.57.0599	52P.57.0599						
6,00	J7 J8 JS7 JS8 JS9	52M.57.0600	52P.57.0600						
6,01	G7 H8	52M.57.0601	52P.57.0601						
6,02	F8 H9	52M.57.0602	52P.57.0602						
6,03	E8 F9 H10	52M.57.0603	52P.57.0603						
7,97	U7 X7	52M.57.0797	52P.57.0797	8 × 36	101	65	16	6	0,080
7,98	N10 N11 R7	52M.57.0798	52P.57.0798						
7,99	M8 N7 N8 N9	52M.57.0799	52P.57.0799						
8,00	J7 J8 JS7 JS8 JS9	52M.57.0800	52P.57.0800						
8,01	G7 H8	52M.57.0801	52P.57.0801						
8,02	F8 H9	52M.57.0802	52P.57.0802						
8,03	E8 F9 H10	52M.57.0803	52P.57.0803						
9,97	U7 X7	52M.57.0997	52P.57.0997	10 × 40	108	68	16	6	0,090
9,98	N10 N11 R7	52M.57.0998	52P.57.0998						
9,99	M8 N7 N8 N9	52M.57.0999	52P.57.0999						
10,00	J7 J8 JS7 JS8 JS9	52M.57.1000	52P.57.1000						
10,01	G7 H8	52M.57.1001	52P.57.1001						
10,02	F8 H9	52M.57.1002	52P.57.1002						
10,03	E8 F9 H10	52M.57.1003	52P.57.1003						
11,97	U7 X7	52M.57.1197	52P.57.1197	12 × 45	130	85	20	6	0,100
11,98	N10 N11 R7	52M.57.1198	52P.57.1198						
11,99	M8 N7 N8 N9	52M.57.1199	52P.57.1199						
12,00	J7 J8 JS7 JS8 JS9	52M.57.1200	52P.57.1200						
12,01	G7 H8	52M.57.1201	52P.57.1201						
12,02	F8 H9	52M.57.1202	52P.57.1202						
12,03	E8 F9 H10	52M.57.1203	52P.57.1203						

Tolerance: ∅3,97 – 5,03 mm = +4µ / ∅5,97 – 12,03 mm = +5µ

KOMET DIHART® Fullmax

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 DBG-U	
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	180 250	
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	180 250	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	180 250	
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	180 250	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	180 250	
P	4.1			HSS			
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	40 60	
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	30 60	
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	40 80	
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	40 60	
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	40 60	
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	120 180	
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	90 130	
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	200 250	
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	200 250	
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120 150	
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	90 130	
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	90 130	
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150 250	
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	100 150	
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)		
H	15.0	1400		hardened steels < 45 HRC		40 60	
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC		30 50	

Reaming allowance in diameter (mm)			
	P M K N S		
	H	to HRC48	
		to HRC62	

ASG2110  ASG2210 

	Feed f (mm/rev)											
	optimum · maximum ASG2110						optimum · maximum ASG2210					
	Ø 2,97 - 4,05 4	Ø 4,06 - 6,05 4	Ø 6,06 - 7,55 6	Ø 7,56 - 12,05 6	Ø 12,06 - 16,05 6	Ø 16,06 - 20,05 6	Ø 2,97 - 4,05 4	Ø 4,06 - 6,05 4	Ø 6,06 - 7,55 6	Ø 7,56 - 12,05 6	Ø 12,06 - 16,05 6	Ø 16,06 - 20,05 6
	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20
	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20
	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20
	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,40 1,80	1,50 1,90	1,80 2,20
	0,40 0,50	0,40 0,60	0,90 1,10	1,00 1,20	1,00 1,30	1,30 1,50	0,40 0,50	0,40 0,60	0,90 1,10	1,00 1,20	1,00 1,30	1,30 1,50
	0,40 0,50	0,40 0,60	0,90 1,10	1,00 1,20	1,00 1,30	1,30 1,50	0,40 0,50	0,40 0,60	0,90 1,10	1,00 1,20	1,00 1,30	1,30 1,50
	0,30 0,40	0,40 0,50	0,70 0,90	0,80 1,10	0,90 1,10	1,10 1,30	0,30 0,40	0,40 0,50	0,70 0,90	0,80 1,10	0,90 1,10	1,10 1,30
	0,30 0,40	0,40 0,50	0,70 0,90	0,80 1,10	0,90 1,10	1,10 1,30	0,30 0,40	0,40 0,50	0,70 0,90	0,80 1,10	0,90 1,10	1,10 1,30
	0,40 0,60	0,50 0,70	1,00 1,30	1,10 1,40	1,20 1,50	1,40 1,70	0,40 0,60	0,50 0,70	1,00 1,30	1,10 1,40	1,20 1,50	1,40 1,70
	0,40 0,60	0,50 0,70	1,00 1,30	1,10 1,40	1,20 1,50	1,40 1,70	0,40 0,60	0,50 0,70	1,00 1,30	1,10 1,40	1,20 1,50	1,40 1,70
	0,40 0,60	0,50 0,70	1,00 1,30	1,10 1,40	1,20 1,50	1,40 1,70	0,40 0,60	0,50 0,70	1,00 1,30	1,10 1,40	1,20 1,50	1,40 1,70
	0,60 0,80	0,70 0,90	1,30 1,60	1,30 1,60	1,60 2,00	1,90 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,30 1,60	1,60 2,00	1,90 2,20
	0,50 0,60	0,50 0,70	1,00 1,30	1,00 1,30	1,30 1,60	1,50 1,80	0,50 0,60	0,50 0,70	1,00 1,30	1,00 1,30	1,30 1,60	1,50 1,80
	0,60 0,80	0,70 0,90	1,30 1,60	1,30 1,60	1,60 2,00	1,90 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,30 1,60	1,60 2,00	1,90 2,20
	0,60 0,80	0,70 0,90	1,30 1,60	1,30 1,60	1,60 2,00	1,90 2,20	0,60 0,80	0,70 0,90	1,30 1,60	1,30 1,60	1,60 2,00	1,90 2,20
	0,50 0,60	0,50 0,70	1,00 1,30	1,00 1,30	1,30 1,60	1,50 1,80	0,50 0,60	0,50 0,70	1,00 1,30	1,00 1,30	1,30 1,60	1,50 1,80
	0,40 0,50	0,40 0,60	0,80 1,00	0,80 1,00	1,00 1,30	1,20 1,50	0,40 0,50	0,40 0,60	0,80 1,00	0,80 1,00	1,00 1,30	1,20 1,50
	0,40 0,50	0,40 0,60	0,80 1,00	0,80 1,00	1,00 1,30	1,20 1,50	0,40 0,50	0,40 0,60	0,80 1,00	0,80 1,00	1,00 1,30	1,20 1,50
	0,50 0,80	0,70 0,90	1,30 1,40	1,40 1,70	1,60 1,90	1,90 2,20	0,50 0,80	0,70 0,90	1,30 1,40	1,40 1,70	1,60 1,90	1,90 2,20
	0,40 0,60	0,60 0,80	1,00 1,20	1,20 1,40	1,30 1,60	1,60 1,80	0,40 0,60	0,60 0,80	1,00 1,20	1,20 1,40	1,30 1,60	1,60 1,80
	0,20 0,30	0,20 0,30	0,40 0,60	0,50 0,60	0,50 0,70	0,60 0,80	0,20 0,30	0,20 0,30	0,40 0,60	0,50 0,60	0,50 0,70	0,60 0,80
	0,20 0,30	0,20 0,30	0,40 0,60	0,50 0,60	0,50 0,70	0,60 0,80	0,20 0,30	0,20 0,30	0,40 0,60	0,50 0,60	0,50 0,70	0,60 0,80
	0,10-0,20	0,10-0,20	0,20	0,20	0,20-0,30	0,30	0,10-0,20	0,10-0,20	0,20	0,20	0,20-0,30	0,30
	0,10-0,20	0,10-0,20	0,20	0,20	0,20	0,20	0,10-0,20	0,10-0,20	0,20	0,20	0,20	0,20
	0,10	0,10	0,10	0,10	0,20	0,20	0,10	0,10	0,10	0,10	0,20	0,20

Important: See chapter 9 for more application details and safety notes !

KOMET DIHART® Duomax

We have put our entire wealth of experience into the generation of KOMET DIHART® cutting ring, called Duomax.

The KOMET DIHART® cutting ring for reaming basic and through holes is established and often copied due to its cost-effectiveness. This is one of the modular multi-blade tooling systems that features the easily replaceable KOMET DIHART® cutting ring on the holder. The user gets a finish-ground tool which does not require any time-consuming setting and adjustment work to the individual cutters.

The indexable inserts for reaming have two fully utilisable cutting edges. Each set of indexable inserts saves you a retipping cycle and thereby reduces tool costs and time as well as effort spent on logistics. When retipping is required after delivering double the tool life, this is also much easier to do in comparison with the soldered KOMET DIHART® cutting ring, because the number of machining steps in the process has been reduced. In connection with this, the tool life of the basic body is also longer, because it is no longer subjected to thermal stress. In addition, the precision and stability of the basic body has been further improved through optimisation of the basic shape.

A variety of cutting tool materials and coatings enable the individual adaptation of reamers to machining assignments and perfect processing of a wide variety of materials. In the future, a variety of coatings for this will be conceivable that cannot be used on soldered tools. Overall the flexibility with regard to selecting the cutting material and coating for reaming processes will significantly increase productivity. Moreover, tolerance and geometry changes can be accomplished quickly and with little effort.

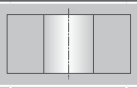
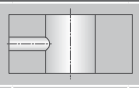
BENEFITS for you:

- Retipping for extremely high cost efficiency
- For large hole diameters
- Modular multi-blade tooling system
- Compensation for wear through simple readjustment
- A variety of cutting materials and coatings
- Extremely high flexibility

Variant:
- Diameter from 60,600 – 110,599 mm
- Hole tolerances of ≥ IT5
- Use with cast metal, solutions for steel, stainless steels, aluminium and other materials to follow

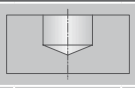
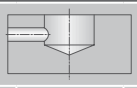
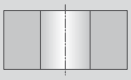
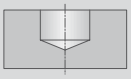
KOMET DIHART® Duomax

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						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)	33G.93	ASG4000	DST	33G.71	ASG4000	TiN
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	33G.93	ASG4000	DST	33G.71	ASG4000	TiN
	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	33G.93	ASG4000	DST	33G.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)	33G.93	ASG4000	DST	33G.71	ASG3000	TiN
	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	33G.71	ASG0106	TiN	33G.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)	33G.47	ASG0106	DBF	33G.47	ASG0106	DBF
	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	33G.47	ASG0106	DBF	33G.47	ASG0106	DBF
	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	33G.47	ASG0106	DBF	33G.47	ASG0106	DBF
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	33G.93	ASG3000	DST	33G.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)	33G.93	ASG3000	DST	33G.47	ASG3000	DBF
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	33G.93	ASG3000	DST	33G.47	ASG3000	DBF
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N
	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	33G.93	ASG3000	DST	33G.71	ASG3000	TiN
	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	33G.71	ASG3000	TiN	33G.71	ASG3000	TiN
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	33G.17	ASG0706	DBC	33G.17	ASG0706	DBC
	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	33G.17	ASG0706	DBC	33G.17	ASG0706	DBC
	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	33G.17	ASG0706	DBC	33G.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.

Patented design

	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
	33G.93	ASG3000	DST	33G.71	ASG3000	TiN	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.93	ASG3000	DST	33G.71	ASG3000	TiN	33G.21	ASG02	HM	33G.21	ASG02	HM
	33G.93	ASG3000	DST	33G.71	ASG3000	TiN	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.93	ASG3000	DST	33G.71	ASG3000	TiN	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.71	ASG0106	TiN	33G.71	ASG0106	TiN	33G.21	ASG0106	HM	33G.21	ASG0106	HM
							33G.21	ASG03	HM	33G.21	ASG03	HM
	33G.47	ASG0106	DBF	33G.47	ASG0106	DBF	33G.21	ASG0106	HM	33G.21	ASG0106	HM
	33G.47	ASG0106	DBF	33G.47	ASG0106	DBF	33G.21	ASG0106	HM	33G.21	ASG0106	HM
	33G.47	ASG0106	DBF	33G.47	ASG0106	DBF	33G.21	ASG0106	HM	33G.21	ASG0106	HM
	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.93	ASG3000	DST	33G.47	ASG3000	DBF	33G.21	ASG02	HM	33G.21	ASG02	HM
	33G.93	ASG3000	DST	33G.47	ASG3000	DBF	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.93	ASG3000	DST	33G.47	ASG3000	DBF	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.37	ASG3000	DBG-N	33G.37	ASG3000	DBG-N	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.93	ASG3000	DST	33G.71	ASG3000	TiN	33G.21	ASG0106	HM	33G.21	ASG0106	HM
	33G.71	ASG3000	TiN	33G.71	ASG3000	TiN	33G.21	ASG0106	HM	33G.21	ASG0106	HM
	33G.17	ASG0706	DBC	33G.17	ASG0706	DBC	33G.21	ASG02	HM	33G.21	ASG02	HM
	33G.17	ASG0706	DBC	33G.17	ASG0706	DBC	33G.21	ASG3000	HM	33G.21	ASG3000	HM
	33G.17	ASG0706	DBC	33G.17	ASG0706	DBC	33G.21	ASG3000	HM	33G.21	ASG3000	HM

Cutting speed and feed see pages 76 - 77.

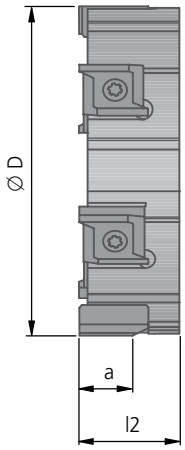
Important: See chapter 9 for more application details and safety notes !

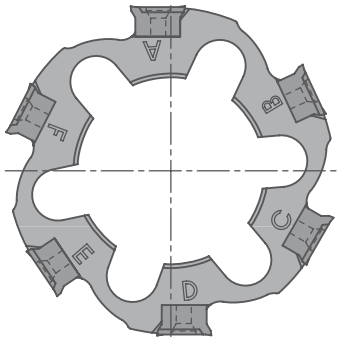
KOMET DIHART® Duomax

Ø 60,600 – 110,599 mm

Indexable insert cutting ring

Material
P M K N S H





Face cut
Ø – 4,5 mm

Custom cutting ring – selection options!

Selection: Cutting material, material													Selection: Dimensions			
Order No.	Cutting material, coating	for material						for material						Ø D	a ~	l2 ~	Z
		P	M	K	N	S	H	P	M	K	N	S	H				
33G.21	HM	◐[1]	◑[1]	◐[1]	◐[1]	◐[1]		◐[1]	◑[1]	◐[1]	◐[1]	◐[1]		60,600 - 79,599	10,3	19,6	6
33G.71	TiN	◐	◑		◐[4]	◐		●	◑		◐[5]	◐			10,3	19,6	6
33G.37	DBG-N			◐				◐		◐					10,3	19,6	6
33G.47	DBF		◑	●				◐	◑	●					10,3	19,6	6
33G.17	DBC				●						●				10,3	19,6	6
33G.93	DST	●		◐	◐[3]									79,600 - 100,599	10,3	19,6	8
33G.67	DJC			◐[2]											10,3	19,6	8
33G.87	DJF			◐											10,3	19,6	8
															10,3	19,6	8
														100,600 - 110,599	10,3	19,6	10

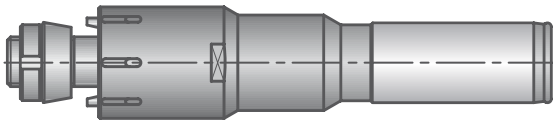
[1] conventional machining · [2] GJS (spheroidal graphite cast iron) · [3] material group 12.0 · [4] material group 12.1 · [5] material group 12.0&12.1

New tool order example: Example Order No. **33G.93**
Bore diameter 62 mm · Bore tolerance H7 · Material 1.0037 (S235JR) or ASG3000 (Cutting geometry page 66-67).
Supply includes: Cutting ring mounted with inserts and clamping screws N00 57710 (S3090-9IP 2,25Nm).

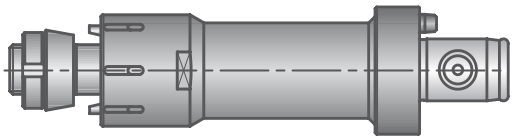
Retipping order example: Example Order No. **33R.93**
A cutting ring sent back to KOMET by the customer will be delivered fitted with indexable inserts and clamping screws. It is also possible to order one or two indexable insert sets for this cutting ring (example Order No. **33S.93**).

Screwdriver see chapter 9.

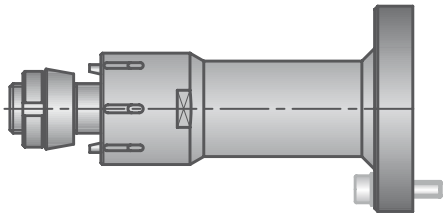
Holder with cylindrical shank similar to DIN 1835
▸ 70



Holder with ABS® connection
▸ 72

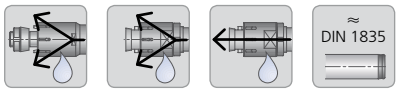


Holder with DAH® connection
▸ 71

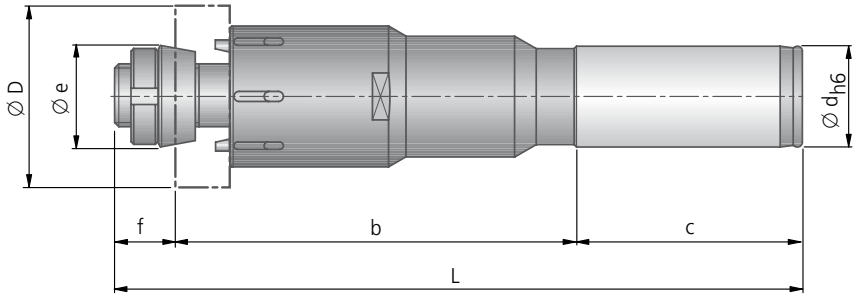


KOMET DIHART® Duomax

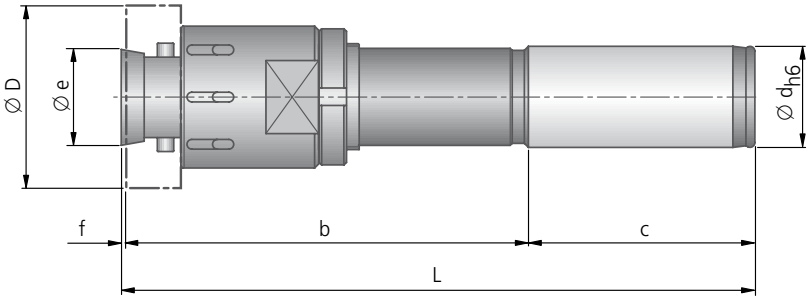
Holder for Ø 60,600 – 100,599 mm



for through hole machining



for blind hole machining



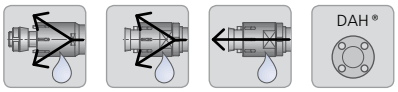
for through hole machining					short version				long version			
Ø D	Diameter range Ø D	Cylindrical shank Ø d × c	Ø e	f ~	Order No.	L	b	kg	Order No.	L	b	kg
62, 65, 70	60,600 – 70,599	32 × 60	40,0	24,5	**503.76.008**	189,5	105	1,81	**504.76.009**	321,5	237	3,46
72, 75	70,600 – 79,599	32 × 60	40,0	24,5	**503.76.009**	189,5	105	2,00	**504.76.010**	321,5	237	3,87
80, 90	79,600 – 90,599	40 × 70	56,2	28,5	**503.76.010**	203,5	105	3,40	**504.76.011**	338,5	240	6,14
92, 100	90,600 – 100,599	40 × 70	56,2	28,5	**503.76.011**	203,5	105	6,14	**504.76.012**	338,5	240	

for blind hole machining					short version					long version				
Ø D	Diameter range Ø D	Cylindrical shank Ø d × c	Ø e	f ~	Order No.	Order No.	L	b	kg	Order No.	Order No.	L	b	kg
62, 65, 70	60,600 – 70,599	32 × 60	37,0	1,5	**513.76.008**	**513.81.008**	166,5	105	1,78	**514.76.008**	**514.81.008**	298,5	237	2,90
72, 75	70,600 – 79,599	32 × 60	37,0	1,5	**513.76.009**	**513.81.009**	166,5	105	1,76	**514.76.009**	**514.81.009**	298,5	237	3,01
80, 90	79,600 – 90,599	40 × 70	53,2	1,5	**513.76.010**	**513.81.010**	176,5	105	3,13	**514.76.010**	**514.81.010**	311,5	240	4,90
92, 100	90,600 – 100,599	40 × 70	53,2	1,5	**513.76.011**	**513.81.011**	176,5	105		**514.76.011**	**514.81.011**	311,5	240	5,55

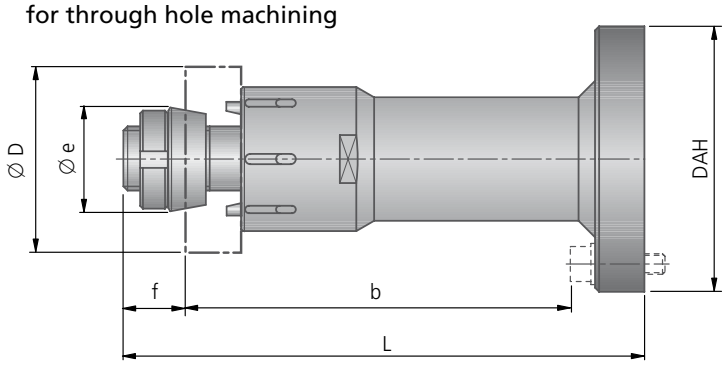
Supply includes: Holder complete (assembly parts see page 73). Please order cutting ring separately.

Cylindrical shank with flat available on request

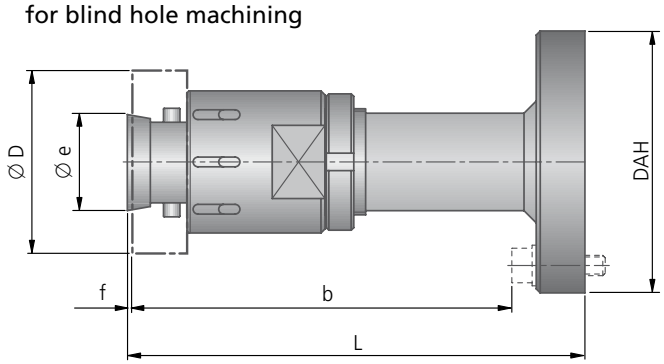
DAH® Holder for Ø 60,600 – 110,599 mm



for through hole machining



for blind hole machining



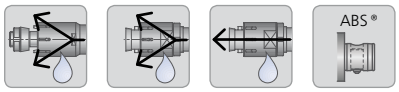
		for through hole machining							for blind hole machining							
Ø D	Diameter range Ø D	Order No.	DAH	L	b	Ø e	f ~	kg	Order No.	Order No.	DAH	L	b	Ø e	f ~	kg
62, 65, 70	60,600 – 70,599	**507.02.043**	81	141,5	99	40,0	24,5	1,70								
72, 75	70,600 – 79,599	**507.02.044**	81	141,5	99	40,0	24,5	1,90								
62, 65, 70	60,600 – 70,599	**507.02.008**	115	146	96	40,0	24,5	2,50	**517.76.008**	**517.81.008**	115	147	120	37,0	1,5	2,52
72, 75	70,600 – 79,599	**507.02.009**	115	146	96	40,0	24,5	2,79	**517.76.009**	**517.81.009**	115	147	120	37,0	1,5	2,52
80, 90	79,600 – 90,599	**507.02.010**	115	150	96	56,2	28,5	3,80	**517.76.010**	**517.81.010**	115	157	130	53,2	1,5	3,95
92, 100	90,600 – 100,599	**507.02.011**	115	150	96	56,2	28,5	4,22	**517.76.011**	**517.81.011**	115	157	130	53,2	1,5	4,33
110	100,600 – 110,599	**507.02.012**	115	158	97	73,4	35,5	5,50								

Supply includes:
DAH® **holder** complete (assembly parts see page 73). Please order cutting ring separately.
DAH® adaptors see chapter 7.

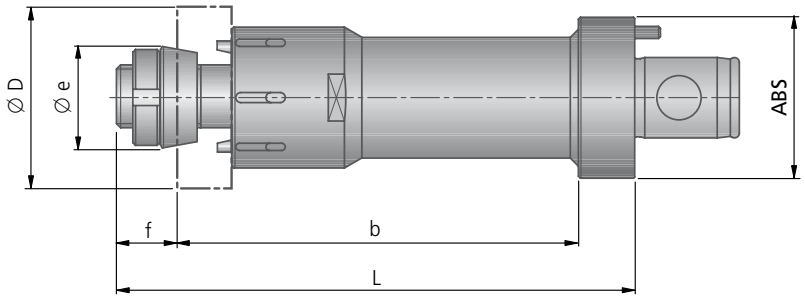
Further holders on request

KOMET DIHART® Duomax

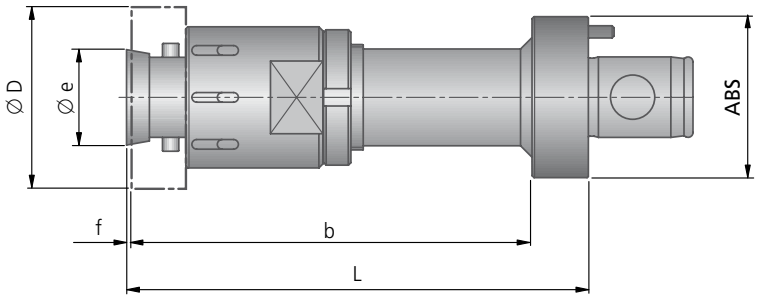
ABS® Holder for Ø 60,600 – 100,599 mm



for through hole machining



for blind hole machining

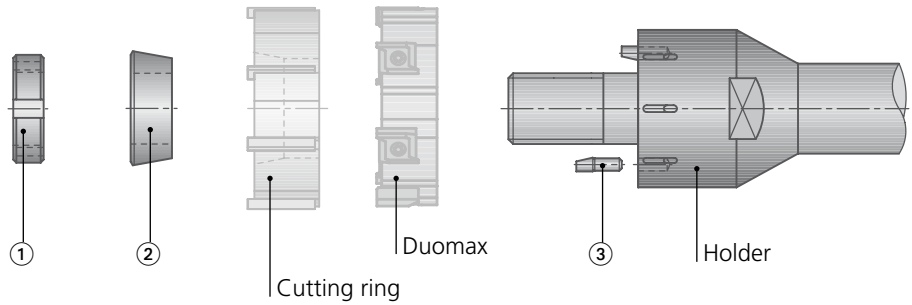


		for through hole machining							for blind hole machining							
Ø D	Diameter range Ø D	Order No.	ABS	L	b	Ø e	f ~	kg	Order No.	Order No.	ABS	L	b	Ø e	f ~	kg
62	60,600 – 65,599	**508.53.020**	50	143,5	105	40,0	24,5	1,95	**518.78.013**	**518.82.013**	50	120,5	105	37,0	1,5	1,75
65, 70	65,600 – 70,599	**508.53.021**	63	149,5	105	40,0	24,5	2,33	**518.78.014**	**518.82.014**	63	126,5	105	37,0	1,5	2,15
72, 75	70,600 – 79,599	**508.53.009**	63	149,5	105	40,0	24,5	2,50	**518.78.009**	**518.82.009**	63	126,5	105	37,0	1,5	2,23
80, 90	79,600 – 90,599	**508.53.010**	63	153,5	105	56,2	28,5	3,55	**518.78.010**	**518.82.010**	63	126,5	105	53,2	1,5	3,29
92, 100	90,600 – 100,599	**508.53.011**	63	153,5	105	56,2	28,5	3,93	**518.78.011**	**518.82.011**	63	126,5	105	53,2	1,5	3,60
110	100,600 – 110,599	**508.53.022**	80	167	106,5	73,4	35,5	6,21								

Supply includes:
ABS® holder complete (assembly parts see page 73). Please order cutting ring separately.
ABS® adaptors see catalogue "KomPass DRILLING".

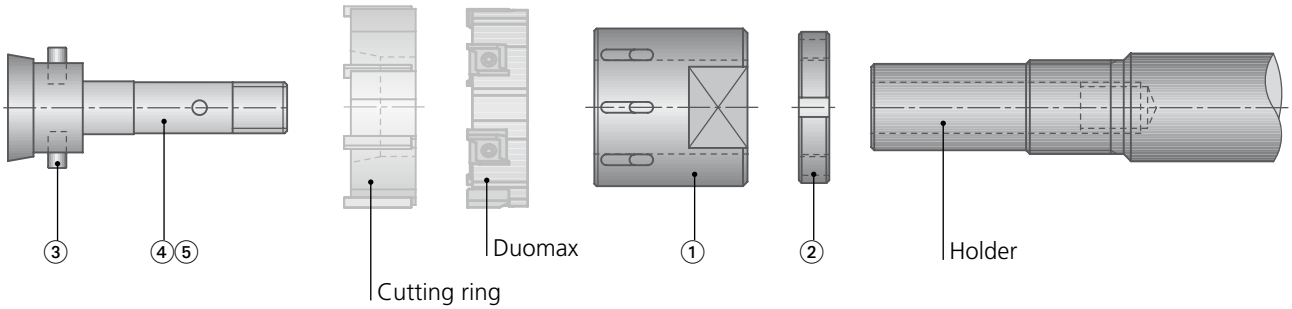
Further holders on request

Holder for through hole machining



		①	②	③
Ø D	Diameter range Ø D	Nut Order No.	Conical ring Order No.	Positioning pin Order No.
62, 65, 70, 72, 75	60,600 – 79,599	**099.00.090**	**301.80.006**	**300.30.007**
80, 90, 92, 100	79,600 – 100,599	**099.00.092**	**301.80.007**	**300.30.008**
110	100,600 – 110,599	**099.00.095**	**306.20.001**	**300.30.008**

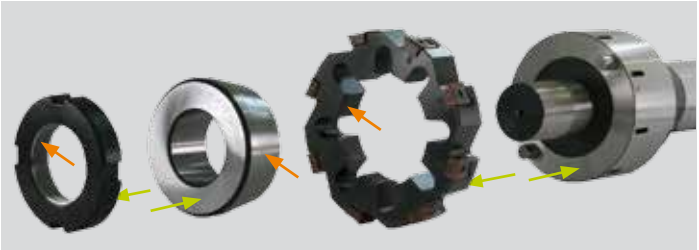
Holder for blind hole machining



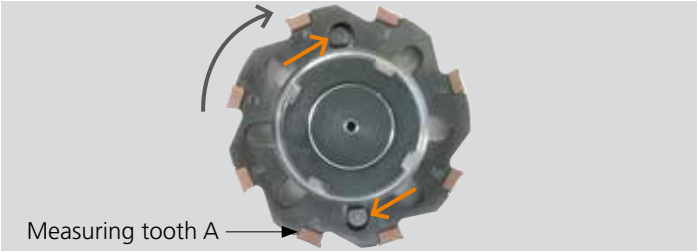
		①	②	③	④		⑤	
Ø D	Diameter range Ø D	Bush Order No.	Nut Order No.	Pin Order No.	Conical screw Order No.	Ø e	Conical screw Order No.	Ø e
62, 65, 70	60,600 – 70,599	**510.15.008**	**350.23.002**	**350.14.002**	**510.45.007**	37,0	**510.55.007**	37,0
72, 75	70,600 – 79,599	**510.15.009**	**350.23.002**	**350.14.002**	**510.45.007**	37,0	**510.55.007**	37,0
80, 90	79,600 – 90,599	**510.15.010**	**350.23.003**	**350.14.003**	**510.45.008**	53,2	**510.55.008**	53,2
92, 100	90,600 – 100,599	**510.15.011**	**350.23.003**	**350.14.003**	**510.45.008**	53,2	**510.55.008**	53,2

KOMET DIHART® Duomax

Assembly instructions on holder for through hole machining



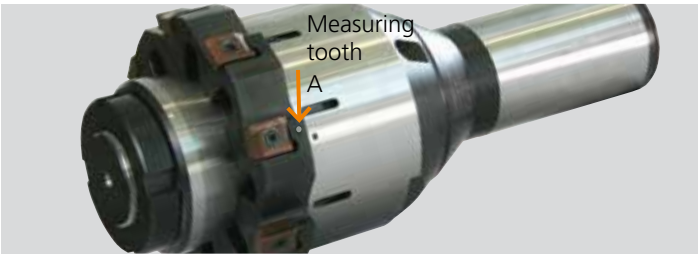
Arrow markings:
- light grease
- Face surfaces on holder and Duomax are grease-free



Positioning of the drive pins to the right of letter A (the measuring tooth is located at letter A and is also marked on the holder with a spot).
Before tightening and adjusting turn the Duomax against the direction of machining until hitting the drive pins.

Please observe the marking on holder and Duomax , check alignment of the coolant bores.

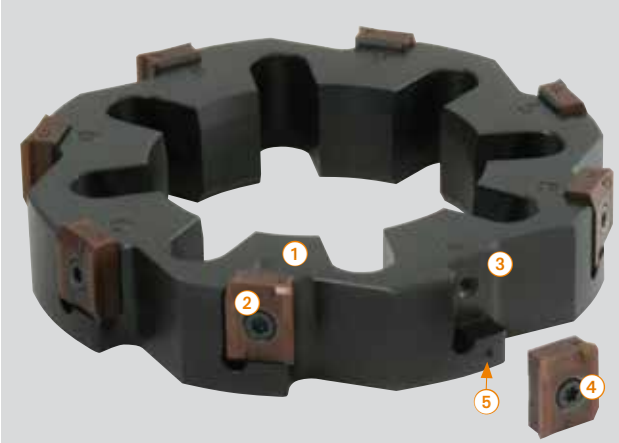
Adjust the diameter to the middle of the tolerance (counter-clockwise thread).



The diameter can only be measured at the marked cutting edges (measuring tooth A) due to unequal angular position!

If the diameter was set too large, the conical ring must be loosened and the Duomax readjusted.

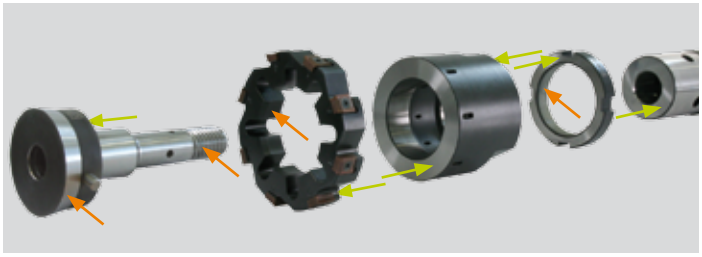
Assembly instructions inserts



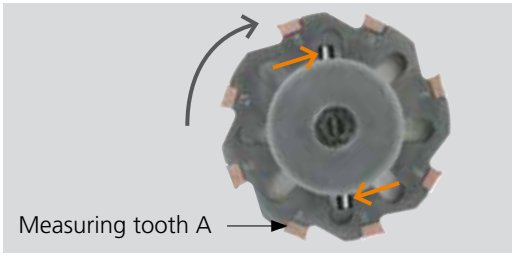
Cleaning:
Make sure that the insert seats ③ and inserts are absolutely clean/grease-free. If necessary, use compressed air to remove dust particles!

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

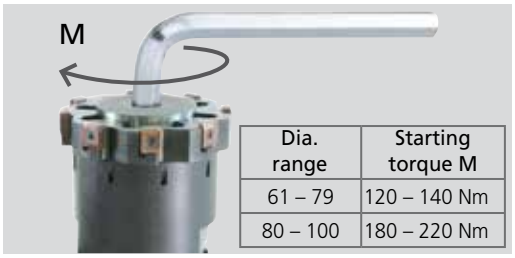
Assembly instructions on holder for blind hole machining



Arrow markings:
- light grease
- Face surfaces on holder and Duomax are grease-free



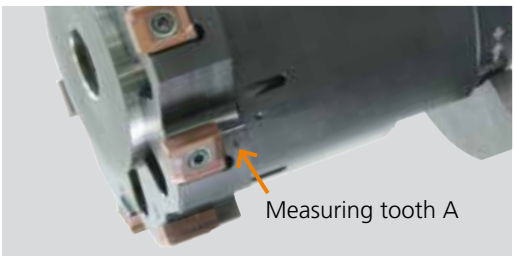
Positioning of the drive pins to the right of letter A (the measuring tooth is located at letter A and is also marked on the holder with a spot). Before tightening and adjusting turn the Duomax against the direction of machining until hitting the drive pins.



Dia. range	Starting torque M
61 – 79	120 – 140 Nm
80 – 100	180 – 220 Nm

Screw the nut onto the holder with the smooth face against the bush. Mount the Duomax with the conical screw. After fastening the conical screw check that there is space between bush and Duomax. Fasten conical screw according to index table.

Please observe the marking on holder and Duomax, check alignment of the coolant bores. Adjust the diameter to the middle of the tolerance.



The diameter can only be measured at the marked cutting edges (measuring tooth A) due to unequal angular position!

If the diameter was set too large, the nut must be loosened and the Duomax readjusted.

Measuring the diameter:
The measuring tooth is located at letter A and is also marked on the holder with a spot ⑤.

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

KOMET DIHART® Duomax

Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)													
						optimum · maximum								optimum · maximum					
						3×D Reamers short								5×D Reamers long					
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	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	
P	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	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	30 45	100 140				150 200	150 200		30 45	80 120				120 160	120 160	
P	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	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45							5 7	30 45						
P	4.1			HSS																	
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)																
S	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				
M	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				
M	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				
K	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				
K	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
K	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
K	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
K	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				
K	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		
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150							12 20	80 120						
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30				150 300				15 30				150 200			
N	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			
N	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																	
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC																	

Reaming allowance in diameter (mm)

	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 60,600 - 79,599 6	Ø 79,6 - 100,599 8	Ø 100,6 - 110,599 10	Ø 60,600 - 79,599 6	Ø 79,6 - 100,599 8	Ø 100,6 - 110,599 10
	1,10 1,70	1,50 2,30	1,90 2,80	1,40 2,00	1,90 2,70	2,40 3,40
	1,10 1,70	1,50 2,30	1,90 2,80	1,40 2,00	1,90 2,70	2,40 3,40
	1,10 1,70	1,50 2,30	1,90 2,80	1,40 2,00	1,90 2,70	2,40 3,40
	1,10 1,70	1,50 2,30	1,90 2,80	1,40 2,00	1,90 2,70	2,40 3,40
	0,80 1,20	1,10 1,60	1,30 2,00			
	0,90 1,40	1,30 1,90	1,60 2,40			
	0,90 1,30	1,20 1,80	1,50 2,30			
	0,90 1,30	1,20 1,80	1,50 2,30			
	0,90 1,30	1,20 1,80	1,50 2,30			
	1,40 2,00	1,90 2,70	2,30 3,40			
	1,10 1,70	1,50 2,30	1,90 2,80			
	1,40 2,00	1,90 2,70	2,30 3,40			
	1,40 2,00	1,90 2,70	2,30 3,40			
	1,10 1,70	1,50 2,30	1,90 2,80			
	0,90 1,30	1,20 1,80	1,50 2,30			
	0,90 1,30	1,20 1,80	1,50 2,30			
	1,20 1,90	1,70 2,50	2,10 3,10			
	1,00 1,50	1,40 2,10	1,70 2,60			
	1,30 2,00	1,70 2,70	2,20 3,40			
	1,30 2,00	1,70 2,70	2,20 3,40			
	1,30 2,00	1,70 2,70	2,20 3,40			
	0,30 - 0,50	0,30 - 0,50	0,30 - 0,50	0,30 - 0,50	0,30 - 0,50	0,30 - 0,50

Important: See chapter 9 for more application details and safety notes !

KOMET DIHART® Reaming with insert technology

In collaboration with the application specialists at KOMET®, it is of course also possible for fixed versions and individual stepped tools as well as diameters to be designed and manufactured which can be combined with the various different tool connections.

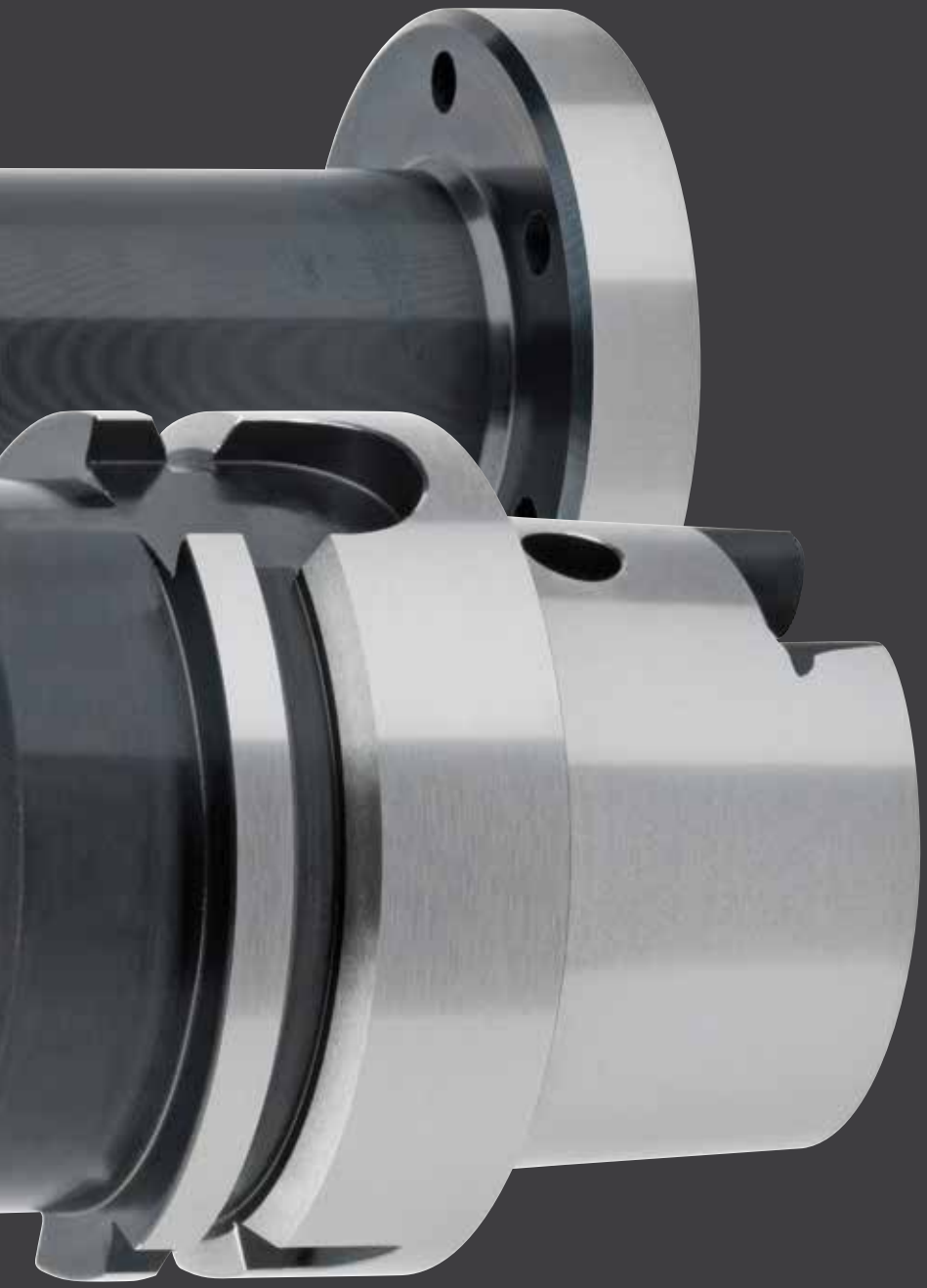
Indexable insert reaming tools are available on request. They are designed as integral tools or as a modular tool system, depending on application. For extremely small tolerances, they can be produced in an adjustable version.

The tools can be supplied in single or multi-step versions from a diameter of 42 mm.

Monoblock tools
both fixed and adjustable
Reaming tools are available as monoblock tools with indexable insert technology from a diameter of 42 mm and are designed in either adjustable or fixed versions.

Stepped tools
Stepped tools are individually manufactured as special tools and are available in a fixed design.

Insert technology



Reaming with insert technology

The Technology

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

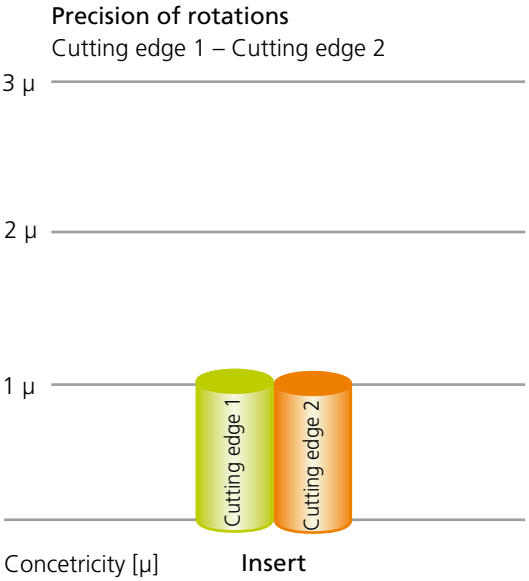
Each insert has two effective cutting edges.
Unlike boring tools, inserts for reaming tools are ground as a complete set directly on the basic element in their specific insert pocket.

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.

BENEFITS for you:

- Ground to size for maximum precision
- Low cost tool logistics
- Shortest preparation time
- Maximum flexibility
- Concept can be used for an extremely wide variety of DIHART® tools
- Low cost changes to tool and geometry
- Can be adjusted for extremely small bore tolerances



Two cutting edge insert

Without affecting the tool's precision inserts can be rotated in the shortest possible time.

This minimises setting time and doubles the tool life by using two cutting edges.

Design your own tool!

We check your specifications for technical feasibility and you receive a prompt reply.

Assembly instructions

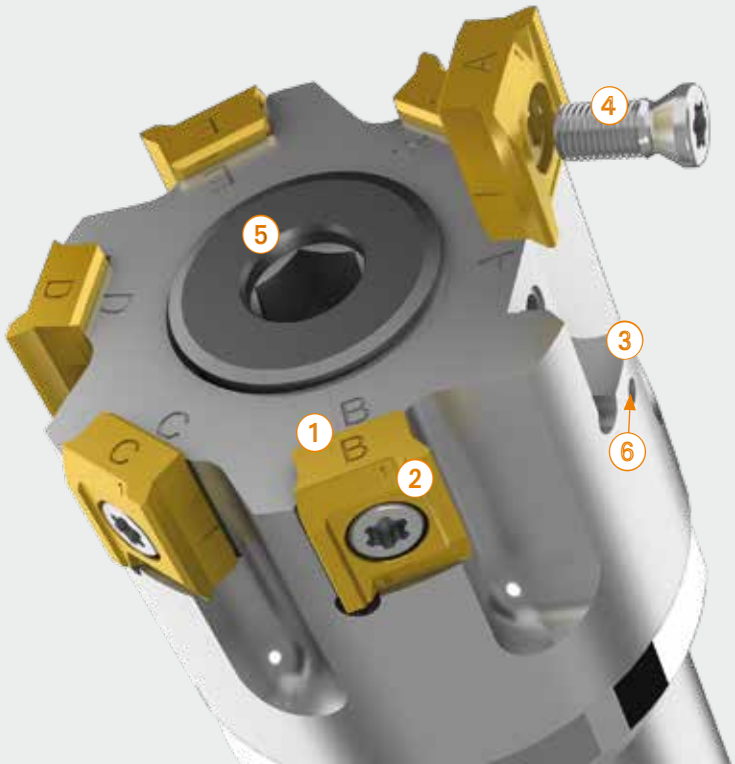
Cleaning:

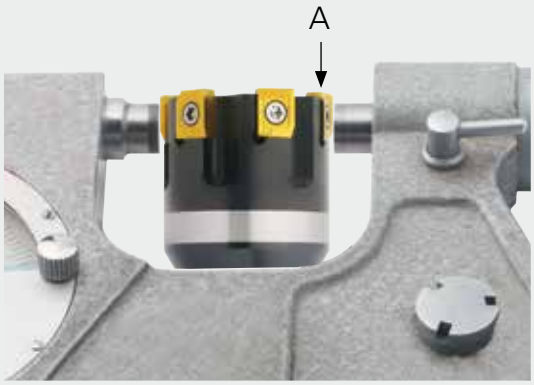
Make sure that the insert seats ③ and indexable inserts are absolutely clean/grease-free. If necessary, use compressed air to remove dust particles!

Assembly:

- All indexable inserts and insert seats are marked with letters ①. This ensures correct assignment to the insert seat.
- The number markings ② ensure that all indexable inserts are positioned correctly.

Tighten the screw ④ (order no. N00 57710) to 2.5 Nm (torque wrench order no. L05 00940)





Measuring the diameter:

The measuring tooth is located at letter A and is also marked on the holder with a spot ⑥. If the diameter is too large, loosen the conical screw ⑤ and turn it to the right to set the correct diameter. The conical screw ⑤ does not have to be removed completely !

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.

Patent applied for inside and outside Germany

KOMET DIHART® MicroSet System

Reaming with Adjustable Inserts

The new reamers from KOMET® which boast individually adjustable inserts are an alternative to the ready-to-use ground tool variants. These reamers also feature multiple blades and offer maximum flexibility, reduce logistics with regard to retipping and enable cost savings thanks to the favourably priced inserts which are available from stock.

The single-blade inserts are screwed in place and set to a diameter and tapering using a newly developed fine adjustment system for indexable inserts with µm accuracy. This makes hole tolerances of ≥ IT5 easily achievable. The reference dimension is provided by two measuring blocks.

Only 14 inserts for the diameter range of 40 to 140 mm. Maximum flexibility in terms of fields of application, availability and variety of cutting materials and coatings are features of this tool, because certain components, tolerances, volumes, etc., often determine which combinations are used.

BENEFITS for you:

- Maximum flexibility
- Reduces logistics with regard to retipping
- Inserts available from stock
- Individually adjustable inserts
- Simple handling when making adjustments and changing the inserts

Variant:
- Diameter range of 40 – 140 mm
- Hole tolerances of ≥ IT5
- Use with cast metal, solutions for steel, stainless steel, aluminium and other materials to follow
- The tool concept can be used in special and multiple dies

Precision and productivity

Even when the demands on a component are particularly high and the highest precision is required, the KOMET DIHART® MicroSet System gives you a special advantage: The tools can be readjusted at any time. All that needs to be done is to readjust the indexable inserts in the precision adjustment system to the required diameter. Only when the cutting edges are worn do they need to be replaced.

The special strengths of the KOMET DIHART® MicroSet System can truly be seen when used with special tools, especially with stepped tools that the user can arrange themselves. Thanks to the variety of possible combinations, the user quickly puts together a suitable reamer that is ideally matched to the component with regard to its materials, tolerances and volumes.

The MicroSet tool shown uses this advantage perfectly and solves the application requirements better than the previously used brazed PCD tools. An inability to correct the brazed PCD plates, particularly in the second stage, results in operating times of different lengths and irregular repair costs.

The standard indexable inserts available from stock (fitted with PCD in this case) make up for long repair cycles and not only increase the flexibility of the system but also the productivity and the profitability of an application.

Before: Good machining using PCD tool

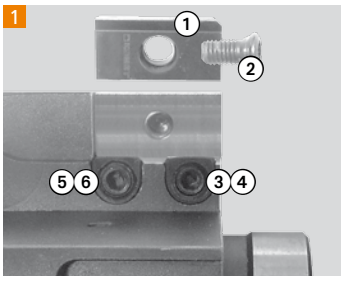
New: Flexible machining using MicroSet system tool thanks to readjustment of the PCD-fitted indexable inserts

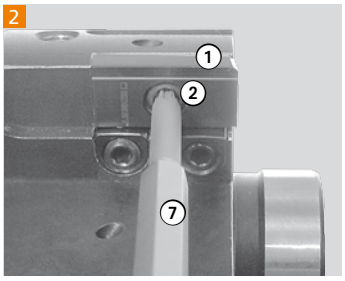
BENEFITS for you:

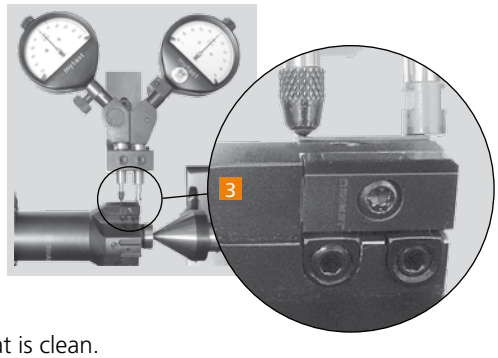
- Simplified logistics thanks to standard indexable inserts available from stock
- Can be fitted with CBN or PCD indexable inserts for a variety of machining requirements
- Uncomplicated readjustment using a precision-controlled adjustment system
- Can be used as a repeat operation tool e.g. integrated milling and reaming
- Easy and uncomplicated setting also on electronic presetting device

KOMET DIHART® MicroSet System					Setting device
	Insert		Clamping screw	Wedge	
	DST for material P	DBG-N for material K			
Ø D	Order No.	Order No.	Order No. Article	Order No.	Order No.
40,000 – 44,999	70W.93.02040A	70W.37.01040A	N00 57241 S3070-8IP 2,25 Nm	15F.00.30001	059.33.4154
45,000 – 49,999	70W.93.02045A	70W.37.01045A			
50,000 – 54,999	70W.93.02050A	70W.37.01050A			
55,000 – 59,999	70W.93.02055A	70W.37.01055A			
60,000 – 64,999	70W.93.02060A	70W.37.01060A			
65,000 – 69,999	70W.93.02065A	70W.37.01065A			
70,000 – 74,999	70W.93.02070A	70W.37.01070A			
75,000 – 79,999	70W.93.02075A	70W.37.01075A			
80,000 – 89,999	70W.93.02080A	70W.37.01080A			
90,000 – 99,999	70W.93.02090A	70W.37.01090A			
100,000 – 109,999	70W.93.02100A	70W.37.01100A			
110,000 – 119,999	70W.93.02110A	70W.37.01110A			
120,000 – 129,999	70W.93.02120A	70W.37.01120A			
130,000 – 140,000	70W.93.02130A	70W.37.01130A			

Assembly instructions



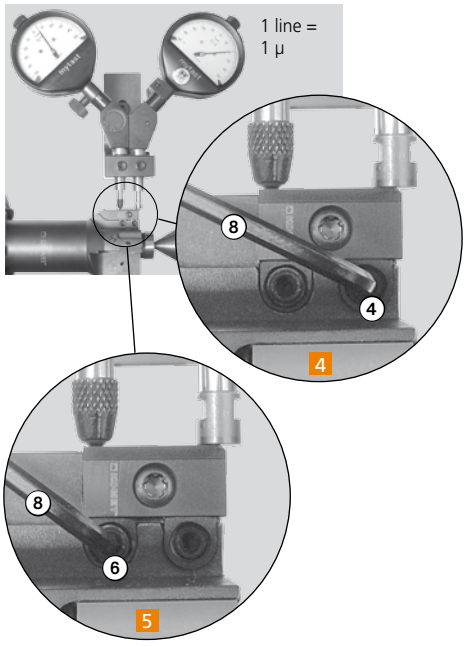




Assembly parts (Fig. 1)
① indexable insert
② clamping screw

Setting machining dia.
③ adjusting wedge, ④ differential screw

Setting conicity
⑤ adjusting wedge, ⑥ differential screw



Fit the indexable insert:
Make sure that the insert seat is clean.
Place the indexable insert ① into the insert seat and tighten the clamping screw ② only slightly.

Use torque wrench ⑦ (2,25 Nm) (Fig.2).

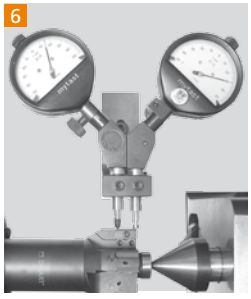
Reference dia. as reference dimension "0" for setting the machining dia. and conicity (Fig. 3), reference dia. is marked on tool.

Preset the machining dia. (Fig. 4) **and conicity** (Fig. 5)**:**
Use an Allen key ⑧ (width across flats SW2) to turn the differential screws ④ and ⑥ until the indexable insert ① is set to approx. 10 µm below the desired machining dia. and approx. 25 µm over the reference dia.

Secure the insert:
Use a torque wrench ⑦ (2,25 Nm) to secure the indexable insert ① at the preset tightening torque (Fig. 2).

Set the final machining dia. (Fig. 4) **and conicity** (Fig 5)**:**
When tightened, the indexable insert ① is set to the machining diameter and the specified conicity using the differential screws ④ and ⑥.

Tool after setting (Fig 6).



Design your own tool!

Unique: Reaming with Adjustable Inserts!

The tools are specially manufactured for each application, with four to eight cutting edges on a basic body and for length/diameter ratios up to 2×D.

We check you specifications for technical feasibility and you receive a prompt reply.

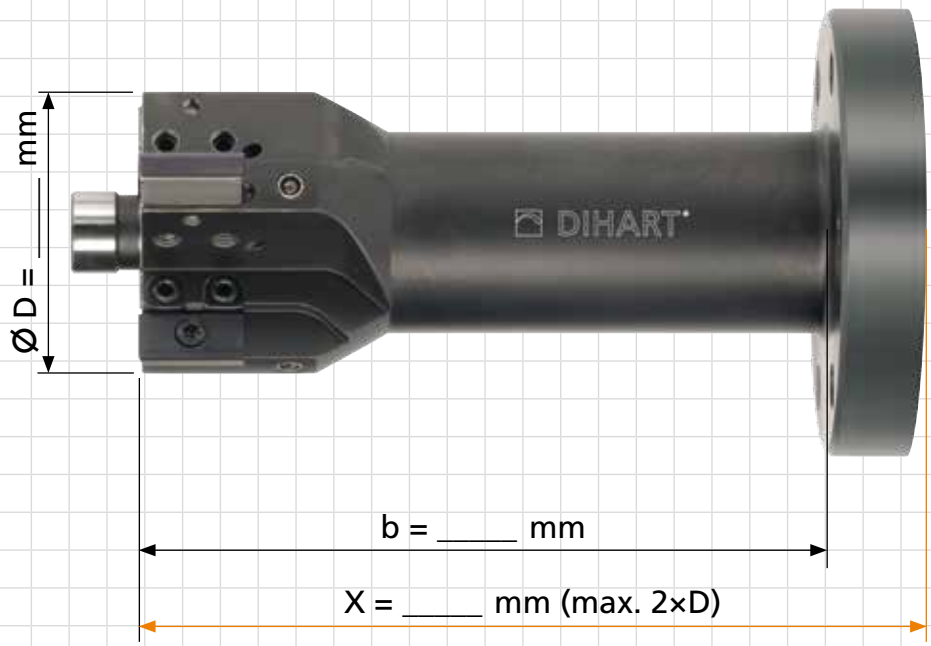
Company: Contact:

Department: E-Mail:

Telephone: Customer-No.:

Fax: Distributor:

Date:



Material to be machined:

Machining method ☐ through hole ☐ blind hole

Length of bore:

Interrupted cut ☐ yes ☐ no

Tolerance:

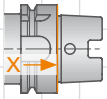
Required surface:

Allowance in Ø:

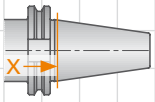
Required cutting material

Holder / Adaptor (Type and size)

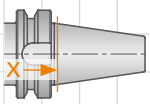
☐ DAH _____



☐ HSK _____
DIN 69893 A



☐ ISO _____
DIN 69871 AD/B



☐ ISO _____
JIS B 6339 AD/B
(MAS 403 BT)

other adaptors on request

KOMET DIHART® Special tools

Special solutions and multi-step tools – Greater range of functions, lower machining costs

The development of specific solutions for customers represents a major area of competence for KOMET®.

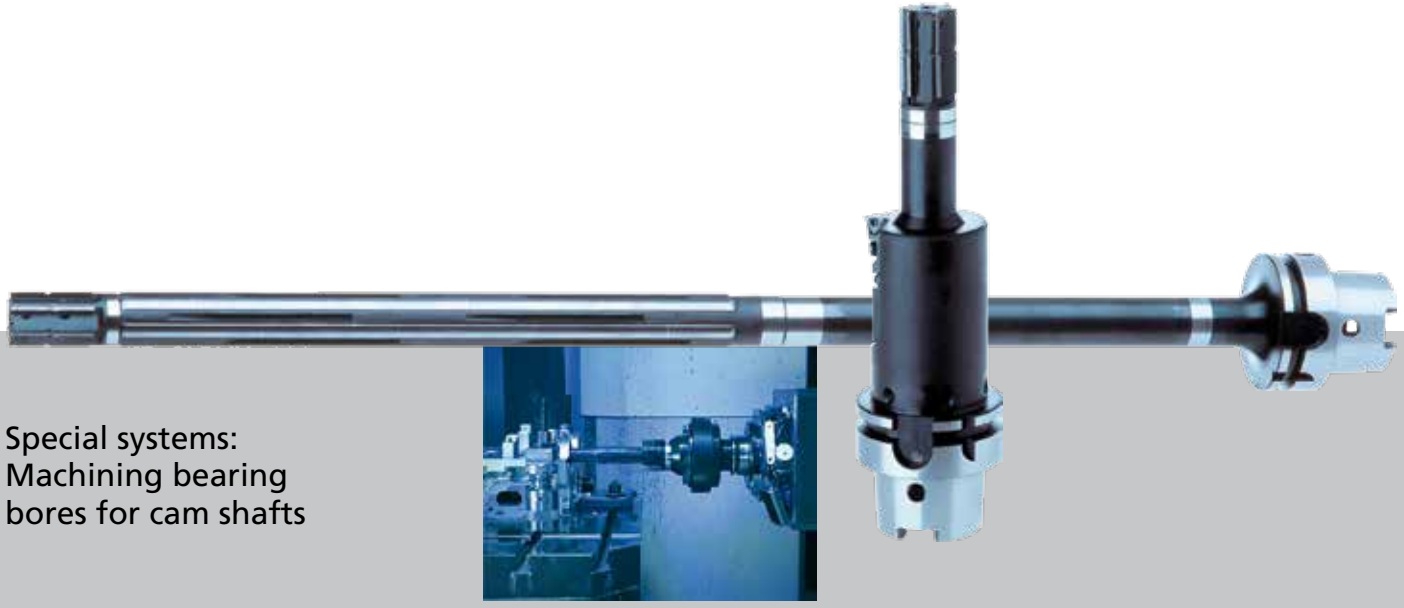
It is often impossible to carry out machining tasks with standard tools because of the demands for form, tolerance or quality which require special process analysis and tool development work.

The questionnaire on page 140 of this catalogue can be used at any time to inquire about and order special tools.

References to applications can be found in our application examples.

BENEFITS for you:

- Optimised application design
- Major reduction of non-productive time
- Technical advice by KOMET® technicians
- Combining several machining operations
- Highest efficiency and productivity



Special systems: Machining bearing bores for cam shafts

Example:
Finish machining operation for camshaft bearing for cylinder heads in Ck AlSi9Cu3 for car engines.

The task:
To simplify the process on transfer lines or machining centres.

The solution:
Using the newly developed tool, machining the cylinder heads on transfer lines is reduced to one station. On machining centres a pilot tool short, stable fitted with PCD inserts is initially used to pre-machine the bores for the first journal. The finishing tool (also with PCD inserts), which matches the length of the engine, then reams all the bores to size: ∅ 26,045 H7.

The concept has now become well established in engine and vehicle manufacturing.

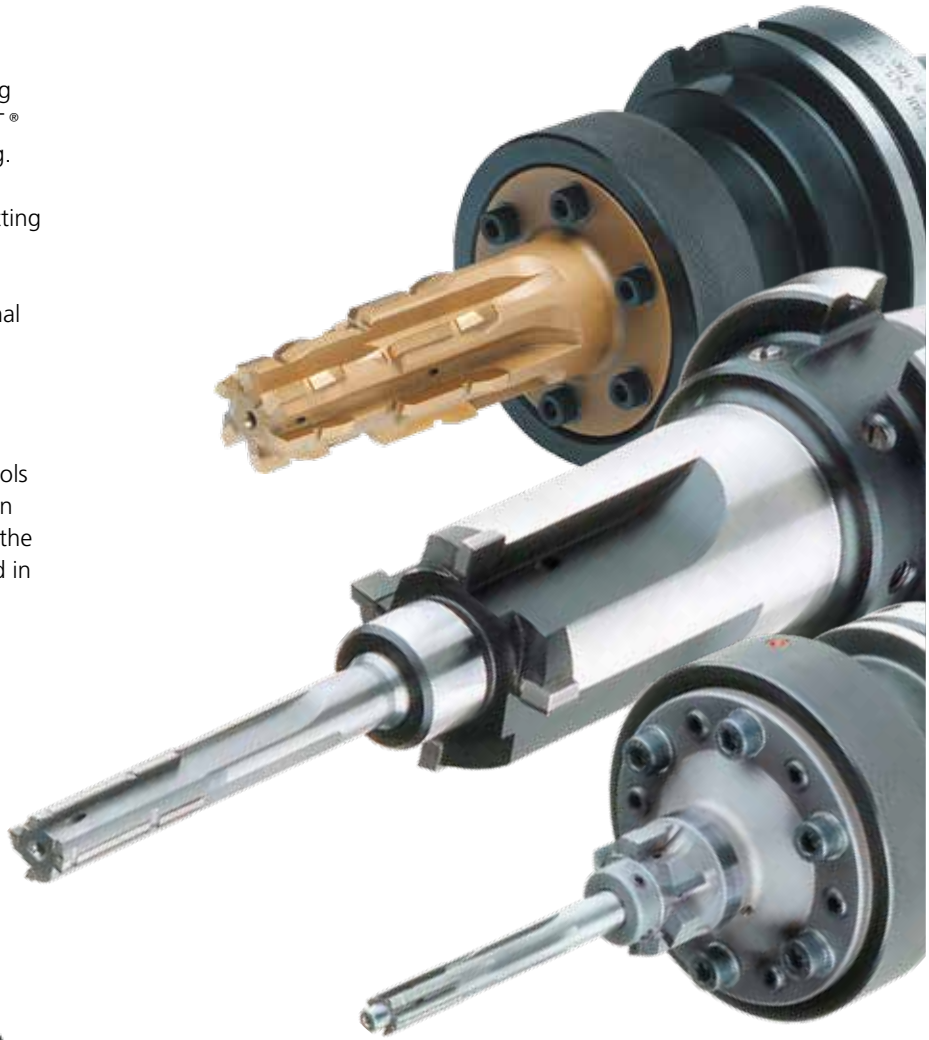
The cutting values are:
v_c = 220 m/min; f = 1080 mm/min.

Patent applied for inside and outside Germany

With its multi-flute stepped reaming tools and special solutions, KOMET® improves the economics of reaming. The latest generation of tools is characterised by extremely high cutting speeds and high feed rates. Designed to suit workpiece and material, they guarantee dimensional stability and reliable production.

Multi-step tools

Multi-step and modular reaming tools from KOMET® improve production performance. KOMET® increases the range of functions for the tools and in doing so reduces machining costs.



Special tools

- Use of latest technology
- Tool design to suit application
- Advice from KOMET® experts
- Stand the test in many references
- Multi-flute reaming tools for best performance
- Reduction in ancillary costs

KOMET DIHART DAH® compensating holders are static compensating systems, floating holder DPS are dynamic compensating systems. Axis and concentricity errors are compensated for extremely simply.

Using the patented KOMET DIHART DAH® the concentricity of reaming tools and all rotating machining tools can be adjusted quickly, effortlessly and with utmost precision on the machine.

Precision bore machining can therefore be executed with extremely high cutting speeds and feed values.

The bore quality achieved, such as circularity, cylindricity and surface finishing, leaves nothing to be desired.

The use of the KOMET DIHART DAH® enables you to machine precision bores up to tolerance class IT 4.

BENEFITS for you:

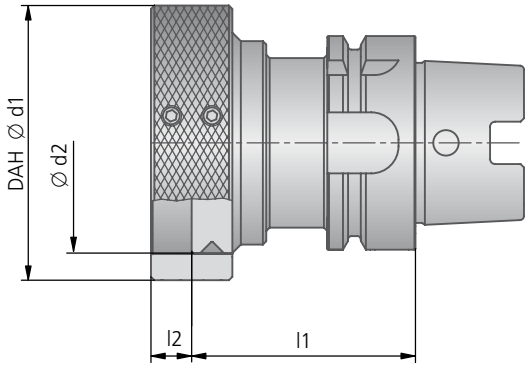
- Compensation systems for µ-precise concentricity
- Easy correction of concentricity and axis error
- Optimised for extremely high speeds
- Designed for internal coolant supply
- Tools rotating concentrically guarantee long tool life

Compensating holder

KOMET DIHART DAH® Compensating holder

with HSK adaptor DIN 69893 A

■ with internal coolant supply

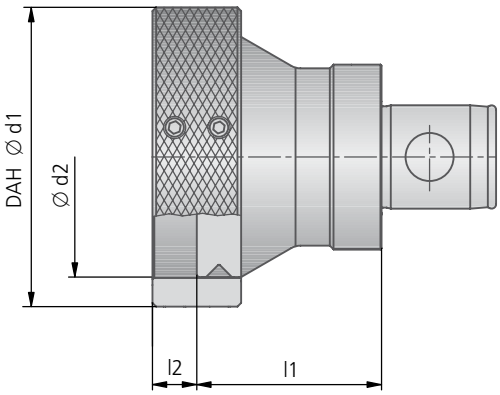


Supply includes: DAH® compensating holder complete with assembling screws. DAH® Assembly parts see page 93.

HSK-A						
Order No.	DAH Ø d1	HSK-A	Ø d2	l1	l2	kg
545.07.011	63	63	50	66	12	1,47
545.07.002	81	40	65	52	12	0,97
545.07.003	81	50	65	66	12	1,39
545.07.004	81	63	65	66	12	1,78
545.07.009	81	80	65	76	12	2,62
545.07.010	81	100	65	76	12	3,58
545.07.005	115	80	100	76	16	1,75
545.07.006	115	100	100	79	16	5,18

with ABS® adaptor

■ with internal coolant supply



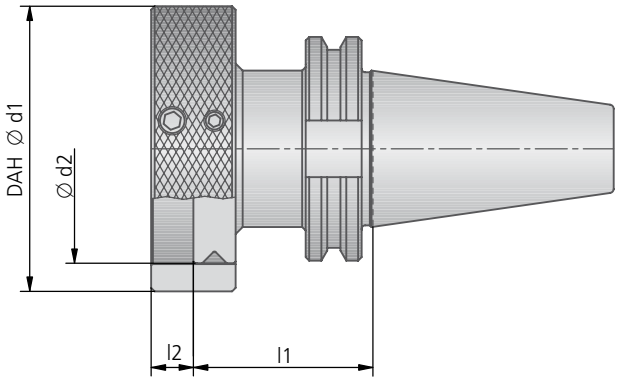
Supply includes: DAH® compensating holder complete with assembling screws. DAH® Assembly parts see page 93. ABS® adaptors see catalogue "KomPass DRILLING"

ABS®						
Order No.	DAH Ø d1	ABS	Ø d2	l1	l2	kg
545.00.001	81	40	65	50	12	0,90
545.00.003	81	50	65	50	12	1,45
545.00.002	115	63	100	54	16	2,75

KOMET DIHART DAH® Compensating holder

with taper shank DIN 69871 AD/B

with internal coolant supply ■
long version on request ■

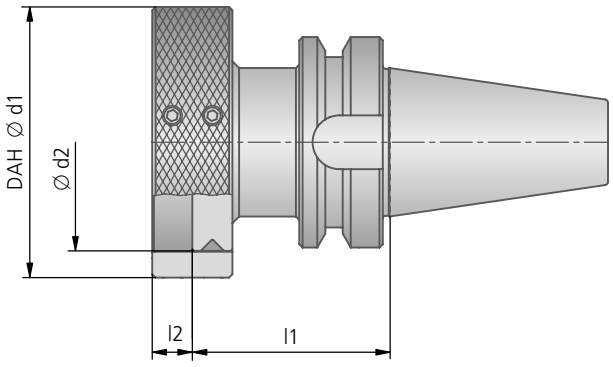


Supply includes: DAH® compensating holder complete with assembling screws. DAH® Assembly parts see page 93.

DIN 69871 AD/B						
Order No.	DAH Ø d1	SK	Ø d2	l1	l2	kg
545.10.010	63	30	50	51	12	0,98
545.10.011	63	40	50	51	12	1,45
545.10.001	81	40	65	51	12	1,62
545.10.003	81	50	65	51	12	3,69
545.10.004	115	50	100	69	16	5,61

with taper shank JIS B 6339 AD/B (MAS 403 BT)

with internal coolant supply ■
long version on request ■



Supply includes: DAH® compensating holder complete with assembling screws. DAH® Assembly parts see page 93.

JIS B 6339 AD/B						
Order No.	DAH Ø d1	BT	Ø d2	l1	l2	kg
545.77.011	63	40	50	59	12	1,55
545.77.001	81	40	65	59	12	1,79
545.77.003	81	50	65	70	12	4,68
545.77.004	115	50	100	88	16	6,60

KOMET DIHART DAH® Compensating holder

Assembly instructions

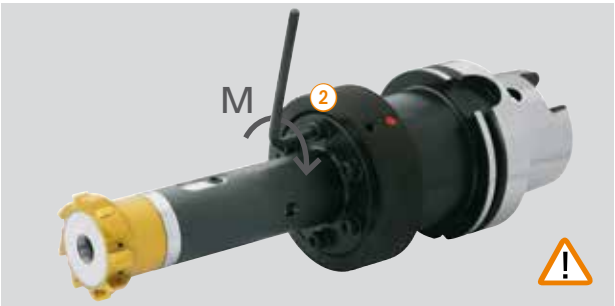
Clean grinding surfaces thoroughly
→ dry and free of grease.

Pre-load evenly with the 6 assembling screws ②
(pressing the spring washer level)

Adjusting the DAH® must be done in the machine on the spindle where the tool will be in use afterwards!

Determine the highest point by rotating (largest concentricity error).
Rotate the threaded pin ④ to the highest point.
Correct half of the measured runout error by inserting the thread pin ④.
Repeat this procedure until the runout error is < 5 µ.

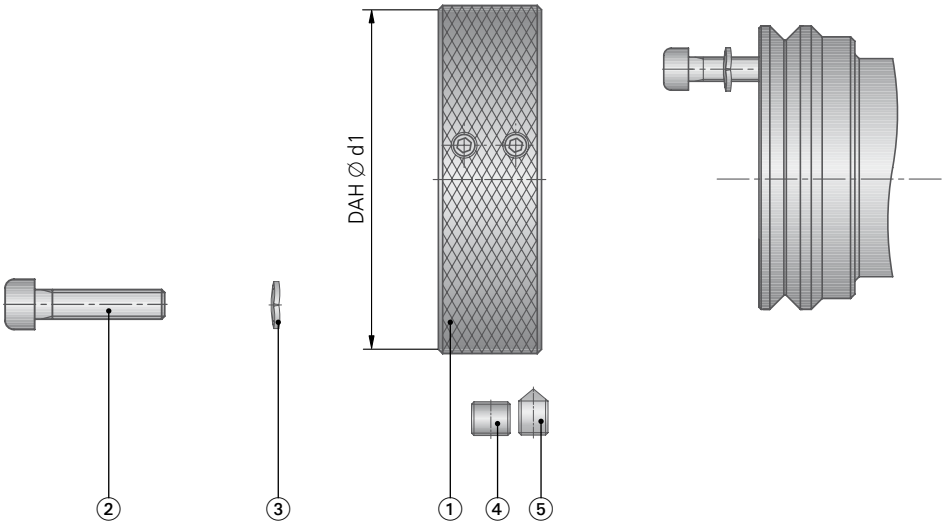
Center the indicator on the gauge line.



Tighten the assembling screw ② cross-wise. Please observe the specified starting torque M in the index-table. After fastening, fix the adjusting ring ① by locking the thread pin ④.

DAH Ø d1	Starting torque M
63	7 – 9 Nm
81	7 – 9 Nm
115	25 – 35 Nm

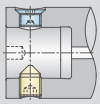
Finally check the runout once more.
«should be» < 5 µ



	①	②		③	④		⑤	
for DAH Ø d1	Adjusting ring Order No.	Assembling screw Article	Order No.	Spring washer Order No.	Thread pin Article	Order No.	Thread pin Article	Order No.
63	545.25.010	M5×22	545.26.001A	545.27.001	M8×6	55051 08006	M6×8	545.47.010
81	545.25.001	M5×22	545.26.001A	545.27.001	M8×6	55051 08006	M6×10	545.47.001
115	545.25.002	M8×30	545.26.002	545.27.002	M8×8	55051 08008	M8×10	545.47.002

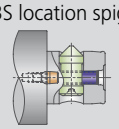
Assembly parts ABS®

ABS location hole



ABS	Order No. Spares assortment ①
32	N00 15261
40	N00 15271
50	N00 15281
63	N00 15291
80	N00 15301

ABS location spigot

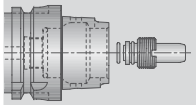


ABS	Order No. Spares assortment ②
32	N00 17661
40	N00 17671
50	N00 17681
63	N00 17691
80	N00 17701

Individual spares (spares assortment) are supplied for replacement purposes only. Any other use is not permitted and represents an infringement of the patent.

Assembly parts HSK-A

HSK-A Coolant supply unit



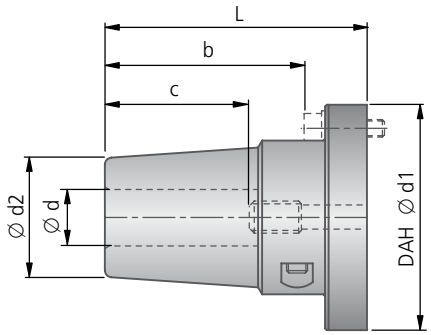
HSK-A	Order No. Spares assortment	Order No. O ring
40	51391 00040	2× 52911 00751
50	51391 00050	2× 52911 00920
63	51391 00063	1× 52911 01025 1× 52911 01020
80	51391 00080	2× 52911 01320
100	51391 00100	2× 52911 01430

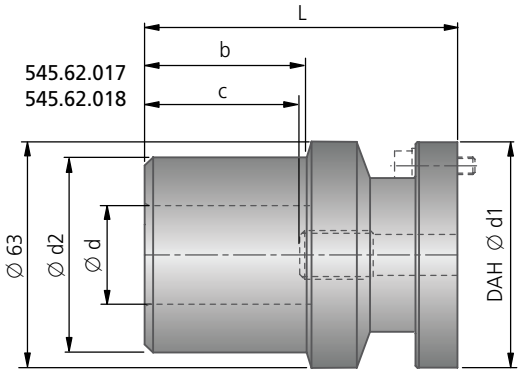
Supply includes HSK-A spares assortment: Coolant tube, locking collar and two O rings.

KOMET DIHART DAH® Adaptor

Expanding chuck for tools with cylindrical shank

- with internal coolant supply
- length adjustment from outside



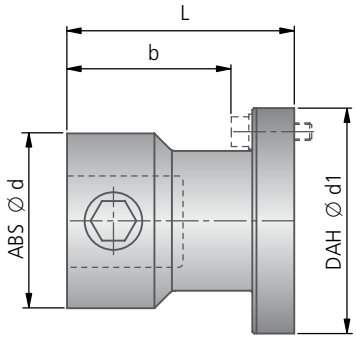


Supply includes: DAH® adaptor complete. Adaptor sleeve see page 95.

Expanding chuck							
Order No.	Ø d	DAH Ø d1	Ø d2	L	b	c	kg
545.62.004	12	63	24	70	52	35 – 45	0,43
545.62.015	16	81	34	75	57	39 – 49	
545.62.016	20	81	37	75	57	41 – 51	0,78
545.62.017	25	81	50	110	52	46 – 56	1,43
545.62.018	32	81	60	115	59	51 – 61	1,72

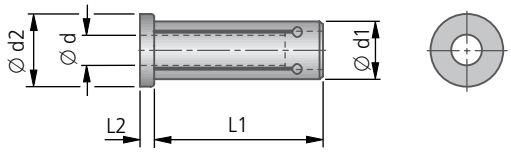
for tools with ABS® connection

- with internal coolant supply



Supply includes: DAH® adaptor complete. Further ABS® adaptors see catalogue "KomPass DRILLING"

ABS®					
Order No.	ABS Ø d	DAH Ø d1	L	b	kg
545.40.006	32	63	42	24	
545.40.007	32	81	35	17	
545.40.001	40	81	35	17	0,44
545.40.003	50	81	65	47	0,83
545.40.004	50	115	46	20,5	1,19
545.40.002	63	115	52	26,5	1,46



Adaptor sleeve						
Order No.	Ø d	Ø d1	Ø d2	L1	L2	kg
L01 14291	3	12	19	45	2	0,1
L01 14301	4					
L01 14311	5					
L01 14321	6					
L01 14331	8					
L01 14261	3	20	29	50,5	2	0,1
L01 14271	4					
L01 14281	5					
L01 14201	6					
L01 14211	8					
L01 14221	10					
L01 14231	12					
L01 14241	14					
L01 14251	16					
L01 14400	6	25	29	55	2	0,1
L01 14410	8					
L01 14420	10					
L01 14430	12					
L01 14440	14					
L01 14450	16					
L01 14460	18					
L01 14470	20					
L01 14501	6	32	39	60,5	3	0,3
L01 14511	8					
L01 14521	10					
L01 14531	12					
L01 14540	14					
L01 14551	16					
L01 14561	18					
L01 14571	20					
L01 14581	25					

KOMET DIHART DAH® 50 HS Compensating holder

High speed machining – with maximum quality

For maximum precision and concentricity

KOMET DIHART DAH® 50 HS compensating holders ensure that the tool runs concentrically. They allow precision adjustment of the tool in the µm range at the cutter eliminating any machine spindle error.

Maximum concentricity guarantees reliable production within extremely close tolerances.

The quality of the bore, including surface quality, circularity, roundness and parallelism and above all the dimensional accuracy are improved considerably.

This significantly increases the process reliability with multiple blade reamers.

BENEFITS for you:

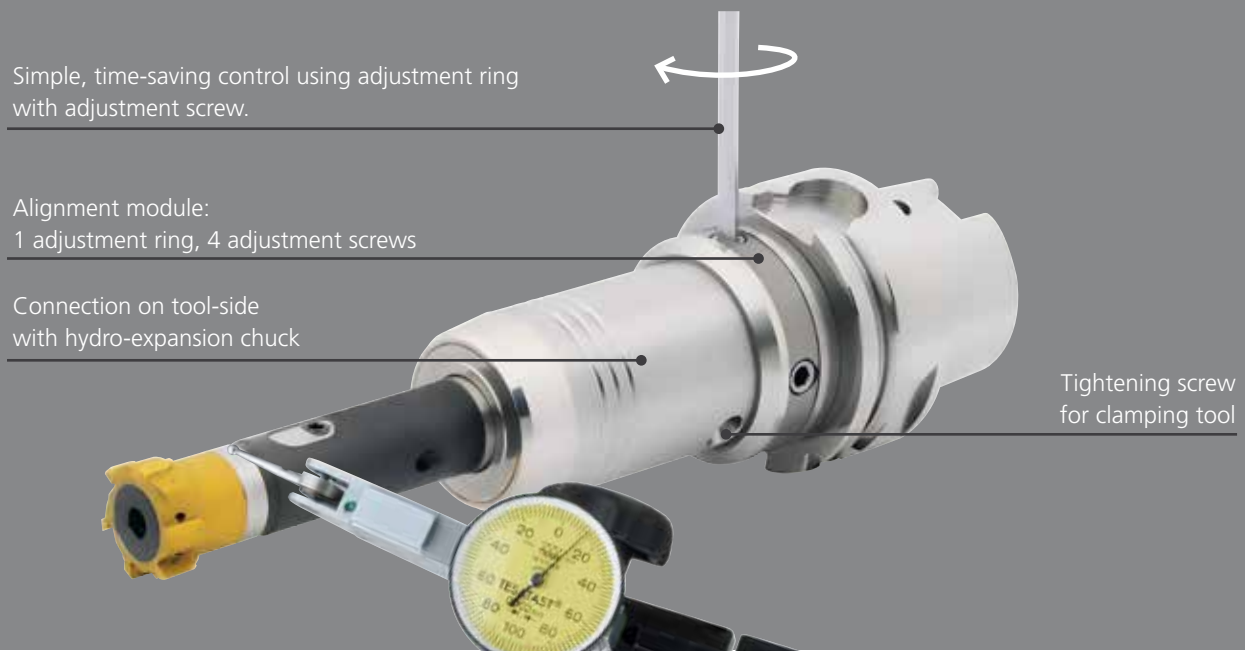
- Proven hydro-expansion clamping
- Maximum concentricity and repetition accuracy < 1 µ for uniform blade contact
- Extremely simple concentricity adjustment
- Compact design
- Optimum vibration damping for excellent surface quality
- Flexible clamping range with reduction sleeves
- Speeds up to 25.000 rpm
- For minimal lubrication (MLC)

Simple handling – reduced machine idle times

In comparison to previous solutions the hydro-expansion chuck is integrated into the new compensating holders. This means one less interface.

Four adjustable screws allow rapid and precise adjustment of the concentricity of the multiple blade reamer, reducing concentricity errors to virtually zero. The extremely slim design of these new compensating holders ensures that they fit easily into practically all tool magazines.

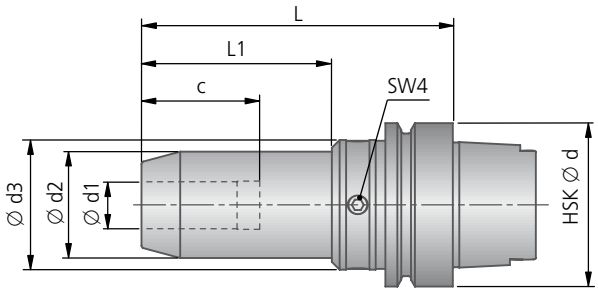
The KOMET DIHART DAH® 50 HS compensating holders enable the concentricity of a tool to be adjusted with µ-precision at the bezel position, thereby eliminating any machine spindle error.



KOMET DIHART DAH® 50 HS

with HSK Adaptor

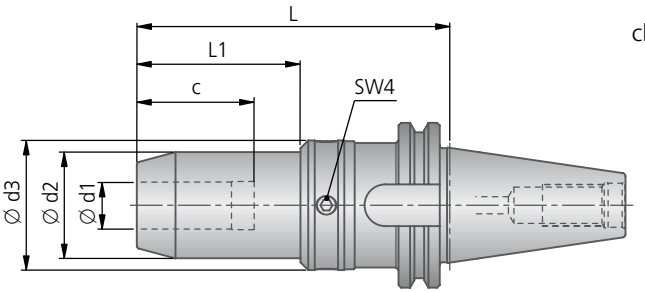
with internal coolant supply ■
clamping range ∅ 3 – 25 mm ■



HSK								
Order No.	HSK Ø d	Ø d1	Ø d2	Ø d3	L	L1	c	kg
54B.10.00030	63	20	41	50	110	63,1	52,5	1,30
54B.10.00040	63	25	50,5	60,5	135	72,1	57	2,16

with Taper Shank DIN 69871 AD/B

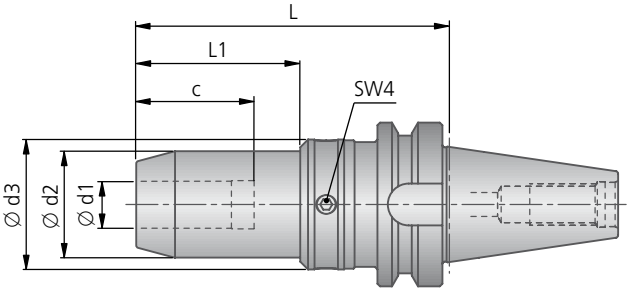
with internal coolant supply ■
clamping range ∅ 3 – 20 mm ■



DIN 69871 AD								
Order No.	SK	Ø d1	Ø d2	Ø d3	L	L1	c	kg
54B.90.00030	40	20	41	50	110	65	41	1,50

with Taper Shank JIS B 6339 AD (MAS 403 BT)

with internal coolant supply ■
clamping range ∅ 3 – 20 mm ■



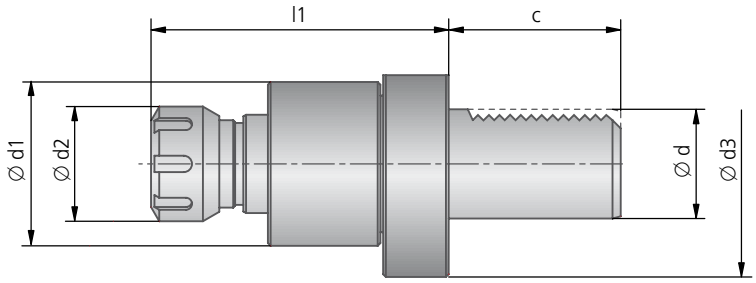
JIS B 6339 AD (MAS 403 BT)								
Order No.	BT	Ø d1	Ø d2	Ø d3	L	L1	c	kg
54B.91.00030	40	20	41	50	115	69,1	41	1,70

Supply includes:
Compensating holder complete. Adapter sleeve for clamping range ∅ 3 – 16 mm see page 95.

KOMET DIHART® DPS Floating holder

with VDI connection DIN 69880

- for stationary tools
- with internal coolant supply
- angular compensation 30' (not adjustable)
- radial play 0,08 mm (not adjustable)

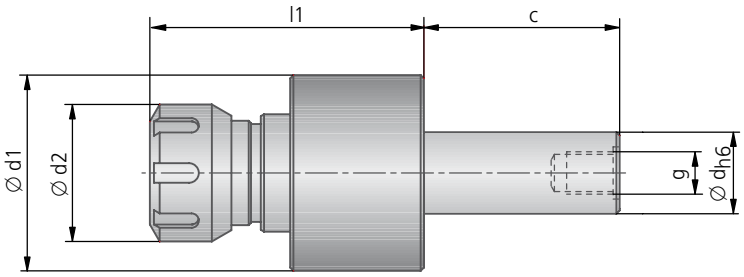


Supply includes: DPS floating holder with collet nut. Please order collets and washer (page 99) separately.

VDI									Accessories
Oder No.	VDI Ø d	Ø d1	Ø d2	Ø d3	l1	c	kg	Collet nut Oder No.	Collet Size
57B.49.00010	30	59	42	68	109	55	1,85	**51200 00425**	ER 25
57B.49.00020	40	59	42	83	109	63	2,60	**51200 00425**	ER 25
57B.49.00030	40	64	50	83	116	63	2,74	**51200 00432**	ER 32
57B.49.00040	50	64	50	98	116	78	3,60	**51200 00432**	ER 32

with cylindrical shank similar to DIN 1835

- for stationary tools
- with internal coolant supply
- angular compensation 30' (not adjustable)
- radial play 0,08 mm (not adjustable)

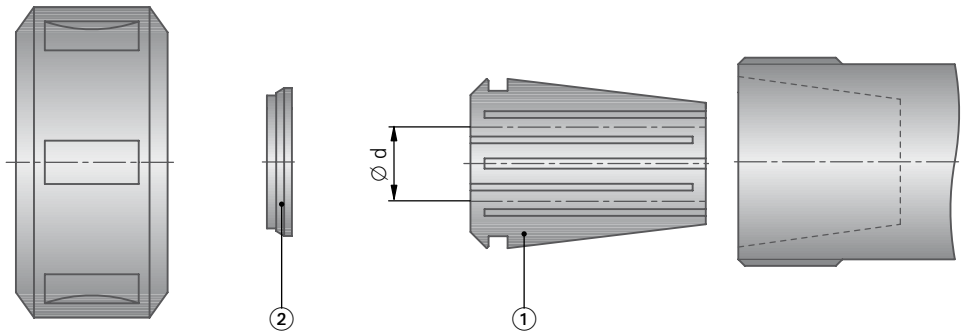


Supply includes: DPS floating holder with collet nut. Please order collets and washer (page 99) separately.

≈ DIN 1835									Accessories
Oder No.	Cylindrical shank Ø d_{h6}	Ø d1	Ø d2	l1	c	g	kg	Collet nut Oder No.	Collet Size
57B.40.00010	25	59	42	84	60	G ¼	1,11	**51200 00425**	ER 25
57B.40.00020	32	64	50	91	80	G ⅜	1,70	**51200 00432**	ER 32
57B.50.00010	25,4 (1")	59	42	84	60	G ¼	1,03	**51200 00425**	ER 25
57B.50.00020	31,75 (1¼")	64	50	91	80	G ⅜	1,77	**51200 00432**	ER 32

KOMET® Collets

for DPS floating holder



ER 25			
Collet ①		Washer ②	
Ø d	Oder No.	Ø d	Oder No.
4,00 – 3,01	A33 54000.0400	3,50 – 3,01	52806 25035
		4,00 – 3,51	52806 25040
5,00 – 4,01	A33 54000.0500	4,50 – 4,01	52806 25045
		5,00 – 4,51	52806 25050
6,00 – 5,01	A33 54000.0600	5,50 – 5,01	52806 25055
		6,00 – 5,51	52806 25060
7,00 – 6,01	A33 54000.0700	6,50 – 6,01	52806 25065
		7,00 – 6,51	52806 25070
8,00 – 7,01	A33 54000.0800	7,50 – 7,01	52806 25075
		8,00 – 7,51	52806 25080
9,00 – 8,01	A33 54000.0900	8,50 – 8,01	52806 25085
		9,00 – 8,51	52806 25090
10,00 – 9,01	A33 54000.1000	9,50 – 9,01	52806 25095
		10,00 – 9,51	52806 25100
11,00 – 10,01	A33 54000.1100	10,50 – 10,01	52806 25105
		11,00 – 10,51	52806 25110
12,00 – 11,01	A33 54000.1200	11,50 – 11,01	52806 25115
		12,00 – 11,51	52806 25120
13,00 – 12,01	A33 54000.1300	12,50 – 12,01	52806 25125
		13,00 – 12,51	52806 25130
14,00 – 13,01	A33 54000.1400	13,50 – 13,01	52806 25135
		14,00 – 13,51	52806 25140
15,00 – 14,01	A33 54000.1500	14,50 – 14,01	52806 25145
		15,00 – 14,51	52806 25150
16,00 – 15,01	A33 54000.1600	15,50 – 15,01	52806 25155
		16,00 – 15,51	52806 25160

ER 32			
Collet ①		Washer ②	
Ø d	Oder No.	Ø d	Oder No.
4,00 – 3,01	A33 55000.0400	3,50 – 3,01	52806 32035
		4,00 – 3,51	52806 32040
5,00 – 4,01	A33 55000.0500	4,50 – 4,01	52806 32045
		5,00 – 4,51	52806 32050
6,00 – 5,01	A33 55000.0600	5,50 – 5,01	52806 32055
		6,00 – 5,51	52806 32060
7,00 – 6,01	A33 55000.0700	6,50 – 6,01	52806 32065
		7,00 – 6,51	52806 32070
8,00 – 7,01	A33 55000.0800	7,50 – 7,01	52806 32075
		8,00 – 7,51	52806 32080
9,00 – 8,01	A33 55000.0900	8,50 – 8,01	52806 32085
		9,00 – 8,51	52806 32090
10,00 – 9,01	A33 55000.1000	9,50 – 9,01	52806 32095
		10,00 – 9,51	52806 32100
11,00 – 10,01	A33 55000.1100	10,50 – 10,01	52806 32105
		11,00 – 10,51	52806 32110
12,00 – 11,01	A33 55000.1200	11,50 – 11,01	52806 32115
		12,00 – 11,51	52806 32120
13,00 – 12,01	A33 55000.1300	12,50 – 12,01	52806 32125
		13,00 – 12,51	52806 32130
14,00 – 13,01	A33 55000.1400	13,50 – 13,01	52806 32135
		14,00 – 13,51	52806 32140
15,00 – 14,01	A33 55000.1500	14,50 – 14,01	52806 32145
		15,00 – 14,51	52806 32150
16,00 – 15,01	A33 55000.1600	15,50 – 15,01	52806 32155
		16,00 – 15,51	52806 32160
17,00 – 16,01	A33 55000.1700	16,50 – 16,01	52806 32165
		17,00 – 16,51	52806 32170
18,00 – 17,01	A33 55000.1800	17,50 – 17,01	52806 32175
		18,00 – 17,51	52806 32180
19,00 – 18,01	A33 55000.1900	18,50 – 18,01	52806 32185
		19,00 – 18,51	52806 32190
20,00 – 19,01	A33 55000.2000	19,50 – 19,01	52806 32195
		20,00 – 19,51	52806 32200

KOMET DIHART® Rapid set head

BENEFITS for you:

- Modular tooling system
- Simple and fastchangeability
- Left hand fluted cuttingblades for highest productivity
- Perfect accuracy
- Various cutting materialsand coatings

KOMET DIHART® Cutting ring

The cutting ring system is one of the modular tool ranges from KOMET®. The ring has support zones for non-deformational accommodation of the cutting forces. Expansion zones permit an elastic expansion of the ring for compensating for wear on the cutters.

Through repeated regrinding, the service life of the ring can be increased many times over. Cutting edge wear is compensated – all functional surfaces are fully reground. Reground tools have the same functionality as new ones.

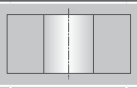
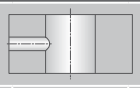
BENEFITS for you:

- For large hole diameters
- Multiple blade
- Modular
- Compensation for wear through simple readjustment
- A variety of cutting materials and coatings
- Can be reground and refitted with cutters for extremely high cost efficiency

KOMET SERVICE® – Chapter 9
The KOMET SERVICE® TOOL *life*Box icon describes tools that are available for the high quality cost-efficient refurbishment of tools.

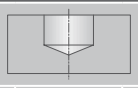
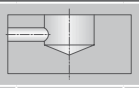
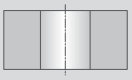
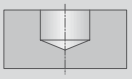
KOMET DIHART® Rapid set head

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining						
												
						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)	340.92	ASG05	DST	340.70	ASG05	TiN	
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	340.92	ASG05	DST	340.70	ASG05	TiN	
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	340.92	ASG05	DST	340.70	ASG05	TiN	
P	3.0	> 900		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	340.92	ASG05	DST	340.71	ASG3000	TiN	
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	340.71	ASG0106	TiN	340.71	ASG0106	TiN	
P	4.1			HSS								
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	340.71	ASG0106	TiN	340.71	ASG0106	TiN	
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	340.71	ASG0106	TiN	340.71	ASG0106	TiN	
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	340.71	ASG0106	TiN	340.71	ASG0106	TiN	
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	340.93	ASG3000	DST	340.38	ASG3000	DBG-N	
K	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	340.93	ASG3000	DST	340.38	ASG3000	DBG-N	
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	340.93	ASG3000	DST	340.38	ASG3000	DBG-N	
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	340.71	ASG3000	TiN	340.71	ASG3000	TiN	
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	340.71	ASG3000	TiN	340.71	ASG3000	TiN	
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)							
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)							
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)							
H	15.0	1400		hardened steels < 45 HRC								
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC								

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

Patented design

	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
	340.93	ASG3000	DST	340.71	ASG3000	TiN	340.20	ASG04	HM	340.21	ASG3000	HM
	340.93	ASG3000	DST	340.71	ASG3000	TiN	340.20	ASG04	HM	340.21	ASG02	HM
	340.93	ASG3000	DST	340.71	ASG3000	TiN	340.20	ASG04	HM	340.21	ASG3000	HM
	340.93	ASG3000	DST	340.71	ASG3000	TiN	340.20	ASG04	HM	340.21	ASG3000	HM
	340.71	ASG0106	TiN	340.71	ASG0106	TiN	340.21	ASG0106	HM	340.21	ASG0106	HM
	340.71	ASG0106	TiN	340.71	ASG0106	TiN	340.21	ASG0106	HM	340.21	ASG0106	HM
	340.71	ASG0106	TiN	340.71	ASG0106	TiN	340.21	ASG0106	HM	340.21	ASG0106	HM
	340.71	ASG0106	TiN	340.71	ASG0106	TiN	340.21	ASG0106	HM	340.21	ASG0106	HM
	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	340.21	ASG3000	HM	340.21	ASG3000	HM
	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	340.21	ASG3000	HM	340.21	ASG3000	HM
	340.93	ASG3000	DST	340.38	ASG3000	DBG-N	340.21	ASG02	HM	340.21	ASG02	HM
	340.93	ASG3000	DST	340.38	ASG3000	DBG-N	340.21	ASG3000	HM	340.21	ASG3000	HM
	340.93	ASG3000	DST	340.38	ASG3000	DBG-N	340.21	ASG3000	HM	340.21	ASG3000	HM
	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	340.21	ASG3000	HM	340.21	ASG3000	HM
	340.38	ASG3000	DBG-N	340.38	ASG3000	DBG-N	340.21	ASG3000	HM	340.21	ASG3000	HM
	340.71	ASG3000	TiN	340.71	ASG3000	TiN	340.21	ASG0106	HM	340.21	ASG0106	HM
	340.71	ASG3000	TiN	340.71	ASG3000	TiN	340.21	ASG0106	HM	340.21	ASG0106	HM
							340.21	ASG02	HM	340.21	ASG02	HM
							340.21	ASG3000	HM	340.21	ASG3000	HM
							340.21	ASG3000	HM	340.21	ASG3000	HM

Cutting speed and feed see pages 108-109.

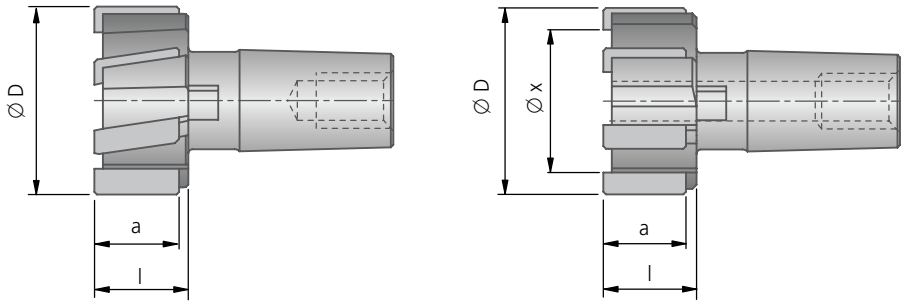
Important: See chapter 9 for more application details and safety notes !

Rapid set head

Material

P M K N S H

for through hole machining



Custom rapid set head – selection options!

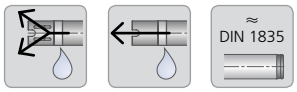
Selection: Cutting material, material													Selection: Dimensions					
Order No.	Order No.	Cutting material, coating	for material						for material						Ø D	min. diameter for face machining Ø x ~	a ~	l ~	Z	Z
			P	M	K	N	S	H	P	M	K	N	S	H						
340.20	340.21	HM	●[1]	◔[1]	●[1]	●[1]	●[1]		●[1]	◔[1]	●[1]	●[1]	●[1]		9,60 – 12,59	ØD – 3,1	9,5	11	4	4
340.70	340.71	TiN	◐	◑		●[4]	◐		●	◑		●[5]	◐		12,60 – 15,59	ØD – 3,6	10,5	11	4	4
340.37	340.38	DBG-N			●				◐		●				15,60 – 18,59	ØD – 4,6	10,5	11	4	6
340.92	340.93	DST	●			◐[3]									18,60 – 24,00	ØD – 5,1	10,5	11	6	6
340.66	340.67	DJC			◐[2]										24,01 – 30,10	ØD – 6,0	10,5	11	6	6
															30,11 – 40,00	ØD – 7,5	16	17	6	6
															40,01 – 60,00	ØD – 8,0	16	17	6	6

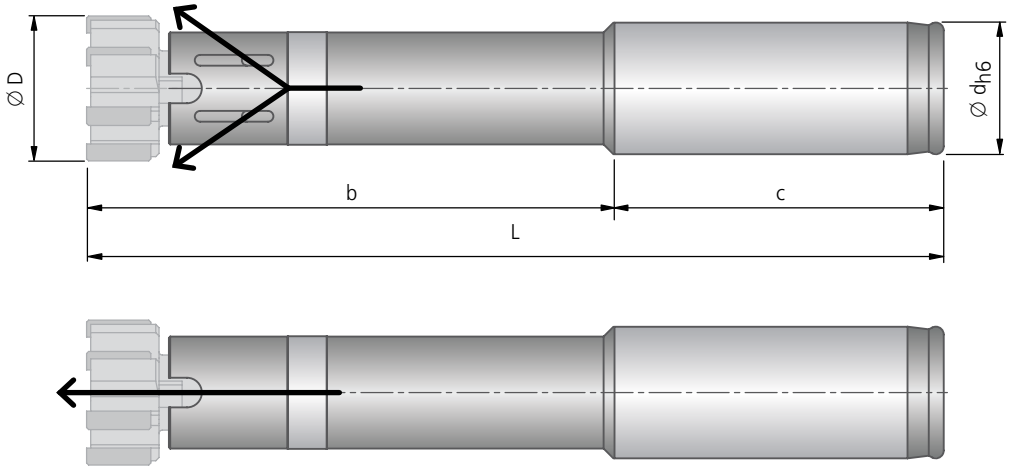
[1] conventional machining · [2] GJS (spheroidal graphite cast iron) · [3] material group 12.0 · [4] material group 12.1 · [5] material group 12.0&12.1

Order example:
Order No. 340.93 · Bore diameter 21 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG05 (Cutting geometry page 102-103)

● very good | ◐ good

Holder for Ø 9,60 – 60,00 mm





	short version							long version						
for Ø D	Order No.	Order No.	L	b	c	d h6	kg	Order No.	Order No.	L	b	c	d h6	kg
9,60 – 12,59	**540.66.000**	–	95	50	45	12		**540.36.000**	–	158	113	45	12	
12,60 – 15,59	**540.66.001**	**549.40.001**	108	60	48	16		**540.36.001**	**549.36.001**	159	111	48	16	
15,60 – 18,59	**540.66.002**	**549.40.002**	110	60	50	20		**540.36.002**	**549.36.002**	171	121	50	20	
18,60 – 24,00	**540.66.003**	**549.40.003**	130	80	50	20		**540.36.003**	**549.36.003**	191	141	50	20	
24,01 – 30,10	**540.66.004**	**549.40.004**	158	98	60	25		**540.36.004**	**549.36.004**	219	159	60	25	
30,11 – 40,00	**540.66.005**	**549.40.005**	164	104	60	25		**540.36.005**	**549.36.005**	225	165	60	25	
40,01 – 50,70	**540.66.006**	**549.40.006**	184	104	80	32		**540.36.006**	**549.36.006**	283	203	80	32	
50,71 – 60,00	**540.66.007**	**549.40.007**	188,5	108,5	80	32		**540.36.007**	**549.36.007**	288,5	208,5	80	32	

Supply includes: Holder with assembly parts / accessories (page 107). Please order rapid set head separately.

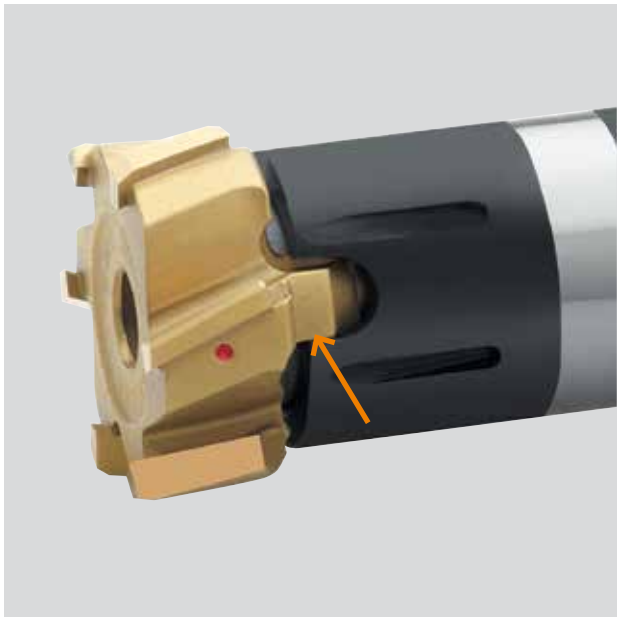
KOMET DIHART® Rapid set head

Assembly instructions

⚠ Each Rapid set head is delivered with slightly greased taper. Do not wipe off! Taper must be slightly greased with copper grease (Order-No.: 15K.10.10001)!

Clean taper in holder thoroughly → free of grease

Differential screw one rotation into the Head (counter-clockwise thread).

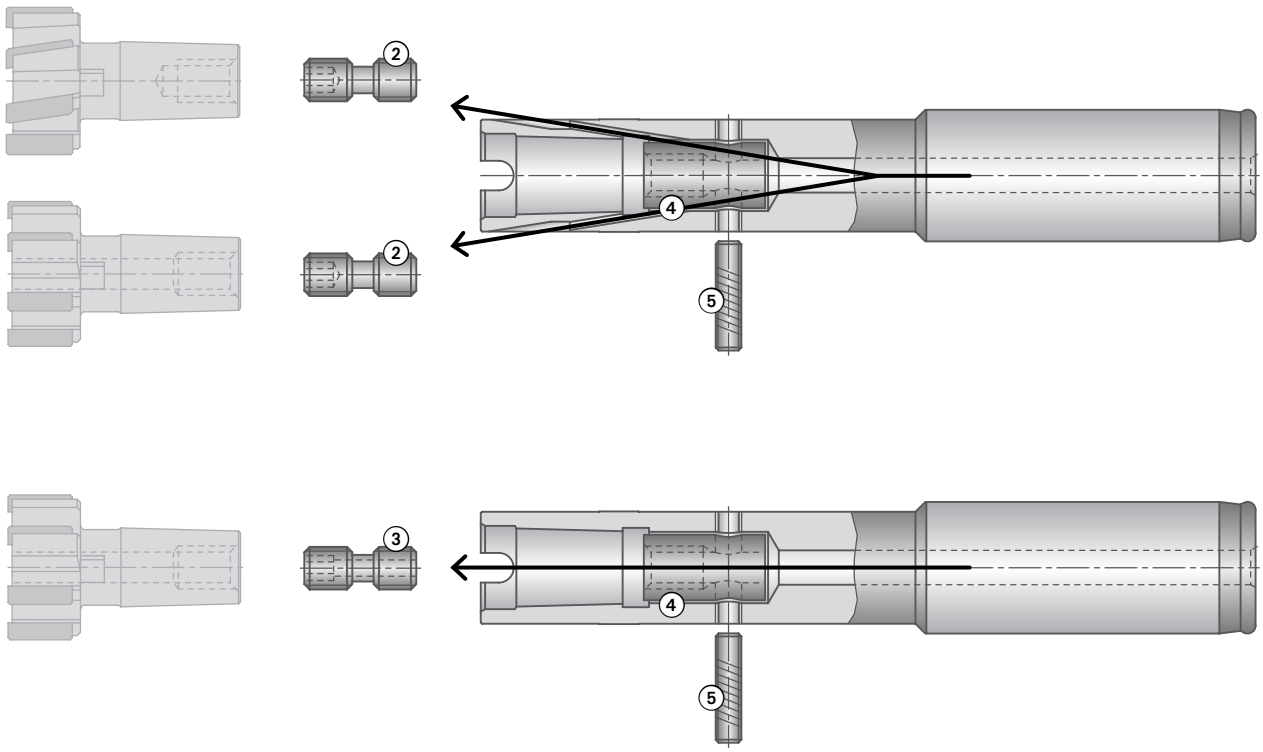


Before tightening turn the drive keys of the rapid set head against the direction of machining until it hits the holder.

Dia. range	Starting torque M (Nm)
12,60 – 15,59	0,7 – 0,9
15,60 – 18,59	1,1 – 1,4
18,60 – 24,00	1,8 – 2,3
24,01 – 40,00	3,0 – 3,8
40,01 – 60,00	5,2 – 6,6

Tightening the left-/right screw.
Observe the specified starting torque M in the index table.

Rapid Set Heads up to Diameter 12,59 mm are assembled with a clamping screw at the back of the holder. The screw has a counter-clockwise thread.



	①	②	③	④	⑤	⑥	⑦
for Ø D	Operating key Order No.	Differential screw Order No.	Differential screw Order No.	Bush Order No.	Threaded pin Order No.	Screw short version Order No.	Screw long version Order No.
09,60 – 12,59	–	–	–	–	–	540.04.001	540.04.002
12,60 – 15,59	340.35.001	340.15.001	340.83.001	340.33.001	540.03.001	–	–
15,60 – 18,59	340.35.002	340.15.002	340.83.002	340.33.002	540.03.002	–	–
18,60 – 24,00	340.35.003	340.15.003	340.83.003	340.33.003	540.03.003	–	–
24,01 – 30,10	340.35.004	340.15.004	340.83.004	340.33.004	540.03.004	–	–
30,11 – 40,00	340.35.004	340.15.004	340.83.004	340.33.004	540.03.004	–	–
40,01 – 50,70	340.35.005	340.15.005	340.83.005	340.33.005	540.03.005	–	–
50,71 – 60,00	340.35.005	340.15.005	340.83.005	340.33.005	540.03.005	–	–

Supply includes holder:
Ø 9,60 - 12,59: Screw ⑥ or ⑦ (depending on short or long holder version)
Ø 12,60 - 60,0: Operating key ①, differential screw ② or ③ (depending on holder), bush ④, threaded pin ⑤.

KOMET DIHART® Rapid set head

Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)									
						optimum · maximum					optimum · maximum				
						3×D Reamers short					5×D Reamers long				
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	HM	TiN	DBG-N	DST	DJC	HM	TiN	DBG-N	DST	DJC
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
P	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
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	30 45	100 140		150 200	150 200	30 45	80 120		120 160	120 160
P	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
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	5 7	30 45				5 7	30 45			
P	4.1			HSS											
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)										
S	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				6 8	30 40			
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	5 6	20 35				5 6	20 35			
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	5 6	20 35				5 6	20 35			
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	15 25	80 130	150 220			15 25	80 120	120 150		
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	10 15	50 90	90 130			10 15	50 90	90 120		
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	12 18		175 300	175 300	175 300	12 18		150 180	150 180	150 180
K	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	12 18		120 160	120 160	120 160
K	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	12 15		120 150	120 150	120 150
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	9 12	40 60	70 100			9 12	40 60	70 100		
K	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	9 12	50 70	80 130			9 12	50 70	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	
N	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	12 20	80 150				12 20	80 120			
N	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	15 30					15 30				
N	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	15 30					15 30				
N	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	12 20					12 20				
H	15.0	1400		hardened steels < 45 HRC											
H	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC											

Reaming allowance in diameter (mm)

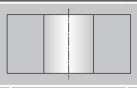
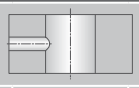
	Feed f (mm/rev)									
	optimum · maximum ASG3000, ASG0106, ASG03, ASG07, ASG02			optimum · maximum ASG4000, ASG09B, ASG1402 ASG09, ASG1405, ASG1406			optimum · maximum ASG05, ASG0502, ASG04			
	Ø 9,60 - 15,59 4	Ø 15,60 - 30,10 6	Ø 30,11 - 60 6	Ø 9,60 - 15,59 4	Ø 15,60 - 30,10 6	Ø 30,11 - 60 6	Ø 9,60 - 12,59 4	Ø 12,60 - 18,59 4	Ø 18,60 - 30,10 6	Ø 30,11 - 60 6
	0,30 0,50	0,90 1,30	1,10 1,50	0,40 0,60	1,20 1,50	1,40 1,90	0,60 0,80	0,80 1,00	1,20 1,50	1,40 1,90
	0,30 0,50	0,90 1,30	1,10 1,50	0,40 0,60	1,20 1,50	1,40 1,90	0,60 0,80	0,80 1,00	1,20 1,50	1,40 1,90
	0,30 0,50	0,90 1,30	1,10 1,50	0,40 0,60	1,20 1,50	1,40 1,90	0,60 0,80	0,80 1,00	1,20 1,50	1,40 1,90
	0,30 0,50	0,90 1,30	1,10 1,50	0,40 0,60	1,20 1,50	1,40 1,90	0,60 0,80	0,80 1,00	1,20 1,50	1,40 1,90
	0,20 0,30	0,60 0,90	0,70 1,10							
	0,20 0,30	0,60 0,90	0,70 1,10							
	0,20 0,30	0,50 0,70	0,60 0,90							
	0,30 0,40	0,80 1,10	0,90 1,30							
	0,30 0,40	0,70 1,00	0,90 1,20							
	0,30 0,40	0,70 1,00	0,90 1,20							
	0,30 0,40	0,70 1,00	0,90 1,20							
	0,40 0,60	1,10 1,50	1,30 1,90							
	0,30 0,50	0,90 1,30	1,10 1,50							
	0,40 0,60	1,10 1,50	1,30 1,90							
	0,40 0,60	1,10 1,50	1,30 1,90							
	0,30 0,50	0,90 1,30	1,10 1,50							
	0,30 0,40	0,70 1,00	0,90 1,20							
	0,30 0,40	0,70 1,00	0,90 1,20							
	0,40 0,60	1,10 1,50	1,20 1,70							
	0,30 0,50	0,90 1,30	1,00 1,40							
	0,30 0,50	0,90 1,30	1,10 1,50							
	0,40 0,60	1,10 1,50	1,20 1,90							
	0,40 0,60	1,10 1,50	1,20 1,90							
	0,10 - 0,30	0,20 - 0,40	0,20 - 0,40	0,10 - 0,30	0,20 - 0,40	0,20 - 0,40	0,10 - 0,30	0,20 - 0,40	0,20 - 0,40	0,20 - 0,40

1 2 3 4 5 6 7 8 CLASSIC TOOLS 9

Important: See chapter 9 for more application details and safety notes !

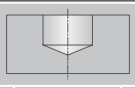
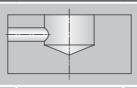
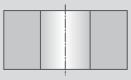
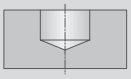
KOMET DIHART® Cutting Ring

Tool recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining					
											
						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)	300.45	ASG4000	DST	300.05	ASG4000	TiN
	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	300.45	ASG4000	DST	300.05	ASG4000	TiN
	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	300.45	ASG4000	DST	300.05	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)	300.45	ASG4000	DST	300.05	ASG3000	TiN
	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	300.05	ASG0106	TiN	300.05	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)	300.47	ASG0106	DBF	300.47	ASG0106	DBF
	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	300.47	ASG0106	DBF	300.47	ASG0106	DBF
	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	300.47	ASG0106	DBF	300.47	ASG0106	DBF
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	300.45	ASG3000	DST	300.47	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)	300.45	ASG3000	DST	300.47	ASG3000	DBF
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	300.45	ASG3000	DST	300.47	ASG3000	DBF
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N
	10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	300.45	ASG3000	DST	300.05	ASG3000	TiN
	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300.05	ASG3000	TiN	300.05	ASG3000	TiN
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300.17	ASG0706	DBC	300.17	ASG0706	DBC
	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	300.17	ASG0706	DBC	300.17	ASG0706	DBC
	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)	300.17	ASG0706	DBC	300.17	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.

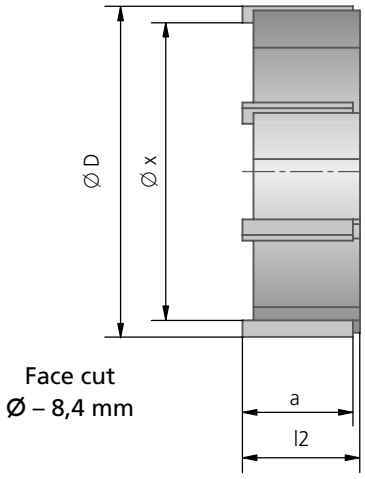
Patented design

	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
	300.45	ASG3000	DST	300.05	ASG3000	TiN	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.45	ASG3000	DST	300.05	ASG3000	TiN	300.25	ASG02	HM	300.25	ASG02	HM
	300.45	ASG3000	DST	300.05	ASG3000	TiN	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.45	ASG3000	DST	300.05	ASG3000	TiN	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.05	ASG0106	TiN	300.05	ASG0106	TiN	300.25	ASG0106	HM	300.25	ASG0106	HM
							300.25	ASG03	HM	300.25	ASG03	HM
	300.47	ASG0106	DBF	300.47	ASG0106	DBF	300.25	ASG0106	HM	300.25	ASG0106	HM
	300.47	ASG0106	DBF	300.47	ASG0106	DBF	300.25	ASG0106	HM	300.25	ASG0106	HM
	300.47	ASG0106	DBF	300.47	ASG0106	DBF	300.25	ASG0106	HM	300.25	ASG0106	HM
	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.45	ASG3000	DST	300.47	ASG3000	DBF	300.25	ASG02	HM	300.25	ASG02	HM
	300.45	ASG3000	DST	300.47	ASG3000	DBF	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.45	ASG3000	DST	300.47	ASG3000	DBF	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.07	ASG3000	DBG-N	300.07	ASG3000	DBG-N	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.45	ASG3000	DST	300.05	ASG3000	TiN	300.25	ASG0106	HM	300.25	ASG0106	HM
	300.05	ASG3000	TiN	300.05	ASG3000	TiN	300.25	ASG0106	HM	300.25	ASG0106	HM
	300.17	ASG0706	DBC	300.17	ASG0706	DBC	300.25	ASG02	HM	300.25	ASG02	HM
	300.17	ASG0706	DBC	300.17	ASG0706	DBC	300.25	ASG3000	HM	300.25	ASG3000	HM
	300.17	ASG0706	DBC	300.17	ASG0706	DBC	300.25	ASG3000	HM	300.25	ASG3000	HM

Cutting speed and feed see pages 116 - 117.

Important: See chapter 9 for more application details and safety notes !

Material
P M K N S H
● ◐ ● ● ◐



Custom cutting ring – selection options!

Selection: Cutting material, material													Selection: Dimensions					
Order No.	Cutting material, coating	for material						for material						Ø D	min. diameter for face machining Ø x ~	a ~	HM TiN DBG-N DBF DBC l2 ~	DST DJC l2 ~	Z
		P	M	K	N	S	H	P	M	K	N	S	H						
300.25	HM	◐[1]	◐[1]	◐[1]	◐[1]	◐[1]		◐[1]	◐[1]	◐[1]	◐[1]	◐[1]		60,600 - 79,599	ØD – 8,4	16,0	18,5	17,5	6
300.05	TiN	◐	◐		◐[4]	◐		●	◐		◐[5]	◐							
300.07	DBG-N			◐				◐		◐				79,600 - 100,599	ØD – 8,4	16,0	18,5	17,5	8
300.47	DBF		◐	●				◐	◐	●									
300.17	DBC				●						●								
300.45	DST	●		◐	◐[3]									100,600 - 110,599	ØD – 8,4	16,0	18,5	17,5	10
300.08	DJC			◐[2]															

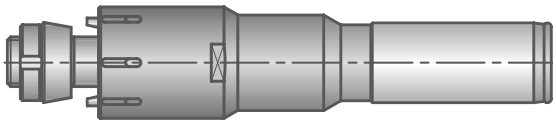
[1] conventional machining · [2] GJS (spheroidal graphite cast iron) · [3] material group 12.0 · [4] material group 12.1 · [5] material group 12.0&12.1

Order example: Order No. 300.45 · Bore diameter 70 mm · Bore tolerance H6 · Material 1.0037 (S235JR) or ASG4000 (Cutting geometry page 110 - 111)

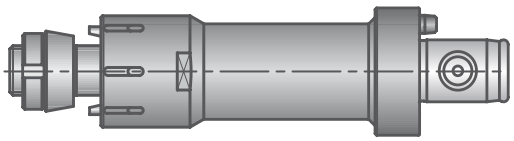
Cutting ring from dia. 17,60 to 60,59 mm and ∅ 110,60 to 300,59 mm on request.

● very good | ◐ good

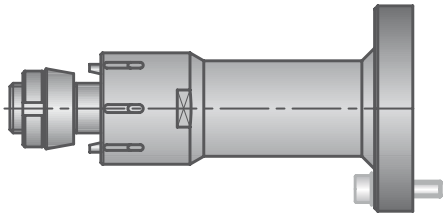
Holder with cylindrical shank similar to DIN 1835
▸ Chapter 5



Holder with ABS® connection
▸ Chapter 5

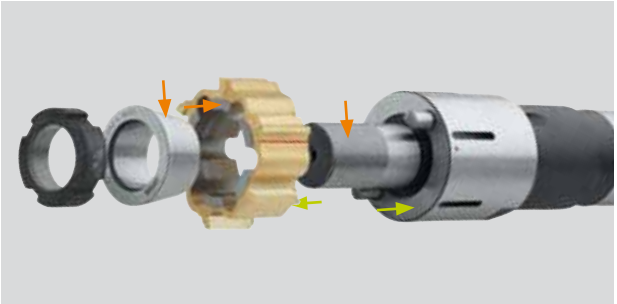


Holder with DAH® connection
▸ Chapter 5

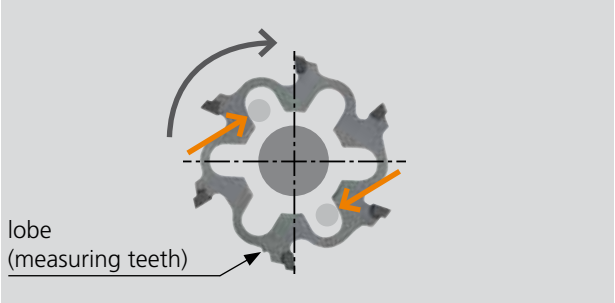


KOMET DIHART® Cutting Ring

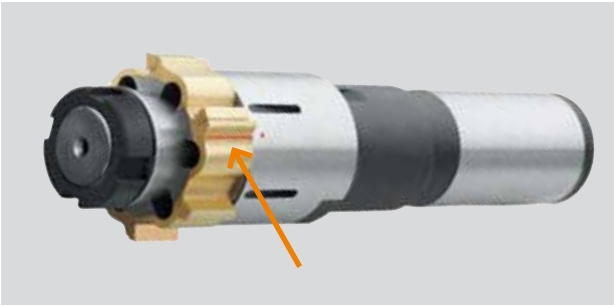
Assembly instructions on holder for through hole machining



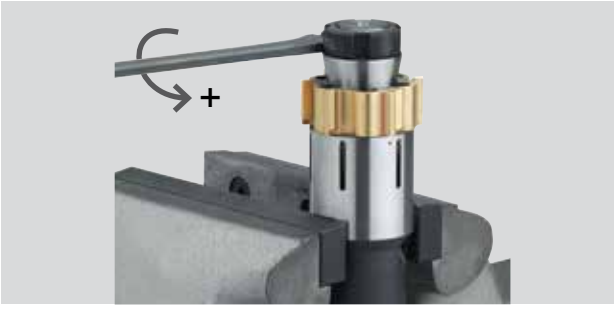
Arrow markings:
- light grease
- Face surfaces on holder and cutting ring are grease-free



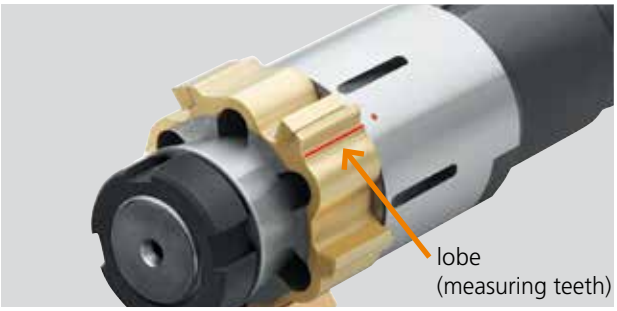
The position for the drive pins is marked with a lobe or in red.
Before tightening and adjusting turn the cutting ring against the direction of machining until hitting the drive pins.



Please observe the marking on holder and cutting ring, check alignment of the coolant bores.



Adjust the diameter to the middle of the tolerance (counter-clockwise thread).

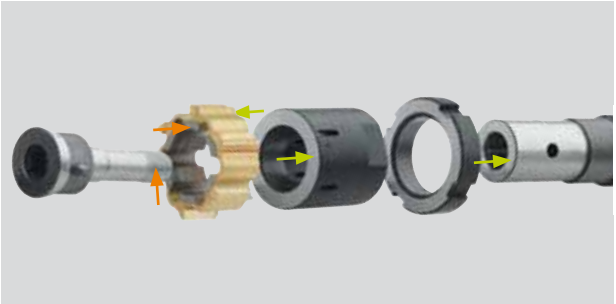


The diameter can only be measured at the marked cutting edges due to unequal angular position!

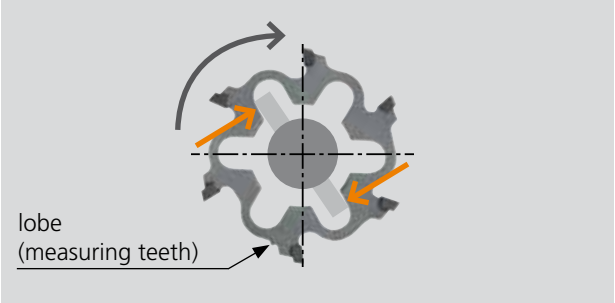
Measure the diameter

If the diameter was set too large, the conical ring must be loosened and the cutting ring readjusted.

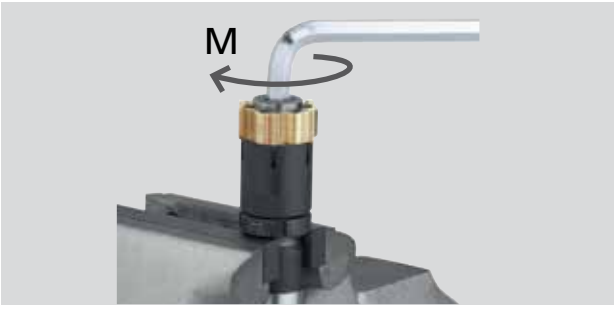
Assembly instructions on holder for blind hole machining



Arrow markings:
- light grease
- Face surfaces on holder and cutting ring are grease-free

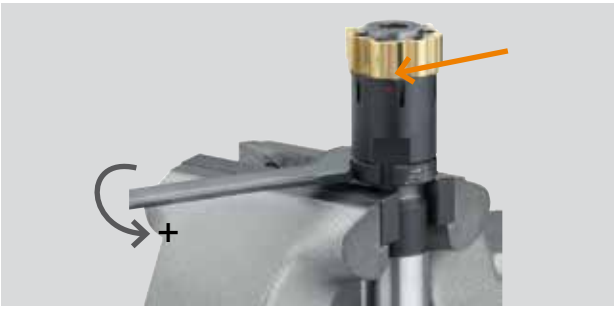


The position for the drive pins is marked with a lobe or in red.
Before tightening and adjusting turn the cutting ring against the direction of machining until hitting the drive pin.



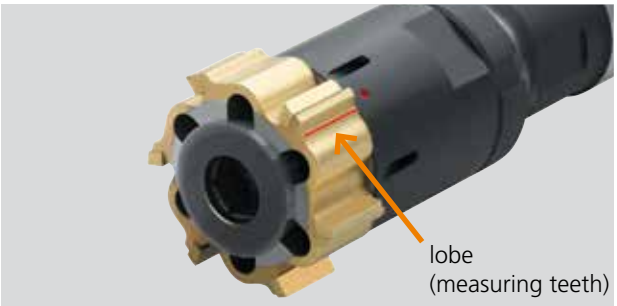
Screw the nut onto the holder with the smooth face against the bush. Mount the cutting ring with the conical screw.
After fastening the conical screw check that there is space between bush and ring.
Fasten conical screw according to index table.

Dia. range	Starting torque M
60	90 – 110 Nm
61 – 79	120 – 140 Nm
80 – 100	180 – 220 Nm



Please observe the marking on holder and cutting ring, check alignment of the coolant bores.

Adjust the diameter to the middle of the tolerance.



The diameter can only be measured at the marked cutting edges due to unequal angular position!

Measure the diameter

If the diameter was set too large, the nut must be loosened and the cutting ring readjusted.

KOMET DIHART® Cutting ring

Recommended cutting data

Guideline values for reaming						Cutting speed v_c (m/min)												
						optimum · maximum							optimum · maximum					
						3×D Reamers short							5×D Reamers long					
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	HM	TiN	DBG-N	DBF	DBC	DST	DJC	HM	TiN	DBG-N	DBF	DBC	DST	DJC
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.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)														
	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	12 18		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	12 18		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	12 15		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)

	Feed f (mm/rev)											
	optimum · maximum ASG3000, ASG0106, ASG03, ASG0706 ASG07, ASG02						optimum · maximum ASG4000, ASG09B, ASG1402 ASG09, ASG1405, ASG1406					
	∅ 17,6 - 22 · 6	∅ 22 - 32 · 6	∅ 32 - 50 · 6	∅ 50 - 79,59 · 6	∅ 79,6 - 100,59 · 8	∅ 100,6 - 300,59 · 10	∅ 17,6 - 22 · 6	∅ 22 - 32 · 6	∅ 32 - 50 · 6	∅ 50 - 79,59 · 6	∅ 79,6 - 100,59 · 8	∅ 100,6 - 300,59 · 10
	0,80 1,10	1,00 1,40	1,00 1,40	1,10 1,70	1,50 2,30	1,90 2,80	1,00 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,40 3,40
	0,80 1,10	1,00 1,40	1,00 1,40	1,10 1,70	1,50 2,30	1,90 2,80	1,00 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,40 3,40
	0,80 1,10	1,00 1,40	1,00 1,40	1,10 1,70	1,50 2,30	1,90 2,80	1,00 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,40 3,40
	0,80 1,10	1,00 1,40	1,00 1,40	1,10 1,70	1,50 2,30	1,90 2,80	1,00 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,40 3,40
	0,50 0,80	0,70 1,00	0,70 1,00	0,80 1,20	1,10 1,60	1,30 2,00						
	0,60 0,90	0,80 1,20	0,80 1,20	0,90 1,40	1,30 1,90	1,60 2,40						
	0,60 0,90	0,80 1,10	0,80 1,10	0,90 1,30	1,20 1,80	1,50 2,30						
	0,60 0,90	0,80 1,10	0,80 1,10	0,90 1,30	1,20 1,80	1,50 2,30						
	0,60 0,90	0,80 1,10	0,80 1,10	0,90 1,30	1,20 1,80	1,50 2,30						
	0,90 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,30 3,40						
	0,80 1,10	1,00 1,40	1,00 1,40	1,10 1,70	1,50 2,30	1,90 2,80						
	0,90 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,30 3,40						
	0,90 1,30	1,20 1,70	1,20 1,70	1,40 2,00	1,90 2,70	2,30 3,40						
	0,80 1,10	1,00 1,40	1,00 1,40	1,10 1,70	1,50 2,30	1,90 2,80						
	0,60 0,90	0,80 1,10	0,80 1,10	0,90 1,30	1,20 1,80	1,50 2,30						
	0,60 0,90	0,80 1,10	0,80 1,10	0,90 1,30	1,20 1,80	1,50 2,30						
	0,90 1,30	1,10 1,70	1,10 1,70	1,20 1,90	1,70 2,50	2,10 3,10						
	0,70 1,10	0,90 1,40	0,90 1,40	1,00 1,50	1,40 2,10	1,70 2,60						
	0,90 1,30	1,10 1,70	1,10 1,70	1,30 2,00	1,70 2,70	2,20 3,40						
	0,90 1,30	1,10 1,70	1,10 1,70	1,30 2,00	1,70 2,70	2,20 3,40						
	0,90 1,30	1,10 1,70	1,10 1,70	1,30 2,00	1,70 2,70	2,20 3,40						
	0,20-0,30	0,20-0,30	0,20-0,40	0,30-0,50	0,30-0,50	0,30-0,50	0,20-0,30	0,20-0,30	0,20-0,40	0,30-0,50	0,30-0,50	0,30-0,50

Important: See chapter 9 for more application details and safety notes !

The ideas factory

The IDEEN-FABRIK reflects the evolution of the KOMET GROUP from a tool manufacturer into a creative expert for solutions covering all aspects of boring, reaming, thread milling and mechatronic tools.

The central objective is to offer our customers and employees scope for creative working and learning.

On a total area of 2,500 m², we have created a modern, multi-storey factory environment. The IDEEN-FABRIK was deliberately not constructed as a separate, detached training building, but integrated directly above a manufacturing business.

While the metal swarf flies down below, ideas are exchanged above. By this, we aim to demonstrate that the work here is always associated with new ideas and creative ambition.

With the IDEEN-FABRIK and the comprehensive seminar programme for customers and employee qualification, we aim to offer you a measurable and permanent competitive advantage in your markets.

Ask for our no-obligation specialist seminar brochure.

TOOLS+IDEAS®

The KOMET GROUP is the worldwide technology leader for innovative tool concepts and complete solutions for drilling machining.

Our customers know us as a manufacturer of premium tools, and know the ideas behind our solutions. The further creativity is still unused, and remains to be discovered. We have set ourselves the objective of exploiting the added value thus created for the benefit of our customers.

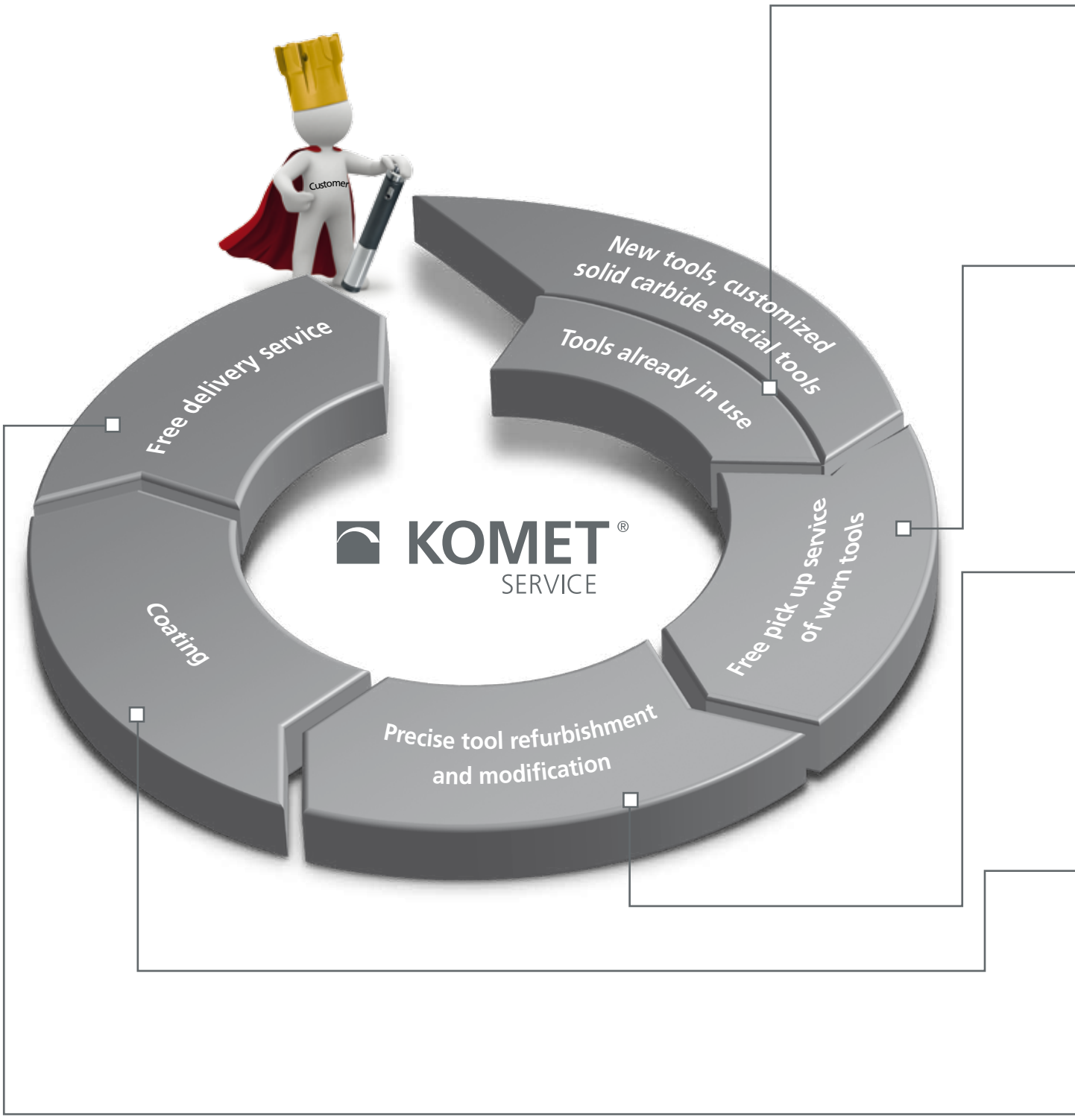
We call this TOOLS+IDEAS. A new and different way of being able to offer our customers long-term, sustainable advantages through a plus in support and services.

Our IDEEN-FABRIK in Besigheim is the first step in this direction.

Informations

KOMET SERVICE ®
the service brand name of the KOMET GROUP

A network of local partners that provide professional tool refurbishment, trade tools and manufacture customized solid carbide special tools. Everything from a single source. Fast, flexible and always close to you.



From stock or individually manufactured

Get your solid carbide TOOL*life* tools directly from your KOMET SERVICE® partner or have your own customized solid carbide special tools manufactured.
Your KOMET SERVICE® partner will happily refurbish these tools along with all tools from other brands.

One call does it all

Get on a regular pick-up schedule or arrange a one-time pick-up of your tools needing refurbishment by your KOMET SERVICE® partner. It's fast and it's free.

Tools refurbished to original quality

Our refurbishing experts fairly assess the current state of your tools (irrespective of the manufacturer) in order to recommend refurbishment or replacement.
KOMET GROUP tools are refurbished according to strict criteria to restore the original geometry or original tipping. By request you receive a measurement report. Our partners will also professionally modify tools for you, quickly and flexibly.

Coating – fully customized

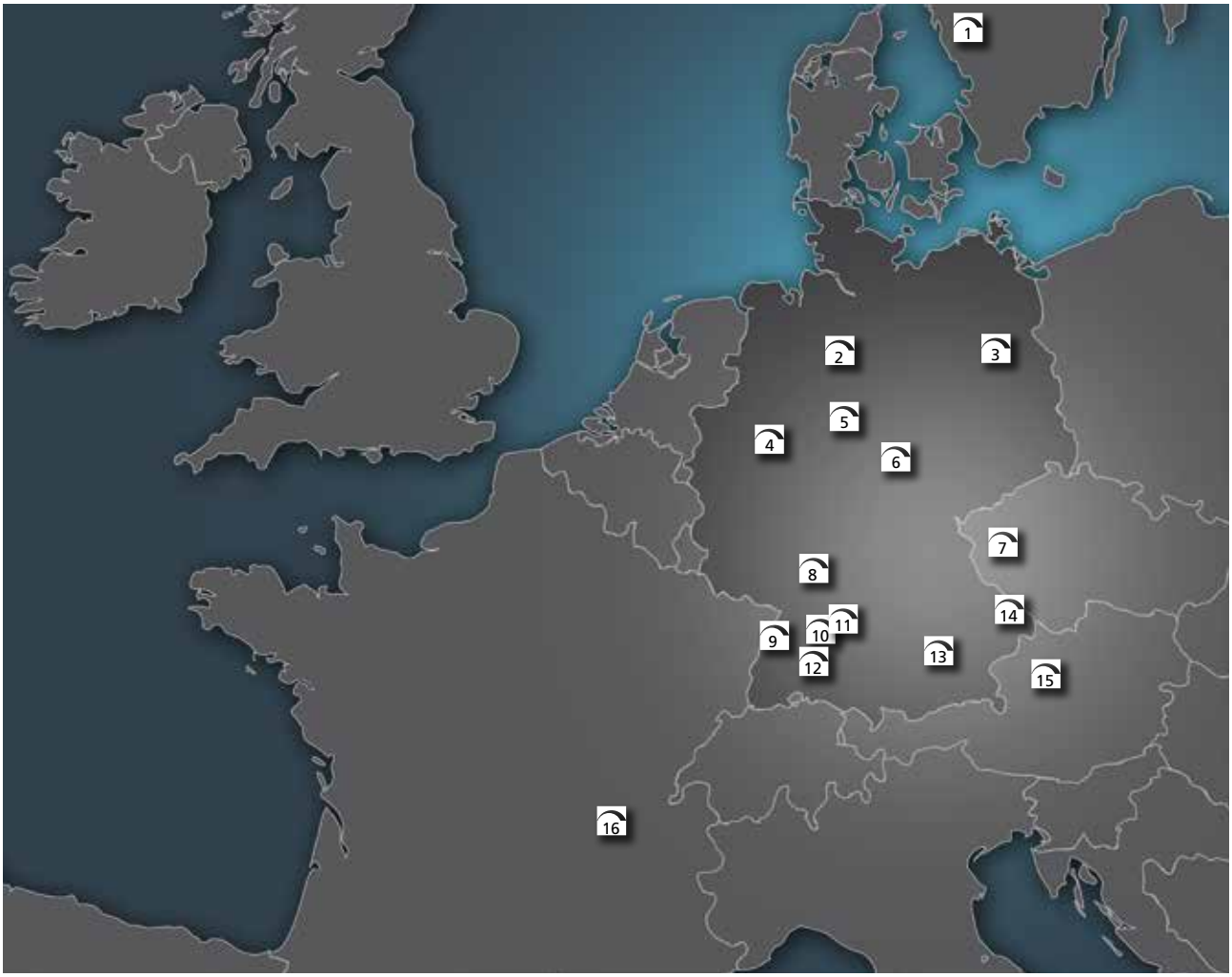
KOMET GROUP tools are of course given the original coatings once more. We customize our service to your needs, even with other standard coatings, all within a few days.

Just-in-time delivery

Your KOMET SERVICE® partner will return your KOMET GROUP tools refurbished to their original quality within 5 or 10 days (without or with coating) – safely stored in the KOMET SERVICE® TOOL*life* box.

KOMET SERVICE ® Partner

Europe



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Fast, flexible and always close to you

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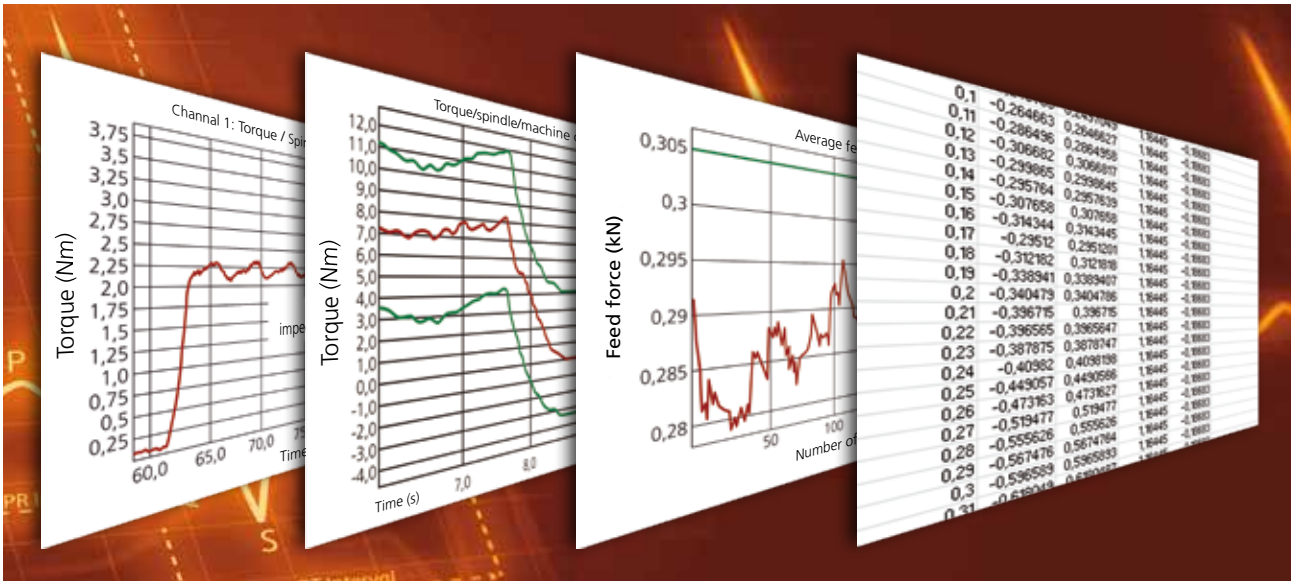
KOMET® BRINKHAUS ToolScope

Process monitoring – the benefit for your production



Visualisation Monitoring Optimisation Documentation

Next generation process monitoring

Growing automation in the machining industry increases the demand for more process and machine tool monitoring, which can help minimize machine down time and reduce scrap rates, detect and manage wear in mass series production, thereby improving the delivery times to your customers.

Based on the latest technology of process and machine tool monitoring, the ToolScope System from KOMET® BRINKHAUS relies on a unique, patented method for statistical process monitoring which not only detects breakage but also recognizes considerably smaller process deviations. In addition to the usual procedures of process control, the ToolScope System provides a procedure for monitoring quality while a process is running.

KOMET® BRINKHAUS ToolScope adds considerable value to your production

KOMET® BRINKHAUS ToolScope has an advantage over other systems not only because it features the latest technology, but also because of its modularity and user-friendliness. Above that, many additional modules like Adaptive Feed Control, Condition Monitoring or Energy Monitoring underline the multiplicity of the system. Finally we offer with our wide network of application tools and process specialist service up to the complete management of system and production process.

BENEFITS for you:

- Wide network of KOMET® tool and process experts, which can support the operation of the system
- Online visualization of the process (oscilloscope function) to support the set-up procedure, e.g. in order to promptly detect the jamming of chips
- Six Sigma Strategy: statistical process verification and process quality monitoring
- Dynamic Monitoring Module: Process monoitoring for small batch runs which alleviates the need for a learning period
- Adaptive Control (AC) Module: Optimization of the essential operating time through process acceleration for tools that are underused, and speed reduction for tools that are overused
- Measuring without (additional) sensors: The sensor data is read directly from the CNC via Profibus or TCP/IP
- Automatic documentation of the process data as a PDF, PNG or Excel file
- Monitoring for tool wear and missing tool
- Monitoring of any and all possible sensor signals
- Evaluating analogue sensor signals with up to 10 kHz
- Monitoring of the vibration behavior of bearings, axles, spindles and tools
- Operation via the machine control system HMI or using a touch screen
- Modular program structure enables the optimal adjustment to customer needs
- Many additional modules like chatter recognition and control, Condition Monitoring, Energy Monitoring etc.

Dimensions (W×D×H)	Data – mm (inch)	Note
IPC version	215×272×114 (8.465×10.708×4.488)	
DIN Rail Module	200×140×110 (7.874×5.512×4.331)	
Touch Panel PC version	410×320×90 (16.142×12.598×3.543)	15" Display

Interfaces	Sampling frequency	Note
Profibus with synchronous actions / PLC-Transfere	Sampling frequency approx. 20 - 30 Hz	
Profibus with compile cycle	Sampling frequency approx. 100 - 500 Hz	see below
TCP/IP	yes	HMI-visualization over TCP/IP
Analog input channels	up to 10 kHz	16 inputs, during monitoring perhaps lower sample rate
Digital input/output channels		16 input/output channels each

Supported control systems
Siemens 840D SL, 840D PL, Heidenhain >iTNC530, Fanuc >3xi, Bosch Rexroth, Beckhoff. From year of manufacture 2005 applies for all control systems, other types and years of manufacture possible on request.

Profibus connection (Siemens)	
Requirements for compile cycle Sample rate approx. 100 Hz	**Drive hardware:** SIMODRIVE® 611D based drive system, digital drive, delivers digital current/torque information **Control hardware:** SINUMERIK® 840D, • NCU: 572.3 or 573.2 or higher (572.2 only SW4.4), • storage: min. 32 MB, • PROFIBUS interface **Control software:** SINUMERIK® 840D technology board, version 05.03.06 (NCU_05.03.18) or 04.04.11 (NCU_04.04.37) or higher
Requirements for compile cycle Sample rate approx. 100 - 500 Hz	**In addition to the above mentioned requirements, the following must apply:** **Control software:** SINUMERIK® 840D, NC-Software ≥ 06.03

Visualization on HMI (only Siemens)	
Requirements	Windows® 95 and later, network card

Start monitoring with the KOMET® BRINKHAUS ToolScope system
Monitoring can automatically be started by changing from G0 to G1. Furthermore the processes can automatically be stored in reference to the tool number, workpiece number, program name, etc.

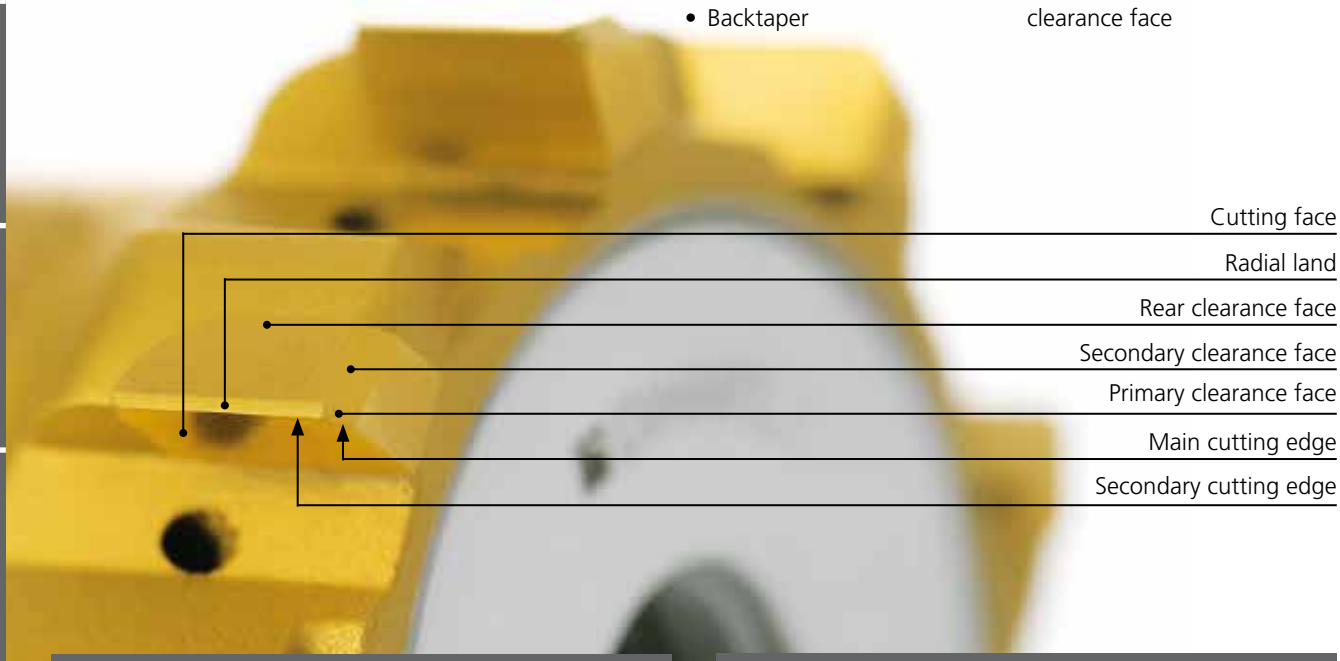
Functionality	
Visualization	Each process can easily and continously be visualized (oscilloscope function).
Data logging	Each process is automatically stored on the hard disk (logbook).
Filtering	The system offers a variety of filters such as average value, effective value, RMS, variance, etc. as standard for the filtering of the input signals.
Monitoring tool breakage	The basic system contains a self learning algorithm to recognize tool breakage. The tolerance bands are simply and automatically identified.
Monitoring tool wear	The system offers tracing and monitoring of tool wear. By setting warning thresholds, the operator can be forewarned of worn tools.
Six Sigma Strategy (optional) Online statistical process control	With this monitoring algorithm, minimal process deviations such as wear, larger cavities, changes in material can be recognized during consistant serial production processes. This is equivalent to conducting real-time quality control while a process is running.
Adaptive Control (AC) Module (optional)	With adaptive control, the feed is optimized so that the effective power of the tool remains as constant as possible. Therefore, the essential operation time can signi-ficantly be reduced, e.g. during roughing. Moreover, the feed can be reduced if an effective power limit is exceeded, thus protecting the tool.
Dynamic Monitoring Module (optional)	With this monitoring strategy, the process and the tool can be monitored from as early as lot size 1. Here the system is also fully self-learing.

KOMET® BRINKHAUS ToolScope Basic system including installation / commissioning: Order No. E65 01010		
Enhanced with:	Dynamic Monitoring Module Order No. E65 21020	Adaptive Control (AC) Module Order No. E65 21030

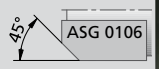
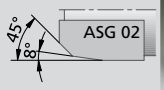
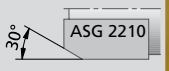
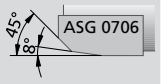
KOMET DIHART® ASG – Cutting geometry

The cutting geometry (ASG) comprises:

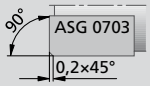
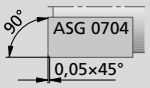
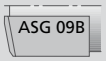
- Bevel angle
- Width of circular land
- Backtaper
- Chip angle
- Primary and secondary clearance face



Standard geometries

Geometry	Flute form	Chip evacuation	Bevel angles
ASG0106	straight		
ASG02	straight		
ASG03	straight		
ASG05	left-hand fluted		
ASG2110	straight		
ASG2210	helical		
ASG2360	straight		
ASG3000	straight		
ASG4000	straight		
ASG0706	straight		

Special geometries

Geometry	Flute form	Chip evacuation comment	Bevel angles
ASG0703	straight	face cutting	
ASG0704	straight	face cutting, for increased positional accuracy	
ASG09B	straight	chip breaking < ∅ 32 mm	
ASG1402	straight	chip breaking > ∅ 32 mm	

Long and uncontrolled chips are a common problem.

Remedying this often requires the machine operator to manually intervene, and the resulting poor process-reliability in machining makes the operating times and the machining results difficult to estimate and calculate.

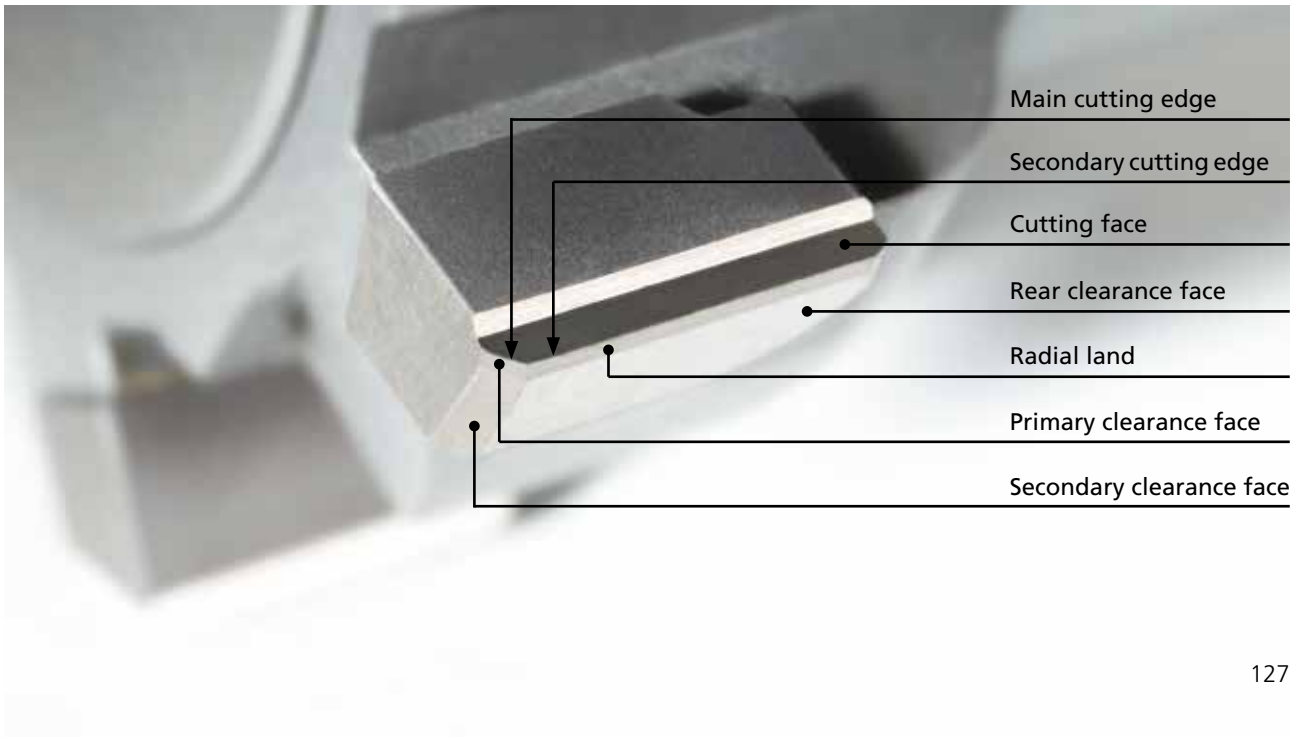
The KOMET® reaming specialists set about making systematic improvements. The ASG3000 and ASG4000 were developed.

By adding an additional flute, chip deflection is defined and led along the cutting edge. In long-chipping materials, short and tight helical chips are formed that prevent the classic problems of ball or thread chips from forming. In addition, blockages of coolant holes and the erosion of base bodies no longer occur.

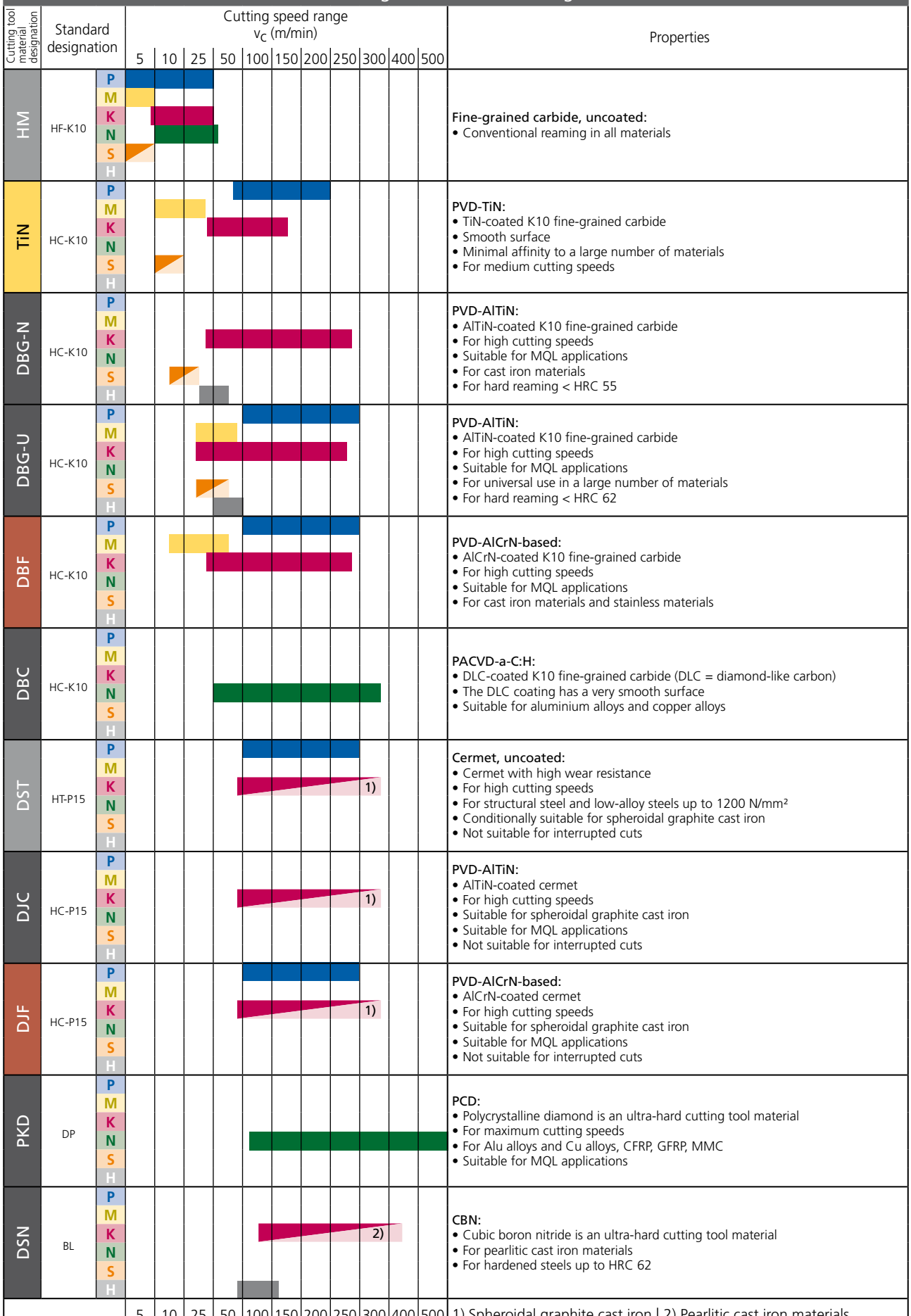
With this extra benefit and the performance remaining at least equally good in terms of drilling quality and tool life by comparison with the existing standard ASG07 and ASG09 geometry, the ASG3000 and the ASG4000 are setting new standards. The ASG3000 is now the first choice of geometry and has replaced the existing ASG07. The ASG4000 replaces the ASG09.

BENEFITS for you:

- Process reliability when working with long-chipping materials
- Improved chip control
- Shorter, tightly twisted chips
- No erosion due to chips on steel base bodies
- No penetration of chips into coolant holes



Cutting materials and coatings



Cutting tool material designation	Standard designation	Properties
HM	HF-K10	**Fine-grained carbide, uncoated:** • Conventional reaming in all materials
TiN	HC-K10	**PVD-TiN:** • TiN-coated K10 fine-grained carbide • Smooth surface • Minimal affinity to a large number of materials • For medium cutting speeds
DBG-N	HC-K10	**PVD-AlTiN:** • AlTiN-coated K10 fine-grained carbide • For high cutting speeds • Suitable for MQL applications • For cast iron materials • For hard reaming < HRC 55
DBG-U	HC-K10	**PVD-AlTiN:** • AlTiN-coated K10 fine-grained carbide • For high cutting speeds • Suitable for MQL applications • For universal use in a large number of materials • For hard reaming < HRC 62
DBF	HC-K10	**PVD-AlCrN-based:** • AlCrN-coated K10 fine-grained carbide • For high cutting speeds • Suitable for MQL applications • For cast iron materials and stainless materials
DBC	HC-K10	**PACVD-a-C:H:** • DLC-coated K10 fine-grained carbide (DLC = diamond-like carbon) • The DLC coating has a very smooth surface • Suitable for aluminium alloys and copper alloys
DST	HT-P15	**Cermet, uncoated:** • Cermet with high wear resistance • For high cutting speeds • For structural steel and low-alloy steels up to 1200 N/mm² • Conditionally suitable for spheroidal graphite cast iron • Not suitable for interrupted cuts
DJC	HC-P15	**PVD-AlTiN:** • AlTiN-coated cermet • For high cutting speeds • Suitable for spheroidal graphite cast iron • Suitable for MQL applications • Not suitable for interrupted cuts
DJF	HC-P15	**PVD-AlCrN-based:** • AlCrN-coated cermet • For high cutting speeds • Suitable for spheroidal graphite cast iron • Suitable for MQL applications • Not suitable for interrupted cuts
PKD	DP	**PCD:** • Polycrystalline diamond is an ultra-hard cutting tool material • For maximum cutting speeds • For Alu alloys and Cu alloys, CFRP, GFRP, MMC • Suitable for MQL applications
DSN	BL	**CBN:** • Cubic boron nitride is an ultra-hard cutting tool material • For pearlitic cast iron materials • For hardened steels up to HRC 62

5 10 25 50 100 150 200 250 300 400 500

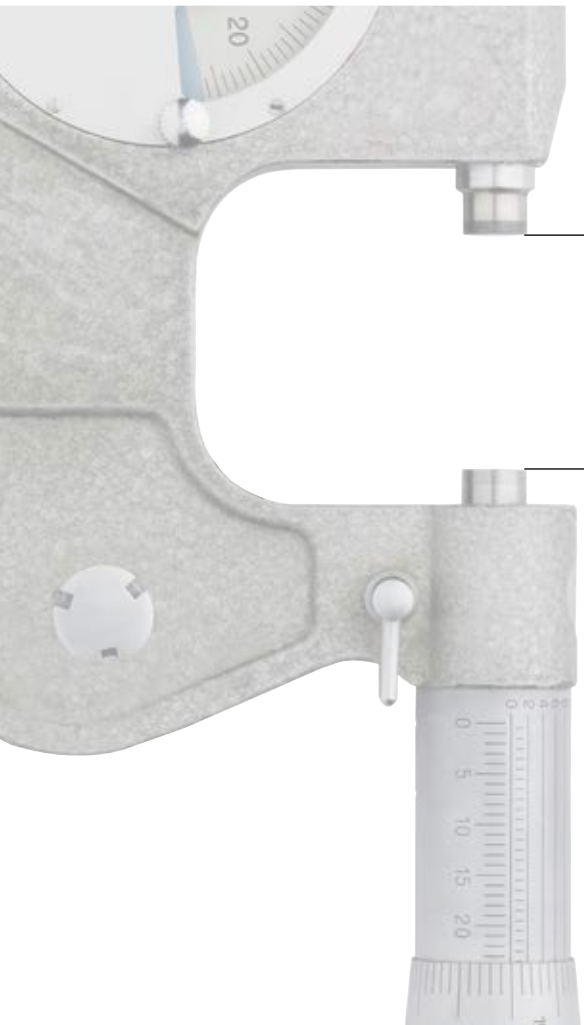
1) Spheroidal graphite cast iron | 2) Pearlitic cast iron materials

main area of application suitable in some cases

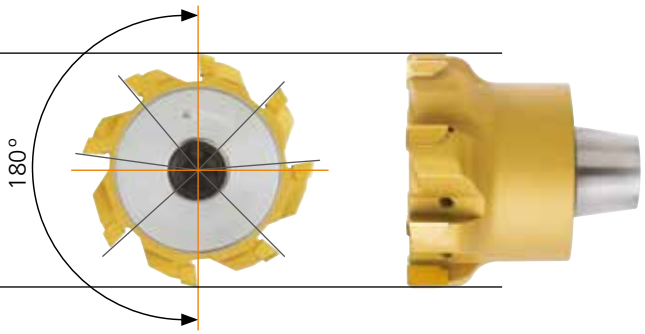
Attainable surface quality														
	Material group	Surface finish class	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Mean surface finish R_a	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Average surface uniformity R_z	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
P	1.0 – 4.0	structural steel, low alloy steels: case-hardened steels, heat-treated steel													
S	5.0	special alloys: Inconel													
S	5.1	titanium, titanium alloys													
M	6.0 – 7.0	stainless steels, fireproof steels													
K	8.0 – 10.2	gray cast iron, ferritic													
K		gray cast iron, perlitic													
K		spheroidal graphite cast iron, ferritic													
K		spheroidal graphite cast iron, perlitic													
N	12.0	copper alloy, brass													
N	13.0	wrought aluminium alloys													
N	13.1	cast aluminium alloy: Si-content < 10%													
N	14.0	cast aluminium alloy: Si-content > 10%													
H	15.0	hardened steels < 45 HRC													
H	16.0	hardened steels > 45 HRC, ≤ 55 HRC													

Achievable ▬ limited achievability (all other surface values on request)

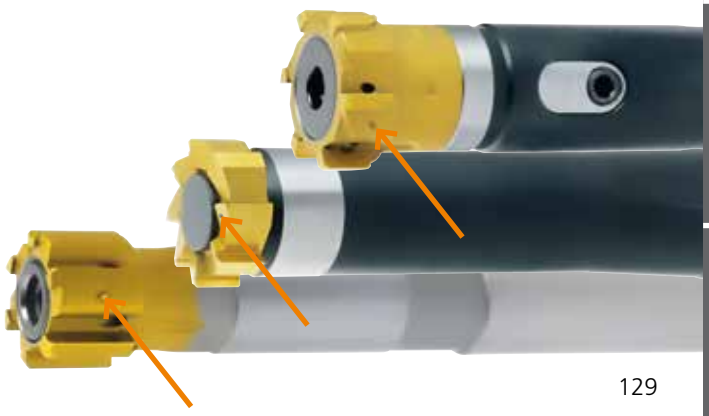
Measuring



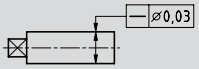
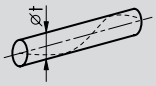
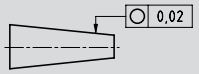
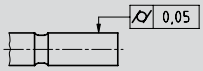
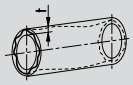
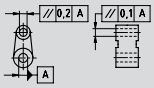
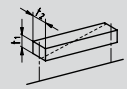
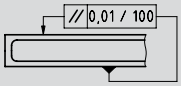
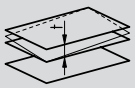
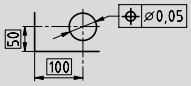
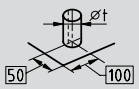
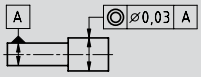
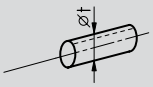
Unequal angular position!
Only two cutting edges are 180° in opposite line → Measuring teeth
Because the tools are tapered measurement has to be done at the front of the cutting edge.
PCD tipped reamers require non-contact measuring device!



Mark of measuring teeth
- Drive pin, lobe
- Number
- Punch-mark



Form and positional tolerances DI EN ISO 1101

Form and positional tolerances						
Tolerance type		Symbols and characteristics to tolerance		Drawing details examples	Explanation	Tolerance zone
Form tolerances		—	**Straightness** of a line or axis		The axis of the cylindrical part of the pin must lie within the cylinder to t = 0.03 mm	
		○	**Circular form** of a disc, a cylinder, a cone, etc.		The circumference line of any cross section must be contained in a circular ring with a width to t = 0.02 mm	
		⌭	**Cylindrical form**		The surface to tolerance must lie within two coaxial cylinders which have a radial spacing to t = 0.05 mm	
Positional tolerances	Directional tolerances	//	**Parallelism** of a line (axis) with reference to a basic straight line		The top axis must lie in a square-shaped area, within 0.1 mm in the vertical and 0.2 mm in the horizontal direction. The area will lie parallel to the basic axis of bore A.	
		//	**Parallelism** of a surface with reference to a basic plane		Any 100 mm long section of the top surface must lie with a gap of 0.01 mm between two parallel planes. The planes will lie parallel to the lower surface (basic surface).	
	Location tolerances	⌖	**Position** of lines, axes or surfaces in relation to one another or to one or several basic elements		The axis of the hole must lie within a cylinder with a diameter to tolerance t = 0.05 mm, whose axis lies at the precise geometrical place (with dimensions as shown in boxes).	
		◎	**Concentricity** of an axis or a point in relation to a basic axis (basic point)		The axis of the part of the shaft to tolerance must lie within a cylinder with a diameter to tolerance t = 0.03 mm, whose axis aligns with the base axis.	

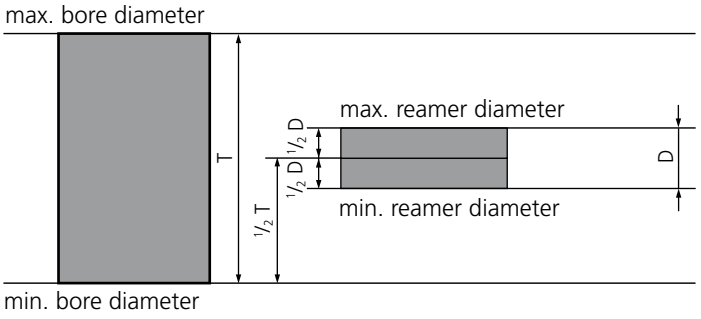
IT tolerance class DIN 7151

IT tolerance class (µm)												
Nominal dimension range	IT 1	IT 2	IT 3	IT 4	IT 5	IT 6	IT 7	IT 8	IT 9	IT 10	IT 11	IT 12
1 – 3 mm	0,8	1,2	2	3	4	6	10	14	25	40	60	100
> 3 – 6 mm	1	1,5	2,5	4	5	8	12	18	30	48	75	120
> 6 – 10 mm	1	1,5	2,5	4	6	9	15	22	36	58	90	150
> 10 – 18 mm	1,2	2	3	5	8	11	18	27	43	70	110	180
> 18 – 30 mm	1,5	2,5	4	6	9	13	21	33	52	84	130	210
> 30 – 50 mm	1,5	2,5	4	7	11	16	25	39	62	100	160	250
> 50 – 80 mm	2	3	5	8	13	19	30	46	74	120	190	300
> 80 – 120 mm	2,5	4	6	10	15	22	35	54	87	140	220	350
> 120 – 180 mm	3,5	5	8	12	18	25	40	63	100	160	250	400
> 180 – 250 mm	4,5	7	10	14	20	29	46	72	115	185	290	460
> 250 – 315 mm	6	8	12	16	23	32	52	81	130	210	320	520

Manufacturing tolerance of KOMET DIHART® reamers

Manufacturing tolerance of expandable reamers

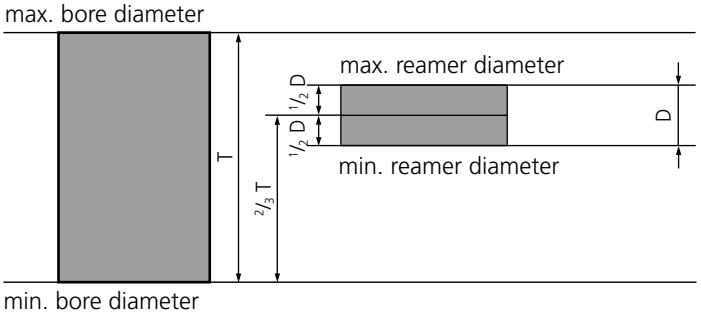
The diameter of an expandable reamer is ground to the middle of the bore tolerance T. The expansion feature of these tools allows for compensation of wear.



T = Tolerance field of bore
D = Manufacturing tolerance of reamer

Manufacturing tolerance of solid reamers

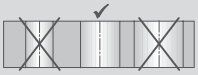
The manufacturing tolerance field D of the solid reamers is in the upper third of the bore tolerance T.



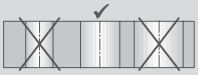
T = Tolerance field of bore
D = Manufacturing tolerance of reamer

KOMET DIHART® Technical application hints

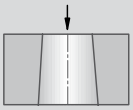
Problems • Possible Causes → Solutions



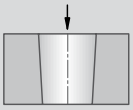
Bore too large
- Concentricity error of the reamer in the spindle → Use DAH® compensating holder and correct concentricity
- Alignment not precise, reamer cuts at the back end → Correct alignment and use DPS floating holder
- Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase for DST and coated cutting material or increase the oil content of the coolant
- Reamer too big → have the reamer reworked



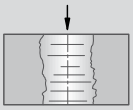
Bore too small
- Worn reamer → have the reamer readjusted, replaced or repaired
- Reaming allowance too small → Increase reaming allowance
- Cutting forces too big → reduce feed or choose a different cutting geometry (ASG)
- Reamer too small → have reamer readjusted, replaced or repaired



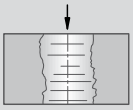
Conical bore, tapered
- Faulty alignment → Correct alignment and use DPS floating holder
- Misalignment of head-stock in relation to turret → correct turret and use DPS floating holder



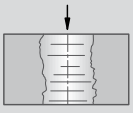
Conical bore, lipped
- Faulty alignment. Cutting edges press at start → Correct alignment and use DPS floating holder



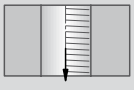
Bore not true
- Concentricity error of reamer too large → correct concentricity using DAH® compensation system
- Faulty alignment → Correct alignment and use DPS floating holder
- Asymmetrical cutting through uneven entry surface → Countersink bore
- Deformation through clamping of the work piece → Correct clamping of the work piece
- Poor premachining → optimise premachining
- Feed too high → reduce feed



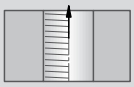
Bore shows chatter marks
- Cutting speed too high → reduce cutting speed
- L to D ratio too large → reduce the entry speed, pilot the bore or choose a different cutting geometry (ASG)



Surface quality unsatisfactory
- Cutting edge build-up → reduce cutting speed vc for uncoated carbide cutting material, increase for DST and coated cutting material or increase oil content of the coolant
- Cutters worn → have cutters repaired or replace tool
- Concentricity error of reamer → correct concentricity using DAH® compensation system
- Failing or insufficient coolant, chips getting jammed → use internal coolant supply and increase coolant pressure
- Unsuitable coolant → increase the oil content of the coolant
- Wrong cutting data → use data according to catalogue recommendation

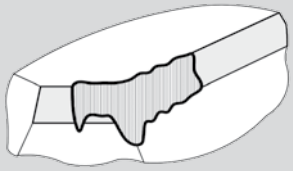


Scoring in bore «feed marks»
- Cutters defective (outbreaks) → replace reamer or have repaired
- Cutting edge build-ups → reduce cutting speed vc for uncoated carbide cutting material, and increase for DST and coated cutting material or increase oil content of the coolant

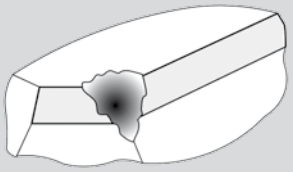


Scoring in bore «retraction marks»
- Reamer is allowed to travel too far out of the bore → Only allow the reamer to travel out of the bore 2 mm more than the cutting length at the most
- Material springs back → retraction not at a high speed, but with increased (2-3 times) feed speed

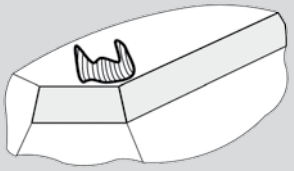
Types of tool wear



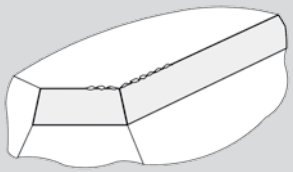
Flank wear
Reduce cutting speed or use a cutting material or coating with higher abrasion resistance.



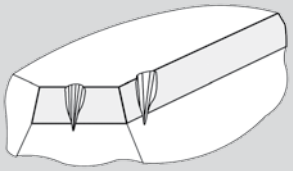
Major breakage
Reduce feed rate and stock allowance. Use carbide with coating instead of DST for interrupted bores.



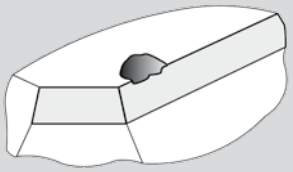
Pitting of chip surface
Reduce cutting speed or use a more positive rake angle.



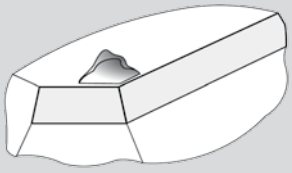
Edge wear
Increase cutting speed or use a more positive rake angle.



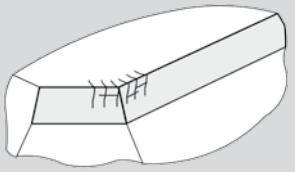
Notch wear
Reduce cutting speed or use a cutting material or coating with higher abrasion resistance.



Fatigue wear
Reduce feed rate, increase stability of the reamer.



Built-up on chip surface
Use positive cutting geometry, increase oil content of coolant, reduce cutting speed v_c for uncoated carbide cutting material, increase for DST and coated cutting material.



Hairline cracks
Use enough coolant and inner coolant supply, reduce cutting speed.

KOMET ®

Screwdriver | Key

To ensure the correct starting torque on screws, the torque key from the TORX PLUS ® system has.
Complies with the following requirements: EN ISO 6789, BS EN 26789, ASME B107.14M (with certificate).

Torque wrench TorqueFix ®
with fixed preset torque
accuracy: ± 6% release torque: + 30%

TorqueFix ®			appropriate replaceable blade
			
Size	Torque	Order No.	Order No.
5IP	0,38 Nm	L05 00901	L05 00700
6IP	0,62 Nm	L05 00911	L05 00710
6IP	1,01 Nm	L05 03301	
7IP	0,90 Nm	L05 00921	L05 00720
8IP	1,28 Nm	L05 00931	L05 00730
8IP	2,25 Nm	L05 03311	
9IP	2,50 Nm	L05 00941	L05 00740
10IP	2,80 Nm	L05 00951	L05 00750
15IP	4,30 Nm	L05 00961	L05 00760
20IP	6,25 Nm	L05 00971	L05 00770

Supply includes: Torque wrench without replaceable blade.

Torque wrench easyTorque
with fixed preset torque
accuracy: ± 10% release torque: unbounded

easyTorque			appropriate replaceable blade
			
Size	Torque	Order No.	Order No.
5IP	0,38 Nm	L05 00902	L05 00700
6IP	0,62 Nm	L05 00912	L05 00710
6IP	1,01 Nm	L05 00922	
8IP	1,28 Nm	L05 00932	L05 00730
8IP	1,8 Nm	L05 03320	
8IP	2,25 Nm	L05 00942	
9IP	2,50 Nm	L05 00952	L05 00740
10IP	2,80 Nm	L05 00962	L05 00750
15IP	4,30 Nm	L05 00972	L05 00760

Supply includes: Torque wrench without replaceable blade.

Torque wrench TorqueVario ®
adjustable with scale

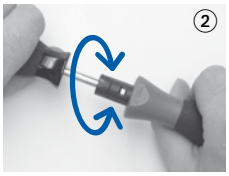
TorqueVario ®				
				
Size	Torque	Order No.	Adjusting key	Replaceable blades
5IP – 7IP	0,38 - 1,01 Nm	L05 00781	L05 00990	L05 00700
				L05 00710
				L05 00720
9IP – 20IP	2,25 - 6,25 Nm	L05 00791	L05 00990	L05 00740
				L05 00750
				L05 00760
				L05 00770

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

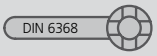


Supply includes:
Torque wrench with adjusting key and replaceable blades.

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	
	
Widht across flats WAF	Order No.
1,5	18591 10015
2,5	18591 10025
3	18591 10030
4	18591 10040
5	18591 10050
6	18591 10060
10	18591 10100

Key	
	
Size	Order No.
16	18701 80016
22	18701 80022
27	18701 80027
32	18701 80032
40	18701 80040
50	18701 80050

on request

TOOLS IDEAS®

A PLUS for our customers and the environment

The company targets

The KOMET GROUP pursues a consistent policy of investments and achieves long-term and profitable growth via continuous improvement of products and processes as well as via consistent qualification of employees. This increases the value of the company. The KOMET GROUP consistently increases its innovation quota via research and development, offering the market new products every year. The KOMET GROUP is a premium quality manufacturer and motivates employee qualification and customers in their IDEAS FACTORY. The training quota of vocational beginners is exemplary for the entire field of business.

The products and services

KOMET GROUP products and services offer the customer incomparable added value. The KOMET GROUP develops, manufactures and sells the comprehensive, modular portfolio on bore machining as full-range suppliers. The KOMET GROUP offers the innovative technologies, thereby taking the high economic viability, best quality and most attractive designs into account. The KOMET GROUP sees itself not purely as a tool manufacturer, but rather as suppliers of innovative solutions and ideas for the benefit of the customer: TOOLS IDEAS®.

The customer

The KOMET GROUP places value on long-term, binding customer relations, seeing itself as a partner of the customer in a balance of benefit supplies and benefit harvests.
The KOMET GROUP records customers' demands and then produces the most effective ideas and tool solutions for their machining tasks. The KOMET GROUP offers the customer information and collaboration via their worldwide presence in local Service Centres. The IDEAS FACTORY supports vocation-related training and further qualifications for customers.

The environment / surroundings

The KOMET GROUP feels itself obliged to avoid any wastage, and therefore commits itself to responsible usage of raw materials and careful utilisation of remaining materials.
The KOMET GROUP management is well aware of its responsibilities towards society, and creates the foundations for modern working environments and working conditions. The specifications on ergonomics and work safety are taken into account. Beholden to the founder, Robert Breuning, the KOMET GROUP supports the site at Besigheim, maintaining direct contact to schools and social facilities in the region.

With these claims in mind, the KOMET GROUP has introduced a modern, integrated management system, known as KMS (KOMET Management System), which is certified in accordance with ISO 9001:2008, ISO 14001:2009 and the German „Akkreditierungs-und Zulassungsverordnung Arbeitsförderung – AZAV".

Certification

http://www.kometgroup.com/navigation-top/download/service/zertifikate.html

Energy efficiency and resource conservation

The KOMET GROUP is now also focussing on the issue of „energy efficiency". The reason is that metal machining companies need intelligent products, processes and systems in this regard as well, in order to successfully meet the challenges that the future holds.
Bluecompetence is the sustainability initiative launched by the VDMA (German Engineering Association) with which the KOMET GROUP has also associated itself. By combining the resources, expertise and strengths of all members of the VDMA, the intention is to consolidate and enhance the joint global position as the technology leader in sustainable production and products.

Products
Product menu with a short, descriptive text to the portfolio

KOMET® GROUP

Cutting data
Cutting data: speed, feed, processing time, power and torque can be calculated.

Calculator screen
Here you can enter the diameter and the cutting speed, is automatically calculated.

Material classification
International translation table for material classification.

Technical dictionary
German/English with full-text search. Many common words from the machining and tool world.

Videos
Links to the KOMET GROUP product videos on YouTube®

KOMET DIHART®

Usage and Safety Notes

Safety notes:

- The application data specified in the "Recommended application areas" depends on the ambient and application conditions (e.g. the machine, ambient temperature, lubricant/cooling lubricant used and desired machining results): these presuppose appropriate application conditions, use and compliance with the spindle speed limits specified for the tools.
- To prevent damage to machine and tool, we recommend that the drive power be calculated in advance. The drive power which is actually available will be found in the machine manufacturer's spindle speed/performance diagram.
- Safety equipment should be provided to protect personnel from flying chips.
  Please see our safety note (enclosed with packing).

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)

Liability information:

Subject to change. The KOMET GROUP is not liable for damages resulting from selecting the incorrect tools.

Abbreviations used:

ISO	International Organisation for Standardisation	The International Organisation for Standardisation– abbreviated ISO (grade: "isos") – is the international federation of standards organisations and develops international standards many sectors
DIN	German Institute for Standardisation (Deutsches Institut für Normung e. V)	The German Institute for Standardisation is the most important national standardisation organisation in the Federal Republic of Germany.
JIS (MAS-BT)	Japan Industrial Standard	Machine tools from Asia normally use tool holders in accordance with the JIS B standard ... (former designation MAS-BT).
HSK	Hollow shank taper	The hollow shank taper, HSK for short, is used as a tool adaptor in machine tools (standardised according to DIN 69893).
SK	Steep taper	The steep taper is the standardised form of a tool taper for clamping tools in the main spindle of a machine tool (standardised in DIN 69871 part 1).
MK	Morse taper	The Morse taper or Morse cone is the standardised form of a tool taper for clamping tools.
ABS	Adapter attachment system (ABS)	The KOMET ABS system is often used as a direct adapter in spindles. In contrast to steep taper adapters, with the ABS System, the spindle or shank diameter is decisive for vibration stability and enables a relatively extended tool projection.
DAH	DIHART compensating holder	DIHART compensating holders are static compensating systems. Axis and concentricity errors are compensated for extremely simply.
DPS	DIHART floating holder	DIHART floating holders are dynamic compensating systems. Axis and concentricity errors are compensated for extremely simply.
ASG	Cutting geometry	The cutting geometry defines the following sizes: cutting angle, cylindrical grinding chamfer width, tapering, rake angle, primary and secondary relief angle.
HM VHM	Carbide Solid carbide	Carbide in this case means sintered carbide hard metals.
TiN	Titanium nitride	TiN is the chemical molecular formula for titanium nitride, a ceramic material with very high hardness and corrosion resistance.
DST	DIHART cutting material	DST is a high-performance cutting material.
DBG-N	DIHART coating	DBG-N is a coating that is characterised by a very high level of hardness.
DJC	DIHART coating	DJC is a combination of the high-performance cutting tool material DST with the high-performance coating DBG-N.
DBF	DIHART coating	DBF is a coating that exhibits a very high level of hardness and a high resistance to oxidation.
DBC	DIHART coating	DBC is a coating with a very high level of hardness and an extremely smooth surface.
PCD	Polycrystalline diamond	Polycrystalline diamond is a synthetically manufactured, extremely hard, mass of diamond particles with random orientation sintered in a metal matrix.
Rm	Tensile strength (N/mm²)	Tensile strength is a material property and describes the mechanical resistance with which a material opposes plastic deformation or separation.
HB	Brinell hardness testing	Hardness is the mechanical resistance with which a material opposes mechanical penetration by a harder test piece.
R_a R_z	Roughness depth (µm)	R_a = Mean surface finish to DIN 3142 R_z = Average surface uniformity to DIN 4768

Enquiries:

In order to meet the requirements of the customers when processing their enquiries following details are needed:

- A completed questionnaire (page 140)
- A part drawing or hand sketch of the application in question

This will enable the offering department to get an exact perception of the tools required instantly.

Test-results and complaints:

To process complaints and test-results efficiently following details and items are needed:

- A completed evaluation sheet (page 141)
- A part drawing or hand sketch of the application in question
- If possible the faulty work-piece and/or tool

Then a fast and simple procedure can be guaranteed.

Please forward this information to the respective agents.

The addresses of KOMET GROUP are on the last pages of this catalogue.

Questionnaire

KOMET GROUP

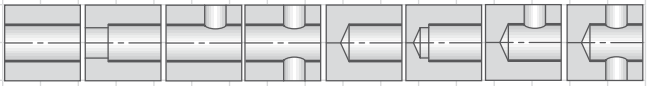
For elaboration on tool and machining recommendations,
please send the completed questionnaire to your local KOMET agency.

Company:	Contact:
Department:	E-Mail:
Telephone:	Customer-No.:
Fax:	Distributor:
Date:	

1. Work piece

Name of work piece:	Tensile strength:
Material specification:	Heat treatment:
Material No.:	Additional information:

2. Bore

Diameter and tolerance:	Type of bore
Length of bore:	☐ ☐[1] ☐[2] ☐[2] ☐[1] ☐[1] ☐[1)2)] ☐[1)2)]
Surface finish CLA / R_t / R_z:	
Circular error allowed:	
CPK:	
Diameter of pre-machining:	[1] bottom to be reamed? ☐ yes ☐ no
Method of pre-reaming:	[2] length of interruption: mm
Number of bores, parts per year:	

3. Machine and tool fixing arrangement

Machine type and brand:			Machining:	☐ horizontal	☐ vertical
Attachment of spindle:			Tool:	☐ rotating	☐ stationary
Tool fixing arrangement:			Coolant supply through tool shank:	☐ yes	☐ no
max. speed:	rpm	☐ variable ☐ fix	Brand and type of lubricant:		
max. feed:	mm/min	☐ variable ☐ fix	Lubricant ratio of mixture:		
Circular accuracy of spindle:					

4. Drawing

Please include a component drawing or draw a sketch below:

Evaluation Sheet

KOMET GROUP

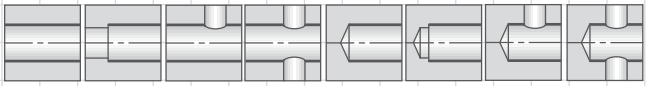
For friction tests and complaints,
please send the completed questionnaire to your local KOMET agency.

Company:	**Contact:**
Department:	**E-Mail:**
Telephone:	**Customer-No.:**
Fax:	**Distributor:**
Date:	

1. Work piece

Name of work piece:	Tensile strength:
Material specification:	Heat treatment:
Material No.:	Additional information:

2. Bore

Diameter and tolerance:	Type of bore
Length of bore:	☐ ☐[1] ☐[2] ☐[2] ☐[1] ☐[1] ☐[1)2)] ☐[1)2)]
Surface finish CLA / R_t / R_z:	
Circular error allowed:	
CPK:	
Diameter of pre-machining:	[1] bottom to be reamed? ☐ yes ☐ no
Method of pre-reaming:	[2] length of interruption: mm
Number of bores, parts per year:	

3. Machine and tool fixing arrangement

Machine type and brand:	Machining: ☐ horizontal ☐ vertical
Attachment of spindle:	Tool: ☐ rotating ☐ stationary
Tool fixing arrangement:	Coolant supply through tool shank: ☐ yes ☐ no
max. speed: rpm ☐ variable ☐ fix	Brand and type of lubricant:
max. feed: mm/min ☐ variable ☐ fix	Lubricant ratio of mixture:
Circular accuracy of spindle:	

4. Tool

Type:	Cutting material / coating:
Order No.:	Cutting geometry (ASG):

5. Test results

Bore:	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Cutting speed (m/min):						
Speed (rpm):						
Feed: ☐ (mm/rev) ☐ (mm/min)						
Concentricity of the tool measured in the machine (µm):						
Bore diameter: entrance						
exit						
Circular error (µm):						
Surface quality: ☐ CLA ☐ R_t ☐ R_z						
No. of reamed bores:						
Tool life (m):						
Performance:						

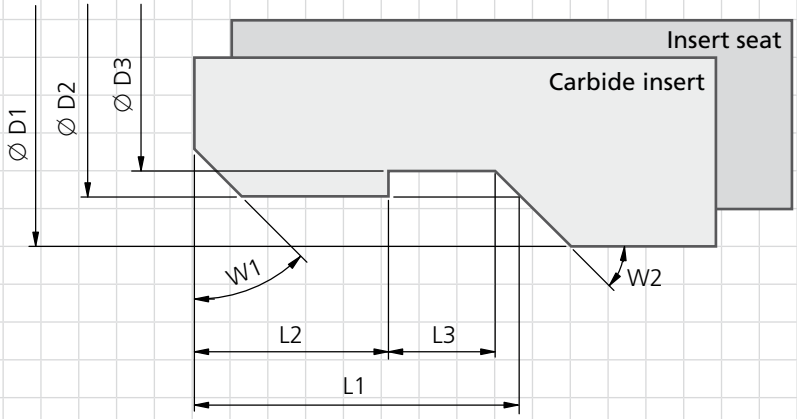
Overall performance: ☐ excellent ☐ good ☐ unsatisfactory

Fax to +49 7143 373233

KOMET SERVICE

Special tool enquiry: Pre-counterboring stage

Company:	Contact:
Customer No.:	Department:
Address:	Phone:
	Fax:
	E-Mail:



Pre-counterboring stage	Dimension
∅ D1	
∅ D2	
∅ D3	
L1	
L2	
L3	
W1	
W2	

Tool:

- ☐ Monomax®
- ☐ Cutting ring
- ☐ REAMAX® TS
- ☐ Rapid set head

Fax Order +49 7143 373233

KOMET GROUP

KomPass REAMING

Customer No. – please specify	Order No.	Order date	Supplier No.

Company

Contact person (surname) Name

Branch Department/site

Street

Town/city, postcode

Tel. Fax

Date Signature

Delivery address (if different)

Company

Contact person (surname) Name

Branch Department/site

Street

Town/city, postcode

Tel. Fax

Order quantity	Order No.	Tool name / Item Article	Customer material number	Additional information

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