New products for machining technicians

NEW REAMAX TS

- maximum flexibility and efficiency up to Ø 65.00 mm
- up to 5xD
- can be adjusted for the smallest tolerances and for wear compensation

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NEW Fullmax high-performance reamers

- solid carbide high-performance reamers
- type UNI, VA, K, ALU and H
- maximum efficiency in all materials
- available as standard H7, as 1/100, and as configurable version

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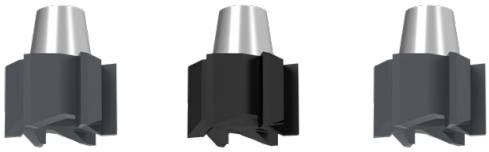
NEW REAMAX extension



- extension of the proven REAMAX reaming system
- new cutting edge geometries and coatings

NEW Monomax extension

- extension of the proven Monomax reamers
- new grades and cutting edge geometries

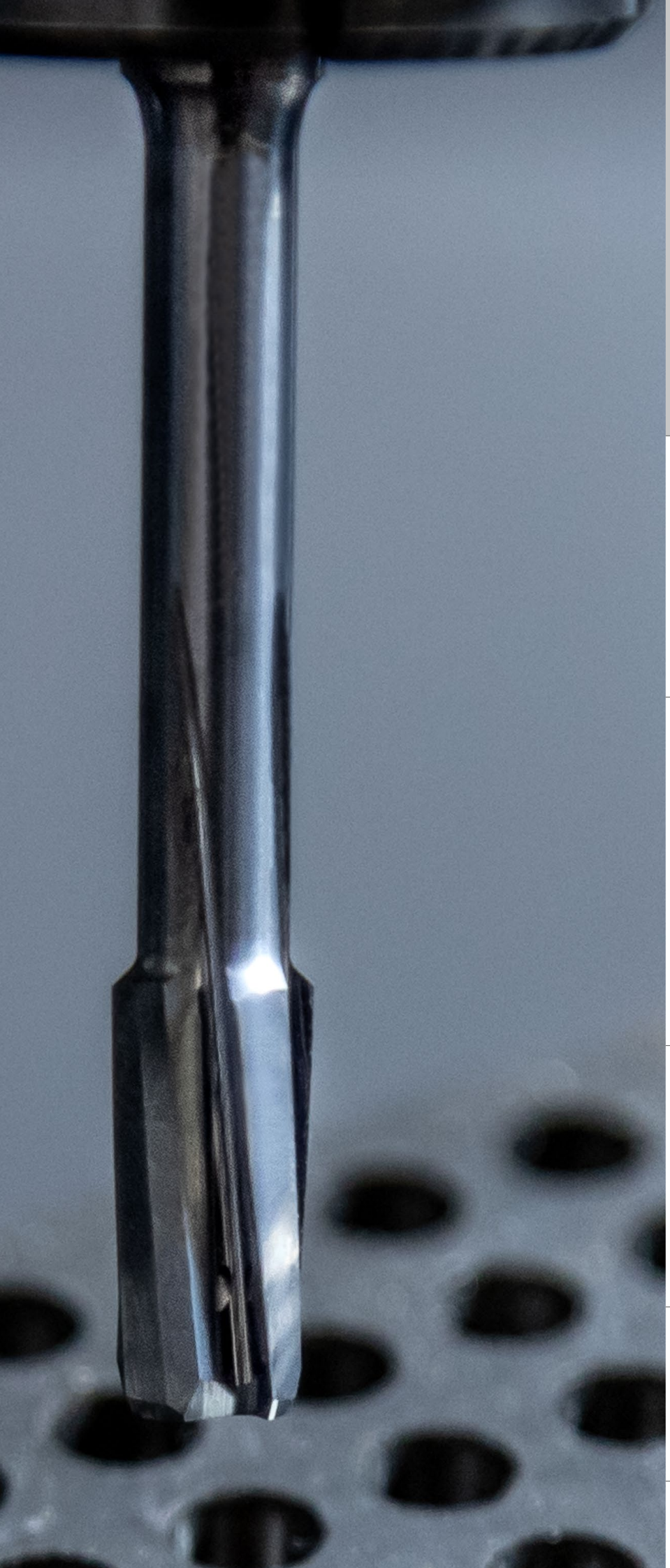


Table of contents

KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

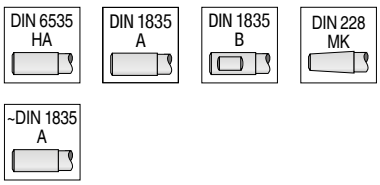
KOMET \ Standard

Quality tools for standard applications.

The quality tools of the **KOMET Standard** product line are high quality, high performance, reliable and enjoy the highest level of trust among our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Shank



Version

Central internal coolant

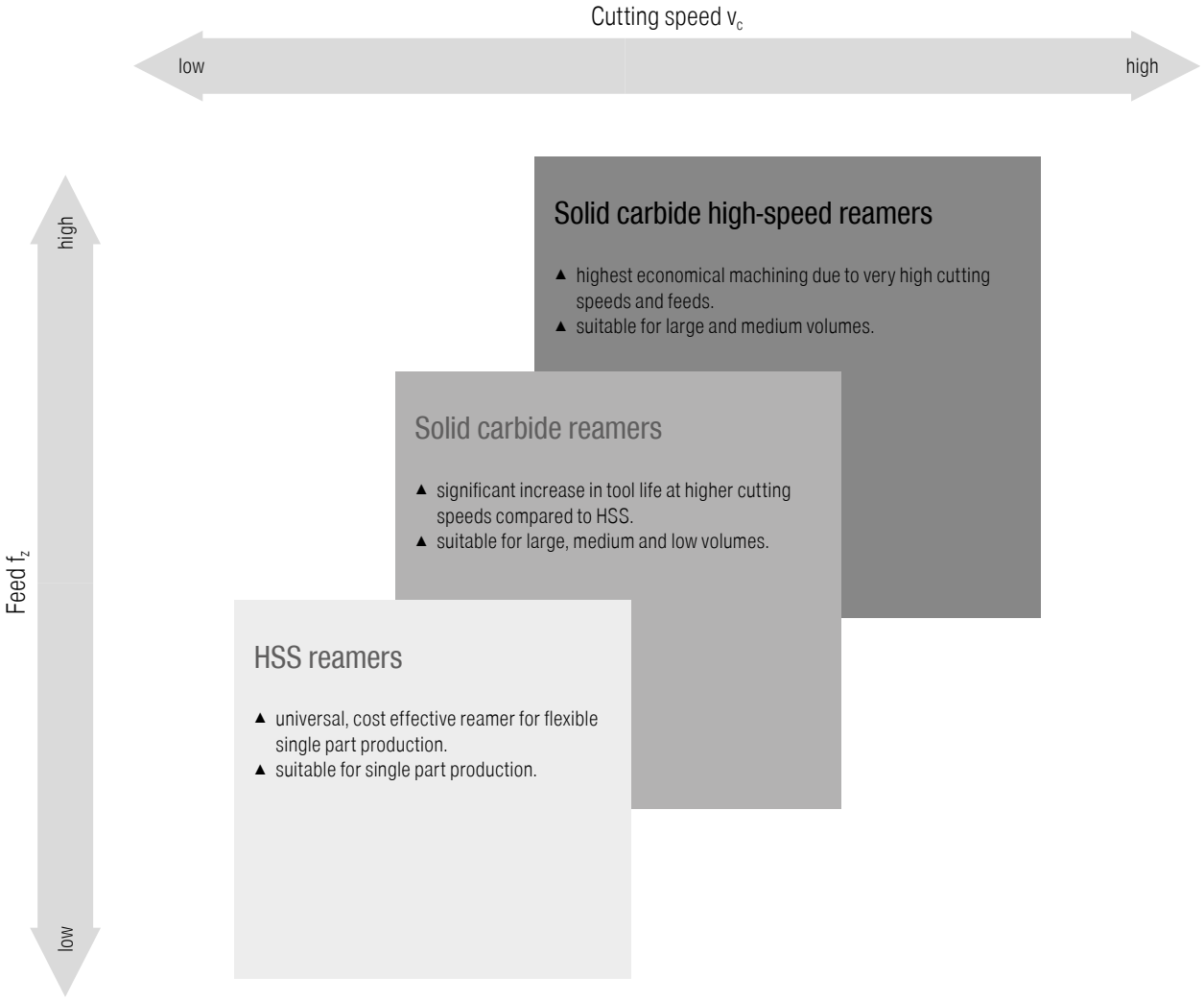
Lateral internal coolant

ZEFP = Number of teeth

● = **Main Application**

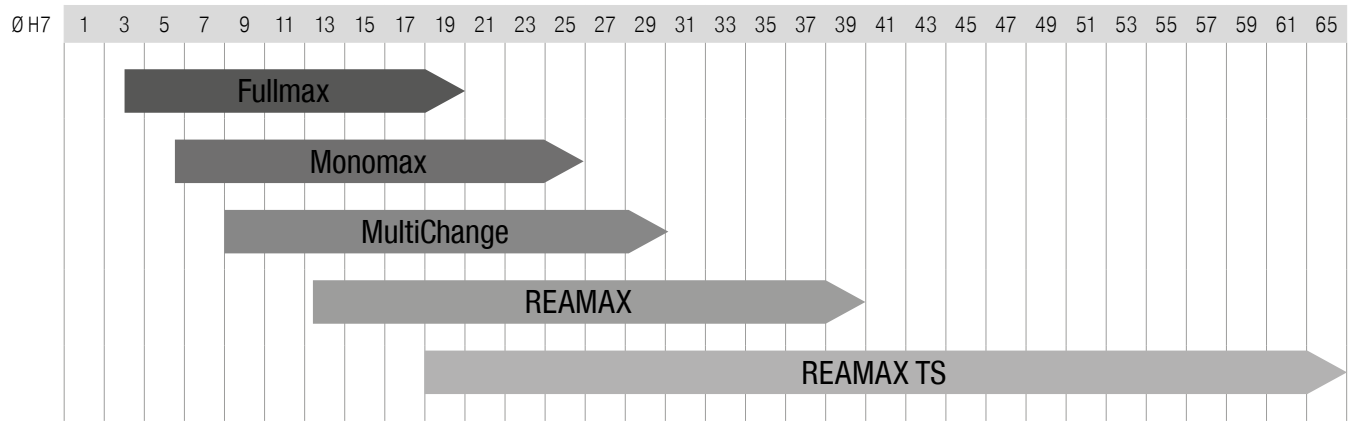
○ = Extended application

Toolfinder – Reamers



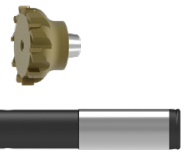
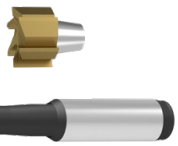
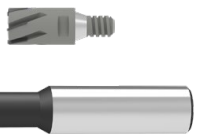
4

Overview of solid carbide high-speed reamers



	mono	modular
fixed	Fullmax	MultiChange REAMAX
adjustable	Monomax	REAMAX TS

Toolfinder – Reamers

Solid carbide – High speed reamers	REAMAX TS			▲ highly flexible and economical replaceable head system ▲ all common materials ▲ can be adjusted in µm range
				▲ holder available in 3xD and 5xD ▲ holder type DAH Zero available in 3xD and 5xD
	REAMAX			▲ exchange head system, optimised for use with air mist coolant (MMS) ▲ face and taper contact giving run out accuracy ≤ 2 µm
				▲ holder available in 3xD and 5xD
	MultiChange			▲ flexible quick change system for reaming, countersinking and chamfering ▲ face and taper contact giving run out accuracy ≤ 5 µm
				▲ stable holder in solid carbide and steel, from short to long
	Monomax			▲ adjustable monoblock reamer in 3xD and 5xD ▲ regrinding and re-tipping on the base body
	Fullmax UNI			▲ high-speed reamer for universal use ▲ extremely irregular pitch ▲ standard shank ~ DIN 6535 HA
	Fullmax VA			▲ high speed reamer for corrosion and acid resistant steels ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	Fullmax K			▲ high-speed reamer for use on cast iron materials ▲ extremely irregular pitch ▲ standard shank ~ DIN 6535 HA
	Fullmax ALU			▲ high-speed reamer for use on aluminium ▲ extremely irregular pitch ▲ standard shank ~ DIN 6535 HA
	Fullmax H			▲ high speed reamer for hardened material to 63 HRC ▲ extremely irregular pitch ▲ DIN 6535 HA shank
Solid carbide – Reamers	NC	NC 100		▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	N			▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch
HSS – Reamers	NC	NC 100		▲ HSS-E NC machine reamer ▲ DIN 1835 A shank
	N	N 100		▲ HSS-E machine reamer
	S			▲ HSS-E spiral machine reamer DIN 212
	AR	AR 100		▲ HSS-E automatic machine reamer DIN 8089
	N			▲ HSS-e machine reamer DIN 208 ▲ with morse taper
	H			▲ HSS hand reamer with cylindrical shank DIN 206

4

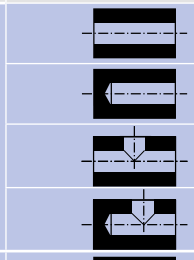
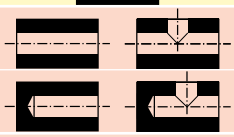
Hole diameter in mm Ø DC	Standard tolerance	Through hole	Blind hole	Int. coolant supply	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials	KOMET \ Performance	KOMET \ Standard
18,00–65,00	H7 1/100	✓	✓	✓	●	●	●	●			7–9	
				✓							10+11	
12,50–40,00	H7 1/100	✓	✓	✓	●	●	●	●			12+13	
				✓							14	
8,00–30,20	H7 1/100	✓	✓	✓	●	●	●	●	○		16+17	
				✓							→ Chapter 17, Accessories	
5,60–25,89	H7 1/100	✓	✓	✓	●	●	●				18–22	
4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●		●				23–28	
4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓		●					23–28	
2,96–20,05	1/100	✓	✓	✓			●				25–28	
4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓				●			23–28	
2,96–20,05	1/100	✓	✓	✓						●	25–28	
2,00–30,00 0,59–12,05	H7 1/100	✓			●		●	●	○		29+30	
2,00–12,00	H7	✓			●		●	●	○			31
1,50–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○		32+33	
1,00–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○			34–36
1,00–20,00	H7	✓			●			●				37
4,00–20,00 3,76–12,00	H7 1/100	✓			●	○	●	●	○			37+38
16,00–50,00	H7	✓			●	○	●	●	○			39
1,00–40,00	H7	✓			●	○	●	●	○			39

Countersinks Overview

	Tool type	Coating	Hole diameter in mm Ø DC	Point angle	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool												
	WPS		15,0–33,0		●	○	●	●	○			40
HSS – Counterbores												
	N		6,0–20,0		●	●	●	●	○			42
Solid Carbide Countersinks												
	N	TPX76S	6,3–31,0	90°	●	○	●	●	○	○	43	
	N		12,5–25,0	60°	●	○	●	●	○			44
	N		10,4–31,0	90°	●	○	●	●	○			44
HSS Countersinks												
	N		6,3–25,0	60°	●	○	●	●	○			47
	N		16,0–80,0	60°	●	○	●	●	○			47
	N	Ti50	4,3–31,0	90°	●	○	●	●	○		45	
	N		4,3–31,0	90°	●	○	●	●	○			46
	N	TiN	5,0–31,0	90°	●	○	●	●	○			46
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○			46
	VA	TiAlN	6,3–31,0	90°		●						46
	AL		6,3–31,0	90°				●				46
	N		16,5–80,0	90°	●	○	●	●	○			48
	N		6,3–25,0	120°	●	○	●	●	○			48
HSS – Hand deburrer												
	N		12,4–25,0	90°								49
Deburring Countersink												
	N		6,3–35,0	90°	●		●	●				49
	N	TiN	6,3–35,0	90°	●		●	●				49

REAMAX TS – Selection guide

Ø 18–65 mm

	KOMET no.	75J.93	75J.65	75H.65	75J.17	75H.17	75H.93	75H.65	75H.71	75J.93
	Lead	ASG4000	ASG0106	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG3000	ASG3000
	Lead angle	25°	45°	45°	45°/8°	45°/8°	45°	45°	45°	45°
	Grade / coating	DST	DBG-P	DBG-P	DBC	DBC	DST	DBG-P	TiN	DST
	Article no.	40 597 ...	40 521 ...	40 571 ...	40 526 ...	40 580 ...	40 539 ...	40 585 ...	40 535 ...	40 544 ...
	Application	Through hole	Through hole	Blind hole	Through hole	Blind hole	Blind hole	Blind hole	Blind hole	Through hole
Material	Preferred type available	✓	✓	✓			✓			✓
Steel up to 1000 N/mm²		●								●
							●	○	○	
								○	○	
								●	○	
Steel > 1000 N/mm²			●							
				●					○	
			●							
				●					○	
Stainless steel			●							
				●						
			●							
				●						
Grey cast iron / alloyed nodular cast iron (0.7661) and vermicular cast iron (5.2200)								○		
								●		
Nodular cast iron		○								●
							●	○		
								○		
								●		
Copper, brass, bronze										●
									○	
									○	
									●	
Aluminium					●					
						●				
					●					
						●				

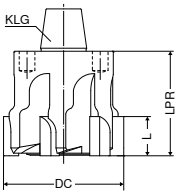
Applications:

Main application	●
Additional range of application	○

4

REAMAX TS – Replaceable reaming heads

- ▲ up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ precise repeatability < 3 µm
- ▲ high precision grind for maximum quality
- ▲ can be adjusted for the smallest hole tolerances
- ▲ interface enables head change in the machine
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size



	DST	DBG-P	DBC	DST
				
	75J.93 ◁ 25° ASG4000 CERMET Through hole	75J.65 ◁ 45° ASG0106 HM Through hole	75J.17 ◁ 45/8° ASG0706 HM Through hole	75J.93 ◁ 45° ASG3000 CERMET Through hole
	NEW U3	NEW U3	NEW U3	NEW U3
	Article no. 40 597 ...	Article no. 40 521 ...	Article no. 40 526 ...	Article no. 40 544 ...
	£	£	£	£

DC H7 mm	L mm	LPR mm	ZEFP	KLG								
18,00	6	20	6	1	308.07	18000	308.07	18000	308.07	18000	308.07	18000
18,01 - 19,99	6	20	6	1	660.32	xxxx 1)	660.32	xxxx 1)	660.32	xxxx 2)	660.32	xxxx 1)
20,00	6	20	6	2	315.92	20000	315.92	20000	315.92	20000	315.92	20000
20,01 - 21,99	6	20	6	2	774.19	xxxx 1)	774.19	xxxx 1)	774.19	xxxx 2)	774.19	xxxx 1)
22,00	6	20	6	3	321.81	22000	321.81	22000	321.81	22000	321.81	22000
22,01 - 23,99	6	20	6	3	805.42	xxxx 1)	805.42	xxxx 1)	805.42	xxxx 2)	805.42	xxxx 1)
24,00	6	20	6	3	331.62	24000	331.62	24000	331.62	24000	331.62	24000
24,01 - 24,99	6	20	6	3	805.42	xxxx 1)	805.42	xxxx 1)	805.42	xxxx 2)	805.42	xxxx 1)
25,00	6	20	6	3	331.62	25000	331.62	25000	331.62	25000	331.62	25000
25,01 - 25,99	6	20	6	3	805.42	xxxx 1)	805.42	xxxx 1)	805.42	xxxx 2)	805.42	xxxx 1)
26,00	6	20	6	3	344.38	26000	344.38	26000	805.42	26000 2)	344.38	26000
26,01 - 26,99	6	20	6	3	805.42	xxxx 1)	805.42	xxxx 1)	805.42	xxxx 2)	805.42	xxxx 1)
27,00 - 27,99	6	25	6	4	838.79	xxxx 1)	838.79	xxxx 1)	838.79	xxxx 2)	838.79	xxxx 1)
28,00	6	25	6	4	344.38	28000	344.38	28000	344.38	28000	344.38	28000
28,01 - 29,99	6	25	6	4	838.79	xxxx 1)	838.79	xxxx 1)	838.79	xxxx 2)	838.79	xxxx 1)
30,00	6	25	6	4	360.07	30000	360.07	30000	360.07	30000	360.07	30000
30,01 - 31,79	6	25	6	4	838.79	xxxx 1)	838.79	xxxx 1)	838.79	xxxx 2)	838.79	xxxx 1)
31,80 - 31,99	6	25	8	4	876.80	xxxx 1)	876.80	xxxx 1)	876.80	xxxx 2)	876.80	xxxx 1)
32,00	6	25	8	4	372.83	32000	372.83	32000	372.83	32000	372.83	32000
32,01 - 34,99	6	25	8	4	876.80	xxxx 1)	876.80	xxxx 1)	876.80	xxxx 2)	876.80	xxxx 1)
35,00	6	25	8	5	390.48	35000	390.48	35000	390.48	35000	390.48	35000
35,01 - 39,99	6	25	8	5	959.25	xxxx 1)	959.25	xxxx 1)	959.25	xxxx 2)	959.25	xxxx 1)
40,00	6	25	8	5	413.05	40000	413.05	40000	413.05	40000	413.05	40000
40,01 - 41,99	6	25	8	5	959.25	xxxx 1)	959.25	xxxx 1)	959.25	xxxx 2)	959.25	xxxx 1)
42,00	6	30	8	6	413.05	42000	413.05	42000	1,041.88	42000 2)	413.05	42000
42,01 - 49,99	6	30	8	6	1,041.88	xxxx 1)	1,041.88	xxxx 1)	1,041.88	xxxx 2)	1,041.88	xxxx 1)
50,00	6	30	8	6	422.86	50000	422.86	50000	422.86	50000	422.86	50000
50,01 - 51,99	6	30	8	6	1,041.88	xxxx 1)	1,041.88	xxxx 1)	1,041.88	xxxx 2)	1,041.88	xxxx 1)
52,00 - 53,99	8	35	10	7	1,155.57	xxxx 1)	1,155.57	xxxx 1)	1,155.57	xxxx 2)	1,155.57	xxxx 1)
54,00	8	35	10	7	475.84	54000	475.84	54000	1,155.57	54000 2)	475.84	54000
54,01 - 65,00	8	35	10	7	1,155.57	xxxx 1)	1,155.57	xxxx 1)	1,155.57	xxxx 2)	1,155.57	xxxx 1)

Steel	●	●		●
Stainless steel		●		
Cast iron	●			●
Non ferrous metals			●	○
Heat resistant alloys				
Hardened materials				

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

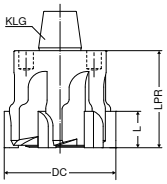
→ v_c Page 51–53

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 24.12 H7 → Article no. 40 597 2412)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Assembly instructions can be found on → **Page 71**

REAMAX TS – Replaceable reaming heads

- ▲ up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ precise repeatability < 3 µm
- ▲ high precision grind for maximum quality
- ▲ can be adjusted for the smallest hole tolerances
- ▲ interface enables head change in the machine
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size



	DST	DBG-P	DBC	DBG-P	TiN
					
	75H.93 ◁ 45° ASG3000 CERMET Blind hole	75H.65 ◁ 45° ASG0106 HM Blind hole	75H.17 ◁ 45/8° ASG0706 HM Blind hole	75H.65 ◁ 45° ASG3000 HM Blind hole	75H.71 ◁ 45° ASG3000 HM Blind hole
	NEW U3	NEW U3	NEW U3	NEW U3	NEW U3
DC_{H7}	Article no. 40 539 ...	Article no. 40 571 ...	Article no. 40 580 ...	Article no. 40 585 ...	Article no. 40 535 ...
mm	£	£	£	£	£
18,00	308.07 18000	308.07 18000	660.32 18000 2)	660.32 18000 1)	660.32 18000 1)
18,01 - 19,99	660.32 xxxx 1)	660.32 xxxx 1)	660.32 xxxx 2)	660.32 xxxx 1)	660.32 xxxx 1)
20,00	315.92 20000	315.92 20000	774.19 20000 2)	774.19 20000 1)	774.19 20000 1)
20,01 - 21,99	774.19 xxxx 1)	774.19 xxxx 1)	774.19 xxxx 2)	774.19 xxxx 1)	774.19 xxxx 1)
22,00	321.81 22000	321.81 22000	805.42 22000 2)	805.42 22000 1)	805.42 22000 1)
22,01 - 23,99	805.42 xxxx 1)	805.42 xxxx 1)	805.42 xxxx 2)	805.42 xxxx 1)	805.42 xxxx 1)
24,00	331.62 24000	331.62 24000	805.42 24000 2)	805.42 24000 1)	805.42 24000 1)
24,01 - 24,99	805.42 xxxx 1)	805.42 xxxx 1)	805.42 xxxx 2)	805.42 xxxx 1)	805.42 xxxx 1)
25,00	331.62 25000	331.62 25000	805.42 25000 2)	805.42 25000 1)	805.42 25000 1)
25,01 - 25,99	805.42 xxxx 1)	805.42 xxxx 1)	805.42 xxxx 2)	805.42 xxxx 1)	805.42 xxxx 1)
26,00	344.38 26000	344.38 26000	805.42 26000 2)	805.42 26000 1)	805.42 26000 1)
26,01 - 26,99	805.42 xxxx 1)	805.42 xxxx 1)	805.42 xxxx 2)	805.42 xxxx 1)	805.42 xxxx 1)
27,00 - 27,99	838.79 xxxx 1)	838.79 xxxx 1)	838.79 xxxx 2)	838.79 xxxx 1)	838.79 xxxx 1)
28,00	344.38 28000	344.38 28000	838.79 28000 2)	838.79 28000 1)	838.79 28000 1)
28,01 - 29,99	838.79 xxxx 1)	838.79 xxxx 1)	838.79 xxxx 2)	838.79 xxxx 1)	838.79 xxxx 1)
30,00	360.07 30000	360.07 30000	838.79 30000 2)	838.79 30000 1)	838.79 30000 1)
30,01 - 31,79	838.79 xxxx 1)	838.79 xxxx 1)	838.79 xxxx 2)	838.79 xxxx 1)	838.79 xxxx 1)
31,80 - 31,99	876.80 xxxx 1)	876.80 xxxx 1)	876.80 xxxx 2)	876.80 xxxx 1)	876.80 xxxx 1)
32,00	372.83 32000	372.83 32000	876.80 32000 2)	876.80 32000 1)	876.80 32000 1)
32,01 - 34,99	876.80 xxxx 1)	876.80 xxxx 1)	876.80 xxxx 2)	876.80 xxxx 1)	876.80 xxxx 1)
35,00	390.48 35000	390.48 35000	959.25 35000 2)	959.25 35000 1)	959.25 35000 1)
35,01 - 39,99	959.25 xxxx 1)	959.25 xxxx 1)	959.25 xxxx 2)	959.25 xxxx 1)	959.25 xxxx 1)
40,00	413.05 40000	413.05 40000	959.25 40000 2)	959.25 40000 1)	959.25 40000 1)
40,01 - 41,99	959.25 xxxx 1)	959.25 xxxx 1)	959.25 xxxx 2)	959.25 xxxx 1)	959.25 xxxx 1)
42,00	413.05 42000	413.05 42000	1,041.88 42000 2)	1,041.88 42000 1)	1,041.88 42000 1)
42,01 - 49,99	1,041.88 xxxx 1)	1,041.88 xxxx 1)	1,041.88 xxxx 2)	1,041.88 xxxx 1)	1,041.88 xxxx 1)
50,00	422.86 50000	422.86 50000	1,041.88 50000 2)	1,041.88 50000 1)	1,041.88 50000 1)
50,01 - 51,99	1,041.88 xxxx 1)	1,041.88 xxxx 1)	1,041.88 xxxx 2)	1,041.88 xxxx 1)	1,041.88 xxxx 1)
52,00 - 53,99	1,155.57 xxxx 1)	1,155.57 xxxx 1)	1,155.57 xxxx 2)	1,155.57 xxxx 1)	1,155.57 xxxx 1)
54,00	475.84 54000	475.84 54000	1,155.57 54000 2)	1,155.57 54000 1)	1,155.57 54000 1)
54,01 - 65,00	1,155.57 xxxx 1)	1,155.57 xxxx 1)	1,155.57 xxxx 2)	1,155.57 xxxx 1)	1,155.57 xxxx 1)
Steel	●	●		●	○
Stainless steel		●			
Cast iron	●			●	
Non ferrous metals	○		●		●
Heat resistant alloys					
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 51–53

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 24.12 H7 → Article no. 40 539 2412)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

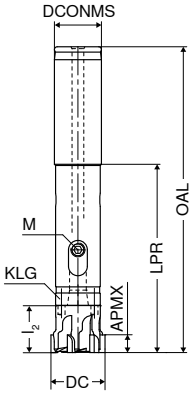
Assembly instructions can be found on → **Page 71**

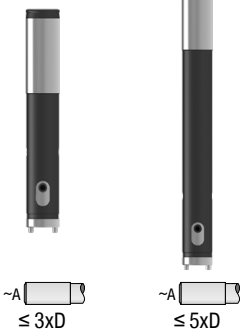
REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder incl. pull stud but without exchangeable head





DC	KOMET no.	KLG	OAL	l_2	LPR	APMX	DCONMS $_{h6}$	M	NEW U3 Article no. 40 501 ...		NEW U3 Article no. 40 503 ...	
mm			mm	mm	mm	mm	mm	Nm	£		£	
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	329.95	**02099**		
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5			342.21	**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	342.21	**02299**		
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5			356.93	**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	350.75	**02799**		
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4			376.55	**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	364.29	**03599**		
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5			387.54	**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	415.79	**04299**		
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6			415.79	**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	429.24	**05299**		
42,00 - 51,99	75A.40.15060	6	280	30	220	6	30	10			429.24	**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	442.78	**06599**		
52,00 - 65,00	75A.40.15070	7	280	30	220	8	30	13			442.78	**06599**

Do not heat shrink tools!

U3 Reamax TS pull stud

Y7 Clamping key – T

Y7 Key D

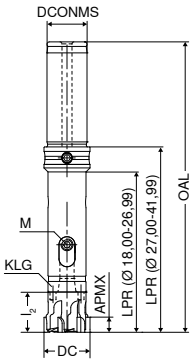
Spare parts DC	Article no. 40 900 ... £			Article no. 80 397 ... £			Article no. 80 950 ... £	
18,00 - 19,99	13.73	**00100**				T08 - IP	8.72	**039**
20,00 - 21,99	13.73	**00200**	SW2,5	4.96	**025**			
22,00 - 26,99	13.73	**00300**	SW3	4.78	**030**			
27,00 - 34,99	13.73	**00400**	SW3	4.78	**030**			
35,00 - 41,99	19.04	**00500**	SW3	4.78	**030**			
42,00 - 51,99	19.04	**00500**	SW4	4.78	**040**			
52,00 - 65,00	19.04	**00700**	SW5	6.09	**050**			

Assembly instructions can be found on → **Page 71**

REAMAX TS – Holder

- KLG = Coupling size
- adjustment inside the machine
- alignable DAH Zero holder for correction of concentricity error
- DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Supply details:
Complete holder incl. pull stud but without exchangeable head



DAH Zero

~A
≤ 3xD

DAH Zero

~A
≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	APMX mm	DCONMS $_{h6}$ mm	M Nm	NEW U3 Article no. 40 504 ... £		NEW U3 Article no. 40 506 ... £	
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	442.78	**02099**		
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5			470.94	**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	447.69	**02299**		
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5			485.66	**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	458.68	**02799**		
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4			499.19	**02799**
27,00 - 34,99	75A.41.13040	4	145	25	120	6	25	5	482.03	**03599**		
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5			499.19	**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	586.22	**04299**		
35,00 - 41,99	75A.41.15050	5	236	25	200	6	25	6			597.30	**04299**

Do not heat shrink tools!

U3

Reamax TS pull stud

Y7

Clamping key – T

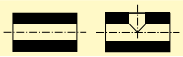
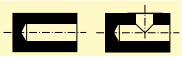
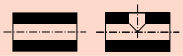
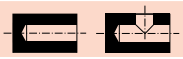
Y7

Key D

Spare parts DC	Article no. 40 900 ... £			Article no. 80 397 ... £			Article no. 80 950 ... £	
18,00 - 19,99	13.73	**00100**				T08 - IP	8.72	**039**
20,00 - 21,99	13.73	**00200**	SW2,5	4.96	**025**			
22,00 - 26,99	13.73	**00300**	SW3	4.78	**030**			
27,00 - 34,99	13.73	**00400**	SW3	4.78	**030**			
35,00 - 41,99	19.04	**00500**	SW3	4.78	**030**			

Assembly instructions can be found on → **Page 71**

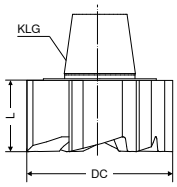
REAMAX – Selection guide

Ø 12,5–40 mm	**KOMET no.**	640.93	640.65	640.27	640.93	640.65	640.71
	Lead	ASG4000	ASG0106	ASG0706	ASG3000	ASG3000	ASG3000
	Lead angle	25°	45°	45°/8°	45°	45°	45°
	New grade / coating	DST	DBG-P	DBC	DST	DBG-P	TiN
	Old grade / coating	CWC10	TiALN	DLC	CWC10	TiALN	CWN10
	Article no.	40 536 ...	40 551 ...	40 570 ...	40 525 ...	40 560 ...	40 505 ...
	Application	Through hole	Through hole-Blind hole				
Material	**Preferred type available**	✓	✓	✓	✓	✓	✓
Steel up to 1000 N/mm²		●			●	○	○
					●	○	○
						●	○
						●	○
Steel > 1000 N/mm²			●		●		
			●				
			●				
			●				
Stainless steel			●				
			●				
Grey cast iron / alloyed nodular cast iron (0.7661) and vermicular cast iron (5.2200)						●	
						●	
Nodular cast iron		○			●	○	
					●	○	
						●	
						●	
Copper, brass, bronze					○		●
					○		●
							●
							●
Aluminium				●			
				●			
				●			
				●			
Tempered steel			●				
			●				
			●				
			●				

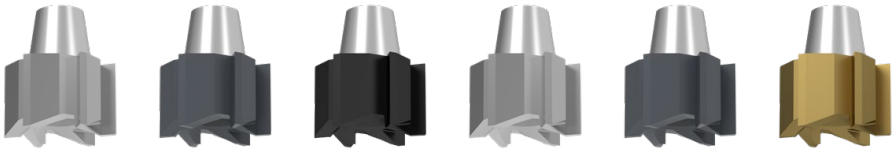
Applications:	Main application	●
	Additional range of application	○

REAMAX – Replaceable reaming heads

- ▲ up to tolerance zone IT 7 with absolute process safety, from the first hole
- ▲ precise repeatability < 2 µm
- ▲ maximum radial run-out accuracy thanks to precision ground taper location
- ▲ no Ø adjustment necessary
- ▲ optimised for application with minimum quantity lubrication (MMS)
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size



DST	DBG-P	DBC	DST	DBG-P	TiN
CWC10	TiAlN	DLC	CWC10	TiAlN	CWN10



640.93 ◁ 25° ASG4000 CERMET Through hole

640.65 ◁ 45° ASG0106 HM Through hole + Blind hole

640.27 ◁ 45° ASG0706 HM Through hole + Blind hole

640.93 ◁ 45° ASG3000 CERMET Through hole + Blind hole

640.65 ◁ 45° ASG3000 HM Through hole + Blind hole

640.71 ◁ 45° ASG3000 HM Through hole + Blind hole

DC H7	L	ZEFP	KLG	U3 Article no. 40 536 ...		NEW U3 Article no. 40 551 ...		NEW U3 Article no. 40 570 ...		U3 Article no. 40 525 ...		NEW U3 Article no. 40 560 ...		U3 Article no. 40 505 ...	
mm	mm			£		£		£		£		£		£	
12,50 - 14,99	9	6	1	459.55	xxxx 2)	459.55	xxxx 1)	459.55	xxxx 1)	459.55	xxxx 2)	459.55	xxxx 1)	459.55	xxxx 1)
15,00	9	6	1	459.55	15000 2)	208.98	15000 1)	208.98	15000 1)	459.55	15000 2)	208.98	15000	382.37	150
15,01 - 15,99	9	6	1	459.55	xxxx 2)	459.55	xxxx 1)	459.55	xxxx 1)	459.55	xxxx 2)	459.55	xxxx 1)	459.55	xxxx 1)
16,00	9	6	2	439.81	160	240.37	16000 1)	240.37	16000 1)	439.81	160	240.37	16000	439.81	160
16,01 - 17,99	9	6	2	524.33	xxxx 2)	524.33	xxxx 1)	524.33	xxxx 1)	524.33	xxxx 2)	524.33	xxxx 1)	524.33	xxxx 1)
18,00	9	6	2	445.20	180	243.32	18000 1)	243.32	18000 1)	445.20	180	243.32	18000	445.20	180
18,01 - 19,99	9	6	2	524.33	xxxx 2)	524.33	xxxx 1)	524.33	xxxx 1)	524.33	xxxx 2)	524.33	xxxx 1)	524.33	xxxx 1)
20,00	9	6	2	454.17	200	248.23	20000 1)	248.23	20000 1)	454.17	200	248.23	20000	454.17	200
20,01 - 21,99	9	6	2	524.33	xxxx 2)	524.33	xxxx 1)	524.33	xxxx 1)	524.33	xxxx 2)	524.33	xxxx 1)	524.33	xxxx 1)
22,00	9	8	3	464.95	220	254.11	22000 1)	254.11	22000 1)	464.95	220	254.11	22000	464.95	220
22,01 - 23,99	9	8	3	566.63	xxxx 2)	566.63	xxxx 1)	566.63	xxxx 1)	566.63	xxxx 2)	566.63	xxxx 1)	566.63	xxxx 1)
24,00	9	8	3	566.63	24000 2)	262.94	24000 1)	262.94	24000 1)	566.63	24000 2)	262.94	24000	481.10	240
24,01 - 24,99	9	8	3	566.63	xxxx 2)	566.63	xxxx 1)	566.63	xxxx 1)	566.63	xxxx 2)	566.63	xxxx 1)	566.63	xxxx 1)
25,00	9	8	3	500.85	250	273.74	25000 1)	273.74	25000 1)	500.85	250	273.74	25000	500.85	250
25,01 - 25,99	9	8	3	566.63	xxxx 2)	566.63	xxxx 1)	566.63	xxxx 1)	566.63	xxxx 2)	566.63	xxxx 1)	566.63	xxxx 1)
26,00 - 27,99	9	8	4	518.80	xxxx 2)	649.26	xxxx 1)	649.26	xxxx 1)	518.80	xxxx 2)	649.26	xxxx 1)	518.80	xxxx 1)
28,00	9	8	4	518.80	280	283.54	28000 1)	283.54	28000 1)	518.80	280	283.54	28000	518.80	280
28,01 - 29,99	9	8	4	649.26	xxxx 2)	649.26	xxxx 1)	649.26	xxxx 1)	649.26	xxxx 2)	649.26	xxxx 1)	649.26	xxxx 1)
30,00	9	8	4	543.93	300	297.28	30000 1)	297.28	30000 1)	543.93	300	297.28	30000	543.93	300
30,01 - 32,00	9	8	4	649.26	xxxx 2)	649.26	xxxx 1)	649.26	xxxx 1)	649.26	xxxx 2)	649.26	xxxx 1)	649.26	xxxx 1)
32,01 - 39,99	9	8	5	736.17	xxxx 2)	736.17	xxxx 1)	736.17	xxxx 1)	736.17	xxxx 2)	737.06	xxxx 1)	736.17	xxxx 1)
40,00	9	8	5	576.25	400	314.94	40000 1)	314.94	40000 1)	576.25	400	314.94	40000	576.25	400

Steel	●	●		●	●	○
Stainless steel		●				
Cast iron	○			●	●	
Non ferrous metals			●	○		●
Heat resistant alloys						
Hardened materials		●				

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

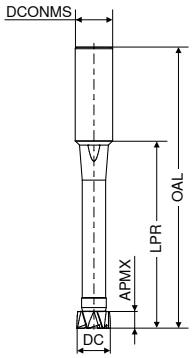
→ v_c Page 55-57

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.12 H7 → Article no. 40 525 1512)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

REAMAX – Holder

▲ KLG = Coupling size

Supply details:
Tool holder fitted with clamp and hexagonal key, but without replaceable head

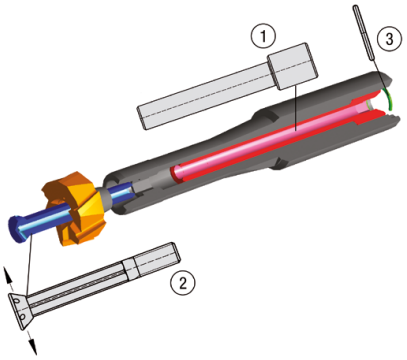


DC mm	KOMET no.	KLG	OAL mm	LPR mm	APMX mm	DCONMS h6 mm	M Nm	U3 Article no. 40 590 ... £		U3 Article no. 40 591 ... £	
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	596.90	**016**		
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5			596.90	**016**
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	623.82	**022**		
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7			623.82	**022**
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	664.21	**026**		
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12			664.21	**026**
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	686.65	**032**		
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20			686.65	**032**
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	785.39	**040**		
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28			785.39	**040**

Do not heat shrink tools!

Spare parts DC	DCONMS h6	U3 Draw bolt 5xD Article no. 40 950 ... £		U3 Draw bolt 3xD Article no. 40 950 ... £		U3 Draw bar Article no. 40 950 ... £		U3 Circlip Article no. 40 950 ... £	
12,50 - 15,99	16			81.32	**101**	206.44	**001**	0.98	**301**
12,50 - 15,99	16	80.78	**107**			206.44	**001**	0.98	**301**
16,00 - 21,99	20	80.78	**108**			206.44	**002**	0.98	**302**
16,00 - 21,99	20			81.32	**102**	206.44	**002**	0.98	**302**
22,00 - 25,99	25			95.14	**103**	215.42	**003**	0.98	**303**
22,00 - 25,99	25	95.14	**109**			215.42	**003**	0.98	**303**
26,00 - 32,00	25			109.50	**104**	226.73	**004**	0.98	**303**
26,00 - 32,00	25	109.50	**110**			226.73	**004**	0.98	**303**
32,01 - 40,00	32	123.87	**112**			244.68	**005**	0.98	**304**
32,01 - 40,00	32			123.87	**106**	244.68	**005**	0.98	**304**

1. Draw bolt
2. Draw bar
3. Circlip



MultiChange Programme Overview

The highly stable „MultiChange“ exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

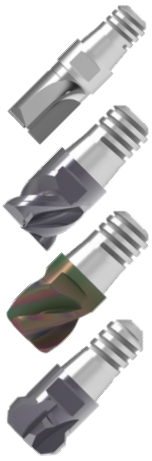
Solid carbide drilling

- Solid carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Solid carbide milling cutters



- PCD shoulder mills
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 2
- Solid carbide shoulder mills
  Type N, PCR-UNI, PCR-ALU / Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4
- Solid carbide rough and finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 4–6
- Solid carbide finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide high-feed cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide ball-nosed end mills
  Ø 10, 12, 16, 20 mm / ZEFP* 4
- Solid carbide torus bull nose milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide quarter round cutter
  Ø 8, 10, 12, 16, 20 mm
- Solid carbide deburring cutters
  Ø 10, 12, 16, 20 mm / ZEFP* 4+6

→ **Chapter 14, Solid carbide milling cutters**

*ZEFP = Number of teeth

Tool holder

- Steel holder extra short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for KLG 8, 10, 12, 16, 20 mm

- Short holder steel/Solid carbide
  Cylindrical
  Length 85–120 mm
  for KLG 8, 10, 12, 16, 20 mm

- Holder steel /Solid carbide, short
  87° Taper
  Length 85–120 mm
  for KLG 8, 10, 12, 16, 20 mm

- Solid carbide holder, medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for KLG 8, 10, 12, 16, 20 mm

- Holder steel/Solid carbide, long
  Cylindrical
  Length 150–200 mm
  for KLG 8, 10, 12, 16, 20 mm

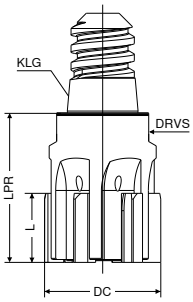
- Holder steel/Solid carbide, long
  87° Taper
  Length 150–200 mm
  for KLG 8, 10, 12, 16, 20 mm

- Steel/Solid carbide holder, extra long
  Cylindrical
  Length 200–250 mm
  for Ø 16 and 20 mm

→ **Chapter 17, Accessories**

MultiChange – Reaming head, for thro' holes

- ▲ to tolerance zone IT 7 with absolute process security – from the first hole
- ▲ high-speed reaming heads
- ▲ irregular pitch for highest concentricity
- ▲ repeatability ≤ 5 µm
- ▲ KLG = coupling size



	CWC10	TiAlN	TiAlN	K10	PDC
					
	Left Hand Helix ◁ 30° CERMET Through hole	Left Hand Helix ◁ 30° HM Through hole	straight flute ◁ 45° HM Through hole	straight flute ◁ 45° Solid carbide Through hole	straight flute ◁ 45° PDC Through hole
	U3	U3	U3	U3	U3
DC H7 mm	KLG	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	Article no. 40 210 ... £		Article no. 40 220 ... £		Article no. 40 230 ... £		Article no. 40 240 ... £		Article no. 40 245 ... £	
8,00	06	8	18	4	6	5.0	266.86	080	266.86	080	266.86	080	240.52	080 1)	665.37	080 1)
8,01 - 9,70	06	8	18	4	6	5.0	289.69	xxxx 1)	289.69	xxxx 1)	289.69	xxxx 1)	261.59	xxxx 1)	747.91	xxxx 1)
9,71 - 9,99	06	8	18	6	8	5.0	328.30	xxxx 1)	328.30	xxxx 1)	328.30	xxxx 1)	294.94	xxxx 1)	814.61	xxxx 1)
10,00	06	8	18	6	8	5.0	301.96	100	301.96	100	301.96	100	272.13	100 1)	733.86	100 1)
10,01 - 10,70	06	8	18	6	8	5.0	328.30	xxxx 1)	328.30	xxxx 1)	328.30	xxxx 1)	294.94	xxxx 1)	814.61	xxxx 1)
10,71 - 11,99	08	8	20	6	8	12.5	328.30	xxxx 1)	328.30	xxxx 1)	328.30	xxxx 1)	294.94	xxxx 1)	840.94	xxxx 1)
12,00	08	8	20	6	8	12.5	301.96	120	301.96	120	301.96	120	272.13	120 1)	747.91	120 1)
12,01 - 12,70	08	8	20	6	8	12.5	328.30	xxxx 1)	328.30	xxxx 1)	328.30	xxxx 1)	294.94	xxxx 1)	840.94	xxxx 1)
12,71 - 13,99	10	8	22	6	10	15.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	840.94	xxxx 1)
14,00	10	8	22	6	10	15.0	321.27	140	321.27	140	321.27	140	289.69	140 1)	747.91	140 1)
14,01 - 15,99	10	8	22	6	10	15.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	840.94	xxxx 1)
16,00	10	8	22	6	10	15.0	321.27	160	321.27	160	321.27	160	289.69	160 1)	786.52	160 1)
16,01 - 16,20	10	8	22	6	10	15.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	883.09	xxxx 1)
16,21 - 17,20	10	8	22	6	13	15.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	883.09	xxxx 1)
17,21 - 17,99	12	12	26	6	13	20.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
18,00	12	12	26	6	13	20.0	335.34	180	335.34	180	335.34	180	301.96	180 1)	795.30	180 1)
18,01 - 19,20	12	12	26	6	13	20.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
19,21 - 19,99	12	12	26	6	16	20.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
20,00	12	12	26	6	16	20.0	335.34	200	335.34	200	335.34	200	301.96	200 1)	795.30	200 1)
20,01 - 20,20	12	12	26	6	16	20.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
20,21 - 21,20	12	12	26	6	16	20.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	893.61	xxxx 1)
21,21 - 21,99	16	12	26	6	16	25.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	909.40	xxxx 1)
22,00	16	12	26	6	16	25.0	351.13	220	351.13	220	351.13	220	314.27	220 1)	809.33	220 1)
22,01 - 23,99	16	12	26	6	16	25.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	909.40	xxxx 1)
24,00	16	12	26	6	16	25.0	351.13	240	351.13	240	351.13	240	314.27	240 1)	809.33	240 1)
24,01 - 24,20	16	12	26	6	16	25.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	909.40	xxxx 1)
24,21 - 24,99	16	12	26	6	19	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
25,00	16	12	26	6	19	25.0	373.94	250	373.94	250	373.94	250	337.07	250 1)	833.92	250 1)
25,01 - 25,99	16	12	26	6	19	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
26,00	16	12	26	6	19	25.0	373.94	260	373.94	260	373.94	260	337.07	260 1)	833.92	260 1)
26,01 - 26,20	16	12	26	6	19	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
26,21 - 27,99	16	12	26	6	21	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
28,00	16	12	26	6	21	25.0	373.94	280	373.94	280	373.94	280	337.07	280 1)	833.92	280 1)
28,01 - 28,20	16	12	26	6	21	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
28,21 - 29,20	16	12	26	6	24	25.0	451.19	xxxx 1)	451.19	xxxx 1)	451.19	xxxx 1)	405.55	xxxx 1)	937.50	xxxx 1)
29,21 - 29,99	16	12	26	8	24	25.0	451.19	xxxx 1)	451.19	xxxx 1)	451.19	xxxx 1)	405.55	xxxx 1)	991.92	xxxx 1)
30,00	16	12	26	8	24	25.0	414.34	300	414.34	300	414.34	300	373.94	300 1)	883.09	300 1)
30,01 - 30,20	16	12	26	8	24	25.0	451.19	xxxx 1)	451.19	xxxx 1)	451.19	xxxx 1)	405.55	xxxx 1)	991.92	xxxx 1)

Steel	●				
Stainless steel		●			
Cast iron			●		
Non ferrous metals		○		●	●
Heat resistant alloys		●			
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

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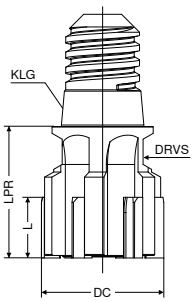
For xxxx please indicate in the order the required diameter to H7 (e.g Ø 10.89 H7 → article no. 40 230 1089)!
All other diameters and tolerances are also possible (e.g. 8.5 $^{+0.025}$ or 11 N7).

Holders and accessories can be found in → **Chapter 17, Accessories**.

MultiChange – Reaming head, for blind holes

- ▲ to tolerance zone IT 7 with absolute process security – from the first hole
- ▲ high-speed reaming heads
- ▲ irregular pitch for highest concentricity
- ▲ repeatability ≤ 5 µm
- ▲ KLG = coupling size



	CWC10	TiAlN	TiAlN	K10	PDC
					
	straight flute ◁ 60° CERMET Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° Solid carbide Blind hole	straight flute ◁ 75° PDC Blind hole
	U3	U3	U3	U3	U3
	Article no. 40 211 ...	Article no. 40 221 ...	Article no. 40 231 ...	Article no. 40 241 ...	Article no. 40 246 ...

DC H7 mm	KLG	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	£		£		£		£		£	
12,20 - 12,70	06	8	20	6	6	5.0	328.30	xxxx 1)	328.30	xxxx 1)	328.30	xxxx 1)	294.94	xxxx 1)	840.94	xxxx 1)
12,71 - 13,99	06	8	22	6	6	5.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	840.94	xxxx 1)
14,00	06	8	22	6	6	5.0	321.27	140	321.27	140	321.27	140	289.69	140 1)	747.91	140 1)
14,01 - 14,20	06	8	22	6	6	5.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	840.94	xxxx 1)
14,21 - 15,99	08	8	22	6	8	12.5	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	883.09	xxxx 1)
16,00	08	8	22	6	8	12.5	321.27	160	321.27	160	321.27	160	289.69	160 1)	786.52	160 1)
16,01 - 16,20	08	8	22	6	8	12.5	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	883.09	xxxx 1)
16,21 - 17,20	10	8	22	6	10	15.0	349.37	xxxx 1)	349.37	xxxx 1)	349.37	xxxx 1)	314.27	xxxx 1)	883.09	xxxx 1)
17,21 - 17,99	10	12	26	6	10	15.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
18,00	10	12	26	6	10	15.0	335.34	180	335.34	180	335.34	180	301.96	180 1)	795.30	180 1)
18,01 - 19,99	10	12	26	6	10	15.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
20,00	10	12	26	6	10	15.0	335.34	200	335.34	200	335.34	200	301.96	200 1)	795.30	200 1)
20,01 - 20,20	10	12	26	6	10	15.0	365.17	xxxx 1)	365.17	xxxx 1)	365.17	xxxx 1)	328.30	xxxx 1)	893.61	xxxx 1)
20,21 - 21,99	12	12	26	6	13	20.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	893.61	xxxx 1)
22,00	12	12	26	6	13	20.0	351.13	220	351.13	220	351.13	220	314.27	220 1)	809.33	220 1)
22,01 - 23,99	12	12	26	6	13	20.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	909.40	xxxx 1)
24,00	12	12	26	6	13	20.0	351.13	240	351.13	240	351.13	240	314.27	240 1)	809.33	240 1)
24,01 - 24,20	12	12	26	6	13	20.0	380.97	xxxx 1)	380.97	xxxx 1)	380.97	xxxx 1)	342.35	xxxx 1)	909.40	xxxx 1)
24,21 - 24,99	16	12	26	6	16	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	909.40	xxxx 1)
25,00	16	12	26	6	16	25.0	373.94	250	373.94	250	373.94	250	337.07	250 1)	833.92	250 1)
25,01 - 25,99	16	12	26	6	16	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	909.40	xxxx 1)
26,00	16	12	26	6	16	25.0	373.94	260	373.94	260	373.94	260	337.07	260 1)	833.92	260 1)
26,01 - 27,99	16	12	26	6	16	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
28,00	16	12	26	6	16	25.0	373.94	280	373.94	280	373.94	280	337.07	280 1)	833.92	280 1)
28,01 - 28,20	16	12	26	6	16	25.0	407.31	xxxx 1)	407.31	xxxx 1)	407.31	xxxx 1)	366.94	xxxx 1)	937.50	xxxx 1)
28,21 - 29,20	16	12	26	6	16	25.0	451.19	xxxx 1)	451.19	xxxx 1)	451.19	xxxx 1)	405.55	xxxx 1)	937.50	xxxx 1)
29,21 - 29,99	16	12	26	8	16	25.0	451.19	xxxx 1)	451.19	xxxx 1)	451.19	xxxx 1)	405.55	xxxx 1)	991.92	xxxx 1)
30,00	16	12	26	8	16	25.0	414.34	300	414.34	300	414.34	300	373.94	300 1)	883.09	300 1)
30,01 - 30,20	16	12	26	8	16	25.0	451.19	xxxx 1)	451.19	xxxx 1)	451.19	xxxx 1)	405.55	xxxx 1)	991.92	xxxx 1)

Steel	●				
Stainless steel		●			
Cast iron			●		
Non ferrous metals		○		●	●
Heat resistant alloys		●			
Hardened materials					

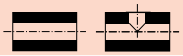
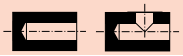
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

→ v_c Page 58+59

For xxxx please indicate in the order the required diameter to H7 (e.g Ø 12.89 H7 – article no. 40 231 1289)!
All other diameters and tolerances are also possible (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Chapter 17, Accessories**.

Monomax – Selection guide

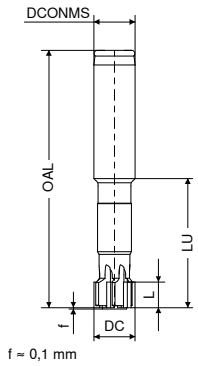
Ø 5,60–25,89	**KOMET no. (3xD)**	56J.93	56J.65	56H.65	56J.17	56H.17	56J.93	56H.65	56J.71
	KOMET no. (5xD)	56R.93	56R.65	56Q.65	56R.17	56Q.17	56R.93	56Q.65	56R.71
	Lead	ASG4000	ASG0106	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG3000
	Lead angle	25°	45°	45°	45°/8°	45°/8°	45°	45°	45°
	New grade / coating	DST	DBG-P	DBG-P	DBC	DBC	DST	DBG-P	TIN
	Old grade / coating	CWC10	TiALN	TiALN	DLC	DLC	CWC10	TiALN	CWN10
	Article no. (3xD)	40 635 ...	40 652 ...	40 644 ...	40 648 ...	40 640 ...	40 625 ...	40 657 ...	40 605 ...
	Article no. (5xD)	40 636 ...	40 653 ...	40 645 ...	40 649 ...	40 641 ...	40 626 ...	40 665 ...	40 606 ...
	Application	Through hole	Through hole	Blind hole	Through hole	Blind hole	Through hole	Blind hole	Through hole
Material	**Preferred type available**	✓	✓				✓		✓
Steel up to 900 N/mm²		●					●		○
								●	
									○
								●	
Steel > 900 N/mm²			●						
			○	●					
			●						
			○	●					
Stainless steel			●						
			○	●					
			●						
			○	●					
Grey cast iron / alloyed nodular cast iron (0.7661) and vermicular cast iron (5.2200)								○	○
								●	
Nodular cast iron		●					●	○	○
							○	●	
								○	○
								●	
Copper, brass, bronze							○		●
									
									●
									
Aluminium					●				
					○	●			
					●				
					○	●			

Applications:

Main application	●
Additional range of application	○

Monomax – High-speed reamers, short

- ▲ adjustable for smallest bore tolerances
- ▲ wear compensation within the tolerance zone
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ up to tolerance class IT 5 with absolute process security, from the first hole



DST	DBC	DBG-P	DST	TiN
CWC10	DLC	TiAlN	CWC10	CWN10

56J.93	56J.17	56J.65	56J.93	56J.71
≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD
◁ 45°	◁ 45/8°	◁ 45°	◁ 25°	◁ 45°
ASG3000	ASG0706	ASG0106	ASG4000	ASG3000
CERMET	HM	HM	CERMET	HM
Through hole	Through hole	Through hole	Through hole	Through hole

DC H7	OAL	LU	L	DCONMS h6	ZEFP	U3 Article no. 40 625 ... £		NEW U3 Article no. 40 648 ... £		NEW U3 Article no. 40 652 ... £		U3 Article no. 40 635 ... £		U3 Article no. 40 605 ... £	
mm	mm	mm	mm	mm											
5,60 - 5,99	85	40	10	12	4	633.55	xxxx 2)	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 2)	633.55	xxxx 1)
6,00	85	40	10	12	4	524.19	060	633.55	06000 1)	286.49	06000	524.19	060	524.19	060
6,01 - 7,99	85	40	10	12	4	633.55	xxxx 2)	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 2)	633.55	xxxx 1)
8,00	85	40	10	12	4	543.93	080	633.55	08000 1)	297.28	08000	543.93	080	543.93	080
8,01 - 8,89	85	40	10	12	4	633.55	xxxx 2)	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 2)	633.55	xxxx 1)
8,90 - 9,89	95	50	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
9,90 - 9,99	95	50	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
10,00	95	50	10	12	6	588.81	100	729.57	10000 1)	321.81	10000	588.81	100	588.81	100
10,01 - 11,99	95	50	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
12,00	95	50	10	12	6	606.76	120	729.57	12000 1)	331.62	12000	606.76	120	606.76	120
12,01 - 13,99	95	50	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
14,00	95	50	10	12	6	649.85	140	729.57	14000 1)	355.17	14000	649.85	140	649.85	140
14,01 - 14,99	95	50	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
15,00	95	50	10	12	6	666.00	150	729.57	15000 1)	364.00	15000	666.00	150	666.00	150
15,01 - 15,89	95	50	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
15,90 - 15,99	100	50	10	16	6	896.79	xxxx 2)	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 2)	896.79	xxxx 1)
16,00	100	50	10	16	6	682.16	160	896.79	16000 1)	372.83	16000	682.16	160	682.16	160
16,01 - 17,99	100	50	10	16	6	896.79	xxxx 2)	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 2)	896.79	xxxx 1)
18,00	100	50	10	16	6	728.83	180	896.79	18000 1)	398.34	18000	728.83	180	728.83	180
18,01 - 18,89	100	50	10	16	6	896.79	xxxx 2)	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 2)	896.79	xxxx 1)
18,90 - 19,99	120	60	10	20	6	1,088.64	xxxx 2)	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 2)	1,088.64	xxxx 1)
20,00	120	60	10	20	6	786.28	200	1,088.64	20000 1)	429.74	20000	786.28	200	786.28	200
20,01 - 25,89	120	60	10	20	6	1,088.64	xxxx 2)	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 2)	1,088.64	xxxx 1)

Steel	●		●	●	○
Stainless steel			●		
Cast iron	●				
Non ferrous metals		●			●
Heat resistant alloys					
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

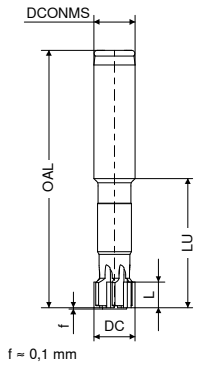
→ v_c Page 60–63

Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 635 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole



	DBG-P	DBC	DBG-P
	TiAlN	DLC	TiAlN
			
	56H.65 ≤ 3xD ∢ 45° ASG0106 HM Blind hole	56H.17 ≤ 3xD ∢ 45/8° ASG0706 HM Blind hole	56H.65 ≤ 3xD ∢ 45° ASG3000 HM Blind hole
	NEW U3	NEW U3	NEW U3
	Article no. 40 644 ...	Article no. 40 640 ...	Article no. 40 657 ...

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	£		£		£	
5,60 - 5,99	85	40	10	12	4	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 1)
6,00	85	40	10	12	4	633.55	06000 1)	633.55	06000 1)	633.55	06000 1)
6,01 - 7,99	85	40	10	12	4	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 1)
8,00	85	40	10	12	4	633.55	08000 1)	633.55	08000 1)	633.55	08000 1)
8,01 - 8,89	85	40	10	12	4	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 1)
8,90 - 9,89	95	50	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
9,90 - 9,99	95	50	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
10,00	95	50	10	12	6	729.57	10000 1)	729.57	10000 1)	729.57	10000 1)
10,01 - 11,99	95	50	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
12,00	95	50	10	12	6	729.57	12000 1)	729.57	12000 1)	729.57	12000 1)
12,01 - 13,99	95	50	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
14,00	95	50	10	12	6	729.57	14000 1)	729.57	14000 1)	729.57	14000 1)
14,01 - 14,99	95	50	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
15,00	95	50	10	12	6	729.57	15000 1)	729.57	15000 1)	729.57	15000 1)
15,01 - 15,89	95	50	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
15,90 - 15,99	100	50	10	16	6	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 1)
16,00	100	50	10	16	6	896.79	16000 1)	896.79	16000 1)	896.79	16000 1)
16,01 - 17,99	100	50	10	16	6	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 1)
18,00	100	50	10	16	6	896.79	18000 1)	896.79	18000 1)	896.79	18000 1)
18,01 - 18,89	100	50	10	16	6	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 1)
18,90 - 19,99	120	60	10	20	6	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 1)
20,00	120	60	10	20	6	1,088.64	20000 1)	1,088.64	20000 1)	1,088.64	20000 1)
20,01 - 25,89	120	60	10	20	6	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 1)

Steel	●		●
Stainless steel	●		
Cast iron			●
Non ferrous metals		●	
Heat resistant alloys			
Hardened materials			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

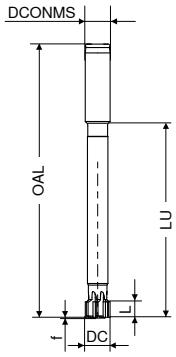
→ v_c Page 60–63

Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 644 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole



f ≈ 0,1 mm

	DST	DBC	DBG-P	DST	TiN
	CWC10	DLC	TiAlN	CWC10	CWN10
					
	56R.93 ≤ 5xD 45° ASG3000 CERMET Through hole	56R.17 ≤ 5xD 45/8° ASG0706 HM Through hole	56R.65 ≤ 5xD 45° ASG0106 HM Through hole	56R.93 ≤ 5xD 25° ASG4000 CERMET Through hole	56R.71 ≤ 5xD 45° ASG3000 HM Through hole
	U3	NEW U3	NEW U3	U3	U3
	Article no. 40 626 ...	Article no. 40 649 ...	Article no. 40 653 ...	Article no. 40 636 ...	Article no. 40 606 ...

DC H7	OAL	LU	L	DCONMS h6	ZEFP	£		£		£		£		£	
mm	mm	mm	mm	mm											
5,60 - 5,99	130	85	10	12	4	633.55	xxxx 2)	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 2)	633.55	xxxx 1)
6,00	130	85	10	12	4	524.19	060	633.55	06000 1)	286.49	06000	524.19	060	524.19	060
6,01 - 7,99	130	85	10	12	4	633.55	xxxx 2)	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 2)	633.55	xxxx 1)
8,00	130	85	10	12	4	543.93	080	633.55	08000 1)	297.28	08000	543.93	080	543.93	080
8,01 - 8,89	130	85	10	12	4	633.55	xxxx 2)	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 2)	633.55	xxxx 1)
8,90 - 9,89	130	85	10	12	6	729.57	xxxx 2)	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 2)	729.57	xxxx 1)
9,90 - 9,99	160	115	10	12	6	809.88	xxxx 2)	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 2)	809.88	xxxx 1)
10,00	160	115	10	12	6	588.81	100	809.88	10000 1)	321.81	10000	588.81	100	588.81	100
10,01 - 11,99	160	115	10	12	6	809.88	xxxx 2)	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 2)	809.88	xxxx 1)
12,00	160	115	10	12	6	606.76	120	809.88	12000 1)	331.62	12000	606.76	120	606.76	120
12,01 - 13,99	160	115	10	12	6	809.88	xxxx 2)	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 2)	809.88	xxxx 1)
14,00	160	115	10	12	6	649.85	140	809.88	14000 1)	355.17	14000	649.85	140	649.85	140
14,01 - 14,99	160	115	10	12	6	809.88	xxxx 2)	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 2)	809.88	xxxx 1)
15,00	160	115	10	12	6	666.00	150	809.88	15000 1)	364.00	15000	666.00	150	666.00	150
15,01 - 15,89	160	115	10	12	6	809.88	xxxx 2)	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 2)	809.88	xxxx 1)
15,90 - 15,99	180	130	10	16	6	896.79	xxxx 2)	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 2)	896.79	xxxx 1)
16,00	180	130	10	16	6	682.16	160	896.79	16000 1)	372.83	16000	682.16	160	682.16	160
16,01 - 17,99	180	130	10	16	6	896.79	xxxx 2)	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 2)	896.79	xxxx 1)
18,00	180	130	10	16	6	728.83	180	896.79	18000 1)	398.34	18000	728.83	180	728.83	180
18,01 - 18,89	180	130	10	16	6	896.79	xxxx 2)	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 2)	896.79	xxxx 1)
18,90 - 19,99	200	140	10	20	6	1,088.64	xxxx 2)	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 2)	1,088.64	xxxx 1)
20,00	200	140	10	20	6	786.28	200	1,088.64	20000 1)	429.74	20000	786.28	200	786.28	200
20,01 - 25,89	200	140	10	20	6	1,088.64	xxxx 2)	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 2)	1,088.64	xxxx 1)

Steel	●		●	●	○
Stainless steel			●		
Cast iron	●				
Non ferrous metals		●			●
Heat resistant alloys					
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

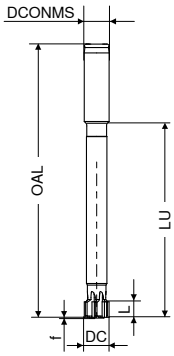
→ v_c Page 60–63

Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 636 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole



f ≈ 0,1 mm

DBG-P	DBC	DBG-P
TiAlN	DLC	TiAlN

56Q.65
≤ 5xD
∢ 45°
ASG0106
HM
Blind hole

56Q.17
≤ 5xD
∢ 45/8°
ASG0706
HM
Blind hole

56Q.65
≤ 5xD
∢ 45°
ASG3000
HM
Blind hole

DC H7	OAL	LU	L	DCONMS h6	ZEFP	NEW U3 Article no. 40 645 ...		NEW U3 Article no. 40 641 ...		NEW U3 Article no. 40 665 ...	
mm	mm	mm	mm	mm		£		£		£	
5,60 - 5,99	130	85	10	12	4	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 1)
6,00	130	85	10	12	4	633.55	06000 1)	633.55	06000 1)	633.55	06000 1)
6,01 - 7,99	130	85	10	12	4	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 1)
8,00	130	85	10	12	4	633.55	08000 1)	633.55	08000 1)	633.55	08000 1)
8,01 - 8,89	130	85	10	12	4	633.55	xxxx 1)	633.55	xxxx 1)	633.55	xxxx 1)
8,90 - 9,89	130	85	10	12	6	729.57	xxxx 1)	729.57	xxxx 1)	729.57	xxxx 1)
9,90 - 9,99	160	115	10	12	6	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 1)
10,00	160	115	10	12	6	809.88	10000 1)	809.88	10000 1)	809.88	10000 1)
10,01 - 11,99	160	115	10	12	6	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 1)
12,00	160	115	10	12	6	809.88	12000 1)	809.88	12000 1)	809.88	12000 1)
12,01 - 13,99	160	115	10	12	6	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 1)
14,00	160	115	10	12	6	809.88	14000 1)	809.88	14000 1)	809.88	14000 1)
14,01 - 14,99	160	115	10	12	6	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 1)
15,00	160	115	10	12	6	809.88	15000 1)	809.88	15000 1)	809.88	15000 1)
15,01 - 15,89	160	115	10	12	6	809.88	xxxx 1)	809.88	xxxx 1)	809.88	xxxx 1)
15,90 - 15,99	180	130	10	16	6	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 1)
16,00	180	130	10	16	6	896.79	16000 1)	896.79	16000 1)	896.79	16000 1)
16,01 - 17,99	180	130	10	16	6	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 1)
18,00	180	130	10	16	6	896.79	18000 1)	896.79	18000 1)	896.79	18000 1)
18,01 - 18,89	180	130	10	16	6	896.79	xxxx 1)	896.79	xxxx 1)	896.79	xxxx 1)
18,90 - 19,99	200	140	10	20	6	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 1)
20,00	200	140	10	20	6	1,088.64	20000 1)	1,088.64	20000 1)	1,088.64	20000 1)
20,01 - 25,89	200	140	10	20	6	1,088.64	xxxx 1)	1,088.64	xxxx 1)	1,088.64	xxxx 1)

Steel	●		●
Stainless steel	●		
Cast iron			●
Non ferrous metals		●	
Heat resistant alloys			
Hardened materials			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

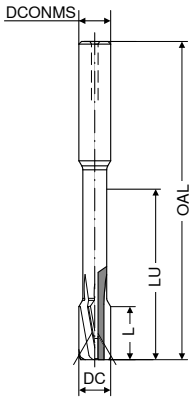
→ v_c Page 60–63

Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 645 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings



	Fullmax UNI	Fullmax VA	Fullmax ALU
	DBG-U	DBQ	DBC-N
			
	52P.57 HA Left Hand Helix ◁ 30° ASG2210 Solid carbide Through hole	52S.44 HA Left Hand Helix ◁ 30° ASG2231 Solid carbide Through hole	52N.17 HA straight flute ◁ 30° ASG2270 Solid carbide Through hole
	NEW U4	NEW U4	NEW U4
	Article no. 40 484 ...	Article no. 40 401 ...	Article no. 40 471 ...

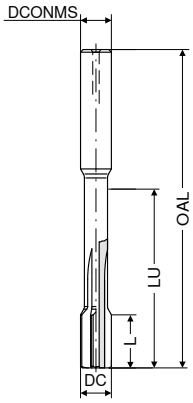
DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	£	Article no. 40 484 ...	£	Article no. 40 401 ...	£	Article no. 40 471 ...
4	60	12	32	4	4	129.50	04000	142.26	04000	142.26	04000
5	76	12	40	6	4	131.47	05000	145.21	05000	144.22	05000
6	76	12	40	6	4	134.42	06000	147.17	06000	147.17	06000
7	101	16	65	8	6	140.30	07000	154.04	07000	154.04	07000
8	101	16	65	8	6	140.30	08000	154.04	08000	154.04	08000
9	108	16	68	10	6	198.19	09000	217.81	09000	218.79	09000
10	108	16	68	10	6	198.19	10000	217.81	10000	218.79	10000
11	130	20	85	12	6	262.94	11000	288.45	11000	288.45	11000
12	130	20	85	12	6	262.94	12000	288.45	12000	288.45	12000
16	150	20	102	16	6	345.35	16000	379.69	16000	379.69	16000

Steel	●		
Stainless steel	●	●	
Cast iron	●		
Non ferrous metals	○		●
Heat resistant alloys	○		
Hardened materials	○		

→ v_c Page 64+65

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings



Fullmax UNI	Fullmax VA	Fullmax ALU
DBG-U	DBQ	DBC-N
		
52M.57	52T.45	52Q.17
HA	HA	HA
straight flute	straight flute	straight flute
◁ 60°	◁ 45°	◁ 60°
ASG2110	ASG2131	ASG2170
Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole
NEW U4	NEW U4	NEW U4
Article no. 40 485 ...	Article no. 40 402 ...	Article no. 40 472 ...
£	£	£

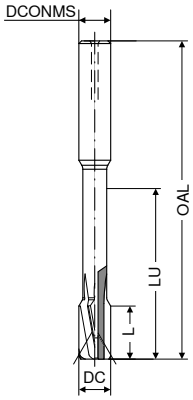
DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP					
4	60	12	32	4	4	107.92	04000	118.71	04000	118.71	04000
5	76	12	40	6	4	109.88	05000	121.66	05000	120.67	05000
6	76	12	40	6	4	114.80	06000	126.56	06000	125.59	06000
7	101	16	65	8	6	120.67	07000	132.45	07000	131.47	07000
8	101	16	65	8	6	120.67	08000	132.45	08000	131.47	08000
9	108	16	68	10	6	172.68	09000	190.34	09000	188.38	09000
10	108	16	68	10	6	172.68	10000	190.34	10000	188.38	10000
11	130	20	85	12	6	229.58	11000	252.15	11000	251.16	11000
12	130	20	85	12	6	229.58	12000	252.15	12000	251.16	12000
16	150	20	102	16	6	309.05	16000	340.45	16000	338.49	16000

Steel	●		
Stainless steel	●	●	
Cast iron	●		
Non ferrous metals	○		●
Heat resistant alloys	○		
Hardened materials	○		

→ v_c Page 64+65

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm



Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52P.57	52S.44	52J.65	52N.17	52G.55
HA	HA	HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
NEW U4	NEW U4	NEW U4	NEW U4	NEW U4
Article no. 40 486 ...	Article no. 40 403 ...	Article no. 40 477 ...	Article no. 40 473 ...	Article no. 40 475 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£		£		£		£		£	
2,96 - 3,96	60	12	32	4	4	294.47	xxxxx[1]	301.25	xxxxx[2]	301.25	xxxxx[1]	301.25	xxxxx[1]	301.25	xxxxx[1]
3,97	60	12	32	4	4	137.36	03970	151.10	03970	301.25	03970[1]	301.25	03970[1]	301.25	03970[1]
3,98	60	12	32	4	4	137.36	03980	151.10	03980	301.25	03980[1]	301.25	03980[1]	301.25	03980[1]
3,99	60	12	32	4	4	137.36	03990	151.10	03990	301.25	03990[1]	301.25	03990[1]	301.25	03990[1]
4,00	60	12	32	4	4	137.36	04000	151.10	04000	343.55	04000[1]	301.25	04000[1]	343.55	04000[1]
4,01	60	12	32	4	4	137.36	04010	151.10	04010	301.25	04010[1]	301.25	04010[1]	301.25	04010[1]
4,02	60	12	32	4	4	137.36	04020	151.10	04020	301.25	04020[1]	301.25	04020[1]	301.25	04020[1]
4,03	60	12	32	4	4	137.36	04030	151.10	04030	301.25	04030[1]	301.25	04030[1]	301.25	04030[1]
4,04 - 4,05	60	12	32	4	4	294.47	xxxxx[1]	301.25	xxxxx[2]	301.25	xxxxx[1]	301.25	xxxxx[1]	301.25	xxxxx[1]
4,06 - 4,96	76	12	40	6	4	298.93	xxxxx[1]	312.32	xxxxx[2]	312.32	xxxxx[1]	312.32	xxxxx[1]	312.32	xxxxx[1]
4,97	76	12	40	6	4	140.30	04970	154.04	04970	312.32	04970[1]	312.32	04970[1]	312.32	04970[1]
4,98	76	12	40	6	4	140.30	04980	154.04	04980	312.32	04980[1]	312.32	04980[1]	312.32	04980[1]
4,99	76	12	40	6	4	140.30	04990	154.04	04990	312.32	04990[1]	312.32	04990[1]	312.32	04990[1]
5,00	76	12	40	6	4	140.30	05000	154.04	05000	354.79	05000[1]	312.32	05000[1]	354.79	05000[1]
5,01	76	12	40	6	4	140.30	05010	154.04	05010	312.32	05010[1]	312.32	05010[1]	312.32	05010[1]
5,02	76	12	40	6	4	140.30	05020	154.04	05020	312.32	05020[1]	312.32	05020[1]	312.32	05020[1]
5,03	76	12	40	6	4	140.30	05030	154.04	05030	312.32	05030[1]	312.32	05030[1]	312.32	05030[1]
5,04 - 5,96	76	12	40	6	4	298.93	xxxxx[1]	312.32	xxxxx[2]	312.32	xxxxx[1]	312.32	xxxxx[1]	312.32	xxxxx[1]
5,97	76	12	40	6	4	141.28	05970	156.00	05970	312.32	05970[1]	312.32	05970[1]	312.32	05970[1]
5,98	76	12	40	6	4	141.28	05980	156.00	05980	312.32	05980[1]	312.32	05980[1]	312.32	05980[1]
5,99	76	12	40	6	4	141.28	05990	156.00	05990	312.32	05990[1]	312.32	05990[1]	312.32	05990[1]
6,00	76	12	40	6	4	141.28	06000	156.00	06000	354.79	06000[1]	312.32	06000[1]	354.79	06000[1]
6,01	76	12	40	6	4	141.28	06010	156.00	06010	312.32	06010[1]	312.32	06010[1]	312.32	06010[1]
6,02	76	12	40	6	4	141.28	06020	156.00	06020	312.32	06020[1]	312.32	06020[1]	312.32	06020[1]
6,03	76	12	40	6	4	141.28	06030	156.00	06030	312.32	06030[1]	312.32	06030[1]	312.32	06030[1]
6,04 - 6,05	76	12	40	6	4	303.39	xxxxx[1]	312.32	xxxxx[2]	312.32	xxxxx[1]	312.32	xxxxx[1]	312.32	xxxxx[1]
6,06 - 7,96	101	16	65	8	6	314.64	xxxxx[1]	321.24	xxxxx[2]	321.24	xxxxx[1]	321.24	xxxxx[1]	321.24	xxxxx[1]
7,97	101	16	65	8	6	148.15	07970	162.87	07970	321.24	07970[1]	321.24	07970[1]	321.24	07970[1]
7,98	101	16	65	8	6	148.15	07980	162.87	07980	321.24	07980[1]	321.24	07980[1]	321.24	07980[1]

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
Hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

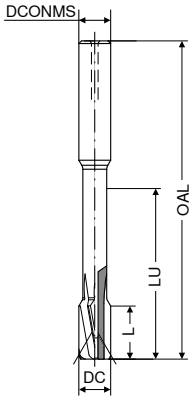
→ v_c Page 64+65

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm



Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52P.57	52S.44	52J.65	52N.17	52G.55
HA	HA	HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
NEW U4	NEW U4	NEW U4	NEW U4	NEW U4
Article no. 40 486 ...	Article no. 40 403 ...	Article no. 40 477 ...	Article no. 40 473 ...	Article no. 40 475 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£	£	£	£	£
7,99	101	16	65	8	6	148.15 07990	162.87 07990	321.24 07990 1)	321.24 07990 1)	321.24 07990 1)
8,00	101	16	65	8	6	148.15 08000	162.87 08000	365.86 08000 1)	321.24 08000 1)	365.86 08000 1)
8,01	101	16	65	8	6	148.15 08010	162.87 08010	321.24 08010 1)	321.24 08010 1)	321.24 08010 1)
8,02	101	16	65	8	6	148.15 08020	162.87 08020	321.24 08020 1)	321.24 08020 1)	321.24 08020 1)
8,03	101	16	65	8	6	148.15 08030	162.87 08030	321.24 08030 1)	321.24 08030 1)	321.24 08030 1)
8,04 - 8,05	101	16	65	8	6	314.64 xxxxx 1)	321.24 xxxxx 2)	321.24 xxxxx 1)	321.24 xxxxx 1)	321.24 xxxxx 1)
8,06 - 9,96	108	16	68	10	6	390.48 xxxxx 1)	452.95 xxxxx 2)	452.95 xxxxx 1)	452.95 xxxxx 1)	452.95 xxxxx 1)
9,97	108	16	68	10	6	210.94 09970	232.53 09970	452.95 09970 1)	452.95 09970 1)	452.95 09970 1)
9,98	108	16	68	10	6	210.94 09980	232.53 09980	452.95 09980 1)	452.95 09980 1)	452.95 09980 1)
9,99	108	16	68	10	6	210.94 09990	232.53 09990	452.95 09990 1)	452.95 09990 1)	452.95 09990 1)
10,00	108	16	68	10	6	210.94 10000	232.53 10000	515.41 10000 1)	452.95 10000 1)	515.41 10000 1)
10,01	108	16	68	10	6	210.94 10010	232.53 10010	452.95 10010 1)	452.95 10010 1)	452.95 10010 1)
10,02	108	16	68	10	6	210.94 10020	232.53 10020	452.95 10020 1)	452.95 10020 1)	452.95 10020 1)
10,03	108	16	68	10	6	210.94 10030	232.53 10030	452.95 10030 1)	452.95 10030 1)	452.95 10030 1)
10,04 - 10,05	108	16	68	10	6	390.48 xxxxx 1)	452.95 xxxxx 2)	452.95 xxxxx 1)	452.95 xxxxx 1)	452.95 xxxxx 1)
10,06 - 11,96	130	20	85	12	6	588.94 xxxxx 1)	606.78 xxxxx 2)	606.78 xxxxx 1)	606.78 xxxxx 1)	606.78 xxxxx 1)
11,97	130	20	85	12	6	280.60 11970	309.05 11970	606.78 11970 1)	606.78 11970 1)	606.78 11970 1)
11,98	130	20	85	12	6	280.60 11980	309.05 11980	606.78 11980 1)	606.78 11980 1)	606.78 11980 1)
11,99	130	20	85	12	6	280.60 11990	309.05 11990	606.78 11990 1)	606.78 11990 1)	606.78 11990 1)
12,00	130	20	85	12	6	280.60 12000	309.05 12000	689.41 12000 1)	606.78 12000 1)	689.41 12000 1)
12,01	130	20	85	12	6	280.60 12010	309.05 12010	606.78 12010 1)	606.78 12010 1)	606.78 12010 1)
12,02	130	20	85	12	6	280.60 12020	309.05 12020	606.78 12020 1)	606.78 12020 1)	606.78 12020 1)
12,03	130	20	85	12	6	280.60 12030	309.05 12030	606.78 12030 1)	606.78 12030 1)	606.78 12030 1)
12,04 - 12,05	130	20	85	12	6	588.94 xxxxx 1)	606.78 xxxxx 2)	606.78 xxxxx 1)	606.78 xxxxx 1)	606.78 xxxxx 1)
12,06 - 14,05	130	20	85	14	6	687.09 xxxxx 1)	707.26 xxxxx 2)	707.26 xxxxx 1)	707.26 xxxxx 1)	707.26 xxxxx 1)
14,06 - 16,05	150	20	102	16	6	783.11 xxxxx 1)	803.10 xxxxx 2)	803.10 xxxxx 1)	803.10 xxxxx 1)	803.10 xxxxx 1)
16,06 - 18,05	150	20	102	18	6	834.33 xxxxx 1)	872.34 xxxxx 2)	872.34 xxxxx 1)	872.34 xxxxx 1)	872.34 xxxxx 1)
18,06 - 20,05	160	20	110	20	6	885.73 xxxxx 1)	919.10 xxxxx 2)	919.10 xxxxx 1)	919.10 xxxxx 1)	919.10 xxxxx 1)

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
Hardened materials	○				●

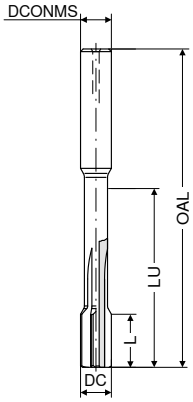
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 64+65

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm



DC +0,004/+0,005	OAL	L	LU	DCONMS h6	ZEFP	Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
						DBG-U	DBQ	DBG-P	DBC-N	DBF-A
										
						52M.57 HA straight flute ◁ 60° ASG2110 Solid carbide Blind hole	52T.45 HA straight flute ◁ 45° ASG2131 Solid carbide Blind hole	52K.65 HA straight flute ◁ 30° ASG2350 Solid carbide Blind hole	52Q.17 HA straight flute ◁ 60° ASG2170 Solid carbide Blind hole	52H.55 HA straight flute ◁ 30° ASG2360 Solid carbide Blind hole
						NEW U4	NEW U4	NEW U4	NEW U4	NEW U4
						Article no. 40 487 ...	Article no. 40 404 ...	Article no. 40 478 ...	Article no. 40 474 ...	Article no. 40 476 ...
mm	mm	mm	mm	mm		£	£	£	£	£
2,96 - 3,96	60	12	32	4	4	245.39 xxxxx[1]	254.31 xxxxx[2]	254.31 xxxxx[2]	254.31 xxxxx[1]	254.31 xxxxx[1]
3,97	60	12	32	4	4	115.77 03970	127.55 03970	254.31 03970[2]	254.31 03970[1]	254.31 03970[1]
3,98	60	12	32	4	4	115.77 03980	127.55 03980	254.31 03980[2]	254.31 03980[1]	254.31 03980[1]
3,99	60	12	32	4	4	115.77 03990	127.55 03990	254.31 03990[2]	254.31 03990[1]	254.31 03990[1]
4,00	60	12	32	4	4	115.77 04000	127.55 04000	254.31 04000[2]	254.31 04000[1]	290.01 04000[1]
4,01	60	12	32	4	4	115.77 04010	127.55 04010	254.31 04010[2]	254.31 04010[1]	254.31 04010[1]
4,02	60	12	32	4	4	115.77 04020	127.55 04020	254.31 04020[2]	254.31 04020[1]	254.31 04020[1]
4,03	60	12	32	4	4	115.77 04030	127.55 04030	254.31 04030[2]	254.31 04030[1]	254.31 04030[1]
4,04 - 4,05	60	12	32	4	4	245.39 xxxxx[1]	254.31 xxxxx[2]	254.31 xxxxx[2]	254.31 xxxxx[1]	254.31 xxxxx[1]
4,06 - 4,96	76	12	40	6	4	252.17 xxxxx[1]	261.10 xxxxx[2]	261.10 xxxxx[1]	261.10 xxxxx[1]	261.10 xxxxx[1]
4,97	76	12	40	6	4	118.71 04970	129.50 04970	261.10 04970[2]	261.10 04970[1]	261.10 04970[1]
4,98	76	12	40	6	4	118.71 04980	129.50 04980	261.10 04980[2]	261.10 04980[1]	261.10 04980[1]
4,99	76	12	40	6	4	118.71 04990	129.50 04990	261.10 04990[2]	261.10 04990[1]	261.10 04990[1]
5,00	76	12	40	6	4	118.71 05000	129.50 05000	261.10 05000[2]	261.10 05000[1]	296.79 05000[1]
5,01	76	12	40	6	4	118.71 05010	129.50 05010	261.10 05010[2]	261.10 05010[1]	261.10 05010[1]
5,02	76	12	40	6	4	118.71 05020	129.50 05020	261.10 05020[2]	261.10 05020[1]	261.10 05020[1]
5,03	76	12	40	6	4	118.71 05030	129.50 05030	261.10 05030[2]	261.10 05030[1]	261.10 05030[1]
5,04 - 5,96	76	12	40	6	4	252.17 xxxxx[1]	261.10 xxxxx[2]	261.10 xxxxx[2]	261.10 xxxxx[1]	261.10 xxxxx[1]
5,97	76	12	40	6	4	120.67 05970	132.45 05970	261.10 05970[2]	261.10 05970[1]	261.10 05970[1]
5,98	76	12	40	6	4	120.67 05980	132.45 05980	261.10 05980[2]	261.10 05980[1]	261.10 05980[1]
5,99	76	12	40	6	4	120.67 05990	132.45 05990	261.10 05990[2]	261.10 05990[1]	261.10 05990[1]
6,00	76	12	40	6	4	120.67 06000	132.45 06000	261.10 06000[2]	261.10 06000[1]	296.79 06000[1]
6,01	76	12	40	6	4	120.67 06010	132.45 06010	261.10 06010[2]	261.10 06010[1]	261.10 06010[1]
6,02	76	12	40	6	4	120.67 06020	132.45 06020	261.10 06020[2]	261.10 06020[1]	261.10 06020[1]
6,03	76	12	40	6	4	120.67 06030	132.45 06030	261.10 06030[2]	261.10 06030[1]	261.10 06030[1]
6,04 - 6,05	76	12	40	6	4	254.31 xxxxx[1]	261.10 xxxxx[2]	261.10 xxxxx[2]	261.10 xxxxx[1]	261.10 xxxxx[1]
6,06 - 7,96	101	16	65	8	6	272.16 xxxxx[1]	281.08 xxxxx[2]	281.08 xxxxx[1]	281.08 xxxxx[1]	281.08 xxxxx[1]
7,97	101	16	65	8	6	126.56 07970	139.32 07970	281.08 07970[2]	281.08 07970[1]	281.08 07970[1]
7,98	101	16	65	8	6	126.56 07980	139.32 07980	281.08 07980[2]	281.08 07980[1]	281.08 07980[1]

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 64+65

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
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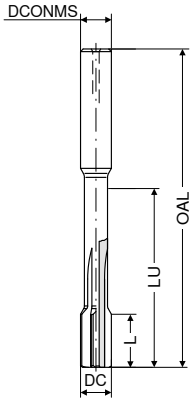
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm



Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52M.57	52T.45	52K.65	52Q.17	52H.55
HA	HA	HA	HA	HA
straight flute	straight flute	straight flute	straight flute	straight flute
◁ 60°	◁ 45°	◁ 30°	◁ 60°	◁ 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005	OAL	L	LU	DCONMS h6	ZEFP	NEW U4 Article no. 40 487 ...	NEW U4 Article no. 40 404 ...	NEW U4 Article no. 40 478 ...	NEW U4 Article no. 40 474 ...	NEW U4 Article no. 40 476 ...
mm	mm	mm	mm	mm		£	£	£	£	£
7,99	101	16	65	8	6	126.56 07990	139.32 07990	281.08 07990 2)	281.08 07990 1)	281.08 07990 1)
8,00	101	16	65	8	6	126.56 08000	139.32 08000	281.08 08000 2)	281.08 08000 1)	321.24 08000 1)
8,01	101	16	65	8	6	126.56 08010	139.32 08010	281.08 08010 2)	281.08 08010 1)	281.08 08010 1)
8,02	101	16	65	8	6	126.56 08020	139.32 08020	281.08 08020 2)	281.08 08020 1)	281.08 08020 1)
8,03	101	16	65	8	6	126.56 08030	139.32 08030	281.08 08030 2)	281.08 08030 1)	281.08 08030 1)
8,04 - 8,05	101	16	65	8	6	272.16 xxxxx 1)	281.08 xxxxx 2)	281.08 xxxxx 2)	281.08 xxxxx 1)	281.08 xxxxx 1)
8,06 - 9,96	108	16	68	10	6	345.87 xxxxx 1)	406.01 xxxxx 2)	406.01 xxxxx 1)	406.01 xxxxx 1)	406.01 xxxxx 1)
9,97	108	16	68	10	6	184.45 09970	203.09 09970	406.01 09970 2)	406.01 09970 1)	406.01 09970 1)
9,98	108	16	68	10	6	184.45 09980	203.09 09980	406.01 09980 2)	406.01 09980 1)	406.01 09980 1)
9,99	108	16	68	10	6	184.45 09990	203.09 09990	406.01 09990 2)	406.01 09990 1)	406.01 09990 1)
10,00	108	16	68	10	6	184.45 10000	203.09 10000	406.01 10000 2)	406.01 10000 1)	461.87 10000 1)
10,01	108	16	68	10	6	184.45 10010	203.09 10010	406.01 10010 2)	406.01 10010 1)	406.01 10010 1)
10,02	108	16	68	10	6	184.45 10020	203.09 10020	406.01 10020 2)	406.01 10020 1)	406.01 10020 1)
10,03	108	16	68	10	6	184.45 10030	203.09 10030	406.01 10030 2)	406.01 10030 1)	406.01 10030 1)
10,04 - 10,05	108	16	68	10	6	345.87 xxxxx 1)	406.01 xxxxx 2)	406.01 xxxxx 2)	406.01 xxxxx 1)	406.01 xxxxx 1)
10,06 - 11,96	130	20	85	12	6	524.33 xxxxx 1)	553.24 xxxxx 2)	553.24 xxxxx 1)	553.24 xxxxx 1)	553.24 xxxxx 1)
11,97	130	20	85	12	6	246.26 11970	270.79 11970	553.24 11970 2)	553.24 11970 1)	553.24 11970 1)
11,98	130	20	85	12	6	246.26 11980	270.79 11980	553.24 11980 2)	553.24 11980 1)	553.24 11980 1)
11,99	130	20	85	12	6	246.26 11990	270.79 11990	553.24 11990 2)	553.24 11990 1)	553.24 11990 1)
12,00	130	20	85	12	6	246.26 12000	270.79 12000	553.24 12000 2)	553.24 12000 1)	629.09 12000 1)
12,01	130	20	85	12	6	246.26 12010	270.79 12010	553.24 12010 2)	553.24 12010 1)	553.24 12010 1)
12,02	130	20	85	12	6	246.26 12020	270.79 12020	553.24 12020 2)	553.24 12020 1)	553.24 12020 1)
12,03	130	20	85	12	6	246.26 12030	270.79 12030	553.24 12030 2)	553.24 12030 1)	553.24 12030 1)
12,04 - 12,05	130	20	85	12	6	524.33 xxxxx 1)	553.24 xxxxx 2)	553.24 xxxxx 2)	553.24 xxxxx 1)	553.24 xxxxx 1)
12,06 - 14,05	130	20	85	14	6	609.10 xxxxx 1)	635.87 xxxxx 2)	635.87 xxxxx 1)	635.87 xxxxx 1)	635.87 xxxxx 1)
14,06 - 16,05	150	20	102	16	6	704.94 xxxxx 1)	734.03 xxxxx 2)	734.03 xxxxx 1)	734.03 xxxxx 1)	734.03 xxxxx 1)
16,06 - 18,05	150	20	102	18	6	747.42 xxxxx 1)	776.33 xxxxx 2)	776.33 xxxxx 1)	776.33 xxxxx 1)	776.33 xxxxx 1)
18,06 - 20,05	160	20	110	20	6	809.88 xxxxx 1)	834.33 xxxxx 2)	834.33 xxxxx 1)	834.33 xxxxx 1)	834.33 xxxxx 1)

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 64+65

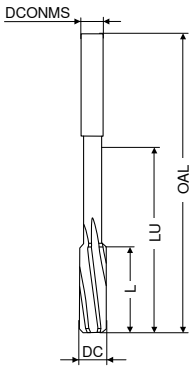
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ from Ø 22 mm, similar to DIN 8093-2B

NC

TiAlN



Left Hand Helix
Solid carbide

Left Hand Helix
Solid carbide

DC $_{H7}$	OAL	L	LU	DCONMS $_{h6}$	ZEFP	U4 Article no. 40 420 ...		U4 Article no. 40 421 ...	
mm	mm	mm	mm	mm		£		£	
2.0	50	12	18.5	3	4	62.27	**020**	82.41	**020**
2.5	60	16	29.0	3	4	62.27	**025**	82.41	**025**
3.0	65	17	33.0	4	6	64.83	**030**	85.92	**030**
3.2	65	18	33.0	4	6	64.83	**032**	85.92	**032**
3.5	75	18	43.0	4	6	64.83	**035**	85.92	**035**
4.0	75	19	43.0	4	6	77.62	**040**	102.81	**040**
4.5	80	21	39.0	6	6	77.62	**045**	102.81	**045**
5.0	93	23	52.0	6	6	86.99	**050**	115.24	**050**
5.5	93	26	53.0	6	6	86.99	**055**	115.24	**055**
6.0	93	26	53.0	6	6	93.79	**060**	124.35	**060**
6.5	101	28	61.0	6	6	93.79	**065**	124.35	**065**
7.0	109	31	68.0	8	6	104.02	**070**	137.88	**070**
7.5	109	31	68.0	8	6	104.02	**075**	137.88	**075**
8.0	117	33	77.0	8	6	121.13	**080**	160.33	**080**
8.5	117	33	77.0	8	6	121.13	**085**	160.33	**085**
9.0	125	36	80.0	10	6	132.20	**090**	175.19	**090**
9.5	125	36	80.0	10	6	132.20	**095**	175.19	**095**
10.0	133	38	88.0	10	6	141.59	**100**	187.43	**100**
10.5	133	38	88.0	10	6	141.59	**105**	187.43	**105**
11.0	142	41	97.0	10	6	182.51	**110**	241.24	**110**
12.0	151	44	100.0	12	6	182.51	**120**	241.24	**120**
13.0	151	44	100.0	12	6	179.12	**130**	237.53	**130**
14.0	160	47	106.0	16	6	179.12	**140** 1)	237.53	**140** 1)
15.0	162	50	108.0	16	6	191.08	**150** 1)	252.37	**150** 1)
16.0	170	52	116.0	16	6	196.11	**160** 1)	259.82	**160** 1)
17.0	175	52	121.0	18	6	201.25	**170** 1)	267.22	**170** 1)
18.0	182	52	128.0	18	6	202.97	**180** 1)	269.10	**180** 1)
19.0	189	52	133.0	20	6	211.47	**190** 1)	280.21	**190** 1)
20.0	195	52	139.0	20	6	213.22	**200** 1)	282.08	**200** 1)
22.0	160	25	105.0	20	6	213.22	**220** 1)		
24.0	180	25	125.0	20	8	259.29	**240** 1)		
25.0	180	25	125.0	20	8	259.29	**250** 1)		
26.0	180	25	125.0	20	8	291.69	**260** 1)		
28.0	180	25	119.0	25	8	305.31	**280** 1)		
30.0	200	25	139.0	25	8	315.54	**300** 1)		

Steel	●	●
Stainless steel		
Cast iron	○	●
Non ferrous metals	●	
Heat resistant alloys	○	
Hardened materials		

1) with carbide cutting edges

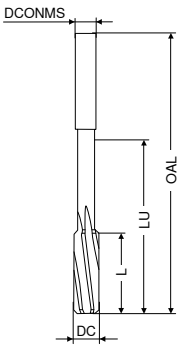
→ v_c Page 66+67

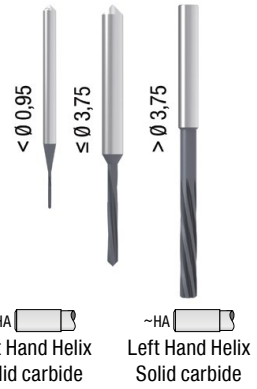
NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.59–0.95 mm similar to DIN 8093-B
- ▲ Ø 0.96–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN





Left Hand Helix
Solid carbide

Left Hand Helix
Solid carbide

DC +0,004	OAL	L	LU	DCONMS h6	ZEFP	U4 Article no. 40 430 ...		U4 Article no. 40 431 ...	
mm	mm	mm	mm	mm		£		£	
0,59 - 0,64	45	5	7.5	3	4	110.38	xxxxx[2]		
0,65 - 0,74	45	5	7.5	3	4	110.38	xxxxx[2]		
0,75 - 0,84	45	6	8.0	3	4	110.38	xxxxx[2]		
0,85 - 0,95	45	6	8.0	3	4	110.38	xxxxx[2]		
0,96	50	6	17.5	3	3	86.25	00960[2]		
0,97	50	6	17.5	3	3	86.25	00970[2]		
0,98	50	6	17.5	3	3	86.25	00980[1]		
0,99	50	6	17.5	3	3	86.25	00990[1]		
1,00	50	6	17.5	3	3	86.25	01000[1]	131.39	01000[1]
1,01	50	6	17.5	3	3	86.25	01010[1]	131.39	01010[1]
1,02	50	6	17.5	3	3	86.25	01020[1]	131.39	01020[1]
1,03	50	6	17.5	3	3	86.25	01030[1]	131.39	01030[1]
1,04 - 1,06	50	6	17.5	3	3	99.21	xxxxx[1]	131.39	xxxxx[1]
1,07 - 1,18	50	9	17.5	3	3	99.21	xxxxx[1]	131.39	xxxxx[1]
1,19 - 1,32	50	9	17.5	3	3	99.21	xxxxx[1]	131.39	xxxxx[1]
1,33 - 1,50	50	9	18.0	3	3	99.21	xxxxx[1]	131.39	xxxxx[1]
1,51 - 1,70	50	10	18.0	3	3	99.21	xxxxx[1]	131.39	xxxxx[1]
1,71 - 1,90	50	11	18.5	3	4	112.12	xxxxx[1]	131.39	xxxxx[1]
1,91 - 1,97	50	12	18.5	3	4	112.12	xxxxx[1]	131.39	xxxxx[1]
1,98	50	12	18.5	3	4	112.12	01980	148.63	01980
1,99	50	12	18.5	3	4	112.12	01990	148.63	01990
2,00	50	12	18.5	3	4	112.12	02000	148.63	02000
2,01	50	12	18.5	3	4	112.12	02010	148.63	02010
2,02	50	12	18.5	3	4	112.12	02020	148.63	02020
2,03	50	12	18.5	3	4	112.12	02030	148.63	02030
2,04 - 2,12	50	12	18.5	3	4	98.82	xxxxx[1]	131.39	xxxxx[1]
2,13 - 2,36	50	12	18.5	3	4	98.82	xxxxx[1]	131.39	xxxxx[1]
2,37 - 2,47	60	16	29.0	3	4	86.25	xxxxx[1]	131.39	xxxxx[1]
2,48	60	16	29.0	3	4	86.25	02480	114.32	02480
2,49	60	16	29.0	3	4	86.25	02490	114.32	02490
2,50	60	16	29.0	3	4	86.25	02500	114.32	02500
2,51	60	16	29.0	3	4	86.25	02510	114.32	02510
2,52	60	16	29.0	3	4	86.25	02520	114.32	02520
2,53	60	16	29.0	3	4	86.25	02530	114.32	02530
2,54 - 2,65	60	16	29.0	3	4	86.25	xxxxx[1]	114.32	xxxxx[1]
2,66 - 2,80	65	17	33.0	4	6	86.25	xxxxx[1]	114.32	xxxxx[1]
2,81 - 2,96	65	17	33.0	4	6	86.25	xxxxx[1]	114.32	xxxxx[1]
2,97	65	17	33.0	4	6	74.21	02970	98.37	02970
2,98	65	17	33.0	4	6	74.21	02980	98.37	02980
2,99	65	17	33.0	4	6	74.21	02990	98.37	02990
3,00	65	17	33.0	4	6	64.83	03000	85.92	03000
3,01	65	17	33.0	4	6	74.21	03010	98.37	03010
3,02	65	17	33.0	4	6	74.21	03020	98.37	03020
3,03	65	17	33.0	4	6	74.21	03030	98.37	03030
3,04 - 3,35	65	18	33.0	4	6	99.21	xxxxx[1]	131.39	xxxxx[1]
3,36 - 3,75	75	18	43.0	4	6	99.21	xxxxx[1]	131.39	xxxxx[1]
3,76 - 3,96	75	19	43.0	4	6	99.21	xxxxx[1]	131.39	xxxxx[1]
3,97	75	19	43.0	4	6	86.99	03970	115.24	03970
3,98	75	19	43.0	4	6	86.99	03980	115.24	03980
3,99	75	19	43.0	4	6	86.99	03990	115.24	03990
4,00	75	19	43.0	4	6	77.62	04000	102.81	04000
4,01	75	19	43.0	4	6	86.99	04010	115.24	04010
4,02	75	19	43.0	4	6	86.99	04020	115.24	04020
4,03	75	19	43.0	4	6	86.99	04030	115.24	04030
4,04 - 4,25	75	19	43.0	4	6	107.81	xxxxx[1]	142.90	xxxxx[1]
4,26 - 4,75	80	21	39.0	6	6	107.81	xxxxx[1]	142.90	xxxxx[1]
4,76 - 4,96	93	23	52.0	6	6	107.81	xxxxx[1]	142.90	xxxxx[1]
4,97	93	23	52.0	6	6	95.52	04970	126.56	04970
4,98	93	23	52.0	6	6	95.52	04980	126.56	04980
4,99	93	23	52.0	6	6	95.52	04990	126.56	04990
5,00	93	23	52.0	6	6	86.99	05000	115.24	05000
5,01	93	23	52.0	6	6	95.52	05010	126.56	05010
5,02	93	23	52.0	6	6	95.52	05020	126.56	05020
5,03	93	23	52.0	6	6	95.52	05030	126.56	05030
5,04 - 5,30	93	23	52.0	6	6	116.42	xxxxx[1]	154.21	xxxxx[1]
5,31 - 5,96	93	26	53.0	6	6	116.42	xxxxx[1]	154.21	xxxxx[1]
5,97	93	26	53.0	6	6	104.02	05970	137.88	05970
5,98	93	26	53.0	6	6	104.02	05980	137.88	05980
5,99	93	26	53.0	6	6	104.02	05990	137.88	05990
6,00	93	26	53.0	6	6	93.79	06000	124.35	06000
6,01	93	26	53.0	6	6	104.02	06010	137.88	06010
6,02	93	26	53.0	6	6	104.02	06020	137.88	06020
6,03	93	26	53.0	6	6	104.02	06030	137.88	06030
6,04 - 6,70	101	28	61.0	6	6	142.32	xxxxx[1]	188.54	xxxxx[1]
6,71 - 7,50	109	31	68.0	8	6	142.32	xxxxx[1]	188.54	xxxxx[1]
7,51 - 7,96	117	33	77.0	8	6	142.32	xxxxx[1]	188.54	xxxxx[1]
7,97	117	33	77.0	8	6	129.62	07970	171.84	07970
7,98	117	33	77.0	8	6	129.62	07980	171.84	07980
7,99	117	33	77.0	8	6	129.62	07990	171.84	07990
8,00	117	33	77.0	8	6	121.13	08000	160.33	08000
8,01	117	33	77.0	8	6	129.62	08010	171.84	08010
8,02	117	33	77.0	8	6	129.62	08020	171.84	08020
8,03	117	33	77.0	8	6	129.62	08030	171.84	08030
8,04	117	33	77.0	8	6	129.62	08040	171.84	08040
8,05 - 8,50	117	33	77.0	8	6	159.57	xxxxx[1]	211.37	xxxxx[1]
8,51 - 9,04	125	36	80.0	10	6	159.57	xxxxx[1]	211.37	xxxxx[1]
9,05 - 9,50	125	36	80.0	10	6	159.57	xxxxx[1]	211.37	xxxxx[1]
9,51 - 9,96	133	38	88.0	10	6	159.57	xxxxx[1]	211.37	xxxxx[1]
9,97	133	38	88.0	10	6	151.82	09970	200.43	09970
9,98	133	38	88.0	10	6	151.82	09980	200.43	09980
9,99	133	38	88.0	10	6	151.82	09990	200.43	09990
10,00	133	38	88.0	10	6	141.59	10000	187.43	10000
10,01	133	38	88.0	10	6	151.82	10010	200.43	10010
10,02	133	38	88.0	10	6	151.82	10020	200.43	10020
10,03	133	38	88.0	10	6	151.82	10030	200.43	10030
10,04	133	38	88.0	10	6	151.82	10040	200.43	10040
10,05	133	38	88.0	10	6	151.82	10050	200.43	10050
10,06 - 10,60	133	38	88.0	10	6	189.75	xxxxx[1]	251.46	xxxxx[1]
10,61 - 11,80	142	41	97.0	10	6	189.75	xxxxx[1]	251.46	xxxxx[1]
11,81 - 11,96	151	44	100.0	12	6	189.75	xxxxx[1]	251.46	xxxxx[1]
11,97	151	44	100.0	12	6	182.51	11970	241.24	11970
11,98	151	44	100.0	12	6	182.51	11980	241.24	11980
11,99	151	44	100.0	12	6	182.51	11990	241.24	11990
12,00	151	44	100.0	12	6	172.34	12000	228.26	12000
12,01	151	44	100.0	12	6	182.51	12010	241.24	12010
12,02	151	44	100.0	12	6	182.51	12020	241.24	12020
12,03	151	44	100.0	12	6	182.51	12030	241.24	12030
12,04	151	44	100.0	12	6	182.51	12040	241.24	12040
12,05	151	44	100.0	12	6	182.51	12050	241.24	12050

Steel	●	●
Stainless steel		
Cast iron	○	●
Non ferrous metals	●	
Heat resistant alloys	○	
Hardened materials		

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

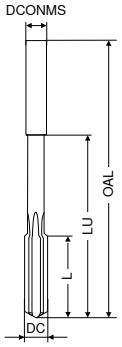
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days / Minimum order 3 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **Page 75** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 430 08050)!

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N



Left Hand Helix
Solid carbide

straight flute
Solid carbide

DC $_{H7}$	OAL	L	LU	DCONMS $_{h7}$	ZEFP	U4 Article no. 40 410 ...		U4 Article no. 40 400 ...	
mm	mm	mm	mm	mm		£		£	
2.0	49	11	31	2.0	4	27.65	020	27.65	020
2.1	49	11	31	2.0	4	33.22	021	33.22	021
2.2	53	12	35	2.2	4	33.22	022	33.22	022
2.3	53	12	35	2.2	4	33.22	023	33.22	023
2.4	57	14	34	2.5	4	33.22	024	33.22	024
2.5	57	14	34	2.5	4	29.65	025	29.65	025
2.6	57	14	34	2.5	4	35.58	026	35.58	026
2.7	61	15	36	3.0	4	35.58	027	35.58	027
2.8	61	15	36	3.0	4	35.58	028	35.58	028
2.9	61	15	36	3.0	4	35.58	029	35.58	029
3.0	61	15	36	3.0	4	31.85	030	31.85	030
3.1	61	15	36	3.0	4	38.28	031	38.28	031
3.2	70	18	40	3.5	4	38.28	032	38.28	032
3.3	70	18	40	3.5	4	38.28	033	38.28	033
3.4	70	18	40	3.5	4	38.28	034	38.28	034
3.5	70	18	40	3.5	4	36.44	035	36.44	035
3.6	70	18	40	3.5	4	43.70	036	43.70	036
3.7	70	18	40	3.5	4	43.70	037	43.70	037
3.8	75	19	43	4.0	4	43.70	038	43.70	038
3.9	75	19	43	4.0	4	43.70	039	43.70	039
4.0	75	19	43	4.0	4	39.20	040	39.20	040
4.1	75	19	43	4.0	4	47.01	041	47.01	041
4.2	75	19	43	4.0	4	47.01	042	47.01	042
4.3	75	21	42	4.5	4	47.01	043	47.01	043
4.4	75	21	42	4.5	4	47.01	044	47.01	044
4.5	75	21	42	4.5	4	42.62	045	42.62	045
4.6	75	21	42	4.5	4	51.15	046	51.15	046
4.7	75	21	42	4.5	4	51.15	047	51.15	047
4.8	86	23	52	5.0	4	51.15	048	51.15	048
4.9	86	23	52	5.0	4	51.15	049	51.15	049
5.0	86	23	52	5.0	4	48.15	050	48.15	050
5.1	86	23	52	5.0	4	55.41	051	55.41	051
5.2	86	23	52	5.0	4	55.41	052	55.41	052
5.3	86	23	52	5.0	6	55.41	053	55.41	053
5.4	93	26	57	5.6	6	55.41	054	55.41	054
5.5	93	26	57	5.6	6	50.97	055	50.97	055
5.6	93	26	57	5.6	6	58.56	056	58.56	056
5.7	93	26	57	5.6	6	58.56	057	58.56	057
5.8	93	26	57	5.6	6	58.56	058	58.56	058
5.9	93	26	57	5.6	6	58.56	059	58.56	059
6.0	93	26	57	5.6	6	60.97	060	60.97	060
6.1	93	26	57	5.6	6	70.08	061	70.08	061
6.2	93	26	57	5.6	6	70.08	062	70.08	062
6.3	101	28	63	6.3	6	70.08	063	70.08	063
6.4	101	28	63	6.3	6	70.08	064	70.08	064
6.5	101	28	63	6.3	6	68.44	065	68.44	065
6.6	101	28	63	6.3	6	78.69	066	78.69	066
6.7	101	28	63	6.3	6	78.69	067	78.69	067
6.8	109	31	69	7.1	6	78.69	068	78.69	068
6.9	109	31	69	7.1	6	78.69	069	78.69	069
7.0	109	31	69	7.1	6	76.40	070	76.40	070
7.1	109	31	69	7.1	6	87.87	071	87.87	071
7.2	109	31	69	7.1	6	87.87	072	87.87	072
7.3	109	31	69	7.1	6	87.87	073	87.87	073
7.4	109	31	69	7.1	6	87.87	074	87.87	074
7.5	109	31	69	7.1	6	82.59	075	82.59	075
7.6	117	33	75	8.0	6	94.95	076	94.95	076
7.7	117	33	75	8.0	6	94.95	077	94.95	077
7.8	117	33	75	8.0	6	94.95	078	94.95	078
7.9	117	33	75	8.0	6	94.95	079	94.95	079
8.0	117	33	75	8.0	6	87.92	080	87.92	080
8.1	117	33	75	8.0	6	96.73	081	96.73	081
8.2	117	33	75	8.0	6	96.73	082	96.73	082
8.3	117	33	75	8.0	6	96.73	083	96.73	083
8.4	117	33	75	8.0	6	96.73	084	96.73	084
8.5	117	33	75	8.0	6	95.34	085	95.34	085
8.6	125	36	81	9.0	6	104.85	086	104.85	086
8.7	125	36	81	9.0	6	104.85	087	104.85	087
8.8	125	36	81	9.0	6	104.85	088	104.85	088
8.9	125	36	81	9.0	6	104.85	089	104.85	089
9.0	125	36	81	9.0	6	102.23	090	102.23	090
9.1	125	36	81	9.0	6	112.41	091	112.41	091
9.2	125	36	81	9.0	6	112.41	092	112.41	092
9.3	125	36	81	9.0	6	112.41	093	112.41	093
9.4	125	36	81	9.0	6	112.41	094	112.41	094
9.5	125	36	81	9.0	6	109.62	095	109.62	095
9.6	133	38	87	10.0	6	120.57	096	120.57	096
9.7	133	38	87	10.0	6	120.57	097	120.57	097
9.8	133	38	87	10.0	6	120.57	098	120.57	098
9.9	133	38	87	10.0	6	120.57	099	120.57	099
10.0	133	38	87	10.0	6	117.96	100	117.96	100
10.1	133	38	87	10.0	6	129.76	101	129.76	101
10.2	133	38	87	10.0	6	129.76	102	129.76	102
10.3	133	38	87	10.0	6	129.76	103	129.76	103
10.4	133	38	87	10.0	6	129.76	104	129.76	104
10.5	133	38	87	10.0	6	123.29	105	123.29	105
10.6	133	38	87	10.0	6	135.64	106	135.64	106
10.7	142	41	96	10.0	6	135.64	107	135.64	107
10.8	142	41	96	10.0	6	135.64	108	135.64	108
10.9	142	41	96	10.0	6	135.64	109	135.64	109
11.0	142	41		10.0	6	133.62	110	133.62	110
11.1	142	41		10.0	6	146.97	111	146.97	111
11.2	142	41		10.0	6	146.97	112	146.97	112
11.3	142	41		10.0	6	146.97	113	146.97	113
11.4	142	41		10.0	6	146.97	114	146.97	114
11.5	142	41		10.0	6	141.74	115	141.74	115
11.6	142	41		10.0	6	155.99	116	155.99	116
11.7	142	41		10.0	6	155.99	117	155.99	117
11.8	142	41		10.0	6	155.99	118	155.99	118
11.9	151	44		10.0	6	155.99	119	155.99	119
12.0	151	44		10.0	6	153.65	120	153.65	120

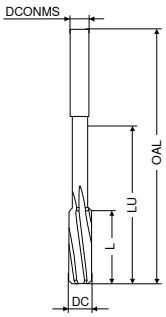
Steel	●	●
Stainless steel		
Cast iron	○	○
Non ferrous metals	●	●
Heat resistant alloys	○	○
Hardened materials		

→ v_c Page 66+67

NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy

NC



Left Hand Helix
HSS-E

DC H7	OAL	L	LU	DCONMS h6	ZEFP	U2 Article no. 40 110 ...	
mm	mm	mm	mm	mm		£	
1.5	40	8	15.5	2	3	17.06	015
1.6	43	9	16.0	2	3	19.11	016
1.7	43	9	16.0	2	3	19.11	017
1.8	46	10	19.0	2	4	19.11	018
1.9	46	10	19.0	2	4	19.11	019
2.0	49	11	21.0	2	4	16.60	020
2.1	49	11	21.0	2	4	20.15	021
2.2	53	12	22.0	3	4	20.15	022
2.3	53	12	22.0	3	4	20.15	023
2.4	57	14	26.0	3	4	20.15	024
2.5	57	14	26.0	3	4	16.60	025
2.6	57	14	26.0	3	4	21.31	026
2.7	61	15	30.0	3	6	21.31	027
2.8	61	15	30.0	3	6	21.31	028
2.9	61	15	30.0	3	6	21.31	029
3.0	61	15	30.0	3	6	15.24	030
3.1	65	16	34.0	4	6	20.15	031
3.2	65	16	34.0	4	6	20.15	032
3.3	65	16	34.0	4	6	20.15	033
3.4	70	18	39.0	4	6	20.15	034
3.5	70	18	39.0	4	6	17.90	035
3.6	70	18	39.0	4	6	22.34	036
3.7	70	18	39.0	4	6	22.34	037
3.8	75	19	44.0	4	6	22.34	038
3.9	75	19	44.0	4	6	16.19	039
4.0	75	19	44.0	4	6	16.60	040
4.1	75	19	44.0	4	6	20.98	041
4.2	75	19	44.0	4	6	20.98	042
4.3	80	21	48.0	5	6	20.98	043
4.4	80	21	48.0	5	6	20.98	044
4.5	80	21	48.0	5	6	17.90	045
4.6	80	21	48.0	5	6	22.71	046
4.7	80	21	48.0	5	6	22.71	047
4.8	86	23	54.0	5	6	22.71	048
4.9	86	23	54.0	5	6	22.71	049
5.0	86	23	54.0	5	6	17.06	050
5.1	86	23	54.0	5	6	22.71	051
5.2	86	23	54.0	5	6	22.71	052
5.3	86	23	54.0	5	6	22.71	053
5.4	93	26	53.0	6	6	22.71	054
5.5	93	26	53.0	6	6	20.98	055
5.6	93	26	53.0	6	6	22.71	056
5.7	93	26	53.0	6	6	22.71	057
5.8	93	26	53.0	6	6	22.71	058
5.9	93	26	53.0	6	6	22.71	059
6.0	93	26	53.0	6	6	18.24	060
6.1	101	28	61.0	6	6	22.71	061
6.2	101	28	61.0	6	6	22.71	062
6.3	101	28	61.0	6	6	22.71	063
6.4	101	28	61.0	6	6	22.71	064
6.5	101	28	61.0	6	6	21.85	065
6.6	101	28	61.0	6	6	22.71	066
6.7	101	28	61.0	6	6	22.71	067
6.8	109	31	69.0	8	6	22.71	068
6.9	109	31	69.0	8	6	22.71	069
7.0	109	31	69.0	8	6	21.85	070
7.1	109	31	69.0	8	6	25.42	071
7.2	109	31	69.0	8	6	25.42	072
7.3	109	31	69.0	8	6	25.42	073
7.4	109	31	69.0	8	6	25.42	074
7.5	109	31	69.0	8	6	24.87	075
7.6	117	33	77.0	8	6	26.82	076
7.7	117	33	77.0	8	6	26.82	077
7.8	117	33	77.0	8	6	26.82	078
7.9	117	33	77.0	8	6	26.82	079
8.0	117	33	77.0	8	6	22.71	080
8.1	117	33	77.0	8	6	31.27	081
8.2	117	33	77.0	8	6	31.27	082
8.3	117	33	77.0	8	6	31.27	083
8.4	117	33	77.0	8	6	31.27	084
8.5	117	33	77.0	8	6	28.48	085
8.6	125	36	81.0	10	6	28.96	086
8.7	125	36	81.0	10	6	28.96	087
8.8	125	36	81.0	10	6	28.96	088
8.9	125	36	81.0	10	6	28.96	089
9.0	125	36	81.0	10	6	26.26	090
9.1	125	36	81.0	10	6	29.89	091
9.2	125	36	81.0	10	6	29.89	092
9.3	125	36	81.0	10	6	29.89	093
9.4	125	36	81.0	10	6	29.89	094
9.5	125	36	81.0	10	6	29.31	095
9.6	133	38	89.0	10	6	30.69	096
9.7	133	38	89.0	10	6	30.69	097
9.8	133	38	89.0	10	6	30.69	098
9.9	133	38	89.0	10	6	30.69	099
10.0	133	38	89.0	10	6	26.82	100
11.0	142	41	98.0	10	6	37.53	110
12.0	151	44	106.0	10	6	39.23	120
13.0	151	44	106.0	10	6	43.55	130
14.0	160	47	110.0	14	8	45.16	140
15.0	162	50	112.0	14	8	46.09	150
16.0	170	52	120.0	14	8	47.73	160
17.0	175	54	125.0	14	8	57.17	170
18.0	182	56	132.0	14	8	58.83	180
19.0	189	58	136.0	16	8	68.18	190
20.0	195	60	142.0	16	8	65.70	200

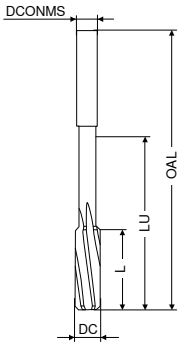
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

NC machine reamers, DIN 212-3-B

- 0.01 mm steps
- tolerance: Ø 0.95–5.50 mm = +0.004 mm
- tolerance: Ø 5.51–12.00 mm = +0.005 mm

NC 100



Left Hand Helix
HSS-E

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	U2 Article no. 40 115 ... £	
0,95 - 0,99	34	5.5	12.5	1	3	24.63	xxxxx[1]
1,00	34	5.5	12.5	1	3	24.87	01000
1,01	34	5.5	12.5	1	3	24.87	01010
1,02	34	5.5	12.5	1	3	24.87	01020
1,03 - 1,06	34	5.5	12.5	1	3	25.91	xxxxx[1]
1,07 - 1,18	36	6.5	13.0	1	3	25.91	xxxxx[1]
1,19 - 1,32	38	7.5	14.0	2	3	25.91	xxxxx[1]
1,33 - 1,41	40	8.0	15.5	2	3	24.63	xxxxx[1]
1,42 - 1,49	40	8.0	15.5	2	3	25.91	xxxxx[1]
1,50	40	8.0	15.5	2	3	21.85	01500
1,51	43	9.0	16.0	2	3	21.85	01510
1,52	43	9.0	16.0	2	3	21.85	01520
1,53 - 1,70	43	9.0	16.0	2	3	25.91	xxxxx[1]
1,71 - 1,90	46	10.0	19.0	2	4	25.91	xxxxx[1]
1,91 - 1,96	49	11.0	21.0	2	4	25.91	xxxxx[1]
1,97	49	11.0	21.0	2	4	21.85	01970
1,98	49	11.0	21.0	2	4	21.85	01980
1,99	49	11.0	21.0	2	4	21.85	01990
2,00	49	11.0	21.0	2	4	20.51	02000
2,01	49	11.0	21.0	2	4	20.51	02010
2,02	49	11.0	21.0	2	4	20.51	02020
2,03 - 2,12	49	11.0	21.0	2	4	25.91	xxxxx[1]
2,13 - 2,36	53	12.0	22.0	3	4	25.91	xxxxx[1]
2,37 - 2,47	57	14.0	26.0	3	4	25.91	xxxxx[1]
2,48	57	14.0	26.0	3	4	23.51	02480
2,49	57	14.0	26.0	3	4	23.51	02490
2,50	57	14.0	26.0	3	4	20.15	02500
2,51	57	14.0	26.0	3	4	20.15	02510
2,52	57	14.0	26.0	3	4	20.15	02520
2,53 - 2,65	57	14.0	26.0	3	4	25.91	xxxxx[1]
2,66 - 2,96	61	15.0	30.0	3	6	24.63	xxxxx[1]
2,97	61	15.0	30.0	3	6	24.07	02970
2,98	61	15.0	30.0	3	6	24.07	02980
2,99	61	15.0	30.0	3	6	24.07	02990
3,00	61	15.0	30.0	3	6	17.90	03000
3,01	61	15.0	30.0	3	6	17.90	03010
3,02	61	15.0	30.0	3	6	17.90	03020
3,03	61	15.0	30.0	3	6	25.91	03030[1]
3,04 - 3,35	65	16.0	34.0	4	6	25.91	xxxxx[1]
3,36 - 3,75	70	18.0	39.0	4	6	25.91	xxxxx[1]
3,76 - 3,96	75	19.0	44.0	4	6	25.91	xxxxx[1]
3,97	75	19.0	44.0	4	6	19.63	03970
3,98	75	19.0	44.0	4	6	19.63	03980
3,99	75	19.0	44.0	4	6	19.63	03990
4,00	75	19.0	44.0	4	6	19.63	04000
4,01	75	19.0	44.0	4	6	19.63	04010
4,02	75	19.0	44.0	4	6	19.63	04020
4,03 - 4,25	75	19.0	44.0	4	6	25.91	xxxxx[1]
4,26 - 4,75	80	21.0	48.0	5	6	24.63	xxxxx[1]
4,76 - 4,96	86	23.0	54.0	5	6	25.91	xxxxx[1]
4,97	86	23.0	54.0	5	6	21.31	04970
4,98	86	23.0	54.0	5	6	21.31	04980
4,99	86	23.0	54.0	5	6	21.31	04990
5,00	86	23.0	54.0	5	6	21.31	05000
5,01	86	23.0	54.0	5	6	21.31	05010
5,02	86	23.0	54.0	5	6	21.31	05020
5,03 - 5,30	86	23.0	54.0	5	6	25.91	xxxxx[1]
5,31 - 5,60	93	26.0	53.0	6	6	25.91	xxxxx[1]
5,61 - 5,96	93	26.0	53.0	6	6	24.63	xxxxx[1]
5,97	93	26.0	53.0	6	6	23.51	05970
5,98	93	26.0	53.0	6	6	23.51	05980
5,99	93	26.0	53.0	6	6	23.51	05990
6,00	93	26.0	53.0	6	6	23.51	06000
6,01	93	26.0	53.0	6	6	23.51	06010
6,02	93	26.0	53.0	6	6	23.51	06020
6,03	93	26.0	53.0	6	6	25.91	06030[1]
6,04 - 6,70	101	28.0	61.0	6	6	25.91	xxxxx[1]
6,71 - 7,20	109	31.0	69.0	8	6	25.91	xxxxx[1]
7,21 - 7,50	109	31.0	69.0	8	6	24.63	xxxxx[1]
7,51 - 7,96	117	33.0	77.0	8	6	28.92	xxxxx[1]
7,97	117	33.0	77.0	8	6	25.42	07970
7,98	117	33.0	77.0	8	6	25.42	07980
7,99	117	33.0	77.0	8	6	25.42	07990
8,00	117	33.0	77.0	8	6	25.42	08000
8,01	117	33.0	77.0	8	6	25.42	08010
8,02	117	33.0	77.0	8	6	25.42	08020
8,03 - 8,20	117	33.0	77.0	8	6	34.51	xxxxx[1]
8,21 - 8,50	117	33.0	77.0	8	6	34.51	xxxxx[1]
8,51 - 8,99	125	36.0	81.0	10	6	34.51	xxxxx[1]
9,00	125	36.0	81.0	10	6	32.09	09000
9,01	125	36.0	81.0	10	6	32.09	09010
9,02	125	36.0	81.0	10	6	32.09	09020
9,03 - 9,20	125	36.0	81.0	10	6	34.51	xxxxx[1]
9,21 - 9,50	125	36.0	81.0	10	6	33.12	xxxxx[1]
9,51 - 9,96	133	38.0	89.0	10	6	50.25	xxxxx[1]
9,97	133	38.0	89.0	10	6	32.09	09970
9,98	133	38.0	89.0	10	6	32.09	09980
9,99	133	38.0	89.0	10	6	32.09	09990
10,00	133	38.0	89.0	10	6	32.09	10000
10,01	133	38.0	89.0	10	6	32.09	10010
10,02	133	38.0	89.0	10	6	32.09	10020
10,03 - 10,20	133	38.0	89.0	10	6	51.71	xxxxx[1]
10,21 - 10,60	133	38.0	89.0	10	6	51.71	xxxxx[1]
10,61 - 11,20	142	41.0	98.0	10	6	48.91	xxxxx[1]
11,21 - 11,80	142	41.0	98.0	10	6	51.71	xxxxx[1]
11,81 - 11,96	151	44.0	106.0	10	6	48.91	xxxxx[1]
11,97	151	44.0	106.0	10	6	46.09	11970
11,98	151	44.0	106.0	10	6	46.09	11980
11,99	151	44.0	106.0	10	6	46.09	11990
12,00	151	44.0	106.0	10	6	46.09	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

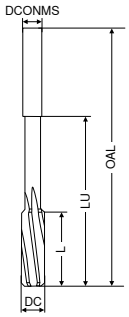
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **Page 75** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.03 mm → Article no. 40 115 08030)!

4

Machine reamers, DIN 212-B

N



Left Hand Helix
HSS-E

DC H7	OAL	L	LU	DCONMS h9	ZEFP	U2 Article no. 40 150 ... £	
mm	mm	mm	mm	mm			
1.0	34	5.5	15.0	1.0	3	21.88	010
1.1	36	6.5	15.5	1.1	3	23.07	011
1.2	38	7.5	16.5	1.2	3	21.37	012
1.3	38	7.5	16.5	1.2	3	23.87	013
1.4	40	8.0	18.0	1.4	3	19.76	014
1.5	40	8.0	18.0	1.5	3	18.14	015
1.6	43	9.0	20.0	1.6	3	20.18	016
1.7	43	9.0	20.0	1.6	3	20.18	017
1.8	46	10.0	22.0	1.8	4	20.18	018
1.9	46	10.0	22.0	1.8	4	20.18	019
2.0	49	11.0	24.0	2.0	4	17.79	020
2.1	49	11.0	24.0	2.0	4	21.37	021
2.2	53	12.0	25.0	2.2	4	21.37	022
2.3	53	12.0	25.0	2.2	4	21.37	023
2.4	57	14.0	29.0	2.5	4	21.37	024
2.5	57	14.0	29.0	2.5	4	17.79	025
2.6	57	14.0	29.0	2.5	4	22.20	026
2.7	61	15.0	33.0	2.8	6	22.20	027
2.8	61	15.0	33.0	2.8	6	22.20	028
2.9	61	15.0	36.0	3.0	6	22.20	029
3.0	61	15.0	36.0	3.0	6	16.03	030
3.1	65	16.0	36.0	3.2	6	21.01	031
3.2	65	16.0	36.0	3.2	6	21.01	032
3.3	65	16.0	36.0	3.2	6	21.01	033
3.4	70	18.0	41.0	3.5	6	21.01	034
3.5	70	18.0	41.0	3.5	6	18.52	035
3.6	70	18.0	41.0	3.5	6	23.51	036
3.7	70	18.0	41.0	3.5	6	23.51	037
3.8	75	19.0	44.0	4.0	6	23.51	038
3.9	75	19.0	44.0	4.0	6	17.31	039
4.0	75	19.0	44.0	4.0	6	17.79	040
4.1	75	19.0	44.0	4.0	6	21.88	041
4.2	75	19.0	44.0	4.0	6	21.88	042
4.3	80	21.0	48.0	4.5	6	21.88	043
4.4	80	21.0	48.0	4.5	6	21.88	044
4.5	80	21.0	48.0	4.5	6	18.52	045
4.6	80	21.0	48.0	4.5	6	23.87	046
4.7	80	21.0	48.0	4.5	6	23.87	047
4.8	86	23.0	53.0	5.0	6	23.87	048
4.9	86	23.0	53.0	5.0	6	23.87	049
5.0	86	23.0	53.0	5.0	6	18.14	050
5.1	86	23.0	53.0	5.0	6	23.87	051
5.2	86	23.0	53.0	5.0	6	23.87	052
5.3	86	23.0	53.0	5.0	6	23.87	053
5.4	93	26.0	58.0	5.6	6	23.87	054
5.5	93	26.0	58.0	5.6	6	21.88	055
5.6	93	26.0	58.0	5.6	6	23.87	056
5.7	93	26.0	58.0	5.6	6	23.87	057
5.8	93	26.0	58.0	5.6	6	23.87	058
5.9	93	26.0	58.0	5.6	6	23.87	059
6.0	93	26.0	58.0	5.6	6	19.00	060
6.1	101	28.0	64.0	6.3	6	23.87	061
6.2	101	28.0	64.0	6.3	6	23.87	062
6.3	101	28.0	64.0	6.3	6	23.87	063
6.4	101	28.0	64.0	6.3	6	23.87	064
6.5	101	28.0	64.0	6.3	6	23.07	065
6.6	101	28.0	64.0	6.3	6	23.87	066
6.7	101	28.0	64.0	6.3	6	23.87	067
6.8	109	31.0	70.0	7.1	6	24.33	068
6.9	109	31.0	70.0	7.1	6	24.33	069
7.0	109	31.0	70.0	7.1	6	23.07	070
7.1	109	31.0	70.0	7.1	6	26.78	071
7.2	109	31.0	70.0	7.1	6	26.78	072
7.3	109	31.0	70.0	7.1	6	26.78	073
7.4	109	31.0	70.0	7.1	6	26.78	074
7.5	109	31.0	70.0	7.1	6	25.94	075
7.6	117	33.0	76.0	8.0	6	27.99	076
7.7	117	33.0	76.0	8.0	6	27.99	077
7.8	117	33.0	76.0	8.0	6	27.99	078
7.9	117	33.0	76.0	8.0	6	27.99	079
8.0	117	33.0	76.0	8.0	6	23.87	080
8.1	117	33.0	76.0	8.0	6	33.32	081
8.2	117	33.0	76.0	8.0	6	33.32	082
8.3	117	33.0	76.0	8.0	6	33.32	083
8.4	117	33.0	76.0	8.0	6	33.32	084
8.5	117	33.0	76.0	8.0	6	30.14	085
8.6	125	36.0	82.0	9.0	6	30.48	086
8.7	125	36.0	82.0	9.0	6	30.48	087
8.8	125	36.0	82.0	9.0	6	30.48	088
8.9	125	36.0	82.0	9.0	6	30.48	089
9.0	125	36.0	82.0	9.0	6	27.56	090
9.1	125	36.0	82.0	9.0	6	31.71	091
9.2	125	36.0	82.0	9.0	6	31.71	092
9.3	125	36.0	82.0	9.0	6	31.71	093
9.4	125	36.0	82.0	9.0	6	31.71	094
9.5	125	36.0	82.0	9.0	6	30.84	095
9.6	133	38.0	88.0	10.0	6	32.95	096
9.7	133	38.0	88.0	10.0	6	32.95	097
9.8	133	38.0	88.0	10.0	6	32.95	098
9.9	133	38.0	88.0	10.0	6	32.95	099
10.0	133	38.0	88.0	10.0	6	27.99	100
11.0	142	41.0	97.0	10.0	6	39.52	110
12.0	151	44.0	106.0	10.0	6	41.11	120
13.0	151	44.0	106.0	10.0	6	46.09	130
14.0	160	47.0	111.0	12.5	8	47.82	140
15.0	162	50.0	113.0	12.5	8	49.39	150
16.0	170	52.0	121.0	12.5	8	51.15	160
17.0	175	54.0	124.0	14.0	8	60.19	170
18.0	182	56.0	131.0	14.0	8	61.75	180
19.0	189	58.0	132.0	16.0	8	72.51	190
20.0	195	60.0	136.0	16.0	8	69.23	200

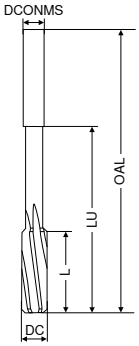
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

Machine reamers, DIN 212-B

- 0.01 mm steps
- tolerance: Ø 0.95–5.50 mm = +0.004 mm
- tolerance: Ø 5.51–12.00 mm = +0.005 mm

N 100



Left Hand Helix
HSS-E

DC +0,004/+0,005	OAL	L	LU	DCONMS h9	ZEFP	U2 Article no. 40 140 ...	
mm	mm	mm	mm	mm		£	
0,95 - 1,06	34	5.5	15.0	1.0	3	23.87	xxxxx[1]
1,07 - 1,18	36	6.5	15.5	1.1	3	23.87	xxxxx[1]
1,19 - 1,32	38	7.5	16.5	1.2	3	23.87	xxxxx[1]
1,33 - 1,39	40	8.0	18.0	1.4	3	23.87	xxxxx[1]
1,40 - 1,47	40	8.0	18.0	1.4	3	21.88	xxxxx[1]
1,48	40	8.0	18.0	1.4	3	21.88	01480
1,49	40	8.0	18.0	1.4	3	21.88	01490
1,50	40	8.0	18.0	1.4	3	20.67	01500
1,51 - 1,70	43	9.0	20.0	1.6	3	20.67	xxxxx[1]
1,71 - 1,90	46	10.0	22.0	1.8	4	20.67	xxxxx[1]
1,91 - 1,97	49	11.0	24.0	2.0	4	20.67	xxxxx[1]
1,98	49	11.0	24.0	2.0	4	20.67	01980
1,99	49	11.0	24.0	2.0	4	20.67	01990
2,00	49	11.0	24.0	2.0	4	19.39	02000
2,01	49	11.0	24.0	2.0	4	19.39	02010
2,02	49	11.0	24.0	2.0	4	19.39	02020
2,03	49	11.0	24.0	2.0	4	19.39	02030
2,04	49	11.0	24.0	2.0	4	19.39	02040
2,05	49	11.0	24.0	2.0	4	19.39	02050
2,06 - 2,09	49	11.0	24.0	2.0	4	19.39	xxxxx[1]
2,10 - 2,12	49	11.0	24.0	2.0	4	22.20	xxxxx[1]
2,13 - 2,36	53	12.0	25.0	2.2	4	22.20	xxxxx[1]
2,37 - 2,49	57	14.0	29.0	2.5	4	22.20	xxxxx[1]
2,50 - 2,59	57	14.0	29.0	2.5	4	19.00	xxxxx[1]
2,60 - 2,65	57	14.0	29.0	2.5	4	23.07	xxxxx[1]
2,66 - 2,80	61	15.0	33.0	2.8	6	23.07	xxxxx[1]
2,81 - 2,94	61	15.0	36.0	3.0	6	23.07	xxxxx[1]
2,95	61	15.0	36.0	3.0	6	23.07	02950
2,96	61	15.0	36.0	3.0	6	23.07	02960
2,97	61	15.0	36.0	3.0	6	23.07	02970
2,98	61	15.0	36.0	3.0	6	23.07	02980
2,99	61	15.0	36.0	3.0	6	23.07	02990
3,00	61	15.0	36.0	3.0	6	18.49	03000
3,01	65	16.0	36.0	3.2	6	17.31	03010
3,02	65	16.0	36.0	3.2	6	17.31	03020
3,03	65	16.0	36.0	3.2	6	17.31	03030
3,04	65	16.0	36.0	3.2	6	17.31	03040
3,05	65	16.0	36.0	3.2	6	17.31	03050
3,06	65	16.0	36.0	3.2	6	17.31	03060
3,07	65	16.0	36.0	3.2	6	17.31	03070
3,08 - 3,09	65	16.0	36.0	3.2	6	17.31	xxxxx[1]
3,10 - 3,35	65	16.0	36.0	3.2	6	21.88	xxxxx[1]
3,36 - 3,49	70	18.0	41.0	3.5	6	21.88	xxxxx[1]
3,50 - 3,59	70	18.0	41.0	3.5	6	19.00	xxxxx[1]
3,60 - 3,75	70	18.0	41.0	3.5	6	24.33	xxxxx[1]
3,76 - 3,81	75	19.0	44.0	4.0	6	24.33	xxxxx[1]
3,82 - 3,94	75	19.0	44.0	4.0	6	18.52	xxxxx[1]
3,95	75	19.0	44.0	4.0	6	18.52	03950
3,96	75	19.0	44.0	4.0	6	18.52	03960
3,97	75	19.0	44.0	4.0	6	18.52	03970
3,98	75	19.0	44.0	4.0	6	18.52	03980
3,99	75	19.0	44.0	4.0	6	18.52	03990
4,00	75	19.0	44.0	4.0	6	18.52	04000
4,01	75	19.0	44.0	4.0	6	18.52	04010
4,02	75	19.0	44.0	4.0	6	18.52	04020
4,03	75	19.0	44.0	4.0	6	18.52	04030
4,04	75	19.0	44.0	4.0	6	18.52	04040
4,05	75	19.0	44.0	4.0	6	18.52	04050
4,06	75	19.0	44.0	4.0	6	18.52	04060
4,07	75	19.0	44.0	4.0	6	18.52	04070
4,08	75	19.0	44.0	4.0	6	18.52	04080
4,09 - 4,20	75	19.0	44.0	4.0	6	18.52	xxxxx[1]
4,21 - 4,25	75	19.0	44.0	4.0	6	22.71	xxxxx[1]
4,26 - 4,75	80	21.0	48.0	4.5	5	22.71	xxxxx[1]
4,76 - 4,95	86	23.0	53.0	5.0	6	20.18	xxxxx[1]
4,96	86	23.0	53.0	5.0	6	20.18	04960
4,97	86	23.0	53.0	5.0	6	20.18	04970
4,98	86	23.0	53.0	5.0	6	20.18	04980
4,99	86	23.0	53.0	5.0	6	20.18	04990
5,00	86	23.0	53.0	5.0	6	20.18	05000
5,01	86	23.0	53.0	5.0	6	20.18	05010
5,02	86	23.0	53.0	5.0	6	20.18	05020
5,03	86	23.0	53.0	5.0	6	20.18	05030
5,04	86	23.0	53.0	5.0	6	20.18	05040
5,05	86	23.0	53.0	5.0	6	20.18	05050
5,06	86	23.0	53.0	5.0	6	20.18	05060
5,07	86	23.0	53.0	5.0	6	20.18	05070
5,08 - 5,20	86	23.0	53.0	5.0	6	20.18	xxxxx[1]
5,21 - 5,30	86	23.0	53.0	5.0	6	22.20	xxxxx[1]
5,31 - 5,94	93	26.0	58.0	5.6	6	22.20	xxxxx[1]
5,95	93	26.0	58.0	5.6	6	22.20	05950
5,96	93	26.0	58.0	5.6	6	22.20	05960
5,97	93	26.0	58.0	5.6	6	22.20	05970
5,98	93	26.0	58.0	5.6	6	22.20	05980
5,99	93	26.0	58.0	5.6	6	22.20	05990

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

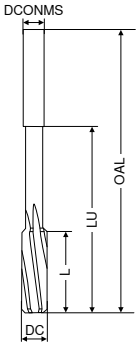
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **Page 75**.
For xxxxx please indicate requested Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

Machine reamers, DIN 212-B

- 0.01 mm steps
- tolerance: Ø 0.95–5.50 mm = +0.004 mm
- tolerance: Ø 5.51–12.00 mm = +0.005 mm

N 100



Left Hand Helix
HSS-E

DC	OAL	L	LU	DCONMS h9	ZEFP	U2 Article no. 40 140 ... £	
mm	mm	mm	mm	mm			
6,00	93	26	58	5.6	6	22.20	06000
6,01	101	28	64	6.3	6	22.20	06010
6,02	101	28	64	6.3	6	22.20	06020
6,03	101	28	64	6.3	6	22.20	06030
6,04	101	28	64	6.3	6	22.20	06040
6,05	101	28	64	6.3	6	22.20	06050
6,06 - 6,11	101	28	64	6.3	6	22.20	xxxxx 1)
6,12 - 6,34	101	28	64	6.3	6	24.33	xxxxx 1)
6,35	101	28	64	6.3	6	24.33	06350
6,36	101	28	64	6.3	6	24.33	06360 1)
6,71 - 6,94	109	31	70	7.1	6	24.33	xxxxx 1)
6,95	109	31	70	7.1	6	24.33	06950
6,96	109	31	70	7.1	6	24.33	06960
6,97	109	31	70	7.1	6	24.33	06970
6,98	109	31	70	7.1	6	24.33	06980
6,99	109	31	70	7.1	6	24.33	06990
7,00	109	31	70	7.1	6	24.33	07000
7,01	109	31	70	7.1	6	24.33	07010
7,02	109	31	70	7.1	6	24.33	07020
7,03	109	31	70	7.1	6	24.33	07030
7,04 - 7,50	109	31	70	7.1	6	24.33	xxxxx 1)
7,51 - 7,63	109	31	76	7.1	6	24.33	xxxxx 1)
7,64 - 7,94	117	33	76	8.0	6	24.33	xxxxx 1)
7,95	117	33	76	8.0	6	24.33	07950
7,96	117	33	76	8.0	6	24.33	07960
7,97	117	33	76	8.0	6	24.33	07970
7,98	117	33	76	8.0	6	24.33	07980
7,99	117	33	76	8.0	6	24.33	07990
8,00	117	33	76	8.0	6	24.33	08000
8,01	117	33	76	8.0	6	24.33	08010
8,02	117	33	76	8.0	6	24.33	08020
8,03	117	33	76	8.0	6	24.33	08030
8,04	117	33	76	8.0	6	24.33	08040
8,05	117	33	76	8.0	6	24.33	08050
8,06 - 8,20	117	33	76	8.0	6	24.33	xxxxx 1)
8,21 - 8,50	117	33	76	8.0	6	30.48	xxxxx 1)
8,51 - 8,63	117	33	82	8.0	6	30.48	xxxxx 1)
8,64 - 8,95	125	36	82	9.0	6	30.48	xxxxx 1)
8,96	125	36	82	9.0	6	30.48	08960
8,97	125	36	82	9.0	6	30.48	08970
8,98	125	36	82	9.0	6	30.48	08980
8,99	125	36	82	9.0	6	30.48	08990
9,00	125	36	82	9.0	6	30.48	09000
9,01	125	36	82	9.0	6	30.48	09010
9,02	125	36	82	9.0	6	30.48	09020
9,03 - 9,50	125	36	82	9.0	6	30.48	xxxxx 1)
9,51 - 9,63	125	36	88	9.0	6	30.48	xxxxx 1)
9,64 - 9,95	133	38	88	10.0	6	30.48	xxxxx 1)
9,96	133	38	88	10.0	6	30.48	09960
9,97	133	38	88	10.0	6	30.48	09970
9,98	133	38	88	10.0	6	30.48	09980
9,99	133	38	88	10.0	6	30.48	09990
10,00	133	38	88	10.0	6	30.48	10000
10,01	133	38	88	10.0	6	30.48	10010
10,02	133	38	88	10.0	6	30.48	10020
10,03	133	38	88	10.0	6	30.48	10030
10,04	133	38	88	10.0	6	30.48	10040
10,05	133	38	88	10.0	6	30.48	10050
10,06 - 10,09	133	38	88	10.0	6	30.48	xxxxx 1)
10,10	133	38	88	10.0	6	30.48	10100
10,11 - 10,19	133	38	88	10.0	6	30.48	xxxxx 1)
10,20	133	38	88	10.0	6	30.48	10200
10,21 - 10,69	133	38	88	10.0	6	38.23	xxxxx 1)
10,70 - 11,20	142	41	97	10.0	6	38.23	xxxxx 1)
11,21 - 11,80	142	41	97	10.0	6	43.63	xxxxx 1)
11,81 - 11,95	151	44	106	10.0	6	43.63	xxxxx 1)
11,96	151	44	106	10.0	6	43.63	11960
11,97	151	44	106	10.0	6	43.63	11970
11,98	151	44	106	10.0	6	43.63	11980
11,99	151	44	106	10.0	6	43.63	11990
12,00	151	44	106	10.0	6	43.63	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

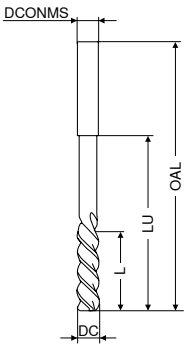
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **Page 75**.
For xxxxx please indicate requested Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

Quick spiral machine reamers, DIN 212-C

- with 45° left-hand helix and conical chamfer
- for reaming through holes in long chipping materials
- not suitable for blind holes
- the reaming allowance should be for at least 50 % greater and the feed up to 100 % higher than the normal values for reamers. This gives a clean, chatter-free surface, high roundness of the bore and a longer service life.

S



Left Hand Helix
HSS-E
Through hole

DC $_{H7}$	OAL	L	LU	DCONMS $_{h9}$	ZEFP	U2 Article no. 40 155 ... £	
mm	mm	mm	mm	mm			
1.0	34	5.5	15	1.0	2	26.29	010 1)
1.5	40	8.0	18	1.5	2	20.18	015 1)
1.8	46	10.0	22	1.8	2	24.10	018 1)
2.0	49	11.0	24	2.0	3	20.64	020 1)
2.2	53	12.0	25	2.2	3	30.64	022 1)
2.5	57	14.0	29	2.5	3	21.96	025 1)
2.8	61	15.0	33	2.8	3	34.20	028 1)
3.0	61	15.0	36	3.0	3	24.59	030 1)
3.2	65	16.0	36	3.2	3	36.37	032 1)
3.5	70	18.0	41	3.5	3	28.48	035 1)
4.0	75	19.0	44	4.0	3	24.59	040
4.5	80	21.0	48	4.5	3	28.48	045
5.0	86	23.0	53	5.0	3	27.19	050
6.0	93	26.0	58	5.6	3	26.74	060
6.5	101	28.0	64	6.3	3	32.01	065
7.0	109	31.0	70	7.1	3	29.76	070
8.0	117	33.0	76	8.0	3	29.76	080
9.0	125	36.0	82	9.0	3	39.87	090
10.0	133	38.0	88	10.0	3	37.65	100
11.0	142	41.0	97	10.0	3	48.20	110
12.0	151	44.0	106	10.0	3	45.49	120
13.0	151	44.0	106	10.0	3	64.00	130
14.0	160	47.0	111	12.5	3	59.60	140
15.0	162	50.0	113	12.5	3	60.52	150
16.0	170	52.0	121	12.5	3	64.00	160
17.0	175	54.0	124	14.0	3	95.46	170
18.0	182	56.0	131	14.0	3	87.58	180
19.0	189	58.0	132	16.0	3	99.01	190
20.0	195	60.0	136	16.0	3	95.46	200

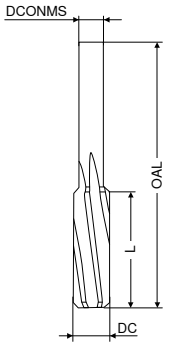
Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

→ v_c Page 68+69

1) not standardised

Stub reamers, DIN 8089-B

AR



Left Hand Helix
HSS-E
Through hole

DC $_{H7}$	OAL	L	DCONMS $_{h8}$	ZEFP	U2 Article no. 40 145 ... £	
mm	mm	mm	mm			
4.0	56	20	3.55	6	18.43	040
4.5	63	22	4.00	6	21.01	045
5.0	63	22	4.00	6	20.18	050
5.5	63	22	5.00	6	23.25	055
6.0	63	22	5.00	6	20.18	060
6.5	63	22	5.00	6	24.59	065
7.0	71	25	6.30	6	24.59	070
8.0	71	25	6.30	6	24.10	080
9.0	71	25	8.00	6	28.48	090
10.0	71	25	8.00	6	29.34	100
11.0	80	28	10.00	6	40.31	110
12.0	80	28	10.00	6	42.92	120
13.0	80	28	10.00	6	48.28	130
14.0	90	32	12.50	8	49.02	140
15.0	90	32	12.50	8	50.88	150
16.0	90	32	12.50	8	53.47	160
17.0	90	32	12.50	8	61.20	170
18.0	100	36	16.00	8	64.79	180
19.0	100	36	16.00	8	75.33	190
20.0	100	36	16.00	8	70.89	200

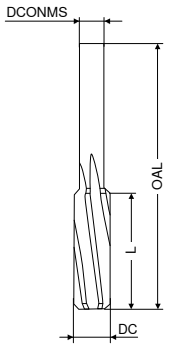
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

Stub reamers, DIN 8089-B

- 0.01 mm steps
- tolerance: Ø 3.76–5.50 mm = +0.004 mm
- tolerance: Ø 5.51–12.00 mm = +0.005 mm

AR 100



Left Hand Helix
HSS-E

DC +0,004/+0,005	OAL	L	DCONMS h8	ZEFP	U2 Article no. 40 139 ...	
mm	mm	mm	mm		£	
3,76 - 3,81	56	20	3.55	6	26.74	xxxxx 1)
3,82 - 3,94	56	20	3.55	6	19.73	xxxxx 1)
3,95	56	20	3.55	6	19.73	03950
3,96	56	20	3.55	6	19.73	03960
3,97	56	20	3.55	6	19.73	03970
3,98	56	20	3.55	6	19.73	03980
3,99	56	20	3.55	6	19.73	03990
4,00	56	20	3.55	6	19.73	04000
4,01	56	20	3.55	6	19.73	04010
4,02	56	20	3.55	6	19.73	04020
4,03 - 4,20	56	20	3.55	6	19.73	xxxxx 1)
4,21 - 4,25	56	20	3.55	6	23.66	xxxxx 1)
4,26 - 4,75	63	22	4.00	6	23.66	xxxxx 1)
4,76 - 4,94	63	22	4.00	6	21.01	xxxxx 1)
4,95	63	22	4.00	6	21.01	04950
4,96	63	22	4.00	6	21.01	04960
4,97	63	22	4.00	6	21.01	04970
4,98	63	22	4.00	6	21.01	04980
4,99	63	22	4.00	6	21.01	04990
5,00	63	22	4.00	6	21.01	05000
5,01	63	22	4.00	6	21.01	05010
5,02	63	22	4.00	6	21.01	05020
5,03	63	22	4.00	6	21.01	05030
5,04	63	22	4.00	6	21.01	05040
5,05	63	22	4.00	6	21.01	05050
5,06 - 5,20	63	22	4.00	6	21.01	xxxxx 1)
5,21 - 5,30	63	22	4.00	6	23.66	xxxxx 1)
5,31 - 5,70	63	22	5.00	6	23.66	xxxxx 1)
5,71 - 5,94	63	22	5.00	6	23.66	xxxxx 1)
5,95	63	22	5.00	6	23.66	05950
5,96	63	22	5.00	6	23.66	05960
5,97	63	22	5.00	6	23.66	05970
5,98	63	22	5.00	6	23.66	05980
5,99	63	22	5.00	6	23.66	05990
6,00	63	22	5.00	6	23.66	06000
6,01	63	22	5.00	6	23.66	06010
6,02	63	22	5.00	6	23.66	06020
6,03 - 6,11	63	22	5.00	6	23.66	xxxxx 1)
6,12 - 6,70	63	22	5.00	6	25.42	xxxxx 1)
6,71 - 6,94	71	25	6.30	6	25.42	xxxxx 1)
6,95	71	25	6.30	6	25.42	06950
6,96	71	25	6.30	6	25.42	06960
6,97	71	25	6.30	6	25.42	06970
6,98	71	25	6.30	6	25.42	06980
6,99	71	25	6.30	6	25.42	06990
7,00	71	25	6.30	6	25.42	07000
7,01	71	25	6.30	6	25.42	07010
7,02	71	25	6.30	6	25.42	07020
7,03 - 7,25	71	25	6.30	6	25.42	xxxxx 1)
7,26 - 7,94	71	25	6.30	6	25.42	xxxxx 1)
7,95	71	25	6.30	6	25.42	07950
7,96	71	25	6.30	6	25.42	07960
7,97	71	25	6.30	6	25.42	07970
7,98	71	25	6.30	6	25.42	07980
7,99	71	25	6.30	6	25.42	07990
8,00	71	25	6.30	6	25.42	08000
8,01	71	25	6.30	6	25.42	08010
8,02	71	25	6.30	6	25.42	08020
8,03	71	25	6.30	6	25.42	08030
8,04	71	25	6.30	6	25.42	08040
8,05 - 8,20	71	25	6.30	6	25.42	xxxxx 1)
8,21 - 8,50	71	25	6.30	6	32.01	xxxxx 1)
8,51 - 8,94	71	25	8.00	6	32.01	xxxxx 1)
8,95	71	25	8.00	6	32.01	08950
8,96	71	25	8.00	6	32.01	08960
8,97	71	25	8.00	6	32.01	08970
8,98	71	25	8.00	6	32.01	08980
8,99	71	25	8.00	6	32.01	08990
9,00	71	25	8.00	6	32.01	09000
9,01	71	25	8.00	6	32.01	09010 1)
9,02	71	25	8.00	6	32.01	09020
9,03 - 9,25	71	25	8.00	6	32.01	xxxxx
9,26 - 9,94	71	25	8.00	6	32.01	xxxxx 1)
9,95	71	25	8.00	6	32.01	09950
9,96	71	25	8.00	6	32.01	09960
9,97	71	25	8.00	6	32.01	09970
9,98	71	25	8.00	6	32.01	09980
9,99	71	25	8.00	6	32.01	09990
10,00	71	25	8.00	6	32.01	10000
10,01	71	25	8.00	6	32.01	10010
10,02	71	25	8.00	6	32.01	10020
10,03 - 10,20	71	25	8.00	6	32.01	xxxxx 1)
10,21 - 10,60	71	25	8.00	6	40.72	xxxxx 1)
10,61 - 11,20	80	28	10.00	6	40.72	xxxxx 1)
11,21 - 11,25	80	28	10.00	6	47.28	xxxxx 1)
11,26 - 11,94	80	28	10.00	6	47.28	xxxxx 1)
11,95	80	28	10.00	6	47.28	11950
11,96	80	28	10.00	6	47.28	11960
11,97	80	28	10.00	6	47.28	11970
11,98	80	28	10.00	6	47.28	11980
11,99	80	28	10.00	6	47.28	11990
12,00	80	28	10.00	6	47.28	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

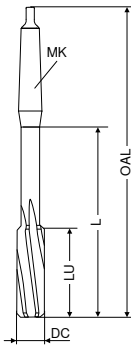
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **Page 75**.
For xxxxx please indicate required diameter in the order
(e.g. Ø 3.82 mm → Article no. 40 139 03820)!

Machine reamers HSS-E, DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N



Left Hand Helix
HSS-E
Through hole

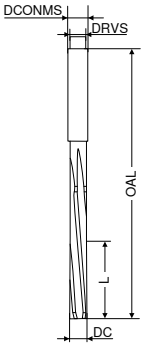
DC H7	OAL	L	LU	MK	ZEFP	U2 Article no. 40 160 ... £	
mm	mm	mm	mm				
16	210	52	130	2	8	61.20	160
17	214	54	134	2	8	65.70	170
18	219	56	139	2	8	68.29	180
19	223	58	143	2	8	71.82	190
20	228	60	148	2	8	71.82	200
21	232	62	152	2	8	81.42	210
22	237	64	157	2	8	81.42	220
23	241	66	161	2	8	93.63	230
24	268	68	169	3	8	96.37	240
25	268	68	169	3	8	99.01	250
26	273	70	174	3	8	106.05	260
27	277	71	178	3	10	117.35	270
28	277	71	178	3	10	117.35	280
29	281	73	182	3	10	131.41	290
30	281	73	182	3	10	121.78	300
32	317	77	193	4	10	159.34	320
34	321	78	197	4	10	177.72	340
35	321	78	197	4	10	177.72	350
36	325	79	201	4	10	193.46	360
38	329	81	205	4	10	212.71	380
40	329	81	205	4	10	214.51	400
42	333	82	209	4	12	234.66	420
44	336	83	212	4	12	276.66	440
45	336	83	212	4	12	279.28	450
46	340	84	216	4	12	330.00	460
47	340	84	216	4	12	349.29	470
48	344	86	220	4	12	351.04	480
50	344	86	220	4	12	351.04	500

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

Hand reamers, DIN 206-B

H



Left Hand Helix
HSS

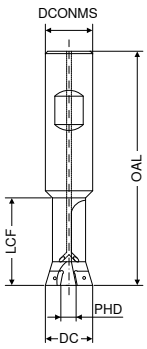
DC H7	OAL	L	DRVS	DCONMS	ZEFP	U2 Article no. 40 100 ... £	
mm	mm	mm	mm	mm			
1.0	34	13		1.0	3	33.76	010
1.2	38	17		1.2	3	32.01	012
1.3	38	17		1.3	3	32.84	013
1.4	41	20	1.12	1.4	3	28.48	014
1.5	41	20	1.12	1.5	3	27.19	015
1.6	44	21	1.25	1.6	3	28.92	016
1.8	47	23	1.40	1.8	4	29.34	018
2.0	50	25	1.60	2.0	4	24.99	020
2.2	54	27	1.80	2.2	4	29.34	022
2.5	58	29	2.00	2.5	4	24.59	025
2.8	62	31	2.24	2.8	6	30.22	028
3.0	62	31	2.24	3.0	6	25.87	030
3.2	66	33	25.00	3.2	6	32.01	032
3.5	71	35	2.80	3.5	6	30.22	035
4.0	76	38	3.15	4.0	6	21.96	040
4.5	81	41	3.55	4.5	6	26.74	045
5.0	87	44	4.00	5.0	6	25.87	050
5.5	93	47	4.50	5.5	6	27.56	055
6.0	93	47	4.50	6.0	6	24.99	060
7.0	107	54	5.60	7.0	6	27.19	070
8.0	115	58	6.30	8.0	6	28.48	080
9.0	124	62	7.10	9.0	6	32.01	090
10.0	133	66	8.00	10.0	6	32.01	100
11.0	142	71	9.00	11.0	6	35.49	110
12.0	152	76	10.00	12.0	6	38.10	120
13.0	152	76	10.00	13.0	6	56.08	130
14.0	163	81	11.20	14.0	8	61.20	140
15.0	163	81	11.20	15.0	8	64.79	150
16.0	175	87	12.50	16.0	8	67.57	160
17.0	175	87	14.00	17.0	8	70.89	170
18.0	188	93	14.00	18.0	8	78.83	180
19.0	188	93	14.00	19.0	8	84.97	190
20.0	201	100	16.00	20.0	8	83.26	200
22.0	215	107	18.00	22.0	8	96.37	220
24.0	231	115	20.00	24.0	8	111.22	240
25.0	231	115	20.00	25.0	8	113.81	250
26.0	231	115	20.00	26.0	8	121.78	260
28.0	247	124	22.40	28.0	10	155.83	280
30.0	247	124	22.40	30.0	10	163.82	300
32.0	265	133	25.00	32.0	10	180.47	320
34.0	284	142	28.00	34.0	10	218.95	340
35.0	284	142	28.00	35.0	10	220.64	350
36.0	284	142	28.00	36.0	10	238.94	360
38.0	305	152	31.50	38.0	10	278.41	380
40.0	305	152	31.50	40.0	10	291.49	400

Insert Countersink

- ▲ 2 cutting edges, right-hand cutting for countersinking according to DIN 974-1
- ▲ for countersinking of hexagon socket screws ISO 1207, ISO 4762 (DIN 912), DIN 6912, DIN 7984
- ▲ for sinking cap screws the recommended inserts are specified

Supply details:
Indexable insert countersink including clamping screws

WPS



for screws	DC	PHD	DCONMS h6	OAL	LCF	Insert	U3 Article no. 30 195 ...	
	mm	mm	mm	mm	mm		£	
M8	15	4.0	16	90	25	CC.T 060204	250.69	**015**
M10	18	7.0	16	90	31	CC.T 060204	266.46	**018**
M12	20	9.0	20	100	40	CC.T 060204	274.50	**020**
M16	26	8.5	25	110	52	CC.T 09T304	297.87	**026**
M20	33	15.5	32	130	66	CC.T 09T304	313.49	**033**

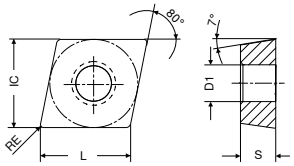

Key D


Clamping screw

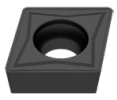
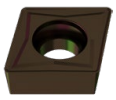
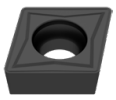
Spare parts		Y7 Article no. 80 950 ...			2A Article no. 70 950 ...	
Insert		£			£	
CC.T 060204	T08	10.30	**110**	M2,5x6	2.15	**112**
CC.T 09T304	T15	12.26	**113**	M3,5x7,2	2.85	**110**

CCMT / CCGT

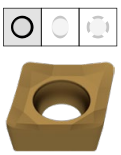
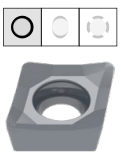
Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52



CCMT

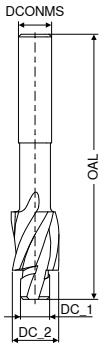
	-SM CTCP125	-SM CTCP135	-SM CTC2135	-SM CTCK110
	-ZM HCX1125	-ZM HCR1135	-ZM CWN2135	-ZM DCX3110
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
				
	M	M	M	M
	CCMT	CCMT	CCMT	CCMT
	1A/08	1A/08	1A/08	1A/08
ISO / RE mm	Article no. 76 252 ... £	Article no. 76 252 ... £	Article no. 70 252 ... £	Article no. 70 252 ... £
060204EN 0.4	7.07 504	7.07 704	6.85 670	7.07 004
060208EN 0.8		7.07 706		7.07 006
09T304EN 0.4	8.82 516	8.82 716	8.80 674	8.82 016
09T308EN 0.8	8.82 518	8.82 718	8.80 676	8.82 018
09T312EN 1.2				8.82 020
Steel	●	●	○	●
Stainless steel	○	○	●	○
Cast iron	○			●
Non ferrous metals				
Heat resistant alloys		○	●	
Hardened materials				

CCGT

	-27 H10T	-27 CWN15	-27 AMZ
	-AL CWK15	-AL CWN15	-AL AMZ
			
	M	M	M
	CCGT	CCGT	CCGT
	1A/90	1A	1A/90
ISO / RE mm	Article no. 70 254 ... £	Article no. 70 254 ... £	Article no. 70 254 ... £
060202FN 0.2	9.29 600	11.79 300	11.29 450
060204FN 0.4	9.29 602	11.79 302	11.29 452
09T302FN 0.2	9.92 604	12.19 304	11.59 454
09T304FN 0.4	9.92 606	12.19 306	11.59 456
09T308FN 0.8	9.92 608	12.19 308	11.59 458
Steel			○
Stainless steel		○	○
Cast iron	○		○
Non ferrous metals	●	●	●
Heat resistant alloys	○		
Hardened materials			

Counterbore, DIN 373

- with fixed pilot
- with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
- for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84



HSS
Core hole

fine
HSS
Through hole

medium
HSS
Through hole

Thread	DC_2 z9	DCONMS h9	OAL	DC_1 e8	U1 Article no. 30 192 ...		U1 Article no. 30 190 ...		U1 Article no. 30 191 ...	
	mm	mm	mm	mm	£		£		£	
M3	6	5.0	71	2.5	22.51	**030**				
M3	6	5.0	71	3.2			20.79	**030** 1)		
M3	6	5.0	71	3.4					20.79	**030** 1)
M4	8	5.0	71	3.3	21.67	**040**				
M4	8	5.0	71	4.3			18.25	**040** 1)		
M4	8	5.0	71	4.5					18.25	**040** 1)
M5	10	8.0	80	4.2	20.67	**050**				
M5	10	8.0	80	5.3			19.91	**050** 1)		
M5	10	8.0	80	5.5					19.91	**050** 1)
M6	11	8.0	80	5.0	22.80	**060**				
M6	11	8.0	80	6.4			21.25	**060** 1)		
M6	11	8.0	80	6.6					21.25	**060** 1)
M8	15	12.5	100	6.8	35.49	**080**				
M8	15	12.5	100	8.4			34.43	**080** 1)		
M8	15	12.5	100	9.0					34.43	**080** 1)
M10	18	12.5	100	8.5	44.04	**100**				
M10	18	12.5	100	10.5			41.13	**100** 1)		
M10	18	12.5	100	11.0					41.13	**100** 1)
M12	20	12.5	100	10.2	47.89	**120**				
M12	20	12.5	100	13.0			44.75	**120**		
M12	20	12.5	100	13.5					44.75	**120**

1) included in the set

Counterbore, DIN 373 – Set

Scope of supply:
Counterbores M3; M4; M5; M6; M8; M10 in case

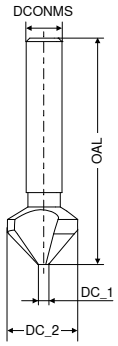
U1 Article no. 30 190 ...		U1 Article no. 30 191 ...	
£		£	
182.73	**999**	182.73	**999**

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special TPX76S coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN 7991

N

TPX76S



90°
Solid carbide

DC_2 z9	DC_1	DCONMS h6	OAL	DIN 7991	U1 Article no. 30 116 ...	
mm	mm	mm	mm		£	
6.3	1.5	5	45	M3	144.89	063
8.3	2.0	6	50	M4	156.30	083
10.4	2.5	6	50	M5	163.15	104
12.4	2.8	8	56	M6	171.13	124
16.5	3.2	10	60	M8	208.78	165
20.5	3.5	10	63	M10	240.73	205
25.0	3.8	10	67	M12	277.24	250
31.0	4.2	12	71	M16	328.57	310

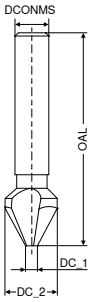
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

→ v_c Page 70

Countersink 60°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels

N



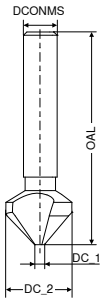
◁ 60°
Solid carbide

DC_2 z9	DC_1	DCONMS h9	OAL	U1 Article no. 30 160 ...	
mm	mm	mm	mm	£	
12.5	3.2	8	56	238.84	**125**
16.0	4.0	10	63	325.07	**160**
20.0	5.0	10	67	377.03	**200**
25.0	6.3	10	71	420.53	**250**

Countersink 90°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels
▲ from Ø 12.4 mm with solid carbide head

N



◁ 90°
Solid carbide

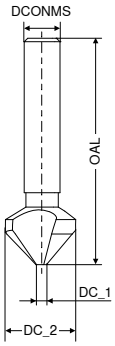
DC_2 z9	DC_1	DCONMS h9	OAL	DIN ISO 7721	DIN 7991	U1 Article no. 30 115 ...	
mm	mm	mm	mm			£	
10.4	2.5	8	46	M5		165.75	**100**
12.4	2.8	8	56		M6	165.75	**124**
15.0	3.2	10	60	M8		204.25	**150**
16.5	3.2	10	60		M8	216.46	**165**
20.5	3.5	10	63		M10	258.28	**205**
25.0	3.8	10	67		M12	296.63	**250**
31.0	4.2	12	71		M16	395.98	**310**

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special Ti50 coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN ISO 7721 and DIN 7991

N

Ti50



90°
HSS

DC_2 z9	DC_1	DCONMS	OAL	DIN ISO 7721	DIN 7991	U1 Article no. 30 140 ...	
mm	mm	mm	mm			£	
4.3	1.3	4	40	M2		25.49	043
6.0	1.5	5	45	M3		31.59	060
6.3	1.5	5	45		M3	31.59	063
8.0	2.0	6	50	M4		29.64	080
8.3	2.0	6	50		M4	30.44	083
10.0	2.5	6	50	M5		30.81	100
10.4	2.5	6	50		M5	32.20	104 1)
11.5	2.8	8	56	M6		35.33	115
12.4	2.8	8	56		M6	37.23	124
15.0	3.2	10	60	M8		41.62	150
16.5	3.2	10	60		M8	44.04	165 1)
19.0	3.5	10	63	M10		51.08	190
20.5	3.5	10	63		M10	61.60	205
23.0	3.8	10	67	M12		76.81	230
25.0	3.8	10	67		M12	84.41	250 1)
31.0	4.2	12	71		M16	109.38	310

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

1) included in the set

→ v_c Page 70

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

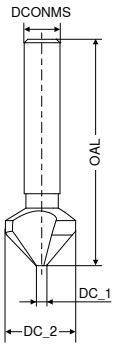
N

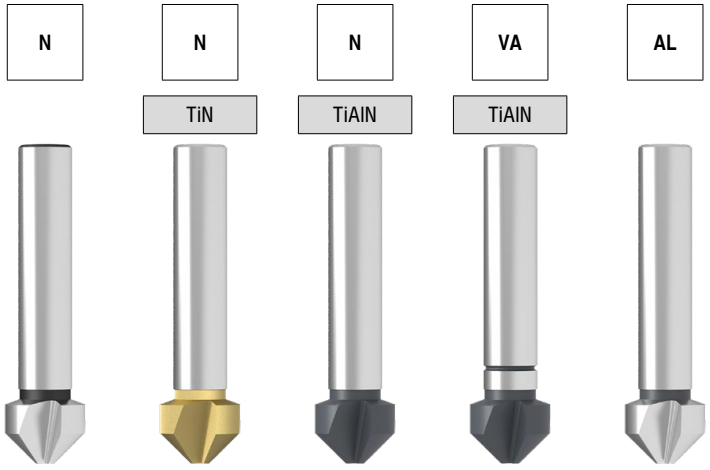
Ti50

U1 Article no. 30 140 ...	
£	
235.20	999

Countersink 90°, DIN 335-C

- 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
- the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
- TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.





DC_2 z9	DC_1	DCONMS	OAL	DIN ISO 7721	DIN 7991	U1 Article no. 30 100 ...		U1 Article no. 30 110 ...		U1 Article no. 30 130 ...		U1 Article no. 30 132 ...		U1 Article no. 30 102 ...	
mm	mm	mm	mm			£		£		£		£		£	
4.3	1.3	4	40	M2		12.22	043								
5.0	1.5	4	40	M2,5		12.22	050	23.23	050	31.65	050				
6.0	1.5	5	45	M3		12.22	060								
6.3	1.5	5	45		M3	12.22	063 1)	23.23	063 1)	32.41	063	20.32	063	13.93	063
7.0	1.8	6	50	M3,5		13.14	070								
8.0	2.0	6	50	M4		13.55	080	27.75	080	33.86	080				
8.3	2.0	6	50		M4	14.52	083 1)	27.75	083 1)	33.51	083	24.07	083	14.71	083
9.4	2.2	6	50			14.97	094								
10.0	2.5	6	50	M5		16.06	100	30.22	100	35.49	100				
10.4	2.5	6	50		M5	16.54	104 1)	32.20	104 1)	36.88	104	33.98	104	17.05	104
11.5	2.8	8	56	M6		16.95	115								
12.4	2.8	8	56		M6	17.54	124 1)	35.49	124 1)	46.94	124	29.60	124	18.14	124
13.4	2.9	8	56			18.89	134								
15.0	3.2	10	60	M8		20.92	150	37.94	150	60.03	150	36.58	150	20.49	150
16.5	3.2	10	60		M8	22.80	165 1)	44.04	165 1)	61.91	165	39.63	165	22.04	165
19.0	3.5	10	63	M10		28.81	190								
20.5	3.5	10	63		M10	30.22	205 1)	61.60	205 1)	80.78	205	47.10	205	30.34	205
23.0	3.8	10	67	M12		38.22	230								
25.0	3.8	10	67		M12	40.39	250	84.41	250	115.35	250	61.40	250	40.33	250
31.0	4.2	12	71		M16	61.60	310	109.38	310	157.35	310	91.18	310		
31.0	4.2	12	67		M16									64.77	310

1) included in the set

Countersink 90°, DIN 335-C – set

Scope of supply:

Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

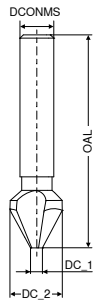
N

TiN

U1 Article no. 30 100 ...		U1 Article no. 30 110 ...	
£		£	
117.66	999	235.20	999

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials



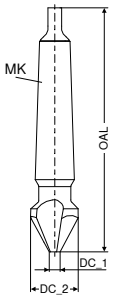
60°
HSS

DC_2 z9	DC_1	DCONMS h9	OAL	U1 Article no. 30 150 ...	
mm	mm	mm	mm	£	
6.3	1.6	5	45	14.10	063 1)
8.0	2.0	6	50	14.10	080 1)
10.0	2.5	6	52	17.38	100 1)
12.5	3.2	8	56	17.80	125 1)
16.0	4.0	10	63	22.25	160 1)
20.0	5.0	10	67	32.11	200 1)
25.0	6.3	10	71	42.18	250

1) included in the set

Countersink 60°, DIN 334-D

▲ 3 cutting edges for countersinking and deburring in virtually all materials



MK
60°
HSS

DC_2 z9	DC_1	OAL	MK	U1 Article no. 30 155 ...	
mm	mm	mm		£	
16.0	4.0	90	1	50.32	160
20.0	5.0	106	2	59.99	200
25.0	6.3	112	2	62.85	250
31.5	10.0	118	2	69.90	315
40.0	12.5	150	3	110.34	400
50.0	16.0	160	3	140.78	500
63.0	20.0	190	4	260.18	630
80.0	25.0	200	4	356.58	800

Countersink 60°, DIN 334-C – set

Scope of supply:

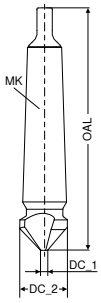
Countersinks Ø 6.3; 8.0; 10.0; 12.5; 16.0; 20.0 in case

U1 Article no. 30 150 ...	
£	
130.60	999

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N

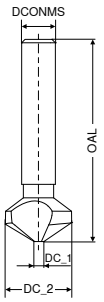


MK
90°
HSS

DC_2 z9	DC_1	OAL	MK	U1 Article no. 30 105 ...	
mm	mm	mm		£	
16.5	3.2	85	1	45.05	**165**
19.0	3.2	100	2	57.29	**190**
20.5	3.5	100	2	60.57	**205**
23.0	3.8	106	2	60.57	**230**
25.0	3.8	106	2	62.47	**250**
26.0	3.8	106	2	57.73	**260**
28.0	4.0	112	2	65.42	**280**
30.0	4.2	112	2	65.42	**300**
31.0	4.2	112	2	69.90	**310**
34.0	4.5	118	2	75.49	**340**
37.0	4.8	118	2	90.80	**370**
40.0	10.0	140	3	103.81	**400**
50.0	14.0	150	3	128.82	**500**
63.0	16.0	180	4	203.93	**630**
80.0	22.0	190	4	345.75	**800**

Countersink 120°, factory standard-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials

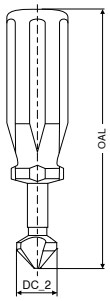


120°
HSS

DC_2 z9	DC_1	DCONMS h9	OAL	U1 Article no. 30 170 ...	
mm	mm	mm	mm	£	
6.3	1.5	5	45	16.99	**063**
8.3	2.0	6	50	16.99	**083**
10.4	2.5	6	50	18.89	**104**
12.4	2.8	8	56	19.82	**124**
16.5	3.2	10	60	28.81	**165**
20.5	3.5	10	60	39.66	**205**
25.0	3.8	10	63	49.39	**250**

Hand deburring tool 90°

- 3 cutting edges and non-slip plastic handle
- for countersinking and deburring on all materials



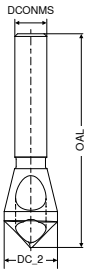
90°
HSS

DC_2	OAL	U1 Article no. 30 125 ...	
mm	mm	£	
12.4	135	24.95	124
15.0	135	29.23	150
16.5	135	30.95	165
20.5	135	36.03	205
25.0	135	43.60	250

Deburring countersink 90°, factory standard-A

- with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.

TiN



90°
HSS-E

90°
HSS-E

DC_2	D_{min} - D_{max}	DCONMS h9	OAL	U1 Article no. 30 120 ...		U1 Article no. 30 121 ...	
mm	mm	mm	mm	£		£	
6.3	1 - 4	6.3	45	27.06	040 [1]	39.26	040 [1]
10.0	2 - 5	6.0	45	16.94	050	25.52	050
14.0	5 - 10	8.0	48	20.58	101	36.88	101
21.0	10 - 15	10.0	65	35.37	150	60.03	150
28.0	15 - 20	12.0	85	74.28	200	121.89	200
35.0	20 - 25	15.0	102	101.67	250	154.71	250

1) can be used in both directions

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values for REAMAX TS

	Grade / coating	HM-DBG-P / Ti700				HM-DBG-P / Ti700				
	Article no. / type	40 585 ... / 75H.65 – ASG3000				40 521 ..., 40 571 ... / 75J.65, 75H.65 – ASG0106				
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65	
	Reaming allowance Ø	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	
	Number of teeth	6	6	8	10	6	6	8	10	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.2	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.3	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.4	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.5	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.6	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.7	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.8	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.9	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.10	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.11							80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.12							60–100	60–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.13							60–100	60–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.14							40–60	40–60	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.15							40–60	40–60	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.16							40–60	40–60	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
2.1							45–60	40–50	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.2							45–60	40–50	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.3							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.4							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.5							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.6							45–60	40–50	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.7							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
3.1	150–220	120–150	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.2	150–220	120–150	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.3	175–300	150–180	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.4	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
3.5	150–250	120–160	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.6	150–250	120–160	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.7	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
3.8	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data standard values for REAMAX TS

	Grade / coating	HM-TiN / CWN10				HM-DBC / CWN10			
	Article no. / type	40 535 ... / 75H.71 – ASG3000				40 526 ..., 40 580 ... / 75J.17, 75H.17 – ASG0706			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	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
	Number of teeth	6	6	8	10	6	6	8	10
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.2	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.3	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.4	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.5	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.6	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.7	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.8	30–45	30–45	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.9	30–45	30–45	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.10	30–45	30–45	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
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4.1							**150–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.2							**150–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.3							**200–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.4							**200–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.5							**200–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.6	**80–150**	**80–120**	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
4.7	**120–200**	**120–150**	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
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4.10												
4.11	**120–200**	**120–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
4.12	**80–150**	**80–120**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating	DST / CWC10				DST / CWC10				
	Article no. / type	40 539 ... / 75H.93 – ASG3000				40 597 ... / 75J.93 – ASG4000				
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65	
	Reaming allowance Ø	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	
	Number of teeth	6	6	8	10	6	6	8	10	
Index	v_c m/min		f	f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.2	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.3	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.4	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.5	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.6	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.7	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.8												
1.9	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.10	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.11	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.12	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
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3.3	**175–300**	**150–180**	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40	225–300	180–240	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
3.4	**120–150**	**100–120**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	120–150	100–120	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
3.5	**150–250**	**120–200**	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.6	**150–250**	**120–200**	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.7	**120–180**	**120–150**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
3.8	**120–180**	**120–150**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
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4.6	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
4.7	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
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4.11	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
4.12	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data standard values for REAMAX TS

	Grade / coating		DST / CWC10			
	Article no. / type		40 544 ... / 75J.93 – ASG3000			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of teeth		6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
1.1	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.2	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.3	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.4	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.5	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.6	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.7	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.8						
1.9	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.10	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.11	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.12	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
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3.3	175–300	150–180	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
3.4	120–150	100–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
3.5	150–250	120–200	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
3.6	150–250	120–200	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
3.7	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
3.8	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
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4.5						
4.6	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
4.7	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
4.8						
4.9						
4.10						
4.11	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
4.12	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for REAMAX

	Grade / coating	HM-TiN / CWN 10			HM-DBC		
	Article no. / type	40 505 ... / 640.71 – ASG3000			40 570 ... / 640.27 – ASG0706		
	Nominal Ø in mm	12–21,999	22–32,000	32,001–40	12–21,999	22–32,000	32,001–40
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40
	Number of teeth	6	8	8	6	8	8
Index	v_c m/min		f	f	v_c m/min		f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.
1.1	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.2	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.3	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.4	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.5	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.6	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.7	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.8	30–45	30–45	0,60–0,80	1,00–1,40	1,00–1,40					
1.9	30–45	30–45	0,60–0,80	1,00–1,40	1,00–1,40					
1.10	30–45	30–45	0,60–0,80	1,00–1,40	1,00–1,40					
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4.1						**150–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.2						**150–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.3						**200–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.4						**200–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.5						**200–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.6	**80–150**	**80–120**	0,80–1,20	1,40–2,00	1,40–2,00					
4.7	**120–200**	**120–150**	1,00–1,40	1,70–2,40	1,70–2,40					
4.8										
4.9										
4.10										
4.11	**120–200**	**120–200**	1,00–1,40	1,70–2,40	1,70–2,40					
4.12	**120–200**	**120–200**	1,00–1,40	1,70–2,40	1,70–2,40					
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data standard values for REAMAX

	Grade / coating	DST / CWC 10				DST / CWC 10				
	Article no. / type	40 525 ... / 640.93 – ASG3000				40 536 ... / 640.93 – ASG4000				
	Nominal Ø in mm	12–21,999	22–32,000	32,001–40		12–21,999	22–32,000	32,001–40		
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40		0,10–0,30	0,20–0,40	0,20–0,40		
	Number of teeth	6	8	8		6	8	8		
Index	v_c m/min		f	f	f	v_c m/min		f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.2	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.3	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.4	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.5	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.6	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.7	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.8										
1.9	80–120	80–120	0,90–1,20	1,50–2,00	1,50–2,00	80–120	80–120	1,10–1,40	1,80–2,40	1,80–2,40
1.10	80–120	80–120	0,90–1,20	1,50–2,00	1,50–2,00	80–120	80–120	1,10–1,40	1,80–2,40	1,80–2,40
1.11	80–120	80–120	0,90–1,20	1,50–2,00	1,50–2,00	80–120	80–120	1,10–1,40	1,80–2,40	1,80–2,40
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3.3	175–300	150–180	1,00–1,40	1,80–2,40	1,80–2,40	175–300	150–180	1,20–1,60	1,50–2,00	2,00–2,70
3.4	150–250	120–160	1,00–1,40	1,80–2,40	1,80–2,40	120–180	120–150	1,20–1,60	1,50–2,00	2,00–2,70
3.5	150–250	120–160	1,00–1,40	1,80–2,40	1,80–2,40					
3.6	150–250	120–160	1,00–1,40	1,80–2,40	1,80–2,40					
3.7	120–180	120–150	0,90–1,20	1,50–2,00	1,50–2,00	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30
3.8	120–180	120–150	0,90–1,20	1,50–2,00	1,50–2,00	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30
4.1										
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4.3										
4.4										
4.5										
4.6	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
4.7	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
4.8										
4.9										
4.10										
4.11	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
4.12	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for REAMAX

	Grade / coating	HM-DBG-P / Ti700			HM-DBG-P / Ti700				
	Article no. / type	40 560 ... / 640.65 – ASG3000			40 551 ... / 640.65 – ASG0106				
	Nominal Ø in mm	12–21,999	22–32,000	32,001–40	12–21,999	22–32,000	32,001–40		
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40		
	Number of teeth	6	8	8	6	8	8		
Index	v_c m/min		f	f	f	v_c m/min		f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.2	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.3	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.4	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.5	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.6	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.7	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.8	80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30					
1.9	80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30					
1.10	80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30					
1.11						80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30
1.12						60–100	60–100	0,70–1,00	0,90–1,30	0,90–1,30
1.13						60–100	60–100	0,70–1,00	0,90–1,30	0,90–1,30
1.14						40–60	40–60	0,60–0,80	0,90–1,10	0,90–1,10
1.15						40–60	40–60	0,60–0,80	0,90–1,10	0,90–1,10
1.16						40–60	40–60	0,60–0,80	0,90–1,10	0,90–1,10
2.1						45–60	40–50	0,70–0,90	1,20–1,60	1,20–1,60
2.2						45–60	40–50	0,70–0,90	1,20–1,60	1,20–1,60
2.3						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
2.4						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
2.5						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
2.6						45–60	40–50	0,70–0,90	1,20–1,60	1,20–1,60
2.7						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
3.1	200–250	160–200	1,00–1,40	1,30–1,90	1,30–1,90					
3.2	200–250	160–200	1,00–1,40	1,30–1,90	1,30–1,90					
3.3	225–300	180–240	1,00–1,40	1,30–1,90	1,30–1,90					
3.4	120–150	100–120	0,90–1,20	1,20–1,60	1,20–1,60					
3.5	150–250	120–200	0,90–1,20	1,20–1,60	1,20–1,60					
3.6	150–250	120–200	0,90–1,20	1,20–1,60	1,20–1,60					
3.7	120–150	100–120	0,90–1,20	1,20–1,60	1,20–1,60					
3.8	120–150	100–120	0,90–1,20	1,20–1,60	1,20–1,60					
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5.11										
6.1						40–60	40–60	0,40–0,80	0,60–1,00	0,60–1,00
6.2						40–60	40–60	0,40–0,80	0,60–1,00	0,60–1,00
6.3						30–50	30–50	0,40–0,80	0,60–1,00	0,60–1,00
6.4						30–50	30–50	0,40–0,80	0,60–1,00	0,60–1,00
6.5										

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data for MultiChange exchange head reamers

	Coating	CWC 10			TiAlN			TiAlN		
	Article no.	40 210 ... / 40 211 ...			40 220 ... / 40 221 ...			40 230 ... / 40 231 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–30,20	8,0–12,59	12,6–29,99	30,0–30,20	8,0–12,59	12,6–18,59	18,6–30,20
	Reaming allowance Ø	0,15–0,3	0,2–0,4	0,2–0,4	0,15–0,3	0,15–0,3	0,15–0,3	0,15–0,4	0,2–0,5	0,2–0,5
	Number of teeth	4/6	6	8	4/6	6	8	4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.2	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.3	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.4	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.5	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.6	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.7	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.8	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.9	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.10	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.11	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.12	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.13	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.14	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.15	80–140	0,60–1,00	0,90–1,50	1,20–2,00						
1.16	80–140	0,60–1,00	0,90–1,50	1,20–2,00						
2.1	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.2	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.3	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.4	10–30				0,32–0,60	0,48–0,90	0,64–1,20			
2.5	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.6	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.7	10–20				0,32–0,60	0,48–0,90	0,64–1,20			
3.1	80–120							0,40–0,80	0,90–1,50	0,90–2,40
3.2	80–120							0,40–0,80	0,90–1,50	0,90–2,40
3.3	80–120							0,40–0,80	0,90–1,50	0,90–2,40
3.4	60–100							0,32–0,48	0,60–1,20	0,60–1,20
3.5	80–120							0,40–0,80	0,60–1,20	0,60–1,20
3.6	80–120							0,40–0,80	0,60–1,20	0,60–1,20
3.7	80–120							0,40–0,80	0,60–1,20	0,60–1,20
3.8	60–100							0,32–0,48	0,60–1,20	0,60–1,20
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4.6										
4.7										
4.8										
4.9										
4.10										
4.11										
4.12	80–120				0,40–1,00	0,60–1,50	0,80–2,00			
4.13										
4.14										
4.15										
4.16										
4.17	10–30				0,24–0,72	0,36–1,08	0,48–1,44			
4.18										
4.19										
5.1	10–30				0,60–1,40	0,90–1,80	1,20–2,00			
5.2	10–30				0,60–1,50	0,90–1,80	1,20–2,00			
5.3	10–30				0,60–1,60	0,90–1,80	1,20–2,00			
5.4	10–30				0,60–1,70	0,90–1,80	1,20–2,00			
5.5	10–25				0,60–1,80	0,90–1,80	1,20–2,00			
5.6	10–25				0,60–1,90	0,90–1,80	1,20–2,00			
5.7	10–20				0,20–0,48	0,30–0,72	0,40–0,96			
5.8	10–20				0,20–0,48	0,30–0,72	0,40–0,96			
5.9	10–30				0,20–0,48	0,30–0,48	0,48–1,00			
5.10	10–30				0,20–0,48	0,30–0,48	0,48–1,00			
5.11	10–30				0,20–0,48	0,30–0,48	0,48–1,00			
6.1										
6.2										
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6.4										
6.5										

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data for MultiChange exchange head reamers

	Coating	K10				PDC		
	Article no.	40 240 ... / 40 241 ...				40 245 ... / 40 246 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–30,20		8,0–12,59	12,6–29,99	30,0–30,20
	Reaming allowance Ø	0,15–0,5	0,15–0,5	0,15–0,5		0,15–0,5	0,15–0,5	0,15–0,5
	Number of teeth	4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
1.1								
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3.8								
4.1	**100–300**	0,40–1,20	0,60–1,80	0,80–2,40	**100–500**	0,40–1,20	0,90–2,10	1,20–2,80
4.2	**100–300**	0,40–0,80	0,60–1,20	1,20–2,00	**100–500**	0,40–1,20	0,90–2,10	1,20–2,80
4.3	**100–300**	0,40–0,80	0,60–1,20	1,20–2,00				
4.4	**100–300**	0,40–0,80	0,60–1,20	1,20–2,00				
4.5					**100–200**	0,40–1,20	0,90–2,10	1,20–2,80
4.6	**50–100**	0,40–1,00	0,60–1,50	0,80–2,00				
4.7	**50–150**	0,40–1,00	0,60–1,50	0,80–2,00				
4.8								
4.9								
4.10	**15–40**	0,48–1,00	0,72–1,50	0,96–2,00				
4.11	**15–40**	0,48–1,00	0,72–1,50	0,96–2,00				
4.12								
4.13								
4.14								
4.15					**10–40**	0,10–0,32	0,15–0,48	0,20–0,64
4.16	**25–50**	0,40–1,00	0,60–1,50	0,80–2,00	**100–250**	0,10–0,25	0,60–1,50	0,80–2,00
4.17								
4.18	**10–25**	0,60–1,00	0,90–1,50	1,20–2,00				
4.19	**10–25**	0,60–1,00	0,90–1,50	1,20–2,00				
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating	DBC						DBC			
	Article no. / type	40 648 ..., 40 649 ... / 56J.17, 56R.17 – ASG0706				40 640..., 40 641... / 56H.17, 56Q.17 – ASG0706			
	Nominal Ø in mm	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89
	Reaming allowance Ø	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
	Number of teeth	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
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3.8												
4.1	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.2	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.3	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.4	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.5	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P / Ti700				HM-DBG-P / Ti700				
	Article no. / type	40 657 ... , 40 665 ... / 56H.65, 56Q.65 – ASG3000				40 652 ..., 40 653 ... / 56J.65, 56R.65 – ASG0106				
	Nominal Ø in mm	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	
	Reaming allowance Ø	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	
	Number of teeth	4	6	6	6	4	6	6	6	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.2	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.3	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.4	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.5	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.6	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.7	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.8	80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90						
1.9	80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90						
1.10	80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90						
1.11							80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.12							60–100	60–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.13							60–100	60–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.14							40–60	40–60	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.15							40–60	40–60	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.16							40–60	40–60	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
2.1							45–60	40–50	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.2							45–60	40–50	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.3							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.4							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.5							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.6							45–60	40–50	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.7							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
3.1	150–220	120–150	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.2	150–220	120–150	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.3	175–300	150–180	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.4	120–180	120–150	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
3.5	150–250	120–160	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.6	150–250	120–160	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.7	120–180	120–150	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
3.8	120–180	120–150	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
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The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

4

Cutting data standard values for Monomax

	Grade / coating	DST / CWC 10						DST / CWC 10					
	Article no. / type	40 625 ..., 40 626 ... / 56J.93, 56R.93 – ASG3000						40 635 ... , 40 636 ... / 56J.93, 56R.93 – ASG4000					
	Nominal Ø in mm	5,60–8,89		8,90–12,00	12,01–22,00	22,01–25,89		5,60–8,89		8,90–12,00	12,01–22,00	22,01–25,89	
	Reaming allowance Ø	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	
	Number of teeth	4		6	6	6		4		6	6	6	
Index	v_c m/min		f	f	f	f	v_c m/min		f	f	f	f	
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	
1.1	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.2	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.3	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.4	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.5	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.6	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.7	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.8													
1.9	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**80–120**	**80–100**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.10	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**80–120**	**80–100**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.11	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**80–120**	**80–100**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
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3.3	**175–300**	**150–180**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	**175–300**	**150–180**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	
3.4	**120–150**	**100–120**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	
3.5	**150–250**	**120–200**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50							
3.6	**150–250**	**120–200**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50							
3.7	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	
3.8	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	
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4.6	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
4.7	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
4.8													
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4.10													
4.11	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
4.12	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
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The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P / Ti700				HM-TiN / CWN 10				
	Article no. / type	40 644 ..., 40 645 ... / 56H.65, 56Q.65 – ASG0106				40 605 ..., 40 606 ... / 56J.71, 56R.71 – ASG3000				
	Nominal Ø in mm	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	
	Reaming allowance Ø	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	
	Number of teeth	4	6	6	6	4	6	6	6	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.2							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.3							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.4							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.5							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.6							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.7							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.8							30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.9							30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.10							30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.11	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.12	**60–100**	**60–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.13	**60–100**	**60–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.14	**40–60**	**40–60**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.15	**40–60**	**40–60**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.16	**40–60**	**40–60**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
2.1	**45–60**	**40–50**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.2	**45–60**	**40–50**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.3	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.4	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.5	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.6	**45–60**	**40–50**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.7	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
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4.6							**80–150**	**80–120**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.7							**120–200**	**120–150**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
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4.10												
4.11							**120–200**	**120–200**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.12							**80–150**	**80–120**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
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The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

4

Cutting data standard values for Fullmax

Type UNI		40 484 ... / 40 485 ... / 40 486 ... / 40 487 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.2	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.3	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.4	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.5	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.6	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.7	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.8	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.9	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.10	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.11	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.12	60–100	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.13	60–100	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.14													
1.15	40–60	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.16	40–60	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
2.1	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.2	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.3	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.4	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.5	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.6	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.7	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
3.1	120–180	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.2	120–180	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.3	200–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.4	120–150	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
3.5	200–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.6	200–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.7	120–150	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
3.8	120–150	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
4.1													
4.2													
4.3													
4.4													
4.5													
4.6													
4.7													
4.8													
4.9													
4.10													
4.11	150–250	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
4.12	100–150	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
4.13													
4.14													
4.15													
4.16													
4.17													
4.18													
4.19													
5.1													
5.2													
5.3													
5.4	40–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.5	40–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.6													
5.7													
5.8	40–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.9	30–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.10	30–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.11	30–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
6.1	40–60	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
6.2	40–60	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
6.3	30–50	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
6.4	30–50	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
6.5													

The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

Cutting data standard values for Fullmax

Type K		40 477 ... / 40 478 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		6		6		8		8		8		8	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
3.1	200–250	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.2	200–250	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.3	225–300	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.4	120–150	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
3.5	225–300	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.6	225–300	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.7	120–150	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
3.8	120–150	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30

Type VA		40 401 ... / 40 402 ... / 40 403 ... / 40 404 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
2.1	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.2	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.3	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.4	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.5	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.6	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.7	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30

Type ALU		40 471 ... / 40 472 ... / 40 473 ... / 40 474 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
4.1	200–300	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
4.2	200–300	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
4.3	200–300	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
4.4	200–250	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
4.5	200–250	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30

Type H		40 475 ... / 40 476 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
6.1	40–60	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
6.2	40–60	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
6.3	30–50	0,20–0,30	0,10	0,20–0,30	0,10	0,40–0,60	0,10	0,50–0,60	0,10	0,50–0,70	0,20	0,60–0,80	0,20
6.4	30–50	0,20–0,30	0,10	0,20–0,30	0,10	0,40–0,60	0,10	0,50–0,60	0,10	0,50–0,70	0,20	0,60–0,80	0,20

4

The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

Cutting data standard values for solid carbide reamers

	40 430 ...			40 420 ... / 40 421 ... / 40 430 ... / 40 431 ... / 40 410 ... / 40 400 ...							
	uncoated	to Ø 0.94 mm		uncoated	TiAlN	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	v_c m/min	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1											
1.2	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.3											
1.4	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.5	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.6	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.7	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.8	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.9	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.10	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.11											
1.12											
1.13	6–8	0,1–0,15	0,03–0,05	8–12	12–20	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.14											
1.15											
1.16											
2.1											
2.2											
2.3											
2.4											
2.5											
2.6											
2.7											
3.1	10–15	0,1–0,15	0,03–0,05	12–20	20–35	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.2											
3.3	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.4	8–10	0,1–0,15	0,03–0,05	10–15	15–20	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.5											
3.6	10–15	0,1–0,15	0,03–0,05	12–20	20–35	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.7											
3.8											
4.1											
4.2	10–30	0,12–0,16	0,03–0,05	20–60		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.3											
4.4	10–15	0,12–0,16	0,03–0,05	20–30		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.5											
4.6	10–30	0,12–0,16	0,03–0,05	20–80		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.7	10–25	0,12–0,16	0,03–0,05	25–60		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.8											
4.9	8–15	0,12–0,16	0,03–0,05	15–30		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.10											
4.11											
4.12	10–25	0,12–0,16	0,03–0,05	20–50		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.13											
4.14											
4.15	6–10	0,12–0,16	0,03–0,05	10–15		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.16	6–10	0,06–0,1	0,03–0,05	15–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
4.17	5–10	0,06–0,1	0,03–0,05	10–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
4.18	5–8	0,06–0,1	0,03–0,05	7–12		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
4.19	5–8										
5.1											
5.2	8–12	0,06–0,1	0,03–0,05	10–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.3											
5.4											
5.5				8–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.6	5–8	0,06–0,1	0,03–0,05								
5.7				6–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.8	3–5	0,06–0,1	0,03–0,05	5–8		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.9	5–8	0,06–0,1	0,03–0,05	6–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.10											
5.11	3–5	0,06–0,1	0,03–0,05	6–8		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
6.1											
6.2											
6.3											
6.4											
6.5											

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for solid carbide reamers

	40 420 ... / 40 421 ... / 40 430 ... / 40 431 ... / 40 410 ... / 40 400 ...											
	uncoated	TiAlN	to Ø 12 mm		to Ø 15 mm		to Ø 20 mm		to Ø 25 mm		to Ø 30 mm	
Index	v_c m/min	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1												
1.2	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.3												
1.4	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.5	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.6	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.7	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.8	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.9	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.10	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.11												
1.12												
1.13	8–12	12–20	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.14												
1.15												
1.16												
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1												
3.2	12–20	20–35	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.3	12–15	20–30	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.4	10–15	15–20	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.5												
3.6												
3.7	12–20	20–35	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.8												
4.1												
4.2	20–60		0,15–0,25	0,15–0,2	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.3												
4.4	20–30		0,15–0,25	0,15–0,2	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.5												
4.6	20–80		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.7	25–60		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.8												
4.9	15–30		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.10												
4.11												
4.12												
4.13	20–50		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.14												
4.15	10–15		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.16	15–20		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
4.17	10–20		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
4.18	7–12		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
4.19												
5.1												
5.2	10–20		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.3												
5.4												
5.5	8–10		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.6												
5.7	6–10		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.8	5–8		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.9	6–10		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.10												
5.11	6–8		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
6.1												
6.2												
6.3												
6.4												
6.5												

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ... / 40 139 ... / 40 140 ... 40 145 ... / 40 150 ... / 40 155 ... / 40 160 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1	18	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.2	15	0,1–0,15	0,1	0,2–0,3	0,2–0,3	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.3											
1.4	12	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.5											
1.6											
1.7											
1.8	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.9	14	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.10	12	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.11	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.12											
1.13											
1.14											
1.15											
1.16											
2.1	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
2.2	8	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
2.3											
2.4											
2.5											
2.6											
2.7											
3.1	14	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.2											
3.3	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.4	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.5	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.6	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.7	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.8	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
4.1	20	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.2											
4.3											
4.4	18	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.5	16	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.6	20	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.7											
4.8											
4.9											
4.10											
4.11											
4.12											
4.13	14	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.14											
4.15	10	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.16	22	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.17											
4.18											
4.19											
5.1	6	0,1–0,15	0,1	0,2	0,2	0,25	0,2	0,3	0,2	0,4	0,3
5.2											
5.3											
5.4											
5.5	5	0,1–0,15	0,1	0,2	0,2	0,25	0,25	0,3	0,2	0,4	0,3
5.6											
5.7											
5.8											
5.9											
5.10	3	0,1	0,1	0,1	0,2	0,12	0,2	0,15	0,2	0,2	0,2
5.11											
6.1											
6.2											
6.3											
6.4											
6.5											

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ... / 40 139 ... / 40 140 ... 40 145 ... / 40 150 ... / 40 155 ... / 40 160 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1	18	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.2	15	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.3									
1.4	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.5									
1.6									
1.7									
1.8	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.9	14	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.10	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.11	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.12									
1.13									
1.14									
1.15									
1.16									
2.1	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
2.2	8	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
2.3									
2.4									
2.5									
2.6									
2.7									
3.1	14	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.2									
3.3	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.4	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.5	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.6	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.7	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.8	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
4.1	20	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.2									
4.3									
4.4	18	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.5	16	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.6	20	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.7									
4.8									
4.9									
4.10									
4.11									
4.12									
4.13	14	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.14									
4.15	10	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.16	22	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.17									
4.18									
4.19									
5.1	6	0,5	0,4	0,5	0,4	0,6	0,4	0,8	0,4
5.2									
5.3									
5.4									
5.5	5	0,5	0,4	0,5	0,4	0,6	0,4	0,8	0,4
5.6									
5.7									
5.8									
5.9									
5.10	3	0,25	0,3	0,25	0,3	0,3	0,4	0,3	0,4
5.11									
6.1									
6.2									
6.3									
6.4									
6.5									

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

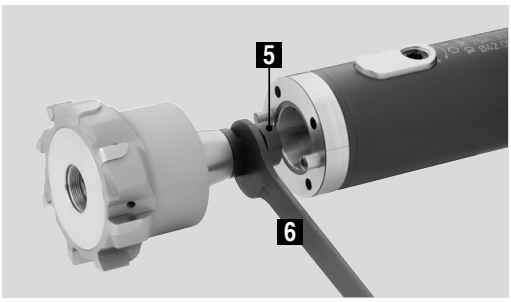
4

Cutting data for countersinks with irregular pitch

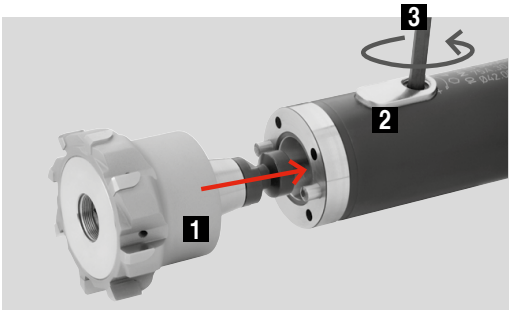
		30 116 ... TPX76S						30 140 ... Ti50					
		Ø 4,3–8,0 mm	Ø 8,00–12,4 mm	Ø 12,40–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.				
1.1	**60**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**36**	0,08	0,10	0,12	0,14	0,18	0,22
1.2	**60**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**36**	0,08	0,10	0,12	0,14	0,18	0,22
1.3	**60**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.4	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.5	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.6	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.7	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**30**	0,06	0,08	0,1	0,12	0,14	0,18
1.8	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**30**	0,06	0,08	0,1	0,12	0,14	0,18
1.9	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.10	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.11	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.12	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**30**	0,06	0,08	0,1	0,12	0,14	0,18
1.13	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	8	0,04	0,05	0,06	0,08	0,10	0,12
1.14	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	12	0,04	0,05	0,06	0,08	0,10	0,12
1.15	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	12	0,04	0,05	0,06	0,08	0,10	0,12
1.16	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	12	0,04	0,05	0,06	0,08	0,10	0,12
2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.2	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.3	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.4	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.5	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.6	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.7	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
3.1	**50**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.2	**45**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.3	**45**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.4	**45**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**12**	0,1	0,12	0,14	0,18	0,2	0,25
3.5	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.6	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.7	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.8	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
4.1	**80**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**	42	0,08	0,1	0,12	0,14	0,18	0,22
4.2	**80**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**	42	0,08	0,1	0,12	0,14	0,18	0,22
4.3	**80**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**	42	0,08	0,1	0,12	0,14	0,18	0,22
4.4	**60**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**							
4.5	**60**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**							
4.6	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.7	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.8	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.9	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.10	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.11	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.12	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.13	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,3**	42	0,12	0,14	0,18	0,20	0,24	0,30
4.14	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,12	0,14	0,18	0,20	0,24	0,30
4.15	**25**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**							
4.16														
4.17	**25**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**							
4.18	**15**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,12**							
4.19	**15**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,12**							
5.1	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.2	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.3	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.4	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.5	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.6	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.7	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.8	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.9	25	0,05	0,06	0,07	0,08	0,09	0,12							
5.10	15	0,05	0,06	0,07	0,08	0,09	0,12							
5.11	15	0,05	0,06	0,07	0,08	0,09	0,12							
6.1	12	0,05	0,06	0,07	0,08	0,09	0,12							
6.2	8	0,05	0,06	0,07	0,08	0,09	0,12							
6.3	8	0,05	0,06	0,07	0,08	0,09	0,12							
6.4	8	0,05	0,06	0,07	0,08	0,09	0,12							
6.5														

The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

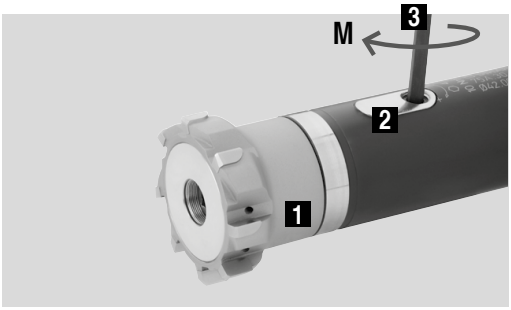
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

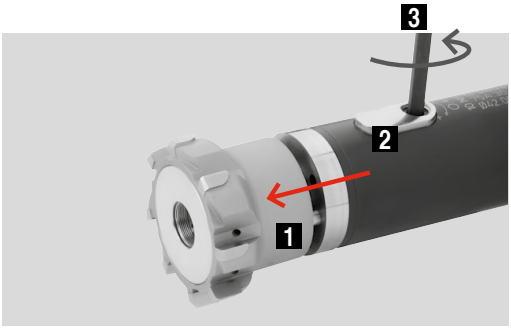


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

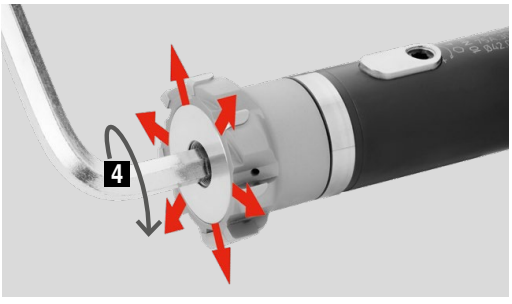


Use the key (3) to close the jaws (2), observe the recommended tightening torque. When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

x Range	Tightening 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 reamer head (1), this is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



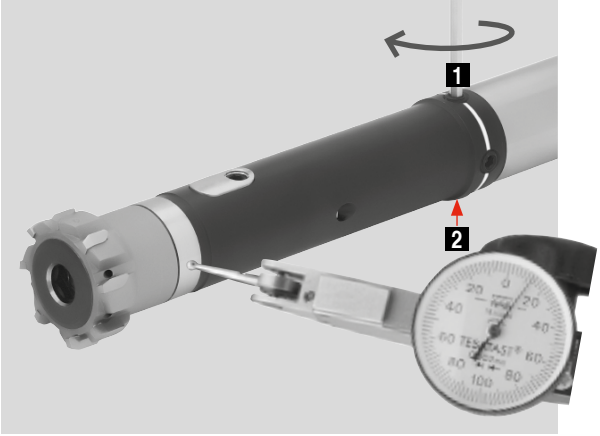
Adjustment for wear compensation:
The smallest drilling tolerances up to IT 4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

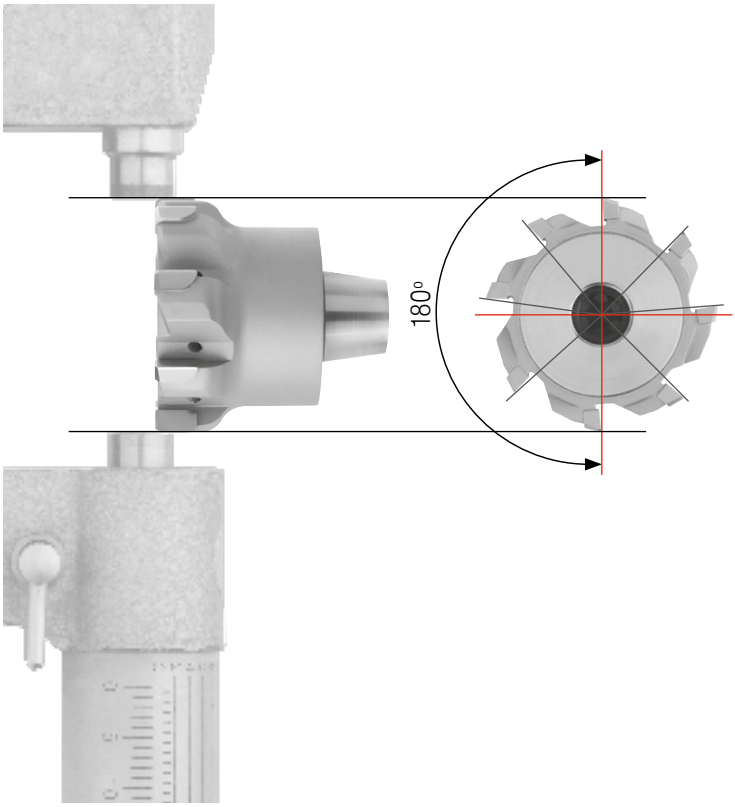
The tool is recommended for radial alignment of max. 20 µm.

1. Loosen all adjustment screws and pre-load with 1 Nm (new tools are already supplied like this).
2. Place dial gauge with µm display on the ground bezel diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. 5 µm.
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < 2 µm.

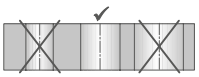


Please note:
- the runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- adjustment screws must always be tightened during usage with at least 1 Nm
- the max. re-adjustment torque is 4.5 Nm

Caution!
- uneven angle distribution!
- there are 2 cutting edges 180° opposite each other = measuring teeth
- measure the diameter at the front on the cutting edge (due to back taper, see diagram)
- avoid damage to the cutting edge

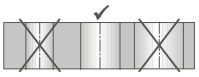


Problems / possible causes / solutions



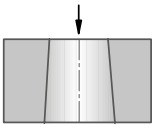
Hole too large

- runout error for reamer in the spindle → use DAH compensation system and correct runout
- inaccurate alignment, reamer back-cuts → correct alignment and use DPS floating holder
- built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- reamer too large → have reamer adapted



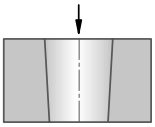
Hole too small

- worn reamer → have reamer adjusted, replaced or repaired
- reaming allowance too small → increase reaming allowance
- cutting force too high → reduce feed or select other lead geometry (ASG)
- reamer too small → have reamer adjusted, replaced or repaired



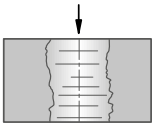
Conical hole, tapered backwards

- inaccurate alignment → correct alignment and use DPS floating holder
- misalignment between headstock and turret → correct turret and use DPS floating holder



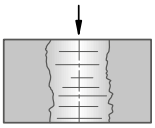
Conical hole, tapered forwards

- poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



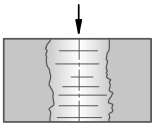
Hole is not round

- reamer runout error too large → correct the runout with DAH compensation system
- alignment error → correct alignment error and use DPS floating holder
- asymmetric initial cutting through angled entry surface → countersink hole
- workpiece tensioning → correct clamping of the workpieces
- poor pre-machining → optimise pre-machining
- feed too high → reduce feed



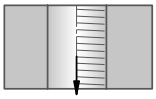
Hole exhibits chatter marks

- cutting speed v_c too high → reduce cutting speed
- OAL to DC ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



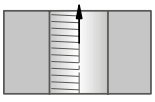
Non clean-up

- built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- cutting edge worn→ have cutting edge repaired or replace the tool
- reamer runout error → correct the runout with DAH compensation system
- no or insufficient cooling, chips are getting trapped → use thro' coolant supply and increase coolant pressure
- unsuitable coolant → increase the oil content of the coolant
- incorrect cutting data→ use data according to catalogue recommendation



Grooves in the hole "feed marking"

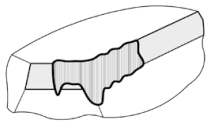
- faulty cutting edge (edge breakage) → have reamer replaced or repaired
- built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "retraction marking"

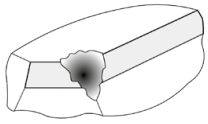
- cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- material springs back → do not retract at high speed but with increased (2-3 times) feed rate

Types of wear



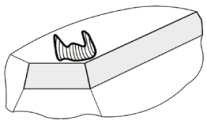
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



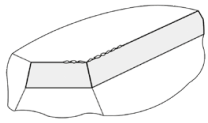
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



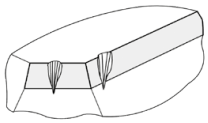
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



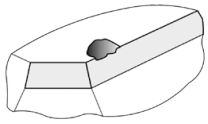
Edge breakages

Increase the cutting speed and use larger rake angle.



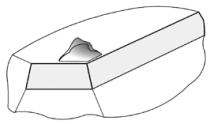
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



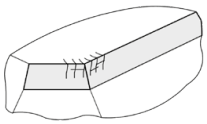
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.



Cracks at right angles to the cutting edge

Use sufficient coolant and thro' coolant, reduce the cutting speed.

Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance zone	Nominal Ø in mm											
	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Coatings

AlTiN
- ▲ AlTiN nanolayer coating
- ▲ maximum application temperature: 1100 °C

Ti700
- ▲ TiAlN multilayer coating
- ▲ maximum application temperature: 1100 °C

DBC
DLC
- ▲ diamond-like carbon coating
- ▲ specially for machining non-ferrous metals
- ▲ maximum application temperature: 400 °C

DBG-P
TiAlN
- ▲ TiAlN multilayer coating
- ▲ maximum application temperature: 900 °C

Ti50
- ▲ TiN multilayer coating
- ▲ maximum application temperature: 400 °C

TiN
CWN10
- ▲ TiN coating
- ▲ maximum application temperature: 450 °C

TPX76S
- ▲ TiN-TiAlN-ZrN Monolayer coating
- ▲ maximum application temperature: 800 °C

Type

AMZ
- ▲ carbide, TiAlN-coated
- ▲ ISO | P10 | K10 | **N10** | S10
- ▲ the coated carbide grade for aluminium machining

CWN15
- ▲ carbide, TiN-coated
- ▲ ISO | **K15**
- ▲ special carbide grade for abrasive aluminium alloys

DST
CWC10
- ▲ cermet, uncoated
- ▲ ISO | **P15** | **M10** | K10
- ▲ the uncoated cermet grade for finish machining stainless and hardened steel
- ▲ particularly wear resistant thanks to high heat resistance

CWN 2135
- ▲ carbide, TiCN-TiNB-coated
- ▲ ISO | P35 | **M30** | S35
- ▲ the turning grade for general stainless machining

CWK10
- ▲ carbide, uncoated
- ▲ ISO | **K10**
- ▲ the uncoated carbide grade for universal application

DCX3110
- ▲ carbide, TiCN-Al_2O_3-coated
- ▲ ISO | P05 | **K10**
- ▲ the wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CWK15
- ▲ carbide, uncoated
- ▲ ISO | **K15** | **N15**
- ▲ the uncoated carbide grade for machining aluminium and other non-ferrous metals

HCR1135
- ▲ carbide, TiCN-Al_2O_3-coated
- ▲ ISO | **P35** | M25 | S25
- ▲ the tough alternative for heavily interrupted cut and unstable conditions

TiN
CWN10
- ▲ carbide, TiN-coated
- ▲ ISO | **K10**
- ▲ the carbide grade for machining steels, stainless steels and non-ferrous metals

HCX1125
- ▲ xarbide, TiCN-Al_2O_3-coated
- ▲ ISO | P25 | M20 | **K30**
- ▲ the first choice for universal machining of steels