New products for machining technicians

NEW Fullmax high-performance reamers – short

- Solid carbide high-performance reamers in short version
- Type UNI
- Maximum efficiency in all materials
- Available as standard H7, as 1/100 and as a configurable variant

→ Page 23–28

NEW NC machine reamer – Type H

- Solid carbide NC machine reamers for hardened materials
- Standard shank DIN 6535 HA

→ Page 43+44

NEW Insert countersink 60°/90°

- Indexable insert countersink for producing 60° and 90° countersinks
- Ideally suited for use with TOHX indexable inserts

→ Page 55+56

NEW TOHX indexable inserts

BK8425

- Grade for universal use

K10

- Grade for use in non-ferrous metals and highly heat-resistant materials

→ Page 57

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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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.

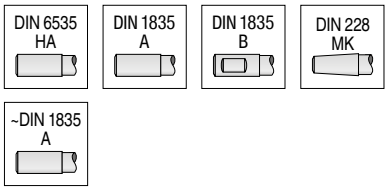
KOMET \ Standard

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



Coolant supply version

central internal coolant

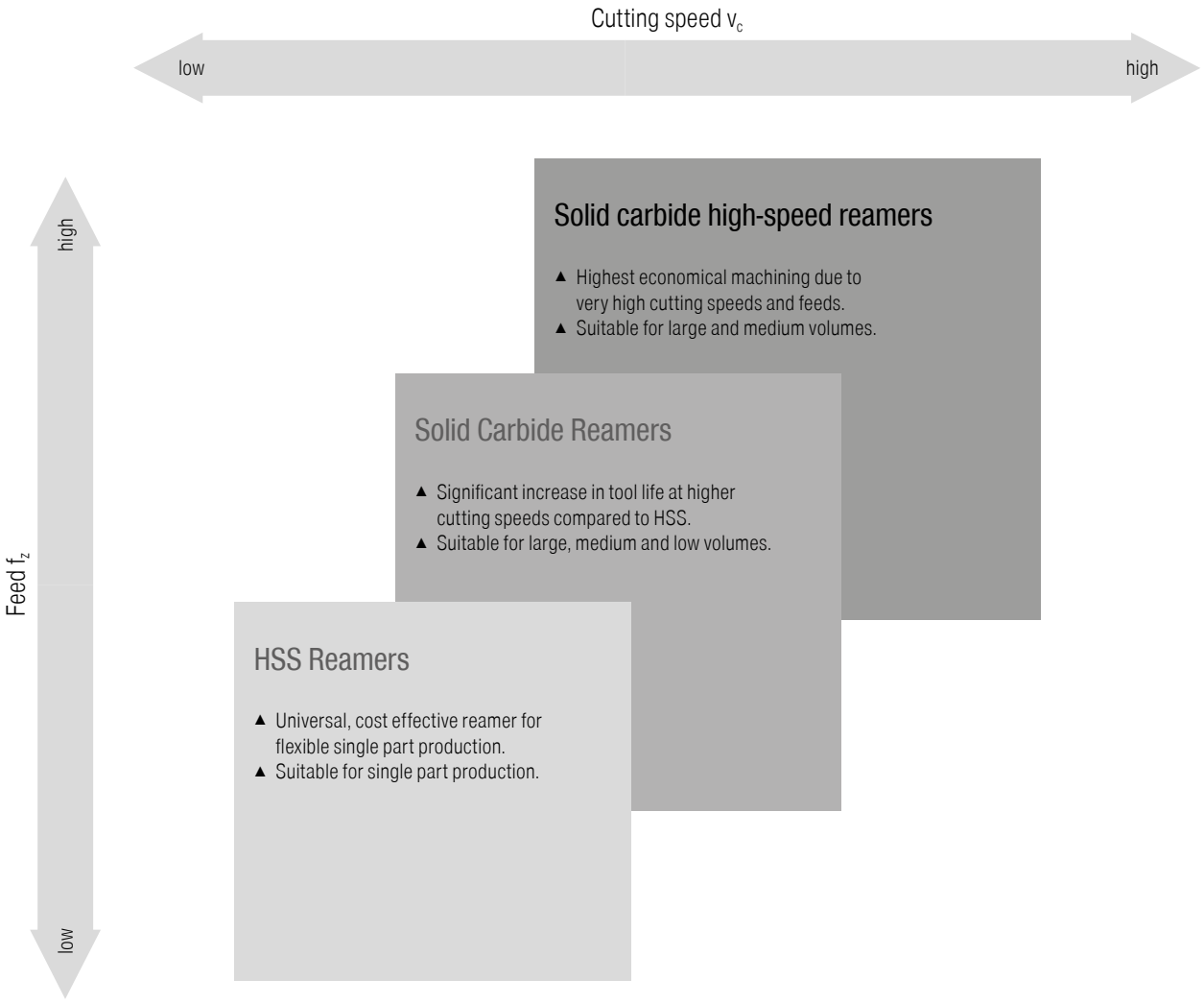
lateral internal coolant

ZEFP = Number of flutes

● = **Main Application**

○ = Extended application

Toolfinder – Reamers



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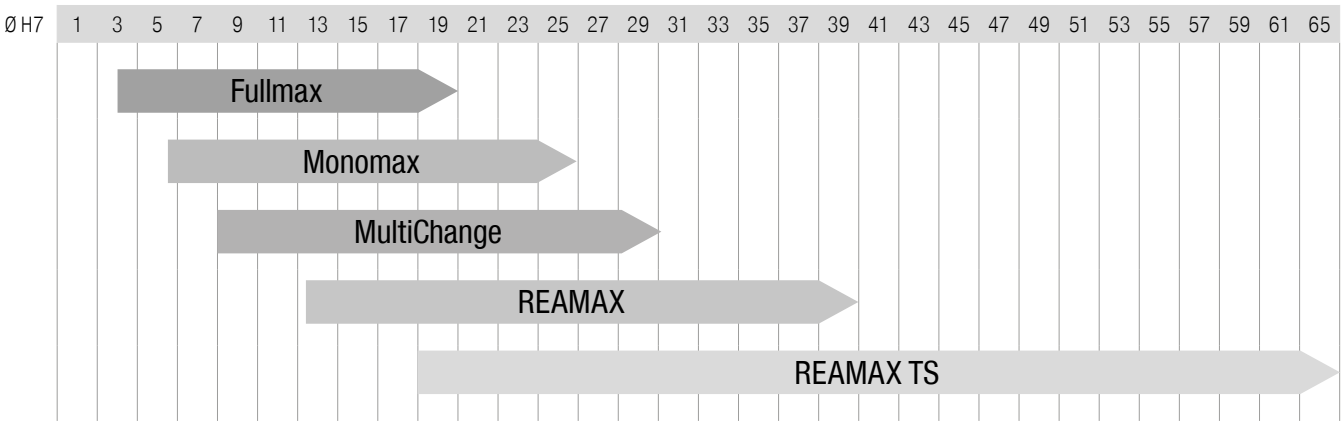
Overview of solid carbide high-speed reamers



	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 ▲ all common materials
	Fullmax			▲ High-speed reamer in shorter and longer version ▲ Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC ▲ Extremely irregular pitch ▲ Standard shank ~ DIN 6535 HA
Solid carbide – Reamers	NC	NC 100		▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	NC	NC 100H		▲ Solid carbide reamer without thro' coolant suitable for use in hardened materials ▲ Standard shank ~ DIN 6535 HA
	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

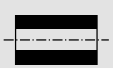
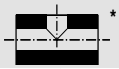
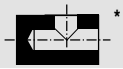
	Hole diameter in mm Ø DC	Standard Tolerance	Through hole	Blind hole	Int. coolant supply	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
	18,00–65,00	H7 1/100	✓	✓	✓	●	●	●	●			○	7–9	
					✓								10+11	
	12,50–40,00	H7 1/100	✓	✓	✓	●	●	●	●		●	○	12+13	
					✓								14	
	8,00–30,20	H7 1/100	✓	✓	✓	●	●	●	●				15–17	
					✓								→ Catalogue – Clamping technology, Chapter 16	
short	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	18–20	
long	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	21+22	
short	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	○	○	○		23–28	
long	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	●	○	●	○	29–38	
	2,00–30,00 0,59–12,05	H7 1/100	✓			●	○	●	●	○	○	●	39–41	
	0,98–12,05	H7	✓	✓		○	○	○			●		43+44	
	2,00–12,00	H7	✓			●	○	○	●	○				42
	1,50–20,00 0,95–12,00	H7 1/100	✓			●		●	●			●	45+46	
	1,00–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○		●		47–49
	1,00–20,00	H7	✓			●			●			○		50
	4,00–20,00 3,76–12,00	H7 1/100	✓			●	○	●	●	○		●		50+51
	16,00–50,00	H7	✓			●	○	●	●	○		●		52
	1,00–40,00	H7	✓			●	○	●	●	○		●		52

Countersinks Overview

	Tool type	Coating	Hole diameter in mm Ø DC	Point angle	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool													
	WPS		15,0–33,0		●	●	●	●	●				53+54
	WPS		16,5–25,5	60°	●	●	●	●	●				55–57
			19,0–37,0	90°									
HSS – Counterbores													
			6,0–20,0		●	●	●	●	○		●		58
Solid Carbide Countersinks													
	N	TPX76S	6,3–31,0	90°	●	○	●	●	○	○	○	59	
	N		12,5–25,0	60°	●	○	●	●	○	○			60
	N		10,4–31,0	90°	●	○	●	●	○	○			60
HSS Countersinks													
			6,3–25,0	60°	●	○	●	●	○		●		63
			16,0–80,0	60°	●	○	●	●	○		●		63
	N	Ti50	4,3–31,0	90°	●	○	●	●	○	○	○	61	
	N		4,3–31,0	90°	●	○	●	●	○		●		62
	N	TiN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	VA	TiAlN	6,3–31,0	90°	○	●	○	○	○	○	●		62
	AL		6,3–31,0	90°	○	○	○	●	○		●		62
	N		16,5–80,0	90°	●	○	●	●	○		●		64
			6,3–25,0	120°	●	○	●	●	○		●		64
HSS – Hand deburrer													
			12,4–25,0	90°	●	○	●	●	○	○	●		65
Deburring Countersink													
		blank/ TiN	6,3–35,0	90°	●	○	●	●	○	○	●		65

REAMAX TS – Selection guide

4

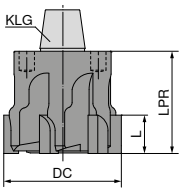
Ø			18 – 65 mm								
KOMET no.			75J.93	75J.93	75J.65	75J.17	75H.17	75H.93	75H.65	75H.65	75H.71
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG0106	ASG3000
Lead angle			25°	45°	45°	45°/8°	45°/8°	45°	45°	45°	45°
Grade / coating			DST	DST	DBG-P	DBC	DBC	DST	DBG-P	DBG-P	TiN
Article no.			40 597	40 544	40 521	40 526	40 580	40 539	40 585	40 571	40 535
Preferred type available			✓	✓	✓			✓		✓	
Application			Through hole				Blind hole				
					 *					 *	
Material sub-group		Index									
P	Non alloyed steel	P.1.1									
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5	●	●				●	●		○
	Low alloyed steel	P.2.1									
		P.2.2									
		P.2.3									
		P.2.4									
	High-alloy steel and high-alloy tool steel	P.3.1									
		P.3.2									
		P.3.3			●					●	
	Stainless steel	P.4.1									
		P.4.2									
M	Stainless steel	M.1.1									
		M.2.1			●					●	
		M.3.1									
K	Grey cast iron	K.1.1							●		●
		K.1.2									
	Spherulitic graphite cast iron	K.2.1	●	●				●	●		
		K.2.2									
	Malleable iron	K.3.1		●				●	●		
		K.3.2	●								
N	Aluminum alloys	N.1.1									
		N.1.2									
	Cast Aluminium Alloys	N.2.1				●	●				
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				○			●
		N.3.2									
		N.3.3									
	Magnesium alloys	N.4.1				●	●				
O	Non metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1				○	○				

* for drilling with interrupted cut use coated HM-reamers

Applications:		
	Main application	●
	Additional range of application	○

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	75J.65	75J.17	75J.93
	◁ 25°	◁ 45°	◁ 45/8°	◁ 45°
	ASG4000	ASG0106	ASG0706	ASG3000
	CERMET	HM	HM	CERMET
	Through hole	Through hole	Through hole	Through hole
	40 597 ...	**40 521 ...**	**40 526 ...**	**40 544 ...**

DC H7 mm	L mm	LPR mm	ZEFP	KLG	EUR U3		EUR U3		EUR U3		EUR U3	
18,00	6	20	6	1	342,90	18000	342,90	18000	342,90	18000	342,90	18000
18,01 - 19,99	6	20	6	1	404,00	xxxx 1)	404,00	xxxx 1)	404,00	xxxx 2)	404,00	xxxx 1)
20,00	6	20	6	2	351,70	20000	351,70	20000	351,70	20000	351,70	20000
20,01 - 21,99	6	20	6	2	473,80	xxxx 1)	473,80	xxxx 1)	473,80	xxxx 2)	473,80	xxxx 1)
22,00	6	20	6	3	358,20	22000	358,20	22000	358,20	22000	358,20	22000
22,01 - 23,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
24,00	6	20	6	3	369,10	24000	369,10	24000	369,10	24000	492,90	24000 1)
24,01 - 24,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
25,00	6	20	6	3	369,10	25000	369,10	25000	369,10	25000	369,10	25000
25,01 - 25,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
26,00	6	20	6	3	383,30	26000	383,30	26000	492,90	26000 2)	383,30	26000
26,01 - 26,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
27,00 - 27,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)
28,00	6	25	6	4	383,30	28000	383,30	28000	383,30	28000	383,30	28000
28,01 - 29,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)
30,00	6	25	6	4	400,80	30000	400,80	30000	400,80	30000	400,80	30000
30,01 - 31,79	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)
31,80 - 31,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)
32,00	6	25	8	4	415,00	32000	415,00	32000	415,00	32000	415,00	32000
32,01 - 34,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)
35,00	6	25	8	5	434,60	35000	434,60	35000	434,60	35000	434,60	35000
35,01 - 39,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)
40,00	6	25	8	5	459,70	40000	459,70	40000	459,70	40000	459,70	40000
40,01 - 41,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)
42,00	6	30	8	6	459,70	42000	459,70	42000	637,60	42000 2)	459,70	42000
42,01 - 49,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)
50,00	6	30	8	6	470,60	50000	470,60	50000	470,60	50000	470,60	50000
50,01 - 51,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)
52,00 - 53,99	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)
54,00	8	35	10	7	529,60	54000	529,60	54000	707,10	54000 2)	529,60	54000
54,01 - 65,00	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)

P	●	●		●
M		●		
K	●			●
N			●	○
S				
H				
O			○	

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

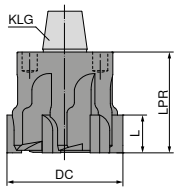
→ v_c Page 67–70

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 597 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

Assembly instructions can be found on → **Page 98+99**

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	75H.65	75H.17	75H.65	75H.71
	◁ 45°	◁ 45°	◁ 45/8°	◁ 45°	◁ 45°
	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000
	CERMET	HM	HM	HM	HM
	Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
	40 539 ...	**40 571 ...**	**40 580 ...**	**40 585 ...**	**40 535 ...**

DC H7 mm	L mm	LPR mm	ZEFP	KLG	EUR U3		EUR U3		EUR U3		EUR U3		EUR U3	
18,00	6	20	6	1	342,90	18000	342,90	18000	404,00	18000 2)	404,00	18000 1)	404,00	18000 1)
18,01 - 19,99	6	20	6	1	404,00	xxxx 1)	404,00	xxxx 1)	404,00	xxxx 2)	404,00	xxxx 1)	404,00	xxxx 1)
20,00	6	20	6	2	351,70	20000	351,70	20000	473,80	20000 2)	473,80	20000 1)	473,80	20000 1)
20,01 - 21,99	6	20	6	2	473,80	xxxx 1)	473,80	xxxx 1)	473,80	xxxx 2)	473,80	xxxx 1)	473,80	xxxx 1)
22,00	6	20	6	3	358,20	22000	358,20	22000	492,90	22000 2)	492,90	22000 1)	492,90	22000 1)
22,01 - 23,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
24,00	6	20	6	3	369,10	24000	369,10	24000	492,90	24000 2)	492,90	24000 1)	492,90	24000 1)
24,01 - 24,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
25,00	6	20	6	3	369,10	25000	369,10	25000	492,90	25000 2)	492,90	25000 1)	492,90	25000 1)
25,01 - 25,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
26,00	6	20	6	3	383,30	26000	383,30	26000	492,90	26000 2)	492,90	26000 1)	492,90	26000 1)
26,01 - 26,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
27,00 - 27,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)	513,20	xxxx 1)
28,00	6	25	6	4	383,30	28000	383,30	28000	513,20	28000 2)	513,20	28000 1)	513,20	28000 1)
28,01 - 29,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)	513,20	xxxx 1)
30,00	6	25	6	4	400,80	30000	400,80	30000	513,20	30000 2)	513,20	30000 1)	513,20	30000 1)
30,01 - 31,79	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)	513,20	xxxx 1)
31,80 - 31,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)	536,60	xxxx 1)
32,00	6	25	8	4	415,00	32000	415,00	32000	536,60	32000 2)	536,60	32000 1)	536,60	32000 1)
32,01 - 34,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)	536,60	xxxx 1)
35,00	6	25	8	5	434,60	35000	434,60	35000	587,00	35000 2)	587,00	35000 1)	587,00	35000 1)
35,01 - 39,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)	587,00	xxxx 1)
40,00	6	25	8	5	459,70	40000	459,70	40000	587,00	40000 2)	587,00	40000 1)	587,00	40000 1)
40,01 - 41,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)	587,00	xxxx 1)
42,00	6	30	8	6	459,70	42000	459,70	42000	637,60	42000 2)	637,60	42000 1)	637,60	42000 1)
42,01 - 49,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)	637,60	xxxx 1)
50,00	6	30	8	6	470,60	50000	470,60	50000	637,60	50000 2)	637,60	50000 1)	637,60	50000 1)
50,01 - 51,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)	637,60	xxxx 1)
52,00 - 53,99	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)	707,10	xxxx 1)
54,00	8	35	10	7	529,60	54000	529,60	54000	707,10	54000 2)	707,10	54000 1)	707,10	54000 1)
54,01 - 65,00	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)	707,10	xxxx 1)

P	●	●		●	○
M		●			
K	●			●	●
N	○		●		●
S					
H					
O			○		

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 67–70

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 539 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

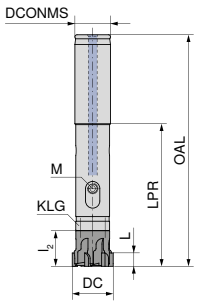
Assembly instructions can be found on → **Page 98+99**

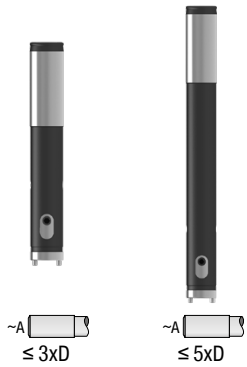
REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder incl. pull stud but without exchangeable head

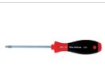




DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS h6 mm	M Nm	40 501 ... EUR U3		40 503 ... EUR U3	
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	360,30	**02099**		
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5			373,70	**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	373,70	**02299**		
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5			389,80	**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	383,00	**02799**		
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4			411,20	**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	397,80	**03599**		
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5			423,10	**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	454,00	**04299**		
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6			479,00	**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	468,70	**05299**		
42,00 - 51,99	75A.40.15060	6	280	30	220	6	32	10			494,50	**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	483,50	**06599**		
52,00 - 65,00	75A.40.15070	7	280	30	220	8	32	13			510,10	**06599**

Do not heat shrink tools !

Clamping key - T


Key D

Reamax TS pull stud

Spare parts DC		80 397 ... EUR Y7			80 950 ... EUR Y7		40 900 ... EUR U3	
18,00 - 19,99				T08 - IP	6,47	**039**	9,66	**00100**
20,00 - 21,99	SW2,5	4,09	**025**				9,66	**00200**
22,00 - 26,99	SW3	3,97	**030**				9,66	**00300**
27,00 - 34,99	SW3	3,97	**030**				9,66	**00400**
35,00 - 41,99	SW3	3,97	**030**				13,40	**00500**
42,00 - 51,99	SW4	4,03	**040**				13,40	**00500**
52,00 - 65,00	SW5	4,37	**050**				13,40	**00700**

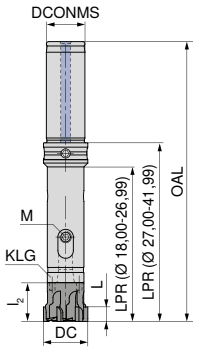
Assembly instructions can be found on → **Page 98+99**

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



DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS h6 mm	M Nm	40 504 ... EUR U3		40 506 ... EUR U3	
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	483,50	**02099**		
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5			514,20	**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	488,80	**02299**		
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5			530,20	**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	500,80	**02799**		
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4			545,10	**02799**
27,00 - 34,99	75A.41.13040	4	145	25	120	6	25	5	526,30	**03599**		
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5			545,10	**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	640,00	**04299**		
35,00 - 41,99	75A.41.15050	5	236	25	200	6	25	6			652,20	**04299**

Do not heat shrink tools !

Spare parts DC		Clamping key - T 80 397 ... EUR Y7			Key D 80 950 ... EUR Y7		Reamax TS pull stud 40 900 ... EUR U3	
18,00 - 19,99				T08 - IP	6,47	**039**	9,66	**00100**
20,00 - 21,99	SW2,5	4,09	**025**				9,66	**00200**
22,00 - 26,99	SW3	3,97	**030**				9,66	**00300**
27,00 - 34,99	SW3	3,97	**030**				9,66	**00400**
35,00 - 41,99	SW3	3,97	**030**				13,40	**00500**

Assembly instructions can be found on → **Page 98+99**

REAMAX – Selection guide

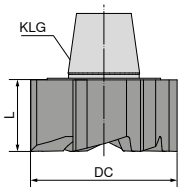
Ø			12,5 – 40 mm					
KOMET no.			640.93	640.93	640.65	640.65	640.27	640.71
Lead angle			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000
Lead angle			25°	45°	45°	45°	45°/8°	45°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TiN
Article no.			40 536	40 525	40 560	40 551	40 570	40 505
Preferred type available			✓	✓	✓	✓	✓	✓
Application			Through hole	Through hole + blind hole				
					*			*
Material sub-group		Index						
P	Non alloyed steel	P.1.1	●	●	●			○
		P.1.2						
		P.1.3						
		P.1.4						
		P.1.5						
	Low alloyed steel	P.2.1						
		P.2.2						
		P.2.3						
		P.2.4				●		
	High-alloy steel and high-alloy tool steel	P.3.1						
		P.3.2						
		P.3.3						
	Stainless steel	P.4.1						
		P.4.2						
M	Stainless steel	M.1.1						
		M.2.1				●		
		M.3.1						
K	Grey cast iron	K.1.1			●			○
		K.1.2						
	Spherulitic graphite cast iron	K.2.1	○	●	●			
		K.2.2						
	Malleable iron	K.3.1		●	●			
		K.3.2	○					
N	Aluminum alloys,	N.1.1						
		N.1.2					●	
	Cast Aluminium Alloys	N.2.1						
		N.2.2						
		N.2.3						
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				
		N.3.2						●
		N.3.3						
	Magnesium alloys	N.4.1						
H	Hardened steel	H.1.1						
		H.1.2				●		
		H.1.3						
		H.1.4						
	Chilled iron	H.2.1				●		
	Hardened cast iron	H.3.1						
O	Non metal materials	O.1.1						
		O.1.2						
		O.2.1						
		O.2.2						
		O.3.1					○	

* for drilling with interrupted cut use coated HM-reamers

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
	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
	40 536 ...	40 551 ...	40 570 ...	40 525 ...	40 560 ...	40 505 ...

DC H7 mm	L mm	ZEFP	KLG	EUR U3		EUR U3		EUR U3		EUR U3		EUR U3		EUR U3	
12,50 - 14,99	9	6	1	281,20	xxxx 2)	281,20	xxxx 1)	281,20	xxxx 1)	281,20	xxxx 2)	281,20	xxxx 1)	281,20	xxxx 1)
15,00	9	6	1	232,60	15000 2)	232,60	15000 1)	232,60	15000 1)	232,60	15000 2)	232,60	15000	232,60	150
15,01 - 15,99	9	6	1	281,20	xxxx 2)	281,20	xxxx 1)	281,20	xxxx 1)	281,20	xxxx 2)	281,20	xxxx 1)	281,20	xxxx 1)
16,00	9	6	2	267,50	160	267,50	16000 1)	267,50	16000 1)	267,50	160	267,50	16000	267,50	160
16,01 - 17,99	9	6	2	320,90	xxxx 2)	320,90	xxxx 1)	320,90	xxxx 1)	320,90	xxxx 2)	320,90	xxxx 1)	320,90	xxxx 1)
18,00	9	6	2	270,80	180	270,80	18000 1)	270,80	18000 1)	270,80	180	270,80	18000	270,80	180
18,01 - 19,99	9	6	2	320,90	xxxx 2)	320,90	xxxx 1)	320,90	xxxx 1)	320,90	xxxx 2)	320,90	xxxx 1)	320,90	xxxx 1)
20,00	9	6	2	276,30	200	276,30	20000 1)	276,30	20000 1)	276,30	200	276,30	20000	276,30	200
20,01 - 21,99	9	6	2	320,90	xxxx 2)	320,90	xxxx 1)	320,90	xxxx 1)	320,90	xxxx 2)	320,90	xxxx 1)	320,90	xxxx 1)
22,00	9	8	3	282,90	220	282,90	22000 1)	282,90	22000 1)	282,90	220	282,90	22000	282,90	220
22,01 - 23,99	9	8	3	346,70	xxxx 2)	346,70	xxxx 1)	346,70	xxxx 1)	346,70	xxxx 2)	346,70	xxxx 1)	346,70	xxxx 1)
24,00	9	8	3	292,60	24000 2)	292,60	24000 1)	292,60	24000 1)	292,60	24000 2)	292,60	24000	292,60	240
24,01 - 24,99	9	8	3	346,70	xxxx 2)	346,70	xxxx 1)	346,70	xxxx 1)	346,70	xxxx 2)	346,70	xxxx 1)	346,70	xxxx 1)
25,00	9	8	3	304,70	250	304,70	25000 1)	304,70	25000 1)	304,70	250	304,70	25000	304,70	250
25,01 - 25,99	9	8	3	346,70	xxxx 2)	346,70	xxxx 1)	346,70	xxxx 1)	346,70	xxxx 2)	346,70	xxxx 1)	346,70	xxxx 1)
26,00 - 27,99	9	8	4	397,30	xxxx 2)	397,30	xxxx 1)	397,30	xxxx 1)	397,30	xxxx 2)	397,30	xxxx 1)	397,30	xxxx 1)
28,00	9	8	4	315,60	280	315,60	28000 1)	315,60	28000 1)	315,60	280	315,60	28000	315,60	280
28,01 - 29,99	9	8	4	397,30	xxxx 2)	397,30	xxxx 1)	397,30	xxxx 1)	397,30	xxxx 2)	397,30	xxxx 1)	397,30	xxxx 1)
30,00	9	8	4	330,90	300	330,90	30000 1)	330,90	30000 1)	330,90	300	330,90	30000	330,90	300
30,01 - 32,00	9	8	4	397,30	xxxx 2)	397,30	xxxx 1)	397,30	xxxx 1)	397,30	xxxx 2)	397,30	xxxx 1)	397,30	xxxx 1)
32,01 - 39,99	9	8	5	450,50	xxxx 2)	450,50	xxxx 1)	450,50	xxxx 1)	450,50	xxxx 2)	450,50	xxxx 1)	450,50	xxxx 1)
40,00	9	8	5	350,50	400	350,50	40000 1)	350,50	40000 1)	350,50	400	350,50	40000	350,50	400

P					●		●				●		●		○
M							●								
K					○						●		●		○
N									●		○				●
S															
H							●								
O									○						

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

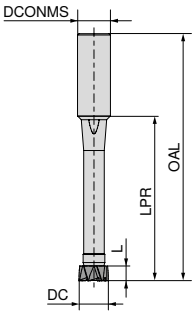
→ v_c Page 71–73

For xxxx please indicate requested Ø in H7 in the order (e.g. Ø 15.12 H7 → article no. 40 525 1512)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!

REAMAX – Holder, short

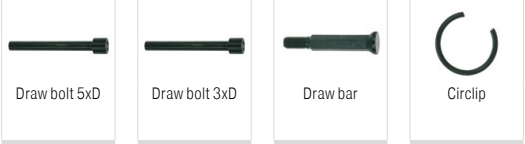
▲ KLG = Coupling Size

Supply details:
Complete holder, but without exchangeable head



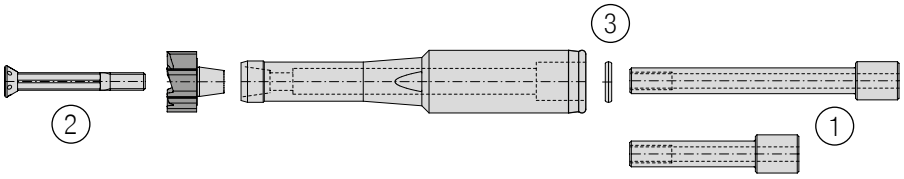
DC mm	KOMET no.	KLG	OAL mm	LPR mm	L mm	DCONMS h6 mm	M Nm	40 590 ... EUR U3		40 591 ... EUR U3	
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	356,20	**016**		
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5			356,20	**016**
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	372,20	**022**		
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7			372,20	**022**
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	396,30	**026**		
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12			396,30	**026**
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	409,70	**032**		
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20			409,70	**032**
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	468,70	**040**		
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28			468,70	**040**

Do not heat shrink tools !



Spare parts DC	DCONMS	40 950 ... EUR U3		40 950 ... EUR U3		40 950 ... EUR U3		40 950 ... EUR U3	
12,50 - 15,99	16			48,52	**101**	123,20	**001**	1,07	**301**
12,50 - 15,99	16	49,65	**107**			123,20	**001**	1,07	**301**
16,00 - 21,99	20	49,65	**108**			123,20	**002**	1,07	**302**
16,00 - 21,99	20			48,52	**102**	123,20	**002**	1,07	**302**
22,00 - 25,99	25			56,77	**103**	128,50	**003**	1,07	**303**
22,00 - 25,99	25	58,47	**109**			128,50	**003**	1,07	**303**
26,00 - 32,00	25			65,34	**104**	135,30	**004**	1,07	**303**
26,00 - 32,00	25	67,30	**110**			135,30	**004**	1,07	**303**
32,01 - 40,00	32	76,13	**112**			146,10	**005**	1,07	**304**
32,01 - 40,00	32			73,91	**106**	146,10	**005**	1,07	**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

- 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 SZID 8, 10, 12, 16, 20 mm

- Short Holder Steel / Solid Carbide
  cylindrical
  Length 85–120 mm
  for SZID 8, 10, 12, 16, 20 mm

- Short Holder Steel / Solid Carbide
  87° taper
  Length 85–120 mm
  for SZID 8, 10, 12, 16, 20 mm

- Solid Carbide Holder, Medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for SZID 8, 10, 12, 16, 20 mm

- Holder Steel / Solid Carbide, Long
  cylindrical
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm

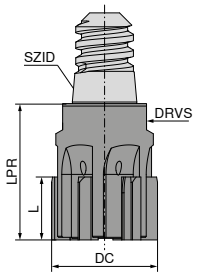
- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm

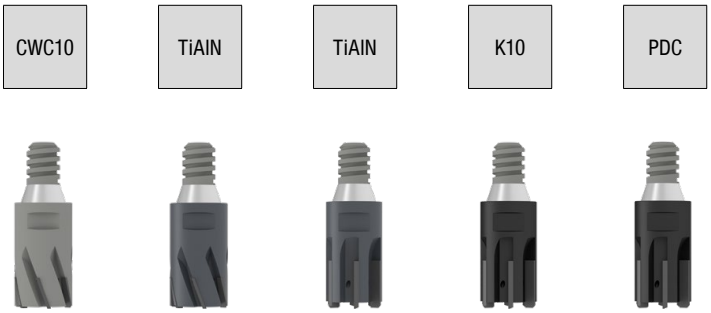
- Holder Steel / Solid Carbide, Extra Long
  cylindrical
  Length 200–250 mm
  For SZID 16 and 20 mm

→ **Catalogue – Clamping technology, Chapter 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
- SZID = 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
	40 210 ...	**40 220 ...**	**40 230 ...**	**40 240 ...**	**40 245 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	40 210 EUR U3		40 220 EUR U3		40 230 EUR U3		40 240 EUR U3		40 245 EUR U3	
8,00	06	8	18	4	6	5,0	179,50	**080**	179,50	**080**	179,50	**080**	162,00	**080** [1]	432,90	**080** [1]
8,01 - 9,70	06	8	18	4	6	5,0	195,60	**xxxx** [1]	195,60	**xxxx** [1]	195,60	**xxxx** [1]	177,00	**xxxx** [1]	486,30	**xxxx** [1]
9,71 - 9,99	06	8	18	6	8	5,0	221,00	**xxxx** [1]	221,00	**xxxx** [1]	221,00	**xxxx** [1]	199,10	**xxxx** [1]	529,60	**xxxx** [1]
10,00	06	8	18	6	8	5,0	204,90	**100**	204,90	**100**	204,90	**100**	182,80	**100** [1]	478,50	**100** [1]
10,01 - 10,70	06	8	18	6	8	5,0	221,00	**xxxx** [1]	221,00	**xxxx** [1]	221,00	**xxxx** [1]	199,10	**xxxx** [1]	529,60	**xxxx** [1]
10,71 - 11,99	08	8	20	6	8	12,5	221,00	**xxxx** [1]	221,00	**xxxx** [1]	221,00	**xxxx** [1]	199,10	**xxxx** [1]	548,60	**xxxx** [1]
12,00	08	8	20	6	8	12,5	204,90	**120**	204,90	**120**	204,90	**120**	182,80	**120** [1]	486,30	**120** [1]
12,01 - 12,70	08	8	20	6	8	12,5	221,00	**xxxx** [1]	221,00	**xxxx** [1]	221,00	**xxxx** [1]	199,10	**xxxx** [1]	548,60	**xxxx** [1]
12,71 - 13,99	10	8	22	6	10	15,0	236,20	**xxxx** [1]	236,20	**xxxx** [1]	236,20	**xxxx** [1]	211,90	**xxxx** [1]	548,60	**xxxx** [1]
14,00	10	8	22	6	10	15,0	216,40	**140**	216,40	**140**	216,40	**140**	195,60	**140** [1]	486,30	**140** [1]
14,01 - 15,99	10	8	22	6	10	15,0	236,20	**xxxx** [1]	236,20	**xxxx** [1]	236,20	**xxxx** [1]	211,90	**xxxx** [1]	548,60	**xxxx** [1]
16,00	10	8	22	6	10	15,0	216,40	**160**	216,40	**160**	216,40	**160**	195,60	**160** [1]	513,00	**160** [1]
16,01 - 16,20	10	8	22	6	10	15,0	236,20	**xxxx** [1]	236,20	**xxxx** [1]	236,20	**xxxx** [1]	211,90	**xxxx** [1]	576,40	**xxxx** [1]
16,21 - 17,20	10	8	22	6	13	15,0	236,20	**xxxx** [1]	236,20	**xxxx** [1]	236,20	**xxxx** [1]	211,90	**xxxx** [1]	576,40	**xxxx** [1]
17,21 - 17,99	12	12	26	6	13	20,0	246,50	**xxxx** [1]	246,50	**xxxx** [1]	246,50	**xxxx** [1]	221,00	**xxxx** [1]	581,90	**xxxx** [1]
18,00	12	12	26	6	13	20,0	228,00	**180**	228,00	**180**	228,00	**180**	204,90	**180** [1]	517,40	**180** [1]
18,01 - 19,20	12	12	26	6	13	20,0	246,50	**xxxx** [1]	246,50	**xxxx** [1]	246,50	**xxxx** [1]	221,00	**xxxx** [1]	581,90	**xxxx** [1]
19,21 - 19,99	12	12	26	6	16	20,0	246,50	**xxxx** [1]	246,50	**xxxx** [1]	246,50	**xxxx** [1]	221,00	**xxxx** [1]	581,90	**xxxx** [1]
20,00	12	12	26	6	16	20,0	228,00	**200**	228,00	**200**	228,00	**200**	204,90	**200** [1]	517,40	**200** [1]
20,01 - 20,20	12	12	26	6	16	20,0	246,50	**xxxx** [1]	246,50	**xxxx** [1]	246,50	**xxxx** [1]	221,00	**xxxx** [1]	581,90	**xxxx** [1]
20,21 - 21,20	12	12	26	6	16	20,0	258,10	**xxxx** [1]	258,10	**xxxx** [1]	258,10	**xxxx** [1]	231,50	**xxxx** [1]	581,90	**xxxx** [1]
21,21 - 21,99	16	12	26	6	16	25,0	258,10	**xxxx** [1]	258,10	**xxxx** [1]	258,10	**xxxx** [1]	231,50	**xxxx** [1]	592,00	**xxxx** [1]
22,00	16	12	26	6	16	25,0	238,40	**220**	238,40	**220**	238,40	**220**	211,90	**220** [1]	526,40	**220** [1]
22,01 - 23,99	16	12	26	6	16	25,0	258,10	**xxxx** [1]	258,10	**xxxx** [1]	258,10	**xxxx** [1]	231,50	**xxxx** [1]	592,00	**xxxx** [1]
24,00	16	12	26	6	16	25,0	238,40	**240**	238,40	**240**	238,40	**240**	211,90	**240** [1]	526,40	**240** [1]
24,01 - 24,20	16	12	26	6	16	25,0	258,10	**xxxx** [1]	258,10	**xxxx** [1]	258,10	**xxxx** [1]	231,50	**xxxx** [1]	592,00	**xxxx** [1]
24,21 - 24,99	16	12	26	6	19	25,0	276,50	**xxxx** [1]	276,50	**xxxx** [1]	276,50	**xxxx** [1]	247,70	**xxxx** [1]	609,70	**xxxx** [1]
25,00	16	12	26	6	19	25,0	252,20	**250**	252,20	**250**	252,20	**250**	229,20	**250** [1]	544,10	**250** [1]
25,01 - 25,99	16	12	26	6	19	25,0	276,50	**xxxx** [1]	276,50	**xxxx** [1]	276,50	**xxxx** [1]	247,70	**xxxx** [1]	609,70	**xxxx** [1]
26,00	16	12	26	6	19	25,0	252,20	**260**	252,20	**260**	252,20	**260**	229,20	**260** [1]	544,10	**260** [1]
26,01 - 26,20	16	12	26	6	19	25,0	276,50	**xxxx** [1]	276,50	**xxxx** [1]	276,50	**xxxx** [1]	247,70	**xxxx** [1]	609,70	**xxxx** [1]
26,21 - 27,99	16	12	26	6	21	25,0	276,50	**xxxx** [1]	276,50	**xxxx** [1]	276,50	**xxxx** [1]	247,70	**xxxx** [1]	609,70	**xxxx** [1]
28,00	16	12	26	6	21	25,0	252,20	**280**	252,20	**280**	252,20	**280**	229,20	**280** [1]	544,10	**280** [1]
28,01 - 28,20	16	12	26	6	21	25,0	276,50	**xxxx** [1]	276,50	**xxxx** [1]	276,50	**xxxx** [1]	247,70	**xxxx** [1]	609,70	**xxxx** [1]
28,21 - 29,20	16	12	26	6	24	25,0	304,40	**xxxx** [1]	304,40	**xxxx** [1]	304,40	**xxxx** [1]	275,40	**xxxx** [1]	609,70	**xxxx** [1]
29,21 - 29,99	16	12	26	8	24	25,0	304,40	**xxxx** [1]	304,40	**xxxx** [1]	304,40	**xxxx** [1]	275,40	**xxxx** [1]	645,30	**xxxx** [1]
30,00	16	12	26	8	24	25,0	280,10	**300**	280,10	**300**	280,10	**300**	252,20	**300** [1]	576,40	**300** [1]
30,01 - 30,20	16	12	26	8	24	25,0	304,40	**xxxx** [1]	304,40	**xxxx** [1]	304,40	**xxxx** [1]	275,40	**xxxx** [1]	645,30	**xxxx** [1]

P	●	●	●		
M		●			
K	●		●		
N				●	●
S					
H					
O					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

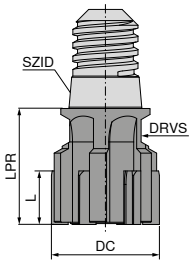
→ v_c Page 74+75

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

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

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
- SZID = 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
	40 211 ...	**40 221 ...**	**40 231 ...**	**40 241 ...**	**40 246 ...**

DC $_{H7}$ mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	EUR U3		EUR U3		EUR U3		EUR U3		EUR U3	
12,20 - 12,70	06	8	20	6	6	5,0	221,00	xxxx 1)	221,00	xxxx 1)	221,00	xxxx 1)	199,10	xxxx 1)	548,60	xxxx 1)
12,71 - 13,99	06	8	22	6	6	5,0	236,20	xxxx 1)	236,20	xxxx 1)	236,20	xxxx 1)	211,90	xxxx 1)	548,60	xxxx 1)
14,00	06	8	22	6	6	5,0	216,40	140	216,40	140	216,40	140	195,60	140 1)	486,30	140 1)
14,01 - 14,20	06	8	22	6	6	5,0	236,20	xxxx 1)	236,20	xxxx 1)	236,20	xxxx 1)	211,90	xxxx 1)	548,60	xxxx 1)
14,21 - 15,99	08	8	22	6	8	12,5	236,20	xxxx 1)	229,20	xxxx 1)	229,20	xxxx 1)	211,90	xxxx 1)	576,40	xxxx 1)
16,00	08	8	22	6	8	12,5	216,40	160	216,40	160	216,40	160	195,60	160 1)	513,00	160 1)
16,01 - 16,20	08	8	22	6	8	12,5	236,20	xxxx 1)	236,20	xxxx 1)	236,20	xxxx 1)	211,90	xxxx 1)	576,40	xxxx 1)
16,21 - 17,20	10	8	22	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	579,70	xxxx 1)
17,21 - 17,99	10	12	26	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	581,90	xxxx 1)
18,00	10	12	26	6	10	15,0	228,00	180	228,00	180	228,00	180	204,90	180 1)	517,40	180 1)
18,01 - 19,99	10	12	26	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	581,90	xxxx 1)
20,00	10	12	26	6	10	15,0	228,00	200	228,00	200	228,00	200	204,90	200 1)	517,40	200 1)
20,01 - 20,20	10	12	26	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	581,90	xxxx 1)
20,21 - 21,99	12	12	26	6	13	20,0	258,10	xxxx 1)	258,10	xxxx 1)	258,10	xxxx 1)	231,50	xxxx 1)	581,90	xxxx 1)
22,00	12	12	26	6	13	20,0	238,40	220	238,40	220	238,40	220	211,90	220 1)	526,40	220 1)
22,01 - 23,99	12	12	26	6	13	20,0	258,10	xxxx 1)	258,10	xxxx 1)	258,10	xxxx 1)	231,50	xxxx 1)	592,00	xxxx 1)
24,00	12	12	26	6	13	20,0	238,40	240	238,40	240	238,40	240	211,90	240 1)	526,40	240 1)
24,01 - 24,20	12	12	26	6	13	20,0	258,10	xxxx 1)	258,10	xxxx 1)	258,10	xxxx 1)	231,50	xxxx 1)	592,00	xxxx 1)
24,21 - 24,99	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	592,00	xxxx 1)
25,00	16	12	26	6	16	25,0	252,20	250	252,20	250	252,20	250	229,20	250 1)	544,10	250 1)
25,01 - 25,99	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	592,00	xxxx 1)
26,00	16	12	26	6	16	25,0	252,20	260	252,20	260	252,20	260	229,20	260 1)	544,10	260 1)
26,01 - 27,99	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	609,70	xxxx 1)
28,00	16	12	26	6	16	25,0	252,20	280	252,20	280	252,20	280	229,20	280 1)	544,10	280 1)
28,01 - 28,20	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	609,70	xxxx 1)
28,21 - 29,20	16	12	26	6	16	25,0	304,40	xxxx 1)	304,40	xxxx 1)	304,40	xxxx 1)	275,40	xxxx 1)	609,70	xxxx 1)
29,21 - 29,99	16	12	26	8	16	25,0	304,40	xxxx 1)	295,20	xxxx 1)	295,20	xxxx 1)	275,40	xxxx 1)	645,30	xxxx 1)
30,00	16	12	26	8	16	25,0	280,10	300	280,10	300	280,10	300	252,20	300 1)	576,40	300 1)
30,01 - 30,20	16	12	26	8	16	25,0	304,40	xxxx 1)	304,40	xxxx 1)	304,40	xxxx 1)	275,40	xxxx 1)	645,30	xxxx 1)

P	●	●	●			
M		●				
K	●		●			
N					●	●
S						
H						
O						

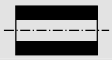
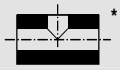
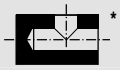
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

→ v_c Page 74+75

For xxxx please indicate requested diameter in H7 in the order (e.g. 12.89 H7 → article no. 40 231 1289)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

Monomax – Selection guide

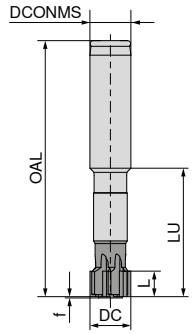
Ø			5,60 – 25,89 mm							
KOMET no. (3xD)			56J.93	56J.93	56J.65	56J.17	56J.71	56H.65	56H.65	56H.17
KOMET no. (5xD)			56R.93	56R.93	56R.65	56R.17	56R.71	56Q.65	56Q.65	56Q.17
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°/8°	45°	45°	45°	45°/8°
New grade / coating			DST	DST	DBG-P	DBC	TIN	DBG-P	DBG-P	DBC
Article no. (3xD)			40 635	40 625	40 652	40 648	40 605	40 657	40 644	40 640
Article no. (5xD)			40 636	40 626	40 653	40 649	40 606	40 665	40 645	40 641
Preferred type available			✓	✓	✓		✓			
Application			Through hole					Blind hole		
						 *				 *
Material sub-group		**Index**								
P	**Non alloyed steel**	**P.1.1**	●	●			○	●		
		P.1.2								
		P.1.3								
		P.1.4								
		P.1.5								
	Low alloyed steel	**P.2.1**								
		P.2.2								
		P.2.3								
		P.2.4			●					
	High-alloy steel and high-alloy tool steel	**P.3.1**								
		P.3.2								
		P.3.3							●	
	Stainless steel	**P.4.1**								
		P.4.2								
M	**Stainless steel**	**M.1.1**								
		M.2.1			●				●	
		M.3.1								
K	**Grey cast iron**	**K.1.1**					○	●		
		K.1.2								
	Spherulitic graphite cast iron	**K.2.1**	○	●				●		
		K.2.2								
	Malleable iron	**K.3.1**	○	●				●		
		K.3.2								
N	**Aluminum alloys**	**N.1.1**								
		N.1.2								
	Cast Aluminium Alloys	**N.2.1**				●				●
		N.2.2								
		N.2.3								
	Copper and copper alloys (Bronze, Brass)	**N.3.1**		○			●			
		N.3.2								
		N.3.3								
	Magnesium alloys	**N.4.1**								
O	**Non metal materials**	**O.1.1**								
		O.1.2								
		O.2.1								
		O.2.2								
		O.3.1				○				○

* for drilling with interrupted cut use coated HM-reamers

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



f ≈ 0,1 mm

	DST	DBC	DBG-P	DST	TiN
	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
	40 625 ...	40 648 ...	40 652 ...	40 635 ...	40 605 ...

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	EUR U3		EUR U3		EUR U3		EUR U3		EUR U3	
5,60 - 5,99	85	40	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
6,00	85	40	10	12	4	318,90	060	387,70	06000 1)	318,90	06000	318,90	060	318,90	060
6,01 - 7,99	85	40	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,00	85	40	10	12	4	330,90	080	387,70	08000 1)	330,90	08000	330,90	080	330,90	080
8,01 - 8,89	85	40	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,90 - 9,89	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
9,90 - 9,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
10,00	95	50	10	12	6	358,20	100	446,50	10000 1)	358,20	10000	358,20	100	358,20	100
10,01 - 11,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
12,00	95	50	10	12	6	369,10	120	446,50	12000 1)	369,10	12000	369,10	120	369,10	120
12,01 - 13,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
14,00	95	50	10	12	6	395,30	140	446,50	14000 1)	395,30	14000	395,30	140	395,30	140
14,01 - 14,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
15,00	95	50	10	12	6	405,10	150	446,50	15000 1)	405,10	15000	405,10	150	405,10	150
15,01 - 15,89	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
15,90 - 15,99	100	50	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
16,00	100	50	10	16	6	415,00	160	548,70	16000 1)	415,00	16000	415,00	160	415,00	160
16,01 - 17,99	100	50	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,00	100	50	10	16	6	443,30	180	548,70	18000 1)	443,30	18000	443,30	180	443,30	180
18,01 - 18,89	100	50	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,90 - 19,99	120	60	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)
20,00	120	60	10	20	6	478,30	200	666,10	20000 1)	478,30	20000	478,30	200	478,30	200
20,01 - 25,89	120	60	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)

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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

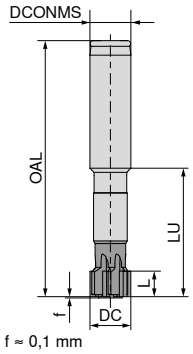
→ v_c Page 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 635 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 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
	56H.65	56H.17	56H.65
	≤ 3xD	≤ 3xD	≤ 3xD
	◁ 45°	◁ 45/8°	◁ 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Blind hole	Blind hole	Blind hole
	40 644 ...	**40 640 ...**	**40 657 ...**

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	EUR U3		EUR U3		EUR U3	
5,60 - 5,99	85	40	10	12	4	387,70	**xxxx** 1)	387,70	**xxxx** 1)	666,10	**xxxx** 1)
6,00	85	40	10	12	4	387,70	**06000** 1)	387,70	**06000** 1)	387,70	**06000** 1)
6,01 - 7,99	85	40	10	12	4	387,70	**xxxx** 1)	387,70	**xxxx** 1)	387,70	**xxxx** 1)
8,00	85	40	10	12	4	387,70	**08000** 1)	387,70	**08000** 1)	387,70	**08000** 1)
8,01 - 8,89	85	40	10	12	4	387,70	**xxxx** 1)	387,70	**xxxx** 1)	387,70	**xxxx** 1)
8,90 - 9,89	95	50	10	12	6	446,50	**xxxx** 1)	446,50	**xxxx** 1)	446,50	**xxxx** 1)
9,90 - 9,99	95	50	10	12	6	446,50	**xxxx** 1)	446,50	**xxxx** 1)	446,50	**xxxx** 1)
10,00	95	50	10	12	6	446,50	**10000** 1)	446,50	**10000** 1)	446,50	**10000** 1)
10,01 - 11,99	95	50	10	12	6	446,50	**xxxx** 1)	446,50	**xxxx** 1)	446,50	**xxxx** 1)
12,00	95	50	10	12	6	446,50	**12000** 1)	446,50	**12000** 1)	446,50	**12000** 1)
12,01 - 13,99	95	50	10	12	6	446,50	**xxxx** 1)	446,50	**xxxx** 1)	446,50	**xxxx** 1)
14,00	95	50	10	12	6	446,50	**14000** 1)	446,50	**14000** 1)	446,50	**14000** 1)
14,01 - 14,99	95	50	10	12	6	446,50	**xxxx** 1)	446,50	**xxxx** 1)	446,50	**xxxx** 1)
15,00	95	50	10	12	6	446,50	**15000** 1)	446,50	**15000** 1)	446,50	**15000** 1)
15,01 - 15,89	95	50	10	12	6	446,50	**xxxx** 1)	446,50	**xxxx** 1)	446,50	**xxxx** 1)
15,90 - 15,99	100	50	10	16	6	548,70	**xxxx** 1)	548,70	**xxxx** 1)	548,70	**xxxx** 1)
16,00	100	50	10	16	6	548,70	**16000** 1)	548,70	**16000** 1)	548,70	**16000** 1)
16,01 - 17,99	100	50	10	16	6	548,70	**xxxx** 1)	548,70	**xxxx** 1)	548,70	**xxxx** 1)
18,00	100	50	10	16	6	548,70	**18000** 1)	548,70	**18000** 1)	548,70	**18000** 1)
18,01 - 18,89	100	50	10	16	6	548,70	**xxxx** 1)	548,70	**xxxx** 1)	548,70	**xxxx** 1)
18,90 - 19,99	120	60	10	20	6	666,10	**xxxx** 1)	666,10	**xxxx** 1)	666,10	**xxxx** 1)
20,00	120	60	10	20	6	666,10	**20000** 1)	666,10	**20000** 1)	666,10	**20000** 1)
20,01 - 25,89	120	60	10	20	6	666,10	**xxxx** 1)	666,10	**xxxx** 1)	666,10	**xxxx** 1)

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

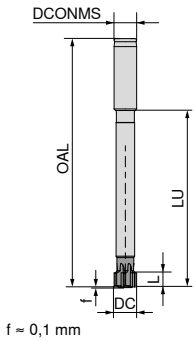
→ v_c Page 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 644 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 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
	56R.93	56R.17	56R.65	56R.93	56R.71
	≤ 5xD	≤ 5xD	≤ 5xD	≤ 5xD	≤ 5xD
	∢ 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
	40 626 ...	40 649 ...	40 653 ...	40 636 ...	40 606 ...

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	EUR U3		EUR U3		EUR U3		EUR U3		EUR U3	
5,60 - 5,99	130	85	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
6,00	130	85	10	12	4	318,90	060	387,70	06000 1)	318,90	06000	318,90	060	318,90	060
6,01 - 7,99	130	85	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,00	130	85	10	12	4	330,90	080	387,70	08000 1)	330,90	08000	330,90	080	330,90	080
8,01 - 8,89	130	85	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,90 - 9,89	130	85	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
9,90 - 9,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
10,00	160	115	10	12	6	358,20	100	495,60	10000 1)	358,20	10000	358,20	100	358,20	100
10,01 - 11,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
12,00	160	115	10	12	6	369,10	120	495,60	12000 1)	369,10	12000	369,10	120	369,10	120
12,01 - 13,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
14,00	160	115	10	12	6	395,30	140	495,60	14000 1)	395,30	14000	395,30	140	395,30	140
14,01 - 14,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
15,00	160	115	10	12	6	405,10	150	495,60	15000 1)	405,10	15000	405,10	150	405,10	150
15,01 - 15,89	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
15,90 - 15,99	180	130	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
16,00	180	130	10	16	6	415,00	160	548,70	16000 1)	415,00	16000	415,00	160	415,00	160
16,01 - 17,99	180	130	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,00	180	130	10	16	6	443,30	180	548,70	18000 1)	443,30	18000	443,30	180	443,30	180
18,01 - 18,89	180	130	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,90 - 19,99	200	140	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)
20,00	200	140	10	20	6	478,30	200	666,10	20000 1)	478,30	20000	478,30	200	478,30	200
20,01 - 25,89	200	140	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)

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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

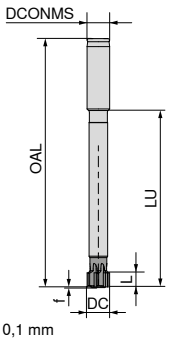
→ v_c Page 76–79

Do not heat shrink tools !

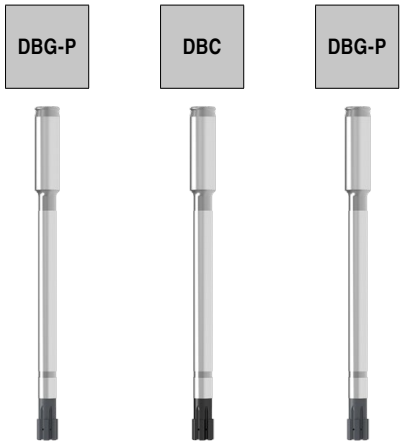
For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 636 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

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
	56Q.65	56Q.17	56Q.65
	≤ 5xD	≤ 5xD	≤ 5xD
	◁ 45°	◁ 45/8°	◁ 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Blind hole	Blind hole	Blind hole
	40 645 ...	**40 641 ...**	**40 665 ...**

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	EUR U3		EUR U3		EUR U3	
5,60 - 5,99	130	85	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
6,00	130	85	10	12	4	387,70	06000 1)	387,70	06000 1)	387,70	06000 1)
6,01 - 7,99	130	85	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
8,00	130	85	10	12	4	387,70	08000 1)	387,70	08000 1)	387,70	08000 1)
8,01 - 8,89	130	85	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
8,90 - 9,89	130	85	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
9,90 - 9,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
10,00	160	115	10	12	6	495,60	10000 1)	495,60	10000 1)	495,60	10000 1)
10,01 - 11,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
12,00	160	115	10	12	6	495,60	12000 1)	495,60	12000 1)	495,60	12000 1)
12,01 - 13,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
14,00	160	115	10	12	6	495,60	14000 1)	495,60	14000 1)	495,60	14000 1)
14,01 - 14,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
15,00	160	115	10	12	6	495,60	15000 1)	495,60	15000 1)	495,60	15000 1)
15,01 - 15,89	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
15,90 - 15,99	180	130	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
16,00	180	130	10	16	6	548,70	16000 1)	548,70	16000 1)	548,70	16000 1)
16,01 - 17,99	180	130	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
18,00	180	130	10	16	6	548,70	18000 1)	548,70	18000 1)	548,70	18000 1)
18,01 - 18,89	180	130	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
18,90 - 19,99	200	140	10	20	6	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 1)
20,00	200	140	10	20	6	666,10	20000 1)	666,10	20000 1)	666,10	20000 1)
20,01 - 25,89	200	140	10	20	6	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 1)

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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 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 645 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

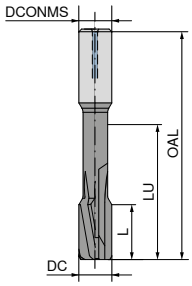
Fullmax – High-performance machine reamers, short

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

UNI

NEW

DBG-U



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 483 ...

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
4	50	12	22	4	4	111,70	**04000**
5	64	12	28	6	4	113,40	**05000**
6	64	12	28	6	4	115,90	**06000**
7	70	16	34	8	6	121,00	**07000**
8	70	16	34	8	6	121,00	**08000**
9	80	16	40	10	6	170,90	**09000**
10	80	16	40	10	6	170,90	**10000**
11	90	20	45	12	6	226,80	**11000**
12	90	20	45	12	6	226,80	**12000**
16	93	20	45	16	8	336,30	**16000**

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→ v_c Page 82

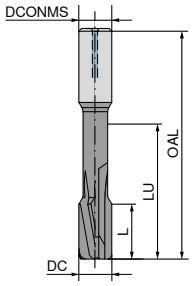
Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI

NEW

DBG-U



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 489 ... EUR U4	
2,96 - 3,96	50	12	22	4	4	139,70	**xxxxx** [1]
3,97	50	12	22	4	4	118,40	**03970**
3,98	50	12	22	4	4	118,40	**03980**
3,99	50	12	22	4	4	118,40	**03990**
4,00	50	12	22	4	4	118,40	**04000**
4,01	50	12	22	4	4	118,40	**04010**
4,02	50	12	22	4	4	118,40	**04020**
4,03	50	12	22	4	4	118,40	**04030**
4,04 - 4,05	50	12	22	4	4	139,70	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	141,80	**xxxxx** [1]
4,97	64	12	28	6	4	121,00	**04970**
4,98	64	12	28	6	4	121,00	**04980**
4,99	64	12	28	6	4	121,00	**04990**
5,00	64	12	28	6	4	121,00	**05000**
5,01	64	12	28	6	4	121,00	**05010**
5,02	64	12	28	6	4	121,00	**05020**
5,03	64	12	28	6	4	121,00	**05030**
5,04 - 5,96	64	12	28	6	4	141,80	**xxxxx** [1]
5,97	64	12	28	6	4	121,90	**05970**
5,98	64	12	28	6	4	121,90	**05980**
5,99	64	12	28	6	4	121,90	**05990**
6,00	64	12	28	6	4	121,90	**06000**
6,01	64	12	28	6	4	121,90	**06010**
6,02	64	12	28	6	4	121,90	**06020**
6,03	64	12	28	6	4	121,90	**06030**
6,04 - 6,05	64	12	28	6	4	143,90	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	149,20	**xxxxx** [1]
7,97	70	16	34	8	6	127,80	**07970**
7,98	70	16	34	8	6	127,80	**07980**
7,99	70	16	34	8	6	127,80	**07990**

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

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Continued on next page

Fullmax – High-performance machine reamers, short

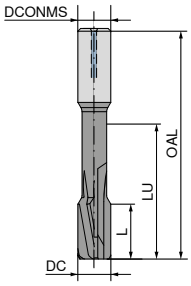
- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI

NEW

DBG-U

4



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
8,00	70	16	34	8	6	127,80	**08000**
8,01	70	16	34	8	6	127,80	**08010**
8,02	70	16	34	8	6	127,80	**08020**
8,03	70	16	34	8	6	127,80	**08030**
8,04 - 8,05	70	16	34	8	6	149,20	**xxxxx** [1]
8,06 - 9,96	80	16	40	10	6	185,20	**xxxxx** [1]
9,97	80	16	40	10	6	182,00	**09970**
9,98	80	16	40	10	6	182,00	**09980**
9,99	80	16	40	10	6	182,00	**09990**
10,00	80	16	40	10	6	182,00	**10000**
10,01	80	16	40	10	6	182,00	**10010**
10,02	80	16	40	10	6	182,00	**10020**
10,03	80	16	40	10	6	182,00	**10030**
10,04 - 10,05	80	16	40	10	6	185,20	**xxxxx** [1]
10,06 - 11,96	90	20	45	12	6	279,30	**xxxxx** [1]
11,97	90	20	45	12	6	242,00	**11970**
11,98	90	20	45	12	6	242,00	**11980**
11,99	90	20	45	12	6	242,00	**11990**
12,00	90	20	45	12	6	242,00	**12000**
12,01	90	20	45	12	6	242,00	**12010**
12,02	90	20	45	12	6	242,00	**12020**
12,03	90	20	45	12	6	242,00	**12030**
12,04 - 12,05	90	20	45	12	6	279,30	**xxxxx** [1]
12,06 - 14,05	90	20	45	14	6	325,80	**xxxxx** [1]
14,06 - 15,96	93	20	48	16	6	371,40	**xxxxx** [1]
15,97 - 16,05	93	20	48	16	8	419,40	**xxxxx** [1]
16,06 - 18,05	100	20	52	18	8	446,70	**xxxxx** [1]
18,06 - 20,05	102	20	52	20	8	474,30	**xxxxx** [1]

P	●
M	●
K	●
N	○
S	○
H	○
O	

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

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

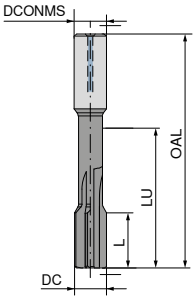
Fullmax – High-performance machine reamers, short

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

UNI

NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

40 481 ...

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
4	50	12	22	4	4	93,08	**04000**
5	64	12	28	6	4	94,80	**05000**
6	64	12	28	6	4	99,04	**06000**
7	70	16	34	8	6	104,10	**07000**
8	70	16	34	8	6	104,10	**08000**
9	80	16	40	10	6	148,90	**09000**
10	80	16	40	10	6	148,90	**10000**
11	90	20	45	12	6	198,00	**11000**
12	90	20	45	12	6	198,00	**12000**
16	93	20	45	16	8	301,00	**16000**

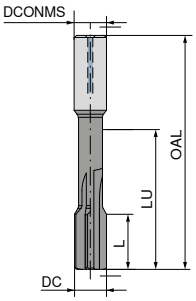
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 82

Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI



NEW

DBG-U

51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

4

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 488 ... EUR U4	
2,96 - 3,96	50	12	22	4	4	116,30	**xxxxx** [1]
3,97	50	12	22	4	4	99,84	**03970**
3,98	50	12	22	4	4	99,84	**03980**
3,99	50	12	22	4	4	99,84	**03990**
4,00	50	12	22	4	4	99,84	**04000**
4,01	50	12	22	4	4	99,84	**04010**
4,02	50	12	22	4	4	99,84	**04020**
4,03	50	12	22	4	4	99,84	**04030**
4,04 - 4,05	50	12	22	4	4	116,30	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	119,60	**xxxxx** [1]
4,97	64	12	28	6	4	102,40	**04970**
4,98	64	12	28	6	4	102,40	**04980**
4,99	64	12	28	6	4	102,40	**04990**
5,00	64	12	28	6	4	102,40	**05000**
5,01	64	12	28	6	4	102,40	**05010**
5,02	64	12	28	6	4	102,40	**05020**
5,03	64	12	28	6	4	102,40	**05030**
5,04 - 5,96	64	12	28	6	4	119,60	**xxxxx** [1]
5,97	64	12	28	6	4	104,10	**05970**
5,98	64	12	28	6	4	104,10	**05980**
5,99	64	12	28	6	4	104,10	**05990**
6,00	64	12	28	6	4	104,10	**06000**
6,01	64	12	28	6	4	104,10	**06010**
6,02	64	12	28	6	4	104,10	**06020**
6,03	64	12	28	6	4	104,10	**06030**
6,04 - 6,05	64	12	28	6	4	120,70	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	129,10	**xxxxx** [1]
7,97	70	16	34	8	6	109,20	**07970**
7,98	70	16	34	8	6	109,20	**07980**
7,99	70	16	34	8	6	109,20	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

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

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Continued on next page

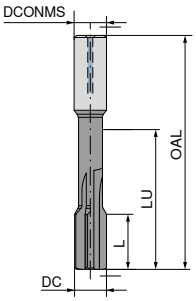
Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI

NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

40 488 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
8,00	70	16	34	8	6	109,20	**08000**
8,01	70	16	34	8	6	109,20	**08010**
8,02	70	16	34	8	6	109,20	**08020**
8,03	70	16	34	8	6	109,20	**08030**
8,04 - 8,05	70	16	34	8	6	129,10	**xxxxx** [1]
8,06 - 9,96	80	16	40	10	6	164,00	**xxxxx** [1]
9,97	80	16	40	10	6	159,10	**09970**
9,98	80	16	40	10	6	159,10	**09980**
9,99	80	16	40	10	6	159,10	**09990**
10,00	80	16	40	10	6	159,10	**10000**
10,01	80	16	40	10	6	159,10	**10010**
10,02	80	16	40	10	6	159,10	**10020**
10,03	80	16	40	10	6	159,10	**10030**
10,04 - 10,05	80	16	40	10	6	164,00	**xxxxx** [1]
10,06 - 11,96	90	20	45	12	6	248,60	**xxxxx** [1]
11,97	90	20	45	12	6	212,40	**11970**
11,98	90	20	45	12	6	212,40	**11980**
11,99	90	20	45	12	6	212,40	**11990**
12,00	90	20	45	12	6	212,40	**12000**
12,01	90	20	45	12	6	212,40	**12010**
12,02	90	20	45	12	6	212,40	**12020**
12,03	90	20	45	12	6	212,40	**12030**
12,04 - 12,05	90	20	45	12	6	248,60	**xxxxx** [1]
12,06 - 14,05	90	20	45	14	6	288,90	**xxxxx** [1]
14,06 - 15,96	93	20	48	16	6	334,30	**xxxxx** [1]
15,97 - 16,05	93	20	48	16	8	377,40	**xxxxx** [1]
16,06 - 18,05	100	20	52	18	8	400,30	**xxxxx** [1]
18,06 - 20,05	102	20	52	20	8	433,70	**xxxxx** [1]

P	●
M	●
K	●
N	○
S	○
H	○
O	

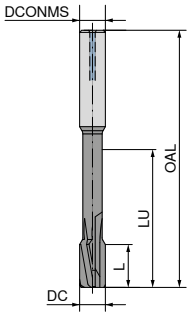
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Fullmax – High-performance machine reamers, long

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



UNI	VA	ALU
DBG-U	DBQ	DBC-N

52P.57	52S.44	52N.17
HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute
◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2270
Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole
40 484 ...	**40 401 ...**	**40 471 ...**

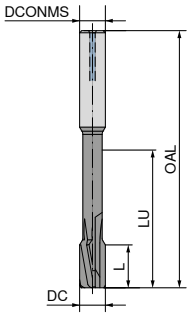
DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4		EUR U4		EUR U4	
4	60	12	32	4	4	144,20	**04000**	158,30	**04000**	158,30	**04000**
5	76	12	40	6	4	146,40	**05000**	160,60	**05000**	160,60	**05000**
6	76	12	40	6	4	149,60	**06000**	163,80	**06000**	163,80	**06000**
7	101	16	65	8	6	156,10	**07000**	171,50	**07000**	171,50	**07000**
8	101	16	65	8	6	156,10	**08000**	171,50	**08000**	171,50	**08000**
9	108	16	68	10	6	220,60	**09000**	243,50	**09000**	243,50	**09000**
10	108	16	68	10	6	220,60	**10000**	243,50	**10000**	243,50	**10000**
11	130	20	85	12	6	292,60	**11000**	321,10	**11000**	321,10	**11000**
12	130	20	85	12	6	292,60	**12000**	321,10	**12000**	321,10	**12000**
16	150	20	102	16	6	384,40	**16000**	422,60	**16000**	422,60	**16000**

P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

→ v_c Page 80+81

Fullmax – High-performance machine reamers, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

	52P.57	52S.44	52J.65	52N.17	52G.55
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
	40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
2,96 - 3,96	60	12	32	4	6					184,40	**xxxxx**[1]				
2,96 - 3,96	60	12	32	4	4	180,20	**xxxxx**[1]	184,40	**xxxxx**[2]			184,40	**xxxxx**[1]	184,40	**xxxxx**[1]
3,97	60	12	32	4	4	152,90	**03970**	168,20	**03970**			184,40	**03970**[1]	184,40	**03970**[1]
3,97	60	12	32	4	6					184,40	**03970**[1]				
3,98	60	12	32	4	4	152,90	**03980**	168,20	**03980**			184,40	**03980**[1]	184,40	**03980**[1]
3,98	60	12	32	4	6					184,40	**03980**[1]				
3,99	60	12	32	4	4	152,90	**03990**	168,20	**03990**			184,40	**03990**[1]	184,40	**03990**[1]
3,99	60	12	32	4	6					184,40	**03990**[1]				
4,00	60	12	32	4	4	152,90	**04000**	168,20	**04000**			184,40	**04000**[1]	210,20	**04000**[1]
4,00	60	12	32	4	6					210,20	**04000**[1]				
4,01	60	12	32	4	4	152,90	**04010**	168,20	**04010**			184,40	**04010**[1]	184,40	**04010**[1]
4,01	60	12	32	4	6					184,40	**04010**[1]				
4,02	60	12	32	4	4	152,90	**04020**	168,20	**04020**			184,40	**04020**[1]	184,40	**04020**[1]
4,02	60	12	32	4	6					184,40	**04020**[1]				
4,03	60	12	32	4	4	152,90	**04030**	168,20	**04030**			184,40	**04030**[1]	184,40	**04030**[1]
4,03	60	12	32	4	6					184,40	**04030**[1]				
4,04 - 4,05	60	12	32	4	4	180,20	**xxxxx**[1]	184,40	**xxxxx**[2]			184,40	**xxxxx**[1]	184,40	**xxxxx**[1]
4,04 - 4,05	60	12	32	4	6					184,40	**xxxxx**[1]				
4,06 - 4,96	76	12	40	6	6					191,10	**xxxxx**[1]				
4,06 - 4,96	76	12	40	6	4	182,90	**xxxxx**[1]	191,10	**xxxxx**[2]			191,10	**xxxxx**[1]	191,10	**xxxxx**[1]
4,97	76	12	40	6	4	156,10	**04970**	171,50	**04970**			191,10	**04970**[1]	191,10	**04970**[1]
4,97	76	12	40	6	6					191,10	**04970**[1]				
4,98	76	12	40	6	4	156,10	**04980**	171,50	**04980**			191,10	**04980**[1]	191,10	**04980**[1]
4,98	76	12	40	6	6					191,10	**04980**[1]				
4,99	76	12	40	6	4	156,10	**04990**	171,50	**04990**			191,10	**04990**[1]	191,10	**04990**[1]
4,99	76	12	40	6	6					191,10	**04990**[1]				
5,00	76	12	40	6	4	156,10	**05000**	171,50	**05000**			191,10	**05000**[1]	217,10	**05000**[1]
5,00	76	12	40	6	6					217,10	**05000**[1]				
5,01	76	12	40	6	4	156,10	**05010**	171,50	**05010**			191,10	**05010**[1]	191,10	**05010**[1]

P	●	●				
M	●	●				
K	●		●			
N	○			●		
S	○					
H	○					●
O				○		

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

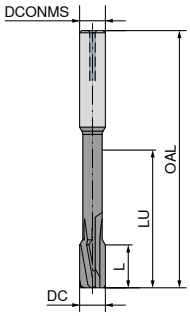
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
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, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



4

UNI	VA	K	ALU	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
40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
5,01	76	12	40	6	6					191,10	**05010**[1]				
5,02	76	12	40	6	4	156,10	**05020**	171,50	**05020**			191,10	**05020**[1]	191,10	**05020**[1]
5,02	76	12	40	6	6					191,10	**05020**[1]				
5,03	76	12	40	6	4	156,10	**05030**	171,50	**05030**			191,10	**05030**[1]	191,10	**05030**[1]
5,03	76	12	40	6	6					191,10	**05030**[1]				
5,04 - 5,96	76	12	40	6	4	182,90	**xxxxx**[1]	191,10	**xxxxx**[2]			191,10	**xxxxx**[1]	191,10	**xxxxx**[1]
5,04 - 5,96	76	12	40	6	6					191,10	**xxxxx**[1]				
5,97	76	12	40	6	4	157,30	**05970**	173,70	**05970**			191,10	**05970**[1]	191,10	**05970**[1]
5,97	76	12	40	6	6					191,10	**05970**[1]				
5,98	76	12	40	6	4	157,30	**05980**	173,70	**05980**			191,10	**05980**[1]	191,10	**05980**[1]
5,98	76	12	40	6	6					191,10	**05980**[1]				
5,99	76	12	40	6	4	157,30	**05990**	173,70	**05990**			191,10	**05990**[1]	191,10	**05990**[1]
5,99	76	12	40	6	6					191,10	**05990**[1]				
6,00	76	12	40	6	4	157,30	**06000**	173,70	**06000**			191,10	**06000**[1]	217,10	**06000**[1]
6,00	76	12	40	6	6					217,10	**06000**[1]				
6,01	76	12	40	6	4	157,30	**06010**	173,70	**06010**			191,10	**06010**[1]	191,10	**06010**[1]
6,01	76	12	40	6	6					191,10	**06010**[1]				
6,02	76	12	40	6	4	157,30	**06020**	173,70	**06020**			191,10	**06020**[1]	191,10	**06020**[1]
6,02	76	12	40	6	6					191,10	**06020**[1]				
6,03	76	12	40	6	4	157,30	**06030**	173,70	**06030**			191,10	**06030**[1]	191,10	**06030**[1]
6,03	76	12	40	6	6					191,10	**06030**[1]				
6,04 - 6,05	76	12	40	6	4	185,60	**xxxxx**[1]	191,10	**xxxxx**[2]			191,10	**xxxxx**[1]	191,10	**xxxxx**[1]
6,04 - 6,05	76	12	40	6	6					191,10	**xxxxx**[1]				
6,06 - 7,96	101	16	65	8	8					196,60	**xxxxx**[1]				
6,06 - 7,96	101	16	65	8	6	192,60	**xxxxx**[1]	196,60	**xxxxx**[2]			196,60	**xxxxx**[1]	196,60	**xxxxx**[1]
7,97	101	16	65	8	6	164,90	**07970**	181,20	**07970**			196,60	**07970**[1]	196,60	**07970**[1]
7,97	101	16	65	8	8					196,60	**07970**[1]				
7,98	101	16	65	8	6	164,90	**07980**	181,20	**07980**			196,60	**07980**[1]	196,60	**07980**[1]
7,98	101	16	65	8	8					196,60	**07980**[1]				

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
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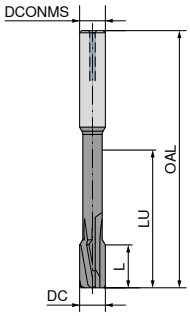
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
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, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

	52P.57	52S.44	52J.65	52N.17	52G.55
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
	40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
7,99	101	16	65	8	6	164,90	**07990**	181,20	**07990**			196,60	**07990**[1]	196,60	**07990**[1]
7,99	101	16	65	8	8					196,60	**07990**[1]				
8,00	101	16	65	8	6	164,90	**08000**	181,20	**08000**			196,60	**08000**[1]	223,90	**08000**[1]
8,00	101	16	65	8	8					223,90	**08000**[1]				
8,01	101	16	65	8	6	164,90	**08010**	181,20	**08010**			196,60	**08010**[1]	196,60	**08010**[1]
8,01	101	16	65	8	8					196,60	**08010**[1]				
8,02	101	16	65	8	6	164,90	**08020**	181,20	**08020**			196,60	**08020**[1]	196,60	**08020**[1]
8,02	101	16	65	8	8					196,60	**08020**[1]				
8,03	101	16	65	8	6	164,90	**08030**	181,20	**08030**			196,60	**08030**[1]	196,60	**08030**[1]
8,03	101	16	65	8	8					196,60	**08030**[1]				
8,04 - 8,05	101	16	65	8	6	192,60	**xxxxx**[1]	196,60	**xxxxx**[2]			196,60	**xxxxx**[1]	196,60	**xxxxx**[1]
8,04 - 8,05	101	16	65	8	8					196,60	**xxxxx**[1]				
8,06 - 9,96	108	16	68	10	8					277,20	**xxxxx**[1]				
8,06 - 9,96	108	16	68	10	6	239,00	**xxxxx**[1]	277,20	**xxxxx**[2]			277,20	**xxxxx**[1]	277,20	**xxxxx**[1]
9,97	108	16	68	10	6	234,80	**09970**	258,80	**09970**			277,20	**09970**[1]	277,20	**09970**[1]
9,97	108	16	68	10	8					277,20	**09970**[1]				
9,98	108	16	68	10	6	234,80	**09980**	258,80	**09980**			277,20	**09980**[1]	277,20	**09980**[1]
9,98	108	16	68	10	8					277,20	**09980**[1]				
9,99	108	16	68	10	6	234,80	**09990**	258,80	**09990**			277,20	**09990**[1]	277,20	**09990**[1]
9,99	108	16	68	10	8					277,20	**09990**[1]				
10,00	108	16	68	10	6	234,80	**10000**	258,80	**10000**			277,20	**10000**[1]	315,40	**10000**[1]
10,00	108	16	68	10	8					315,40	**10000**[1]				
10,01	108	16	68	10	6	234,80	**10010**	258,80	**10010**			277,20	**10010**[1]	277,20	**10010**[1]
10,01	108	16	68	10	8					277,20	**10010**[1]				
10,02	108	16	68	10	6	234,80	**10020**	258,80	**10020**			277,20	**10020**[1]	277,20	**10020**[1]
10,02	108	16	68	10	8					277,20	**10020**[1]				
10,03	108	16	68	10	6	234,80	**10030**	258,80	**10030**			277,20	**10030**[1]	277,20	**10030**[1]
10,03	108	16	68	10	8					277,20	**10030**[1]				
10,04 - 10,05	108	16	68	10	6	239,00	**xxxxx**[1]	277,20	**xxxxx**[2]			277,20	**xxxxx**[1]	277,20	**xxxxx**[1]

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
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→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
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, long

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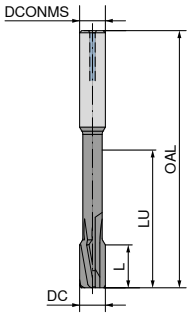
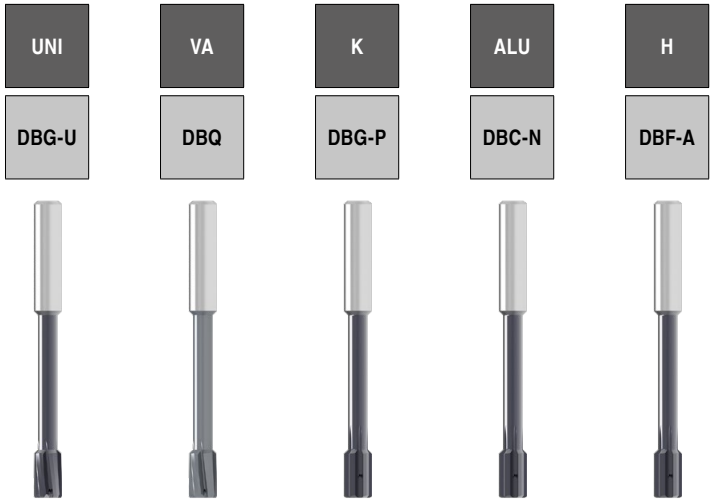
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	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
40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
10,04 - 10,05	108	16	68	10	8					277,20	xxxxx[1]				
10,06 - 11,96	130	20	85	12	8					371,30	xxxxx[1]				
10,06 - 11,96	130	20	85	12	6	360,40	xxxxx[1]	371,30	xxxxx[2]			371,30	xxxxx[1]	371,30	xxxxx[1]
11,97	130	20	85	12	6	312,30	11970	344,00	11970			371,30	11970[1]	371,30	11970[1]
11,97	130	20	85	12	8					371,30	11970[1]				
11,98	130	20	85	12	6	312,30	11980	344,00	11980			371,30	11980[1]	371,30	11980[1]
11,98	130	20	85	12	8					371,30	11980[1]				
11,99	130	20	85	12	6	312,30	11990	344,00	11990			371,30	11990[1]	371,30	11990[1]
11,99	130	20	85	12	8					371,30	11990[1]				
12,00	130	20	85	12	6	312,30	12000	344,00	12000			371,30	12000[1]	421,90	12000[1]
12,00	130	20	85	12	8					421,90	12000[1]				
12,01	130	20	85	12	6	312,30	12010	344,00	12010			371,30	12010[1]	371,30	12010[1]
12,01	130	20	85	12	8					371,30	12010[1]				
12,02	130	20	85	12	6	312,30	12020	344,00	12020			371,30	12020[1]	371,30	12020[1]
12,02	130	20	85	12	8					371,30	12020[1]				
12,03	130	20	85	12	6	312,30	12030	344,00	12030			371,30	12030[1]	371,30	12030[1]
12,03	130	20	85	12	8					371,30	12030[1]				
12,04 - 12,05	130	20	85	12	6	360,40	xxxxx[1]	371,30	xxxxx[2]			371,30	xxxxx[1]	371,30	xxxxx[1]
12,04 - 12,05	130	20	85	12	8					371,30	xxxxx[1]				
12,06 - 14,05	130	20	85	14	8					432,80	xxxxx[1]				
12,06 - 14,05	130	20	85	14	6	420,40	xxxxx[1]	432,80	xxxxx[2]			432,80	xxxxx[1]	432,80	xxxxx[1]
14,06 - 16,05	150	20	102	16	6	479,20	xxxxx[1]	491,40	xxxxx[2]			491,40	xxxxx[1]	491,40	xxxxx[1]
14,06 - 16,05	150	20	102	16	8					491,40	xxxxx[1]				
16,06 - 18,05	150	20	102	18	6	510,50	xxxxx[1]	533,80	xxxxx[2]			533,80	xxxxx[1]	533,80	xxxxx[1]
16,06 - 18,05	150	20	102	18	8					533,80	xxxxx[1]				
18,06 - 20,05	160	20	110	20	6	542,00	xxxxx[1]	562,40	xxxxx[2]			562,40	xxxxx[1]	562,40	xxxxx[1]
18,06 - 20,05	160	20	110	20	8					562,40	xxxxx[1]				
P						●		●							
M						●		●							
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→ v_c Page 80+81

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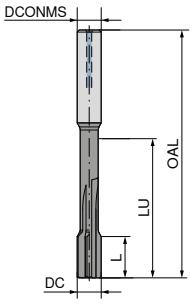
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Fullmax – High-performance machine reamers, long

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



UNI	VA	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
40 485 ...	**40 402 ...**	**40 472 ...**

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4		EUR U4		EUR U4	
4	60	12	32	4	4	120,10	**04000**	132,10	**04000**	132,10	**04000**
5	76	12	40	6	4	122,30	**05000**	135,50	**05000**	135,50	**05000**
6	76	12	40	6	4	127,80	**06000**	140,90	**06000**	140,90	**06000**
7	101	16	65	8	6	134,30	**07000**	147,40	**07000**	147,40	**07000**
8	101	16	65	8	6	134,30	**08000**	147,40	**08000**	147,40	**08000**
9	108	16	68	10	6	192,20	**09000**	211,90	**09000**	211,90	**09000**
10	108	16	68	10	6	192,20	**10000**	211,90	**10000**	211,90	**10000**
11	130	20	85	12	6	255,60	**11000**	280,70	**11000**	280,70	**11000**
12	130	20	85	12	6	255,60	**12000**	280,70	**12000**	280,70	**12000**
16	150	20	102	16	6	344,00	**16000**	379,00	**16000**	379,00	**16000**

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→ v_c Page 80+81

Fullmax – High-performance machine reamers, long

- extremely irregular pitch
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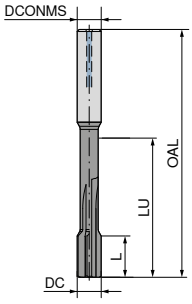
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



	UNI	VA	K	ALU	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
	40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
2,96 - 3,96	60	12	32	4	6					155,60	xxxxx[2]				
2,96 - 3,96	60	12	32	4	4	150,20	xxxxx[1]	155,60	xxxxx[2]			155,60	xxxxx[1]	155,60	xxxxx[1]
3,97	60	12	32	4	4	128,80	03970	142,00	03970			155,60	03970[1]	155,60	03970[1]
3,97	60	12	32	4	6					155,60	03970[2]				
3,98	60	12	32	4	4	128,80	03980	142,00	03980			155,60	03980[1]	155,60	03980[1]
3,98	60	12	32	4	6					155,60	03980[2]				
3,99	60	12	32	4	4	128,80	03990	142,00	03990			155,60	03990[1]	155,60	03990[1]
3,99	60	12	32	4	6					155,60	03990[2]				
4,00	60	12	32	4	4	128,80	04000	142,00	04000			155,60	04000[1]	155,60	04000[1]
4,00	60	12	32	4	6					155,60	04000[2]				
4,01	60	12	32	4	4	128,80	04010	142,00	04010			155,60	04010[1]	155,60	04010[1]
4,01	60	12	32	4	6					155,60	04010[2]				
4,02	60	12	32	4	4	128,80	04020	142,00	04020			155,60	04020[1]	155,60	04020[1]
4,02	60	12	32	4	6					155,60	04020[2]				
4,03	60	12	32	4	4	128,80	04030	142,00	04030			155,60	04030[1]	155,60	04030[1]
4,03	60	12	32	4	6					155,60	04030[2]				
4,04 - 4,05	60	12	32	4	4	150,20	xxxxx[1]	155,60	xxxxx[2]			155,60	xxxxx[1]	155,60	xxxxx[1]
4,04 - 4,05	60	12	32	4	6					155,60	xxxxx[2]				
4,06 - 4,96	76	12	40	6	6					159,80	xxxxx[1]				
4,06 - 4,96	76	12	40	6	4	154,40	xxxxx[1]	159,80	xxxxx[2]			159,80	xxxxx[1]	159,80	xxxxx[1]
4,97	76	12	40	6	4	132,10	04970	144,20	04970			159,80	04970[1]	159,80	04970[1]
4,97	76	12	40	6	6					159,80	04970[2]				
4,98	76	12	40	6	4	132,10	04980	144,20	04980			159,80	04980[1]	159,80	04980[1]
4,98	76	12	40	6	6					159,80	04980[2]				
4,99	76	12	40	6	4	132,10	04990	144,20	04990			159,80	04990[1]	159,80	04990[1]
4,99	76	12	40	6	6					159,80	04990[2]				
5,00	76	12	40	6	4	132,10	05000	144,20	05000			159,80	05000[1]	159,80	05000[1]
5,00	76	12	40	6	6					159,80	05000[2]				
5,01	76	12	40	6	4	132,10	05010	144,20	05010			159,80	05010[1]	159,80	05010[1]

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Continued on next page

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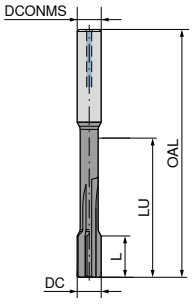

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A

	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
	40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
5,01	76	12	40	6	6					159,80	**05010**[2]				
5,02	76	12	40	6	4	132,10	**05020**	144,20	**05020**			159,80	**05020**[1]	159,80	**05020**[1]
5,02	76	12	40	6	6					159,80	**05020**[2]				
5,03	76	12	40	6	4	132,10	**05030**	144,20	**05030**			159,80	**05030**[1]	159,80	**05030**[1]
5,03	76	12	40	6	6					159,80	**05030**[2]				
5,04 - 5,96	76	12	40	6	4	154,40	**xxxxx**[1]	159,80	**xxxxx**[2]			159,80	**xxxxx**[1]	159,80	**xxxxx**[1]
5,04 - 5,96	76	12	40	6	6					159,80	**xxxxx**[2]				
5,97	76	12	40	6	4	134,30	**05970**	147,40	**05970**			159,80	**05970**[1]	159,80	**05970**[1]
5,97	76	12	40	6	6					159,80	**05970**[2]				
5,98	76	12	40	6	4	134,30	**05980**	147,40	**05980**			159,80	**05980**[1]	159,80	**05980**[1]
5,98	76	12	40	6	6					159,80	**05980**[2]				
5,99	76	12	40	6	4	134,30	**05990**	147,40	**05990**			159,80	**05990**[1]	159,80	**05990**[1]
5,99	76	12	40	6	6					159,80	**05990**[2]				
6,00	76	12	40	6	4	134,30	**06000**	147,40	**06000**			159,80	**06000**[1]	159,80	**06000**[1]
6,00	76	12	40	6	6					159,80	**06000**[2]				
6,01	76	12	40	6	4	134,30	**06010**	147,40	**06010**			159,80	**06010**[1]	159,80	**06010**[1]
6,01	76	12	40	6	6					159,80	**06010**[2]				
6,02	76	12	40	6	4	134,30	**06020**	147,40	**06020**			159,80	**06020**[1]	159,80	**06020**[1]
6,02	76	12	40	6	6					159,80	**06020**[2]				
6,03	76	12	40	6	4	134,30	**06030**	147,40	**06030**			159,80	**06030**[1]	159,80	**06030**[1]
6,03	76	12	40	6	6					159,80	**06030**[2]				
6,04 - 6,05	76	12	40	6	4	155,60	**xxxxx**[1]	159,80	**xxxxx**[2]			159,80	**xxxxx**[1]	159,80	**xxxxx**[1]
6,04 - 6,05	76	12	40	6	6					159,80	**xxxxx**[2]				
6,06 - 7,96	101	16	65	8	8					172,00	**xxxxx**[1]				
6,06 - 7,96	101	16	65	8	6	166,50	**xxxxx**[1]	172,00	**xxxxx**[2]			172,00	**xxxxx**[1]	172,00	**xxxxx**[1]
7,97	101	16	65	8	6	140,90	**07970**	155,10	**07970**			172,00	**07970**[1]	172,00	**07970**[1]
7,97	101	16	65	8	8					172,00	**07970**[2]				
7,98	101	16	65	8	6	140,90	**07980**	155,10	**07980**			172,00	**07980**[1]	172,00	**07980**[1]
7,98	101	16	65	8	8					172,00	**07980**[2]				

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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

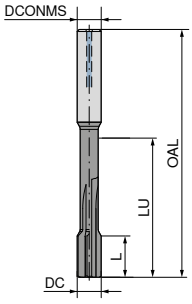
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
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, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	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
40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
7,99	101	16	65	8	6	140,90	07990	155,10	07990			172,00	07990 1)	172,00	07990 1)
7,99	101	16	65	8	8					172,00	07990 2)				
8,00	101	16	65	8	6	140,90	08000	155,10	08000			172,00	08000 1)	172,00	08000 1)
8,00	101	16	65	8	8					172,00	08000 2)				
8,01	101	16	65	8	6	140,90	08010	155,10	08010			172,00	08010 1)	172,00	08010 1)
8,01	101	16	65	8	8					172,00	08010 2)				
8,02	101	16	65	8	6	140,90	08020	155,10	08020			172,00	08020 1)	172,00	08020 1)
8,02	101	16	65	8	8					172,00	08020 2)				
8,03	101	16	65	8	6	140,90	08030	155,10	08030			172,00	08030 1)	172,00	08030 1)
8,03	101	16	65	8	8					172,00	08030 2)				
8,04 - 8,05	101	16	65	8	6	166,50	xxxxx 1)	172,00	xxxxx 2)			172,00	xxxxx 1)	172,00	xxxxx 1)
8,04 - 8,05	101	16	65	8	8					172,00	xxxxx 2)				
8,06 - 9,96	108	16	68	10	8					248,40	xxxxx 1)				
8,06 - 9,96	108	16	68	10	6	211,70	xxxxx 1)	248,40	xxxxx 2)			248,40	xxxxx 1)	248,40	xxxxx 1)
9,97	108	16	68	10	6	205,30	09970	226,10	09970			248,40	09970 1)	248,40	09970 1)
9,97	108	16	68	10	8					248,40	09970 2)				
9,98	108	16	68	10	6	205,30	09980	226,10	09980			248,40	09980 1)	248,40	09980 1)
9,98	108	16	68	10	8					248,40	09980 2)				
9,99	108	16	68	10	6	205,30	09990	226,10	09990			248,40	09990 1)	248,40	09990 1)
9,99	108	16	68	10	8					248,40	09990 2)				
10,00	108	16	68	10	6	205,30	10000	226,10	10000			248,40	10000 1)	248,40	10000 1)
10,00	108	16	68	10	8					248,40	10000 2)				
10,01	108	16	68	10	6	205,30	10010	226,10	10010			248,40	10010 1)	248,40	10010 1)
10,01	108	16	68	10	8					248,40	10010 2)				
10,02	108	16	68	10	6	205,30	10020	226,10	10020			248,40	10020 1)	248,40	10020 1)
10,02	108	16	68	10	8					248,40	10020 2)				
10,03	108	16	68	10	6	205,30	10030	226,10	10030			248,40	10030 1)	248,40	10030 1)
10,03	108	16	68	10	8					248,40	10030 2)				
10,04 - 10,05	108	16	68	10	6	211,70	xxxxx 1)	248,40	xxxxx 2)			248,40	xxxxx 1)	248,40	xxxxx 1)

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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

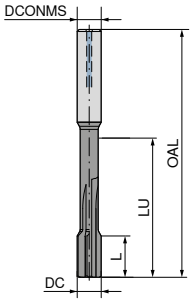
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
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, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	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
	40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
10,04 - 10,05	108	16	68	10	8					248,40	xxxxx[2]				
10,06 - 11,96	130	20	85	12	8					338,50	xxxxx[1]				
10,06 - 11,96	130	20	85	12	6	320,90	xxxxx[1]	338,50	xxxxx[2]			338,50	xxxxx[1]	338,50	xxxxx[1]
11,97	130	20	85	12	6	274,10	11970	301,40	11970			338,50	11970[1]	338,50	11970[1]
11,97	130	20	85	12	8					338,50	11970[2]				
11,98	130	20	85	12	6	274,10	11980	301,40	11980			338,50	11980[1]	338,50	11980[1]
11,98	130	20	85	12	8					338,50	11980[2]				
11,99	130	20	85	12	6	274,10	11990	301,40	11990			338,50	11990[1]	338,50	11990[1]
11,99	130	20	85	12	8					338,50	11990[2]				
12,00	130	20	85	12	6	274,10	12000	301,40	12000			338,50	12000[1]	338,50	12000[1]
12,00	130	20	85	12	8					338,50	12000[2]				
12,01	130	20	85	12	6	274,10	12010	301,40	12010			338,50	12010[1]	338,50	12010[1]
12,01	130	20	85	12	8					338,50	12010[2]				
12,02	130	20	85	12	6	274,10	12020	301,40	12020			338,50	12020[1]	338,50	12020[1]
12,02	130	20	85	12	8					338,50	12020[2]				
12,03	130	20	85	12	6	274,10	12030	301,40	12030			338,50	12030[1]	338,50	12030[1]
12,03	130	20	85	12	8					338,50	12030[2]				
12,04 - 12,05	130	20	85	12	6	320,90	xxxxx[1]	338,50	xxxxx[2]			338,50	xxxxx[1]	338,50	xxxxx[1]
12,04 - 12,05	130	20	85	12	8					338,50	xxxxx[2]				
12,06 - 14,05	130	20	85	14	8					389,10	xxxxx[1]				
12,06 - 14,05	130	20	85	14	6	372,80	xxxxx[1]	389,10	xxxxx[2]			389,10	xxxxx[1]	389,10	xxxxx[1]
14,06 - 16,05	150	20	102	16	6	431,30	xxxxx[1]	449,20	xxxxx[2]			449,20	xxxxx[1]	449,20	xxxxx[1]
14,06 - 16,05	150	20	102	16	8					449,20	xxxxx[1]				
16,06 - 18,05	150	20	102	18	6	457,40	xxxxx[1]	475,00	xxxxx[2]			475,00	xxxxx[1]	475,00	xxxxx[1]
16,06 - 18,05	150	20	102	18	8					475,00	xxxxx[1]				
18,06 - 20,05	160	20	110	20	6	495,60	xxxxx[1]	510,50	xxxxx[2]			510,50	xxxxx[1]	510,50	xxxxx[1]
18,06 - 20,05	160	20	110	20	8					510,50	xxxxx[1]				

	UNI	VA	K	ALU	H
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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

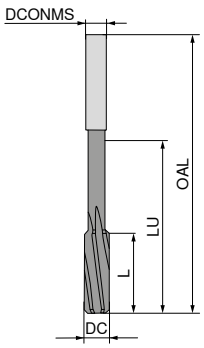
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
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



~HA
Left Hand Helix
Solid carbide

40 420 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
2,0	50	12	18,5	3	4	45,49	020
2,5	60	16	29,0	3	4	45,49	025
3,0	65	17	33,0	4	6	47,33	030
3,2	65	18	33,0	4	6	47,33	032
3,5	75	18	43,0	4	6	47,33	035
4,0	75	19	43,0	4	6	56,71	040
4,5	80	21	39,0	6	6	56,71	045
5,0	93	23	52,0	6	6	63,65	050
5,5	93	26	53,0	6	6	63,65	055
6,0	93	26	53,0	6	6	68,50	060
6,5	101	28	61,0	6	6	68,50	065
7,0	109	31	68,0	8	6	75,92	070
7,5	109	31	68,0	8	6	75,92	075
8,0	117	33	77,0	8	6	88,53	080
8,5	117	33	77,0	8	6	88,53	085
9,0	125	36	80,0	10	6	96,52	090
9,5	125	36	80,0	10	6	96,52	095
10,0	133	38	88,0	10	6	103,20	100
10,5	133	38	88,0	10	6	103,20	105
11,0	142	41	97,0	10	6	133,10	110
12,0	151	44	100,0	12	6	133,10	120
13,0	151	44	100,0	12	6	130,80	130
14,0	160	47	106,0	16	6	130,80	140 1)
15,0	162	50	108,0	16	6	137,90	150 1)
16,0	170	52	116,0	16	6	144,70	160 1)
17,0	175	52	121,0	18	6	147,00	170 1)
18,0	182	52	128,0	18	6	148,10	180 1)
19,0	189	52	133,0	20	6	155,20	190 1)
20,0	195	52	139,0	20	6	155,20	200 1)
22,0	160	25	105,0	20	6	155,20	220 1)
24,0	180	25	125,0	20	8	189,80	240 1)
25,0	180	25	125,0	20	8	189,80	250 1)
26,0	180	25	125,0	20	8	211,90	260 1)
28,0	180	25	119,0	25	8	223,40	280 1)
30,0	200	25	139,0	25	8	231,50	300 1)

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→ v_c Page 84+85

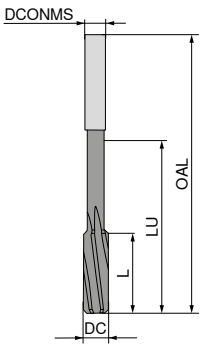
1) with carbide cutting edges

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



~HA
Left Hand Helix
Solid carbide

40 421 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
2,0	50	12	18,5	3	4	54,75	020
2,5	60	16	29,0	3	4	54,75	025
3,0	65	17	33,0	4	6	57,16	030
3,2	65	18	33,0	4	6	57,16	032
3,5	75	18	43,0	4	6	57,16	035
4,0	75	19	43,0	4	6	68,40	040
4,5	80	21	39,0	6	6	68,40	045
5,0	93	23	52,0	6	6	76,62	050
5,5	93	26	53,0	6	6	76,62	055
6,0	93	26	53,0	6	6	82,64	060
6,5	101	28	61,0	6	6	82,64	065
7,0	109	31	68,0	8	6	91,65	070
7,5	109	31	68,0	8	6	91,65	075
8,0	117	33	77,0	8	6	106,60	080
8,5	117	33	77,0	8	6	106,60	085
9,0	125	36	80,0	10	6	116,90	090
9,5	125	36	80,0	10	6	116,90	095
10,0	133	38	88,0	10	6	125,10	100
10,5	133	38	88,0	10	6	125,10	105
11,0	142	41	97,0	10	6	160,90	110
12,0	151	44	100,0	12	6	160,90	120
13,0	151	44	100,0	12	6	158,60	130
14,0	160	47	106,0	16	6	158,60	140 1)
15,0	162	50	108,0	16	6	167,90	150 1)
16,0	170	52	116,0	16	6	172,40	160 1)
17,0	175	52	121,0	18	6	177,00	170 1)
18,0	182	52	128,0	18	6	178,20	180 1)
19,0	189	52	133,0	20	6	186,40	190 1)
20,0	195	52	139,0	20	6	188,60	200 1)

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→ v_c Page 84+85

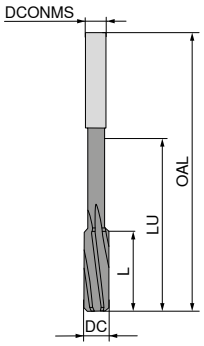
1) with carbide cutting edges

4

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100



Left Hand Helix
Solid carbide

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
0,59 - 0,64	45	5	7,5	3	4	80,55	xxxxx 1)
0,65 - 0,74	45	5	7,5	3	4	80,55	xxxxx 1)
0,75 - 0,84	45	6	8,0	3	4	80,55	xxxxx 1)
0,85 - 0,95	45	6	8,0	3	4	80,55	xxxxx 1)
0,96	50	6	17,5	3	3	72,33	00960 1)
0,97	50	6	17,5	3	3	72,33	00970 1)
0,98	50	6	17,5	3	3	72,33	00980 2)
0,99	50	6	17,5	3	3	72,33	00990 2)
1,00	50	6	17,5	3	3	72,33	01000 2)
1,01	50	6	17,5	3	3	72,33	01010 2)
1,02	50	6	17,5	3	3	72,33	01020 2)
1,03	50	6	17,5	3	3	72,33	01030 2)
1,04 - 1,06	50	6	17,5	3	3	72,33	xxxxx 2)
1,07 - 1,18	50	9	17,5	3	3	72,33	xxxxx 2)
1,19 - 1,32	50	9	17,5	3	3	72,33	xxxxx 2)
1,33 - 1,50	50	9	18,0	3	3	72,33	xxxxx 2)
1,51 - 1,70	50	10	18,0	3	3	72,33	xxxxx 2)
1,71 - 1,90	50	11	18,5	3	4	72,33	xxxxx 2)
1,91 - 1,97	50	12	18,5	3	4	81,82	xxxxx 2)
1,98	50	12	18,5	3	4	81,82	01980
1,99	50	12	18,5	3	4	81,82	01990
2,00	50	12	18,5	3	4	81,82	02000
2,01	50	12	18,5	3	4	81,82	02010
2,02	50	12	18,5	3	4	81,82	02020
2,03	50	12	18,5	3	4	81,82	02030
2,04 - 2,12	50	12	18,5	3	4	81,82	xxxxx 2)
2,13 - 2,36	50	12	18,5	3	4	81,82	xxxxx 2)
2,37 - 2,47	60	16	29,0	3	4	62,96	xxxxx 2)
2,48	60	16	29,0	3	4	62,96	02480
2,49	60	16	29,0	3	4	62,96	02490
2,50	60	16	29,0	3	4	62,96	02500
2,51	60	16	29,0	3	4	62,96	02510
2,52	60	16	29,0	3	4	62,96	02520
2,53	60	16	29,0	3	4	62,96	02530
2,54 - 2,65	60	16	29,0	3	4	62,96	xxxxx 2)
2,66 - 2,80	65	17	33,0	4	6	62,96	xxxxx 2)
2,81 - 2,96	65	17	33,0	4	6	54,04	xxxxx 2)
2,97	65	17	33,0	4	6	54,04	02970
2,98	65	17	33,0	4	6	54,04	02980
2,99	65	17	33,0	4	6	54,04	02990
3,00	65	17	33,0	4	6	47,33	03000
3,01	65	17	33,0	4	6	54,04	03010
3,02	65	17	33,0	4	6	54,04	03020
3,03	65	17	33,0	4	6	54,04	03030
3,04 - 3,35	65	18	33,0	4	6	63,65	xxxxx 2)
3,36 - 3,75	75	18	43,0	4	6	63,65	xxxxx 2)
3,76 - 3,96	75	19	43,0	4	6	63,65	xxxxx 2)
3,97	75	19	43,0	4	6	63,65	03970
3,98	75	19	43,0	4	6	63,65	03980
3,99	75	19	43,0	4	6	63,65	03990
4,00	75	19	43,0	4	6	56,71	04000
4,01	75	19	43,0	4	6	63,65	04010
4,02	75	19	43,0	4	6	63,65	04020
4,03	75	19	43,0	4	6	63,65	04030
4,04 - 4,25	75	19	43,0	4	6	63,65	xxxxx 2)
4,26 - 4,75	80	21	39,0	6	6	72,33	xxxxx 2)
4,76 - 4,96	93	23	52,0	6	6	72,33	xxxxx 2)
4,97	93	23	52,0	6	6	72,33	04970
4,98	93	23	52,0	6	6	72,33	04980
4,99	93	23	52,0	6	6	72,33	04990

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
5,00	93	23	52,0	6	6	63,65	05000
5,01	93	23	52,0	6	6	72,33	05010
5,02	93	23	52,0	6	6	72,33	05020
5,03	93	23	52,0	6	6	72,33	05030
5,04 - 5,30	93	23	52,0	6	6	72,33	xxxxx 2)
5,31 - 5,96	93	26	53,0	6	6	78,81	xxxxx 2)
5,97	93	26	53,0	6	6	78,24	05970
5,98	93	26	53,0	6	6	78,24	05980
5,99	93	26	53,0	6	6	78,24	05990
6,00	93	26	53,0	6	6	68,50	06000
6,01	93	26	53,0	6	6	78,81	06010
6,02	93	26	53,0	6	6	78,81	06020
6,03	93	26	53,0	6	6	78,81	06030
6,04 - 6,70	101	28	61,0	6	6	94,66	xxxxx 2)
6,71 - 7,50	109	31	68,0	8	6	94,66	xxxxx 2)
7,51 - 7,96	117	33	77,0	8	6	94,66	xxxxx 2)
7,97	117	33	77,0	8	6	94,66	07970
7,98	117	33	77,0	8	6	94,66	07980
7,99	117	33	77,0	8	6	94,66	07990
8,00	117	33	77,0	8	6	88,53	08000
8,01	117	33	77,0	8	6	94,66	08010
8,02	117	33	77,0	8	6	94,66	08020
8,03	117	33	77,0	8	6	94,66	08030
8,04	117	33	77,0	8	6	94,66	08040
8,05 - 8,50	117	33	77,0	8	6	110,80	xxxxx 2)
8,51 - 9,04	125	36	80,0	10	6	110,80	xxxxx 2)
9,05 - 9,50	125	36	80,0	10	6	110,80	xxxxx 2)
9,51 - 9,96	133	38	88,0	10	6	110,80	xxxxx 2)
9,97	133	38	88,0	10	6	110,80	09970
9,98	133	38	88,0	10	6	110,80	09980
9,99	133	38	88,0	10	6	110,80	09990
10,00	133	38	88,0	10	6	103,20	10000
10,01	133	38	88,0	10	6	110,80	10010
10,02	133	38	88,0	10	6	110,80	10020
10,03	133	38	88,0	10	6	110,80	10030
10,04	133	38	88,0	10	6	110,80	10040
10,05	133	38	88,0	10	6	110,80	10050
10,06 - 10,60	133	38	88,0	10	6	133,10	xxxxx 2)
10,61 - 11,80	142	41	97,0	10	6	133,10	xxxxx 2)
11,81 - 11,96	151	44	100,0	12	6	133,10	xxxxx 2)
11,97	151	44	100,0	12	6	133,10	11970
11,98	151	44	100,0	12	6	133,10	11980
11,99	151	44	100,0	12	6	133,10	11990
12,00	151	44	100,0	12	6	126,10	12000
12,01	151	44	100,0	12	6	133,10	12010
12,02	151	44	100,0	12	6	133,10	12020
12,03	151	44	100,0	12	6	133,10	12030
12,04	151	44	100,0	12	6	133,10	12040
12,05	151	44	100,0	12	6	133,10	12050

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→ v_c Page 84+85

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

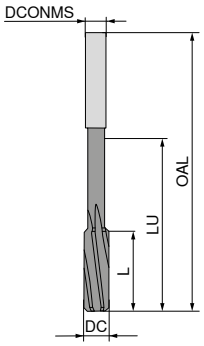
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 430 08050)!

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN



Left Hand Helix
Solid carbide

40 431 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
1,00	50	6	17,5	3	3	87,37	01000 1)
1,01	50	6	17,5	3	3	87,37	01010 1)
1,02	50	6	17,5	3	3	87,37	01020 1)
1,03	50	6	17,5	3	3	87,37	01030 1)
1,04 - 1,06	50	6	17,5	3	3	87,37	xxxxx 1)
1,07 - 1,18	50	9	17,5	3	3	87,37	xxxxx 1)
1,19 - 1,32	50	9	17,5	3	3	87,37	xxxxx 1)
1,33 - 1,50	50	9	18,0	3	3	87,37	xxxxx 1)
1,51 - 1,70	50	10	18,0	3	3	87,37	xxxxx 1)
1,71 - 1,90	50	11	18,5	3	4	87,37	xxxxx 1)
1,91 - 1,97	50	12	18,5	3	4	98,83	xxxxx 1)
1,98	50	12	18,5	3	4	98,83	01980
1,99	50	12	18,5	3	4	98,83	01990
2,00	50	12	18,5	3	4	86,23	02000
2,01	50	12	18,5	3	4	98,83	02010
2,02	50	12	18,5	3	4	98,83	02020
2,03	50	12	18,5	3	4	98,83	02030
2,04 - 2,12	50	12	18,5	3	4	98,83	xxxxx 1)
2,13 - 2,36	50	12	18,5	3	4	98,83	xxxxx 1)
2,37 - 2,47	60	16	29,0	3	4	76,04	xxxxx 1)
2,48	60	16	29,0	3	4	76,04	02480
2,49	60	16	29,0	3	4	76,04	02490
2,50	60	16	29,0	3	4	76,04	02500
2,51	60	16	29,0	3	4	76,04	02510
2,52	60	16	29,0	3	4	76,04	02520
2,53	60	16	29,0	3	4	76,04	02530
2,54 - 2,65	60	16	29,0	3	4	76,04	xxxxx 1)
2,66 - 2,80	65	17	33,0	4	6	76,04	xxxxx 1)
2,81 - 2,96	65	17	33,0	4	6	65,37	xxxxx 1)
2,97	65	17	33,0	4	6	65,37	02970
2,98	65	17	33,0	4	6	65,37	02980
2,99	65	17	33,0	4	6	65,37	02990
3,00	65	17	33,0	4	6	57,16	03000
3,01	65	17	33,0	4	6	65,37	03010
3,02	65	17	33,0	4	6	65,37	03020
3,03	65	17	33,0	4	6	65,37	03030
3,04 - 3,35	65	18	33,0	4	6	76,62	xxxxx 1)
3,36 - 3,75	75	18	43,0	4	6	76,62	xxxxx 1)
3,76 - 3,96	75	19	43,0	4	6	76,62	xxxxx 1)
3,97	75	19	43,0	4	6	76,62	03970
3,98	75	19	43,0	4	6	76,62	03980
3,99	75	19	43,0	4	6	76,62	03990
4,00	75	19	43,0	4	6	68,40	04000
4,01	75	19	43,0	4	6	76,62	04010
4,02	75	19	43,0	4	6	76,62	04020
4,03	75	19	43,0	4	6	76,62	04030
4,04 - 4,25	75	19	43,0	4	6	76,62	xxxxx 1)
4,26 - 4,75	80	21	39,0	6	6	84,25	xxxxx 1)
4,76 - 4,96	93	23	52,0	6	6	84,25	xxxxx 1)
4,97	93	23	52,0	6	6	84,25	04970
4,98	93	23	52,0	6	6	84,25	04980
4,99	93	23	52,0	6	6	84,25	04990
5,00	93	23	52,0	6	6	76,62	05000
5,01	93	23	52,0	6	6	84,25	05010
5,02	93	23	52,0	6	6	84,25	05020
5,03	93	23	52,0	6	6	84,25	05030
5,04 - 5,30	93	23	52,0	6	6	84,25	xxxxx 1)
5,31 - 5,96	93	26	53,0	6	6	91,65	xxxxx 1)
5,97	93	26	53,0	6	6	91,65	05970
5,98	93	26	53,0	6	6	91,65	05980

40 431 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
5,99	93	26	53,0	6	6	91,65	05990
6,00	93	26	53,0	6	6	82,64	06000
6,01	93	26	53,0	6	6	91,65	06010
6,02	93	26	53,0	6	6	91,65	06020
6,03	93	26	53,0	6	6	91,65	06030
6,04 - 6,70	101	28	61,0	6	6	114,20	xxxxx 1)
6,71 - 7,50	109	31	68,0	8	6	114,20	xxxxx 1)
7,51 - 7,96	117	33	77,0	8	6	114,20	xxxxx 1)
7,97	117	33	77,0	8	6	114,20	07970
7,98	117	33	77,0	8	6	114,20	07980
7,99	117	33	77,0	8	6	114,20	07990
8,00	117	33	77,0	8	6	106,60	08000
8,01	117	33	77,0	8	6	114,20	08010
8,02	117	33	77,0	8	6	114,20	08020
8,03	117	33	77,0	8	6	114,20	08030
8,04	117	33	77,0	8	6	114,20	08040
8,05 - 8,50	117	33	77,0	8	6	133,10	xxxxx 1)
8,51 - 9,04	125	36	80,0	10	6	133,10	xxxxx 1)
9,05 - 9,50	125	36	80,0	10	6	133,10	xxxxx 1)
9,51 - 9,96	133	38	88,0	10	6	133,10	xxxxx 1)
9,97	133	38	88,0	10	6	133,10	09970
9,98	133	38	88,0	10	6	133,10	09980
9,99	133	38	88,0	10	6	133,10	09990
10,00	133	38	88,0	10	6	125,10	10000
10,01	133	38	88,0	10	6	133,10	10010
10,02	133	38	88,0	10	6	133,10	10020
10,03	133	38	88,0	10	6	133,10	10030
10,04	133	38	88,0	10	6	133,10	10040
10,05	133	38	88,0	10	6	133,10	10050
10,06 - 10,60	133	38	88,0	10	6	160,90	xxxxx 1)
10,61 - 11,80	142	41	97,0	10	6	160,90	xxxxx 1)
11,81 - 11,96	151	44	100,0	12	6	160,90	xxxxx 1)
11,97	151	44	100,0	12	6	160,90	11970
11,98	151	44	100,0	12	6	160,90	11980
11,99	151	44	100,0	12	6	160,90	11990
12,00	151	44	100,0	12	6	151,60	12000
12,01	151	44	100,0	12	6	160,90	12010
12,02	151	44	100,0	12	6	160,90	12020
12,03	151	44	100,0	12	6	160,90	12030
12,04	151	44	100,0	12	6	160,90	12040
12,05	151	44	100,0	12	6	160,90	12050

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→ v_c Page 84+85

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

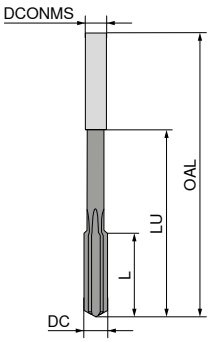
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 431 08050)!

4

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

▲ extremely irregular pitch

N



Left Hand Helix
Solid carbide

straight flute
Solid carbide

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h7 mm	ZEFP	40 410 ... EUR U4		40 400 ... EUR U4	
2,0	49	11	31	2,0	4	23,60	020	23,60	020
2,1	49	11	31	2,0	4	28,22	021	28,22	021
2,2	53	12	35	2,2	4	28,22	022	28,22	022
2,3	53	12	35	2,2	4	28,22	023	28,22	023
2,4	57	14	34	2,5	4	28,22	024	28,22	024
2,5	57	14	34	2,5	4	25,35	025	25,35	025
2,6	57	14	34	2,5	4	30,32	026	30,32	026
2,7	61	15	36	3,0	4	30,32	027	30,32	027
2,8	61	15	36	3,0	4	30,32	028	30,32	028
2,9	61	15	36	3,0	4	30,32	029	30,32	029
3,0	61	15	36	3,0	4	27,31	030	27,31	030
3,1	61	15	36	3,0	4	32,75	031	32,75	031
3,2	70	18	40	3,5	4	32,75	032	32,75	032
3,3	70	18	40	3,5	4	32,75	033	32,75	033
3,4	70	18	40	3,5	4	32,75	034	32,75	034
3,5	70	18	40	3,5	4	31,13	035	31,13	035
3,6	70	18	40	3,5	4	37,38	036	37,38	036
3,7	70	18	40	3,5	4	37,38	037	37,38	037
3,8	75	19	43	4,0	4	37,38	038	37,38	038
3,9	75	19	43	4,0	4	37,38	039	37,38	039
4,0	75	19	43	4,0	4	33,45	040	33,45	040
4,1	75	19	43	4,0	4	40,28	041	40,28	041
4,2	75	19	43	4,0	4	40,28	042	40,28	042
4,3	75	21	42	4,5	4	40,28	043	40,28	043
4,4	75	21	42	4,5	4	40,28	044	40,28	044
4,5	75	21	42	4,5	4	36,46	045	36,46	045
4,6	75	21	42	4,5	4	43,74	046	43,74	046
4,7	75	21	42	4,5	4	43,74	047	43,74	047
4,8	86	23	52	5,0	4	43,74	048	43,74	048
4,9	86	23	52	5,0	4	43,74	049	43,74	049
5,0	86	23	52	5,0	4	41,08	050	41,08	050
5,1	86	23	52	5,0	4	47,33	051	47,33	051
5,2	86	23	52	5,0	4	47,33	052	47,33	052
5,3	86	23	52	5,0	6	47,33	053	47,33	053
5,4	93	26	57	5,6	6	47,33	054	47,33	054
5,5	93	26	57	5,6	6	43,50	055	43,50	055
5,6	93	26	57	5,6	6	50,11	056	50,11	056
5,7	93	26	57	5,6	6	50,11	057	50,11	057
5,8	93	26	57	5,6	6	50,11	058	50,11	058
5,9	93	26	57	5,6	6	50,11	059	50,11	059
6,0	93	26	57	5,6	6	52,08	060	52,08	060
6,1	93	26	57	5,6	6	59,94	061	59,94	061
6,2	93	26	57	5,6	6	59,94	062	59,94	062
6,3	101	28	63	6,3	6	59,94	063	59,94	063
6,4	101	28	63	6,3	6	59,94	064	59,94	064
6,5	101	28	63	6,3	6	58,33	065	58,33	065
6,6	101	28	63	6,3	6	67,23	066	67,23	066
6,7	101	28	63	6,3	6	67,23	067	67,23	067
6,8	109	31	69	7,1	6	67,23	068	67,23	068
6,9	109	31	69	7,1	6	67,23	069	67,23	069
7,0	109	31	69	7,1	6	65,27	070	65,27	070
7,1	109	31	69	7,1	6	74,99	071	74,99	071
7,2	109	31	69	7,1	6	74,99	072	74,99	072
7,3	109	31	69	7,1	6	74,99	073	74,99	073
7,4	109	31	69	7,1	6	74,99	074	74,99	074
7,5	109	31	69	7,1	6	70,60	075	70,60	075
7,6	117	33	75	8,0	6	81,24	076	81,24	076
7,7	117	33	75	8,0	6	81,24	077	81,24	077
7,8	117	33	75	8,0	6	81,24	078	81,24	078
7,9	117	33	75	8,0	6	81,24	079	81,24	079
8,0	117	33	75	8,0	6	74,99	080	74,99	080
8,1	117	33	75	8,0	6	82,64	081	82,64	081
8,2	117	33	75	8,0	6	82,64	082	82,64	082
8,3	117	33	75	8,0	6	82,64	083	82,64	083
8,4	117	33	75	8,0	6	82,64	084	82,64	084
8,5	117	33	75	8,0	6	81,47	085	81,47	085
8,6	125	36	81	9,0	6	89,46	086	89,46	086
8,7	125	36	81	9,0	6	89,46	087	89,46	087
8,8	125	36	81	9,0	6	89,46	088	89,46	088
8,9	125	36	81	9,0	6	89,46	089	89,46	089
9,0	125	36	81	9,0	6	87,26	090	87,26	090
9,1	125	36	81	9,0	6	95,94	091	95,94	091
9,2	125	36	81	9,0	6	95,94	092	95,94	092
9,3	125	36	81	9,0	6	95,94	093	95,94	093
9,4	125	36	81	9,0	6	95,94	094	95,94	094
9,5	125	36	81	9,0	6	93,51	095	93,51	095
9,6	133	38	87	10,0	6	102,90	096	102,90	096
9,7	133	38	87	10,0	6	102,90	097	102,90	097
9,8	133	38	87	10,0	6	102,90	098	102,90	098
9,9	133	38	87	10,0	6	102,90	099	102,90	099
10,0	133	38	87	10,0	6	100,70	100	100,70	100
10,1	133	38	87	10,0	6	110,90	101	110,90	101
10,2	133	38	87	10,0	6	110,90	102	110,90	102
10,3	133	38	87	10,0	6	110,90	103	110,90	103
10,4	133	38	87	10,0	6	110,90	104	110,90	104
10,5	133	38	87	10,0	6	105,40	105	105,40	105
10,6	133	38	87	10,0	6	115,70	106	115,70	106
10,7	142	41	96	10,0	6	115,70	107	115,70	107
10,8	142	41	96	10,0	6	115,70	108	115,70	108
10,9	142	41	96	10,0	6	115,70	109	115,70	109
11,0	142	41		10,0	6	114,00	110	114,00	110
11,1	142	41		10,0	6	126,10	111	126,10	111
11,2	142	41		10,0	6	126,10	112	126,10	112
11,3	142	41		10,0	6	126,10	113	126,10	113
11,4	142	41		10,0	6	126,10	114	126,10	114
11,5	142	41		10,0	6	121,60	115	121,60	115
11,6	142	41		10,0	6	133,10	116	133,10	116
11,7	142	41		10,0	6	133,10	117	133,10	117
11,8	142	41		10,0	6	133,10	118	133,10	118
11,9	151	44		10,0	6	133,10	119	133,10	119
12,0	151	44		10,0	6	130,80	120	130,80	120

	40 410 ...	40 400 ...
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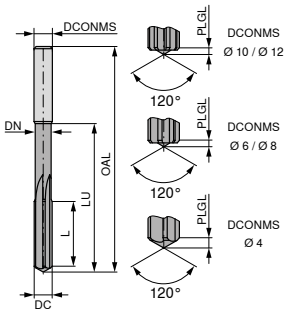
→ v_c Page 83

NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN



straight flute
∢ 45°
Solid carbide
Through hole + blind hole

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... EUR U4	
0,98	50	6	16	4	0,12	60,74	00980
0,99	50	6	16	4	0,12	60,74	00990
1,00	50	6	16	4	0,12	60,74	01000
1,01	50	6	16	4	0,12	60,74	01010
1,02	50	6	16	4	0,12	60,74	01020
1,03	50	6	16	4	0,12	60,74	01030
1,48	50	9	16	4	0,12	66,30	01480
1,49	50	9	16	4	0,12	66,30	01490
1,50	50	9	16	4	0,12	66,30	01500
1,51	50	9	16	4	0,12	66,30	01510
1,52	50	9	16	4	0,12	66,30	01520
1,60	50	10	16	4	0,12	66,30	01600
1,70	50	10	16	4	0,12	66,30	01700
1,80	50	11	16	4	0,12	66,30	01800
1,90	50	11	16	4	0,12	66,30	01900
1,97	50	12	16	4	0,30	66,30	01970
1,98	50	12	16	4	0,30	66,30	01980
1,99	50	12	16	4	0,30	66,30	01990
2,00	50	12	16	4	0,30	66,30	02000
2,01	50	12	16	4	0,30	66,30	02010
2,02	50	12	16	4	0,30	66,30	02020
2,03	50	12	16	4	0,30	66,30	02030
2,05	50	12	16	4	0,30	66,30	02050
2,10	50	12	16	4	0,30	66,30	02100
2,20	50	13	16	4	0,30	66,30	02200
2,30	50	13	16	4	0,30	66,30	02300
2,40	60	16	26	4	0,30	66,30	02400
2,50	60	16	26	4	0,30	66,30	02500
2,60	60	16	26	4	0,30	66,30	02600
2,70	64	17	30	4	0,30	66,30	02700
2,80	64	17	30	4	0,30	66,30	02800
2,90	64	17	30	4	0,30	66,30	02900
2,97	64	17	30	4	0,30	66,30	02970
2,98	64	17	30	4	0,30	66,30	02980
2,99	64	17	30	4	0,30	66,30	02990
3,00	64	17	30	4	0,30	66,30	03000
3,01	64	17	30	4	0,30	66,30	03010
3,02	64	17	30	4	0,30	66,30	03020
3,03	64	17	30	4	0,30	66,30	03030
3,05	68	18	34	4	0,30	66,30	03050
3,10	68	18	34	4	0,30	66,30	03100
3,20	68	18	34	4	0,30	66,30	03200
3,30	68	18	34	4	0,30	66,30	03300
3,40	74	20	40	4	0,30	66,30	03400
3,50	74	20	40	4	0,30	66,30	03500
3,60	74	20	40	4	0,30	66,30	03600
3,70	74	20	40	4	0,30	66,30	03700
3,80	77	21	43	4	0,40	66,30	03800
3,90	77	21	43	4	0,40	66,30	03900
3,97	77	21	43	4	0,40	66,30	03970
3,98	77	21	43	4	0,40	66,30	03980
3,99	77	21	43	4	0,40	66,30	03990
4,00	77	21	43	4	0,40	66,30	04000
4,01	77	21	43	4	0,40	66,30	04010
4,02	77	21	43	4	0,40	66,30	04020
4,03	77	21	43	4	0,40	66,30	04030
4,05	82	21	40	6	0,40	81,81	04050
4,10	82	21	40	6	0,40	81,81	04100
4,20	82	21	40	6	0,40	81,81	04200
4,30	82	23	40	6	0,40	81,81	04300

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... EUR U4	
4,40	82	23	40	6	0,40	81,81	04400
4,50	82	23	40	6	0,40	81,81	04500
4,60	82	23	40	6	0,40	81,81	04600
4,70	82	23	40	6	0,40	81,81	04700
4,80	93	26	51	6	0,50	81,81	04800
4,90	93	26	51	6	0,50	81,81	04900
4,97	93	26	51	6	0,50	81,81	04970
4,98	93	26	51	6	0,50	81,81	04980
4,99	93	26	51	6	0,50	81,81	04990
5,00	93	26	51	6	0,50	81,81	05000
5,01	93	26	51	6	0,50	81,81	05010
5,02	93	26	51	6	0,50	81,81	05020
5,03	93	26	51	6	0,50	81,81	05030
5,05	93	26	51	6	0,50	81,81	05050
5,10	93	26	51	6	0,50	81,81	05100
5,20	93	26	51	6	0,50	81,81	05200
5,30	93	26	51	6	0,50	81,81	05300
5,40	93	26	51	6	0,50	81,81	05400
5,50	93	26	51	6	0,50	81,81	05500
5,60	93	26	51	6	0,50	81,81	05600
5,70	93	26	51	6	0,50	81,81	05700
5,80	93	26	51	6	0,50	81,81	05800
5,90	93	26	51	6	0,50	81,81	05900
5,97	93	26	51	6	0,50	81,81	05970
5,98	93	26	51	6	0,50	81,81	05980
5,99	93	26	51	6	0,50	81,81	05990
6,00	93	26	51	6	0,50	81,81	06000

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→ v_c Page 90

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

4

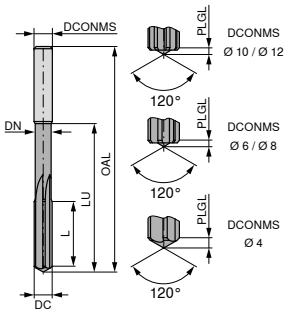
Continued on next page

NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN



straight flute
◁ 45°
Solid carbide
Through hole + blind hole

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... EUR U4	
11,17	150	44	99	12	0,8	163,70	11170
11,97	150	44	99	12	0,8	163,70	11970
11,98	150	44	99	12	0,8	163,70	11980
11,99	150	44	99	12	0,8	163,70	11990
12,00	150	44	99	12	0,8	163,70	12000
12,01	150	44	99	12	0,8	163,70	12010
12,02	150	44	99	12	0,8	163,70	12020
12,03	150	44	99	12	0,8	163,70	12030
12,04	150	44	99	12	0,8	163,70	12040
12,05	150	44	99	12	0,8	163,70	12050

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→ v_c Page 90

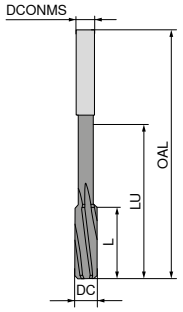
DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... EUR U4	
6,01	93	26	51	6	0,5	81,81	06010
6,02	93	26	51	6	0,5	81,81	06020
6,03	93	26	51	6	0,5	81,81	06030
6,05	101	26	59	8	0,5	102,10	06050
6,10	101	26	59	8	0,5	102,10	06100
6,20	101	26	59	8	0,5	102,10	06200
6,30	101	26	59	8	0,5	102,10	06300
6,40	101	26	59	8	0,5	102,10	06400
6,50	101	26	59	8	0,5	102,10	06500
6,60	101	26	59	8	0,5	102,10	06600
6,70	101	26	59	8	0,5	102,10	06700
6,80	109	31	67	8	0,6	102,10	06800
6,85	109	31	67	8	0,6	102,10	06850
6,90	109	31	67	8	0,6	102,10	06900
7,00	109	31	67	8	0,6	102,10	07000
7,10	109	31	67	8	0,6	102,10	07100
7,20	109	31	67	8	0,6	102,10	07200
7,30	109	31	67	8	0,6	102,10	07300
7,40	109	31	67	8	0,6	102,10	07400
7,50	109	31	67	8	0,6	102,10	07500
7,60	109	31	67	8	0,6	102,10	07600
7,70	117	33	75	8	0,6	102,10	07700
7,80	117	33	75	8	0,6	102,10	07800
7,90	117	33	75	8	0,6	102,10	07900
7,97	117	33	75	8	0,6	102,10	07970
7,98	117	33	75	8	0,6	102,10	07980
7,99	117	33	75	8	0,6	102,10	07990
8,00	117	33	75	8	0,6	102,10	08000
8,01	117	33	75	8	0,7	102,10	08010
8,02	117	33	75	8	0,7	102,10	08020
8,03	117	33	75	8	0,7	102,10	08030
8,05	117	33	71	10	0,7	125,00	08050
8,10	117	33	71	10	0,7	125,00	08100
8,20	117	33	71	10	0,7	125,00	08200
8,30	117	33	71	10	0,7	125,00	08300
8,40	117	33	71	10	0,7	125,00	08400
8,50	117	33	71	10	0,7	125,00	08500
8,60	117	33	71	10	0,7	125,00	08600
8,70	125	36	79	10	0,7	125,00	08700
8,80	125	36	79	10	0,7	125,00	08800
8,90	125	36	79	10	0,7	125,00	08900
9,00	125	36	79	10	0,7	125,00	09000
9,10	125	36	79	10	0,7	125,00	09100
9,20	125	36	79	10	0,7	125,00	09200
9,30	125	36	79	10	0,7	125,00	09300
9,40	125	36	79	10	0,7	125,00	09400
9,50	125	36	79	10	0,7	125,00	09500
9,60	125	36	79	10	0,7	125,00	09600
9,70	133	38	87	10	0,7	125,00	09700
9,80	133	38	87	10	0,7	125,00	09800
9,90	133	38	87	10	0,7	125,00	09900
9,97	133	41	87	10	0,7	125,00	09970
9,98	133	41	87	10	0,7	125,00	09980
9,99	133	41	87	10	0,7	125,00	09990
10,00	133	41	87	10	0,7	125,00	10000
10,01	133	41	87	10	0,7	125,00	10010
10,02	133	41	87	10	0,8	125,00	10020
10,03	133	41	87	10	0,8	125,00	10030
10,04	133	41	87	10	0,8	125,00	10040
10,05	133	41	87	10	0,8	125,00	10050

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy

NC



Left Hand Helix
HSS-E

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 110 ... EUR U2	
1,5	40	8	15,5	2	3	10,65	015
1,6	43	9	16,0	2	3	11,90	016
1,7	43	9	16,0	2	3	11,90	017
1,8	46	10	19,0	2	4	11,90	018
1,9	46	10	19,0	2	4	11,90	019
2,0	49	11	21,0	2	4	10,35	020
2,1	49	11	21,0	2	4	12,44	021
2,2	53	12	22,0	3	4	12,44	022
2,3	53	12	22,0	3	4	12,44	023
2,4	57	14	26,0	3	4	12,44	024
2,5	57	14	26,0	3	4	10,35	025
2,6	57	14	26,0	3	4	13,10	026
2,7	61	15	30,0	3	6	13,10	027
2,8	61	15	30,0	3	6	13,10	028
2,9	61	15	30,0	3	6	13,10	029
3,0	61	15	30,0	3	6	9,46	030
3,1	65	16	34,0	4	6	12,44	031
3,2	65	16	34,0	4	6	12,44	032
3,3	65	16	34,0	4	6	12,44	033
3,4	70	18	39,0	4	6	12,44	034
3,5	70	18	39,0	4	6	11,13	035
3,6	70	18	39,0	4	6	13,86	036
3,7	70	18	39,0	4	6	13,86	037
3,8	75	19	44,0	4	6	13,86	038
3,9	75	19	44,0	4	6	10,05	039
4,0	75	19	44,0	4	6	10,35	040
4,1	75	19	44,0	4	6	13,00	041
4,2	75	19	44,0	4	6	13,00	042
4,3	80	21	48,0	5	6	13,00	043
4,4	80	21	48,0	5	6	13,00	044
4,5	80	21	48,0	5	6	11,13	045
4,6	80	21	48,0	5	6	13,97	046
4,7	80	21	48,0	5	6	13,97	047
4,8	86	23	54,0	5	6	13,97	048
4,9	86	23	54,0	5	6	13,97	049
5,0	86	23	54,0	5	6	10,65	050
5,1	86	23	54,0	5	6	13,97	051
5,2	86	23	54,0	5	6	13,97	052
5,3	86	23	54,0	5	6	13,97	053
5,4	93	26	53,0	6	6	13,97	054
5,5	93	26	53,0	6	6	13,00	055
5,6	93	26	53,0	6	6	13,97	056
5,7	93	26	53,0	6	6	13,97	057
5,8	93	26	53,0	6	6	13,97	058
5,9	93	26	53,0	6	6	13,97	059
6,0	93	26	53,0	6	6	11,46	060
6,1	101	28	61,0	6	6	13,97	061
6,2	101	28	61,0	6	6	13,97	062
6,3	101	28	61,0	6	6	13,97	063
6,4	101	28	61,0	6	6	13,97	064
6,5	101	28	61,0	6	6	13,54	065
6,6	101	28	61,0	6	6	13,97	066
6,7	101	28	61,0	6	6	13,97	067
6,8	109	31	69,0	8	6	13,97	068

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 110 ... EUR U2	
6,9	109	31	69,0	8	6	13,97	069
7,0	109	31	69,0	8	6	13,54	070
7,1	109	31	69,0	8	6	15,83	071
7,2	109	31	69,0	8	6	15,83	072
7,3	109	31	69,0	8	6	15,83	073
7,4	109	31	69,0	8	6	15,83	074
7,5	109	31	69,0	8	6	15,60	075
7,6	117	33	77,0	8	6	16,59	076
7,7	117	33	77,0	8	6	16,59	077
7,8	117	33	77,0	8	6	16,59	078
7,9	117	33	77,0	8	6	16,59	079
8,0	117	33	77,0	8	6	13,97	080
8,1	117	33	77,0	8	6	19,21	081
8,2	117	33	77,0	8	6	19,21	082
8,3	117	33	77,0	8	6	19,21	083
8,4	117	33	77,0	8	6	19,21	084
8,5	117	33	77,0	8	6	17,79	085
8,6	125	36	81,0	10	6	18,00	086
8,7	125	36	81,0	10	6	18,00	087
8,8	125	36	81,0	10	6	18,00	088
8,9	125	36	81,0	10	6	18,00	089
9,0	125	36	81,0	10	6	16,26	090
9,1	125	36	81,0	10	6	18,66	091
9,2	125	36	81,0	10	6	18,66	092
9,3	125	36	81,0	10	6	18,66	093
9,4	125	36	81,0	10	6	18,66	094
9,5	125	36	81,0	10	6	18,13	095
9,6	133	38	89,0	10	6	18,99	096
9,7	133	38	89,0	10	6	18,99	097
9,8	133	38	89,0	10	6	18,99	098
9,9	133	38	89,0	10	6	18,99	099
10,0	133	38	89,0	10	6	16,59	100
11,0	142	41	98,0	10	6	23,25	110
12,0	151	44	106,0	10	6	24,23	120
13,0	151	44	106,0	10	6	26,97	130
14,0	160	47	110,0	14	8	27,94	140
15,0	162	50	112,0	14	8	28,60	150
16,0	170	52	120,0	14	8	29,69	160
17,0	175	54	125,0	14	8	35,47	170
18,0	182	56	132,0	14	8	36,45	180
19,0	189	58	136,0	16	8	42,35	190
20,0	195	60	142,0	16	8	40,72	200

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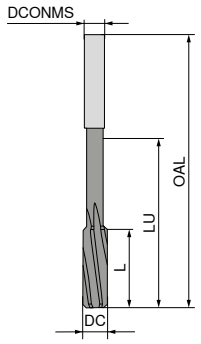
→ v_c Page 86+87

4

NC machine reamers, DIN 212-3-B

- 0.01 mm steps
- tolerance: Ø 1.00 – Ø 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – Ø 12.00 mm = +0.005 mm

NC 100



A
Left Hand Helix
HSS-E

40 115 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U2	
0,95 - 0,99	34	5,5	12,5	1	3	16,38	xxxxx 1)
1,00	34	5,5	12,5	1	3	15,60	01000
1,01	34	5,5	12,5	1	3	15,60	01010
1,02	34	5,5	12,5	1	3	15,60	01020
1,03 - 1,06	34	5,5	12,5	1	3	16,38	xxxxx 1)
1,07 - 1,18	36	6,5	13,0	1	3	16,38	xxxxx 1)
1,19 - 1,32	38	7,5	14,0	2	3	16,38	xxxxx 1)
1,33 - 1,41	40	8,0	15,5	2	3	16,38	xxxxx 1)
1,42 - 1,49	40	8,0	15,5	2	3	16,38	xxxxx 1)
1,50	40	8,0	15,5	2	3	13,54	01500
1,51	43	9,0	16,0	2	3	13,54	01510
1,52	43	9,0	16,0	2	3	13,54	01520
1,53 - 1,70	43	9,0	16,0	2	3	16,38	xxxxx 1)
1,71 - 1,90	46	10,0	19,0	2	4	16,38	xxxxx 1)
1,91 - 1,96	49	11,0	21,0	2	4	16,38	xxxxx 1)
1,97	49	11,0	21,0	2	4	13,54	01970
1,98	49	11,0	21,0	2	4	13,54	01980
1,99	49	11,0	21,0	2	4	13,54	01990
2,00	49	11,0	21,0	2	4	12,01	02000
2,01	49	11,0	21,0	2	4	12,01	02010
2,02	49	11,0	21,0	2	4	12,01	02020
2,03 - 2,12	49	11,0	21,0	2	4	16,38	xxxxx 1)
2,13 - 2,36	53	12,0	22,0	3	4	16,38	xxxxx 1)
2,37 - 2,47	57	14,0	26,0	3	4	16,38	xxxxx 1)
2,48	57	14,0	26,0	3	4	13,75	02480
2,49	57	14,0	26,0	3	4	13,75	02490
2,50	57	14,0	26,0	3	4	11,68	02500
2,51	57	14,0	26,0	3	4	11,68	02510
2,52	57	14,0	26,0	3	4	11,68	02520
2,53 - 2,65	57	14,0	26,0	3	4	16,38	xxxxx 1)
2,66 - 2,96	61	15,0	30,0	3	6	16,38	xxxxx 1)
2,97	61	15,0	30,0	3	6	14,09	02970
2,98	61	15,0	30,0	3	6	14,09	02980
2,99	61	15,0	30,0	3	6	14,09	02990
3,00	61	15,0	30,0	3	6	10,45	03000
3,01	61	15,0	30,0	3	6	10,45	03010
3,02	61	15,0	30,0	3	6	10,45	03020
3,03	61	15,0	30,0	3	6	16,38	03030 1)
3,04 - 3,35	65	16,0	34,0	4	6	16,38	xxxxx 1)
3,36 - 3,75	70	18,0	39,0	4	6	16,38	xxxxx 1)
3,76 - 3,96	75	19,0	44,0	4	6	16,38	xxxxx 1)
3,97	75	19,0	44,0	4	6	11,46	03970
3,98	75	19,0	44,0	4	6	11,46	03980
3,99	75	19,0	44,0	4	6	11,46	03990
4,00	75	19,0	44,0	4	6	11,46	04000
4,01	75	19,0	44,0	4	6	11,46	04010
4,02	75	19,0	44,0	4	6	11,46	04020
4,03 - 4,25	75	19,0	44,0	4	6	16,38	xxxxx 1)
4,26 - 4,75	80	21,0	48,0	5	6	16,38	xxxxx 1)
4,76 - 4,96	86	23,0	54,0	5	6	16,38	xxxxx 1)
4,97	86	23,0	54,0	5	6	12,44	04970
4,98	86	23,0	54,0	5	6	12,44	04980
4,99	86	23,0	54,0	5	6	12,44	04990
5,00	86	23,0	54,0	5	6	12,44	05000
5,01	86	23,0	54,0	5	6	12,44	05010
5,02	86	23,0	54,0	5	6	12,44	05020

40 115 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U2	
5,03 - 5,30	86	23,0	54,0	5	6	16,38	xxxxx 1)
5,31 - 5,60	93	26,0	53,0	6	6	16,38	xxxxx 1)
5,61 - 5,96	93	26,0	53,0	6	6	16,38	xxxxx 1)
5,97	93	26,0	53,0	6	6	13,75	05970
5,98	93	26,0	53,0	6	6	13,75	05980
5,99	93	26,0	53,0	6	6	13,75	05990
6,00	93	26,0	53,0	6	6	13,75	06000
6,01	93	26,0	53,0	6	6	13,75	06010
6,02	93	26,0	53,0	6	6	13,75	06020
6,03	93	26,0	53,0	6	6	16,38	06030 1)
6,04 - 6,70	101	28,0	61,0	6	6	16,38	xxxxx 1)
6,71 - 7,20	109	31,0	69,0	8	6	16,38	xxxxx 1)
7,21 - 7,50	109	31,0	69,0	8	6	16,38	xxxxx 1)
7,51 - 7,96	117	33,0	77,0	8	6	21,84	xxxxx 1)
7,97	117	33,0	77,0	8	6	14,74	07970
7,98	117	33,0	77,0	8	6	14,74	07980
7,99	117	33,0	77,0	8	6	14,74	07990
8,00	117	33,0	77,0	8	6	14,74	08000
8,01	117	33,0	77,0	8	6	14,74	08010
8,02	117	33,0	77,0	8	6	14,74	08020
8,03 - 8,20	117	33,0	77,0	8	6	21,84	xxxxx 1)
8,21 - 8,50	117	33,0	77,0	8	6	21,84	xxxxx 1)
8,51 - 8,99	125	36,0	81,0	10	6	21,84	xxxxx 1)
9,00	125	36,0	81,0	10	6	18,78	09000
9,01	125	36,0	81,0	10	6	18,78	09010
9,02	125	36,0	81,0	10	6	18,78	09020
9,03 - 9,20	125	36,0	81,0	10	6	21,84	xxxxx 1)
9,21 - 9,50	125	36,0	81,0	10	6	21,84	xxxxx 1)
9,51 - 9,96	133	38,0	89,0	10	6	32,53	xxxxx 1)
9,97	133	38,0	89,0	10	6	18,78	09970
9,98	133	38,0	89,0	10	6	18,78	09980
9,99	133	38,0	89,0	10	6	18,78	09990
10,00	133	38,0	89,0	10	6	18,78	10000
10,01	133	38,0	89,0	10	6	18,78	10010
10,02	133	38,0	89,0	10	6	18,78	10020
10,03 - 10,20	133	38,0	89,0	10	6	32,53	xxxxx 1)
10,21 - 10,60	133	38,0	89,0	10	6	32,53	xxxxx 1)
10,61 - 11,20	142	41,0	98,0	10	6	32,53	xxxxx 1)
11,21 - 11,80	142	41,0	98,0	10	6	32,53	xxxxx 1)
11,81 - 11,96	151	44,0	106,0	10	6	32,53	xxxxx 1)
11,97	151	44,0	106,0	10	6	26,97	11970
11,98	151	44,0	106,0	10	6	26,97	11980
11,99	151	44,0	106,0	10	6	26,97	11990
12,00	151	44,0	106,0	10	6	26,97	12000

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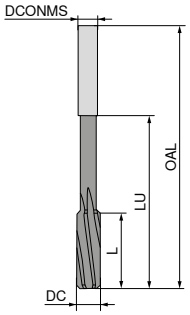
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 8 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

N



Left Hand Helix
HSS-E

40 150 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2	
1,0	34	5,5	15,0	1,0	3	18,55	010
1,1	36	6,5	15,5	1,1	3	19,54	011
1,2	38	7,5	16,5	1,2	3	18,13	012
1,3	38	7,5	16,5	1,2	3	20,19	013
1,4	40	8,0	18,0	1,4	3	16,59	014
1,5	40	8,0	18,0	1,5	3	15,39	015
1,6	43	9,0	20,0	1,6	3	16,91	016
1,7	43	9,0	20,0	1,6	3	16,91	017
1,8	46	10,0	22,0	1,8	4	16,91	018
1,9	46	10,0	22,0	1,8	4	16,91	019
2,0	49	11,0	24,0	2,0	4	15,06	020
2,1	49	11,0	24,0	2,0	4	18,13	021
2,2	53	12,0	25,0	2,2	4	18,13	022
2,3	53	12,0	25,0	2,2	4	18,13	023
2,4	57	14,0	29,0	2,5	4	18,13	024
2,5	57	14,0	29,0	2,5	4	15,06	025
2,6	57	14,0	29,0	2,5	4	18,78	026
2,7	61	15,0	33,0	2,8	6	18,78	027
2,8	61	15,0	33,0	2,8	6	18,78	028
2,9	61	15,0	36,0	3,0	6	18,78	029
3,0	61	15,0	36,0	3,0	6	13,42	030
3,1	65	16,0	36,0	3,2	6	17,79	031
3,2	65	16,0	36,0	3,2	6	17,79	032
3,3	65	16,0	36,0	3,2	6	17,79	033
3,4	70	18,0	41,0	3,5	6	17,79	034
3,5	70	18,0	41,0	3,5	6	15,72	035
3,6	70	18,0	41,0	3,5	6	19,76	036
3,7	70	18,0	41,0	3,5	6	19,76	037
3,8	75	19,0	44,0	4,0	6	19,76	038
3,9	75	19,0	44,0	4,0	6	14,51	039
4,0	75	19,0	44,0	4,0	6	15,06	040
4,1	75	19,0	44,0	4,0	6	18,55	041
4,2	75	19,0	44,0	4,0	6	18,55	042
4,3	80	21,0	48,0	4,5	6	18,55	043
4,4	80	21,0	48,0	4,5	6	18,55	044
4,5	80	21,0	48,0	4,5	6	15,72	045
4,6	80	21,0	48,0	4,5	6	20,19	046
4,7	80	21,0	48,0	4,5	6	20,19	047
4,8	86	23,0	53,0	5,0	6	20,19	048
4,9	86	23,0	53,0	5,0	6	20,19	049
5,0	86	23,0	53,0	5,0	6	15,39	050
5,1	86	23,0	53,0	5,0	6	20,19	051
5,2	86	23,0	53,0	5,0	6	20,19	052
5,3	86	23,0	53,0	5,0	6	20,19	053
5,4	93	26,0	58,0	5,6	6	20,19	054
5,5	93	26,0	58,0	5,6	6	18,55	055
5,6	93	26,0	58,0	5,6	6	20,19	056
5,7	93	26,0	58,0	5,6	6	20,19	057
5,8	93	26,0	58,0	5,6	6	20,19	058
5,9	93	26,0	58,0	5,6	6	20,19	059
6,0	93	26,0	58,0	5,6	6	16,05	060
6,1	101	28,0	64,0	6,3	6	20,19	061
6,2	101	28,0	64,0	6,3	6	20,19	062
6,3	101	28,0	64,0	6,3	6	20,19	063
6,4	101	28,0	64,0	6,3	6	20,19	064

40 150 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2	
6,5	101	28,0	64,0	6,3	6	19,54	065
6,6	101	28,0	64,0	6,3	6	20,19	066
6,7	101	28,0	64,0	6,3	6	20,19	067
6,8	109	31,0	70,0	7,1	6	20,53	068
6,9	109	31,0	70,0	7,1	6	20,53	069
7,0	109	31,0	70,0	7,1	6	19,54	070
7,1	109	31,0	70,0	7,1	6	22,59	071
7,2	109	31,0	70,0	7,1	6	22,59	072
7,3	109	31,0	70,0	7,1	6	22,59	073
7,4	109	31,0	70,0	7,1	6	22,59	074
7,5	109	31,0	70,0	7,1	6	21,84	075
7,6	117	33,0	76,0	8,0	6	23,68	076
7,7	117	33,0	76,0	8,0	6	23,68	077
7,8	117	33,0	76,0	8,0	6	23,68	078
7,9	117	33,0	76,0	8,0	6	23,68	079
8,0	117	33,0	76,0	8,0	6	20,19	080
8,1	117	33,0	76,0	8,0	6	28,06	081
8,2	117	33,0	76,0	8,0	6	28,06	082
8,3	117	33,0	76,0	8,0	6	28,06	083
8,4	117	33,0	76,0	8,0	6	28,06	084
8,5	117	33,0	76,0	8,0	6	25,43	085
8,6	125	36,0	82,0	9,0	6	25,76	086
8,7	125	36,0	82,0	9,0	6	25,76	087
8,8	125	36,0	82,0	9,0	6	25,76	088
8,9	125	36,0	82,0	9,0	6	25,76	089
9,0	125	36,0	82,0	9,0	6	23,25	090
9,1	125	36,0	82,0	9,0	6	26,75	091
9,2	125	36,0	82,0	9,0	6	26,75	092
9,3	125	36,0	82,0	9,0	6	26,75	093
9,4	125	36,0	82,0	9,0	6	26,75	094
9,5	125	36,0	82,0	9,0	6	25,98	095
9,6	133	38,0	88,0	10,0	6	27,83	096
9,7	133	38,0	88,0	10,0	6	27,83	097
9,8	133	38,0	88,0	10,0	6	27,83	098
9,9	133	38,0	88,0	10,0	6	27,83	099
10,0	133	38,0	88,0	10,0	6	23,68	100
11,0	142	41,0	97,0	10,0	6	33,40	110
12,0	151	44,0	106,0	10,0	6	34,82	120
13,0	151	44,0	106,0	10,0	6	38,86	130
14,0	160	47,0	111,0	12,5	8	40,17	140
15,0	162	50,0	113,0	12,5	8	41,58	150
16,0	170	52,0	121,0	12,5	8	42,90	160
17,0	175	54,0	124,0	14,0	8	50,76	170
18,0	182	56,0	131,0	14,0	8	52,07	180
19,0	189	58,0	132,0	16,0	8	61,02	190
20,0	195	60,0	136,0	16,0	8	58,17	200

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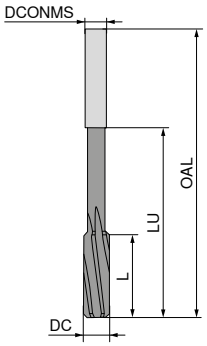
→ v_c Page 88+89

4

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 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	40 140 ... EUR U2	
0,95 - 1,06	34	5,5	15,0	1,0	3	21,07	xxxxx 1)
1,07 - 1,18	36	6,5	15,5	1,1	3	21,07	xxxxx 1)
1,19 - 1,32	38	7,5	16,5	1,2	3	21,07	xxxxx 1)
1,33 - 1,39	40	8,0	18,0	1,4	3	21,07	xxxxx 1)
1,40 - 1,47	40	8,0	18,0	1,4	3	19,44	xxxxx 1)
1,48	40	8,0	18,0	1,4	3	19,44	01480
1,49	40	8,0	18,0	1,4	3	19,44	01490
1,50	40	8,0	18,0	1,4	3	18,45	01500
1,51 - 1,70	43	9,0	20,0	1,6	3	18,45	xxxxx 1)
1,71 - 1,90	46	10,0	22,0	1,8	4	18,45	xxxxx 1)
1,91 - 1,97	49	11,0	24,0	2,0	4	18,45	xxxxx 1)
1,98	49	11,0	24,0	2,0	4	18,45	01980
1,99	49	11,0	24,0	2,0	4	18,45	01990
2,00	49	11,0	24,0	2,0	4	16,91	02000
2,01	49	11,0	24,0	2,0	4	16,91	02010
2,02	49	11,0	24,0	2,0	4	16,91	02020
2,03	49	11,0	24,0	2,0	4	16,91	02030
2,04	49	11,0	24,0	2,0	4	16,91	02040
2,05	49	11,0	24,0	2,0	4	16,91	02050
2,06 - 2,09	49	11,0	24,0	2,0	4	16,91	xxxxx 1)
2,10 - 2,12	49	11,0	24,0	2,0	4	19,64	xxxxx 1)
2,13 - 2,36	53	12,0	25,0	2,2	4	19,64	xxxxx 1)
2,37 - 2,49	57	14,0	29,0	2,5	4	19,64	xxxxx 1)
2,50 - 2,59	57	14,0	29,0	2,5	4	16,70	xxxxx 1)
2,60 - 2,65	57	14,0	29,0	2,5	4	20,53	xxxxx 1)
2,66 - 2,80	61	15,0	33,0	2,8	6	20,53	xxxxx 1)
2,81 - 2,94	61	15,0	36,0	3,0	6	20,53	xxxxx 1)
2,95	61	15,0	36,0	3,0	6	20,53	02950
2,96	61	15,0	36,0	3,0	6	20,53	02960
2,97	61	15,0	36,0	3,0	6	20,53	02970
2,98	61	15,0	36,0	3,0	6	20,53	02980
2,99	61	15,0	36,0	3,0	6	20,53	02990
3,00	61	15,0	36,0	3,0	6	15,39	03000
3,01	65	16,0	36,0	3,2	6	15,39	03010
3,02	65	16,0	36,0	3,2	6	15,39	03020
3,03	65	16,0	36,0	3,2	6	15,39	03030
3,04	65	16,0	36,0	3,2	6	15,39	03040
3,05	65	16,0	36,0	3,2	6	15,39	03050
3,06	65	16,0	36,0	3,2	6	15,39	03060
3,07	65	16,0	36,0	3,2	6	15,39	03070
3,08 - 3,09	65	16,0	36,0	3,2	6	15,39	xxxxx 1)
3,10 - 3,35	65	16,0	36,0	3,2	6	19,44	xxxxx 1)
3,36 - 3,49	70	18,0	41,0	3,5	6	19,44	xxxxx 1)
3,50 - 3,59	70	18,0	41,0	3,5	6	16,70	xxxxx 1)
3,60 - 3,75	70	18,0	41,0	3,5	6	21,50	xxxxx 1)
3,76 - 3,81	75	19,0	44,0	4,0	6	21,50	xxxxx 1)
3,82 - 3,94	75	19,0	44,0	4,0	6	16,26	xxxxx 1)
3,95	75	19,0	44,0	4,0	6	16,26	03950
3,96	75	19,0	44,0	4,0	6	16,26	03960
3,97	75	19,0	44,0	4,0	6	16,26	03970
3,98	75	19,0	44,0	4,0	6	16,26	03980
3,99	75	19,0	44,0	4,0	6	16,26	03990

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	40 140 ... EUR U2	
4,00	75	19,0	44,0	4,0	6	16,26	04000
4,01	75	19,0	44,0	4,0	6	16,26	04010
4,02	75	19,0	44,0	4,0	6	16,26	04020
4,03	75	19,0	44,0	4,0	6	16,26	04030
4,04	75	19,0	44,0	4,0	6	16,26	04040
4,05	75	19,0	44,0	4,0	6	16,26	04050
4,06	75	19,0	44,0	4,0	6	16,26	04060
4,07	75	19,0	44,0	4,0	6	16,26	04070
4,08	75	19,0	44,0	4,0	6	16,26	04080
4,09 - 4,20	75	19,0	44,0	4,0	6	16,26	xxxxx 1)
4,21 - 4,25	75	19,0	44,0	4,0	6	20,19	xxxxx 1)
4,26 - 4,75	80	21,0	48,0	4,5	5	20,19	xxxxx 1)
4,76 - 4,95	86	23,0	53,0	5,0	6	18,00	xxxxx 1)
4,96	86	23,0	53,0	5,0	6	18,00	04960
4,97	86	23,0	53,0	5,0	6	18,00	04970
4,98	86	23,0	53,0	5,0	6	18,00	04980
4,99	86	23,0	53,0	5,0	6	18,00	04990
5,00	86	23,0	53,0	5,0	6	18,00	05000
5,01	86	23,0	53,0	5,0	6	18,00	05010
5,02	86	23,0	53,0	5,0	6	18,00	05020
5,03	86	23,0	53,0	5,0	6	18,00	05030
5,04	86	23,0	53,0	5,0	6	18,00	05040
5,05	86	23,0	53,0	5,0	6	18,00	05050
5,06	86	23,0	53,0	5,0	6	18,00	05060
5,07	86	23,0	53,0	5,0	6	18,00	05070
5,08 - 5,20	86	23,0	53,0	5,0	6	18,00	xxxxx 1)
5,21 - 5,30	86	23,0	53,0	5,0	6	19,64	xxxxx 1)
5,31 - 5,94	93	26,0	58,0	5,6	6	19,64	xxxxx 1)
5,95	93	26,0	58,0	5,6	6	19,64	05950
5,96	93	26,0	58,0	5,6	6	19,64	05960
5,97	93	26,0	58,0	5,6	6	19,64	05970
5,98	93	26,0	58,0	5,6	6	19,64	05980
5,99	93	26,0	58,0	5,6	6	19,64	05990

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→ v_c Page 88+89

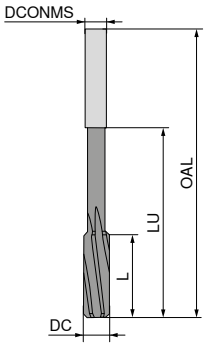
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required 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 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	40 140 ... EUR U2	
6,00	93	26	58	5,6	6	19,64	06000
6,01	101	28	64	6,3	6	19,64	06010
6,02	101	28	64	6,3	6	19,64	06020
6,03	101	28	64	6,3	6	19,64	06030
6,04	101	28	64	6,3	6	19,64	06040
6,05	101	28	64	6,3	6	19,64	06050
6,06 - 6,11	101	28	64	6,3	6	19,64	xxxxx 1)
6,12 - 6,34	101	28	64	6,3	6	21,50	xxxxx 1)
6,35	101	28	64	6,3	6	21,50	06350
6,36	101	28	64	6,3	6	21,50	06360 1)
6,71 - 6,94	109	31	70	7,1	6	21,50	xxxxx 1)
6,95	109	31	70	7,1	6	21,50	06950
6,96	109	31	70	7,1	6	21,50	06960
6,97	109	31	70	7,1	6	21,50	06970
6,98	109	31	70	7,1	6	21,50	06980
6,99	109	31	70	7,1	6	21,50	06990
7,00	109	31	70	7,1	6	21,50	07000
7,01	109	31	70	7,1	6	21,50	07010
7,02	109	31	70	7,1	6	21,50	07020
7,03	109	31	70	7,1	6	21,50	07030
7,04 - 7,50	109	31	70	7,1	6	21,50	xxxxx 1)
7,51 - 7,63	109	31	76	7,1	6	21,50	xxxxx 1)
7,64 - 7,94	117	33	76	8,0	6	21,50	xxxxx 1)
7,95	117	33	76	8,0	6	21,50	07950
7,96	117	33	76	8,0	6	21,50	07960
7,97	117	33	76	8,0	6	21,50	07970
7,98	117	33	76	8,0	6	21,50	07980
7,99	117	33	76	8,0	6	21,50	07990
8,00	117	33	76	8,0	6	21,50	08000
8,01	117	33	76	8,0	6	21,50	08010
8,02	117	33	76	8,0	6	21,50	08020
8,03	117	33	76	8,0	6	21,50	08030
8,04	117	33	76	8,0	6	21,50	08040
8,05	117	33	76	8,0	6	21,50	08050
8,06 - 8,20	117	33	76	8,0	6	21,50	xxxxx 1)
8,21 - 8,50	117	33	76	8,0	6	27,07	xxxxx 1)
8,51 - 8,63	117	33	82	8,0	6	27,07	xxxxx 1)
8,64 - 8,95	125	36	82	9,0	6	27,07	xxxxx 1)
8,96	125	36	82	9,0	6	27,07	08960
8,97	125	36	82	9,0	6	27,07	08970
8,98	125	36	82	9,0	6	27,07	08980
8,99	125	36	82	9,0	6	27,07	08990
9,00	125	36	82	9,0	6	27,07	09000
9,01	125	36	82	9,0	6	27,07	09010
9,02	125	36	82	9,0	6	27,07	09020
9,03 - 9,50	125	36	82	9,0	6	27,07	xxxxx 1)
9,51 - 9,63	125	36	88	9,0	6	27,07	xxxxx 1)
9,64 - 9,95	133	38	88	10,0	6	27,07	xxxxx 1)
9,96	133	38	88	10,0	6	27,07	09960
9,97	133	38	88	10,0	6	27,07	09970
9,98	133	38	88	10,0	6	27,07	09980
9,99	133	38	88	10,0	6	27,07	09990

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	40 140 ... EUR U2	
10,00	133	38	88	10,0	6	27,07	10000
10,01	133	38	88	10,0	6	27,07	10010
10,02	133	38	88	10,0	6	27,07	10020
10,03	133	38	88	10,0	6	27,07	10030
10,04	133	38	88	10,0	6	27,07	10040
10,05	133	38	88	10,0	6	27,07	10050
10,06 - 10,09	133	38	88	10,0	6	27,07	xxxxx 1)
10,10	133	38	88	10,0	6	27,07	10100
10,11 - 10,19	133	38	88	10,0	6	27,07	xxxxx 1)
10,20	133	38	88	10,0	6	27,07	10200
10,21 - 10,69	133	38	88	10,0	6	33,95	xxxxx 1)
10,70 - 11,20	142	41	97	10,0	6	33,95	xxxxx 1)
11,21 - 11,80	142	41	97	10,0	6	38,75	xxxxx 1)
11,81 - 11,95	151	44	106	10,0	6	38,75	xxxxx 1)
11,96	151	44	106	10,0	6	38,75	11960
11,97	151	44	106	10,0	6	38,75	11970
11,98	151	44	106	10,0	6	38,75	11980
11,99	151	44	106	10,0	6	38,75	11990
12,00	151	44	106	10,0	6	38,75	12000

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→ v_c Page 88+89

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

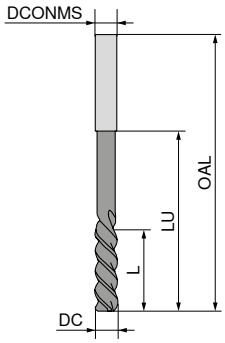
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

4

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

40 155 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2	
1,0	34	5,5	15	1,0	2	21,28	010 1)
1,5	40	8,0	18	1,5	2	16,38	015 1)
1,8	46	10,0	22	1,8	2	19,76	018 1)
2,0	49	11,0	24	2,0	3	16,59	020 1)
2,2	53	12,0	25	2,2	3	25,00	022 1)
2,5	57	14,0	29	2,5	3	17,90	025 1)
2,8	61	15,0	33	2,8	3	27,61	028 1)
3,0	61	15,0	36	3,0	3	20,09	030 1)
3,2	65	16,0	36	3,2	3	29,69	032 1)
3,5	70	18,0	41	3,5	3	23,03	035 1)
4,0	75	19,0	44	4,0	3	20,09	040
4,5	80	21,0	48	4,5	3	23,03	045
5,0	86	23,0	53	5,0	3	21,94	050
6,0	93	26,0	58	5,6	3	21,72	060
6,5	101	28,0	64	6,3	3	25,98	065
7,0	109	31,0	70	7,1	3	24,34	070
8,0	117	33,0	76	8,0	3	24,34	080
9,0	125	36,0	82	9,0	3	32,41	090
10,0	133	38,0	88	10,0	3	30,67	100
11,0	142	41,0	97	10,0	3	39,18	110
12,0	151	44,0	106	10,0	3	36,89	120
13,0	151	44,0	106	10,0	3	51,95	130
14,0	160	47,0	111	12,5	3	48,36	140
15,0	162	50,0	113	12,5	3	49,23	150
16,0	170	52,0	121	12,5	3	51,95	160
17,0	175	54,0	124	14,0	3	77,39	170
18,0	182	56,0	131	14,0	3	71,06	180
19,0	189	58,0	132	16,0	3	80,34	190
20,0	195	60,0	136	16,0	3	77,39	200

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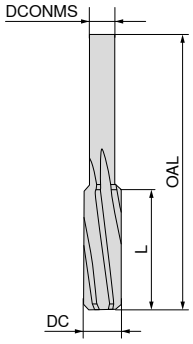
→ v_c Page 88+89

1) not standardised

Stub reamers, DIN 8089-B

AR



Left Hand Helix
HSS-E
Through hole

40 145 ...

DC H7 mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	EUR U2	
4,0	56	20	3,55	6	14,51	040
4,5	63	22	4,00	6	16,59	045
5,0	63	22	4,00	6	16,05	050
5,5	63	22	5,00	6	18,55	055
6,0	63	22	5,00	6	16,05	060
6,5	63	22	5,00	6	19,54	065
7,0	71	25	6,30	6	19,54	070
8,0	71	25	6,30	6	19,10	080
9,0	71	25	8,00	6	23,03	090
10,0	71	25	8,00	6	23,25	100
11,0	80	28	10,00	6	31,87	110
12,0	80	28	10,00	6	34,05	120
13,0	80	28	10,00	6	38,21	130
14,0	90	32	12,50	8	38,86	140
15,0	90	32	12,50	8	40,17	150
16,0	90	32	12,50	8	42,35	160
17,0	90	32	12,50	8	48,46	170
18,0	100	36	16,00	8	51,52	180
19,0	100	36	16,00	8	59,71	190
20,0	100	36	16,00	8	56,22	200

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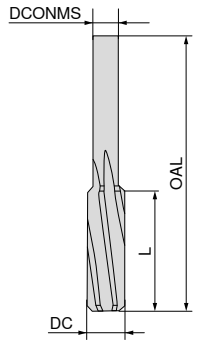
→ v_c Page 88+89

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



HSS-E
Left Hand Helix

DC mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	40 139 ... EUR U2	
3,76 - 3,81	56	20	3,55	6	22,27	xxxxx 1)
3,82 - 3,94	56	20	3,55	6	16,26	xxxxx 1)
3,95	56	20	3,55	6	16,26	03950
3,96	56	20	3,55	6	16,26	03960
3,97	56	20	3,55	6	16,26	03970
3,98	56	20	3,55	6	16,26	03980
3,99	56	20	3,55	6	16,26	03990
4,00	56	20	3,55	6	16,26	04000
4,01	56	20	3,55	6	16,26	04010
4,02	56	20	3,55	6	16,26	04020
4,03 - 4,20	56	20	3,55	6	16,26	xxxxx 1)
4,21 - 4,25	56	20	3,55	6	19,64	xxxxx 1)
4,26 - 4,75	63	22	4,00	6	19,64	xxxxx 1)
4,76 - 4,94	63	22	4,00	6	17,24	xxxxx 1)
4,95	63	22	4,00	6	17,24	04950
4,96	63	22	4,00	6	17,24	04960
4,97	63	22	4,00	6	17,24	04970
4,98	63	22	4,00	6	17,24	04980
4,99	63	22	4,00	6	17,24	04990
5,00	63	22	4,00	6	17,24	05000
5,01	63	22	4,00	6	17,24	05010
5,02	63	22	4,00	6	17,24	05020
5,03	63	22	4,00	6	17,24	05030
5,04	63	22	4,00	6	17,24	05040
5,05	63	22	4,00	6	17,24	05050
5,06 - 5,20	63	22	4,00	6	17,24	xxxxx 1)
5,21 - 5,30	63	22	4,00	6	19,64	xxxxx 1)
5,31 - 5,70	63	22	5,00	6	19,64	xxxxx 1)
5,71 - 5,94	63	22	5,00	6	19,64	xxxxx 1)
5,95	63	22	5,00	6	19,64	05950
5,96	63	22	5,00	6	19,64	05960
5,97	63	22	5,00	6	19,64	05970
5,98	63	22	5,00	6	19,64	05980
5,99	63	22	5,00	6	19,64	05990
6,00	63	22	5,00	6	19,64	06000
6,01	63	22	5,00	6	19,64	06010
6,02	63	22	5,00	6	19,64	06020
6,03 - 6,11	63	22	5,00	6	19,64	xxxxx 1)
6,12 - 6,70	63	22	5,00	6	21,07	xxxxx 1)
6,71 - 6,94	71	25	6,30	6	21,07	xxxxx 1)
6,95	71	25	6,30	6	21,07	06950
6,96	71	25	6,30	6	21,07	06960
6,97	71	25	6,30	6	21,07	06970
6,98	71	25	6,30	6	21,07	06980
6,99	71	25	6,30	6	21,07	06990
7,00	71	25	6,30	6	21,07	07000
7,01	71	25	6,30	6	21,07	07010
7,02	71	25	6,30	6	21,07	07020
7,03 - 7,25	71	25	6,30	6	21,07	xxxxx 1)
7,26 - 7,94	71	25	6,30	6	21,07	xxxxx 1)
7,95	71	25	6,30	6	21,07	07950
7,96	71	25	6,30	6	21,07	07960

DC mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	40 139 ... EUR U2	
7,97	71	25	6,30	6	21,07	07970
7,98	71	25	6,30	6	21,07	07980
7,99	71	25	6,30	6	21,07	07990
8,00	71	25	6,30	6	21,07	08000
8,01	71	25	6,30	6	21,07	08010
8,02	71	25	6,30	6	21,07	08020
8,03	71	25	6,30	6	21,07	08030
8,04	71	25	6,30	6	21,07	08040
8,05 - 8,20	71	25	6,30	6	21,07	xxxxx 1)
8,21 - 8,50	71	25	6,30	6	26,63	xxxxx 1)
8,51 - 8,94	71	25	8,00	6	26,63	xxxxx 1)
8,95	71	25	8,00	6	26,63	08950
8,96	71	25	8,00	6	26,63	08960
8,97	71	25	8,00	6	26,63	08970
8,98	71	25	8,00	6	26,63	08980
8,99	71	25	8,00	6	26,63	08990
9,00	71	25	8,00	6	26,63	09000
9,01	71	25	8,00	6	26,63	09010 1)
9,02	71	25	8,00	6	26,63	09020
9,03 - 9,25	71	25	8,00	6	26,63	xxxxx
9,26 - 9,94	71	25	8,00	6	26,63	xxxxx 1)
9,95	71	25	8,00	6	26,63	09950
9,96	71	25	8,00	6	26,63	09960
9,97	71	25	8,00	6	26,63	09970
9,98	71	25	8,00	6	26,63	09980
9,99	71	25	8,00	6	26,63	09990
10,00	71	25	8,00	6	26,63	10000
10,01	71	25	8,00	6	26,63	10010
10,02	71	25	8,00	6	26,63	10020
10,03 - 10,20	71	25	8,00	6	26,63	xxxxx 1)
10,21 - 10,60	71	25	8,00	6	33,95	xxxxx 1)
10,61 - 11,20	80	28	10,00	6	33,95	xxxxx 1)
11,21 - 11,25	80	28	10,00	6	39,52	xxxxx 1)
11,26 - 11,94	80	28	10,00	6	39,52	xxxxx 1)
11,95	80	28	10,00	6	39,52	11950
11,96	80	28	10,00	6	39,52	11960
11,97	80	28	10,00	6	39,52	11970
11,98	80	28	10,00	6	39,52	11980
11,99	80	28	10,00	6	39,52	11990
12,00	80	28	10,00	6	39,52	12000

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→ v_c Page 88+89

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

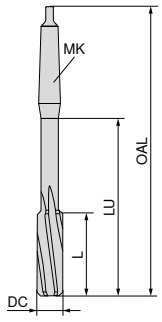
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 139 10060)!

4

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

40 160 ...

DC H7 mm	OAL mm	L mm	LU mm	MK	ZEFP	EUR U2	
16	210	52	130	2	8	49,78	160
17	214	54	134	2	8	53,49	170
18	219	56	139	2	8	55,46	180
19	223	58	143	2	8	58,17	190
20	228	60	148	2	8	58,17	200
21	232	62	152	2	8	66,15	210
22	237	64	157	2	8	66,15	220
23	241	66	161	2	8	76,08	230
24	268	68	169	3	8	78,04	240
25	268	68	169	3	8	80,34	250
26	273	70	174	3	8	86,02	260
27	277	71	178	3	10	95,40	270
28	277	71	178	3	10	95,40	280
29	281	73	182	3	10	106,60	290
30	281	73	182	3	10	98,57	300
32	317	77	193	4	10	130,00	320
34	321	78	197	4	10	144,10	340
35	321	78	197	4	10	144,10	350
36	325	79	201	4	10	158,30	360
38	329	81	205	4	10	172,40	380
40	329	81	205	4	10	173,60	400
42	333	82	209	4	12	189,90	420
44	336	83	212	4	12	225,90	440
45	336	83	212	4	12	227,10	450
46	340	84	216	4	12	268,50	460
47	340	84	216	4	12	282,70	470
48	344	86	220	4	12	283,80	480
50	344	86	220	4	12	283,80	500

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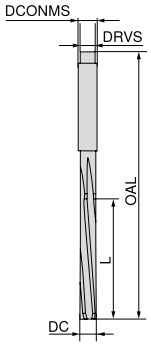
Hand reamers, DIN 206-B

H



Left Hand Helix
HSS

40 100 ...

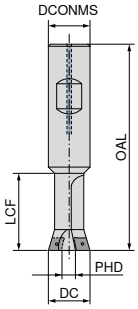
DC H7 mm	OAL mm	L mm	DRVS mm	DCONMS mm	ZEFP	EUR U2	
1,0	34	13		1,0	3	27,40	010
1,2	38	17		1,2	3	25,98	012
1,3	38	17		1,3	3	27,51	013
1,4	41	20	1,12	1,4	3	23,79	014
1,5	41	20	1,12	1,5	3	21,94	015
1,6	44	21	1,25	1,6	3	23,36	016
1,8	47	23	1,40	1,8	4	25,00	018
2,0	50	25	1,60	2,0	4	20,30	020
2,2	54	27	1,80	2,2	4	23,79	022
2,5	58	29	2,00	2,5	4	20,09	025
2,8	62	31	2,24	2,8	6	24,67	028
3,0	62	31	2,24	3,0	6	20,95	030
3,2	66	33	25,00	3,2	6	25,98	032
3,5	71	35	2,80	3,5	6	24,67	035
4,0	76	38	3,15	4,0	6	17,90	040
4,5	81	41	3,55	4,5	6	21,72	045
5,0	87	44	4,00	5,0	6	20,95	050
5,5	93	47	4,50	5,5	6	22,48	055
6,0	93	47	4,50	6,0	6	20,30	060
7,0	107	54	5,60	7,0	6	21,94	070
8,0	115	58	6,30	8,0	6	23,03	080
9,0	124	62	7,10	9,0	6	25,98	090
10,0	133	66	8,00	10,0	6	25,98	100
11,0	142	71	9,00	11,0	6	28,71	110
12,0	152	76	10,00	12,0	6	31,00	120
13,0	152	76	10,00	13,0	6	45,74	130
14,0	163	81	11,20	14,0	8	49,78	140
15,0	163	81	11,20	15,0	8	52,73	150
16,0	175	87	12,50	16,0	8	54,58	160
17,0	175	87	14,00	17,0	8	57,75	170
18,0	188	93	14,00	18,0	8	63,96	180
19,0	188	93	14,00	19,0	8	68,99	190
20,0	201	100	16,00	20,0	8	67,78	200
22,0	215	107	18,00	22,0	8	78,04	220
24,0	231	115	20,00	24,0	8	93,54	240
25,0	231	115	20,00	25,0	8	92,45	250
26,0	231	115	20,00	26,0	8	98,57	260
28,0	247	124	22,40	28,0	10	126,60	280
30,0	247	124	22,40	30,0	10	132,10	300
32,0	265	133	25,00	32,0	10	146,40	320
34,0	284	142	28,00	34,0	10	177,90	340
35,0	284	142	28,00	35,0	10	179,00	350
36,0	284	142	28,00	36,0	10	195,40	360
38,0	305	152	31,50	38,0	10	227,10	380
40,0	305	152	31,50	40,0	10	236,80	400

P	●
M	○
K	●
N	●
S	○
H	
O	●

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 (page 54)

Supply details:
Indexable insert countersink including clamping screws



4

B

for screws	DC mm	PHD mm	DCONMS h6 mm	OAL mm	LCF mm	Insert	30 195 ... EUR U3	
M8	15	4,0	16	90	25	CC.T 060204	90,06	**015**
M10	18	7,0	16	90	31	CC.T 060204	95,58	**018**
M12	20	9,0	20	100	40	CC.T 060204	98,49	**020**
M16	26	8,5	25	110	52	CC.T 09T304	106,90	**026**
M20	33	15,5	32	130	66	CC.T 09T304	112,40	**033**

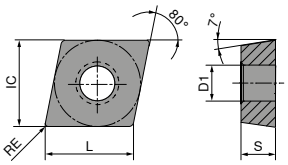
Key D

Clamping screw

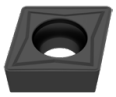
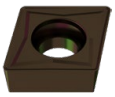
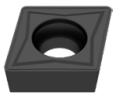
Spare parts Insert		80 950 ... EUR Y7			70 950 ... EUR 2A	
CC.T 060204	T08	8,03	**110**	M2,5x6	2,43	**112**
CC.T 09T304	T15	9,56	**113**	M3,5x7,2	3,30	**110**

CCMT / CCGT

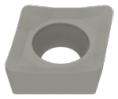
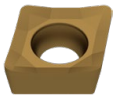
Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52



CCMT

		-SM CTCP125		-SM CTCP135		-SM CTCK110	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
							
		M CCMT 76 252 ...		M CCMT 76 252 ...		M CCMT 70 252 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08	
060204EN	0,4	8,17	504	8,17	704	8,17	004
060208EN	0,8			8,17	706	8,17	006
09T304EN	0,4	10,19	516	10,19	716	10,19	016
09T308EN	0,8	10,19	518	10,19	718	10,19	018
09T312EN	1,2					10,19	020
P		●		●		○	
M				○			
K		○				●	
N							
S							
H							
O							

CCGT

		-27 H10T		-27 CWN15	
					
		M CCGT 70 254 ...		M CCGT 70 254 ...	
ISO	RE mm	EUR 1A/90		EUR 1A	
060202FN	0,2	10,73	600	13,62	300
060204FN	0,4	10,73	602	13,62	302
09T302FN	0,2	11,46	604	14,08	304
09T304FN	0,4	11,46	606	14,08	306
09T308FN	0,8	11,46	608	14,08	308
P					
M				○	
K			○		
N			●		●
S					
H					
O			○		

Additional inserts can be found in → **Chapter 9, Turning Tools**

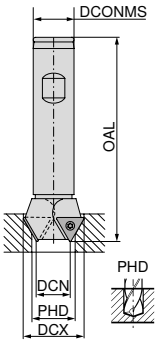
Insert countersink 90°

Supply details:

Indexable insert countersink including clamping screws

WPS

NEW



DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 196 ... EUR U1	
19	7	9,5	2	2	16	100	TOHX 090204	229,30	**19000**
23	11	12,0	2	2	16	100	TOHX 090204	232,50	**23000**
26	11	12,0	1	2	16	100	TOHX 090204	234,60	**26000**
30	12	13,0	2	2	20	100	TOHX 140305	245,40	**30000**
34	16	17,0	2	2	20	100	TOHX 140305	249,60	**34000**
37	19	20,0	2	2	20	100	TOHX 140305	249,60	**37000**

TORX® Screws

Key D

Spare parts DCX		62 950 ... EUR W7			80 950 ... EUR Y7	
19 - 26	M2,6x6,2 - 08IP	2,43	**09900**	T08 - IP	10,51	**125**
30 - 37	M3,5x7,3 - 10IP	2,43	**12600**	T10 - IP	11,91	**127**

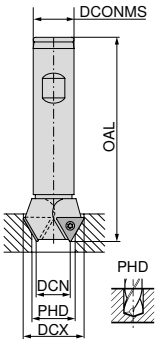
Insert countersink 60°

Supply details:

Indexable insert countersink including clamping screws

WPS

NEW



DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 197 ... EUR U1	
16,5	8,1	8,5	1	1	16	100	TOHX 090204	232,50	**16500**
20,0	11,6	12,0	2	2	16	100	TOHX 090204	234,60	**20000**
22,0	13,6	14,0	2	2	16	100	TOHX 090204	245,40	**22000**
23,5	15,1	15,5	2	2	16	100	TOHX 090204	249,60	**23500**
25,5	17,1	17,5	2	2	16	100	TOHX 090204	249,60	**25500**

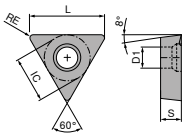
TORX® Screws

Key D

Spare parts DCX		62 950 ... EUR W7			80 950 ... EUR Y7	
16,5 - 22	M2,6x5,2 - 08IP	2,43	**12000**	T08 - IP	10,51	**125**
23,5 - 25,5	M2,6x6,2 - 08IP	2,43	**09900**	T08 - IP	10,51	**125**

TOHX

Designation	L mm	S mm	D1 mm	IC mm
090204EN	9,12	2,50	2,8	5,6
090204FN	9,12	2,50	2,8	5,6
140305EN	13,62	3,00	3,8	8,2
140305FN	13,62	3,00	3,8	8,2



4

TOHX

		NEW	NEW	NEW
		-G06 BK8425	-U877 BK8425	-G12 BK8425
		F TOHX 62 602 ...	F TOHX 62 604 ...	F TOHX 62 603 ...
ISO	RE mm	EUR 1A/3#	EUR 1A/3#	EUR 1A/3#
090204EN	0,4		22,49 31400	23,15 31400
140305EN	0,5	25,99 33000		
P		●	●	●
M		●	●	●
K		●	●	●
N				
S		●	●	●
H		○	○	○
O				

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TOHX

		NEW	NEW
		-U877 K10	-G12 K10
		F TOHX 62 604 ...	F TOHX 62 603 ...
ISO	RE mm	EUR 1A/3#	EUR 1A/3#
090204EN	0,4	19,88 51400	
090204FN	0,4		19,01 51600
140305FN	0,5		22,17 52800
P			
M			
K			
N		●	●
S		●	●
H			
O		●	●

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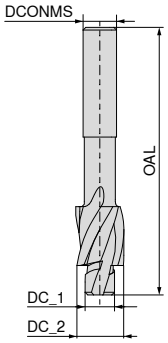
Counterbore, DIN 373

- 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 mm	DCONMS h9 mm	OAL mm	DC_1 e8 mm	30 192 ... EUR U1		30 190 ... EUR U1		30 191 ... EUR U1	
M3	6	5,0	71	2,5	13,86	030				
M3	6	5,0	71	3,2			13,86	030 1)		
M3	6	5,0	71	3,4					13,86	030 1)
M4	8	5,0	71	3,3	11,25	040				
M4	8	5,0	71	4,3			11,25	040 1)		
M4	8	5,0	71	4,5					11,25	040 1)
M5	10	8,0	80	4,2	12,33	050				
M5	10	8,0	80	5,3			12,33	050 1)		
M5	10	8,0	80	5,5					12,33	050 1)
M6	11	8,0	80	5,0	13,20	060				
M6	11	8,0	80	6,4			13,20	060 1)		
M6	11	8,0	80	6,6					13,20	060 1)
M8	15	12,5	100	6,8	21,07	080				
M8	15	12,5	100	8,4			21,07	080 1)		
M8	15	12,5	100	9,0					21,07	080 1)
M10	18	12,5	100	8,5	24,88	100				
M10	18	12,5	100	10,5			24,88	100 1)		
M10	18	12,5	100	11,0					24,88	100 1)
M12	20	12,5	100	10,2	27,40	120				
M12	20	12,5	100	13,0			27,40	120		
M12	20	12,5	100	13,5					27,40	120
P						●		●		●
M						●		●		●
K						●		●		●
N						●		●		●
S						○		○		○
H										
O						●		●		●

1) Included in the set

→ v_c Page 96

Counterbore, DIN 373 – Set

Scope of supply:

Counterbores M3; M4; M5; M6; M8; M10 in case

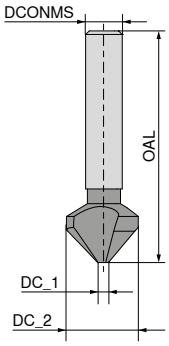
30 190 ... EUR U1		30 191 ... EUR U1	
107,40	999	107,40	999

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 mm	DC_1 mm	DCONMS h6 mm	OAL mm	DIN 7991	30 116 ... EUR U1	
6,3	1,5	5	45	M3	123,80	**063**
8,3	2,0	6	50	M4	133,10	**083**
10,4	2,5	6	50	M5	138,90	**104**
12,4	2,8	8	56	M6	145,70	**124**
16,5	3,2	10	60	M8	178,20	**165**
20,5	3,5	10	63	M10	204,90	**205**
25,0	3,8	10	67	M12	236,20	**250**
31,0	4,2	12	71	M16	280,10	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

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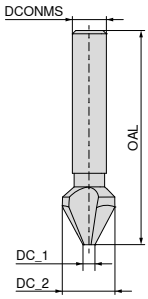
Countersink 60° factory standard-C

▲ 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

30 160 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	EUR U1	
12,5	3,2	8	56	181,80	**125**
16,0	4,0	10	63	253,50	**160**
20,0	5,0	10	67	291,70	**200**
25,0	6,3	10	71	322,90	**250**

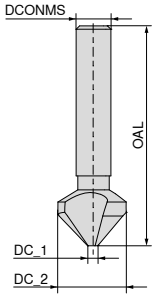
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 92

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.

N



90°
Solid carbide

30 115 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	EUR U1	
10,4	2,5	8	46	M5		135,50	**100**
12,4	2,8	8	56		M6	144,70	**124**
15,0	3,2	10	60	M8		151,60	**150**
16,5	3,2	10	60		M8	178,20	**165**
20,5	3,5	10	63		M10	189,80	**205**
25,0	3,8	10	67		M12	214,00	**250**
31,0	4,2	12	71		M16	304,40	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 92

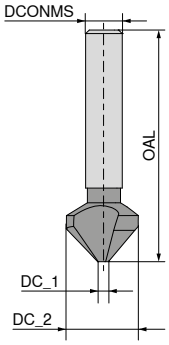
Countersink 90° with irregular pitch, DIN 335-C

- 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

4



90°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 140 ... EUR U1	
4,3	1,3	4	40	M2		22,38	**043**
6,0	1,5	5	45	M3		23,91	**060**
6,3	1,5	5	45		M3	24,23	**063**
8,0	2,0	6	50	M4		26,31	**080**
8,3	2,0	6	50		M4	26,85	**083**
10,0	2,5	6	50	M5		27,30	**100**
10,4	2,5	6	50		M5	27,51	**104** 1)
11,5	2,8	8	56	M6		31,33	**115**
12,4	2,8	8	56		M6	32,74	**124**
15,0	3,2	10	60	M8		36,89	**150**
16,5	3,2	10	60		M8	37,87	**165** 1)
19,0	3,5	10	63	M10		41,70	**190**
20,5	3,5	10	63		M10	47,05	**205**
23,0	3,8	10	67	M12		51,41	**230**
25,0	3,8	10	67		M12	56,76	**250** 1)
31,0	4,2	12	71		M16	69,54	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 93

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

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

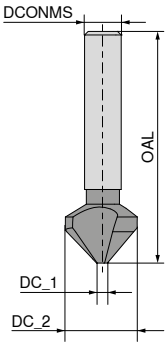
N

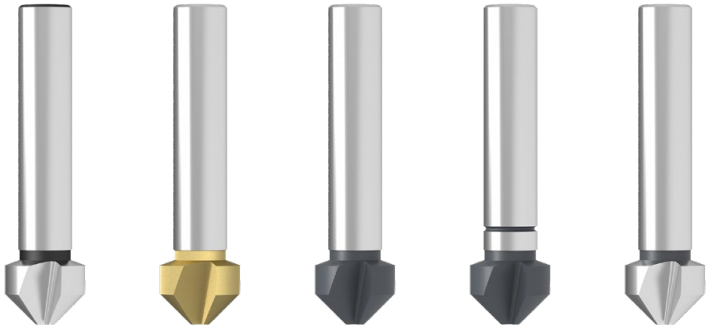
Ti50

30 140 ... EUR U1	
116,80	**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.





	N	N	N	VA	AL
		TiN	TiAlN	TiAlN	
	◁ 90° HSS	◁ 90° HSS	◁ 90° HSS	◁ 90° HSS	◁ 90° HSS

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 100 ... EUR U1		30 110 ... EUR U1		30 130 ... EUR U1		30 132 ... EUR U1		30 102 ... EUR U1	
4,3	1,3	4	40	M2		7,19	**043**								
5,0	1,5	4	40	M2,5		7,44	**050**	14,79	**050**	19,92	**050**				
6,0	1,5	5	45	M3		7,56	**060**								
6,3	1,5	5	45		M3	7,56	**063** 1)	14,79	**063** 1)	20,02	**063**	16,14	**063**	10,90	**063**
7,0	1,8	6	50	M3,5		7,98	**070**								
8,0	2,0	6	50	M4		8,25	**080**	17,14	**080**	21,03	**080**				
8,3	2,0	6	50		M4	8,55	**083** 1)	17,14	**083** 1)	21,14	**083**	19,03	**083**	11,68	**083**
9,4	2,2	6	50			9,36	**094**								
10,0	2,5	6	50	M5		9,95	**100**	18,59	**100**	22,60	**100**				
10,4	2,5	6	50		M5	10,38	**104** 1)	20,48	**104** 1)	22,82	**104**	21,14	**104**	13,32	**104**
11,5	2,8	8	56	M6		10,77	**115**								
12,4	2,8	8	56		M6	11,02	**124** 1)	22,47	**124** 1)	29,26	**124**	23,26	**124**	13,86	**124**
13,4	2,9	8	56			11,90	**134**								
15,0	3,2	10	60	M8		13,10	**150**	25,70	**150**	37,05	**150**	29,48	**150**	16,05	**150**
16,5	3,2	10	60		M8	14,19	**165** 1)	27,27	**165** 1)	38,72	**165**	31,27	**165**	16,91	**165**
19,0	3,5	10	63	M10		17,79	**190**								
20,5	3,5	10	63		M10	18,55	**205** 1)	38,40	**205** 1)	49,96	**205**	37,05	**205**	23,58	**205**
23,0	3,8	10	67	M12		23,13	**230**								
25,0	3,8	10	67		M12	24,67	**250**	52,64	**250**	71,65	**250**	48,52	**250**	31,44	**250**
31,0	4,2	12	71		M16	37,67	**310**	67,88	**310**	97,81	**310**	72,22	**310**		
31,0	4,2	12	67		M16									50,33	**310**
P							●		●		●		○		○
M							○		○		○		●		○
K							●		●		●		○		○
N							●		●		●		○		●
S							○		○		○		○		○
H									○		○		○		
O							●		●		●		●		●

1) Included in the set

→ v_c Page 94+95

Countersink 90°, DIN 335-C – set

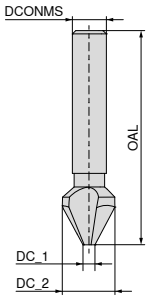
Scope of supply:
Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

N

	TiN
30 100 ... EUR U1	30 110 ... EUR U1
73,79 **999**	143,60 **999**

Countersink 60°, DIN 334-C

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



◁ 60°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 150 ... EUR U1	
6,3	1,6	5	45	8,28	**063** 1)
8,0	2,0	6	50	8,42	**080** 1)
10,0	2,5	6	52	10,62	**100** 1)
12,5	3,2	8	56	10,90	**125** 1)
16,0	4,0	10	63	13,75	**160** 1)
20,0	5,0	10	67	19,21	**200** 1)
25,0	6,3	10	71	25,76	**250**

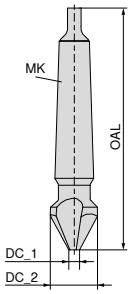
P	●
M	○
K	●
N	●
S	○
H	
O	●

1) Included in the set

→ v_c Page 92

Countersink 60°, DIN 334-D

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



MK
◁ 60°
HSS

DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 155 ... EUR U1	
16,0	4,0	90	1	30,89	**160**
20,0	5,0	106	2	38,64	**200**
25,0	6,3	112	2	42,35	**250**
31,5	10,0	118	2	44,10	**315**
40,0	12,5	150	3	73,13	**400**
50,0	16,0	160	3	94,09	**500**
63,0	20,0	190	4	148,40	**630**
80,0	25,0	200	4	244,50	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 60°, DIN 334-C – set

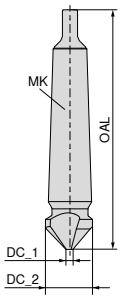
Scope of supply:
Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case

30 150 ... EUR U1	
80,56	**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

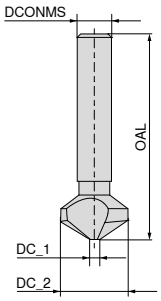
DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 105 ... EUR U1	
16,5	3,2	85	1	31,22	**165**
19,0	3,2	100	2	40,49	**190**
20,5	3,5	100	2	41,92	**205**
23,0	3,8	106	2	41,92	**230**
25,0	3,8	106	2	43,33	**250**
26,0	3,8	106	2	43,33	**260**
28,0	4,0	112	2	46,39	**280**
30,0	4,2	112	2	46,39	**300**
31,0	4,2	112	2	49,78	**310**
34,0	4,5	118	2	49,78	**340**
37,0	4,8	118	2	56,76	**370**
40,0	10,0	140	3	68,77	**400**
50,0	14,0	150	3	82,41	**500**
63,0	16,0	180	4	131,00	**630**
80,0	22,0	190	4	212,90	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 120°, factory standard-C

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



120°
HSS

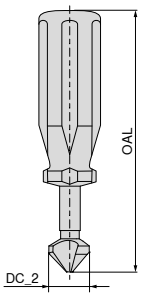
DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 170 ... EUR U1	
6,3	1,5	5	45	10,30	**063**
8,3	2,0	6	50	10,30	**083**
10,4	2,5	6	50	11,46	**104**
12,4	2,8	8	56	12,23	**124**
16,5	3,2	10	60	17,79	**165**
20,5	3,5	10	60	24,45	**205**
25,0	3,8	10	63	29,91	**250**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Hand deburring tool 90°

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



◁ 90°
HSS

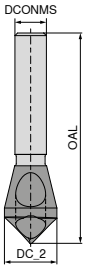
DC_2 mm	OAL mm	30 125 ... EUR U1	
12,4	135	15,29	124
15,0	135	18,00	150
16,5	135	18,55	165
20,5	135	22,04	205
25,0	135	26,75	250

P	●
M	○
K	●
N	●
S	○
H	○
O	●

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 mm	PHD mm	DCONMS h9 mm	OAL mm	30 120 ... EUR U1		30 121 ... EUR U1	
6,3	1 - 4	6,3	45	17,24	040 1)	27,14	040 1)
10,0	2 - 5	6,0	45	10,61	050	16,25	050
14,0	5 - 10	8,0	48	13,10	101	21,69	101
21,0	10 - 15	10,0	65	22,48	150	31,61	150
28,0	15 - 20	12,0	85	45,41	200	64,43	200
35,0	20 - 25	15,0	102	63,20	250	95,03	250

P	●	●
M	○	○
K	●	●
N	●	●
S	○	○
H		○
O	●	●

1) can be used in both directions

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values for REAMAX TS

	Grade / coating		HM-DBG-P						HM-DBG-P			
	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 flutes		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.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.2							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.3							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.1							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.2							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.1.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.2.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
K.1.1	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		HM-TiN						HM-DBC			
	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 flutes		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.
P.1.1	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**80** (60–130)	**80** (60–120)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**80** (60–130)	**80** (60–120)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1							**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.1.2							**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.1							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.2							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.3							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.3.1	**120** (100–200)	**120** (100–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.3.2	**80** (60–150)	**80** (60–120)	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
N.3.3	**120** (100–200)	**120** (100–150)	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
N.4.1							**150** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1							250 (220–270)	250 (220–270)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		DST						DST			
	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 flutes		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.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40	**225** (200–300)	**180** (160–240)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**120** (100–150)	**100** (80–120)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**120** (100–180)	**120** (100–150)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		DST			
	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 flutes		6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX

			HM-TiN					HM-DBC		
	Grade / coating		HM-TiN					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	23,001–40			12–21,999	22–32,000	23,001–40
	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 flutes		6	8	8			6	8	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.
	3xD	5xD				3xD	5xD			
P.1.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.1.2	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1						**150** (130–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.1.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.1						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.3										
N.3.1	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3	**80** (60–150)	**80** (60–120)	0,80–1,20	1,40–2,00	1,40–2,00					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1						250 (220–270)	250 (220–270)	1,00–1,40	1,70–2,40	1,70–2,40

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX

	Grade / coating		DST					DST		
	Article no. / type		40 525 ... / 640.93 – ASG3000					40 536 ... / 640.93 – ASG4000		
	Nominal Ø in mm		12–21,999	22–32,000	23,001–40			12–21,999	22–32,000	23,001–40
	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 flutes		6	8	8			6	8	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.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**175** (150–300)	**150** (130–180)	1,00–1,40	1,80–2,40	1,80–2,40	175 (150–300)	150 (130–180)	1,20–1,60	1,50–2,00	2,00–2,70
K.2.2	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40	120 (100–180)	120 (100–150)	1,20–1,60	1,50–2,00	2,00–2,70
K.3.1	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40					
K.3.2	**120** (100–180)	**120** (100–150)	0,90–1,20	1,50–2,00	1,50–2,00	120 (100–180)	120 (100–150)	1,00–1,30	1,20–1,70	1,70–2,30
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX

	Grade / coating		HM-DBG-P					HM-DBG-P		
	Article no. / type		40 560 ... / 640.65 – ASG3000					40 551 ... / 640.65 – ASG0106		
	Nominal Ø in mm		12–21,999	22–32,000	23,001–40			12–21,999	22–32,000	23,001–40
	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 flutes		6	8	8			6	8	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.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00
P.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.2						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.3						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.2						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.1.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.2.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
M.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
K.1.1	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.1.2	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.1	**225** (200–300)	**180** (160–240)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.1	**150** (130–250)	**120** (100–200)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.2						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.3						**30** (25–50)	**30** (25–50)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.4										
H.2.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.3.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data for MultiChange exchange head reamers

		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	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–18,59	18,6–32,00
	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 flutes	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.	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.
P.1.1	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.2	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.4	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.5	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.1	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.2	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.4	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.1	120	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.2	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.4.1					40	0,3	0,4	0,5				
P.4.2					40	0,3	0,4	0,5				
M.1.1					40	0,3	0,4	0,5				
M.2.1					40	0,3	0,4	0,5				
M.3.1					30	0,3	0,4	0,5				
K.1.1									120	0,6	0,6	1,2
K.1.2									120	0,6	0,6	1,2
K.2.1	120	0,7	1,2	1,6					120	0,4	0,6	1,2
K.2.2	90	0,7	1,2	1,6					100	0,4	0,6	1,2
K.3.1	90	0,7	1,2	1,6					100	0,4	0,6	1,2
K.3.2	90	0,7	1,2	1,6					100	0,4	0,6	1,2
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for MultiChange exchange head reamers

		K10				PDC		
	Article no.	40 240 ... / 40 241 ...				40 245 ... / 40 246 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00
	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 flutes	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.
P.1.1								
P.1.2								
P.1.3								
P.1.4								
P.1.5								
P.2.1								
P.2.2								
P.2.3								
P.2.4								
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1								
K.1.2								
K.2.1								
K.2.2								
K.3.1								
K.3.2								
N.1.1	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.1.2	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.1	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.2	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.3	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.3.1	30	0,4	0,5	0,6				
N.3.2	30	0,4	0,5	0,6				
N.3.3	30	0,4	0,5	0,6				
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage 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		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	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 flutes		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.
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		HM-DBG-P						HM-DBG-P			
	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		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	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 flutes		4	6	6	6			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.4	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.1							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.2							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.3							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.1							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.2							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.1.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.2.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.3.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
K.1.1	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.1.2	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
K.3.1	**150** (130–250)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		DST						DST			
	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		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	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 flutes		4	6	6	6			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	175 (150–300)	150 (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.2	**120** (100–150)	**100** (80–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.1	**150** (130–250)	**120** (100–200)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.2	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type.
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Cutting data standard values for Monomax

	Grade / coating		HM-DBG-P						HM-TiN			
	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		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	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 flutes		4	6	6	6			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.5							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.2	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.3	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.2	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.1.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.2.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
K.1.1							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.1.2							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.2							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.3							**80** (–150)	**80** (–120)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type.
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Cutting data standard values for Fullmax, long

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 flutes	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
P.1.1	**180** (160–250)	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
P.1.2	**180** (160–250)	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
P.1.3	**180** (160–250)	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
P.1.4	**180** (160–250)	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
P.1.5	**180** (160–250)	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
P.2.1	**180** (160–250)	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
P.2.2	**180** (160–250)	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
P.2.3	**180** (160–250)	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
P.2.4	**80** (70–120)	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
P.3.1	**20** (15–40)	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
P.3.2	**20** (15–40)	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
P.3.3	**20** (15–40)	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
P.4.1	**20** (15–40)	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
P.4.2	**20** (15–40)	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
M.1.1	**20** (15–40)	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
M.2.1	**20** (15–40)	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
M.3.1	**15** (10–30)	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
K.1.1	**120** (100–180)	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
K.1.2	**120** (100–180)	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
K.2.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.2	**120** (100–150)	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
K.3.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.3.2	**120** (100–150)	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
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (130–250)	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
N.3.2	100 (80–150)	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
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (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
S.2.2	40 (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
S.2.3													
S.3.1	30 (25–60)	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
S.3.2	30 (25–60)	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
S.3.3													
H.1.1	40 (35–60)	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
H.1.2	40 (35–60)	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
H.1.3	30 (25–50)	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
H.1.4													
H.2.1	40 (35–60)	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
H.3.1	40 (35–60)	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
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Fullmax, long

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 flutes	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
K.1.1	**200** (180–250)	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
K.1.2	**200** (180–250)	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
K.2.1	**225** (200–300)	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
K.2.2	**120** (100–150)	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
K.3.1	**225** (200–300)	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
K.3.2	**120** (100–150)	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 flutes	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
P.1.1													
P.1.2													
P.1.3													
P.1.4													
P.1.5													
P.2.1													
P.2.2													
P.2.3													
P.2.4													
P.3.1	20 (15–40)	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
P.3.2	20 (15–40)	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
P.3.3	20 (15–40)	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
P.4.1	**20** (15–40)	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
P.4.2	**20** (15–40)	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
M.1.1	**20** (15–40)	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
M.2.1	**15** (10–30)	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
M.3.1	**15** (10–30)	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

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 flutes	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
N.1.1	**200** (180–300)	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
N.1.2	**200** (180–300)	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
N.2.1	**200** (180–250)	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
N.2.2	**200** (180–300)	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
N.2.3	**200** (180–250)	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
N.3.1													
N.3.2													
N.3.3													
N.4.1													
O.3.1	250 (220–270)	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 flutes	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
H.1.1	**40** (35–60)	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
H.1.2	**30** (25–50)	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
H.1.3	**30** (25–50)	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
H.1.4	**30** (25–50)	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
H.2.1	**40** (35–60)	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
H.3.1	**40** (35–60)	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

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Fullmax, short

Type UNI		40 481 ... / 40 483 ... / 40 488 ... / 40 489 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 15,97		Ø 15,98 – 20,05	
	Number of flutes	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
P.1.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.4	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.5	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.4	**65** (55–110)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.3.1	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.2	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.3	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.4.1	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.4.2	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
M.1.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.2.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.3.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
K.1.1	**200** (180–250)	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	2,50–2,90	0,30
K.1.2	**200** (180–250)	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	2,50–2,90	0,30
K.2.1	**225** (200–300)	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	2,50–2,90	0,30
K.2.2	**120** (100–150)	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	2,00–2,40	0,30
K.3.1	**225** (200–300)	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	2,00–2,40	0,30
K.3.2	**120** (100–150)	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	2,00–2,40	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (120–250)	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	2,50–2,90	0,30
N.3.2	100 (80–150)	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	2,10–2,40	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (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
S.2.2	40 (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
S.2.3													
S.3.1	30 (25–60)	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
S.3.2	30 (25–60)	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
S.3.3													
H.1.1	40 (35–60)	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	0,80–1,00	0,20
H.1.2	30 (25–50)	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	0,80–1,00	0,20
H.1.3	30 (25–50)	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	0,80–1,00	0,20
H.1.4													
H.2.1	40 (35–60)	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
H.3.1	40 (35–60)	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
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

The cutting data depend extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for solid carbide reamers

	40 410 ... / 40 400 ...								
	uncoated	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm		to Ø 12 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
P.1.1	**30**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.5	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.1	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
M.1.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.2.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.3.1	10	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
K.1.1	30	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.1.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
N.1.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.1.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.4.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
S.1.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.1.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 430 ...			40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...							
	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
P.1.1	**20**	0,10	0,10	**20**	**30**	0,10	0,10	0,15	0,15	0,20	0,20
P.1.2	**20**	0,10	0,10	**20**	**30**	0,10	0,10	0,15	0,15	0,20	0,20
P.1.3	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.1.4	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.1.5	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.2.1	**15**	0,10	0,10	**15**	**25**	0,10	0,10	0,15	0,15	0,20	0,20
P.2.2	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.2.3	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.2.4	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.3.1	**15**	0,10	0,10	**15**	**25**	0,10	0,10	0,15	0,15	0,20	0,20
P.3.2	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.3.3	**12**	0,10	0,10	**12**	**15**	0,10	0,10	0,15	0,15	0,20	0,20
P.4.1											
P.4.2											
M.1.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.2.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.3.1					10	0,08	0,08	0,10	0,10	0,15	0,10
K.1.1	18	0,10	0,10	18	**30**	0,10	0,10	0,20	0,15	0,30	0,20
K.1.2	18	0,10	0,10	18	**30**	0,10	0,10	0,20	0,15	0,30	0,20
K.2.1	15	0,10	0,10	15	**25**	0,10	0,10	0,20	0,15	0,30	0,20
K.2.2	10	0,10	0,10	10	**20**	0,10	0,10	0,20	0,15	0,30	0,20
K.3.1	15	0,10	0,10	15	**25**	0,10	0,10	0,20	0,15	0,30	0,20
K.3.2	10	0,10	0,10	10	**20**	0,10	0,10	0,20	0,15	0,30	0,20
N.1.1	**40**	0,15	0,10	**40**		0,15	0,10	0,20	0,15	0,25	0,20
N.1.2	**40**	0,15	0,10	**40**		0,15	0,10	0,20	0,15	0,25	0,20
N.2.1	**25**	0,15	0,10	**20**		0,15	0,10	0,20	0,15	0,25	0,20
N.2.2	**25**	0,15	0,10	**20**		0,15	0,10	0,20	0,15	0,25	0,20
N.2.3											
N.3.1	**30**	0,15	0,10	**30**		0,15	0,10	0,20	0,15	0,25	0,20
N.3.2	**30**	0,15	0,10	**30**		0,15	0,10	0,20	0,15	0,25	0,20
N.3.3	**30**	0,15	0,10	**30**		0,15	0,10	0,20	0,15	0,25	0,20
N.4.1											
S.1.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.1.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.3					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.3					10	0,06	0,05	0,10	0,10	0,12	0,10
H.1.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.2					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.3											
H.1.4											
H.2.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.3.1											
O.1.1	**40**	0,15	0,10	**40**		0,15	0,10	0,20	0,15	0,25	0,20
O.1.2	**40**	0,15	0,10	**40**		0,15	0,10	0,20	0,15	0,25	0,20
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...											
	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
P.1.1	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.2	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.5	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.4.1												
P.4.2												
M.1.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.2.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.3.1		10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
K.1.1	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.1.2	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.1	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.2	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.3												
N.3.1	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.2	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.3	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.4.1												
S.1.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.1.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
H.1.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.2		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.3												
H.1.4												
H.2.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.3.1												
O.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...									
		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
P.1.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.5	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.2	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.1.2	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
N.1.1	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.1.2	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.2.1											
N.2.2											
N.2.3											
N.3.1	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.2	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.3	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.1.2	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...							
		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
P.1.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.5	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.2	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.1.2	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
N.1.1	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.1.2	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.2.1									
N.2.2									
N.2.3									
N.3.1	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.2	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.3	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.1.2	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 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
P.1.1	15	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.2	12	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.3	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.4	10	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.1.5	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.1	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,25	0,25	0,35	0,30
P.2.2	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.3	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.4	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.3.1	8	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,30
P.3.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.3.3	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.1	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
M.1.1	6	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.2.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.3.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K.1.1	14	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.1.2	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.2.1	12	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,35	0,30
K.2.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
K.3.1	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.3.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
N.1.1	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.1.2	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.1	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.2	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.3											
N.3.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.2	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.3	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.4.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
S.1.1											
S.1.2											
S.2.1	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.2	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.3											
S.3.1	6	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.3.2	4	0,08	0,10	0,10	0,15	0,125	0,20	0,20	0,20	0,25	0,20
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	15	0,15	0,15	0,20	0,20	0,25	0,20	0,25	0,25	0,30	0,30
O.1.2	12	0,12	0,15	0,16	0,20	0,20	0,20	0,20	0,25	0,25	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 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
P.1.1	15	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.2	12	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.3	10	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.4	10	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.5	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.1	10	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.2	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.3	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.4	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.3.1	8	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.2	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.3	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.1	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.2	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
M.1.1	6	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.2.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.3.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
K.1.1	14	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.1.2	12	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.1	12	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.2	10	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
K.3.1	12	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.3.2	10	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
N.1.1	20	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.1.2	20	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.1	18	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.2	18	0,40	0,35	0,50	0,40	0,50	0,45	0,80	0,50
N.2.3									
N.3.1	18	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.2	15	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.3	15	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.4.1	18	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
S.1.1									
S.1.2									
S.2.1	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.3									
S.3.1	6	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	15	0,30	0,30	0,35	0,35	0,40	0,40	0,40	0,50
O.1.2	12	0,25	0,30	0,30	0,35	0,30	0,40	0,35	0,50
O.2.1									
O.2.2									
O.3.1									

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Cutting data standard values for solid carbide reamers – Type H

		40 435 ... – Type H							
		Ø 0,98–3,99 mm		Ø 4,00–8,00 mm		Ø 8,01–16,00 mm		Ø 16,01–20,00 mm	
Index	v_c in 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
P.1.1	16	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
P.1.2	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.1.3	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.5	19	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.1	15	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.2	14	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.3	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.3.1									
P.3.2	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.3.3	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.1	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.2	8	0,05	0,20	0,10	0,20	0,113	0,30	0,125	0,30
M.1.1									
M.2.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
M.3.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
K.1.1	17	0,125	0,20	0,25	0,20	0,325	0,30	0,40	0,30
K.1.2	14	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
K.3.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.3.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	8	0,075	0,10	0,15	0,20	0,175	0,30	0,20	0,30
H.1.2	7	0,063	0,10	0,125	0,20	0,15	0,30	0,175	0,30
H.1.3	5	0,05	0,10	0,10	0,20	0,113	0,30	0,125	0,30
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

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Cutting data standard values indexable insert countersink

Index	30 196 ... / 30 197 ...		
	Insert		Tool diameter
	BK8425	K10	Ø 16,5–37 mm
	v_c in m/min		f in mm/rev.
P.1.1	200		0,12–0,16
P.1.2	200		0,20–0,30
P.1.3	200		0,20–0,30
P.1.4	180		0,20–0,30
P.1.5	180		0,17–0,27
P.2.1	160		0,20–0,30
P.2.2	160		0,20–0,30
P.2.3	160		0,15–0,20
P.2.4	160		0,10–0,16
P.3.1	140		0,10–0,15
P.3.2	140		0,08–0,13
P.3.3	140		0,06–0,12
P.4.1	120		0,10–0,16
P.4.2	120		0,06–0,12
M.1.1	160		0,10–0,15
M.2.1	140		0,10–0,15
M.3.1	100		0,07–0,13
K.1.1	180		0,40
K.1.2	160		0,32
K.2.1	140		0,30
K.2.2	140		0,18
K.3.1	120		0,20
K.3.2	120		0,18
N.1.1		250	0,20
N.1.2		250	0,20
N.2.1		250	0,30
N.2.2		250	0,30
N.2.3		250	0,25
N.3.1		230	0,30
N.3.2		230	0,32
N.3.3		230	0,22
N.4.1		230	0,30
S.1.1	60	20	0,12
S.1.2	50	20	0,10
S.2.1	60	20	0,12
S.2.2	50	20	0,10
S.2.3	30	20	0,06
S.3.1	100	60	0,22
S.3.2	80	30	0,20
S.3.3	50	30	0,12
H.1.1	100		0,10
H.1.2	80		0,08
H.1.3	50		0,05
H.1.4			
H.2.1	100		0,10
H.3.1	80		0,08
O.1.1		100	0,10
O.1.2		100	0,10
O.2.1			
O.2.2		100	0,03
O.3.1		100	0,08

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Cutting data for solid carbide countersinks

Index	v_c m/min	30 115 ... 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	v_c m/min	30 160 ... Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm
		f in mm/rev.						f in mm/rev.		
P.1.1	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.2	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.3	**30**	0,08	0,10	0,10	0,14	0,18	**30**	0,10	0,10	0,14
P.1.4	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.1.5	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.1	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.2.2	**20**	0,05	0,06	0,08	0,10	0,12	**20**	0,06	0,08	0,10
P.2.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.4	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.1	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.2	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.4.1										
P.4.2										
M.1.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.2.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.3.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
K.1.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.1.2	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.2.1	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.2.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.3.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.3.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
N.1.1	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.1.2	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.2.1	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.2	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.2	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.4.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
S.1.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.1.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
H.1.1	8	0,06	0,08	0,08	0,10	0,12	8	0,08	0,08	0,10
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

		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.					
P.1.1	**60**	0,08	0,10	0,12	0,14	0,18	0,22	**40**	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**60**	0,08	0,10	0,12	0,14	0,18	0,22	**40**	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.1.4	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.2.1	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.3.2	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	**30**	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	**30**	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	**50**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**50**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**45**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**45**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**35**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**35**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**80**	0,10	0,12	0,14	0,18	0,22	0,26	**50**	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	**80**	0,10	0,12	0,14	0,18	0,22	0,26	**50**	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	**60**	0,10	0,12	0,14	0,18	0,22	0,26	**40**	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	**60**	0,10	0,12	0,14	0,18	0,22	0,26	**40**	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	**60**	0,10	0,12	0,14	0,18	0,22	0,26	**40**	0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	**70**	0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**70**	0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**70**	0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	12	0,05	0,06	0,08	0,08	0,10		6	0,05	0,06	0,08	0,08	0,10	
H.1.2	8	0,05	0,06	0,08	0,08	0,10								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,08	0,08	0,10								
H.3.1														
O.1.1	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 100 ... Type N							30 102 ... Type AL					
		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		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.					
P.1.1	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**35**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**39**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	**35**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**39**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**28**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**28**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**28**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**39**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**39**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**39**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**60**	0,10–0,13	0,16	0,2	0,23	0,26	0,30	**66**	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 110 ... / 30 130 ... Type N – TiN / TiAlN						30 132 ... Type VA – TiAlN					
		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		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.					
P.1.1	**35**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**35**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**29**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**29**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**14**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**29**	0,04–0,06	0,08	0,10	0,12	0,14	0,18	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	**11**	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	**11**	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	**11**	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**9**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**9**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**9**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**14**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**14**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**40**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	**40**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	**29**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	**29**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	**29**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**69**	0,10–0,13	0,16	0,20	0,23	0,26	0,30	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink and counterbore

		30 150 ... / 30 155 ... / 30 105 ... / 30 170							30 190 ... / 30 191 ... / 30 192 ...		
		HSS – 60° / 90° / 120°							HSS		
		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		DC_2 Ø 6,3 mm	DC_2 Ø 10,0 mm	DC_2 Ø 14,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.		
P.1.1	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	**30**	0,07	0,10	0,12
P.1.2	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	**30**	0,07	0,10	0,12
P.1.3	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	**25**	0,05	0,07	0,09
P.1.4	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	**25**	0,05	0,07	0,09
P.1.5	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,07
P.2.1	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18	**25**	0,05	0,07	0,09
P.2.2	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**10**	0,04	0,05	0,06
P.2.3	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**10**	0,04	0,05	0,06
P.2.4	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**10**	0,04	0,05	0,06
P.3.1	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**10**	0,04	0,05	0,06
P.3.2	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**10**	0,04	0,05	0,06
P.3.3	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	**10**	0,04	0,05	0,06
P.4.1											
P.4.2											
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	**8**	0,04	0,06	0,07
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	**8**	0,04	0,06	0,07
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	**8**	0,04	0,06	0,07
K.1.1	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	**12**	0,08	0,13	0,16
K.1.2	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	**12**	0,08	0,13	0,16
K.2.1	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	**10**	0,08	0,13	0,16
K.2.2	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	**10**	0,08	0,13	0,16
K.3.1	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	**12**	0,08	0,13	0,16
K.3.2	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	**10**	0,08	0,13	0,16
N.1.1	**35**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**35**	0,09	0,13	0,16
N.1.2	**35**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**35**	0,09	0,13	0,16
N.2.1	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**25**	0,09	0,13	0,16
N.2.2	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**25**	0,09	0,13	0,16
N.2.3	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**25**	0,09	0,13	0,16
N.3.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
N.3.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
N.3.3	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
N.4.1	**60**	0,10–0,13	0,16	0,20	0,23	0,26	0,30	**60**	0,12	0,18	0,21
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
O.1.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
O.2.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
O.2.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,11	0,16	0,18
O.3.1											

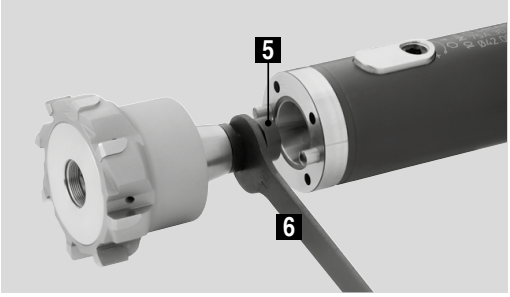
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS-E deburring countersink

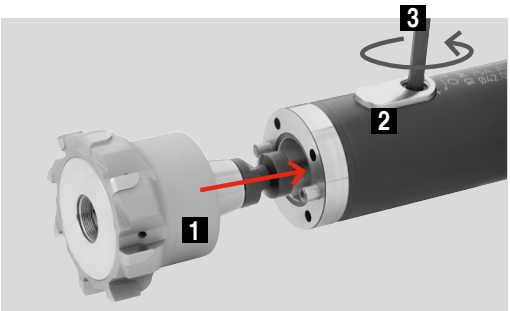
			30 120 ... / 30 121 ...					
			HSS-E – 90°					
	TiN	uncoated	Ø 6,3 mm	Ø 10,0 mm	Ø 14,0 mm	Ø 21,0 mm	Ø 28,0 mm	Ø 35,0 mm
Index	v_c m/min	v_c m/min	f in mm/rev.					
P.1.1	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**14**	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**29**	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1								
P.4.2								
M.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**9**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**14**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**14**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**12**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.1.2	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.1	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.2	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.3	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.3.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**69**	**60**	0,1–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

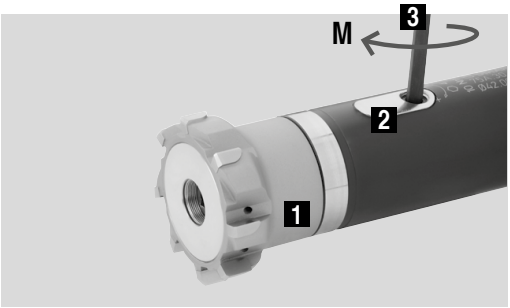
REAMAX TS – Assembly instructions



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).

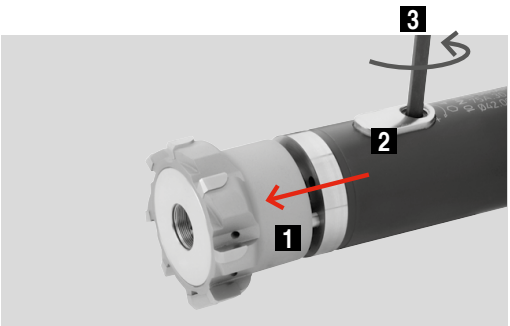


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

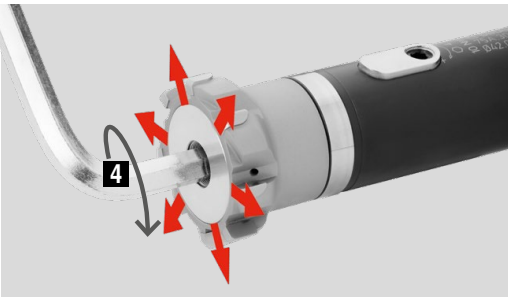


Use the key (3) to close the jaws (2), observe the recommended tightening torque. When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

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).



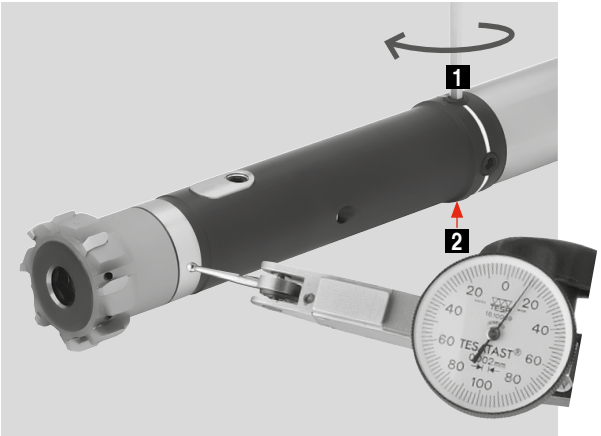
Adjustment for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

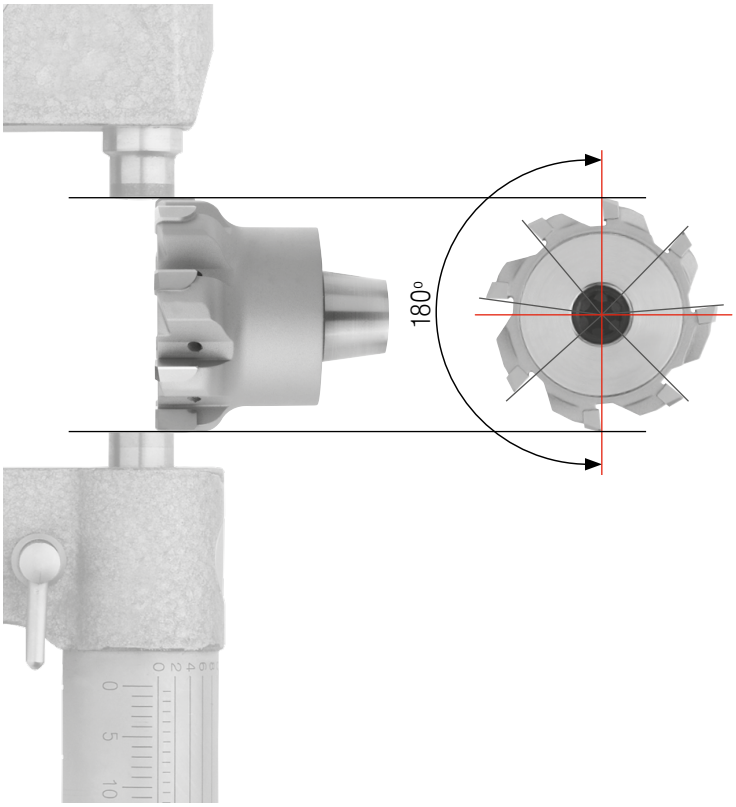
The tool is recommended for radial alignment of max. 20 µm.

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.

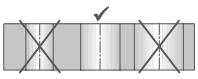


Please note:
- The runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- Adjustment screws must always be tightened during usage with at least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

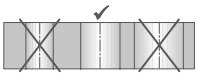


Problems / possible causes / solutions



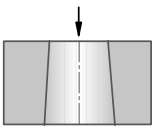
Hole too large

- 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



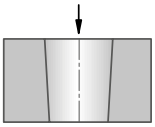
Hole too small

- 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



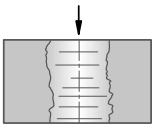
Conical hole, tapered backwards

- Inaccurate alignment → correct alignment and use DPS floating holder
- Misalignment between headstock and turret → correct turret and use DPS floating holder



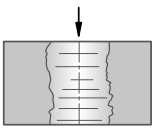
Conical hole, tapered forwards

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



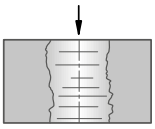
Hole is not round

- 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



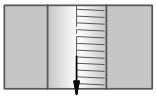
Hole exhibits chatter marks

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



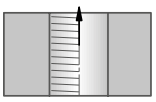
Non clean-up

- 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"

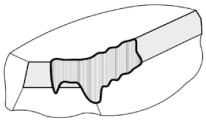
- Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marking"

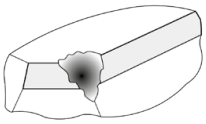
- Cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- Material springs back → do not retract at high speed but with increased (2–3 times) feed rate

Types of wear



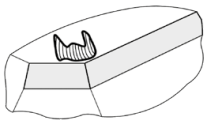
Wear on clearance face

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



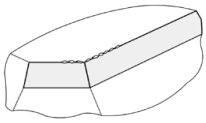
Cutting edge breakage

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



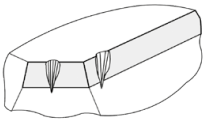
Cratering

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



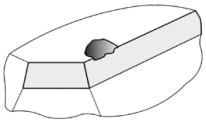
Edge breakages

Increase the cutting speed and use larger rake angle.



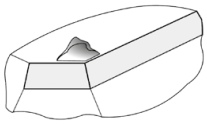
Notch wear

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



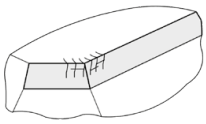
Fatigue fracture

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.

Common cutting edge geometries in the performance area

Standard geometries				
Geometry	**Flute type**	**Chip flow**	**Lead angle**	
ASG4000	straight	←	25° ASG 4000	Through hole
ASG2210	left-hand helix	←	30° ASG 2210	Through hole
ASG2231	left-hand helix	←	30° ASG 2231	Through hole
ASG2270	straight	←	30° ASG 2270	Through hole
ASG2110	straight	→	60° ASG 2110	Blind hole
ASG2131	straight	→	45° ASG 2131	Blind hole
ASG2170	straight	→	60° ASG 2170	Blind hole

Standard geometries				
Geometry	**Flute type**	**Chip flow**	**Lead angle**	
ASG3000	straight	↔	45° ASG 3000	Through hole-Blind hole
ASG0706	straight	↔	45° 8° ASG 0706	Through hole-Blind hole
ASG0106	straight	↔	30° ASG 0106	Through hole-Blind hole
ASG2350	straight	↔	30° ASG 2350	Through hole-Blind hole
ASG2360	straight	↔	30° ASG 2360	Through hole-Blind hole

Special geometries			
Geometry	**Flute type**	**Chip flow Comments**	**Lead angle**
ASG0703	straight	Leading edge	90° ASG 0703 0,2 x 45°
ASG0704	straight	Leading edge with increased positional accuracy	90° ASG 0704 0,05 x 45°
ASG09B	straight	Swarf control < x 32 mm	ASG 09B
ASG1402	straight	Swarf control > 32 mm	ASG 1402
ASG02	straight	↔	45° 8° ASG 02
ASG03	straight	↔	30° 2° ASG 03
ASG05	left-handed		25° ASG 05

Achievable surface quality

Material group		Roughness	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Average roughness R_a	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Surface roughness R_z	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
P	1.0 – 4.2														
M	1.1 – 3.1														
K	1.1 + 2.1 + 3.1														
K	1.2 + 2.2 + 3.2														
N	1.1 – 2.3														
N	3.1 – 3.3														
S	1.1 – 3.3														
H	1.1 – 1.3														

reachable conditionally reachable

This information is based on experience and may vary from case to case, depending on the prevailing conditions.
(all other surface values on request)

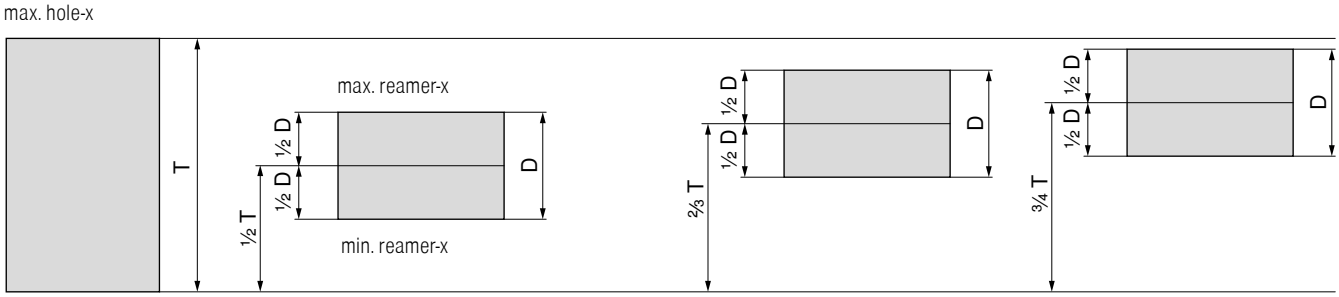
Tolerance classes covered with 1/100 reamer

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

Manufacturer's tolerance of the reamers

T = Hole tolerance field
D = Manufacturer's tolerance of the reamer



Manufacturer's tolerance of adjustable reamers

The diameter of an adjustable reamer is ground to the middle of drilling tolerance T (REAMAX TS / Monomax). The adjustment capability of the reamer facilitates wear compensation.

Manufacturer's tolerance of fixed reamers

The manufacturer tolerance D of fixed reamers is two thirds (REAMAX) or three quarters (Fullmax) of the drilling tolerance T.

Coatings – Reaming and Countersinking

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

TiAlSiN
- TiAlSiN- Multilayer coating
- Maximum application temperature: 800 °C
- Specially designed for machining hardened steels: high hardness and heat resistance with low thermal conductivity.

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

DBF-A
- AlCrN Multilayer coating
- specially developed for the machining of tempered materials < 62 HRC
- maximum application temperature: > 1100 °C

DBC
- Diamond-like carbon coating
- Specially for machining non-ferrous metals
- Maximum application temperature: 400 °C

DBG-U
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials as well as for the machining of tempered materials < 62 HRC
- For high cutting speeds and suitable for MMS application
- Maximum application temperature: 1000 °C

Ti50
- TiN multilayer coating
- Maximum application temperature: 400 °C

TiN
- TiN coating
- Maximum application temperature: 450 °C

DBG-P
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials at high cutting speeds
- Suitable for MMS application
- Maximum application temperature: 1000 °C

DBC-N
- Diamond-like ta-C-Multilayer-carbon coating
- Particularly hard and smooth coating and therefore especially for machining non-ferrous metals
- Maximum application temperature: 500 °C

DBQ
- AlCrN-Multilayer-Beschichtung
- Particularly suitable for machining stainless steels and titanium
- Low formation of built-up edges
- Maximum application temperature: > 1000 °C

Grade description – Reamers

DST
- 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

CWK10
- Carbide, uncoated
- ISO | **K10**
- The uncoated carbide grade for universal application

K10
- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

PDC
- Polycrystalline diamond cutting material, uncoated
- Particularly wear-resistant PCD grade for process reliable machining of aluminium

Grade description – Indexable insert countersink

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

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

CWN2135
- Carbide, TiCN-TiNB-coated
- ISO | P35 | **M30** | S35
- The turning grade for general stainless machining

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

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

K10
- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

HCX1125
- Carbide, TiCN-Al_2O_3-coated
- ISO | P25 | M20 | **K30**
- The first choice for universal machining of steels

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

CWN15
- Carbide, TiN-coated
- ISO | **K15**
- Special carbide grade for abrasive aluminium alloys

Chip breakers

-SM
- Rake angle 15°
- For universal use with medium machining
- Stable cutting edge

-U877
- Rake angle 6°
- circumferentially ground
- Three-ground chip breaker with second clearance angle for clearance with small tool diameters

-G06
- Rake angle 6°
- Preferred application in P / M / K
- Characterized by a particularly stable wedge angle

-G12
- Rake angle 12°
- Preferred application in P / N / S
- is characterized by a particularly high cutting performance

-27
- Rake angle 19-25°
- Universal aluminium geometry
- High cutting performance and therefore high feed rates possible
- Low adhesion