

GÜHRING

New Products and Additions
General Catalogue Edition 01

2024/02

New products

Edition 2024/02 to the General Catalogue Edition 01

new

Solid carbide drill RT 100 H Micro

46 % shorter machining times in steel materials up to 67 HRC

new

Solid carbide drill RT 100 H

High performance in hardened steels up to 67 HRC

new

Flat drill FB 200 U

Three-fluted flat drill for efficient & high quality 180° holes

new

Solid carbide drill RT 100 AL

No built-up edges and perfect chip removal

new

Indexable insert drill

50 % longer tool lives thanks to carbide & coating

new

Solid carbide single-fluted deep hole drill EB 100 M AL

High-performance deep hole drilling in aluminium

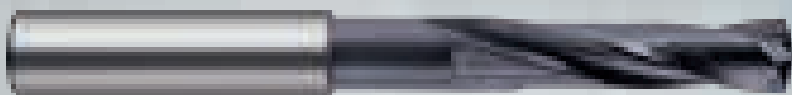
new

PCD face and corner milling cutter

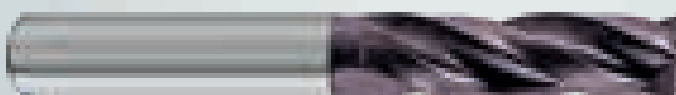
Flexibility & economy combined



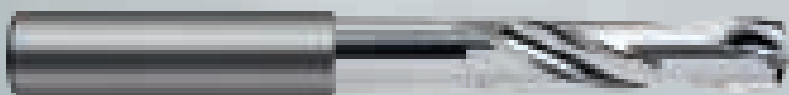
from page **12**



from page **16**



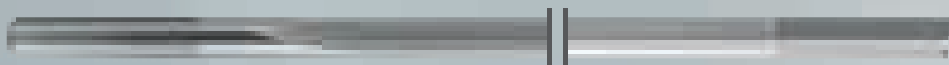
from page **20**



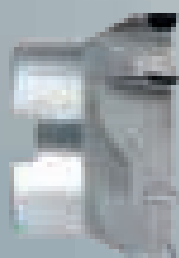
from page **24**



from page **34**



from page **48**



from page **70**



new

Solid carbide milling cutter RF 100 AL Micro

Smooth milling with extreme metal removal rates

new

Solid carbide milling cutter RF 100 AL

30 % higher machining performance in aluminium and plastic

new

Solid carbide single-fluted cutter AL

Solid carbide single-fluted cutter for reliable aluminium profile machining

new

High-speed milling cutter with indexable inserts

Four cutting edges for the best possible results

new

Modular tap

The perfect combination of toughness & wear resistance

new

Tap AL & fluteless tap AL

No chance for built-up edges & material adhesion

new

Fluteless tap InoxPro

Up to twice the tool life in stainless steel

new

High-performance reamer HR 500

Up to 50x faster than conventional reamers

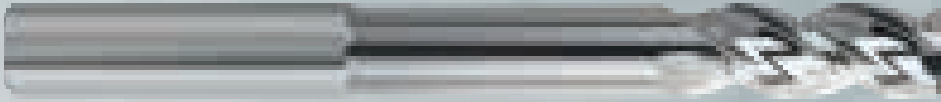
new

System 222 for grooving and parting off

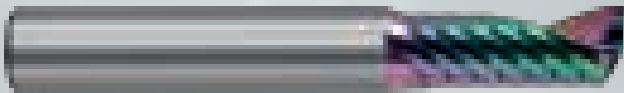
Addition for limited space in sliding headstock lathes



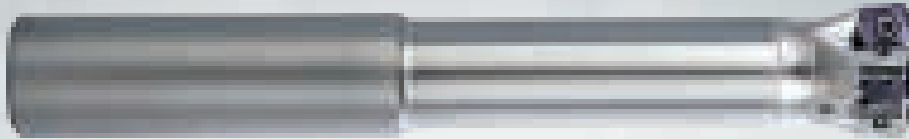
from page **74**



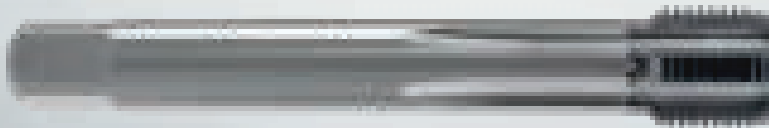
from page **80**



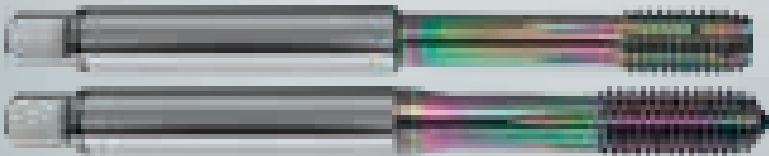
from page **84**



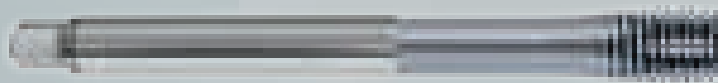
from page **90**



from page **112**



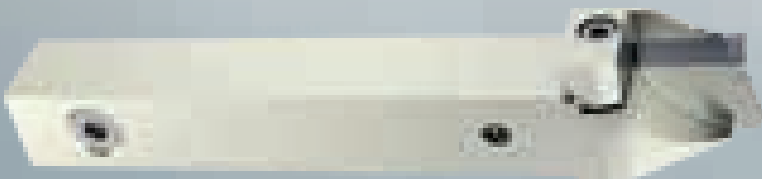
from page **118**



from page **142**



from page **154**



from page **168**



Contents

Innovation that makes a difference

New solutions for
your machining tasks

GÜHRING

Page **Drilling tools**

10	Contents
12	Programme
54	Cutting data



Milling tools

68	Contents
70	Programme
98	Cutting data



Threading tools

108	Contents
112	Programme
145	Cutting data



Reaming tools

152	Contents
154	Programme
164	Cutting data



Grooving tools

170	Contents
171	Programme
175	Cutting data



Article no. index

176	Article no. index
-----	-------------------



Drilling tools

Precision that goes deep

New material specialists
for process-reliable drilling

GÜHRING

Page

12	Micro drills
16	Solid carbide drills
34	Modular drills with indexable inserts
48	Solid carbide single-fluted gun drills
53	HSS/HSCO drills with straight shank



P	M	K	N	S	H	Tool illustration	Drilling depth	Shank form	Type	Tool material	Sur-face	d1/mm	Article no.	Page
Micro-precision drills without coolant ducts														
○	○	○	○	○	●		NEW	3xD	Cyl	RT 100 H	VHM	X	0.800 - 3.000	7053 14
Ratio drills without coolant ducts														
○	○	○	○	○	●		NEW	3xD	HA	RT 100 H	VHM	a	3.100 - 16.000	7052 18
Flat bottom drills with coolant ducts, 3-fluted														
●	●	●	○	○	○		NEW	3xD	HA	FB 200 U	VHM	F	4.000 - 20.000	6065 22
●	●	●	○	○	○		NEW	5xD	HA	FB 200 U	VHM	F	4.000 - 20.000	6066 23
Ratio drills with coolant ducts														
○	○	○	○	○	●		NEW	3xD	HA	RT 100 AL	VHM	○	3.000 - 20.000	6062 26
○	○	○	○	○	●			5xD	HA	RT 100 AL	VHM	○	3.000 - 20.000	5768 28
○	○	○	○	○	●		NEW	7xD	HA	RT 100 AL	VHM	○	3.000 - 20.000	6063 30
○	○	○	○	○	●		NEW	12xD	HA	RT 100 AL	VHM	○	3.000 - 16.000	6064 32
Indexable insert drills with internal cooling														
							NEW	2xD	ISO 9766	GMD	Ni	14.000 - 50.000	28500 36	
							NEW	3xD	ISO 9766	GMD	Ni	14.000 - 50.000	28501 38	
							NEW	4xD	ISO 9766	GMD	Ni	14.000 - 50.000	28502 40	
							NEW	5xD	ISO 9766	GMD	Ni	14.000 - 50.000	28503 42	
Indexable inserts SOLX, single-sided, external														
●	●	○	○	○			NEW			SOLX	VHM		28504 44	
○	○	○	○	○	●		NEW			SOLX	VHM		28505 44	
Indexable inserts XOLX, single-sided, internal														
●	●	○	○	○			NEW			XOLX	VHM		28508 45	
○	○	○	○	○	●		NEW			XOLX	VHM		28509 45	
Clamping screws														
							NEW						28900 46	
Single-fluted gun drills EB 100 M AL														
○	○	○	○	○	●		NEW	20xD	HA	EB 100 M AL	VHM	○	2.000 - 12.000	6071 50
○	○	○	○	○	●		NEW	40xD	HA	EB 100 M AL	VHM	○	2.000 - 10.000	6073 51
○	○	○	○	○	●		NEW	60xD	HA	EB 100 M AL	VHM	○	2.000 - 7.144	6074 52



P	M	K	N	S	H	Tool illustration	Drilling depth	Shank form	Type	Tool material	Surface	d1/mm	Article no.	Page
Jobber drills														
●	○	●	○										1.000 - 20.000	9500 53



RT 100 H Micro

High performance in the micro range

46 % shorter machining
times in steel materials
up to 67 HRC

**With the new high-performance drill
RT 100 H Micro, you can produce perfect micro-holes
in steel materials up to 67 HRC.**

The micro drill is characterised by its robust, very stable geometry with a straight main cutting edge, the extremely hard carbide substrate and the exceptionally wear-resistant Perrox coating.

Thanks to these features, the tool also shines during difficult machining operations with reduced machining times and maximum process reliability.

X Machining time reduced by 46 %

-  **X** coating & cutting edge geometry adapted to the machining temperature
-  **X** maximum process reliability
-  **X** reduction of machining time
-  **X** dry machining with external cooling possible for micro tools



adapted cutting edge profile & design
for a long tool life in hardened steel materials

HiPIMS coating
for maximum wear resistance

extremely hard carbide substrate
for best possible wear resistance

available in the diameter range
3xD, Ø 0.8–3.0 mm

Application example

Component: Perforated dies, 1.2436 (61 HRC)

Tool: #7053, Ø 1.8 mm

Customer target: Reduction of machining time

Difficulty: Effective full drilling in 61 HRC material
without cooling lubricant

Cutting data:	Gühring	Competition
v_c	22 m/min	12 m/min
n	3,890 rpm	2,122 rpm
f	0.03 mm/rev	0.03 mm/rev
v_f	117 mm/min with peck drilling	63.7 mm/min with peck drilling



Micro-precision drills without coolant ducts

Article no. **7053**

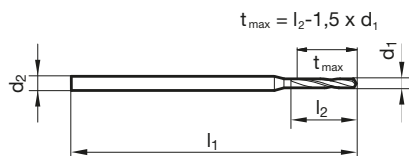


cutting data see page 54



Web thinning $\geq \varnothing 0.800$ • facet point grind • main cutting edge form straight • ground cutting edge preparation

Recommended use: dry machining, peck drilling with steps $0.33 \times D$ - $0.50 \times D$, withdrawal $0.10 \times D$



$$t_{\max} = l_2 - 1,5 \times d_1$$

Article no.

7053

Article no.

7053

d1 mm	d2 h6 mm	l1 mm	l2 mm
0.800	3.0	47.0	4.80
0.850	3.0	47.0	5.10
0.900	3.0	47.0	5.40
0.950	3.0	47.0	5.70
1.000	3.0	47.0	6.00
1.050	3.0	47.0	6.30
1.100	3.0	47.0	6.60
1.150	3.0	47.0	6.90
1.200	3.0	47.0	7.20
1.250	3.0	47.0	7.50
1.300	3.0	47.0	7.80
1.350	3.0	47.0	8.10
1.400	4.0	47.0	8.40
1.450	4.0	47.0	8.70
1.500	4.0	47.0	9.00
1.550	4.0	47.0	9.30
1.600	4.0	47.0	9.60
1.650	4.0	47.0	9.90
1.700	4.0	47.0	10.20
1.750	4.0	47.0	10.50
1.800	4.0	52.0	10.80
1.850	4.0	52.0	11.10
1.900	4.0	52.0	11.40
1.950	4.0	52.0	11.70

Order no.
7053 0.800
7053 0.850
7053 0.900
7053 0.950
7053 1.000
7053 1.050
7053 1.100
7053 1.150
7053 1.200
7053 1.250
7053 1.300
7053 1.350
7053 1.400
7053 1.450
7053 1.500
7053 1.550
7053 1.600
7053 1.650
7053 1.700
7053 1.750
7053 1.800
7053 1.850
7053 1.900
7053 1.950

d1 mm	d2 h6 mm	l1 mm	l2 mm
2.000	4.0	59.0	12.00
2.050	4.0	59.0	12.30
2.100	4.0	59.0	12.60
2.150	4.0	59.0	12.90
2.200	4.0	59.0	13.20
2.250	4.0	59.0	13.50
2.300	4.0	59.0	13.80
2.350	4.0	59.0	14.10
2.400	4.0	59.0	14.40
2.450	4.0	59.0	14.70
2.500	4.0	59.0	15.00
2.550	4.0	59.0	15.30
2.600	4.0	59.0	15.60
2.650	4.0	59.0	15.90
2.700	4.0	59.0	16.20
2.750	4.0	59.0	16.50
2.800	4.0	59.0	16.80
2.850	4.0	59.0	17.10
2.900	4.0	59.0	17.40
2.950	4.0	59.0	17.70
3.000	4.0	59.0	18.00

Order no.
7053 2.000
7053 2.050
7053 2.100
7053 2.150
7053 2.200
7053 2.250
7053 2.300
7053 2.350
7053 2.400
7053 2.450
7053 2.500
7053 2.550
7053 2.600
7053 2.650
7053 2.700
7053 2.750
7053 2.800
7053 2.850
7053 2.900
7053 2.950
7053 3.000

RT 100 H





RT 100 H

The drilling specialist for hardened steels

High performance
in hardened steels
up to 67 HRC

The RT 100 H is the new high-performance drill for hardened steel materials up to 67 HRC.

The tool is characterised by a newly developed cutting edge profile, which – in combination with the stable tip geometry – guarantees a very good tool life with maximum process reliability in hardened steel materials.

The extremely hard carbide substrate is used in combination with the proven nanoA coating for optimum wear resistance.

- x **Machining time** reduced by 10 %
- x **Tool life** increased by 350 %

-  **X** maximum process reliability
-  **X** coating & cutting edge geometry adapted to the machining temperature
-  **X** reduction of machining time



Application example

Component: Insert for punching tool, 1.2379 (61 HRC)

Tool: #7052, Ø 6.9 mm

Customer target: Increased tool life

Difficulty: Wear resistance and hardness of the component material

Cutting data:	Gühring	Competition
v_c	30 m/min	15 m/min
f	0.035 mm/rev without peck drilling	0.07 mm/rev with peck drilling

Tool life:	140 holes	40 holes
-------------------	-----------	----------



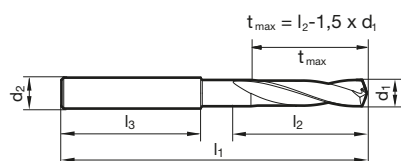
Ratio drills without coolant ducts

Article no. **7052**

cutting data see page 55



Web thinning $\geq \varnothing 3.000$ • relieved cone • maximum performance • optimised cutting edge geometry • main cutting edge slightly concave • for the machining of hardened materials up to 67 HRC



Article no.

7052

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
3.100	1/8	6.0	62.0	20.0	36.0	7052 3.100
3.170		6.0	62.0	20.0	36.0	7052 3.170
3.200		6.0	62.0	20.0	36.0	7052 3.200
3.300		6.0	62.0	20.0	36.0	7052 3.300
3.400	9/64	6.0	62.0	20.0	36.0	7052 3.400
3.500		6.0	62.0	20.0	36.0	7052 3.500
3.570		6.0	62.0	20.0	36.0	7052 3.570
3.600		6.0	62.0	20.0	36.0	7052 3.600
3.700	5/32	6.0	62.0	20.0	36.0	7052 3.700
3.800		6.0	66.0	24.0	36.0	7052 3.800
3.900		6.0	66.0	24.0	36.0	7052 3.900
3.970		6.0	66.0	24.0	36.0	7052 3.970
4.000	11/64	6.0	66.0	24.0	36.0	7052 4.000
4.100		6.0	66.0	24.0	36.0	7052 4.100
4.200		6.0	66.0	24.0	36.0	7052 4.200
4.300		6.0	66.0	24.0	36.0	7052 4.300
4.370	3/16	6.0	66.0	24.0	36.0	7052 4.370
4.400		6.0	66.0	24.0	36.0	7052 4.400
4.500		6.0	66.0	24.0	36.0	7052 4.500
4.600		6.0	66.0	24.0	36.0	7052 4.600
4.700	7/32	6.0	66.0	24.0	36.0	7052 4.700
4.760		6.0	66.0	28.0	36.0	7052 4.760
4.800		6.0	66.0	28.0	36.0	7052 4.800
4.900		6.0	66.0	28.0	36.0	7052 4.900
5.000	13/64	6.0	66.0	28.0	36.0	7052 5.000
5.100		6.0	66.0	28.0	36.0	7052 5.100
5.160		6.0	66.0	28.0	36.0	7052 5.160
5.200		6.0	66.0	28.0	36.0	7052 5.200
5.300	15/64	6.0	66.0	28.0	36.0	7052 5.300
5.400		6.0	66.0	28.0	36.0	7052 5.400
5.500		6.0	66.0	28.0	36.0	7052 5.500
5.560		6.0	66.0	28.0	36.0	7052 5.560
5.600	1/4	6.0	66.0	28.0	36.0	7052 5.600
5.700		6.0	66.0	28.0	36.0	7052 5.700
5.800		6.0	66.0	28.0	36.0	7052 5.800
5.900		6.0	66.0	28.0	36.0	7052 5.900
5.950	9/32	6.0	66.0	28.0	36.0	7052 5.950
6.000		6.0	66.0	28.0	36.0	7052 6.000
6.100		8.0	79.0	34.0	36.0	7052 6.100
6.200		8.0	79.0	34.0	36.0	7052 6.200
6.300	5/16	8.0	79.0	34.0	36.0	7052 6.300
6.350		8.0	79.0	34.0	36.0	7052 6.350
6.400		8.0	79.0	34.0	36.0	7052 6.400
6.500		8.0	79.0	34.0	36.0	7052 6.500
6.600	3/8	8.0	79.0	34.0	36.0	7052 6.600
6.700		8.0	79.0	34.0	36.0	7052 6.700
6.750		8.0	79.0	34.0	36.0	7052 6.750
6.800		8.0	79.0	34.0	36.0	7052 6.800
6.900	7/16	8.0	79.0	34.0	36.0	7052 6.900
7.000		8.0	79.0	34.0	36.0	7052 7.000
7.100		8.0	79.0	41.0	36.0	7052 7.100
7.140		8.0	79.0	41.0	36.0	7052 7.140
7.200	1/2	8.0	79.0	41.0	36.0	7052 7.200
7.300		8.0	79.0	41.0	36.0	7052 7.300
7.400		8.0	79.0	41.0	36.0	7052 7.400
7.500		8.0	79.0	41.0	36.0	7052 7.500
7.540	9/16	8.0	79.0	41.0	36.0	7052 7.540
7.600		8.0	79.0	41.0	36.0	7052 7.600
7.700		8.0	79.0	41.0	36.0	7052 7.700
7.800		8.0	79.0	41.0	36.0	7052 7.800
7.900	5/8	8.0	79.0	41.0	36.0	7052 7.900
7.940		8.0	79.0	41.0	36.0	7052 7.940
8.000		8.0	79.0	41.0	36.0	7052 8.000
8.100		8.0	79.0	41.0	36.0	7052 8.100
8.200	3/4	10.0	89.0	47.0	40.0	7052 8.200
8.300		10.0	89.0	47.0	40.0	7052 8.300

Article no.

7052

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
8.330	21/64	10.0	89.0	47.0	40.0	7052 8.330
8.400		10.0	89.0	47.0	40.0	7052 8.400
8.500		10.0	89.0	47.0	40.0	7052 8.500
8.600		10.0	89.0	47.0	40.0	7052 8.600
8.700	11/32	10.0	89.0	47.0	40.0	7052 8.700
8.730		10.0	89.0	47.0	40.0	7052 8.730
8.800		10.0	89.0	47.0	40.0	7052 8.800
8.900		10.0	89.0	47.0	40.0	7052 8.900
9.000	23/64	10.0	89.0	47.0	40.0	7052 9.000
9.100		10.0	89.0	47.0	40.0	7052 9.100
9.130		10.0	89.0	47.0	40.0	7052 9.130
9.200		10.0	89.0	47.0	40.0	7052 9.200
9.300	3/8	10.0	89.0	47.0	40.0	7052 9.300
9.400		10.0	89.0	47.0	40.0	7052 9.400
9.500		10.0	89.0	47.0	40.0	7052 9.500
9.520		10.0	89.0	47.0	40.0	7052 9.520
9.600	25/64	10.0	89.0	47.0	40.0	7052 9.600
9.700		10.0	89.0	47.0	40.0	7052 9.700
9.800		10.0	89.0	47.0	40.0	7052 9.800
9.900		10.0	89.0	47.0	40.0	7052 9.900
9.920	13/32	10.0	89.0	47.0	40.0	7052 9.920
10.000		10.0	89.0	47.0	40.0	7052 10.000
10.100		12.0	102.0	55.0	45.0	7052 10.100
10.200		12.0	102.0	55.0	45.0	7052 10.200
10.300	7/16	12.0	102.0	55.0	45.0	7052 10.300
10.320		12.0	102.0	55.0	45.0	7052 10.320
10.400		12.0	102.0	55.0	45.0	7052 10.400
10.500		12.0	102.0	55.0	45.0	7052 10.500
10.600	1/2	12.0	102.0	55.0	45.0	7052 10.600
10.700		12.0	102.0	55.0	45.0	7052 10.700
10.800		12.0	102.0	55.0	45.0	7052 10.800
10.900		12.0	102.0	55.0	45.0	7052 10.900
11.000	9/16	12.0	102.0	55.0	45.0	7052 11.000
11.100		12.0	102.0	55.0	45.0	7052 11.100
11.110		12.0	102.0	55.0	45.0	7052 11.110
11.200		12.0	102.0	55.0	45.0	7052 11.200
11.300	5/8	12.0	102.0	55.0	45.0	7052 11.300
11.400		12.0	102.0	55.0	45.0	7052 11.400
11.500		12.0	102.0	55.0	45.0	7052 11.500
11.600		12.0	102.0	55.0	45.0	7052 11.600
11.700	3/4	12.0	102.0	55.0	45.0	7052 11.700
11.800		12.0	102.0	55.0	45.0	7052 11.800
11.900		12.0	102.0	55.0	45.0	7052 11.900
11.910		12.0	102.0	55.0	45.0	7052 11.910
12.000	7/8	12.0	102.0	55.0	45.0	7052 12.000
12.200		14.0	107.0	60.0	45.0	7052 12.200
12.500		14.0	107.0	60.0	45.0	7052 12.500
12.700		14.0	107.0	60.0	45.0	7052 12.700
12.800	1 1/8	14.0	107.0	60.0	45.0	7052 12.800
13.000		14.0	107.0	60.0	45.0	7052 13.000
13.490		14.0	107.0	60.0	45.0	7052 13.490
13.500		14.0	107.0	60.0	45.0	7052 13.500
13.800	1 1/4	14.0	107.0	60.0	45.0	7052 13.800
14.000		14.0	107.0	60.0	45.0	7052 14.000
14.100		16.0	115.0	65.0	48.0	7052 14.100
14.500		16.0	115.0	65.0	48.0	7052 14.500
14.800	1 3/8	16.0	115.0	65.0	48.0	7052 14.800
15.000		16.0	115.0	65.0	48.0	7052 15.000
15.500		16.0	115.0	65.0	48.0	7052 15.500
15.800		16.0	115.0	65.0	48.0	7052 15.800
16.000	1 1/2	16.0	115.0	65.0	48.0	7052 16.000

FB 200 U





FB 200 U

Faster to the 180° hole base

Three-fluted flat drill
for efficient & high quality
180° holes

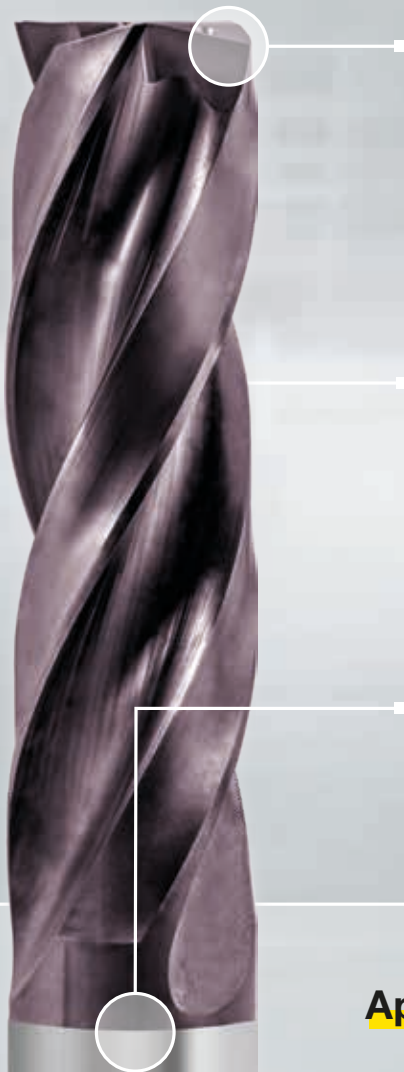
**Compared to conventional flat drills,
the FB 200 U can be used on flat surfaces
without any pre-drilling or feed rate reduction.**

As a result, you not only benefit from a significant
reduction in machining time: In terms of hole quality,
the FB 200 U is on a par with conventional
two-fluted flat drills.

In contrast: With the three-fluted design, you can create
significantly rounder holes with much greater dimensional
accuracy and up to 50 % higher cutting values.

- x Improved **chip formation**
- x **Machining time** reduced by 47 %

- X** drilling on flat surfaces without pre-drilling or reducing the cutting values
- X** up to 50 % higher cutting values compared to two-fluted flat drills
- X** reduced process costs as inclined surfaces no longer need to be faced
- X** spot drilling without deflection on inclined & curved surfaces up to 45° with 3xD version



3 cutting edges with 180° point angle
for dimensionally accurate and round holes

available in the diameter range
~3xD | ~5xD, Ø 4.0–20.0 mm

reinforced shank transition
for greater stability

Application example

Component: Cog, 42CrMo4 surface-hardened to 60 HRC

Tool: #6065, Ø 4.2 mm

Customer target: Process-reliable drilling with short chips,
reduction of machining time

Difficulty: Chip formation, high hardness in the edge area of the
component with lower hardness inside the component

Cutting data: **Gühring**

v_c 50 m/min
f 0.06 mm/rev

Competition

v_c 39.6 m/min
f 0.04 mm/rev



Flat bottom drills with coolant ducts, 3-fluted

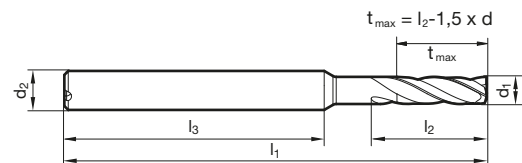
Article no. **6065**



cutting data see page 56



180° point geometry for flat bottomed holes • for piloting, drilling, finishing • low burr development • piloting in all positions and materials



Article no.

6065

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
4.000		6.0	65.0	18.0	40.0	6065 4.000
4.100		6.0	65.0	18.0	40.0	6065 4.100
4.200		6.0	65.0	18.0	40.0	6065 4.200
4.300		6.0	65.0	21.0	40.0	6065 4.300
4.370	11/64	6.0	65.0	21.0	40.0	6065 4.370
4.400		6.0	65.0	21.0	40.0	6065 4.400
4.500		6.0	65.0	21.0	40.0	6065 4.500
4.600		6.0	65.0	21.0	40.0	6065 4.600
4.700		6.0	65.0	21.0	40.0	6065 4.700
4.760	3/16	6.0	65.0	26.0	36.0	6065 4.760
4.800		6.0	65.0	26.0	36.0	6065 4.800
4.900		6.0	65.0	26.0	36.0	6065 4.900
5.000		6.0	65.0	26.0	36.0	6065 5.000
5.100		6.0	65.0	26.0	36.0	6065 5.100
5.160	13/64	6.0	65.0	26.0	36.0	6065 5.160
5.200		6.0	65.0	26.0	36.0	6065 5.200
5.300		6.0	65.0	26.0	36.0	6065 5.300
5.400		6.0	65.0	26.0	36.0	6065 5.400
5.500		6.0	65.0	26.0	36.0	6065 5.500
5.560	7/32	6.0	65.0	26.0	36.0	6065 5.560
5.600		6.0	65.0	26.0	36.0	6065 5.600
5.700		6.0	65.0	26.0	36.0	6065 5.700
5.800		6.0	65.0	26.0	36.0	6065 5.800
5.900		6.0	65.0	26.0	36.0	6065 5.900
5.950	15/64	6.0	65.0	26.0	36.0	6065 5.950
6.000		6.0	65.0	26.0	36.0	6065 6.000
6.100		8.0	78.0	31.0	36.0	6065 6.100
6.200		8.0	78.0	31.0	36.0	6065 6.200
6.300		8.0	78.0	31.0	36.0	6065 6.300
6.350	1/4	8.0	78.0	31.0	36.0	6065 6.350
6.400		8.0	78.0	31.0	36.0	6065 6.400
6.500		8.0	78.0	31.0	36.0	6065 6.500
6.600		8.0	78.0	31.0	36.0	6065 6.600
6.700		8.0	78.0	31.0	36.0	6065 6.700
6.750	17/64	8.0	78.0	31.0	36.0	6065 6.750
6.800		8.0	78.0	31.0	36.0	6065 6.800
6.900		8.0	78.0	31.0	36.0	6065 6.900
7.000		8.0	78.0	31.0	36.0	6065 7.000
7.100		8.0	78.0	35.0	36.0	6065 7.100
7.140	9/32	8.0	78.0	35.0	36.0	6065 7.140
7.200		8.0	78.0	35.0	36.0	6065 7.200
7.300		8.0	78.0	35.0	36.0	6065 7.300
7.400		8.0	78.0	35.0	36.0	6065 7.400
7.500		8.0	78.0	35.0	36.0	6065 7.500
7.540	19/64	8.0	78.0	35.0	36.0	6065 7.540
7.600		8.0	78.0	35.0	36.0	6065 7.600
7.700		8.0	78.0	35.0	36.0	6065 7.700
7.800		8.0	78.0	35.0	36.0	6065 7.800
7.900		8.0	78.0	35.0	36.0	6065 7.900
7.940	5/16	8.0	78.0	35.0	36.0	6065 7.940
8.000		8.0	78.0	35.0	36.0	6065 8.000
8.100		10.0	87.0	43.0	40.0	6065 8.100
8.200		10.0	87.0	43.0	40.0	6065 8.200
8.300		10.0	87.0	43.0	40.0	6065 8.300
8.330	21/64	10.0	87.0	43.0	40.0	6065 8.330
8.400		10.0	87.0	43.0	40.0	6065 8.400
8.500		10.0	87.0	43.0	40.0	6065 8.500
8.600		10.0	87.0	43.0	40.0	6065 8.600
8.700		10.0	87.0	43.0	40.0	6065 8.700
8.730	11/32	10.0	87.0	43.0	40.0	6065 8.730
8.800		10.0	87.0	43.0	40.0	6065 8.800
8.900		10.0	87.0	43.0	40.0	6065 8.900
9.000		10.0	87.0	43.0	40.0	6065 9.000
9.100		10.0	87.0	43.0	40.0	6065 9.100
9.130	23/64	10.0	87.0	43.0	40.0	6065 9.130
9.200		10.0	87.0	43.0	40.0	6065 9.200

Article no.

6065

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
9.300		10.0	87.0	43.0	40.0	6065 9.300
9.400		10.0	87.0	43.0	40.0	6065 9.400
9.500		10.0	87.0	43.0	40.0	6065 9.500
9.520	3/8	10.0	87.0	43.0	40.0	6065 9.520
9.600		10.0	87.0	43.0	40.0	6065 9.600
9.700		10.0	87.0	43.0	40.0	6065 9.700
9.800		10.0	87.0	43.0	40.0	6065 9.800
9.900		10.0	87.0	43.0	40.0	6065 9.900
9.920	25/64	10.0	87.0	43.0	40.0	6065 9.920
10.000		10.0	87.0	43.0	40.0	6065 10.000
10.100		12.0	100.0	52.0	45.0	6065 10.100
10.200		12.0	100.0	52.0	45.0	6065 10.200
10.300		12.0	100.0	52.0	45.0	6065 10.300
10.320	13/32	12.0	100.0	52.0	45.0	6065 10.320
10.400		12.0	100.0	52.0	45.0	6065 10.400
10.500		12.0	100.0	52.0	45.0	6065 10.500
10.600		12.0	100.0	52.0	45.0	6065 10.600
10.700		12.0	100.0	52.0	45.0	6065 10.700
10.800		12.0	100.0	52.0	45.0	6065 10.800
10.900		12.0	100.0	52.0	45.0	6065 10.900
11.000		12.0	100.0	52.0	45.0	6065 11.000
11.100		12.0	100.0	52.0	45.0	6065 11.100
11.110	7/16	12.0	100.0	52.0	45.0	6065 11.110
11.200		12.0	100.0	52.0	45.0	6065 11.200
11.300		12.0	100.0	52.0	45.0	6065 11.300
11.400		12.0	100.0	52.0	45.0	6065 11.400
11.500		12.0	100.0	52.0	45.0	6065 11.500
11.600		12.0	100.0	52.0	45.0	6065 11.600
11.700		12.0	100.0	52.0	45.0	6065 11.700
11.800		12.0	100.0	52.0	45.0	6065 11.800
11.900		12.0	100.0	52.0	45.0	6065 11.900
11.910	15/32	12.0	100.0	52.0	45.0	6065 11.910
12.000		12.0	100.0	52.0	45.0	6065 12.000
12.100		14.0	104.0	57.0	45.0	6065 12.100
12.200		14.0	104.0	57.0	45.0	6065 12.200
12.500		14.0	104.0	57.0	45.0	6065 12.500
12.600		14.0	104.0	57.0	45.0	6065 12.600
12.700	1/2	14.0	104.0	57.0	45.0	6065 12.700
12.800		14.0	104.0	57.0	45.0	6065 12.800
12.900		14.0	104.0	57.0	45.0	6065 12.900
13.000		14.0	104.0	57.0	45.0	6065 13.000
13.490	17/32	14.0	104.0	57.0	45.0	6065 13.490
13.500		14.0	104.0	57.0	45.0	6065 13.500
13.800		14.0	104.0	57.0	45.0	6065 13.800
14.000		14.0	104.0	57.0	45.0	6065 14.000
14.500		16.0	112.0	62.0	48.0	6065 14.500
14.800		16.0	112.0	62.0	48.0	6065 14.800
15.000		16.0	112.0	62.0	48.0	6065 15.000
15.500		16.0	112.0	62.0	48.0	6065 15.500
15.800		16.0	112.0	62.0	48.0	6065 15.800
16.000		16.0	112.0	62.0	48.0	6065 16.000
16.500		18.0	120.0	70.0	48.0	6065 16.500
17.000		18.0	120.0	70.0	48.0	6065 17.000
17.500		18.0	120.0	70.0	48.0	6065 17.500
18.000		18.0	120.0	70.0	48.0	6065 18.000
18.500		20.0	128.0	76.0	50.0	6065 18.500
19.000		20.0	128.0	76.0	50.0	6065 19.000
19.500		20.0	128.0	76.0	50.0	6065 19.500
20.000		20.0	128.0	76.0	50.0	6065 20.000



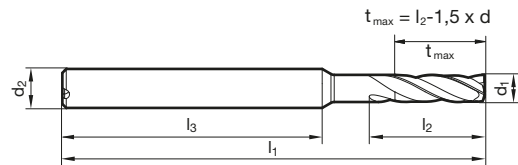
Flat bottom drills with coolant ducts, 3-fluted

Article no. **6066**

180° point geometry for flat bottomed holes • low burr development

cutting data see page 57

P	M	K	N	S	H
●	●	●	○	○	○



Article no.

6066

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
4.000		6.0	73.0	30.0	40.0	6066 4.000
4.100		6.0	73.0	30.0	40.0	6066 4.100
4.200		6.0	73.0	30.0	40.0	6066 4.200
4.300		6.0	73.0	33.0	38.0	6066 4.300
4.370	11/64	6.0	73.0	33.0	38.0	6066 4.370
4.400		6.0	73.0	33.0	38.0	6066 4.400
4.500		6.0	73.0	33.0	38.0	6066 4.500
4.600		6.0	73.0	33.0	38.0	6066 4.600
4.700		6.0	73.0	33.0	38.0	6066 4.700
4.760	3/16	6.0	81.0	36.0	38.0	6066 4.760
4.800		6.0	81.0	36.0	38.0	6066 4.800
4.900		6.0	81.0	36.0	38.0	6066 4.900
5.000		6.0	81.0	36.0	38.0	6066 5.000
5.100		6.0	81.0	39.0	36.0	6066 5.100
5.160	13/64	6.0	81.0	39.0	36.0	6066 5.160
5.200		6.0	81.0	39.0	36.0	6066 5.200
5.300		6.0	81.0	39.0	36.0	6066 5.300
5.400		6.0	81.0	39.0	36.0	6066 5.400
5.500		6.0	81.0	39.0	36.0	6066 5.500
5.560	7/32	6.0	81.0	42.0	36.0	6066 5.560
5.600		6.0	81.0	42.0	36.0	6066 5.600
5.700		6.0	81.0	42.0	36.0	6066 5.700
5.800		6.0	81.0	42.0	36.0	6066 5.800
5.900		6.0	81.0	42.0	36.0	6066 5.900
5.950	15/64	6.0	81.0	42.0	36.0	6066 5.950
6.000		6.0	81.0	42.0	36.0	6066 6.000
6.100		8.0	90.0	50.0	36.0	6066 6.100
6.200		8.0	90.0	50.0	36.0	6066 6.200
6.300		8.0	90.0	50.0	36.0	6066 6.300
6.350	1/4	8.0	90.0	50.0	36.0	6066 6.350
6.400		8.0	90.0	50.0	36.0	6066 6.400
6.500		8.0	90.0	50.0	36.0	6066 6.500
6.600		8.0	90.0	50.0	36.0	6066 6.600
6.700		8.0	90.0	50.0	36.0	6066 6.700
6.750	17/64	8.0	90.0	50.0	36.0	6066 6.750
6.800		8.0	90.0	50.0	36.0	6066 6.800
6.900		8.0	90.0	50.0	36.0	6066 6.900
7.000		8.0	90.0	50.0	36.0	6066 7.000
7.100		8.0	90.0	50.0	36.0	6066 7.100
7.140	9/32	8.0	90.0	50.0	36.0	6066 7.140
7.200		8.0	90.0	50.0	36.0	6066 7.200
7.300		8.0	90.0	50.0	36.0	6066 7.300
7.400		8.0	90.0	50.0	36.0	6066 7.400
7.500		8.0	90.0	50.0	36.0	6066 7.500
7.540	19/64	8.0	90.0	50.0	36.0	6066 7.540
7.600		8.0	90.0	50.0	36.0	6066 7.600
7.700		8.0	90.0	50.0	36.0	6066 7.700
7.800		8.0	90.0	50.0	36.0	6066 7.800
7.900		8.0	90.0	50.0	36.0	6066 7.900
7.940	5/16	8.0	90.0	50.0	36.0	6066 7.940
8.000		8.0	90.0	50.0	36.0	6066 8.000
8.100		10.0	101.0	57.0	40.0	6066 8.100
8.200		10.0	101.0	57.0	40.0	6066 8.200
8.300		10.0	101.0	57.0	40.0	6066 8.300
8.330	21/64	10.0	101.0	57.0	40.0	6066 8.330
8.400		10.0	101.0	57.0	40.0	6066 8.400
8.500		10.0	101.0	57.0	40.0	6066 8.500
8.600		10.0	101.0	57.0	40.0	6066 8.600
8.700		10.0	101.0	57.0	40.0	6066 8.700
8.730	11/32	10.0	101.0	57.0	40.0	6066 8.730
8.800		10.0	101.0	57.0	40.0	6066 8.800
8.900		10.0	101.0	57.0	40.0	6066 8.900
9.000		10.0	101.0	57.0	40.0	6066 9.000
9.100		10.0	101.0	57.0	40.0	6066 9.100
9.130	23/64	10.0	101.0	57.0	40.0	6066 9.130
9.200		10.0	101.0	57.0	40.0	6066 9.200

Article no.

6066

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
9.300		10.0	101.0	57.0	40.0	6066 9.300
9.400		10.0	101.0	57.0	40.0	6066 9.400
9.500		10.0	101.0	57.0	40.0	6066 9.500
9.520	3/8	10.0	101.0	57.0	40.0	6066 9.520
9.600		10.0	101.0	57.0	40.0	6066 9.600
9.700		10.0	101.0	57.0	40.0	6066 9.700
9.800		10.0	101.0	57.0	40.0	6066 9.800
9.900		10.0	101.0	57.0	40.0	6066 9.900
9.920	25/64	10.0	101.0	57.0	40.0	6066 9.920
10.000		10.0	101.0	57.0	40.0	6066 10.000
10.100		12.0	116.0	68.0	45.0	6066 10.100
10.200		12.0	116.0	68.0	45.0	6066 10.200
10.300		12.0	116.0	68.0	45.0	6066 10.300
10.320	13/32	12.0	116.0	68.0	45.0	6066 10.320
10.400		12.0	116.0	68.0	45.0	6066 10.400
10.500		12.0	116.0	68.0	45.0	6066 10.500
10.600		12.0	116.0	68.0	45.0	6066 10.600
10.700		12.0	116.0	68.0	45.0	6066 10.700
10.800		12.0	116.0	68.0	45.0	6066 10.800
10.900		12.0	116.0	68.0	45.0	6066 10.900
11.000		12.0	116.0	68.0	45.0	6066 11.000
11.100		12.0	116.0	68.0	45.0	6066 11.100
11.110	7/16	12.0	116.0	68.0	45.0	6066 11.110
11.200		12.0	116.0	68.0	45.0	6066 11.200
11.300		12.0	116.0	68.0	45.0	6066 11.300
11.400		12.0	116.0	68.0	45.0	6066 11.400
11.500		12.0	116.0	68.0	45.0	6066 11.500
11.600		12.0	116.0	68.0	45.0	6066 11.600
11.700		12.0	116.0	68.0	45.0	6066 11.700
11.800		12.0	116.0	68.0	45.0	6066 11.800
11.900		12.0	116.0	68.0	45.0	6066 11.900
11.910	15/32	12.0	116.0	68.0	45.0	6066 11.910
12.000		12.0	116.0	68.0	45.0	6066 12.000
12.100		14.0	121.0	74.0	45.0	6066 12.100
12.200		14.0	121.0	74.0	45.0	6066 12.200
12.500		14.0	121.0	74.0	45.0	6066 12.500
12.600		14.0	121.0	74.0	45.0	6066 12.600
12.700	1/2	14.0	121.0	74.0	45.0	6066 12.700
12.800		14.0	121.0	74.0	45.0	6066 12.800
12.900		14.0	121.0	74.0	45.0	6066 12.900
13.000		14.0	121.0	74.0	45.0	6066 13.000
13.490	17/32	14.0	121.0	74.0	45.0	6066 13.490
13.500		14.0	121.0	74.0	45.0	6066 13.500
13.800		14.0	121.0	74.0	45.0	6066 13.800
14.000		14.0	121.0	74.0	45.0	6066 14.000
14.500		16.0	130.0	80.0	48.0	6066 14.500
14.800		16.0	130.0	80.0	48.0	6066 14.800
15.000		16.0	130.0	80.0	48.0	6066 15.000
15.500		16.0	130.0	80.0	48.0	6066 15.500
15.800		16.0	130.0	80.0	48.0	6066 15.800
16.000		16.0	130.0	80.0	48.0	6066 16.000
16.500		18.0	140.0	90.0	48.0	6066 16.500
17.000		18.0	140.0	90.0	48.0	6066 17.000
17.500		18.0	140.0	90.0	48.0	6066 17.500
18.000		18.0	140.0	90.0	48.0	6066 18.000
18.500		20.0	150.0	98.0	50.0	6066 18.500
19.000		20.0	150.0	98.0	50.0	6066 19.000
19.500		20.0	150.0	98.0	50.0	6066 19.500
20.000		20.0	150.0	98.0	50.0	6066 20.000



RT 100 AL

Drilling specialist for non-ferrous metals

No built-up edges and
perfect chip removal

**The RT 100 AL is characterised by its round,
open point geometry and concave cutting edge shape.**

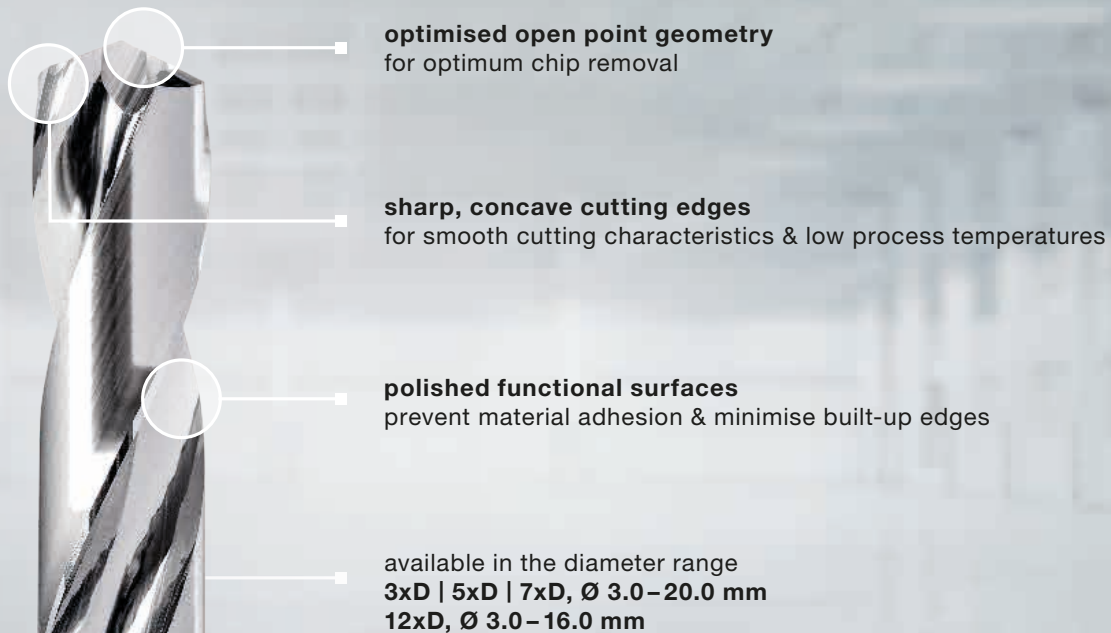
As a result, the drill ensures optimum chip formation and
safe chip removal in both wrought and cast aluminium alloys.

Furthermore, the sharp, micro-polished cutting edges
ensure smooth cutting characteristics and low process
temperatures. Combined with the polished flutes – which
further promote chip removal – the polished surfaces in
the web thinning and on the clearance faces prevent
material adhesion and minimise built-up edges.

Your advantages: With the RT 100 AL, you benefit
from maximum process reliability when machining
non-ferrous metals, even with high cutting values.

- x **Tool life** increased by 16 %
- x **Machining time** reduced by 25 %

- X** soft cut & low process temperature even in heat-treated AISi alloys
- X** fewer built-up edges & less material adhesion
- X** long tool life thanks to wear-resistant carbide grade
- X** optimum formation & removal of chips in non-ferrous metals



Application example

Component: Moulded part in the food industry, AlMg5 (3.3555)

Tool: #6062, Ø 11.8 mm

Customer target: Process-reliable and economical machining

Difficulty: Reliable chip removal with high machining parameters

Cutting data:	Gühring	Competition
v_c	250 m/min	220 m/min
f	0.35 mm/rev	0.30 mm/rev

Tool life:	4608 m	3974 m
-------------------	--------	--------



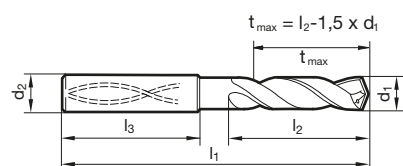
Ratio drills with coolant ducts

Article no. **6062**

cutting data see page 58



Web thinning $\geq \varnothing 3.000$ • relieved cone • main cutting edge is slightly concave • optimised cutting edge geometry
• sharp cutting characteristics • polished functional surfaces for the prevention of built-up edges



Article no.

6062

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
3.000		6.0	62.0	20.0	36.0	6062 3.000
3.100		6.0	62.0	20.0	36.0	6062 3.100
3.170	1/8	6.0	62.0	20.0	36.0	6062 3.170
3.200		6.0	62.0	20.0	36.0	6062 3.200
3.250		6.0	62.0	20.0	36.0	6062 3.250
3.300		6.0	62.0	20.0	36.0	6062 3.300
3.400		6.0	62.0	20.0	36.0	6062 3.400
3.500		6.0	62.0	20.0	36.0	6062 3.500
3.570	9/64	6.0	62.0	20.0	36.0	6062 3.570
3.600		6.0	62.0	20.0	36.0	6062 3.600
3.700		6.0	62.0	20.0	36.0	6062 3.700
3.800		6.0	66.0	24.0	36.0	6062 3.800
3.900		6.0	66.0	24.0	36.0	6062 3.900
3.970	5/32	6.0	66.0	24.0	36.0	6062 3.970
4.000		6.0	66.0	24.0	36.0	6062 4.000
4.100		6.0	66.0	24.0	36.0	6062 4.100
4.200		6.0	66.0	24.0	36.0	6062 4.200
4.300		6.0	66.0	24.0	36.0	6062 4.300
4.370	11/64	6.0	66.0	24.0	36.0	6062 4.370
4.400		6.0	66.0	24.0	36.0	6062 4.400
4.500		6.0	66.0	24.0	36.0	6062 4.500
4.600		6.0	66.0	24.0	36.0	6062 4.600
4.650		6.0	66.0	24.0	36.0	6062 4.650
4.700		6.0	66.0	24.0	36.0	6062 4.700
4.760	3/16	6.0	66.0	28.0	36.0	6062 4.760
4.800		6.0	66.0	28.0	36.0	6062 4.800
4.900		6.0	66.0	28.0	36.0	6062 4.900
5.000		6.0	66.0	28.0	36.0	6062 5.000
5.100		6.0	66.0	28.0	36.0	6062 5.100
5.160	13/64	6.0	66.0	28.0	36.0	6062 5.160
5.200		6.0	66.0	28.0	36.0	6062 5.200
5.300		6.0	66.0	28.0	36.0	6062 5.300
5.400		6.0	66.0	28.0	36.0	6062 5.400
5.500		6.0	66.0	28.0	36.0	6062 5.500
5.550		6.0	66.0	28.0	36.0	6062 5.550
5.560	7/32	6.0	66.0	28.0	36.0	6062 5.560
5.600		6.0	66.0	28.0	36.0	6062 5.600
5.700		6.0	66.0	28.0	36.0	6062 5.700
5.800		6.0	66.0	28.0	36.0	6062 5.800
5.900		6.0	66.0	28.0	36.0	6062 5.900
5.950	15/64	6.0	66.0	28.0	36.0	6062 5.950
6.000		6.0	66.0	28.0	36.0	6062 6.000
6.100		8.0	79.0	34.0	36.0	6062 6.100
6.200		8.0	79.0	34.0	36.0	6062 6.200
6.300		8.0	79.0	34.0	36.0	6062 6.300
6.350	1/4	8.0	79.0	34.0	36.0	6062 6.350
6.400		8.0	79.0	34.0	36.0	6062 6.400
6.500		8.0	79.0	34.0	36.0	6062 6.500
6.600		8.0	79.0	34.0	36.0	6062 6.600
6.700		8.0	79.0	34.0	36.0	6062 6.700
6.750	17/64	8.0	79.0	34.0	36.0	6062 6.750
6.800		8.0	79.0	34.0	36.0	6062 6.800
6.900		8.0	79.0	34.0	36.0	6062 6.900
7.000		8.0	79.0	34.0	36.0	6062 7.000
7.100		8.0	79.0	41.0	36.0	6062 7.100
7.140	9/32	8.0	79.0	41.0	36.0	6062 7.140
7.200		8.0	79.0	41.0	36.0	6062 7.200
7.300		8.0	79.0	41.0	36.0	6062 7.300
7.400		8.0	79.0	41.0	36.0	6062 7.400
7.500		8.0	79.0	41.0	36.0	6062 7.500
7.540	19/64	8.0	79.0	41.0	36.0	6062 7.540
7.600		8.0	79.0	41.0	36.0	6062 7.600
7.700		8.0	79.0	41.0	36.0	6062 7.700
7.800		8.0	79.0	41.0	36.0	6062 7.800
7.900		8.0	79.0	41.0	36.0	6062 7.900
7.940	5/16	8.0	79.0	41.0	36.0	6062 7.940

Article no.

6062

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
8.000		8.0	79.0	41.0	36.0	6062 8.000
8.100		10.0	89.0	47.0	40.0	6062 8.100
8.200		10.0	89.0	47.0	40.0	6062 8.200
8.300		10.0	89.0	47.0	40.0	6062 8.300
8.330	21/64	10.0	89.0	47.0	40.0	6062 8.330
8.400		10.0	89.0	47.0	40.0	6062 8.400
8.500		10.0	89.0	47.0	40.0	6062 8.500
8.600		10.0	89.0	47.0	40.0	6062 8.600
8.700		10.0	89.0	47.0	40.0	6062 8.700
8.730	11/32	10.0	89.0	47.0	40.0	6062 8.730
8.800		10.0	89.0	47.0	40.0	6062 8.800
8.900		10.0	89.0	47.0	40.0	6062 8.900
9.000		10.0	89.0	47.0	40.0	6062 9.000
9.100		10.0	89.0	47.0	40.0	6062 9.100
9.130	23/64	10.0	89.0	47.0	40.0	6062 9.130
9.200		10.0	89.0	47.0	40.0	6062 9.200
9.250		10.0	89.0	47.0	40.0	6062 9.250
9.300		10.0	89.0	47.0	40.0	6062 9.300
9.340		10.0	89.0	47.0	40.0	6062 9.340
9.400		10.0	89.0	47.0	40.0	6062 9.400
9.500		10.0	89.0	47.0	40.0	6062 9.500
9.520	3/8	10.0	89.0	47.0	40.0	6062 9.520
9.600		10.0	89.0	47.0	40.0	6062 9.600
9.700		10.0	89.0	47.0	40.0	6062 9.700
9.800		10.0	89.0	47.0	40.0	6062 9.800
9.900		10.0	89.0	47.0	40.0	6062 9.900
9.920	25/64	10.0	89.0	47.0	40.0	6062 9.920
10.000		10.0	89.0	47.0	40.0	6062 10.000
10.100		12.0	102.0	55.0	45.0	6062 10.100
10.200		12.0	102.0	55.0	45.0	6062 10.200
10.300		12.0	102.0	55.0	45.0	6062 10.300
10.320	13/32	12.0	102.0	55.0	45.0	6062 10.320
10.400		12.0	102.0	55.0	45.0	6062 10.400
10.500		12.0	102.0	55.0	45.0	6062 10.500
10.600		12.0	102.0	55.0	45.0	6062 10.600
10.700		12.0	102.0	55.0	45.0	6062 10.700
10.800		12.0	102.0	55.0	45.0	6062 10.800
10.900		12.0	102.0	55.0	45.0	6062 10.900
11.000		12.0	102.0	55.0	45.0	6062 11.000
11.100		12.0	102.0	55.0	45.0	6062 11.100
11.110	7/16	12.0	102.0	55.0	45.0	6062 11.110
11.200		12.0	102.0	55.0	45.0	6062 11.200
11.300		12.0	102.0	55.0	45.0	6062 11.300
11.400		12.0	102.0	55.0	45.0	6062 11.400
11.500		12.0	102.0	55.0	45.0	6062 11.500
11.600		12.0	102.0	55.0	45.0	6062 11.600
11.700		12.0	102.0	55.0	45.0	6062 11.700
11.800		12.0	102.0	55.0	45.0	6062 11.800
11.900		12.0	102.0	55.0	45.0	6062 11.900
11.910	15/32	12.0	102.0	55.0	45.0	6062 11.910
12.000		12.0	102.0	55.0	45.0	6062 12.000
12.100		14.0	107.0	60.0	45.0	6062 12.100
12.200		14.0	107.0	60.0	45.0	6062 12.200
12.500		14.0	107.0	60.0	45.0	6062 12.500
12.600		14.0	107.0	60.0	45.0	6062 12.600
12.700	1/2	14.0	107.0	60.0	45.0	6062 12.700
12.800		14.0	107.0	60.0	45.0	6062 12.800
12.900		14.0	107.0	60.0	45.0	6062 12.900
13.000		14.0	107.0	60.0	45.0	6062 13.000
13.100	33/64	14.0	107.0	60.0	45.0	6062 13.100
13.300		14.0	107.0	60.0	45.0	6062 13.300
13.400		14.0	107.0	60.0	45.0	6062 13.400
13.500		14.0	107.0	60.0	45.0	6062 13.500
13.700		14.0	107.0	60.0	45.0	6062 13.700
13.800		14.0	107.0	60.0	45.0	6062 13.800
14.000		14.0	107.0	60.0	45.0	6062 14.000



Article no.						6062
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
14.500		16.0	115.0	65.0	48.0	6062 14.500
14.800		16.0	115.0	65.0	48.0	6062 14.800
15.000		16.0	115.0	65.0	48.0	6062 15.000
15.500		16.0	115.0	65.0	48.0	6062 15.500
15.800		16.0	115.0	65.0	48.0	6062 15.800
16.000		16.0	115.0	65.0	48.0	6062 16.000
16.500		18.0	123.0	73.0	48.0	6062 16.500
17.000		18.0	123.0	73.0	48.0	6062 17.000
17.500		18.0	123.0	73.0	48.0	6062 17.500
18.000		18.0	123.0	73.0	48.0	6062 18.000
18.500		20.0	131.0	79.0	50.0	6062 18.500
19.000		20.0	131.0	79.0	50.0	6062 19.000

Article no.						6062
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
19.500		20.0	131.0	79.0	50.0	6062 19.500
20.000		20.0	131.0	79.0	50.0	6062 20.000



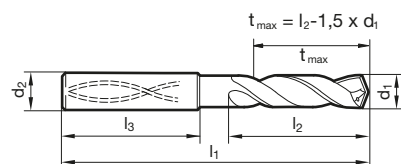
Ratio drills with coolant ducts

Article no. **5768**

cutting data see page 58



Web thinning $\geq \varnothing 3.000$ • relieved cone • main cutting edge is slightly concave • optimised cutting edge geometry
• sharp cutting characteristics • polished functional surfaces for the prevention of built-up edges



Article no.

5768

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
3.000		6.0	66.0	28.0	36.0	5768 3.000
3.100		6.0	66.0	28.0	36.0	5768 3.100
3.170	1/8	6.0	66.0	28.0	36.0	5768 3.170
3.200		6.0	66.0	28.0	36.0	5768 3.200
3.250		6.0	66.0	28.0	36.0	5768 3.250
3.300		6.0	66.0	28.0	36.0	5768 3.300
3.400		6.0	66.0	28.0	36.0	5768 3.400
3.500		6.0	66.0	28.0	36.0	5768 3.500
3.570	9/64	6.0	66.0	28.0	36.0	5768 3.570
3.600		6.0	66.0	28.0	36.0	5768 3.600
3.700		6.0	66.0	28.0	36.0	5768 3.700
3.800		6.0	74.0	36.0	36.0	5768 3.800
3.900		6.0	74.0	36.0	36.0	5768 3.900
3.970	5/32	6.0	74.0	36.0	36.0	5768 3.970
4.000		6.0	74.0	36.0	36.0	5768 4.000
4.100		6.0	74.0	36.0	36.0	5768 4.100
4.200		6.0	74.0	36.0	36.0	5768 4.200
4.300		6.0	74.0	36.0	36.0	5768 4.300
4.370	11/64	6.0	74.0	36.0	36.0	5768 4.370
4.400		6.0	74.0	36.0	36.0	5768 4.400
4.500		6.0	74.0	36.0	36.0	5768 4.500
4.600		6.0	74.0	36.0	36.0	5768 4.600
4.650		6.0	74.0	36.0	36.0	5768 4.650
4.700		6.0	74.0	36.0	36.0	5768 4.700
4.760	3/16	6.0	82.0	44.0	36.0	5768 4.760
4.800		6.0	82.0	44.0	36.0	5768 4.800
4.900		6.0	82.0	44.0	36.0	5768 4.900
5.000		6.0	82.0	44.0	36.0	5768 5.000
5.100		6.0	82.0	44.0	36.0	5768 5.100
5.160	13/64	6.0	82.0	44.0	36.0	5768 5.160
5.200		6.0	82.0	44.0	36.0	5768 5.200
5.300		6.0	82.0	44.0	36.0	5768 5.300
5.400		6.0	82.0	44.0	36.0	5768 5.400
5.500		6.0	82.0	44.0	36.0	5768 5.500
5.550		6.0	82.0	44.0	36.0	5768 5.550
5.560	7/32	6.0	82.0	44.0	36.0	5768 5.560
5.600		6.0	82.0	44.0	36.0	5768 5.600
5.700		6.0	82.0	44.0	36.0	5768 5.700
5.800		6.0	82.0	44.0	36.0	5768 5.800
5.900		6.0	82.0	44.0	36.0	5768 5.900
5.950	15/64	6.0	82.0	44.0	36.0	5768 5.950
6.000		6.0	82.0	44.0	36.0	5768 6.000
6.100		8.0	91.0	53.0	36.0	5768 6.100
6.200		8.0	91.0	53.0	36.0	5768 6.200
6.300		8.0	91.0	53.0	36.0	5768 6.300
6.350	1/4	8.0	91.0	53.0	36.0	5768 6.350
6.400		8.0	91.0	53.0	36.0	5768 6.400
6.500		8.0	91.0	53.0	36.0	5768 6.500
6.600		8.0	91.0	53.0	36.0	5768 6.600
6.700		8.0	91.0	53.0	36.0	5768 6.700
6.750	17/64	8.0	91.0	53.0	36.0	5768 6.750
6.800		8.0	91.0	53.0	36.0	5768 6.800
6.900		8.0	91.0	53.0	36.0	5768 6.900
7.000		8.0	91.0	53.0	36.0	5768 7.000
7.100		8.0	91.0	53.0	36.0	5768 7.100
7.140	9/32	8.0	91.0	53.0	36.0	5768 7.140
7.200		8.0	91.0	53.0	36.0	5768 7.200
7.300		8.0	91.0	53.0	36.0	5768 7.300
7.400		8.0	91.0	53.0	36.0	5768 7.400
7.500		8.0	91.0	53.0	36.0	5768 7.500
7.540	19/64	8.0	91.0	53.0	36.0	5768 7.540
7.600		8.0	91.0	53.0	36.0	5768 7.600
7.700		8.0	91.0	53.0	36.0	5768 7.700
7.800		8.0	91.0	53.0	36.0	5768 7.800
7.900		8.0	91.0	53.0	36.0	5768 7.900
7.940	5/16	8.0	91.0	53.0	36.0	5768 7.940

Article no.

5768

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
8.000		8.0	91.0	53.0	36.0	5768 8.000
8.100		10.0	103.0	61.0	40.0	5768 8.100
8.200		10.0	103.0	61.0	40.0	5768 8.200
8.300		10.0	103.0	61.0	40.0	5768 8.300
8.330	21/64	10.0	103.0	61.0	40.0	5768 8.330
8.400		10.0	103.0	61.0	40.0	5768 8.400
8.500		10.0	103.0	61.0	40.0	5768 8.500
8.600		10.0	103.0	61.0	40.0	5768 8.600
8.700		10.0	103.0	61.0	40.0	5768 8.700
8.730	11/32	10.0	103.0	61.0	40.0	5768 8.730
8.800		10.0	103.0	61.0	40.0	5768 8.800
8.900		10.0	103.0	61.0	40.0	5768 8.900
9.000		10.0	103.0	61.0	40.0	5768 9.000
9.100		10.0	103.0	61.0	40.0	5768 9.100
9.130	23/64	10.0	103.0	61.0	40.0	5768 9.130
9.200		10.0	103.0	61.0	40.0	5768 9.200
9.250		10.0	103.0	61.0	40.0	5768 9.250
9.300		10.0	103.0	61.0	40.0	5768 9.300
9.340		10.0	103.0	61.0	40.0	5768 9.340
9.400		10.0	103.0	61.0	40.0	5768 9.400
9.500		10.0	103.0	61.0	40.0	5768 9.500
9.520	3/8	10.0	103.0	61.0	40.0	5768 9.520
9.550		10.0	103.0	61.0	40.0	5768 9.550
9.600		10.0	103.0	61.0	40.0	5768 9.600
9.700		10.0	103.0	61.0	40.0	5768 9.700
9.800		10.0	103.0	61.0	40.0	5768 9.800
9.900		10.0	103.0	61.0	40.0	5768 9.900
9.920	25/64	10.0	103.0	61.0	40.0	5768 9.920
10.000		10.0	103.0	61.0	40.0	5768 10.000
10.100		12.0	118.0	71.0	45.0	5768 10.100
10.200		12.0	118.0	71.0	45.0	5768 10.200
10.300		12.0	118.0	71.0	45.0	5768 10.300
10.320	13/32	12.0	118.0	71.0	45.0	5768 10.320
10.400		12.0	118.0	71.0	45.0	5768 10.400
10.500		12.0	118.0	71.0	45.0	5768 10.500
10.600		12.0	118.0	71.0	45.0	5768 10.600
10.700		12.0	118.0	71.0	45.0	5768 10.700
10.800		12.0	118.0	71.0	45.0	5768 10.800
10.900		12.0	118.0	71.0	45.0	5768 10.900
11.000		12.0	118.0	71.0	45.0	5768 11.000
11.100		12.0	118.0	71.0	45.0	5768 11.100
11.110	7/16	12.0	118.0	71.0	45.0	5768 11.110
11.200		12.0	118.0	71.0	45.0	5768 11.200
11.300		12.0	118.0	71.0	45.0	5768 11.300
11.400		12.0	118.0	71.0	45.0	5768 11.400
11.500		12.0	118.0	71.0	45.0	5768 11.500
11.600		12.0	118.0	71.0	45.0	5768 11.600
11.700		12.0	118.0	71.0	45.0	5768 11.700
11.800		12.0	118.0	71.0	45.0	5768 11.800
11.900		12.0	118.0	71.0	45.0	5768 11.900
11.910	15/32	12.0	118.0	71.0	45.0	5768 11.910
12.000		12.0	118.0	71.0	45.0	5768 12.000
12.100		14.0	124.0	77.0	45.0	5768 12.100
12.200		14.0	124.0	77.0	45.0	5768 12.200
12.500		14.0	124.0	77.0	45.0	5768 12.500
12.600		14.0	124.0	77.0	45.0	5768 12.600
12.700	1/2	14.0	124.0	77.0	45.0	5768 12.700
12.800		14.0	124.0	77.0	45.0	5768 12.800
12.900		14.0	124.0	77.0	45.0	5768 12.900
13.000		14.0	124.0	77.0	45.0	5768 13.000
13.100	33/64	14.0	124.0	77.0	45.0	5768 13.100
13.300		14.0	124.0	77.0	45.0	5768 13.300
13.400		14.0	124.0	77.0	45.0	5768 13.400
13.500		14.0	124.0	77.0	45.0	5768 13.500
13.700		14.0	124.0	77.0	45.0	5768 13.700
13.800		14.0	124.0	77.0	45.0	5768 13.800



Article no.						5768	Article no.						5768
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.	d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
14.000		14.0	124.0	77.0	45.0	5768 14.000	16.700		18.0	143.0	93.0	48.0	5768 16.700
14.100		16.0	133.0	83.0	48.0	5768 14.100	16.900		18.0	143.0	93.0	48.0	5768 16.900
14.200		16.0	133.0	83.0	48.0	5768 14.200	17.000		18.0	143.0	93.0	48.0	5768 17.000
14.290	9/16	16.0	133.0	83.0	48.0	5768 14.290	17.500		18.0	143.0	93.0	48.0	5768 17.500
14.300		16.0	133.0	83.0	48.0	5768 14.300	17.700		18.0	143.0	93.0	48.0	5768 17.700
14.400		16.0	133.0	83.0	48.0	5768 14.400	18.000		18.0	143.0	93.0	48.0	5768 18.000
14.500		16.0	133.0	83.0	48.0	5768 14.500	18.500		20.0	153.0	101.0	50.0	5768 18.500
14.700		16.0	133.0	83.0	48.0	5768 14.700	18.900		20.0	153.0	101.0	50.0	5768 18.900
14.800		16.0	133.0	83.0	48.0	5768 14.800	19.000		20.0	153.0	101.0	50.0	5768 19.000
15.000		16.0	133.0	83.0	48.0	5768 15.000	19.050	3/4	20.0	153.0	101.0	50.0	5768 19.050
15.100		16.0	133.0	83.0	48.0	5768 15.100	19.300		20.0	153.0	101.0	50.0	5768 19.300
15.200		16.0	133.0	83.0	48.0	5768 15.200	19.500		20.0	153.0	101.0	50.0	5768 19.500
15.300		16.0	133.0	83.0	48.0	5768 15.300	20.000		20.0	153.0	101.0	50.0	5768 20.000
15.500		16.0	133.0	83.0	48.0	5768 15.500							
15.700		16.0	133.0	83.0	48.0	5768 15.700							
15.800		16.0	133.0	83.0	48.0	5768 15.800							
16.000		16.0	133.0	83.0	48.0	5768 16.000							
16.500		18.0	143.0	93.0	48.0	5768 16.500							



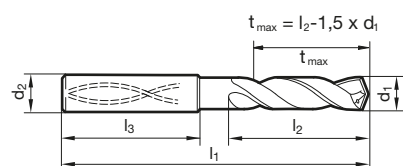
Ratio drills with coolant ducts

Article no. **6063**

cutting data see page 59



Web thinning $\geq \varnothing 3.000$ • relieved cone • main cutting edge is slightly concave • optimised cutting edge geometry
• sharp cutting characteristics • polished functional surfaces for the prevention of built-up edges



Article no.

6063

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
3.000		6.0	70.0	30.0	36.0	6063 3.000
3.100		6.0	70.0	30.0	36.0	6063 3.100
3.170	1/8	6.0	70.0	30.0	36.0	6063 3.170
3.200		6.0	70.0	30.0	36.0	6063 3.200
3.250		6.0	70.0	30.0	36.0	6063 3.250
3.300		6.0	70.0	30.0	36.0	6063 3.300
3.400		6.0	75.0	35.5	36.0	6063 3.400
3.500		6.0	75.0	35.5	36.0	6063 3.500
3.570	9/64	6.0	75.0	35.5	36.0	6063 3.570
3.600		6.0	75.0	35.5	36.0	6063 3.600
3.700		6.0	75.0	35.5	36.0	6063 3.700
3.800		6.0	75.0	37.5	36.0	6063 3.800
3.900		6.0	75.0	37.5	36.0	6063 3.900
3.970	5/32	6.0	75.0	37.5	36.0	6063 3.970
4.000		6.0	75.0	37.5	36.0	6063 4.000
4.100		6.0	75.0	37.5	36.0	6063 4.100
4.200		6.0	75.0	37.5	36.0	6063 4.200
4.300		6.0	85.0	45.0	36.0	6063 4.300
4.370	11/64	6.0	85.0	45.0	36.0	6063 4.370
4.400		6.0	85.0	45.0	36.0	6063 4.400
4.500		6.0	85.0	45.0	36.0	6063 4.500
4.600		6.0	85.0	45.0	36.0	6063 4.600
4.650		6.0	85.0	45.0	36.0	6063 4.650
4.700		6.0	85.0	45.0	36.0	6063 4.700
4.760	3/16	6.0	90.0	50.0	36.0	6063 4.760
4.800		6.0	90.0	50.0	36.0	6063 4.800
4.900		6.0	90.0	50.0	36.0	6063 4.900
5.000		6.0	90.0	50.0	36.0	6063 5.000
5.100		6.0	90.0	50.0	36.0	6063 5.100
5.160	13/64	6.0	90.0	50.0	36.0	6063 5.160
5.200		6.0	90.0	50.0	36.0	6063 5.200
5.300		6.0	90.0	50.0	36.0	6063 5.300
5.400		6.0	97.0	57.0	36.0	6063 5.400
5.500		6.0	97.0	57.0	36.0	6063 5.500
5.550		6.0	97.0	57.0	36.0	6063 5.550
5.560	7/32	6.0	97.0	57.0	36.0	6063 5.560
5.600		6.0	97.0	57.0	36.0	6063 5.600
5.700		6.0	97.0	57.0	36.0	6063 5.700
5.800		6.0	97.0	57.0	36.0	6063 5.800
5.900		6.0	97.0	57.0	36.0	6063 5.900
5.950	15/64	6.0	97.0	57.0	36.0	6063 5.950
6.000		6.0	97.0	57.0	36.0	6063 6.000
6.100		8.0	106.0	66.0	36.0	6063 6.100
6.200		8.0	106.0	66.0	36.0	6063 6.200
6.300		8.0	106.0	66.0	36.0	6063 6.300
6.350	1/4	8.0	106.0	66.0	36.0	6063 6.350
6.400		8.0	106.0	66.0	36.0	6063 6.400
6.500		8.0	106.0	66.0	36.0	6063 6.500
6.600		8.0	106.0	66.0	36.0	6063 6.600
6.700		8.0	106.0	66.0	36.0	6063 6.700
6.750	17/64	8.0	106.0	66.0	36.0	6063 6.750
6.800		8.0	106.0	66.0	36.0	6063 6.800
6.900		8.0	116.0	76.0	36.0	6063 6.900
7.000		8.0	116.0	76.0	36.0	6063 7.000
7.100		8.0	116.0	76.0	36.0	6063 7.100
7.140	9/32	8.0	116.0	76.0	36.0	6063 7.140
7.200		8.0	116.0	76.0	36.0	6063 7.200
7.300		8.0	116.0	76.0	36.0	6063 7.300
7.400		8.0	116.0	76.0	36.0	6063 7.400
7.500		8.0	116.0	76.0	36.0	6063 7.500
7.540	19/64	8.0	116.0	76.0	36.0	6063 7.540
7.600		8.0	116.0	76.0	36.0	6063 7.600
7.700		8.0	116.0	76.0	36.0	6063 7.700
7.800		8.0	116.0	76.0	36.0	6063 7.800
7.900		8.0	116.0	76.0	36.0	6063 7.900
7.940	5/16	8.0	116.0	76.0	36.0	6063 7.940

Article no.

6063

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
8.000		8.0	116.0	76.0	36.0	6063 8.000
8.100		10.0	131.0	87.0	40.0	6063 8.100
8.200		10.0	131.0	87.0	40.0	6063 8.200
8.300		10.0	131.0	87.0	40.0	6063 8.300
8.330	21/64	10.0	131.0	87.0	40.0	6063 8.330
8.400		10.0	131.0	87.0	40.0	6063 8.400
8.500		10.0	131.0	87.0	40.0	6063 8.500
8.600		10.0	131.0	87.0	40.0	6063 8.600
8.700		10.0	131.0	87.0	40.0	6063 8.700
8.730	11/32	10.0	131.0	87.0	40.0	6063 8.730
8.800		10.0	131.0	87.0	40.0	6063 8.800
8.900		10.0	131.0	87.0	40.0	6063 8.900
9.000		10.0	131.0	87.0	40.0	6063 9.000
9.100		10.0	139.0	95.0	40.0	6063 9.100
9.130	23/64	10.0	139.0	95.0	40.0	6063 9.130
9.200		10.0	139.0	95.0	40.0	6063 9.200
9.250		10.0	139.0	95.0	40.0	6063 9.250
9.300		10.0	139.0	95.0	40.0	6063 9.300
9.340		10.0	139.0	95.0	40.0	6063 9.340
9.400		10.0	139.0	95.0	40.0	6063 9.400
9.500		10.0	139.0	95.0	40.0	6063 9.500
9.520	3/8	10.0	139.0	95.0	40.0	6063 9.520
9.600		10.0	139.0	95.0	40.0	6063 9.600
9.700		10.0	139.0	95.0	40.0	6063 9.700
9.800		10.0	139.0	95.0	40.0	6063 9.800
9.900		10.0	139.0	95.0	40.0	6063 9.900
9.920	25/64	10.0	139.0	95.0	40.0	6063 9.920
10.000		10.0	139.0	95.0	40.0	6063 10.000
10.100		12.0	155.0	106.0	45.0	6063 10.100
10.200		12.0	155.0	106.0	45.0	6063 10.200
10.300		12.0	155.0	106.0	45.0	6063 10.300
10.320	13/32	12.0	155.0	106.0	45.0	6063 10.320
10.400		12.0	155.0	106.0	45.0	6063 10.400
10.500		12.0	155.0	106.0	45.0	6063 10.500
10.600		12.0	155.0	106.0	45.0	6063 10.600
10.700		12.0	155.0	106.0	45.0	6063 10.700
10.800		12.0	155.0	106.0	45.0	6063 10.800
10.900		12.0	155.0	106.0	45.0	6063 10.900
11.000		12.0	155.0	106.0	45.0	6063 11.000
11.100		12.0	163.0	114.0	45.0	6063 11.100
11.110	7/16	12.0	163.0	114.0	45.0	6063 11.110
11.200		12.0	163.0	114.0	45.0	6063 11.200
11.300		12.0	163.0	114.0	45.0	6063 11.300
11.400		12.0	163.0	114.0	45.0	6063 11.400
11.500		12.0	163.0	114.0	45.0	6063 11.500
11.600		12.0	163.0	114.0	45.0	6063 11.600
11.700		12.0	163.0	114.0	45.0	6063 11.700
11.800		12.0	163.0	114.0	45.0	6063 11.800
11.900		12.0	163.0	114.0	45.0	6063 11.900
11.910	15/32	12.0	163.0	114.0	45.0	6063 11.910
12.000		12.0	163.0	114.0	45.0	6063 12.000
12.100		14.0	182.0	133.0	45.0	6063 12.100
12.200		14.0	182.0	133.0	45.0	6063 12.200
12.500		14.0	182.0	133.0	45.0	6063 12.500
12.600		14.0	182.0	133.0	45.0	6063 12.600
12.700	1/2	14.0	182.0	133.0	45.0	6063 12.700
12.800		14.0	182.0	133.0	45.0	6063 12.800
12.900		14.0	182.0	133.0	45.0	6063 12.900
13.000		14.0	182.0	133.0	45.0	6063 13.000
13.100	33/64	14.0	182.0	133.0	45.0	6063 13.100
13.300		14.0	182.0	133.0	45.0	6063 13.300
13.400		14.0	182.0	133.0	45.0	6063 13.400
13.500		14.0	182.0	133.0	45.0	6063 13.500
13.700		14.0	182.0	133.0	45.0	6063 13.700
13.800		14.0	182.0	133.0	45.0	6063 13.800
14.000		14.0	182.0	133.0	45.0	6063 14.000



Article no.						6063
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
14.500		16.0	204.0	152.0	48.0	6063 14.500
14.800		16.0	204.0	152.0	48.0	6063 14.800
15.000		16.0	204.0	152.0	48.0	6063 15.000
15.500		16.0	204.0	152.0	48.0	6063 15.500
15.800		16.0	204.0	152.0	48.0	6063 15.800
16.000		16.0	204.0	152.0	48.0	6063 16.000
16.500		18.0	223.0	171.0	48.0	6063 16.500
17.000		18.0	223.0	171.0	48.0	6063 17.000
17.500		18.0	223.0	171.0	48.0	6063 17.500
18.000		18.0	223.0	171.0	48.0	6063 18.000
18.500		20.0	244.0	190.0	50.0	6063 18.500
19.000		20.0	244.0	190.0	50.0	6063 19.000

Article no.						6063
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
19.500		20.0	244.0	190.0	50.0	6063 19.500
20.000		20.0	244.0	190.0	50.0	6063 20.000



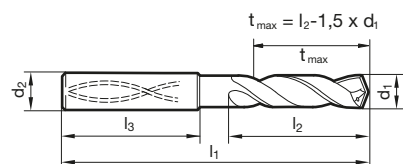
Ratio drills with coolant ducts

Article no. **6064**

cutting data see page 60



Web thinning $\geq \varnothing 3.000$ • relieved cone • main cutting edge is slightly concave • optimised cutting edge geometry
• sharp cutting characteristics • polished functional surfaces for the prevention of built-up edges



Article no.

6064

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
3.000		6.0	95.0	55.0	36.0	6064 3.000
3.100		6.0	95.0	55.0	36.0	6064 3.100
3.170	1/8	6.0	95.0	55.0	36.0	6064 3.170
3.200		6.0	95.0	55.0	36.0	6064 3.200
3.250		6.0	95.0	55.0	36.0	6064 3.250
3.300		6.0	95.0	55.0	36.0	6064 3.300
3.400		6.0	95.0	55.0	36.0	6064 3.400
3.500		6.0	102.0	62.0	36.0	6064 3.500
3.570	9/64	6.0	102.0	62.0	36.0	6064 3.570
3.600		6.0	102.0	62.0	36.0	6064 3.600
3.700		6.0	102.0	62.0	36.0	6064 3.700
3.800		6.0	102.0	62.0	36.0	6064 3.800
3.900		6.0	102.0	62.0	36.0	6064 3.900
3.970	5/32	6.0	102.0	62.0	36.0	6064 3.970
4.000		6.0	102.0	62.0	36.0	6064 4.000
4.100		6.0	109.0	69.0	36.0	6064 4.100
4.200		6.0	109.0	69.0	36.0	6064 4.200
4.300		6.0	109.0	69.0	36.0	6064 4.300
4.370	11/64	6.0	109.0	69.0	36.0	6064 4.370
4.400		6.0	109.0	69.0	36.0	6064 4.400
4.500		6.0	116.0	76.0	36.0	6064 4.500
4.600		6.0	116.0	76.0	36.0	6064 4.600
4.650		6.0	116.0	76.0	36.0	6064 4.650
4.700		6.0	116.0	76.0	36.0	6064 4.700
4.760	3/16	6.0	116.0	76.0	36.0	6064 4.760
4.800		6.0	116.0	76.0	36.0	6064 4.800
4.900		6.0	116.0	76.0	36.0	6064 4.900
5.000		6.0	116.0	76.0	36.0	6064 5.000
5.100		6.0	123.0	83.0	36.0	6064 5.100
5.160	13/64	6.0	123.0	83.0	36.0	6064 5.160
5.200		6.0	123.0	83.0	36.0	6064 5.200
5.300		6.0	123.0	83.0	36.0	6064 5.300
5.400		6.0	123.0	83.0	36.0	6064 5.400
5.500		6.0	130.0	90.0	36.0	6064 5.500
5.550		6.0	130.0	90.0	36.0	6064 5.550
5.560	7/32	6.0	130.0	90.0	36.0	6064 5.560
5.600		6.0	130.0	90.0	36.0	6064 5.600
5.700		6.0	130.0	90.0	36.0	6064 5.700
5.800		6.0	130.0	90.0	36.0	6064 5.800
5.900		6.0	130.0	90.0	36.0	6064 5.900
5.950	15/64	6.0	130.0	90.0	36.0	6064 5.950
6.000		6.0	130.0	90.0	36.0	6064 6.000
6.100		8.0	158.0	118.0	36.0	6064 6.100
6.200		8.0	158.0	118.0	36.0	6064 6.200
6.300		8.0	158.0	118.0	36.0	6064 6.300
6.350	1/4	8.0	158.0	118.0	36.0	6064 6.350
6.400		8.0	158.0	118.0	36.0	6064 6.400
6.500		8.0	158.0	118.0	36.0	6064 6.500
6.600		8.0	158.0	118.0	36.0	6064 6.600
6.700		8.0	158.0	118.0	36.0	6064 6.700
6.750	17/64	8.0	158.0	118.0	36.0	6064 6.750
6.800		8.0	158.0	118.0	36.0	6064 6.800
6.900		8.0	158.0	118.0	36.0	6064 6.900
7.000		8.0	158.0	118.0	36.0	6064 7.000
7.100		8.0	158.0	118.0	36.0	6064 7.100
7.140	9/32	8.0	158.0	118.0	36.0	6064 7.140
7.200		8.0	158.0	118.0	36.0	6064 7.200
7.300		8.0	158.0	118.0	36.0	6064 7.300
7.400		8.0	158.0	118.0	36.0	6064 7.400
7.500		8.0	158.0	118.0	36.0	6064 7.500
7.540	19/64	8.0	158.0	118.0	36.0	6064 7.540
7.600		8.0	158.0	118.0	36.0	6064 7.600
7.700		8.0	158.0	118.0	36.0	6064 7.700
7.800		8.0	158.0	118.0	36.0	6064 7.800
7.900		8.0	158.0	118.0	36.0	6064 7.900
7.940	5/16	8.0	158.0	118.0	36.0	6064 7.940

Article no.

6064

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
8.000		8.0	158.0	118.0	36.0	6064 8.000
8.100		10.0	190.0	146.0	40.0	6064 8.100
8.200		10.0	190.0	146.0	40.0	6064 8.200
8.300		10.0	190.0	146.0	40.0	6064 8.300
8.330	21/64	10.0	190.0	146.0	40.0	6064 8.330
8.400		10.0	190.0	146.0	40.0	6064 8.400
8.500		10.0	190.0	146.0	40.0	6064 8.500
8.600		10.0	190.0	146.0	40.0	6064 8.600
8.700		10.0	190.0	146.0	40.0	6064 8.700
8.730	11/32	10.0	190.0	146.0	40.0	6064 8.730
8.800		10.0	190.0	146.0	40.0	6064 8.800
8.900		10.0	190.0	146.0	40.0	6064 8.900
9.000		10.0	190.0	146.0	40.0	6064 9.000
9.100		10.0	190.0	146.0	40.0	6064 9.100
9.130	23/64	10.0	190.0	146.0	40.0	6064 9.130
9.200		10.0	190.0	146.0	40.0	6064 9.200
9.250		10.0	190.0	146.0	40.0	6064 9.250
9.300		10.0	190.0	146.0	40.0	6064 9.300
9.340		10.0	190.0	146.0	40.0	6064 9.340
9.400		10.0	190.0	146.0	40.0	6064 9.400
9.500		10.0	190.0	146.0	40.0	6064 9.500
9.520	3/8	10.0	190.0	146.0	40.0	6064 9.520
9.600		10.0	190.0	146.0	40.0	6064 9.600
9.700		10.0	190.0	146.0	40.0	6064 9.700
9.800		10.0	190.0	146.0	40.0	6064 9.800
9.900		10.0	190.0	146.0	40.0	6064 9.900
9.920	25/64	10.0	190.0	146.0	40.0	6064 9.920
10.000		10.0	190.0	146.0	40.0	6064 10.000
10.100		12.0	223.0	174.0	45.0	6064 10.100
10.200		12.0	223.0	174.0	45.0	6064 10.200
10.300		12.0	223.0	174.0	45.0	6064 10.300
10.320	13/32	12.0	223.0	174.0	45.0	6064 10.320
10.400		12.0	223.0	174.0	45.0	6064 10.400
10.500		12.0	223.0	174.0	45.0	6064 10.500
10.600		12.0	223.0	174.0	45.0	6064 10.600
10.700		12.0	223.0	174.0	45.0	6064 10.700
10.800		12.0	223.0	174.0	45.0	6064 10.800
10.900		12.0	223.0	174.0	45.0	6064 10.900
11.000		12.0	223.0	174.0	45.0	6064 11.000
11.100		12.0	223.0	174.0	45.0	6064 11.100
11.110	7/16	12.0	223.0	174.0	45.0	6064 11.110
11.200		12.0	223.0	174.0	45.0	6064 11.200
11.300		12.0	223.0	174.0	45.0	6064 11.300
11.400		12.0	223.0	174.0	45.0	6064 11.400
11.500		12.0	223.0	174.0	45.0	6064 11.500
11.600		12.0	223.0	174.0	45.0	6064 11.600
11.700		12.0	223.0	174.0	45.0	6064 11.700
11.800		12.0	223.0	174.0	45.0	6064 11.800
11.900		12.0	223.0	174.0	45.0	6064 11.900
11.910	15/32	12.0	223.0	174.0	45.0	6064 11.910
12.000		12.0	223.0	174.0	45.0	6064 12.000
12.100		14.0	251.0	202.0	45.0	6064 12.100
12.200		14.0	251.0	202.0	45.0	6064 12.200
12.500		14.0	251.0	202.0	45.0	6064 12.500
12.600		14.0	251.0	202.0	45.0	6064 12.600
12.700	1/2	14.0	251.0	202.0	45.0	6064 12.700
12.800		14.0	251.0	202.0	45.0	6064 12.800
12.900		14.0	251.0	202.0	45.0	6064 12.900
13.000		14.0	251.0	202.0	45.0	6064 13.000
13.100	33/64	14.0	251.0	202.0	45.0	6064 13.100
13.300		14.0	251.0	202.0	45.0	6064 13.300
13.400		14.0	251.0	202.0	45.0	6064 13.400
13.500		14.0	251.0	202.0	45.0	6064 13.500
13.700		14.0	251.0	202.0	45.0	6064 13.700
13.800		14.0	251.0	202.0	45.0	6064 13.800
14.000		14.0	251.0	202.0	45.0	6064 14.000



Article no.						6064
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
14.500		16.0	282.0	230.0	48.0	6064 14.500
14.800		16.0	282.0	230.0	48.0	6064 14.800
15.000		16.0	282.0	230.0	48.0	6064 15.000
15.500		16.0	282.0	230.0	48.0	6064 15.500
15.800		16.0	282.0	230.0	48.0	6064 15.800
16.000		16.0	282.0	230.0	48.0	6064 16.000

Article no.						6064
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.



Indexable insert drill

50 % longer tool life thanks to carbide & coating

Best machining results for demanding holes

The new indexable insert drill type GMD is characterised by an extensive portfolio of carriers with economical inserts.

You can achieve the best possible surfaces and the longest tool life thanks to different carbide grades and coatings of the tougher interior cutting insert and the more wear-resistant exterior cutting insert.

Furthermore, the special geometry of the central indexable inserts guarantees good self-centring. The perfect combination of cutting inserts and high-quality carrier tools makes the indexable insert drill a reliable solution for optimum machining results.

x Tool life increased by 50 %

- **X** good self-centring thanks to special geometry of the internal cutting insert
- **X** different cutting materials for interior (tough) & exterior (wear-resistant) use



user-friendly **Torx Plus screw**

powerful **HiPIMS coating**

nickel-plated surface
for optimum protection against wear

high-strength cutting material
for a long tool life

available in the diameter range
2xD | 3xD | 4xD | 5xD, Ø 14.0 – 50.0 mm

Application example

Component: Injection mould, tool steel (X33CrS16)

Tool: #28502, Ø 28 mm

Customer target: Process reliability, longer tool life

Difficulty: Chip removal at 4xD drilling depth

Cutting data:	Gühring	Competition
	v_c 170 m/min	v_c 140 m/min
	f 0.18 mm/rev	f 0.12 mm/rev

Tool life:	60 min	40 min
-------------------	--------	--------

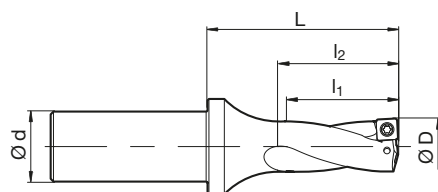


Indexable insert drills with internal cooling

Article no. **28500**



for indexable inserts type SOLX and XOLX • order Torx Plus wrench art. no. 28901 separately



Article no.

28500

D mm	d h6 mm	l1 mm	l2 mm	L mm	Size	Code no.	Description
14.00	20.00	28.00	31.00	51.00	05	14.000	GMD.140.028.R.20.05.XS.2D
14.50	20.00	29.00	32.00	52.00	05	14.500	GMD.145.029.R.20.05.XS.2D
15.00	20.00	30.00	33.00	53.00	05	15.000	GMD.150.030.R.20.05.XS.2D
15.50	20.00	31.00	34.00	54.00	05	15.500	GMD.155.031.R.20.05.XS.2D
16.00	20.00	32.00	35.00	55.00	05	16.000	GMD.160.032.R.20.05.XS.2D
16.50	25.00	33.00	36.00	61.00	06	16.500	GMD.165.033.R.25.06.XS.2D
17.00	25.00	34.00	37.00	62.00	06	17.000	GMD.170.034.R.25.06.XS.2D
17.50	25.00	35.00	38.00	63.00	06	17.500	GMD.175.035.R.25.06.XS.2D
18.00	25.00	36.00	39.00	64.00	06	18.000	GMD.180.036.R.25.06.XS.2D
18.50	25.00	37.00	40.00	65.00	06	18.500	GMD.185.037.R.25.06.XS.2D
19.00	25.00	38.00	41.00	66.00	06	19.000	GMD.190.038.R.25.06.XS.2D
19.50	25.00	39.00	42.00	67.00	06	19.500	GMD.195.039.R.25.06.XS.2D
20.00	25.00	40.00	43.00	68.00	07	20.000	GMD.200.040.R.25.07.XS.2D
20.50	25.00	41.00	44.00	69.00	07	20.500	GMD.205.041.R.25.07.XS.2D
21.00	25.00	42.00	45.00	70.00	07	21.000	GMD.210.042.R.25.07.XS.2D
21.50	25.00	43.00	46.00	71.00	07	21.500	GMD.215.043.R.25.07.XS.2D
22.00	25.00	44.00	47.00	72.00	07	22.000	GMD.220.044.R.25.07.XS.2D
22.50	25.00	45.00	48.00	73.00	07	22.500	GMD.225.045.R.25.07.XS.2D
23.00	25.00	46.00	49.00	74.00	07	23.000	GMD.230.046.R.25.07.XS.2D
23.50	25.00	47.00	50.00	75.00	07	23.500	GMD.235.047.R.25.07.XS.2D
24.00	32.00	48.00	51.00	81.00	09	24.000	GMD.240.048.R.32.09.XS.2D
24.50	32.00	49.00	52.00	82.00	09	24.500	GMD.245.049.R.32.09.XS.2D
25.00	32.00	50.00	53.00	83.00	09	25.000	GMD.250.050.R.32.09.XS.2D
25.50	32.00	51.00	54.00	84.00	09	25.500	GMD.255.051.R.32.09.XS.2D
26.00	32.00	52.00	55.00	85.00	09	26.000	GMD.260.052.R.32.09.XS.2D
26.50	32.00	53.00	56.00	86.00	09	26.500	GMD.265.053.R.32.09.XS.2D
27.00	32.00	54.00	57.00	87.00	09	27.000	GMD.270.054.R.32.09.XS.2D
27.50	32.00	55.00	58.00	88.00	09	27.500	GMD.275.055.R.32.09.XS.2D
28.00	32.00	56.00	59.00	89.00	09	28.000	GMD.280.056.R.32.09.XS.2D
28.50	32.00	57.00	60.00	90.00	09	28.500	GMD.285.057.R.32.09.XS.2D
29.00	32.00	58.00	61.00	91.00	09	29.000	GMD.290.058.R.32.09.XS.2D
29.50	32.00	59.00	62.00	92.00	09	29.500	GMD.295.059.R.32.09.XS.2D
30.00	32.00	62.00	65.00	95.00	11	30.000	GMD.300.060.R.32.11.XS.2D
31.00	32.00	64.00	67.00	97.00	11	31.000	GMD.310.062.R.32.11.XS.2D
32.00	32.00	66.00	69.00	99.00	11	32.000	GMD.320.064.R.32.11.XS.2D
33.00	32.00	68.00	71.00	101.00	11	33.000	GMD.330.066.R.32.11.XS.2D
34.00	32.00	70.00	73.00	103.00	11	34.000	GMD.340.068.R.32.11.XS.2D
35.00	32.00	72.00	75.00	105.00	11	35.000	GMD.350.070.R.32.11.XS.2D
36.00	40.00	74.00	77.00	112.00	13	36.000	GMD.360.072.R.40.13.XS.2D
37.00	40.00	76.00	79.00	114.00	13	37.000	GMD.370.074.R.40.13.XS.2D
38.00	40.00	78.00	81.00	116.00	13	38.000	GMD.380.076.R.40.13.XS.2D
39.00	40.00	80.00	83.00	118.00	13	39.000	GMD.390.078.R.40.13.XS.2D
40.00	40.00	82.00	85.00	120.00	13	40.000	GMD.400.080.R.40.13.XS.2D
41.00	40.00	84.00	87.00	122.00	13	41.000	GMD.410.082.R.40.13.XS.2D
42.00	40.00	86.00	89.00	124.00	13	42.000	GMD.420.084.R.40.13.XS.2D
43.00	40.00	88.00	91.00	126.00	15	43.000	GMD.430.086.R.40.15.XS.2D
44.00	40.00	90.00	93.00	128.00	15	44.000	GMD.440.088.R.40.15.XS.2D
45.00	40.00	92.00	95.00	130.00	15	45.000	GMD.450.090.R.40.15.XS.2D
46.00	40.00	94.00	97.00	132.00	15	46.000	GMD.460.092.R.40.15.XS.2D
47.00	40.00	96.00	99.00	134.00	15	47.000	GMD.470.094.R.40.15.XS.2D
48.00	40.00	98.00	101.00	136.00	15	48.000	GMD.480.096.R.40.15.XS.2D
49.00	40.00	100.00	103.00	138.00	15	49.000	GMD.490.098.R.40.15.XS.2D
50.00	40.00	102.00	105.00	140.00	15	50.000	GMD.500.100.R.40.15.XS.2D



Spare parts

Article no. 28900	Clamping screw Size	Torque Nm	Description
Code 6.200	M2.0x4.4 06IP	0.6	use for indexable insert size 05, XOLX and SOLX
Code 6.220	M2.2x5.4 06IP	0.6	use for indexable insert size 06, XOLX and SOLX
Code 8.250	M2.5x6.5 08IP	1.2	use for indexable insert size 07, XOLX and SOLX
Code 8.300	M3.0x7.0 08IP	1.2	use for indexable insert size 09, XOLX and SOLX
Code 15.350	M3.5x8.0 15IP	3.0	use for indexable insert size 11, XOLX and SOLX
Code 15.400	M4.0x10 15IP	3.0	use for indexable insert size 13, XOLX and SOLX
Code 20.000	M5.0x12.5 20IP	5.0	use for indexable insert size 15, XOLX and SOLX

Article no. 28901	Torx Plus wrench Size
Code 6.000	T-handle Torx Plus wrench 06IP
Code 8.000	T-handle Torx Plus wrench 08IP
Code 15.000	T-handle Torx Plus wrench 15IP
Code 20.000	T-handle Torx Plus wrench 20IP

Article no. 4915	Torque wrenches Size	Torque Nm
Code 6.000	1/4"	0.5-2
Code 8.000	1/4"	2-8

Article no. 4960	Interchangeable blade Size	Overall length
Code 6.000	06IP	175
Code 8.000	08IP	175
Code 15.000	15IP	175
Code 20.000	20IP	175

d	Ls	IC connection
20	50	BSPT-1/8
25	56	BSPT-1/8
32	60	BSPT-1/4
40	70	BSPT-1/4

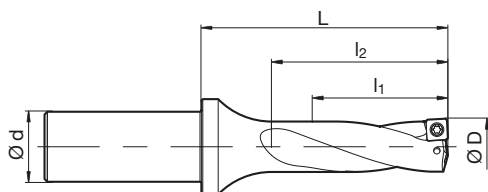


Indexable insert drills with internal cooling

Article no. **28501**



for indexable inserts type SOLX and XOLX • order Torx Plus wrench art. no. 28901 separately



Article no.

28501

D mm	d h6 mm	l1 mm	l2 mm	L mm	Size	Code no.	Description
14.00	20.00	42.00	45.00	65.00	05	14.000	GMD.140.042.R.20.05.XS.3D
14.50	20.00	44.00	47.00	67.00	05	14.500	GMD.145.043.R.20.05.XS.3D
15.00	20.00	45.00	48.00	68.00	05	15.000	GMD.150.045.R.20.05.XS.3D
15.50	20.00	47.00	50.00	70.00	05	15.500	GMD.155.046.R.20.05.XS.3D
16.00	20.00	48.00	51.00	71.00	05	16.000	GMD.160.048.R.20.05.XS.3D
16.50	25.00	50.00	53.00	78.00	06	16.500	GMD.165.049.R.25.06.XS.3D
17.00	25.00	51.00	54.00	79.00	06	17.000	GMD.170.051.R.25.06.XS.3D
17.50	25.00	53.00	56.00	81.00	06	17.500	GMD.175.052.R.25.06.XS.3D
18.00	25.00	54.00	57.00	82.00	06	18.000	GMD.180.054.R.25.06.XS.3D
18.50	25.00	56.00	59.00	84.00	06	18.500	GMD.185.055.R.25.06.XS.3D
19.00	25.00	57.00	60.00	85.00	06	19.000	GMD.190.057.R.25.06.XS.3D
19.50	25.00	59.00	62.00	87.00	06	19.500	GMD.195.058.R.25.06.XS.3D
20.00	25.00	60.00	63.00	88.00	07	20.000	GMD.200.060.R.25.07.XS.3D
20.50	25.00	62.00	65.00	90.00	07	20.500	GMD.205.061.R.25.07.XS.3D
21.00	25.00	63.00	66.00	91.00	07	21.000	GMD.210.063.R.25.07.XS.3D
21.50	25.00	65.00	68.00	93.00	07	21.500	GMD.215.064.R.25.07.XS.3D
22.00	25.00	66.00	69.00	94.00	07	22.000	GMD.220.066.R.25.07.XS.3D
22.50	25.00	68.00	71.00	96.00	07	22.500	GMD.225.067.R.25.07.XS.3D
23.00	25.00	69.00	72.00	97.00	07	23.000	GMD.230.069.R.25.07.XS.3D
23.50	25.00	71.00	74.00	99.00	07	23.500	GMD.235.070.R.25.07.XS.3D
24.00	32.00	72.00	75.00	105.00	09	24.000	GMD.240.072.R.32.09.XS.3D
24.50	32.00	74.00	77.00	107.00	09	24.500	GMD.245.073.R.32.09.XS.3D
25.00	32.00	75.00	78.00	108.00	09	25.000	GMD.250.075.R.32.09.XS.3D
25.50	32.00	77.00	80.00	110.00	09	25.500	GMD.255.076.R.32.09.XS.3D
26.00	32.00	78.00	81.00	111.00	09	26.000	GMD.260.078.R.32.09.XS.3D
26.50	32.00	80.00	83.00	113.00	09	26.500	GMD.265.079.R.32.09.XS.3D
27.00	32.00	81.00	84.00	114.00	09	27.000	GMD.270.081.R.32.09.XS.3D
27.50	32.00	83.00	86.00	116.00	09	27.500	GMD.275.082.R.32.09.XS.3D
28.00	32.00	84.00	87.00	117.00	09	28.000	GMD.280.084.R.32.09.XS.3D
28.50	32.00	86.00	89.00	119.00	09	28.500	GMD.285.085.R.32.09.XS.3D
29.00	32.00	87.00	90.00	120.00	09	29.000	GMD.290.087.R.32.09.XS.3D
29.50	32.00	89.00	92.00	122.00	09	29.500	GMD.295.088.R.32.09.XS.3D
30.00	32.00	92.00	95.00	125.00	11	30.000	GMD.300.090.R.32.11.XS.3D
31.00	32.00	95.00	98.00	128.00	11	31.000	GMD.310.093.R.32.11.XS.3D
32.00	32.00	98.00	101.00	131.00	11	32.000	GMD.320.096.R.32.11.XS.3D
33.00	32.00	101.00	104.00	134.00	11	33.000	GMD.330.099.R.32.11.XS.3D
34.00	32.00	104.00	107.00	137.00	11	34.000	GMD.340.102.R.32.11.XS.3D
35.00	32.00	107.00	110.00	140.00	11	35.000	GMD.350.105.R.32.11.XS.3D
36.00	40.00	110.00	113.00	148.00	13	36.000	GMD.360.108.R.40.13.XS.3D
37.00	40.00	113.00	116.00	151.00	13	37.000	GMD.370.111.R.40.13.XS.3D
38.00	40.00	116.00	119.00	154.00	13	38.000	GMD.380.114.R.40.13.XS.3D
39.00	40.00	119.00	122.00	157.00	13	39.000	GMD.390.117.R.40.13.XS.3D
40.00	40.00	122.00	125.00	160.00	13	40.000	GMD.400.120.R.40.13.XS.3D
41.00	40.00	125.00	128.00	163.00	13	41.000	GMD.410.123.R.40.13.XS.3D
42.00	40.00	128.00	131.00	166.00	13	42.000	GMD.420.126.R.40.13.XS.3D
43.00	40.00	131.00	134.00	169.00	15	43.000	GMD.430.126.R.40.15.XS.3D
44.00	40.00	134.00	137.00	172.00	15	44.000	GMD.440.132.R.40.15.XS.3D
45.00	40.00	137.00	140.00	175.00	15	45.000	GMD.450.135.R.40.15.XS.3D
46.00	40.00	140.00	143.00	178.00	15	46.000	GMD.460.138.R.40.15.XS.3D
47.00	40.00	143.00	146.00	181.00	15	47.000	GMD.470.141.R.40.15.XS.3D
48.00	40.00	146.00	149.00	184.00	15	48.000	GMD.480.144.R.40.15.XS.3D
49.00	40.00	149.00	152.00	187.00	15	49.000	GMD.490.147.R.40.15.XS.3D
50.00	40.00	150.00	155.00	190.00	15	50.000	GMD.500.150.R.40.15.XS.3D



Spare parts

Article no. 28900	Clamping screw Size	Torque Nm	Description
Code 6.200	M2.0x4.4 06IP	0.6	use for indexable insert size 05, XOLX and SOLX
Code 6.220	M2.2x5.4 06IP	0.6	use for indexable insert size 06, XOLX and SOLX
Code 8.250	M2.5x6.5 08IP	1.2	use for indexable insert size 07, XOLX and SOLX
Code 8.300	M3.0x7.0 08IP	1.2	use for indexable insert size 09, XOLX and SOLX
Code 15.350	M3.5x8.0 15IP	3.0	use for indexable insert size 11, XOLX and SOLX
Code 15.400	M4.0x10 15IP	3.0	use for indexable insert size 13, XOLX and SOLX
Code 20.000	M5.0x12.5 20IP	5.0	use for indexable insert size 15, XOLX and SOLX

Article no. 28901	Torx Plus wrench Size
Code 6.000	T-handle Torx Plus wrench 06IP
Code 8.000	T-handle Torx Plus wrench 08IP
Code 15.000	T-handle Torx Plus wrench 15IP
Code 20.000	T-handle Torx Plus wrench 20IP

Article no. 4915	Torque wrenches Size	Torque Nm
Code 6.000	1/4"	0.5-2
Code 8.000	1/4"	2-8

Article no. 4960	Interchangeable blade Size	Overall length
Code 6.000	06IP	175
Code 8.000	08IP	175
Code 15.000	15IP	175
Code 20.000	20IP	175

d	Ls	IC connection
20	50	BSPT-1/8
25	56	BSPT-1/8
32	60	BSPT-1/4
40	70	BSPT-1/4

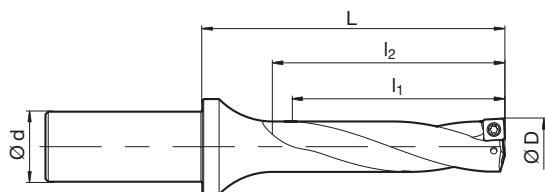


Indexable insert drills with internal cooling

Article no. **28502**



for indexable inserts type SOLX and XOLX • order Torx Plus wrench art. no. 28901 separately



Article no.

28502

D mm	d h6 mm	l1 mm	l2 mm	L mm	Size	Code no.	Description
14.00	20.00	56.00	59.00	79.00	05	14.000	GMD.140.056.R.20.05.XS.4D
14.50	20.00	58.00	61.00	81.00	05	14.500	GMD.145.058.R.20.05.XS.4D
15.00	20.00	60.00	63.00	83.00	05	15.000	GMD.150.060.R.20.05.XS.4D
15.50	20.00	62.00	65.00	85.00	05	15.500	GMD.155.062.R.20.05.XS.4D
16.00	20.00	64.00	67.00	87.00	05	16.000	GMD.160.064.R.20.05.XS.4D
16.50	25.00	66.00	69.00	94.00	06	16.500	GMD.165.066.R.25.06.XS.4D
17.00	25.00	68.00	71.00	96.00	06	17.000	GMD.170.068.R.25.06.XS.4D
17.50	25.00	70.00	73.00	98.00	06	17.500	GMD.175.070.R.25.06.XS.4D
18.00	25.00	72.00	75.00	100.00	06	18.000	GMD.180.072.R.25.06.XS.4D
18.50	25.00	74.00	77.00	103.00	06	18.500	GMD.185.074.R.25.06.XS.4D
19.00	25.00	76.00	79.00	104.00	06	19.000	GMD.190.076.R.25.06.XS.4D
19.50	25.00	78.00	81.00	106.00	06	19.500	GMD.195.078.R.25.06.XS.4D
20.00	25.00	80.00	83.00	108.00	07	20.000	GMD.200.080.R.25.07.XS.4D
20.50	25.00	82.00	85.00	110.00	07	20.500	GMD.205.082.R.25.07.XS.4D
21.00	25.00	84.00	87.00	113.00	07	21.000	GMD.210.084.R.25.07.XS.4D
21.50	25.00	86.00	89.00	114.00	07	21.500	GMD.215.086.R.25.07.XS.4D
22.00	25.00	88.00	91.00	116.00	07	22.000	GMD.220.088.R.25.07.XS.4D
22.50	25.00	90.00	93.00	118.00	07	22.500	GMD.225.090.R.25.07.XS.4D
23.00	25.00	92.00	95.00	120.00	07	23.000	GMD.230.092.R.25.07.XS.4D
23.50	25.00	94.00	97.00	122.00	07	23.500	GMD.235.094.R.25.07.XS.4D
24.00	32.00	96.00	99.00	129.00	09	24.000	GMD.240.096.R.32.09.XS.4D
24.50	32.00	98.00	101.00	131.00	09	24.500	GMD.245.098.R.32.09.XS.4D
25.00	32.00	100.00	103.00	133.00	09	25.000	GMD.250.100.R.32.09.XS.4D
25.50	32.00	102.00	105.00	135.00	09	25.500	GMD.255.102.R.32.09.XS.4D
26.00	32.00	104.00	107.00	137.00	09	26.000	GMD.260.104.R.32.09.XS.4D
26.50	32.00	106.00	109.00	139.00	09	26.500	GMD.265.106.R.32.09.XS.4D
27.00	32.00	108.00	111.00	141.00	09	27.000	GMD.270.108.R.32.09.XS.4D
27.50	32.00	110.00	113.00	143.00	09	27.500	GMD.275.110.R.32.09.XS.4D
28.00	32.00	112.00	115.00	145.00	09	28.000	GMD.280.112.R.32.09.XS.4D
28.50	32.00	114.00	117.00	147.00	09	28.500	GMD.285.114.R.32.09.XS.4D
29.00	32.00	116.00	119.00	149.00	09	29.000	GMD.290.116.R.32.09.XS.4D
29.50	32.00	118.00	121.00	151.00	09	29.500	GMD.295.118.R.32.09.XS.4D
30.00	32.00	122.00	125.00	155.00	11	30.000	GMD.300.120.R.32.11.XS.4D
31.00	32.00	126.00	129.00	159.00	11	31.000	GMD.310.124.R.32.11.XS.4D
32.00	32.00	130.00	133.00	163.00	11	32.000	GMD.320.128.R.32.11.XS.4D
33.00	32.00	134.00	137.00	167.00	11	33.000	GMD.330.132.R.32.11.XS.4D
34.00	32.00	138.00	141.00	171.00	11	34.000	GMD.340.136.R.32.11.XS.4D
35.00	32.00	142.00	145.00	175.00	11	35.000	GMD.350.140.R.32.11.XS.4D
36.00	40.00	146.00	149.00	184.00	13	36.000	GMD.360.144.R.40.13.XS.4D
37.00	40.00	150.00	153.00	188.00	13	37.000	GMD.370.148.R.40.13.XS.4D
38.00	40.00	152.00	157.00	192.00	13	38.000	GMD.380.152.R.40.13.XS.4D
39.00	40.00	156.00	161.00	196.00	13	39.000	GMD.390.156.R.40.13.XS.4D
40.00	40.00	160.00	165.00	200.00	13	40.000	GMD.400.160.R.40.13.XS.4D
41.00	40.00	164.00	169.00	204.00	13	41.000	GMD.410.164.R.40.13.XS.4D
42.00	40.00	168.00	173.00	208.00	13	42.000	GMD.420.168.R.40.13.XS.4D
43.00	40.00	172.00	177.00	212.00	15	43.000	GMD.430.172.R.40.15.XS.4D
44.00	40.00	176.00	181.00	216.00	15	44.000	GMD.440.176.R.40.15.XS.4D
45.00	40.00	180.00	185.00	220.00	15	45.000	GMD.450.180.R.40.15.XS.4D
46.00	40.00	184.00	189.00	224.00	15	46.000	GMD.460.184.R.40.15.XS.4D
47.00	40.00	188.00	193.00	228.00	15	47.000	GMD.470.188.R.40.15.XS.4D
48.00	40.00	192.00	197.00	232.00	15	48.000	GMD.480.192.R.40.15.XS.4D
49.00	40.00	196.00	201.00	236.00	15	49.000	GMD.490.196.R.40.15.XS.4D
50.00	40.00	200.00	205.00	240.00	15	50.000	GMD.500.200.R.40.15.XS.4D



Spare parts

Article no. 28900	Clamping screw Size	Torque Nm	Description
Code 6.200	M2.0x4.4 06IP	0.6	use for indexable insert size 05, XOLX and SOLX
Code 6.220	M2.2x5.4 06IP	0.6	use for indexable insert size 06, XOLX and SOLX
Code 8.250	M2.5x6.5 08IP	1.2	use for indexable insert size 07, XOLX and SOLX
Code 8.300	M3.0x7.0 08IP	1.2	use for indexable insert size 09, XOLX and SOLX
Code 15.350	M3.5x8.0 15IP	3.0	use for indexable insert size 11, XOLX and SOLX
Code 15.400	M4.0x10 15IP	3.0	use for indexable insert size 13, XOLX and SOLX
Code 20.000	M5.0x12.5 20IP	5.0	use for indexable insert size 15, XOLX and SOLX

Article no. 28901	Torx Plus wrench Size
Code 6.000	T-handle Torx Plus wrench 06IP
Code 8.000	T-handle Torx Plus wrench 08IP
Code 15.000	T-handle Torx Plus wrench 15IP
Code 20.000	T-handle Torx Plus wrench 20IP

Article no. 4915	Torque wrenches Size	Torque Nm
Code 6.000	1/4"	0.5-2
Code 8.000	1/4"	2-8

Article no. 4960	Interchangeable blade Size	Overall length
Code 6.000	06IP	175
Code 8.000	08IP	175
Code 15.000	15IP	175
Code 20.000	20IP	175

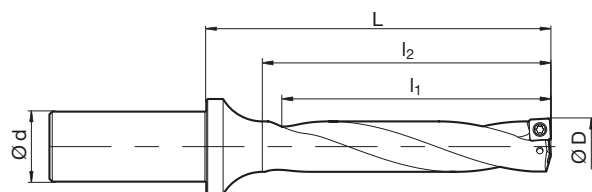
d	Ls	IC connection
20	50	BSPT-1/8
25	56	BSPT-1/8
32	60	BSPT-1/4
40	70	BSPT-1/4



Indexable insert drills with internal cooling

Article no. **28503**

for indexable inserts type SOLX and XOLX • order Torx Plus wrench art. no. 28901 separately



Article no.

28503

D mm	d h6 mm	l1 mm	l2 mm	L mm	Size	Code no.	Description
14.00	20.00	70.00	73.00	88.00	05	14.000	GMD.140.070.R.20.05.XS.5D
14.50	20.00	73.00	76.00	91.00	05	14.500	GMD.145.072.R.20.05.XS.5D
15.00	20.00	75.00	78.00	93.00	05	15.000	GMD.150.075.R.20.05.XS.5D
15.50	20.00	78.00	81.00	96.00	05	15.500	GMD.155.077.R.20.05.XS.5D
16.00	20.00	80.00	83.00	98.00	05	16.000	GMD.160.080.R.20.05.XS.5D
16.50	25.00	83.00	86.00	100.00	06	16.500	GMD.165.082.R.25.06.XS.5D
17.00	25.00	85.00	88.00	108.00	06	17.000	GMD.170.085.R.25.06.XS.5D
17.50	25.00	88.00	91.00	111.00	06	17.500	GMD.175.087.R.25.06.XS.5D
18.00	25.00	90.00	93.00	113.00	06	18.000	GMD.180.090.R.25.06.XS.5D
18.50	25.00	93.00	96.00	116.00	06	18.500	GMD.185.092.R.25.06.XS.5D
19.00	25.00	95.00	98.00	118.00	06	19.000	GMD.190.095.R.25.06.XS.5D
19.50	25.00	98.00	101.00	121.00	06	19.500	GMD.195.097.R.25.06.XS.5D
20.00	25.00	100.00	103.00	123.00	07	20.000	GMD.200.100.R.25.07.XS.5D
20.50	25.00	103.00	106.00	126.00	07	20.500	GMD.205.102.R.25.07.XS.5D
21.00	25.00	105.00	108.00	128.00	07	21.000	GMD.210.105.R.25.07.XS.5D
21.50	25.00	108.00	111.00	131.00	07	21.500	GMD.215.107.R.25.07.XS.5D
22.00	25.00	110.00	113.00	133.00	07	22.000	GMD.220.110.R.25.07.XS.5D
22.50	25.00	113.00	116.00	136.00	07	22.500	GMD.225.112.R.25.07.XS.5D
23.00	25.00	115.00	118.00	138.00	07	23.000	GMD.230.115.R.25.07.XS.5D
23.50	25.00	118.00	121.00	141.00	07	23.500	GMD.235.117.R.25.07.XS.5D
24.00	32.00	120.00	123.00	148.00	09	24.000	GMD.240.120.R.32.09.XS.5D
24.50	32.00	123.00	126.00	151.00	09	24.500	GMD.245.122.R.32.09.XS.5D
25.00	32.00	125.00	128.00	153.00	09	25.000	GMD.250.125.R.32.09.XS.5D
25.50	32.00	128.00	131.00	156.00	09	25.500	GMD.255.127.R.32.09.XS.5D
26.00	32.00	130.00	133.00	158.00	09	26.000	GMD.260.130.R.32.09.XS.5D
26.50	32.00	133.00	136.00	161.00	09	26.500	GMD.265.132.R.32.09.XS.5D
27.00	32.00	135.00	138.00	163.00	09	27.000	GMD.270.135.R.32.09.XS.5D
27.50	32.00	138.00	141.00	166.00	09	27.500	GMD.275.137.R.32.09.XS.5D
28.00	32.00	140.00	143.00	168.00	09	28.000	GMD.280.140.R.32.09.XS.5D
28.50	32.00	143.00	146.00	171.00	09	28.500	GMD.285.142.R.32.09.XS.5D
29.00	32.00	145.00	148.00	173.00	09	29.000	GMD.290.145.R.32.09.XS.5D
29.50	32.00	148.00	151.00	176.00	09	29.500	GMD.295.147.R.32.09.XS.5D
30.00	32.00	150.00	155.00	180.00	11	30.000	GMD.300.150.R.32.11.XS.5D
31.00	32.00	155.00	160.00	185.00	11	31.000	GMD.310.155.R.32.11.XS.5D
32.00	32.00	160.00	165.00	190.00	11	32.000	GMD.320.160.R.32.11.XS.5D
33.00	32.00	165.00	170.00	195.00	11	33.000	GMD.330.165.R.32.11.XS.5D
34.00	32.00	170.00	175.00	200.00	11	34.000	GMD.340.170.R.32.11.XS.5D
35.00	32.00	175.00	180.00	205.00	11	35.000	GMD.350.175.R.32.11.XS.5D
36.00	40.00	180.00	185.00	215.00	13	36.000	GMD.360.180.R.40.13.XS.5D
37.00	40.00	185.00	190.00	220.00	13	37.000	GMD.370.185.R.40.13.XS.5D
38.00	40.00	190.00	195.00	225.00	13	38.000	GMD.380.190.R.40.13.XS.5D
39.00	40.00	195.00	200.00	230.00	13	39.000	GMD.390.195.R.40.13.XS.5D
40.00	40.00	200.00	205.00	235.00	13	40.000	GMD.400.200.R.40.13.XS.5D
41.00	40.00	205.00	210.00	240.00	13	41.000	GMD.410.205.R.40.13.XS.5D
42.00	40.00	210.00	215.00	245.00	13	42.000	GMD.420.210.R.40.13.XS.5D
43.00	40.00	215.00	220.00	250.00	15	43.000	GMD.430.215.R.40.15.XS.5D
44.00	40.00	220.00	225.00	255.00	15	44.000	GMD.440.220.R.40.15.XS.5D
45.00	40.00	225.00	230.00	260.00	15	45.000	GMD.450.225.R.40.15.XS.5D
46.00	40.00	230.00	235.00	265.00	15	46.000	GMD.460.230.R.40.15.XS.5D
47.00	40.00	235.00	240.00	270.00	15	47.000	GMD.470.235.R.40.15.XS.5D
48.00	40.00	240.00	245.00	275.00	15	48.000	GMD.480.240.R.40.15.XS.5D
49.00	40.00	245.00	250.00	280.00	15	49.000	GMD.490.245.R.40.15.XS.5D
50.00	40.00	250.00	255.00	285.00	15	50.000	GMD.500.250.R.40.15.XS.5D



Spare parts

Article no. 28900	Clamping screw Size	Torque Nm	Description
Code 6.200	M2.0x4.4 06IP	0.6	use for indexable insert size 05, XOLX and SOLX
Code 6.220	M2.2x5.4 06IP	0.6	use for indexable insert size 06, XOLX and SOLX
Code 8.250	M2.5x6.5 08IP	1.2	use for indexable insert size 07, XOLX and SOLX
Code 8.300	M3.0x7.0 08IP	1.2	use for indexable insert size 09, XOLX and SOLX
Code 15.350	M3.5x8.0 15IP	3.0	use for indexable insert size 11, XOLX and SOLX
Code 15.400	M4.0x10 15IP	3.0	use for indexable insert size 13, XOLX and SOLX
Code 20.000	M5.0x12.5 20IP	5.0	use for indexable insert size 15, XOLX and SOLX

Article no. 28901	Torx Plus wrench Size
Code 6.000	T-handle Torx Plus wrench 06IP
Code 8.000	T-handle Torx Plus wrench 08IP
Code 15.000	T-handle Torx Plus wrench 15IP
Code 20.000	T-handle Torx Plus wrench 20IP

Article no. 4915	Torque wrenches Size	Torque Nm
Code 6.000	1/4"	0.5-2
Code 8.000	1/4"	2-8

Article no. 4960	Interchangeable blade Size	Overall length
Code 6.000	06IP	175
Code 8.000	08IP	175
Code 15.000	15IP	175
Code 20.000	20IP	175

d	Ls	IC connection
20	50	BSPT-1/8
25	56	BSPT-1/8
32	60	BSPT-1/4
40	70	BSPT-1/4



Indexable inserts SOLX, single-sided, external

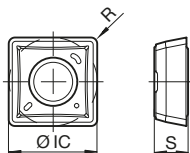
Article no. **28504**



4 usable cutting edges • stable cutting edge • type PK2011

cutting data see page 61

P	M	K	N	S	H
•		•			



Article no.

28504

IC mm	R mm	S mm	Size	Code no.	Description
5.1	0.4	2.5	05	5.000	SOLX 050204
6.2	0.5	2.6	06	6.000	SOLX 060205
7.5	0.8	2.9	07	7.000	SOLX 07T208
9.2	0.8	3.5	09	9.000	SOLX 090308
11.0	0.8	4.2	11	11.000	SOLX 11T308
13.0	1.0	4.7	13	13.000	SOLX 130410
15.2	1.0	5.3	15	15.000	SOLX 150510

Indexable inserts SOLX, single-sided, external

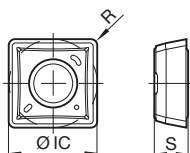
Article no. **28505**



4 usable cutting edges • soft cut • type MS2011

cutting data see page 62

P	M	K	N	S	H
	•			•	



Article no.

28505

IC mm	R mm	S mm	Size	Code no.	Description
5.1	0.4	2.5	05	5.000	SOLX 050204
6.2	0.5	2.6	06	6.000	SOLX 060205
7.5	0.8	2.9	07	7.000	SOLX 07T208
9.2	0.8	3.5	09	9.000	SOLX 090308
11.0	0.8	4.2	11	11.000	SOLX 11T308
13.0	1.0	4.7	13	13.000	SOLX 130410
15.2	1.0	5.3	15	15.000	SOLX 150510



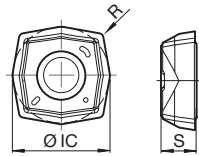
Indexable inserts XOLX, single-sided, internal

Article no. **28508**


4 usable cutting edges • stable cutting edge • type PK3021

cutting data see page 61

P	M	K	N	S	H
•		•			



Article no.

28508

IC mm	R mm	S mm	Size	Code no.	Description
5.4	0.4	2.5	05	5.000	XOLX 050204
6.6	0.4	2.5	06	6.000	XOLX 060204
7.8	0.5	2.9	07	7.000	XOLX 07T205
9.6	0.5	3.5	09	9.000	XOLX 090305
11.4	0.6	4.2	11	11.000	XOLX 11T306
13.6	0.6	4.7	13	13.000	XOLX 130406
15.9	0.8	5.3	15	15.000	XOLX 150508

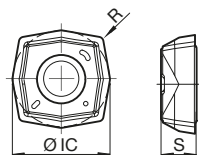
Indexable inserts XOLX, single-sided, internal

Article no. **28509**


4 usable cutting edges • soft cut • type MS3021

cutting data see page 62

P	M	K	N	S	H
	•			•	



Article no.

28509

IC mm	R mm	S mm	Size	Code no.	Description
5.4	0.4	2.5	05	5.000	XOLX 050204
6.6	0.4	2.5	06	6.000	XOLX 060204
7.8	0.5	2.9	07	7.000	XOLX 07T205
9.6	0.5	3.5	09	9.000	XOLX 090305
11.4	0.6	4.2	11	11.000	XOLX 11T306
13.6	0.6	4.7	13	13.000	XOLX 130406
15.9	0.8	5.3	15	15.000	XOLX 150508

Modular drills	Clamping screws			Article no.	28900
					
	 				
				Article no.	28900
	d1	l1 mm	Size	Order no.	
	M 2	4.30	06IP	28900 6.200	
	M 2.2	5.40	06IP	28900 6.220	
	M 2.5	6.50	08IP	28900 8.250	
	M 3	7.00	08IP	28900 8.300	
	M 3.5	8.00	15IP	28900 15.350	
	M 4	10.00	15IP	28900 15.400	
	M 5	12.50	20IP	28900 20.500	

EB 100 M AL





EB 100 M AL

High-performance deep hole drilling in aluminium

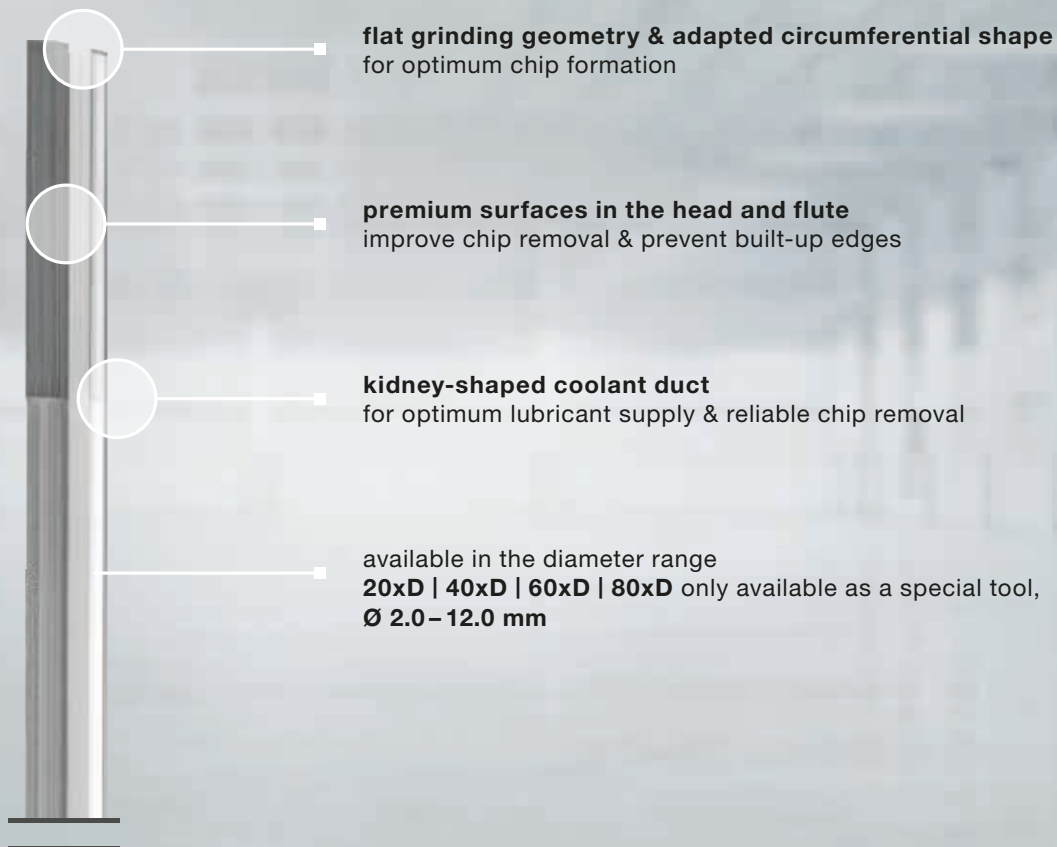
The solid carbide single-fluted
deep hole drill for greater
cutting performance

**The solid carbide single-fluted deep-hole drill
EB 100 M AL is available in the diameter range 2–12 mm
and can be used in any aluminium materials without
any problems.**

Whether MQL or wet machining: With the aluminium
specialist, you can produce hole depths of up to 80xD with
just one tool. The EB 100 M AL shines with maximum
process reliability and the highest possible cutting values –
and guarantees the best hole quality over the entire tool life.

X Machining time reduced by 75 %

-  **X** maximum process reliability
-  **X** highest hole quality
-  **X** universal compatibility with all types of aluminium



Application example

Component: Intermediate insert, AlZnMgCu1,5 (EN-AW-7075)

Tool: #6071, Ø 8 x 412 mm

Customer target: Reduction of cycle time while maintaining the best hole quality

Difficulty: Chip removal and concentricity

Cutting data:	Gühring	Competition
	v_c 100 m/min	v_c 100 m/min
	f 0.32 mm/rev	f 0.08 mm/rev



Solid carbide single-fluted gun drills

Deep hole drills

Single-fluted gun drills EB 100 M AL

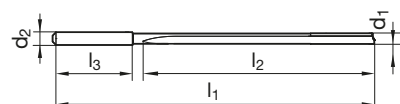
Article no. **6071**



cutting data see page 63



solid carbide shank with MQL shank end • adapted circumferential shape • flat tip geometry



Article no.

6071

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
2.000		4.0	92.0	57.0	28.0	6071 2.000
2.381	3/32	4.0	101.0	67.0	28.0	6071 2.380
2.500		4.0	104.0	70.0	28.0	6071 2.500
2.778	7/64	4.0	111.0	78.0	28.0	6071 2.780
3.000		4.0	116.0	83.0	28.0	6071 3.000
3.175	1/8	4.0	120.0	88.0	28.0	6071 3.170
3.500		4.0	128.0	96.0	28.0	6071 3.500
3.572	9/64	4.0	130.0	99.0	28.0	6071 3.570
3.969	5/32	4.0	139.0	108.0	28.0	6071 3.970
4.000		4.0	140.0	109.0	28.0	6071 4.000
4.366	11/64	6.0	158.0	116.0	36.0	6071 4.370
4.500		6.0	161.0	119.0	36.0	6071 4.500
4.763	3/16	6.0	167.0	125.0	36.0	6071 4.760
5.000		6.0	172.0	131.0	36.0	6071 5.000
5.159	13/64	6.0	176.0	135.0	36.0	6071 5.160
5.500		6.0	184.0	144.0	36.0	6071 5.500
5.556	7/32	6.0	185.0	145.0	36.0	6071 5.560
5.953	15/64	6.0	195.0	155.0	36.0	6071 5.950
6.000		6.0	196.0	156.0	36.0	6071 6.000
6.350	1/4	8.0	214.0	172.0	36.0	6071 6.350
6.500		8.0	217.0	175.0	36.0	6071 6.500
6.747	17/64	8.0	223.0	182.0	36.0	6071 6.750
7.000		8.0	229.0	188.0	36.0	6071 7.000
7.144	9/32	8.0	232.0	192.0	36.0	6071 7.140

Article no.

6071

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
7.500		8.0	240.0	200.0	36.0	6071 7.500
7.541	19/64	8.0	241.0	201.0	36.0	6071 7.540
7.938	5/16	8.0	251.0	212.0	36.0	6071 7.940
8.000		8.0	252.0	213.0	36.0	6071 8.000
8.334	21/64	10.0	268.0	222.0	40.0	6071 8.330
8.500		10.0	272.0	226.0	40.0	6071 8.500
8.731	11/32	10.0	277.0	231.0	40.0	6071 8.730
9.000		10.0	283.0	238.0	40.0	6071 9.000
9.128	23/64	10.0	286.0	241.0	40.0	6071 9.130
9.500		10.0	295.0	251.0	40.0	6071 9.500
9.525	3/8	10.0	295.0	251.0	40.0	6071 9.530
9.922	25/64	10.0	305.0	261.0	40.0	6071 9.920
10.000		10.0	306.0	262.0	40.0	6071 10.000
10.319	13/32	12.0	322.0	271.0	45.0	6071 10.320
10.500		12.0	326.0	275.0	45.0	6071 10.500
10.716	27/64	12.0	331.0	280.0	45.0	6071 10.720
11.000		12.0	338.0	288.0	45.0	6071 11.000
11.113	7/16	12.0	340.0	290.0	45.0	6071 11.110
11.500		12.0	349.0	300.0	45.0	6071 11.500
11.509	29/64	12.0	350.0	301.0	45.0	6071 11.510
11.906	15/32	12.0	359.0	310.0	45.0	6071 11.910
12.000		12.0	361.0	312.0	45.0	6071 12.000



Single-fluted gun drills EB 100 M AL

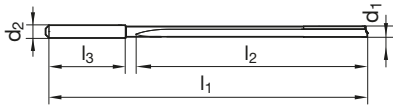
Article no. **6073**

cutting data see page 63



solid carbide shank with MQL shank end • adapted circumferential shape • flat tip geometry

Deep hole drills



Article no.

6073

Article no.

6073

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
2.000		4.0	132.0	97.0	28.0	6073 2.000
2.381	3/32	4.0	149.0	115.0	28.0	6073 2.380
2.500		4.0	154.0	120.0	28.0	6073 2.500
2.778	7/64	4.0	166.0	133.0	28.0	6073 2.780
3.000		4.0	176.0	143.0	28.0	6073 3.000
3.175	1/8	4.0	184.0	152.0	28.0	6073 3.170
3.500		4.0	198.0	166.0	28.0	6073 3.500
3.572	9/64	4.0	201.0	170.0	28.0	6073 3.570
3.969	5/32	4.0	219.0	188.0	28.0	6073 3.970
4.000		4.0	220.0	189.0	28.0	6073 4.000
4.366	11/64	6.0	245.0	203.0	36.0	6073 4.370
4.500		6.0	251.0	209.0	36.0	6073 4.500
4.763	3/16	6.0	262.0	220.0	36.0	6073 4.760
5.000		6.0	272.0	231.0	36.0	6073 5.000
5.159	13/64	6.0	279.0	238.0	36.0	6073 5.160
5.500		6.0	294.0	254.0	36.0	6073 5.500
5.556	7/32	6.0	297.0	257.0	36.0	6073 5.560
5.953	15/64	6.0	314.0	274.0	36.0	6073 5.950
6.000		6.0	316.0	276.0	36.0	6073 6.000
6.350	1/4	8.0	341.0	299.0	36.0	6073 6.350
6.500		8.0	347.0	305.0	36.0	6073 6.500
6.747	17/64	8.0	358.0	317.0	36.0	6073 6.750
7.000		8.0	369.0	328.0	36.0	6073 7.000
7.144	9/32	8.0	375.0	335.0	36.0	6073 7.140

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
7.500		8.0	390.0	350.0	36.0	6073 7.500
7.541	19/64	8.0	392.0	352.0	36.0	6073 7.540
7.938	5/16	8.0	409.0	370.0	36.0	6073 7.940
8.000		8.0	412.0	373.0	36.0	6073 8.000
8.334	21/64	10.0	435.0	389.0	40.0	6073 8.330
8.500		10.0	442.0	396.0	40.0	6073 8.500
8.731	11/32	10.0	453.0	406.0	40.0	6073 8.730
9.000		10.0	464.0	418.0	40.0	6073 9.000
9.128	23/64	10.0	470.0	424.0	40.0	6073 9.130
9.500		10.0	486.0	441.0	40.0	6073 9.500
9.525	3/8	10.0	487.0	442.0	40.0	6073 9.530
9.922	25/64	10.0	504.0	459.0	40.0	6073 9.920
10.000		10.0	507.0	462.0	40.0	6073 10.000



Single-fluted gun drills EB 100 M AL

Article no. 6074

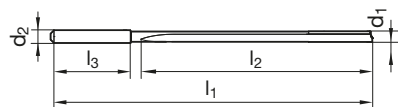


cutting data see page 63



solid carbide shank with MQL shank end • adapted circumferential shape • flat tip geometry

P	M	K	N	S	H
			•		



Article no.

6074

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
2.000		4.0	172.0	137.0	28.0	6074 2.000
2.381	3/32	4.0	197.0	163.0	28.0	6074 2.380
2.500		4.0	204.0	170.0	28.0	6074 2.500
2.778	7/64	4.0	222.0	189.0	28.0	6074 2.780
3.000		4.0	236.0	203.0	28.0	6074 3.000
3.175	1/8	4.0	247.0	215.0	28.0	6074 3.170
3.500		4.0	268.0	236.0	28.0	6074 3.500
3.572	9/64	4.0	273.0	242.0	28.0	6074 3.570
3.969	5/32	4.0	298.0	267.0	28.0	6074 3.970
4.000		4.0	300.0	269.0	28.0	6074 4.000
4.366	11/64	6.0	332.0	290.0	36.0	6074 4.370
4.500		6.0	341.0	299.0	36.0	6074 4.500

Article no.

6074

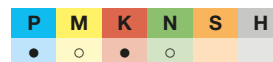
d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm	Order no.
4.763	3/16	6.0	358.0	316.0	36.0	6074 4.760
5.000		6.0	372.0	331.0	36.0	6074 5.000
5.159	13/64	6.0	383.0	342.0	36.0	6074 5.160
5.500		6.0	404.0	364.0	36.0	6074 5.500
5.556	7/32	6.0	408.0	368.0	36.0	6074 5.560
5.953	15/64	6.0	433.0	393.0	36.0	6074 5.950
6.000		6.0	436.0	396.0	36.0	6074 6.000
6.350	1/4	8.0	469.0	426.0	36.0	6074 6.350
6.500		8.0	478.0	435.0	36.0	6074 6.500
6.747	17/64	8.0	494.0	452.0	36.0	6074 6.750
7.000		8.0	510.0	468.0	36.0	6074 7.000
7.144	9/32	8.0	519.0	478.0	36.0	6074 7.140



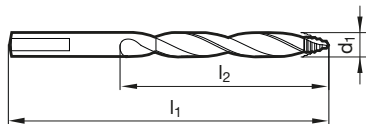
Jobber drills

Article no. **9500**

cutting data see page 64



novel multi step drill with up to 8 steps • 118° point geometry with an optimised split point geometry for precise centring and easy cutting • 3-flats on shank prevent slipping in the chuck • up to Ø 13.000 according to DIN 338 • from Ø 13.5 shank reinforced to Ø 12.7 • exact, circular holes • perfect for hand drills



Article no.

9500

	d1 mm		l1 mm	l2 mm	Order no.
	1.000		34.0	12.0	9500 1.000
	1.500		40.0	18.0	9500 1.500
	2.000		49.0	24.0	9500 2.000
	2.500		57.0	30.0	9500 2.500
	2.780		61.0	33.0	9500 2.780
	3.000		61.0	33.0	9500 3.000
	3.170		65.0	36.0	9500 3.170
	3.200		65.0	36.0	9500 3.200
	3.300		65.0	36.0	9500 3.300
	3.500		70.0	39.0	9500 3.500
	3.570		70.0	39.0	9500 3.570
	3.970		75.0	43.0	9500 3.970
	4.000		75.0	43.0	9500 4.000
	4.100		75.0	43.0	9500 4.100
	4.200		75.0	43.0	9500 4.200
	4.500		80.0	47.0	9500 4.500
	4.760		86.0	52.0	9500 4.760
	4.900		86.0	52.0	9500 4.900
	5.000		86.0	52.0	9500 5.000
	5.100		86.0	52.0	9500 5.100
	5.200		86.0	52.0	9500 5.200
	5.500		93.0	57.0	9500 5.500
	6.000		93.0	57.0	9500 6.000
	6.350		101.0	63.0	9500 6.350
	6.500		101.0	63.0	9500 6.500
	6.800		109.0	69.0	9500 6.800
	7.000		109.0	69.0	9500 7.000
	7.500		109.0	69.0	9500 7.500
	7.940		117.0	75.0	9500 7.940
	8.000		117.0	75.0	9500 8.000

Article no.

9500

	d1 mm		l1 mm	l2 mm	Order no.
	8.500		117.0	75.0	9500 8.500
	9.000		125.0	81.0	9500 9.000
	9.500		125.0	81.0	9500 9.500
	9.520		133.0	87.0	9500 9.520
	10.000		133.0	87.0	9500 10.000
	10.200		133.0	87.0	9500 10.200
	10.500		133.0	87.0	9500 10.500
	11.000		142.0	94.0	9500 11.000
	11.110		142.0	94.0	9500 11.110
	11.500		142.0	94.0	9500 11.500
	12.000		151.0	101.0	9500 12.000
	12.500		151.0	101.0	9500 12.500
	12.700		151.0	101.0	9500 12.700
	13.000		151.0	101.0	9500 13.000
NEW	13.500		107.0	61.0	9500 13.500
NEW	14.000		107.0	61.0	9500 14.000
NEW	14.500		111.0	65.0	9500 14.500
NEW	15.000		111.0	65.0	9500 15.000
NEW	15.500		115.0	69.0	9500 15.500
NEW	16.000		115.0	69.0	9500 16.000
NEW	16.500		119.0	73.0	9500 16.500
NEW	17.000		119.0	73.0	9500 17.000
NEW	17.500		123.0	77.0	9500 17.500
NEW	18.000		123.0	77.0	9500 18.000
NEW	18.500		127.0	81.0	9500 18.500
NEW	19.000		127.0	81.0	9500 19.000
NEW	19.500		131.0	85.0	9500 19.500
NEW	20.000		131.0	85.0	9500 20.000

HSS/HSCO drills



Micro-precision drills without coolant ducts, RT 100 H Mikro



Machining group		f (mm/rev) with nom. Ø					
	v _c (m/min)	0.8	1	1.5	2	2.5	3
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB							
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB							
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB							
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB							
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB							
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB							
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB							
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB							
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB							
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB							
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB							
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	75	0.0160	0.0200	0.0300	0.0400	0.0500	0.0600
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	65	0.0135	0.0170	0.0255	0.0340	0.0425	0.0510
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives							
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB							
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB							
M2.1.1 Stainless steel, austenitic, quenched, 180 HB							
M2.2.1 Duplex steel, high-strength stainless steels							
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	120	0.0200	0.0250	0.0375	0.0500	0.0625	0.0750
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	100	0.0170	0.0215	0.0320	0.0425	0.0530	0.0640
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	100	0.0170	0.0215	0.0320	0.0425	0.0530	0.0640
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	100	0.0170	0.0215	0.0320	0.0425	0.0530	0.0640
K1.3.1 Malleable cast iron, ferritic, 130 HB	95	0.0160	0.0200	0.0300	0.0400	0.0500	0.0600
K1.3.2 Malleable cast iron, pearlitic, 230 HB	95	0.0160	0.0200	0.0300	0.0400	0.0500	0.0600
K2.1.1 Vermicular graphite cast iron (GJV)							
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)							
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB							
N1.1.2 Wrought aluminium alloys, hardened, 100 HB							
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB							
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB							
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB							
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %							
N3.1.2 Copper and copper alloys: CuZn, CuSnZn							
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte							
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics							
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.							
N4.1.3 Non-metallic materials: Graphite							
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB							
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB							
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB							
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB							
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB							
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²							
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²							
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	45	0.0160	0.0200	0.0300	0.0400	0.0500	0.0600
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	30	0.0130	0.0160	0.0240	0.0320	0.0400	0.0480
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	25	0.0120	0.0150	0.0225	0.0300	0.0375	0.0450
H2.1.1 Chilled cast iron, 400 HB	40	0.0160	0.0200	0.0300	0.0400	0.0500	0.0600
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	30	0.0110	0.0140	0.0210	0.0280	0.0350	0.0420



Ratio drills with coolant ducts RT 100 H



Cutting data

Machining group		f (mm/rev) with nom. Ø							
	 a								
	v _c (m/min)	3	4	6	8	10	12	14	16
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB									
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB									
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB									
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB									
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB									
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB									
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB									
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB									
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB									
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB									
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB									
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB									
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	55	0.065	0.080	0.110	0.140	0.165	0.185	0.210	0.235
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives									
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB									
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB									
M2.1.1 Stainless steel, austenitic, quenched, 180 HB									
M2.2.1 Duplex steel, high-strength stainless steels									
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB									
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB									
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB									
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB									
K1.3.1 Malleable cast iron, ferritic, 130 HB									
K1.3.2 Malleable cast iron, pearlitic, 230 HB									
K2.1.1 Vermicular graphite cast iron (GJV)									
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)									
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB									
N1.1.2 Wrought aluminium alloys, hardened, 100 HB									
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB									
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB									
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB									
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %									
N3.1.2 Copper and copper alloys: CuZn, CuSnZn									
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte									
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics									
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.									
N4.1.3 Non-metallic materials: Graphite									
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB									
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB									
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB									
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB									
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB									
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²									
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²									
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	55	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	35	0.030	0.040	0.050	0.065	0.075	0.090	0.100	0.110
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	35	0.030	0.035	0.050	0.060	0.070	0.085	0.095	0.105
H2.1.1 Chilled cast iron, 400 HB	45	0.050	0.060	0.080	0.100	0.120	0.140	0.155	0.175
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	30	0.035	0.040	0.055	0.070	0.085	0.095	0.110	0.120



Flat drill with coolant ducts, 3-fluted, FB 200 U, 3xD



Machining group		f (mm/rev) with nom. Ø								
	 v _c (m/min)	4	6	8	10	12	14	16	18	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	120	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	110	0.140	0.185	0.235	0.275	0.315	0.355	0.395	0.430	0.470
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	110	0.140	0.185	0.235	0.275	0.315	0.355	0.395	0.430	0.470
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	100	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	100	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	95	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.385	0.415
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	90	0.115	0.155	0.195	0.230	0.265	0.295	0.330	0.360	0.390
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	95	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	95	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	80	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	70	0.115	0.155	0.195	0.230	0.265	0.295	0.330	0.360	0.390
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	70	0.095	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	60	0.080	0.110	0.140	0.165	0.185	0.210	0.235	0.255	0.275
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	65	0.095	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	60	0.085	0.115	0.145	0.175	0.200	0.225	0.245	0.270	0.295
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	55	0.080	0.110	0.140	0.165	0.185	0.210	0.235	0.255	0.275
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	60	0.075	0.105	0.130	0.155	0.175	0.200	0.220	0.240	0.260
M2.2.1 Duplex steel, high-strength stainless steels	50	0.065	0.090	0.110	0.130	0.150	0.170	0.185	0.205	0.220
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	110	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	95	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	95	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	90	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.385	0.415
K1.3.1 Malleable cast iron, ferritic, 130 HB	90	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.385	0.415
K1.3.2 Malleable cast iron, pearlitic, 230 HB	75	0.105	0.145	0.180	0.215	0.245	0.280	0.305	0.335	0.365
K2.1.1 Vermicular graphite cast iron (GJV)	90	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	70	0.115	0.155	0.195	0.230	0.265	0.295	0.330	0.360	0.390
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	140	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	140	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	170	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	170	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	145	0.165	0.220	0.275	0.325	0.375	0.420	0.465	0.510	0.555
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	140	0.120	0.165	0.205	0.240	0.275	0.310	0.345	0.375	0.405
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	120	0.100	0.140	0.170	0.205	0.235	0.265	0.290	0.320	0.345
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	110	0.095	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics										
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.										
N4.1.3 Non-metallic materials: Graphite										
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	35	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	30	0.050	0.065	0.080	0.095	0.110	0.125	0.140	0.150	0.165
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	30	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	20	0.040	0.055	0.070	0.085	0.095	0.110	0.120	0.130	0.145
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	20	0.040	0.055	0.070	0.085	0.095	0.110	0.120	0.130	0.145
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	40	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	30	0.050	0.065	0.080	0.095	0.110	0.125	0.140	0.150	0.165
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	40	0.050	0.065	0.080	0.095	0.110	0.125	0.135	0.150	0.165
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC										
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC										
H2.1.1 Chilled cast iron, 400 HB	30	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	20	0.040	0.055	0.070	0.085	0.095	0.110	0.120	0.130	0.145



Flat drill with coolant ducts, 3-fluted, FB 200 U, 5xD



Machining group		f (mm/rev) with nom. Ø									
											
	v _c (m/min)	4	6	8	10	12	14	16	18	20	
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	105	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520	
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	95	0.140	0.185	0.235	0.275	0.315	0.355	0.395	0.430	0.470	
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	95	0.140	0.185	0.235	0.275	0.315	0.355	0.395	0.430	0.470	
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	90	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440	
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	90	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440	
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	85	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.385	0.415	
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	80	0.115	0.155	0.195	0.230	0.265	0.295	0.330	0.360	0.390	
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	80	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520	
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	80	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520	
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	70	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440	
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	60	0.115	0.155	0.195	0.230	0.265	0.295	0.330	0.360	0.390	
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	60	0.095	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325	
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	50	0.080	0.110	0.140	0.165	0.185	0.210	0.235	0.255	0.275	
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	55	0.095	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325	
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	50	0.085	0.115	0.145	0.175	0.200	0.225	0.245	0.270	0.295	
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	45	0.080	0.110	0.140	0.165	0.185	0.210	0.235	0.255	0.275	
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	50	0.075	0.105	0.130	0.155	0.175	0.200	0.220	0.240	0.260	
M2.2.1 Duplex steel, high-strength stainless steels	45	0.065	0.090	0.110	0.130	0.150	0.170	0.185	0.205	0.220	
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	100	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520	
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	85	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440	
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	85	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.410	0.440	
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	80	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.385	0.415	
K1.3.1 Malleable cast iron, ferritic, 130 HB	80	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.385	0.415	
K1.3.2 Malleable cast iron, pearlitic, 230 HB	70	0.105	0.145	0.180	0.215	0.245	0.280	0.305	0.335	0.365	
K2.1.1 Vermicular graphite cast iron (GJV)	80	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.480	0.520	
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	60	0.115	0.155	0.195	0.230	0.265	0.295	0.330	0.360	0.390	
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	130	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650	
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	130	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650	
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	160	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650	
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	160	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.600	0.650	
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	135	0.165	0.220	0.275	0.325	0.375	0.420	0.465	0.510	0.555	
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	130	0.120	0.165	0.205	0.240	0.275	0.310	0.345	0.375	0.405	
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	110	0.100	0.140	0.170	0.205	0.235	0.265	0.290	0.320	0.345	
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	105	0.095	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325	
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics											
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.											
N4.1.3 Non-metallic materials: Graphite											
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	30	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205	
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	25	0.050	0.065	0.080	0.095	0.110	0.125	0.140	0.150	0.165	
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	25	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205	
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	15	0.040	0.055	0.070	0.085	0.095	0.110	0.120	0.130	0.145	
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	20	0.040	0.055	0.070	0.085	0.095	0.110	0.120	0.130	0.145	
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	35	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205	
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	25	0.050	0.065	0.080	0.095	0.110	0.125	0.140	0.150	0.165	
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	35	0.050	0.065	0.080	0.095	0.110	0.125	0.135	0.150	0.165	
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC											
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC											
H2.1.1 Chilled cast iron, 400 HB	25	0.060	0.080	0.100	0.120	0.140	0.155	0.175	0.190	0.205	
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	20	0.040	0.055	0.070	0.085	0.095	0.110	0.120	0.130	0.145	



Ratio drills with coolant ducts RT 100 AL, 3xD und 5xD



Machining group		f (mm/rev) with nom. Ø								
	v _c (m/min)	3	4	6	8	10	12	14	16	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB										
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB										
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB										
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB										
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB										
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB										
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB										
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB										
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB										
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB										
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB										
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB										
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB										
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives										
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB										
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB										
M2.1.1 Stainless steel, austenitic, quenched, 180 HB										
M2.2.1 Duplex steel, high-strength stainless steels										
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB										
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB										
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB										
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB										
K1.3.1 Malleable cast iron, ferritic, 130 HB										
K1.3.2 Malleable cast iron, pearlitic, 230 HB										
K2.1.1 Vermicular graphite cast iron (GJV)										
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)										
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	240	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685	0.815
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	240	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685	0.815
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	220	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685	0.815
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	220	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685	0.815
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	185	0.165	0.205	0.275	0.345	0.410	0.470	0.525	0.585	0.690
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	160	0.125	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.520
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	135	0.105	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.440
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	130	0.100	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.415
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	90	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135	0.165
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	90	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135	0.165
N4.1.3 Non-metallic materials: Graphite										
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB										
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB										
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB										
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB										
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB										
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²										
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²										
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC										
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC										
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC										
H2.1.1 Chilled cast iron, 400 HB										
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC										



Ratio drills with coolant ducts RT 100 AL, 7xD



Cutting data

Machining group		f (mm/rev) with nom. Ø								
										
	v _c (m/min)	3	4	6	8	10	12	14	16	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB										
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB										
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB										
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB										
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB										
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB										
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB										
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB										
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB										
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB										
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB										
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB										
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB										
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives										
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB										
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB										
M2.1.1 Stainless steel, austenitic, quenched, 180 HB										
M2.2.1 Duplex steel, high-strength stainless steels										
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB										
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB										
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB										
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB										
K1.3.1 Malleable cast iron, ferritic, 130 HB										
K1.3.2 Malleable cast iron, pearlitic, 230 HB										
K2.1.1 Vermicular graphite cast iron (GJV)										
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)										
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	240	0.155	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.650
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	240	0.155	0.190	0.260	0.325	0.385	0.440	0.495	0.550	0.650
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	220	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685	0.815
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	220	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685	0.815
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	185	0.165	0.205	0.275	0.345	0.410	0.470	0.525	0.585	0.690
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	160	0.125	0.155	0.210	0.260	0.305	0.355	0.395	0.440	0.520
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	135	0.105	0.130	0.175	0.220	0.260	0.300	0.335	0.375	0.440
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	130	0.100	0.120	0.165	0.205	0.245	0.280	0.315	0.350	0.415
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	90	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135	0.165
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	90	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135	0.165
N4.1.3 Non-metallic materials: Graphite										
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB										
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB										
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB										
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB										
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB										
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²										
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²										
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC										
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC										
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC										
H2.1.1 Chilled cast iron, 400 HB										
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC										



Ratio drills with coolant ducts RT 100 AL, 12xD



Machining group		f (mm/rev) with nom. Ø							
									
	v _c (m/min)	3	4	6	8	10	12	14	16
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB									
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB									
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB									
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB									
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB									
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB									
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB									
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB									
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB									
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB									
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB									
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB									
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB									
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives									
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB									
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB									
M2.1.1 Stainless steel, austenitic, quenched, 180 HB									
M2.2.1 Duplex steel, high-strength stainless steels									
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB									
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB									
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB									
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB									
K1.3.1 Malleable cast iron, ferritic, 130 HB									
K1.3.2 Malleable cast iron, pearlitic, 230 HB									
K2.1.1 Vermicular graphite cast iron (GJV)									
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)									
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	120	0.155	0.190	0.260	0.325	0.385	0.440	0.495	0.550
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	120	0.155	0.190	0.260	0.325	0.385	0.440	0.495	0.550
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	110	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	110	0.190	0.240	0.325	0.405	0.480	0.550	0.620	0.685
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	95	0.165	0.205	0.275	0.345	0.410	0.470	0.525	0.585
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	140	0.125	0.155	0.210	0.260	0.305	0.355	0.395	0.440
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	120	0.105	0.130	0.175	0.220	0.260	0.300	0.335	0.375
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	110	0.100	0.120	0.165	0.205	0.245	0.280	0.315	0.350
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	90	0.040	0.050	0.065	0.080	0.095	0.110	0.125	0.135
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.									
N4.1.3 Non-metallic materials: Graphite									
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB									
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB									
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB									
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB									
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB									
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²									
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²									
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC									
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC									
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC									
H2.1.1 Chilled cast iron, 400 HB									
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC									



Indexable insert drills ISO P & K



Article no.

28500 (2xD), 28501 (3xD)
28502 (4xD)
28503 (5xD)

Faktor V_c

$\pm 0\%$
-10 %
-15 %

Faktor f_z

$\pm 0\%$
-15 %
-20 %

Cutting data

Machining group	V_c (m/min)	f (mm/rev) with nom. Ø			
		14-23.5	24-29.5	30-42	43-50
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	250	0.08	0.10	0.11	0.14
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	250	0.08	0.10	0.11	0.14
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	250	0.08	0.10	0.11	0.14
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	250	0.08	0.10	0.11	0.14
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	225	0.08	0.10	0.11	0.14
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	225	0.08	0.10	0.11	0.14
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	200	0.08	0.10	0.11	0.14
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	220	0.11	0.14	0.17	0.21
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	220	0.11	0.14	0.17	0.21
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	200	0.11	0.14	0.17	0.21
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	200	0.11	0.14	0.17	0.21
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	180	0.11	0.14	0.17	0.21
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	160	0.11	0.14	0.17	0.21
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives					
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB					
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB					
M2.1.1 Stainless steel, austenitic, quenched, 180 HB					
M2.2.1 Duplex steel, high-strength stainless steels					
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	250	0.13	0.17	0.20	0.25
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	225	0.13	0.17	0.20	0.25
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	250	0.13	0.17	0.20	0.25
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	225	0.13	0.17	0.20	0.25
K1.3.1 Malleable cast iron, ferritic, 130 HB	250	0.13	0.17	0.20	0.25
K1.3.2 Malleable cast iron, pearlitic, 230 HB	225	0.13	0.17	0.20	0.25
K2.1.1 Vermicular graphite cast iron (GJV)	200	0.11	0.14	0.17	0.21
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	180	0.11	0.14	0.17	0.21
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB					
N1.1.2 Wrought aluminium alloys, hardened, 100 HB					
N2.1.1 Aluminium casting alloys, non-hardened, $\leq 12\%$ Si, 75 HB					
N2.1.2 Aluminium casting alloys, hardened, $\leq 12\%$ Si, 90 HB					
N2.1.3 Aluminium casting alloys, non-hardened, $> 12\%$ Si, 130 HB					
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb $> 1\%$					
N3.1.2 Copper and copper alloys: CuZn, CuSnZn					
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte					
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics					
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.					
N4.1.3 Non-metallic materials: Graphite					
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB					
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB					
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB					
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB					
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB					
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²					
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²					
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC					
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC					
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC					
H2.1.1 Chilled cast iron, 400 HB					
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC					



Indexable insert drills ISO M & S



Article no.	Factor V_c	Factor f_z
28500 (2xD), 28501 (3xD)	$\pm 0 \%$	$\pm 0 \%$
28502 (4xD)	-10 %	-15 %
28503 (5xD)	-15 %	-20 %

Machining group	V_c (m/min)	f (mm/rev) with nom. $\emptyset$			
		14-23.5	24-29.5	30-42	43-50
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB					
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB					
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB					
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB					
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB					
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB					
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB					
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB					
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB					
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB					
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB					
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB					
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB					
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	220	0.10	0.13	0.15	0.19
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	200	0.09	0.12	0.14	0.17
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	200	0.09	0.12	0.14	0.17
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	180	0.08	0.10	0.12	0.15
M2.2.1 Duplex steel, high-strength stainless steels	145	0.06	0.08	0.10	0.12
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB					
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB					
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB					
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB					
K1.3.1 Malleable cast iron, ferritic, 130 HB					
K1.3.2 Malleable cast iron, pearlitic, 230 HB					
K2.1.1 Vermicular graphite cast iron (GJV)					
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)					
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB					
N1.1.2 Wrought aluminium alloys, hardened, 100 HB					
N2.1.1 Aluminium casting alloys, non-hardened, $\leq 12 \%$ Si, 75 HB					
N2.1.2 Aluminium casting alloys, hardened, $\leq 12 \%$ Si, 90 HB					
N2.1.3 Aluminium casting alloys, non-hardened, $> 12 \%$ Si, 130 HB					
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb $> 1 \%$					
N3.1.2 Copper and copper alloys: CuZn, CuSnZn					
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte					
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics					
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.					
N4.1.3 Non-metallic materials: Graphite					
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	90	0.07	0.09	0.11	0.13
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	90	0.07	0.09	0.11	0.13
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	90	0.07	0.09	0.11	0.13
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	80	0.06	0.08	0.09	0.12
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	80	0.06	0.08	0.09	0.12
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	60	0.06	0.08	0.09	0.11
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	50	0.05	0.06	0.07	0.09
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC					
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC					
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC					
H2.1.1 Chilled cast iron, 400 HB					
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC					



Single-fluted gun drills EB 100 M AL

Correction of length diameter ratio:

< 25xD	100 %	< 45xD	90 %	< 65xD	75 %
< 80xD	60 %	< 150xD	50 %		

Machining group	v _c (m/min)	f (mm/rev) with nom. Ø									
		2	3	4	5	6	7	8	9	10	12
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB											
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB											
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB											
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB											
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB											
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB											
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB											
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB											
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB											
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB											
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB											
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB											
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB											
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives											
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB											
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB											
M2.1.1 Stainless steel, austenitic, quenched, 180 HB											
M2.2.1 Duplex steel, high-strength stainless steels											
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB											
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB											
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB											
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB											
K1.3.1 Malleable cast iron, ferritic, 130 HB											
K1.3.2 Malleable cast iron, pearlitic, 230 HB											
K2.1.1 Vermicular graphite cast iron (GJV)											
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)											
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	100	0.040	0.075	0.095	0.115	0.135	0.150	0.165	0.185	0.200	0.230
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	100	0.040	0.075	0.095	0.115	0.135	0.150	0.165	0.185	0.200	0.230
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	160	0.085	0.155	0.190	0.230	0.265	0.300	0.335	0.370	0.400	0.465
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	160	0.085	0.155	0.190	0.230	0.265	0.300	0.335	0.370	0.400	0.465
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	135	0.070	0.130	0.165	0.195	0.225	0.255	0.285	0.315	0.340	0.395
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %											
N3.1.2 Copper and copper alloys: CuZn, CuSnZn											
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte											
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics											
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.											
N4.1.3 Non-metallic materials: Graphite											
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB											
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB											
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB											
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB											
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB											
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²											
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²											
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC											
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC											
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC											
H2.1.1 Chilled cast iron, 400 HB											
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC											



StepPower twist drills, short



Machining group		f (mm/rev) with nom. Ø										
	v _c (m/min)	3	4	5	6	8	10	12	14	16	18	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	28	0.096	0.119	0.140	0.165	0.200	0.240	0.275	0.310	0.345	0.375	0.405
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	24	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	24	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	24	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	21	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	20	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	17	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	17	0.061	0.076	0.090	0.105	0.130	0.155	0.175	0.200	0.220	0.240	0.260
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	12	0.049	0.061	0.070	0.085	0.105	0.125	0.140	0.160	0.175	0.190	0.210
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	10	0.049	0.061	0.070	0.085	0.105	0.125	0.140	0.160	0.175	0.190	0.210
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	9	0.039	0.048	0.055	0.065	0.080	0.095	0.110	0.125	0.140	0.150	0.165
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	13	0.061	0.076	0.090	0.105	0.130	0.155	0.175	0.200	0.220	0.240	0.260
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB												
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives												
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB												
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB												
M2.1.1 Stainless steel, austenitic, quenched, 180 HB												
M2.2.1 Duplex steel, high-strength stainless steels												
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	30	0.096	0.119	0.140	0.165	0.200	0.240	0.275	0.310	0.345	0.375	0.405
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	24	0.096	0.119	0.140	0.165	0.200	0.240	0.275	0.310	0.345	0.375	0.405
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB												
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	26	0.096	0.119	0.140	0.165	0.200	0.240	0.275	0.310	0.345	0.375	0.405
K1.3.1 Malleable cast iron, ferritic, 130 HB												
K1.3.2 Malleable cast iron, pearlitic, 230 HB	26	0.096	0.119	0.140	0.165	0.200	0.240	0.275	0.310	0.345	0.375	0.405
K2.1.1 Vermicular graphite cast iron (GJV)	25	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)												
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB												
N1.1.2 Wrought aluminium alloys, hardened, 100 HB												
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	50	0.096	0.119	0.140	0.165	0.200	0.240	0.275	0.310	0.345	0.375	0.405
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	40	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	35	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	60	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	36	0.061	0.076	0.090	0.105	0.130	0.155	0.175	0.200	0.220	0.240	0.260
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	48	0.061	0.076	0.090	0.105	0.130	0.155	0.175	0.200	0.220	0.240	0.260
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	20	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	20	0.077	0.096	0.115	0.130	0.160	0.190	0.220	0.250	0.275	0.300	0.325
N4.1.3 Non-metallic materials: Graphite												
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB												
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB												
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB												
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB												
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB												
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²												
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²												
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC												
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC												
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC												
H2.1.1 Chilled cast iron, 400 HB												
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC												

RT 100 AL





Milling tools

With running smoothness to perfect surfaces

Milling at top performance –
for example in aluminium

Page

70	Diamond/PCD milling cutters
73	Diamond/PCD milling cutters – Accessories
74	Solid carbide milling cutters for aluminium and plastics
90	Modular milling cutters with indexable inserts
97	Tool holders for modular milling cutters



P	M	K	N	S	H	O	Tool illustration	Z	Hardness	Cutting edge profile	Length	Tool material	Surface	d1/mm	Article no.	Page
PCD face and corner milling cutters																
								NEW	8-22	0,2x15°		PKD	○	32.000 - 125.000	4193	72
								NEW	4-11	0,2x15°		PKD	○	32.000 - 125.000	4194	72
Coolant distributor																
								+Ø					Ⓑ		4203	73
Micro-precision milling cutters RF 100 AL																
						○		NEW	3	45°	2,5xD	VHM	⊕	0.500 - 3.000	8069	76
						○		NEW	3	45°	5xD	VHM	⊕	0.500 - 3.000	8070	77
						○		NEW	3	R±0,01	2,5xD	VHM	⊕	0.500 - 3.000	8065	78
						○		NEW	3	R±0,01	5xD	VHM	⊕	0.500 - 3.000	8066	79
Ratio end mills RF 100 AL																
								NEW	3	45°	6xD	VHM	○	1.000 - 20.000	8240	82
								NEW	3	45°	6xD	VHM	○	3.500 - 20.000	8241	82
								NEW	3	R±0,05	6xD	VHM	○	1.000 - 20.000	8254	83
								NEW	3	R±0,05	6xD	VHM	○	4.000 - 20.000	8255	83
End mills (single-fluted)																
									1	90°		VHM	○	2.000 - 16.000	6793	86
								NEW	1	90°		VHM	⊕	2.000 - 16.000	8138	86
								NEW	1	90°		VHM	○	3.000 - 16.000	6935	87
								NEW	1	90°		VHM	⊕	3.000 - 16.000	8135	87
								NEW	1	30°		VHM	○	1.000 - 10.000	6936	88
								NEW	1	30°		VHM	⊕	1.000 - 10.000	8136	88
								NEW	1	30°		VHM	○	1.000 - 10.000	6937	89
								NEW	1	30°		VHM	⊕	1.000 - 10.000	8137	89
High feed milling cutters with indexable inserts, straight shank Weldon																
								NEW					Ⓝ	16.000 - 32.000	28000	92
High feed milling cutters with indexable inserts, screw-in thread																
								NEW					Ⓝ	16.000 - 42.000	28001	94



P	M	K	N	S	H	O	Tool illustration	Z	Hard- ness	Cutting edge profile	Length	Tool material	Sur- face	d1/mm	Article no.	Page
High feed milling cutters with indexable inserts, shell milling cutter																
														40.000 - 80.000	28002	95
Indexable inserts XNMX, double-sided																
●	○	●	○												28003	96
●	○	●	○												28009	96
●	●	○	○												28004	96
Tool holders for screw-in milling cutters HSK-A																
															4199	97



PCD face and corner milling cutter

The all-rounder for non-ferrous metals & non-metallic materials

Flexibility and economy combined

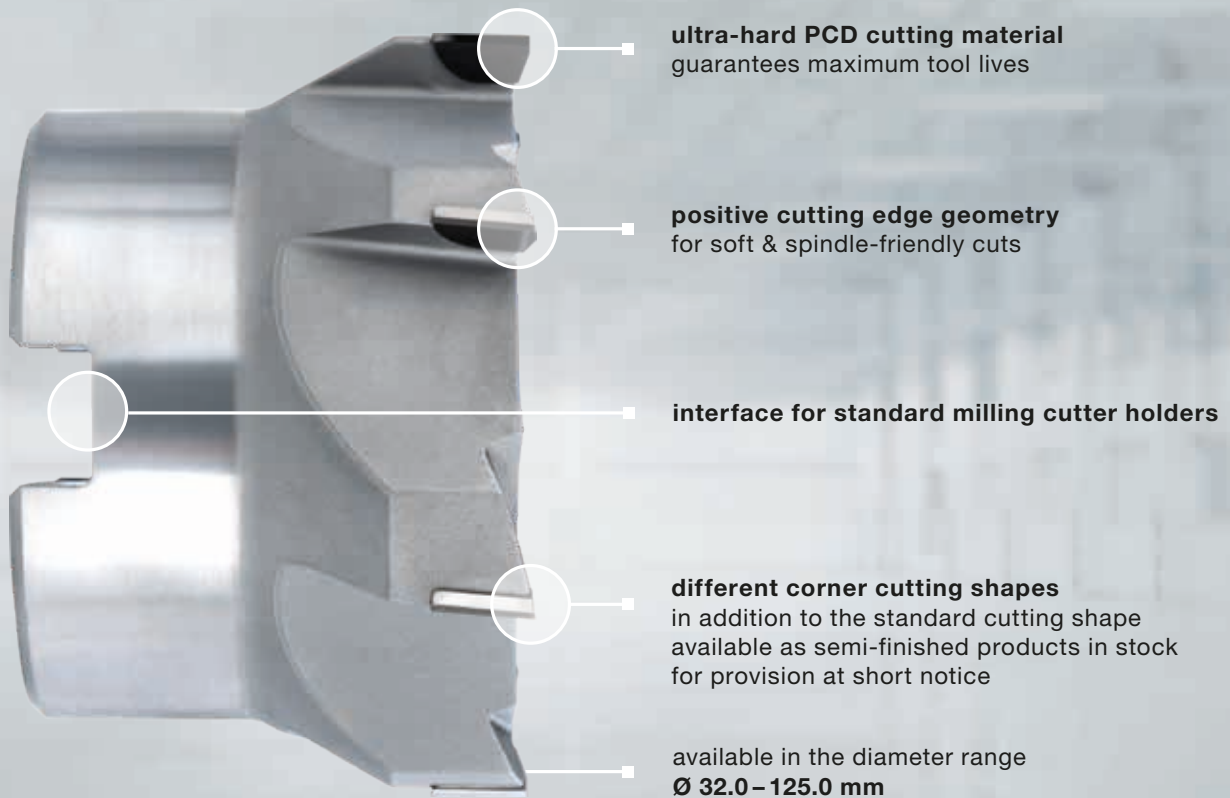
The PCD face and corner milling cutter guarantees low-burr component edges and maximum tool lives.

This is ensured by the combination of lasered cutting edges, positive positioning and the selected standard cutting shape. Its optimum face geometry allows for both helical and linear plunging into the component.

To tailor the tool perfectly to your requirements, you can choose between two variants: While the PCD face and corner milling cutter with a reduced number of cutting edges is ideally suited as a face milling tool for small and medium batch production, the variant with a higher number of cutting edges impresses with powerful spindles and maximum performance.

X Cycle time reduced by 50 %

-  **X** ultimate flexibility
-  **X** standard cutting shape for low-burr machining
-  **X** soldered PCD cutting edges for easy handling



Application example

Component: Valve block, EN AW-6061-T6 (AlSi1SiCu)

Tool: #4194, Ø 50 mm

Customer target: Cycle time reduction:
one-tool roughing-finishing operation

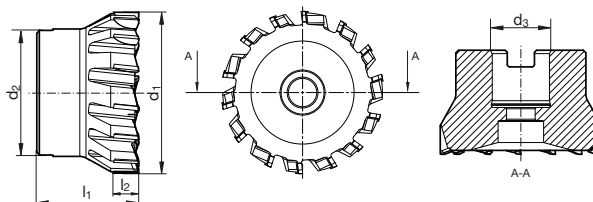
Difficulty: Defined surface between R_a 0.4 – 0.8 mm

Cutting data:	Gühring	Competition
v_c	1,500 m/min	v_c 1,000 m/min
f_z	0.15 mm Z6	f_z 0.12 mm Z5

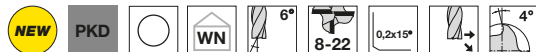


PCD face and corner milling cutters

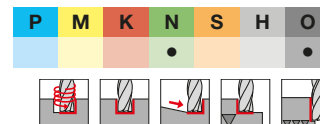
Article no. **4193**



cutting data see page 98



for high-performance machining • optimised cutting edge geometry for low-burr machining • PCD for very long tool lives • maximum flexibility thanks to compatibility with standard milling cutter holders
• special chamfer leads on request • coolant distribution screw art. no. 4203 order separately

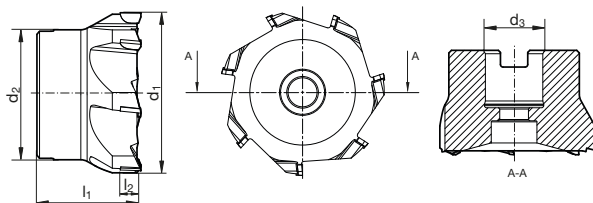


Article no. **4193**

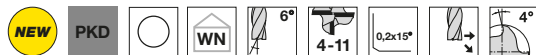
d1 ±0,05 mm	d2 mm	d3 mm	l1 mm	l2 mm	Z	Order no.
32.00	31.00	16.00	40	10.0	8	4193 32.000
40.00	32.00	16.00	40	10.0	10	4193 40.000
50.00	40.00	22.00	40	10.0	12	4193 50.000
63.00	50.00	22.00	40	10.0	14	4193 63.000
80.00	55.00	27.00	50	10.0	16	4193 80.000
100.00	60.00	32.00	50	10.0	18	4193 100.000
125.00	70.00	40.00	63	10.0	22	4193 125.000

PCD face and corner milling cutters

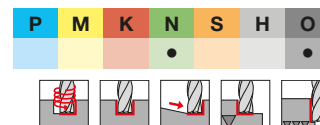
Article no. **4194**



cutting data see page 98



for universal application • optimised cutting edge geometry for low-burr machining • PCD for very long tool lives • maximum flexibility thanks to compatibility with standard milling cutter holders
• special chamfer leads on request • coolant distribution screw art. no. 4203 order separately



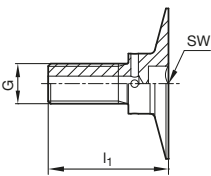
Article no. **4194**

d1 ±0,05 mm	d2 mm	d3 mm	l1 mm	l2 mm	Z	Order no.
32.00	31.00	16.00	40	8.0	4	4194 32.000
40.00	32.00	16.00	40	8.0	5	4194 40.000
50.00	40.00	22.00	40	8.0	6	4194 50.000
63.00	50.00	22.00	40	8.0	7	4194 63.000
80.00	55.00	27.00	50	8.0	8	4194 80.000
100.00	60.00	32.00	50	8.0	9	4194 100.000
125.00	70.00	40.00	63	8.0	11	4194 125.000



Coolant distributor

Article no. 4203



for PF 3000 • coolant distribution screw (for Ø 63-125) • coolant distribution disc (for Ø 160-250) • 4203 40.000 for 4193/4194 32.000/40.000 | 4203 63.000 for 4193/4194 50.000/63.000 | 4203 80.000 for 4193/4194 80.000 | 4203 100.000 for 4193/4194 100.000 | 4203 125.000 for 4193/4194 125.000

Article no.				4203
				Order no.
NEW	l1 mm	G	SW mm	4203 40.000
	35	M 8	6	4203 63.000
	39	M10	8	4203 80.000
	47	M12	10	4203 100.000
	48	M16	14	4203 125.000
	58	M20	17	

High-performance milling cutters



RF 100 AL Micro

Smooth milling with extreme metal removal rates

A new level of non-ferrous micro-machining

Materials in the ISO-N group are becoming increasingly important in the machining industry. They pose no problems to the RF 100 AL Micro solid carbide milling cutter, even in the micro range.

This rise in usage is due, for example, to increasing requirements in the electrical industry, as components for electric drives must be lighter and must be produced more efficiently.

With the RF 100 AL Micro, Gühring is bringing a high-end tool to the market that meets the requirements of these materials. The micro-precision milling cutter impresses with extreme metal removal rates, maximum running smoothness and perfect surfaces. And you don't have to worry about burr development or process reliability with this material specialist.

X Machining time reduced by 76 %

- X** significantly enhanced machining performance at medium & high speeds
- X** longer tool lives thanks to adapted carbide & Carbo+ coating
- X** new round bevel chamfer for high running smoothness & perfect finishing surfaces
- X** very high process reliability thanks to perfected cooling & chip removal



corner radius or corner chamfer
for specific requirements & wear protection

ultra-thin Carbo+ coating
for significantly increased performance & long tool lives

innovative GühroJet internal cooling
for reliable chip removal

available in the diameter range
2.5xD | 5xD, Ø 0.5 – 3.0 mm

Application example

Component: Joint body, AIMGSi1

Tool: #8069, Ø 2.4 mm

Customer target: Reduction of machining time, fewer infeeds

Difficulty: 4 mm slot depth infeed in two cuts

Cutting data:	Gühring (two steps)	Competition (three steps)
v_c	240 m/min	v_c 182 m/min
n	31,800 rpm	n 24,000 rpm
f_z	0.053 mm/z	f_z 0.025 mm/z
v_f	5,056 mm/min	v_f 1,824 mm/min
a_p	2.4 mm (1xD)	a_p 1.8 mm (0.75xD)

Machining time: 2.4 sec

10 sec



Micro-precision milling cutters RF 100 AL

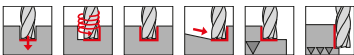
Article no. **8069**



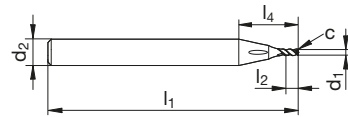
cutting data see page 99



for extreme cutting values and cutting performance • with internal cooling: GühroJet peripheral cooling with 6 or 4 exits • centre cutting



High-performance milling cutters



Article no.

8069

d1 h8 mm	d2 h5 mm	l1 mm	l2 mm	l4 mm	c mm x 45°	Z	Order no.
0.500	4.00	38.0	1.250	10.000	0.010	3	8069 0.500
0.750	4.00	38.0	1.875	10.000	0.015	3	8069 0.750
0.790	4.00	38.1	1.975	10.100	0.016	3	8069 0.790
0.800	4.00	38.0	2.000	10.000	0.016	3	8069 0.800
1.000	4.00	38.0	2.500	10.000	0.020	3	8069 1.000
1.190	4.00	38.1	2.975	10.100	0.024	3	8069 1.190
1.200	4.00	38.0	3.000	10.000	0.024	3	8069 1.200
1.500	4.00	45.0	3.750	17.000	0.030	3	8069 1.500
1.590	4.00	44.4	3.975	16.500	0.032	3	8069 1.590
1.800	4.00	45.0	4.500	17.000	0.036	3	8069 1.800
1.980	6.00	50.8	4.950	14.800	0.040	3	8069 1.980
2.000	6.00	50.0	5.000	14.400	0.040	3	8069 2.000
2.200	6.00	50.0	5.500	14.800	0.044	3	8069 2.200
2.380	6.00	50.8	5.950	15.000	0.048	3	8069 2.380
2.500	6.00	50.0	6.250	15.100	0.050	3	8069 2.500
2.780	6.00	50.8	6.950	15.400	0.056	3	8069 2.780
2.800	6.00	50.0	7.000	15.400	0.056	3	8069 2.800
3.000	6.00	50.0	7.500	15.800	0.060	3	8069 3.000



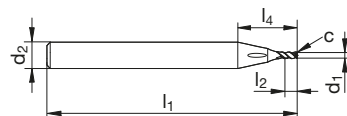
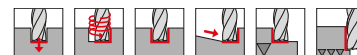
Micro-precision milling cutters RF 100 AL

Article no. **8070**

cutting data see page 100



for extreme cutting values and cutting performance • with internal cooling: GühroJet peripheral cooling with 6 or 4 exits • centre cutting



Article no.

8070

d1 h8 mm	d2 h5 mm	l1 mm	l2 mm	l4 mm	c mm x 45°	Z	Order no.
0.500	4.00	38.0	2.500	10.500	0.010	3	8070 0.500
0.750	4.00	38.0	3.750	11.100	0.015	3	8070 0.750
0.790	4.00	38.1	3.950	11.200	0.016	3	8070 0.790
0.800	4.00	38.0	4.000	11.200	0.016	3	8070 0.800
1.000	4.00	45.0	5.000	17.000	0.020	3	8070 1.000
1.190	4.00	50.8	5.950	22.800	0.024	3	8070 1.190
1.200	4.00	50.0	6.000	22.000	0.024	3	8070 1.200
1.500	4.00	50.0	7.500	22.000	0.030	3	8070 1.500
1.590	4.00	50.8	7.950	22.800	0.032	3	8070 1.590
1.800	4.00	50.0	9.000	22.000	0.036	3	8070 1.800
1.980	6.00	57.1	9.900	21.200	0.040	3	8070 1.980
2.000	6.00	57.0	10.000	21.000	0.040	3	8070 2.000
2.200	6.00	57.0	11.000	21.000	0.044	3	8070 2.200
2.380	6.00	57.1	11.900	21.200	0.048	3	8070 2.380
2.500	6.00	57.0	12.500	21.600	0.050	3	8070 2.500
2.780	6.00	57.1	13.900	22.700	0.056	3	8070 2.780
2.800	6.00	57.0	14.000	22.800	0.056	3	8070 2.800
3.000	6.00	57.0	15.000	23.600	0.060	3	8070 3.000

High-performance milling cutters

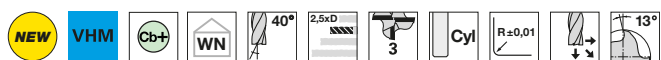


Micro-precision milling cutters RF 100 AL

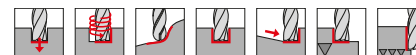
Article no. **8065**



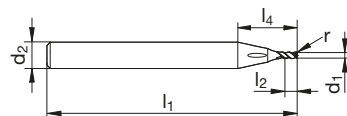
cutting data see page 99



for extreme cutting values and cutting performance • with internal cooling: GühroJet peripheral cooling with 6 or 4 exits • centre cutting



High-performance milling cutters



Article no.

8065

d1 h8 mm	d2 h5 mm	l1 mm	l2 mm	l4 mm	r mm	Z	Order no.
0.50	4.00	38	1.250	10.000	0.05	3	8065 0.500
0.50	4.00	38	1.250	10.000	0.10	3	8065 0.501
0.75	4.00	38	1.875	10.000	0.05	3	8065 0.750
0.75	4.00	38	1.875	10.000	0.10	3	8065 0.751
0.80	4.00	38	2.000	10.000	0.05	3	8065 0.800
0.80	4.00	38	2.000	10.000	0.10	3	8065 0.801
1.00	4.00	38	2.500	10.000	0.05	3	8065 1.000
1.00	4.00	38	2.500	10.000	0.10	3	8065 1.001
1.00	4.00	38	2.500	10.000	0.20	3	8065 1.002
1.20	4.00	38	3.000	10.000	0.10	3	8065 1.201
1.20	4.00	38	3.000	10.000	0.20	3	8065 1.202
1.50	4.00	45	3.750	17.000	0.10	3	8065 1.501
1.50	4.00	45	3.750	17.000	0.20	3	8065 1.502
1.50	4.00	45	3.750	17.000	0.30	3	8065 1.503
1.80	4.00	45	4.500	17.000	0.10	3	8065 1.801
1.80	4.00	45	4.500	17.000	0.20	3	8065 1.802
1.80	4.00	45	4.500	17.000	0.30	3	8065 1.803
2.00	6.00	50	5.000	14.400	0.10	3	8065 2.001
2.00	6.00	50	5.000	14.400	0.20	3	8065 2.002
2.00	6.00	50	5.000	14.400	0.30	3	8065 2.003
2.00	6.00	50	5.000	14.400	0.50	3	8065 2.005
2.50	6.00	50	6.250	15.100	0.20	3	8065 2.502
2.50	6.00	50	6.250	15.100	0.30	3	8065 2.503
2.50	6.00	50	6.250	15.100	0.50	3	8065 2.505
2.80	6.00	50	7.000	15.400	0.20	3	8065 2.802
2.80	6.00	50	7.000	15.400	0.30	3	8065 2.803
2.80	6.00	50	7.000	15.400	0.50	3	8065 2.805
3.00	6.00	50	7.500	15.800	0.20	3	8065 3.002
3.00	6.00	50	7.500	15.800	0.30	3	8065 3.003
3.00	6.00	50	7.500	15.800	0.50	3	8065 3.005



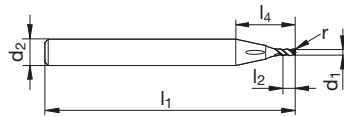
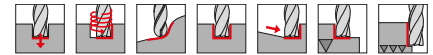
Micro-precision milling cutters RF 100 AL

Article no. **8066**

cutting data see page 100



for extreme cutting values and cutting performance • with internal cooling: GühroJet peripheral cooling with 6 or 4 exits • centre cutting



Article no.

8066

d1 h8 mm	d2 h5 mm	l1 mm	l2 mm	l4 mm	r mm	Z	Order no.
0.50	4.00	38	2.500	10.500	0.05	3	8066 0.500
0.50	4.00	38	2.500	10.500	0.10	3	8066 0.501
0.75	4.00	38	3.750	11.100	0.05	3	8066 0.750
0.75	4.00	38	3.750	11.100	0.10	3	8066 0.751
0.80	4.00	38	4.000	11.200	0.05	3	8066 0.800
0.80	4.00	38	4.000	11.200	0.10	3	8066 0.801
1.00	4.00	45	5.000	17.000	0.05	3	8066 1.000
1.00	4.00	45	5.000	17.000	0.10	3	8066 1.001
1.00	4.00	45	5.000	17.000	0.20	3	8066 1.002
1.20	4.00	50	6.000	22.000	0.10	3	8066 1.201
1.20	4.00	50	6.000	22.000	0.20	3	8066 1.202
1.50	4.00	50	7.500	22.000	0.10	3	8066 1.501
1.50	4.00	50	7.500	22.000	0.20	3	8066 1.502
1.50	4.00	50	7.500	22.000	0.30	3	8066 1.503
1.80	4.00	50	9.000	22.000	0.10	3	8066 1.801
1.80	4.00	50	9.000	22.000	0.20	3	8066 1.802
1.80	4.00	50	9.000	22.000	0.30	3	8066 1.803
2.00	6.00	57	10.000	21.000	0.10	3	8066 2.001
2.00	6.00	57	10.000	21.000	0.20	3	8066 2.002
2.00	6.00	57	10.000	21.000	0.30	3	8066 2.003
2.00	6.00	57	10.000	21.000	0.50	3	8066 2.005
2.50	6.00	57	12.500	21.600	0.20	3	8066 2.502
2.50	6.00	57	12.500	21.600	0.30	3	8066 2.503
2.50	6.00	57	12.500	21.600	0.50	3	8066 2.505
2.80	6.00	57	14.000	22.800	0.20	3	8066 2.802
2.80	6.00	57	14.000	22.800	0.30	3	8066 2.803
2.80	6.00	57	14.000	22.800	0.50	3	8066 2.805
3.00	6.00	57	15.000	23.600	0.20	3	8066 3.002
3.00	6.00	57	15.000	23.600	0.30	3	8066 3.003
3.00	6.00	57	15.000	23.600	0.50	3	8066 3.005

High-performance milling cutters



RF 100 AL

For guaranteed perfect surfaces

30 % higher machining performance in aluminium and plastic

The new RF 100 AL solid carbide milling cutter unleashes its strengths when machining aluminium, non-ferrous metals and plastics. The three-fluted cutter scores points with the highest cutting performance as well as perfect surfaces and dimensional accuracy.

Thanks to its nano-polished round bevel support chamfer, the solid carbide milling cutter achieves the tightest tolerances and optimum running smoothness. Thanks to the large, polished flutes with a dynamic flute profile, you benefit from long tool lives and better chip removal.

The RF 100 AL with optional Carbo+ coating is ideal for dry and MQL machining. The extra-smooth coating prevents built-up edges and guarantees a long tool life.

- x **Tool life** increased by 54 %
- x **Machining time** reduced by 59 %

-  **X** perfect dimensional accuracy & the best surface qualities
-  **X** highest machining performance & perfect chip removal
-  **X** continuous range from 1–20 mm with corner chamfers
-  **X** wide range of corner radii from R 0.1–4 mm



symmetrical drill face
for plunging

nano-polished round bevel support chamfer
for optimum running smoothness & tightest tolerances

dynamic flute profile
with polished surface & reinforced core

3 different production lengths
with neck clearance (short, medium, long)

Application example

Component: Integral component, AlCuMg1

Tool: #8240, Ø 12 mm

Customer target: Running time reduction

Difficulty: The component contains thin-walled, vibration-sensitive lands

Cutting data:	Gühring	Competition
v_c	546 m/min	452 m/min
n	14,500 rpm	12,000 rpm
v_f	5,220 mm/min	3,600 mm/min
a_e	2.5 mm	1.5 mm

Tool life:	485 m	315 m
-------------------	-------	-------



Ratio end mills RF 100 AL

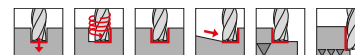
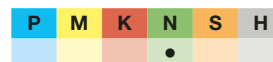
Article no. **8240**



cutting data see page 101



nano polished cutting edges • neck clearance • centre cutting



Ratio end mills RF 100 AL

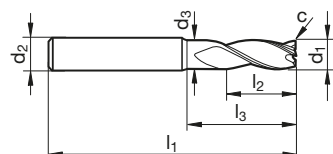
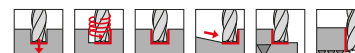
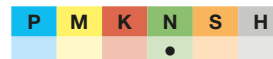
Article no. **8241**



cutting data see page 101



nano polished cutting edges • neck clearance • centre cutting



Article no.

8240

8241

d1 js7 mm	d2 h5 mm	d3 mm	l1 mm	l2 mm	l3 mm	c mm x 45°	Z	Order no.
1.00	4.00	0.92	50	2.5	9.0	0.02	3	8240 1.000
1.50	4.00	1.40	50	4.0	13.5	0.03	3	8240 1.500
2.00	6.00	1.85	60	5.0	18.0	0.04	3	8240 2.000
2.50	6.00	2.35	65	6.5	22.5	0.05	3	8240 2.500
3.00	6.00	2.85	70	8.0	27.0	0.06	3	8240 3.000
3.50	6.00	3.30	75	11.0	30.0	0.03	3	8240 3.500
4.00	6.00	3.80	75	11.0	30.0	0.04	3	8240 4.000
4.50	6.00	4.30	75	13.0	35.0	0.04	3	8240 4.500
5.00	6.00	4.80	75	13.0	35.0	0.05	3	8240 5.000
5.50	6.00	5.30	75	13.0	38.0	0.05	3	8240 5.500
6.00	6.00	5.70	75	13.0	38.0	0.06	3	8240 6.000
7.50	8.00	7.20	86	19.0	49.0	0.07	3	8240 7.500
8.00	8.00	7.70	86	19.0	49.0	0.08	3	8240 8.000
9.50	10.00	9.20	100	22.0	60.0	0.09	3	8240 9.500
10.00	10.00	9.50	100	22.0	60.0	0.10	3	8240 10.000
11.50	12.00	11.00	120	26.0	74.0	0.11	3	8240 11.500
12.00	12.00	11.50	120	26.0	74.0	0.12	3	8240 12.000
14.00	14.00	13.50	150	26.0	104.0	0.14	3	8240 14.000
16.00	16.00	15.50	150	32.0	101.0	0.16	3	8240 16.000
20.00	20.00	19.50	175	38.0	124.0	0.20	3	8240 20.000

8241
8241 3.500
8241 4.000
8241 4.500
8241 5.000
8241 5.500
8241 6.000
8241 7.500
8241 8.000
8241 9.500
8241 10.000
8241 11.500
8241 12.000
8241 14.000
8241 16.000
8241 20.000



Ratio end mills RF 100 AL

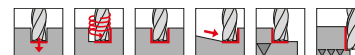
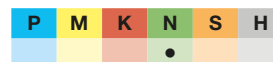
Article no. 8254



cutting data see page 101



nano polished cutting edges • neck clearance • centre cutting



Ratio end mills RF 100 AL

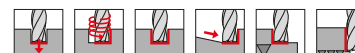
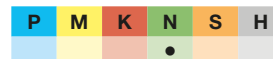
Article no. 8255



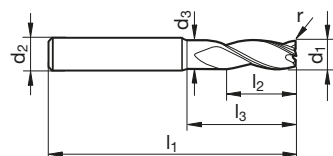
cutting data see page 101



nano polished cutting edges • neck clearance • centre cutting



High-performance milling cutters



Article no.

8254

8255

d1 js7 mm	d2 h5 mm	d3 mm	l1 mm	l2 mm	l3 mm	r mm	Z	Order no.
1.00	4.00	0.92	50	2.5	9.0	0.10	3	8254 1.001
1.00	4.00	0.92	50	2.5	9.0	0.20	3	8254 1.002
2.00	6.00	1.85	60	5.0	18.0	0.10	3	8254 2.001
2.00	6.00	1.85	60	5.0	18.0	0.20	3	8254 2.002
3.00	6.00	2.85	70	8.0	27.0	0.20	3	8254 3.002
3.00	6.00	2.85	70	8.0	27.0	0.50	3	8254 3.005
4.00	6.00	3.80	75	11.0	30.0	0.20	3	8254 4.002
4.00	6.00	3.80	75	11.0	30.0	0.50	3	8254 4.005
4.00	6.00	3.80	75	11.0	30.0	1.00	3	8254 4.010
5.00	6.00	4.80	75	13.0	35.0	0.20	3	8254 5.002
5.00	6.00	4.80	75	13.0	35.0	0.50	3	8254 5.005
5.00	6.00	4.80	75	13.0	35.0	1.00	3	8254 5.010
6.00	6.00	5.70	75	13.0	38.0	0.20	3	8254 6.002
6.00	6.00	5.70	75	13.0	38.0	0.50	3	8254 6.005
6.00	6.00	5.70	75	13.0	38.0	0.80	3	8254 6.008
6.00	6.00	5.70	75	13.0	38.0	1.00	3	8254 6.010
8.00	8.00	7.70	86	19.0	49.0	0.20	3	8254 8.002
8.00	8.00	7.70	86	19.0	49.0	0.50	3	8254 8.005
8.00	8.00	7.70	86	19.0	49.0	0.80	3	8254 8.008
8.00	8.00	7.70	86	19.0	49.0	1.00	3	8254 8.010
8.00	8.00	7.70	86	19.0	49.0	2.00	3	8254 8.020
10.00	10.00	9.50	100	22.0	60.0	0.30	3	8254 10.003
10.00	10.00	9.50	100	22.0	60.0	0.50	3	8254 10.005
10.00	10.00	9.50	100	22.0	60.0	0.80	3	8254 10.008
10.00	10.00	9.50	100	22.0	60.0	1.00	3	8254 10.010
10.00	10.00	9.50	100	22.0	60.0	1.50	3	8254 10.015
12.00	12.00	11.50	120	26.0	74.0	0.30	3	8254 12.003
12.00	12.00	11.50	120	26.0	74.0	0.50	3	8254 12.005
12.00	12.00	11.50	120	26.0	74.0	0.80	3	8254 12.008
12.00	12.00	11.50	120	26.0	74.0	1.00	3	8254 12.010
12.00	12.00	11.50	120	26.0	74.0	1.50	3	8254 12.015
12.00	12.00	11.50	120	26.0	74.0	2.00	3	8254 12.020
12.00	12.00	11.50	120	26.0	74.0	3.00	3	8254 12.030
16.00	16.00	15.50	150	32.0	101.0	0.50	3	8254 16.005
16.00	16.00	15.50	150	32.0	101.0	1.00	3	8254 16.010
16.00	16.00	15.50	150	32.0	101.0	1.50	3	8254 16.015
16.00	16.00	15.50	150	32.0	101.0	2.00	3	8254 16.020
16.00	16.00	15.50	150	32.0	101.0	2.50	3	8254 16.025
16.00	16.00	15.50	150	32.0	101.0	3.00	3	8254 16.030
16.00	16.00	15.50	150	32.0	101.0	4.00	3	8254 16.040
20.00	20.00	19.50	175	38.0	124.0	0.50	3	8254 20.005
20.00	20.00	19.50	175	38.0	124.0	1.00	3	8254 20.010
20.00	20.00	19.50	175	38.0	124.0	1.50	3	8254 20.015
20.00	20.00	19.50	175	38.0	124.0	2.00	3	8254 20.020
20.00	20.00	19.50	175	38.0	124.0	2.50	3	8254 20.025
20.00	20.00	19.50	175	38.0	124.0	3.00	3	8254 20.030
20.00	20.00	19.50	175	38.0	124.0	4.00	3	8254 20.040



Solid carbide single-fluted cutter AL

Low-burr milling in aluminium

Solid carbide single-fluted
cutter for burr-free aluminium
profile machining

Be it in e-mobility, aviation or mechanical engineering – demand for aluminium components is not only increasing all the time, but also its use is growing across a wide range of industries. A case for the solid carbide single-fluted cutter AL.

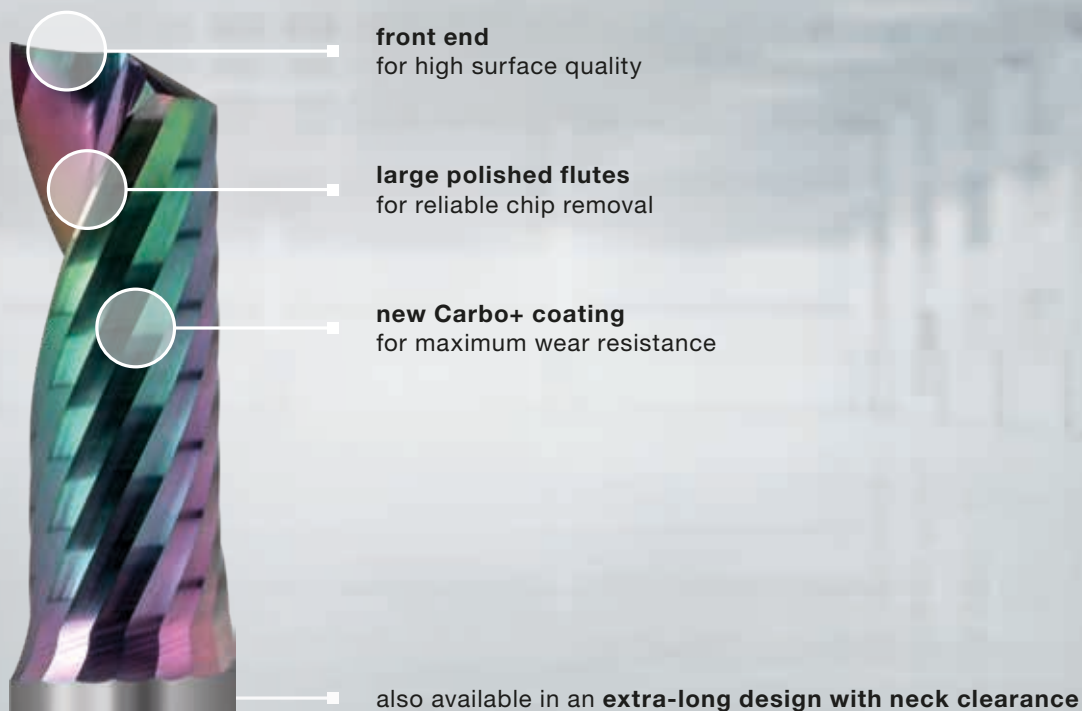
With its large, polished flutes, the tool ensures excellent chip removal during aluminium and plastic machining, ensuring a safe machining process. Thanks to its very positive geometry, you can achieve an easy, low-burr cut with the lowest power consumption when machining aluminium profiles.

And you don't have to worry about wear either: The thin Carbo+ coating keeps the cutting edges extremely sharp. This makes the solid carbide single-fluted cutter ideal for dry and MQL machining.

The tool is available in four designs, including an extra-long design with neck clearance.

x **Tool life** increased by 51 %

-  **X** low-burr cut & best possible surfaces
-  **X** low power consumption
-  **X** reliable chip removal



Application example

Component: Special AL profile for tent construction (anodised), AlMgSi05

Tool: #8138, Ø 10 mm

Customer target: Burr-free and rework-free cutting edges

Difficulty: Due to the anodised layer, conventional milling cutters suffer wear and produce burrs & poor surfaces

Cutting data:	Gühring	Competition
v_c	785 m/min	v _c 785 m/min
n	24,990 rpm	n 24,990 rpm
f	1,960 mm/min	f 1,273 mm/min

Tool life:	355 m	235 m
-------------------	-------	-------



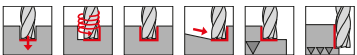
End mills (single-fluted)

Article no. 6793



centre cutting • polished flutes

cutting data see page 102



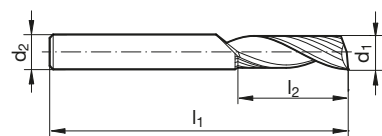
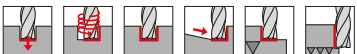
End mills (single-fluted)

Article no. 8138



centre cutting • polished flutes

cutting data see page 102



Article no.

6793

8138

d1 h10 mm	d2 h6 mm	l1 mm	l2 mm	Z
2.00	2.00	38	10.0	1
3.00	3.00	39	12.0	1
4.00	4.00	40	15.0	1
5.00	5.00	50	16.0	1
6.00	6.00	57	20.0	1
8.00	8.00	63	22.0	1
10.00	10.00	73	25.0	1
12.00	12.00	83	30.0	1
16.00	16.00	92	35.0	1

Order no.
6793 2.000
6793 3.000
6793 4.000
6793 5.000
6793 6.000
6793 8.000
6793 10.000
6793 12.000
6793 16.000

Order no.
8138 2.000
8138 3.000
8138 4.000
8138 5.000
8138 6.000
8138 8.000
8138 10.000
8138 12.000
8138 16.000



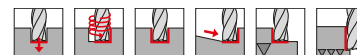
End mills (single-fluted)

Article no. **6935**

cutting data see page 102



centre cutting • polished flutes



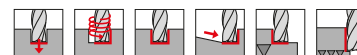
End mills (single-fluted)

Article no. **8135**

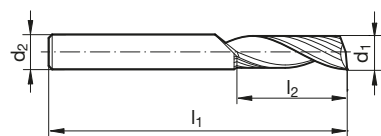
cutting data see page 102



centre cutting • polished flutes



High-performance milling cutters



Article no.

6935**8135**

d1 h10 mm	d2 h6 mm	l1 mm	l2 mm	Z	Order no.	
3.00	3.00	55	18.0	1	6935 3.000	8135 3.000
4.00	4.00	60	22.0	1	6935 4.000	8135 4.000
5.00	5.00	60	24.0	1	6935 5.000	8135 5.000
6.00	6.00	80	30.0	1	6935 6.000	8135 6.000
8.00	8.00	80	32.0	1	6935 8.000	8135 8.000
10.00	10.00	100	45.0	1	6935 10.000	8135 10.000
12.00	12.00	110	52.0	1	6935 12.000	8135 12.000
16.00	16.00	120	55.0	1	6935 16.000	8135 16.000



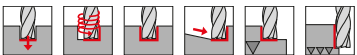
End mills (single-fluted)

Article no. **6936**



centre cutting • polished flutes

cutting data see page 102



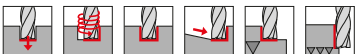
End mills (single-fluted)

Article no. **8136**

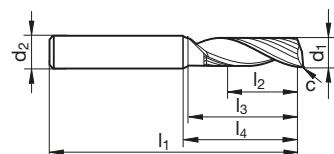


centre cutting • polished flutes

cutting data see page 102



High-performance milling
cutters



Article no.

6936

8136

d1 h10 mm	d2 h6 mm	l1 mm	l2 mm	l3 mm	l4 mm	c mm	Z
1.00	6.00	50	5.0	7.2	14.000	0.025	1
1.50	6.00	50	7.0	9.7	15.060	0.030	1
2.00	6.00	57	10.0	13.7	19.000	0.035	1
3.00	6.00	57	12.0	15.7	19.000	0.050	1
4.00	6.00	57	14.0	18.0	21.000	0.065	1
5.00	6.00	57	16.0	17.5	21.000	0.080	1
6.00	6.00	57	20.0	21.0	21.000	0.100	1
8.00	8.00	63	22.0	27.0	27.000	0.100	1
10.00	10.00	73	25.0	33.0	33.000	0.130	1

Order no.	
6936 1.000	8136 1.000
6936 1.500	8136 1.500
6936 2.000	8136 2.000
6936 3.000	8136 3.000
6936 4.000	8136 4.000
6936 5.000	8136 5.000
6936 6.000	8136 6.000
6936 8.000	8136 8.000
6936 10.000	8136 10.000



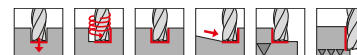
End mills (single-fluted)

Article no. **6937**

cutting data see page 102



neck clearance • centre cutting • polished flutes



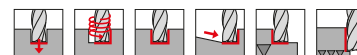
End mills (single-fluted)

Article no. **8137**

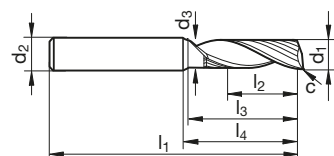
cutting data see page 102



neck clearance • centre cutting • polished flutes



High-performance milling cutters



Article no.

6937**8137**

d1 h10 mm	d2 h6 mm	d3 mm	l1 mm	l2 mm	l3 mm	l4 mm	c mm	Z	Order no.	
1.00	6.00	0.92	50	2.5	7.0	17.140	0.025	1	6937 1.000	8137 1.000
1.50	6.00	1.40	57	4.0	11.0	20.240	0.030	1	6937 1.500	8137 1.500
2.00	6.00	1.85	57	6.0	14.0	22.400	0.035	1	6937 2.000	8137 2.000
3.00	6.00	2.85	65	8.0	22.0	27.280	0.050	1	6937 3.000	8137 3.000
4.00	6.00	3.80	65	11.0	28.0	31.370	0.065	1	6937 4.000	8137 4.000
5.00	6.00	4.80	80	13.0	35.0	37.000	0.080	1	6937 5.000	8137 5.000
6.00	6.00	5.70	80	13.0	41.0	42.000	0.100	1	6937 6.000	8137 6.000
8.00	8.00	7.70	80	19.0	41.0	42.000	0.100	1	6937 8.000	8137 8.000
10.00	10.00	9.50	100	22.0	59.0	60.000	0.130	1	6937 10.000	8137 10.000



**High-speed milling cutter
with indexable inserts**

Four cutting edges for the best possible results

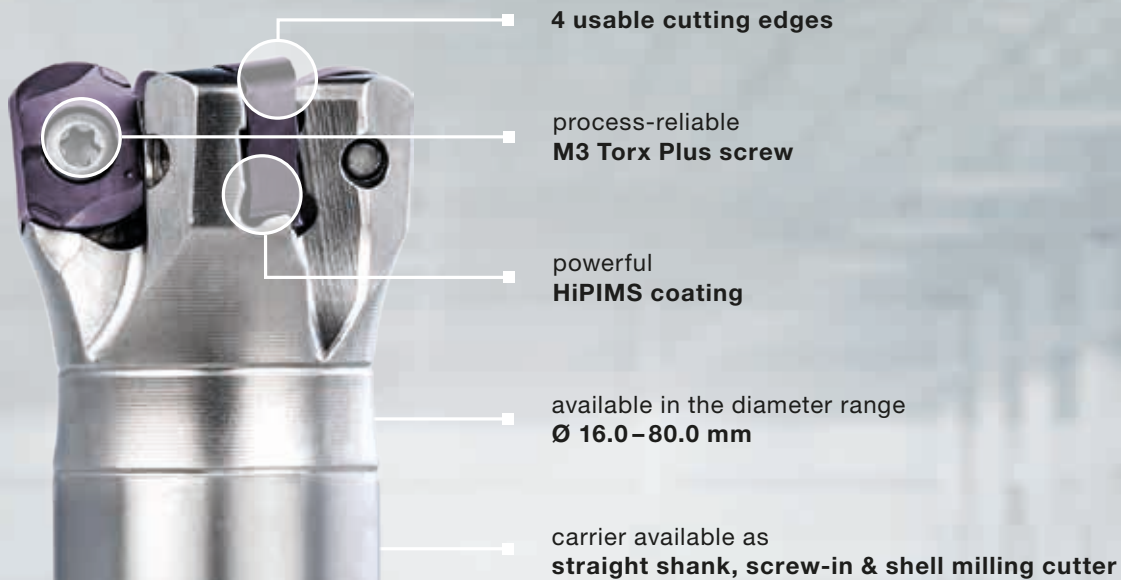
Maximum removal rates
thanks to stable cutting insert

When maximum cost-effectiveness and process reliability are required for roughing with high chip removal rates, the GHM high-speed milling cutter with indexable inserts is the first choice.

This is ensured by the stable and high-quality holder tools, equipped with double-sided cutting plates. These high-performance cutting plates impress with four usable cutting edges and ensure the best machining results.

X Machining time reduced by 25 %

-  **X** double-sided indexable insert with four usable cutting edges
-  **X** two different types of inserts for ISO P & K and ISO M & S



Application example

Component: Injection moulding tool, Toolox33

Tool: #28001, Ø 25 mm

Customer target: Reduction of machining time

Difficulty: Dry machining, cooling with air

Cutting data: **Gühring**

v_c 200 m/min

f_z 1.2 mm

a_p 0.9 mm

Competition

v_c 180 m/min

f_z 1.0 mm

a_p 0.8 mm

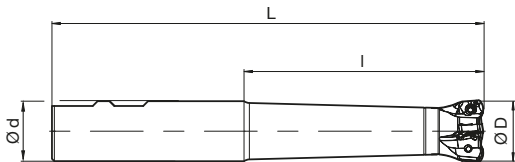


High feed milling cutters with indexable inserts, straight shank Weldon

Article no. 28000



for double-sided indexable inserts type XNMX 07 • order Torx Plus wrench art. no. 28901 8.000 separately • use code 16.000 with reduced parameters, max. ap=0.7 mm, max. fz=0.8 mm



High-performance milling cutters

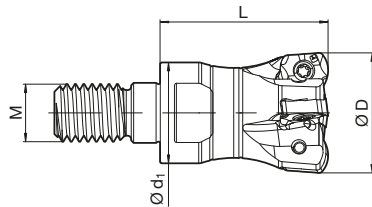
Article no.						28000
D mm	d mm	l mm	L mm	Z	Description	Order no.
16	16	50	150	2	GHM.016.050.C.016.02.07	28000 16.000
20	20	90	160	3	GHM.020.090.C.020.03.07	28000 20.000
25	25	100	180	4	GHM.025.100.C.025.04.07	28000 25.000
32	32	120	200	5	GHM.032.120.C.032.05.07	28000 32.000



High feed milling cutters with indexable inserts, screw-in thread

Article no. **28001**


for double-sided indexable inserts type XNMX 07 • for tool holder for screw-in milling cutter art. no. 4199 • order Torx Plus wrench art. no. 28901 8.000 separately • use code 16.000 with reduced parameters, max. $a_p=0.7$ mm, max. $f_z=0.8$ mm



Article no.

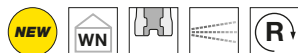
28001

D mm	M	L mm	d1 mm	Z	Description	Order no.
16	M 8	25	13	2	GHM.016.025.M.08.02.07	28001 16.000
20	M10	28	18	3	GHM.020.028.M.10.03.07	28001 20.000
25	M12	35	21	4	GHM.025.035.M.12.04.07	28001 25.000
32	M16	35	29	5	GHM.032.035.M.16.05.07	28001 32.000
35	M16	35	29	5	GHM.035.035.M.16.05.07	28001 35.000
35	M16	35	29	6	GHM.035.035.M.16.06.07	28001 35.001
40	M16	45	29	5	GHM.040.045.M.16.05.07	28001 40.000
40	M16	45	29	6	GHM.040.045.M.16.06.07	28001 40.001
42	M16	45	29	7	GHM.042.045.M.16.07.07	28001 42.000

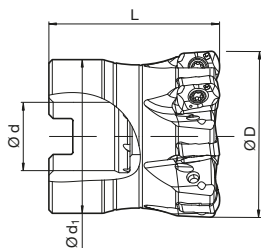


High feed milling cutters with indexable inserts, shell milling cutter

Article no. **28002**



for double-sided indexable inserts type XNMX 07 • order Torx Plus wrench art. no. 28901 8.000 separately



High-performance milling
cutters

Article no.

28002

D mm	d mm	L mm	d1 mm	Z	Description
40	16	40	36	7	GHM.040.040.F.16.07.07
50	22	40	42	6	GHM.050.040.F.22.06.07
50	22	40	42	8	GHM.050.040.F.22.08.07
52	22	40	40	8	GHM.052.040.F.22.08.07
63	22	40	48	9	GHM.063.040.F.22.09.07
80	27	50	60	10	GHM.080.050.F.27.10.07

Order no.

28002 40.000

28002 50.000

28002 50.001

28002 52.000

28002 63.000

28002 80.000



Spare parts

Article no.	Clamping screw	Torque Nm	Description
28400			
Code 8.000	M3x7.5 08IP	1.4	use for indexable insert size 07, XNMX

Article no.	Torx Plus wrench Size
28901	
Code 8.000	T-handle Torx Plus wrench 08IP

Article no.	Torque wrenches Size	Torque Nm
4915		
Code 6.000	1/4"	0.5-2

Article no.	Interchangeable blade Size	Overall length
4960		
Code 8.000	08IP	175



Indexable inserts XNMX, double-sided

Article no. **28003**



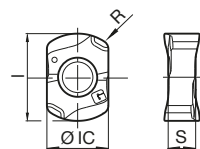
cutting data see page 103



4 usable cutting edges • stable cutting edge • type PK2011

P	M	K	N	S	H
●	○	●	○	○	○

High-performance milling cutters



Article no.

28003

IC mm	PR mm	R mm	I mm	S mm	Size	Description
7.05	1.9	1.0	10	3.6	07	XNMX 07T319 T

Order no.

28003 7.000

Indexable inserts XNMX, double-sided

Article no. **28009**

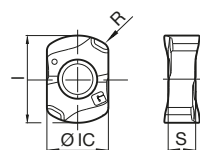


cutting data see page 103



4 usable cutting edges • stable cutting edge with good toughness • type PK3021

P	M	K	N	S	H
●	○	●	○	○	○



Article no.

28009

IC mm	PR mm	R mm	I mm	S mm	Size	Description
7.05	1.9	1.0	10	3.6	07	XNMX 07T319 T

Order no.

28009 7.000

Indexable inserts XNMX, double-sided

Article no. **28004**

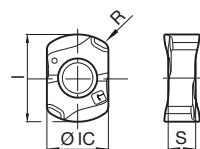


cutting data see page 104



4 usable cutting edges • stable cutting edge • type MP3021

P	M	K	N	S	H
●	●	○	○	○	○



Article no.

28004

IC mm	PR mm	R mm	I mm	S mm	Size	Description
7.05	1.9	1.0	10	3.6	07	XNMX 07T319 T

Order no.

28004 7.000



Tool holders for screw-in milling cutters HSK-A

Article no. 4199

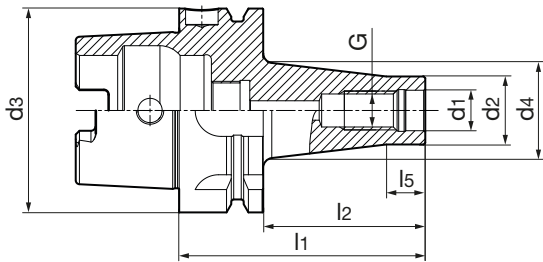


Product information:

HSK-A according to ISO 12164-1 / DIN 69893-1 • balancing quality: G 2.5 / 25,000 rev./min or rev. ≤ 1 gmm • concentricity $< 5 \mu\text{m}$, l_2 from 150 mm $< 7 \mu\text{m}$

Suitable accessories separately available:

- coolant supply set art. no. 4949



Article no.

4199

d3 mm	G	d1 mm	d2 mm	d4 mm	l1 mm	l2 mm	l5 mm	kg	Order no.
63.0	M 8	8.5	13	23	76.0	32.0	50	0.71	4199 8.063
63.0	M10	10.5	18	25	76.0	32.0	50	0.75	4199 10.063
63.0	M12	12.5	21	30	76.0	32.0	50	0.79	4199 12.063
63.0	M16	17.0	29	34	76.0	32.0	50	0.88	4199 16.063
63.0	M 8	8.5	13	30	126.0	32.0	100	0.89	4199 8.163
63.0	M10	10.5	18	35	126.0	32.0	100	1.02	4199 10.163
63.0	M 8	8.5	13	32	176.0	32.0	150	1.07	4199 8.263
63.0	M12	12.5	21	38	126.0	32.0	100	1.10	4199 12.163
63.0	M16	17.0	29	40	126.0	32.0	100	1.28	4199 16.163
63.0	M10	10.5	18	45	176.0	32.0	150	1.51	4199 10.263
63.0	M12	12.5	21	45	176.0	32.0	150	1.57	4199 12.263
63.0	M16	17.0	29	48	176.0	32.0	150	1.89	4199 16.263
100.0	M 8	8.5	13	28	79.0	50.0	50	2.09	4199 8.100
100.0	M10	10.5	18	30	79.0	50.0	50	2.13	4199 10.100
100.0	M12	12.5	21	33	79.0	50.0	50	2.16	4199 12.100
100.0	M16	17.0	29	34	79.0	50.0	50	2.23	4199 16.100
100.0	M 8	8.5	13	30	129.0	50.0	100	2.24	4199 8.101
100.0	M 8	8.5	13	30	179.0	50.0	150	2.37	4199 8.102
100.0	M10	10.5	18	35	129.0	50.0	100	2.37	4199 10.101
100.0	M12	12.5	21	38	129.0	50.0	100	2.45	4199 12.101
100.0	M16	17.0	29	40	129.0	50.0	100	2.64	4199 16.101
100.0	M10	10.5	18	38	179.0	50.0	150	2.66	4199 10.102
100.0	M12	12.5	21	45	179.0	50.0	150	2.91	4199 12.102
100.0	M16	17.0	29	50	179.0	50.0	150	3.31	4199 16.102



PCD face and corner milling cutters

Milling conditions:



Article No. 4193:
stable machining conditions
high drive power



Article No. 4194:
stable machining conditions
low cutting depths, high cutting values

Correction factors:

long projection v_c -25 % f_z -25 %

mid-length projection v_c -40 % f_z -40 %

short projection v_c -60 % f_z -55 %



Machining group	Application	v_c (m/min)	a_p max. *	a_e max.	f_z (mm)
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB N1.1.2 Wrought aluminium alloys, hardened, 100 HB	Slotting	1500	8	1xD	0.100
	Roughing	2000	8	0.6xD	0.200
	Finishing	2500	1	0.9xD	0.150
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	Slotting	1000	8	1xD	0.100
	Roughing	1300	8	0.6xD	0.200
	Finishing	2550	1	0.9xD	0.150
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	Slotting	750	8	1xD	0.100
	Roughing	1000	8	0.6xD	0.200
	Finishing	1900	1	0.9xD	0.150
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 % N3.1.2 Copper and copper alloys: CuZn, CuSnZn	Slotting	750	8	1xD	0.100
	Roughing	900	8	0.6xD	0.200
	Finishing	1800	1	0.9xD	0.150
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	Slotting	550	8	1xD	0.100
	Roughing	750	8	0.6xD	0.200
	Finishing	1400	1	0.9xD	0.150
01.2.1 Carbon-fibre-reinforced thermoplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.3 Carbon-fibre-reinforced duroplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.4 Glass-fibre-reinforced thermoplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.6 Glass-fibre-reinforced duroplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.7 Natural-fibre-reinforced thermoplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.8 Natural-fibre-reinforced duroplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.9 Aramid / Kevlar-fibre-reinforced thermoplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.11 Aramid / Kevlar-fibre-reinforced duroplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.12 Synthetic-fibre-reinforced thermoplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.2.14 Synthetic-fibre-reinforced duroplastics	Slotting	400	8	1xD	0.110
	Roughing	500	8	0.6xD	0.155
01.4.1 Graphite	Slotting	700	8	1xD	0.200
	Roughing	900	8	0.6xD	0.275
	Finishing	1750	1	0.9xD	0.295

*Consider power requirement at high infeed!

Micro-precision milling cutters RF 100 AL, 2.5xD

Milling conditions:

HPC

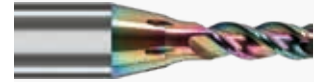
stable machining conditions
high drive power

HSC

stable machining conditions
low cutting depths, high cutting values

2.5xD

tools 2.5xD



GTC

see page
„GTC milling strategies“

Machining group	Application	v _c (m/min)			a _p max.	a _e max.	f _z (mm) with nom. Ø						
		0.5 - 1.0	1.01 - 2.0	2.01 - 3.175			0.5	0.8	1.0	1.5	2.0	2.5	3.0
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB N1.1.2 Wrought aluminium alloys, hardened, 100 HB	Plunging	80	145	180	1xD	1xD	0.004	0.004	0.006	0.008	0.011	0.014	0.017
	Slotting	135	240	300	1xD	1xD	0.007	0.011	0.014	0.033	0.044	0.055	0.066
	Roughing	130	240	295	2xD	0.33xD	0.012	0.020	0.025	0.041	0.055	0.069	0.083
	Finishing	135	190	245	2.5xD	0.03xD	0.005	0.009	0.011	0.016	0.021	0.027	0.032
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	Plunging	65	120	150	1xD	1xD	0.004	0.004	0.004	0.006	0.008	0.009	0.011
	Slotting	115	200	250	1xD	1xD	0.005	0.008	0.010	0.023	0.030	0.038	0.045
	Roughing	110	200	245	2xD	0.33xD	0.008	0.014	0.017	0.028	0.038	0.047	0.056
	Finishing	115	160	200	2.5xD	0.03xD	0.004	0.006	0.007	0.011	0.015	0.018	0.022
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	Plunging	50	95	120	1xD	1xD	0.004	0.004	0.004	0.006	0.008	0.009	0.011
	Slotting	90	160	200	1xD	1xD	0.005	0.008	0.010	0.023	0.030	0.038	0.045
	Roughing	85	160	195	2xD	0.33xD	0.008	0.014	0.017	0.028	0.038	0.047	0.056
	Finishing	90	125	160	2.5xD	0.03xD	0.004	0.006	0.007	0.011	0.015	0.018	0.022
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 % N3.1.2 Copper and copper alloys: CuZn, CuSnZn	Plunging	75	135	170	1xD	1xD	0.004	0.004	0.004	0.004	0.005	0.006	0.008
	Slotting	125	225	280	1xD	1xD	0.004	0.005	0.007	0.015	0.020	0.025	0.030
	Roughing	120	225	275	2xD	0.33xD	0.006	0.009	0.011	0.019	0.025	0.031	0.038
	Finishing	125	175	225	2.5xD	0.03xD	0.004	0.004	0.005	0.007	0.010	0.012	0.015
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	Plunging	60	105	130	1xD	1xD	0.004	0.004	0.004	0.004	0.005	0.006	0.007
	Slotting	100	175	220	1xD	1xD	0.004	0.005	0.006	0.014	0.018	0.023	0.028
	Roughing	95	175	215	2xD	0.33xD	0.005	0.008	0.010	0.017	0.023	0.029	0.035
	Finishing	100	140	180	2.5xD	0.03xD	0.004	0.004	0.004	0.007	0.009	0.011	0.013
01.1.1 Thermoplastics	Plunging	55	100	120	1xD	1xD	0.004	0.004	0.005	0.008	0.010	0.013	0.015
	Slotting	90	160	200	1xD	1xD	0.007	0.010	0.013	0.030	0.040	0.050	0.060
	Roughing	85	160	200	2xD	0.33xD	0.011	0.018	0.023	0.038	0.050	0.063	0.075
	Finishing	90	125	160	2.5xD	0.03xD	0.005	0.008	0.010	0.015	0.019	0.024	0.029
01.1.3 Duroplastics	Plunging	35	70	85	1xD	1xD	0.004	0.004	0.005	0.008	0.010	0.013	0.015
	Slotting	65	110	140	1xD	1xD	0.007	0.010	0.013	0.030	0.040	0.050	0.060
	Roughing	60	110	140	2xD	0.33xD	0.011	0.018	0.023	0.038	0.050	0.063	0.075
	Finishing	65	90	115	2.5xD	0.03xD	0.005	0.008	0.010	0.015	0.019	0.024	0.029
01.1.5 Acrylic glass / Plexiglass / PMMA	Plunging	40	80	95	1xD	1xD	0.004	0.004	0.005	0.008	0.010	0.013	0.015
	Slotting	70	130	160	1xD	1xD	0.007	0.010	0.013	0.030	0.040	0.050	0.060
	Roughing	70	130	160	2xD	0.33xD	0.011	0.018	0.023	0.038	0.050	0.063	0.075
	Finishing	70	100	130	2.5xD	0.03xD	0.005	0.008	0.010	0.015	0.019	0.024	0.029



Micro-precision milling cutters RF 100 AL, 5xD

Milling conditions:

HPC

stable machining conditions
high drive power

HSC

stable machining conditions
low cutting depths, high cutting values

5xD



tools 5xD



see page
„GTC milling strategies“

Machining group	Application	v _c (m/min)			a _p max.	a _e max.	f _z (mm) with nom. Ø						
		Ø0.5 - 1.0	Ø1.01 - 2.0	Ø2.01 - 3.175			0.5	0.8	1.0	1.5	2.0	2.5	3.0
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB N1.1.2 Wrought aluminium alloys, hardened, 100 HB	Plunging	55	100	120	0.25xD	1xD	0.004	0.004	0.004	0.007	0.009	0.011	0.013
	Slotting	90	160	200	0.33xD	1xD	0.004	0.006	0.007	0.017	0.022	0.028	0.033
	Roughing	105	195	240	5xD	0.05xD	0.009	0.014	0.018	0.030	0.040	0.049	0.059
	Finishing	95	135	175	5xD	0.02xD	0.004	0.006	0.007	0.011	0.014	0.018	0.021
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	Plunging	35	60	75	0.25xD	1xD	0.004	0.004	0.004	0.005	0.006	0.008	0.009
	Slotting	55	100	125	0.33xD	1xD	0.004	0.004	0.005	0.011	0.015	0.019	0.023
	Roughing	65	125	150	5xD	0.05xD	0.006	0.010	0.012	0.020	0.027	0.034	0.041
	Finishing	60	85	110	5xD	0.02xD	0.004	0.004	0.005	0.007	0.010	0.012	0.014
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	Plunging	25	50	60	0.25xD	1xD	0.004	0.004	0.004	0.005	0.006	0.008	0.009
	Slotting	45	80	100	0.33xD	1xD	0.004	0.004	0.005	0.011	0.015	0.019	0.023
	Roughing	50	95	120	5xD	0.05xD	0.006	0.010	0.012	0.020	0.027	0.034	0.041
	Finishing	45	65	85	5xD	0.02xD	0.004	0.004	0.005	0.007	0.010	0.012	0.014
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 % N3.1.2 Copper and copper alloys: CuZn, CuSnZn	Plunging	35	70	85	0.25xD	1xD	0.004	0.004	0.004	0.004	0.004	0.005	0.006
	Slotting	65	110	140	0.33xD	1xD	0.004	0.004	0.004	0.008	0.010	0.013	0.015
	Roughing	75	140	170	5xD	0.05xD	0.004	0.006	0.008	0.014	0.018	0.023	0.027
	Finishing	65	95	120	5xD	0.02xD	0.004	0.004	0.004	0.005	0.006	0.008	0.010
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	Plunging	30	55	65	0.25xD	1xD	0.004	0.004	0.004	0.004	0.004	0.005	0.006
	Slotting	50	90	110	0.33xD	1xD	0.004	0.004	0.004	0.007	0.009	0.012	0.014
	Roughing	60	110	135	5xD	0.05xD	0.004	0.006	0.007	0.012	0.017	0.021	0.025
	Finishing	55	75	95	5xD	0.02xD	0.004	0.004	0.004	0.004	0.006	0.007	0.009
01.1.1 Thermoplastics	Plunging	25	50	60	0.25xD	1xD	0.004	0.004	0.004	0.006	0.008	0.010	0.012
	Slotting	45	80	100	0.33xD	1xD	0.004	0.005	0.007	0.015	0.020	0.025	0.030
	Roughing	55	100	120	5xD	0.05xD	0.008	0.013	0.016	0.027	0.036	0.045	0.054
	Finishing	50	65	85	5xD	0.02xD	0.004	0.005	0.006	0.010	0.013	0.016	0.019
01.1.3 Duroplastics	Plunging	20	35	40	0.25xD	1xD	0.004	0.004	0.004	0.006	0.008	0.010	0.012
	Slotting	30	55	70	0.33xD	1xD	0.004	0.005	0.007	0.015	0.020	0.025	0.030
	Roughing	35	70	85	5xD	0.05xD	0.008	0.013	0.016	0.027	0.036	0.045	0.054
	Finishing	35	45	60	5xD	0.02xD	0.004	0.005	0.006	0.010	0.013	0.016	0.019
01.1.5 Acrylic glass / Plexiglass / PMMA	Plunging	20	40	50	0.25xD	1xD	0.004	0.004	0.004	0.006	0.008	0.010	0.012
	Slotting	35	65	80	0.33xD	1xD	0.004	0.005	0.007	0.015	0.020	0.025	0.030
	Roughing	40	80	95	5xD	0.05xD	0.008	0.013	0.016	0.027	0.036	0.045	0.054
	Finishing	40	55	70	5xD	0.02xD	0.004	0.005	0.006	0.010	0.013	0.016	0.019

RF 100 AL for stable conditions

Milling conditions:

HPC stable machining conditions
high drive power

short tools

long tools

Correction factors:

a_p roughing > 1.5xD v_c -25 % f_z -25 %

medium length tools v_c -40 % f_z -40 %

extra length tools v_c -60 % f_z -55 %



GTC
GÜHRING TOOL CUTTING

see page „GTC milling strategies“

Machining group	Application	v _c (m/min)	a _e max.	f _z (mm) with nom. Ø								
				3	4	6	8	10	12	16	20	25
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB N1.1.2 Wrought aluminium alloys, hardened, 100 HB	Slotting	500	1xD	0.021	0.030	0.040	0.055	0.080	0.095	0.130	0.160	0.200
	Roughing	575	0.75xD	0.028	0.035	0.055	0.075	0.090	0.110	0.145	0.185	0.230
	Finishing	1000	0.02xD	0.026	0.035	0.055	0.070	0.090	0.105	0.140	0.175	0.220
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	Slotting	230	1xD	0.016	0.020	0.030	0.040	0.060	0.070	0.095	0.120	0.150
	Roughing	265	0.75xD	0.021	0.030	0.040	0.055	0.070	0.085	0.110	0.140	0.175
	Finishing	460	0.02xD	0.020	0.025	0.040	0.055	0.065	0.080	0.105	0.130	0.165
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	Slotting	180	1xD	0.016	0.020	0.030	0.040	0.060	0.070	0.095	0.120	0.150
	Roughing	180	0.75xD	0.018	0.025	0.035	0.050	0.060	0.070	0.095	0.120	0.150
	Finishing	365	0.02xD	0.020	0.025	0.040	0.055	0.065	0.080	0.105	0.130	0.165
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 % N3.1.2 Copper and copper alloys: CuZn, CuSnZn	Slotting	250	1xD	0.016	0.020	0.030	0.040	0.060	0.070	0.095	0.120	0.150
	Roughing	290	0.75xD	0.021	0.030	0.040	0.055	0.070	0.085	0.110	0.140	0.175
	Finishing	500	0.02xD	0.020	0.025	0.040	0.055	0.065	0.080	0.105	0.130	0.165
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	Slotting	195	1xD	0.015	0.020	0.030	0.040	0.055	0.065	0.090	0.110	0.140
	Roughing	225	0.75xD	0.019	0.025	0.040	0.050	0.065	0.075	0.100	0.125	0.160
	Finishing	390	0.02xD	0.018	0.025	0.035	0.050	0.060	0.075	0.095	0.120	0.150
01.1.1 Thermoplastics	Slotting	150	1xD	0.017	0.020	0.035	0.045	0.065	0.075	0.100	0.125	0.155
	Roughing	225	0.33xD	0.024	0.035	0.050	0.065	0.080	0.100	0.130	0.165	0.205
	Finishing	300	0.01xD	0.019	0.025	0.040	0.050	0.065	0.075	0.100	0.125	0.155
01.1.3 Duroplastics	Slotting	105	1xD	0.017	0.020	0.035	0.045	0.065	0.075	0.100	0.125	0.155
	Roughing	160	0.33xD	0.024	0.035	0.050	0.065	0.080	0.100	0.130	0.165	0.205
	Finishing	210	0.01xD	0.019	0.025	0.040	0.050	0.065	0.075	0.100	0.125	0.155
01.1.5 Acrylic glass / Plexiglass / PMMA	Slotting	120	1xD	0.017	0.020	0.035	0.045	0.065	0.075	0.100	0.125	0.155
	Roughing	180	0.33xD	0.024	0.035	0.050	0.065	0.080	0.100	0.130	0.165	0.205
	Finishing	240	0.01xD	0.019	0.025	0.040	0.050	0.065	0.075	0.100	0.125	0.155



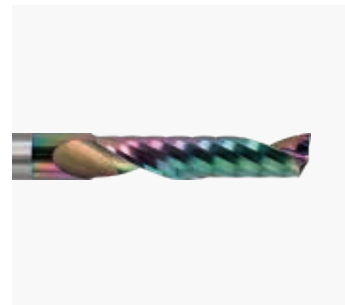
Solid carbide single-fluted cutters AL

Milling conditions:

	unstable machining conditions low drive power
	stable machining conditions low cutting depths, high cutting values
	short tools
	long tools

Correction factors:

	a_p roughing > 1.5 x D	v_c -25 %	f_z -25 %
	medium length tools	v_c -40 %	f_z -40 %
	extra length tools	v_c -60 %	f_z -55 %
	uncoated tools	v_c -50 %	f_z -25 %



Machining group	Application	V _c (m/min)	a _p max.	a _e max.	f _z (mm) with nom. Ø								
					1	2	3	4	6	8	10	12	16
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB N1.1.2 Wrought aluminium alloys, hardened, 100 HB	Slotting	500	1xD	1xD	0.0070	0.0141	0.021	0.030	0.040	0.055	0.080	0.095	0.130
	Roughing	575	1xD	0.75xD	0.0092	0.0184	0.028	0.035	0.055	0.075	0.090	0.110	0.145
	Finishing	1000	1xD	0.02xD	0.0088	0.0176	0.026	0.035	0.055	0.070	0.090	0.105	0.140
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	Slotting	230	1xD	1xD	0.0053	0.0106	0.016	0.020	0.030	0.040	0.060	0.070	0.095
	Roughing	265	1xD	0.75xD	0.0069	0.0138	0.021	0.030	0.040	0.055	0.070	0.085	0.110
	Finishing	460	1xD	0.02xD	0.0066	0.0132	0.020	0.025	0.040	0.055	0.065	0.080	0.105
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	Slotting	180	1xD	1xD	0.0053	0.0106	0.016	0.020	0.030	0.040	0.060	0.070	0.095
	Roughing	180	1xD	0.75xD	0.0060	0.0120	0.018	0.025	0.035	0.050	0.060	0.070	0.095
	Finishing	365	1xD	0.02xD	0.0066	0.0132	0.020	0.025	0.040	0.055	0.065	0.080	0.105
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 % N3.1.2 Copper and copper alloys: CuZn, CuSnZn	Slotting	250	1xD	1xD	0.0053	0.0106	0.016	0.020	0.030	0.040	0.060	0.070	0.095
	Roughing	290	1xD	0.75xD	0.0069	0.0138	0.021	0.030	0.040	0.055	0.070	0.085	0.110
	Finishing	500	1xD	0.02xD	0.0066	0.0132	0.020	0.025	0.040	0.055	0.065	0.080	0.105
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	Slotting	195	1xD	1xD	0.0049	0.0097	0.015	0.020	0.030	0.040	0.055	0.065	0.090
	Roughing	225	1xD	0.75xD	0.0064	0.0127	0.019	0.025	0.040	0.050	0.065	0.075	0.100
	Finishing	390	1xD	0.02xD	0.0061	0.0122	0.018	0.025	0.035	0.050	0.060	0.075	0.095
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	Slotting	150	1xD	1xD	0.0055	0.0110	0.017	0.020	0.035	0.045	0.065	0.075	0.100
	Roughing	175	1xD	0.75xD	0.0072	0.0144	0.022	0.030	0.045	0.060	0.070	0.085	0.115
	Finishing	300	1xD	0.02xD	0.0069	0.0138	0.021	0.030	0.040	0.055	0.070	0.085	0.110
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	Slotting	200	1xD	1xD	0.0049	0.0099	0.015	0.020	0.030	0.040	0.055	0.065	0.090
	Roughing	230	1xD	0.75xD	0.0064	0.0129	0.019	0.025	0.040	0.050	0.065	0.075	0.105
	Finishing	400	1xD	0.02xD	0.0062	0.0123	0.019	0.025	0.035	0.050	0.060	0.075	0.100
N4.1.3 Non-metallic materials: Graphite	Slotting	240	1xD	1xD	0.0070	0.0141	0.021	0.030	0.040	0.055	0.080	0.095	0.130
	Roughing	275	1xD	0.75xD	0.0092	0.0184	0.028	0.035	0.055	0.075	0.090	0.110	0.145
	Finishing	480	1xD	0.02xD	0.0088	0.0176	0.026	0.035	0.055	0.070	0.090	0.105	0.140
01.1.1 Thermoplastics	Slotting	150	1xD	1xD	0.0055	0.0110	0.017	0.020	0.035	0.045	0.065	0.075	0.100
	Roughing	225	1xD	0.33xD	0.0081	0.0163	0.024	0.035	0.050	0.065	0.080	0.100	0.130
	Finishing	300	1xD	0.01xD	0.0063	0.0125	0.019	0.025	0.040	0.050	0.065	0.075	0.100
01.1.3 Duroplastics	Slotting	105	1xD	1xD	0.0055	0.0110	0.017	0.020	0.035	0.045	0.065	0.075	0.100
	Roughing	160	1xD	0.33xD	0.0081	0.0163	0.024	0.035	0.050	0.065	0.080	0.100	0.130
	Finishing	210	1xD	0.01xD	0.0063	0.0125	0.019	0.025	0.040	0.050	0.065	0.075	0.100
01.1.5 Acrylic glass / Plexiglass / PMMA	Slotting	120	1xD	1xD	0.0055	0.0110	0.017	0.020	0.035	0.045	0.065	0.075	0.100
	Roughing	180	1xD	0.33xD	0.0081	0.0163	0.024	0.035	0.050	0.065	0.080	0.100	0.130
	Finishing	240	1xD	0.01xD	0.0063	0.0125	0.019	0.025	0.040	0.050	0.065	0.075	0.100



High feed milling cutters ISO P & K



Correction factors	Factor V_c	Factor f_z
stable machining conditions	+ 25 %	+ 25 %
short projection ($< 3xD$)	0 %	0 %
mid projection ($\geq 3xD$)	- 25 %	- 25 %
long projection ($\geq 5xD$)	- 40 %	- 40 %

Machining group	Application	v_c (m/min)	a_p max. (mm)	a_e max.	f_z (mm)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	Roughing	200	1	0.6xD	1.200
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	Roughing	200	1	0.6xD	1.200
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	Roughing	200	1	0.6xD	1.200
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	Roughing	200	1	0.6xD	1.200
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	Roughing	180	1	0.6xD	1.200
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	Roughing	180	1	0.6xD	1.200
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	Roughing	160	1	0.6xD	1.200
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	Roughing	170	1	0.6xD	1.200
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	Roughing	170	1	0.6xD	1.200
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	Roughing	155	1	0.6xD	1.200
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	Roughing	155	1	0.6xD	1.200
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	Roughing	160	1	0.6xD	1.050
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	Roughing	145	1	0.6xD	1.050
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives					
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB					
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB					
M2.1.1 Stainless steel, austenitic, quenched, 180 HB					
M2.2.1 Duplex steel, high-strength stainless steels					
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	Roughing	255	1	0.6xD	1.200
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	Roughing	230	1	0.6xD	1.200
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	Roughing	255	1	0.6xD	1.200
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	Roughing	230	1	0.6xD	1.200
K1.3.1 Malleable cast iron, ferritic, 130 HB	Roughing	255	1	0.6xD	1.200
K1.3.2 Malleable cast iron, pearlitic, 230 HB	Roughing	230	1	0.6xD	1.200
K2.1.1 Vermicular graphite cast iron (GJV)	Roughing	230	1	0.6xD	1.200
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	Roughing	210	1	0.6xD	1.200
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB					
N1.1.2 Wrought aluminium alloys, hardened, 100 HB					
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB					
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB					
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB					
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %					
N3.1.2 Copper and copper alloys: CuZn, CuSnZn					
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte					
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics					
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.					
N4.1.3 Non-metallic materials: Graphite					
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB					
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB					
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB					
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB					
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB					
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²					
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²					
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC					
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC					
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC					
H2.1.1 Chilled cast iron, 400 HB					
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC					



High feed milling cutters ISO M & S



Correction factors	Factor V_c	Factor f_z
stable machining conditions	+ 25 %	+ 25 %
short projection (< 3xD)	0 %	0 %
mid projection ($\geq 3xD$)	- 25 %	- 25 %
long projection ($\geq 5xD$)	- 40 %	- 40 %

Machining group	Application	v_c (m/min)	a_p max. (mm)	a_e max.	f_z (mm)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB					
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB					
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB					
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB					
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB					
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB					
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB					
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB					
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB					
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB					
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB					
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB					
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB					
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	Roughing	130	1	0.6xD	1.200
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	Roughing	120	1	0.6xD	1.080
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	Roughing	120	1	0.6xD	1.080
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	Roughing	110	1	0.6xD	1.050
M2.2.1 Duplex steel, high-strength stainless steels	Roughing	90	1	0.6xD	0.840
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB					
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB					
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB					
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB					
K1.3.1 Malleable cast iron, ferritic, 130 HB					
K1.3.2 Malleable cast iron, pearlitic, 230 HB					
K2.1.1 Vermicular graphite cast iron (GJV)					
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)					
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB					
N1.1.2 Wrought aluminium alloys, hardened, 100 HB					
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB					
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB					
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB					
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %					
N3.1.2 Copper and copper alloys: CuZn, CuSnZn					
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte					
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics					
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.					
N4.1.3 Non-metallic materials: Graphite					
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	Roughing	60	1	0.6xD	1.200
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	Roughing	55	1	0.6xD	1.200
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	Roughing	55	1	0.6xD	1.200
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	Roughing	50	1	0.6xD	1.080
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	Roughing	40	1	0.6xD	1.080
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	Roughing	75	1	0.6xD	1.050
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	Roughing	50	1	0.6xD	0.840
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC					
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC					
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC					
H2.1.1 Chilled cast iron, 400 HB					
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC					

RF 100 AL





Threading tools

Perfectly moulded

Wide range of threading tools –
from material specialists to modular systems

GÜHRING

Page

112	Taps
114	Modular taps
116	General accessories
118	Through-hole thread tap AL
126	Blind hole thread tap AL
134	Fluteless taps
134	Fluteless tab AL
142	Fluteless tabs InoxPro



P	M	K	N	S	H	Tool illustration		Stand- ard	Type	Form	Tool material	Sur- face	d1/mm	Article no.	Page
Interchangeable heads															
		•	•					NEW DIN 376/374	GG	C	VHM	F	M12 x 1,5 - M30 x 3,5	6120	114
		•	•					NEW DIN 376/374	GG	C	VHM	F	M12 x 1,5 - M30 x 3,5	6139	114
Interchangeable shanks															
								NEW DIN 376/374			HSS-E			6121	115
Sockets															
								NEW						4868	116
Retaining screw															
								NEW					M3 - M8	4889	116
								NEW					M3 - M8	4869	116
Taps for ISO metric threads															
		•						NEW DIN 371/376	AL	B	HSS-E	Cb++	M2 - M16	8082	120
Taps with coolant ducts for ISO metric threads															
		•						NEW DIN 371/376	AL	C	VHM	Cb++	M3 - M16	8085	121
		•						NEW DIN 371/376	AL	E	VHM	Cb++	M3 - M16	6575	121
Taps for ISO metric fine threads															
		•						NEW DIN 374	AL	B	HSS-E	Cb++	M4 x 0,5 - M24 x 1,5	6555	122
Taps with coolant ducts for ISO metric fine threads															
		•						NEW DIN 371/374	AL	C	VHM	Cb++	M8 x 1 - M16 x 1,5	6574	123
		•						NEW DIN 371/374	AL	E	VHM	Cb++	M8 x 1 - M16 x 1,5	6576	123
Taps for UNC threads															
		•						NEW DIN 371/376	AL	B	HSS-E	Cb++	2 - 56 - 1 - 8	6556	124
Taps for UNF threads															
		•						NEW DIN 371/374	AL	B	HSS-E	Cb++	2 - 64 - 1 - 12	6557	124
Taps for BSP threads															
		•						NEW DIN 5156	AL	B	HSS-E	Cb++	G1/16 - G1	6558	125
Taps for EG/STI threads															
		•						NEW DIN 40435	AL	B	HSS-E	Cb++	EG/STI M2 - EG/STI M16	6559	125
Taps for ISO metric threads															
		•						NEW DIN 371/376	AL	C	HSS-E	Cb++	M2 - M16	8080	126
		•						NEW DIN 371/376	AL	E	HSS-E	Cb++	M2 - M16	8081	126
		•						NEW WN	AL	C	HSS-E	Cb++	M3 - M20	6565	127



P	M	K	N	S	H	Tool illustration	Stand- ard	Type	Form	Tool material	Sur- face	d1/mm	Article no.	Page
Taps with coolant ducts for ISO metric threads														
			•				NEW DIN 371/376	AL	C	VHM	Cb+	M3 - M16	8083	128
			•				NEW DIN 371/376	AL	E	VHM	Cb+	M3 - M16	8084	128
Taps for ISO metric fine threads														
			•				NEW DIN 374	AL	C	HSS-E	Cb+	M4 x 0,5 - M24 x 1,5	6560	129
			•				NEW DIN 374	AL	E	HSS-E	Cb+	M6 x 0,75 - M24 x 1,5	6568	129
			•				NEW WN	AL	C	HSS-E	Cb+	M8 x 1 - M20 x 1,5	6566	130
Taps with coolant ducts for ISO metric fine threads														
			•				NEW DIN 371/374	AL	C	VHM	Cb+	M8 x 1 - M16 x 1,5	6577	130
			•				NEW DIN 371/374	AL	E	VHM	Cb+	M8 x 1 - M16 x 1,5	6578	130
Taps for UNC threads														
			•				NEW DIN 371/376	AL	C	HSS-E	Cb+	2 - 56 - 1 - 8	6561	131
Taps for UNF threads														
			•				NEW DIN 371/374	AL	C	HSS-E	Cb+	2 - 64 - 1 - 12	6562	131
Taps for BSP threads														
			•				NEW DIN 5156	AL	C	HSS-E	Cb+	G1/16 - G1	6563	132
			•				NEW DIN 5156	AL	E	HSS-E	Cb+	G1/16 - G1	6569	132
			•				NEW WN	AL	C	HSS-E	Cb+	G1/8 - G1/2	6567	133
Taps for EG/STI threads														
			•				NEW DIN 40435	AL	C	HSS-E	Cb+	EG/STI M2 - EG/STI M16	6564	133
Fluteless taps for ISO metric threads														
			•				NEW ~DIN 371/376	AL	C	HSS-E	Cb+	M2 - M16	8088	134
Fluteless taps with coolant ducts for ISO metric threads														
			•				NEW ~DIN 371/376	AL	E	HSS-E	Cb+	M2 - M16	8089	135
			•				NEW DIN 371/376	AL	C	HSS-E	Cb+	M5 - M20	8090	135
			•				NEW ~DIN 371/376	AL	C	HSS-E	Cb+	M5 - M20	8091	136
			•				NEW ~DIN 371/376	AL	C	VHM	Cb+	M3 - M16	8094	136
			•				NEW ~DIN 371/376	AL	E	VHM	Cb+	M3 - M16	6580	137
Fluteless taps for ISO metric fine threads														
			•				NEW ~DIN 374	AL	C	HSS-E	Cb+	M8 x 1 - M20 x 1,5	6570	137
Fluteless taps with coolant ducts for ISO metric fine threads														
			•				NEW ~DIN 371/374	AL	E	HSS-E	Cb+	M8 x 1 - M20 x 1,5	6572	138
			•				NEW ~DIN 371/374	AL	C	HSS-E	Cb+	M8 x 1 - M16 x 1,5	8092	138



P	M	K	N	S	H	Tool illustration	Stand- ard	Type	Form	Tool material	Sur- face	d1/mm	Article no.	Page
Fluteless taps with coolant ducts for ISO metric fine threads														
			•				NEW	~DIN 371/374	AL	C	VHM	Cr+	M8 x 1 - M16 x 1,5	6579 139
			•				NEW	~DIN 371/374	AL	E	VHM	Cr+	M8 x 1 - M16 x 1,5	6581 139
Fluteless taps for BSP threads														
			•				NEW	DIN 2189	AL	C	HSS-E	Cr+	G1/8 - G3/4	6571 140
Fluteless taps with coolant ducts for BSP threads														
			•				NEW	DIN 2189	AL	E	HSS-E	Cr+	G1/8 - G3/4	6573 140
			•				NEW	DIN 2189	AL	C	HSS-E	Cr+	G1/8 - G3/4	8093 140
Fluteless taps with coolant ducts for ISO metric threads														
	•				○		NEW	~DIN 371/376	INOX PRO	C	HSS-E	P	M2 - M12	8100 144
Fluteless taps with coolant ducts for ISO metric fine threads														
	•				○		NEW	~DIN 371/374	INOX PRO	C	HSS-E	P	M6 x 0,75 - M20 x 1,5	8101 144

Modular





Modular tap

Most economically possible threads

The perfect combination of toughness & wear resistance

Maximum economic efficiency & flexibility:

These are the two hallmarks of modular taps by Gühring, which combine the advantages of the two cutting materials – HSS and carbide.

While the HSS tool shank can be used several times, only the tool head needs to be changed at the end of the tool life.

This thread head is made of carbide and offers a high level of wear protection thanks to the fire coating. As a result, you not only halve your cycle times, but also multiply your tool lives – and manufacture for the lowest cost per component.

x **Tool life** increased 16-fold
x **Machining time** reduced by 40 %

- X** easy-to-install insert system reduces costs
- X** at the end of the tool life, only the thread head needs to be replaced
- X** multiple use of the HSS tool shank
- X** use of a carbide tool even under unstable conditions



replaceable carbide thread head
for up to 16 times the tool life

Fire coating
for high wear resistance

M12 - M30
MF12x1.5 - MF30x1.5

HSS shank
reduces costs as it can be used multiple times

Application example

Component: Differential housing, GG20

Tool: #6120, M20

Customer target: Increased tool life and reduced machining time

Difficulty: Sub-optimal conditions

Cutting data:	Gühring	Competition
	v_c 25 m/min	v_c 15 m/min

Tool life:	36,000 threads	2,220 threads
-------------------	----------------	---------------

Machining time:	38 sec	63 sec
------------------------	--------	--------



Interchangeable heads

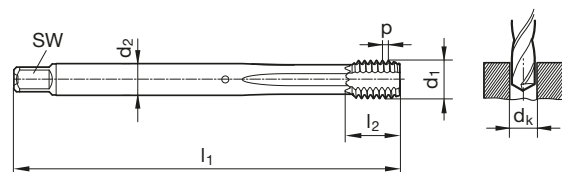
Article no. **6120**



cutting data see page 145



incl. screw • same interface values can be combined with each other • axial coolant exit



Standard **DIN 376/DIN 374**
Article no. **6120**

Taps

d1	P mm	dk mm	l2 mm	Size Interface	Z		Order no.
M12 x 1,75	1.750	10.20	12.00	1	4	~DIN 376	6120 12.000
M12 x 1,5	1.500	10.50	12.00	1	4	~DIN 374	6120 12.007
M14 x 2	2.000	12.00	14.00	2	4	~DIN 376	6120 14.000
M14 x 1,5	1.500	12.50	14.00	2	4	~DIN 374	6120 14.007
M16 x 2	2.000	14.00	14.00	3	5	~DIN 376	6120 16.000
M16 x 1,5	1.500	14.50	14.00	3	5	~DIN 374	6120 16.007
M18 x 2,5	2.500	15.50	18.00	4	5	~DIN 376	6120 18.000
M18 x 1,5	1.500	16.50	18.00	4	5	~DIN 374	6120 18.007
M20 x 2,5	2.500	17.50	18.00	5	5	~DIN 376	6120 20.000
M20 x 1,5	1.500	18.50	18.00	5	5	~DIN 374	6120 20.007
M22 x 2,5	2.500	19.50	18.00	6	5	~DIN 376	6120 22.000
M22 x 1,5	1.500	20.50	18.00	6	5	~DIN 374	6120 22.007
M24 x 3	3.000	21.00	21.00	7	5	~DIN 376	6120 24.000
M24 x 1,5	1.500	22.50	21.00	7	5	~DIN 374	6120 24.007
M30 x 3,5	3.500	26.50	26.00	8	5	~DIN 376	6120 30.000
M30 x 1,5	1.500	28.50	26.00	8	5	~DIN 374	6120 30.007

Interchangeable heads

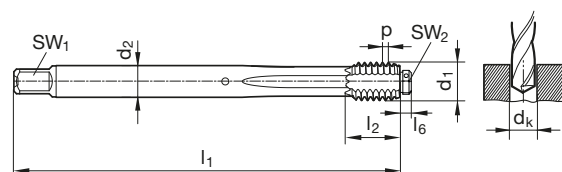
Article no. **6139**



cutting data see page 145



incl. screw • same interface values can be combined with each other • radial coolant exit

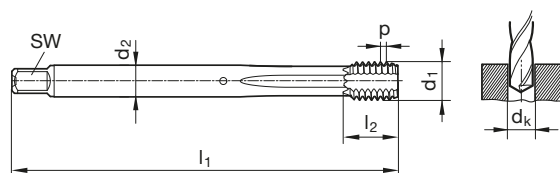


Standard **DIN 376/DIN 374**
Article no. **6139**

d1	P mm	dk mm	l2 mm	Size Interface	Z		Order no.
M12 x 1,75	1.750	10.20	12.00	1	4	~DIN 376	6139 12.000
M12 x 1,5	1.500	10.50	12.00	1	4	~DIN 374	6139 12.007
M14 x 2	2.000	12.00	14.00	2	4	~DIN 376	6139 14.000
M14 x 1,5	1.500	12.50	14.00	2	4	~DIN 374	6139 14.007
M16 x 2	2.000	14.00	14.00	3	5	~DIN 376	6139 16.000
M16 x 1,5	1.500	14.50	14.00	3	5	~DIN 374	6139 16.007
M18 x 2,5	2.500	15.50	18.00	4	5	~DIN 376	6139 18.000
M18 x 1,5	1.500	16.50	18.00	4	5	~DIN 374	6139 18.007
M20 x 2,5	2.500	17.50	18.00	5	5	~DIN 376	6139 20.000
M20 x 1,5	1.500	18.50	18.00	5	5	~DIN 374	6139 20.007
M22 x 2,5	2.500	19.50	18.00	6	5	~DIN 376	6139 22.000
M22 x 1,5	1.500	20.50	18.00	6	5	~DIN 374	6139 22.007
M24 x 3	3.000	21.00	21.00	7	5	~DIN 376	6139 24.000
M24 x 1,5	1.500	22.50	21.00	7	5	~DIN 374	6139 24.007
M30 x 3,5	3.500	26.50	26.00	8	5	~DIN 376	6139 30.000
M30 x 1,5	1.500	28.50	26.00	8	5	~DIN 374	6139 30.007



Interchangeable shanks

Article no. **6121**


Standard

DIN 376/DIN 374

Article no.

6121

d2 mm	SW mm	l1 mm	Size Interface	
9.00	7.00	110.00	1	~DIN 376
9.00	7.00	100.00	1	~DIN 374
11.00	9.00	110.00	2	~DIN 376
11.00	9.00	100.00	2	~DIN 374
12.00	9.00	110.00	3	~DIN 376
12.00	9.00	100.00	3	~DIN 374
14.00	11.00	125.00	4	~DIN 376
14.00	11.00	110.00	4	~DIN 374
16.00	12.00	140.00	5	~DIN 376
16.00	12.00	125.00	5	~DIN 374
18.00	14.50	140.00	6	~DIN 376
18.00	14.50	125.00	6	~DIN 374
18.00	14.50	160.00	7	~DIN 376
18.00	14.50	140.00	7	~DIN 374
22.00	18.00	180.00	8	~DIN 376
22.00	18.00	150.00	8	~DIN 374

Order no.
6121 12.000
6121 12.007
6121 14.000
6121 14.007
6121 16.000
6121 16.007
6121 18.000
6121 18.007
6121 20.000
6121 20.007
6121 22.000
6121 22.007
6121 24.000
6121 24.007
6121 30.000
6121 30.007

Taps



Sockets

Article no. **4868**



Article no. **4868**

for	l1 mm	Order no.
SW 5,5	22	4868 5.500
SW 7	22	4868 7.000
SW 8	22	4868 8.000
SW 10	22	4868 10.000
SW 13	22	4868 13.000

Retaining screw

Article no. **4889**



Taps

Article no. **4889**

for	l1 mm	Order no.
IP 9	23	4889 3.000
IP15	22	4889 4.000
IP15	28	4889 4.010
IP20	32	4889 5.000
IP30	37	4889 6.000
IP40	44	4889 8.000

Retaining screw

Article no. **4869**



Article no. **4869**

for	l1 mm	Order no.
SW 5,5	29	4869 3.000
SW 7	30	4869 4.000
SW 7	36	4869 4.010
SW 8	40	4869 5.000
SW 10	46	4869 6.000
SW 13	54	4869 8.000



AL

NEW



Tap AL Fluteless tap AL

No chance for built-up edges & material adhesion

Extra smooth coating
for maximum tool lives

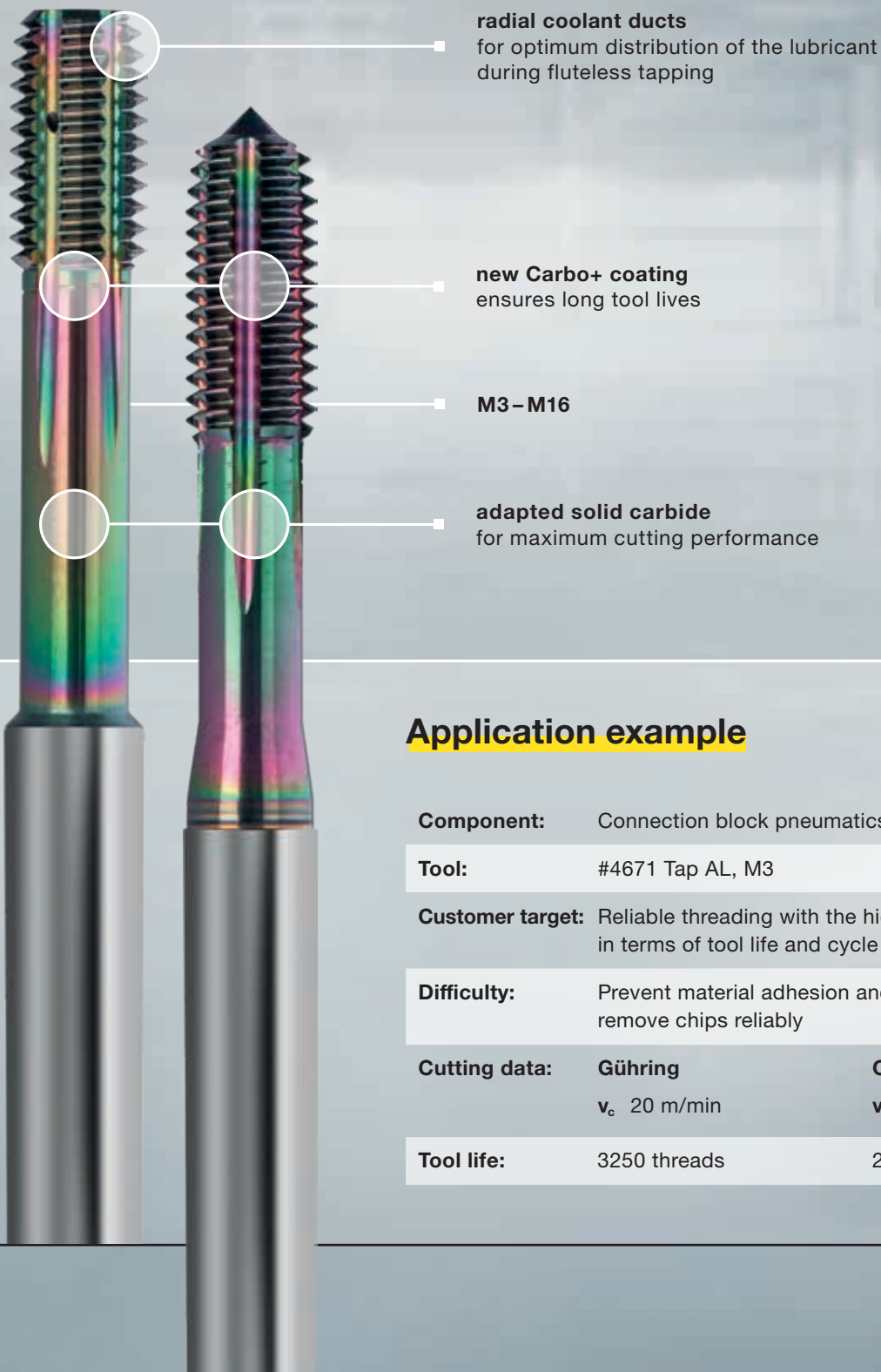
Whether you are thread tapping or fluteless tapping – with these aluminium specialists, you can produce perfect threads at the highest cutting speeds.

Thanks to the optimum combination of geometry and coating, almost all aluminium and cast aluminium alloys can be easily processed with AL taps and fluteless taps.

The new Carbo+ coating prevents built-up edges and material adhesion – and ensures high durability and process reliability.

- x **Cycle time** reduced by 25 %
- x **Tool life** increased by 30 %

-  X maximum process reliability & tool life thanks to Carbo+ coating
-  X fewer built-up edges & less material adhesion
-  X high cutting speeds during aluminium machining
-  X targeted lubricant distribution through internal cooling with radial coolant ducts



radial coolant ducts
for optimum distribution of the lubricant
during fluteless tapping

new Carbo+ coating
ensures long tool lives

M3 – M16

adapted solid carbide
for maximum cutting performance

Application example

Component: Connection block pneumatics, EN AW-6063 (AlMg0,7Si)

Tool: #4671 Tap AL, M3

Customer target: Reliable threading with the highest performance
in terms of tool life and cycle time

Difficulty: Prevent material adhesion and
remove chips reliably

Cutting data:	Gühring	Competition
	v_c 20 m/min	v_c 15 m/min

Tool life:	3250 threads	2500 threads
-------------------	--------------	--------------



Through-hole taps AL

Taps for ISO metric threads

Article no. 8082



cutting data see page 146

NEW

HSS-E

Cb+

AL

6HX

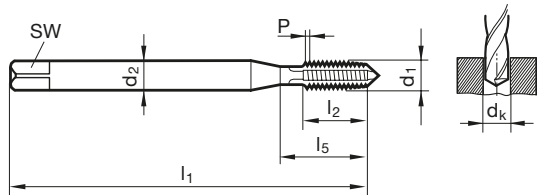
R

Cyl

B

3xD

P	M	K	N	S	H
			•		



Standard	DIN 371/DIN 376
Article no.	8082

Taps

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M2	0.400	2.80	2.10	1.60	45.00	8.00	13.50	DIN 371	8082 2.000
M2,5	0.450	2.80	2.10	2.05	50.00	9.00	14.50	DIN 371	8082 2.500
M3	0.500	3.50	2.70	2.50	56.00	10.00	18.00	DIN 371	8082 3.000
M4	0.700	4.50	3.40	3.30	63.00	12.00	21.00	DIN 371	8082 4.000
M5	0.800	6.00	4.90	4.20	70.00	14.00	25.00	DIN 371	8082 5.000
M6	1.000	6.00	4.90	5.00	80.00	16.00	30.00	DIN 371	8082 6.000
M8	1.250	8.00	6.20	6.80	90.00	17.00	35.00	DIN 371	8082 8.000
M10	1.500	10.00	8.00	8.50	100.00	20.00	39.00	DIN 371	8082 10.000
M12	1.750	9.00	7.00	10.20	110.00	24.00	49.00	DIN 376	8082 12.000
M14	2.000	11.00	9.00	12.00	110.00	26.00	53.00	DIN 376	8082 14.000
M16	2.000	12.00	9.00	14.00	110.00	26.00	54.00	DIN 376	8082 16.000



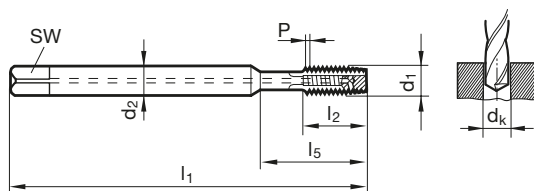
Taps with coolant ducts for ISO metric threads

Article no. **8085**

cutting data see page 146

with internal cooling $\geq$ M5

P	M	K	N	S	H
			•		



Standard									DIN 371/DIN 376
Article no.									8085
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M3	0.500	3.50	2.70	2.50	56.00	8.00	18.00	DIN 371	8085 3.000
M4	0.700	4.50	3.40	3.30	63.00	10.00	21.00	DIN 371	8085 4.000
M5	0.800	6.00	4.90	4.20	70.00	10.00	25.00	DIN 371	8085 5.000
M6	1.000	6.00	4.90	5.00	80.00	12.00	30.00	DIN 371	8085 6.000
M8	1.250	8.00	6.20	6.80	90.00	16.00	35.00	DIN 371	8085 8.000
M10	1.500	10.00	8.00	8.50	100.00	18.00	39.00	DIN 371	8085 10.000
M12	1.750	9.00	7.00	10.20	110.00	18.00	49.00	DIN 376	8085 12.000
M14	2.000	11.00	9.00	12.00	110.00	20.00	53.00	DIN 376	8085 14.000
M16	2.000	12.00	9.00	14.00	110.00	20.00	54.00	DIN 376	8085 16.000

Taps

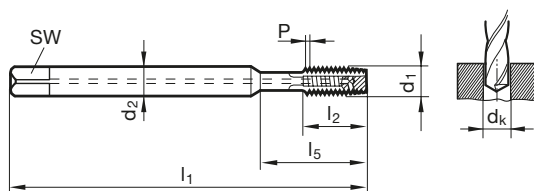
Taps with coolant ducts for ISO metric threads

Article no. **6575**

cutting data see page 146

with internal cooling $\geq$ M5 • with internal cooling: radial and axial exits • short cutting form

P	M	K	N	S	H
			•		



Standard									DIN 371/DIN 376
Article no.									6575
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M3	0.500	3.50	2.70	2.50	56.00	8.00	18.00	DIN 371	6575 3.000
M4	0.700	4.50	3.40	3.30	63.00	10.00	21.00	DIN 371	6575 4.000
M5	0.800	6.00	4.90	4.20	70.00	10.00	25.00	DIN 371	6575 5.000
M6	1.000	6.00	4.90	5.00	80.00	12.00	30.00	DIN 371	6575 6.000
M8	1.250	8.00	6.20	6.80	90.00	16.00	35.00	DIN 371	6575 8.000
M10	1.500	10.00	8.00	8.50	100.00	18.00	39.00	DIN 371	6575 10.000
M12	1.750	9.00	7.00	10.20	110.00	18.00	49.00	DIN 376	6575 12.000
M14	2.000	11.00	9.00	12.00	110.00	20.00	53.00	DIN 376	6575 14.000
M16	2.000	12.00	9.00	14.00	110.00	20.00	54.00	DIN 376	6575 16.000



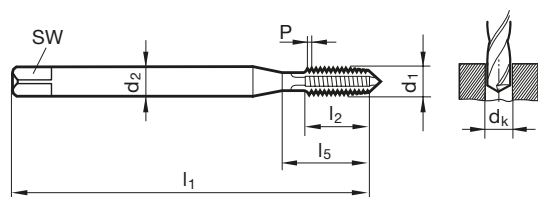
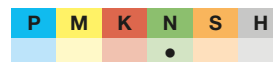
Through-hole taps AL

Taps for ISO metric fine threads

Article no. **6555**



cutting data see page 146



Standard
Article no.

DIN 374

6555

Taps

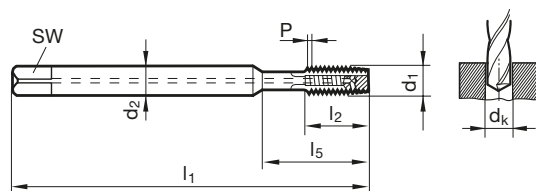
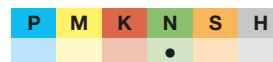
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
M4 x 0,5	0.500	2.80	2.10	3.50	63.00	8.00	21.00	6555 4.003
M5 x 0,5	0.500	3.50	2.70	4.50	70.00	10.00	25.00	6555 5.003
M6 x 0,5	0.500	4.50	3.40	5.50	80.00	13.00	30.00	6555 6.003
M6 x 0,75	0.750	4.50	3.40	5.20	80.00	13.00	30.00	6555 6.004
M8 x 1	1.000	6.00	4.90	7.00	90.00	17.00	35.00	6555 8.005
M10 x 1	1.000	7.00	5.50	9.00	90.00	16.00	35.00	6555 10.005
M10 x 1,25	1.250	7.00	5.50	8.80	100.00	20.00	39.00	6555 10.006
M12 x 1	1.000	9.00	7.00	11.00	100.00	20.00	40.00	6555 12.005
M12 x 1,25	1.250	9.00	7.00	10.80	100.00	20.00	40.00	6555 12.006
M12 x 1,5	1.500	9.00	7.00	10.50	100.00	20.00	40.00	6555 12.007
M14 x 1,25	1.250	11.00	9.00	12.80	100.00	20.00	40.00	6555 14.006
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	20.00	40.00	6555 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	22.00	44.00	6555 16.007
M18 x 1,5	1.500	14.00	11.00	16.50	110.00	25.00	44.00	6555 18.007
M20 x 1,5	1.500	16.00	12.00	18.50	125.00	25.00	44.00	6555 20.007
M22 x 1,5	1.500	18.00	14.50	20.50	125.00	25.00	44.00	6555 22.007
M24 x 1,5	1.500	18.00	14.50	22.50	140.00	28.00	48.00	6555 24.007



Taps with coolant ducts for ISO metric fine threads

Article no. **6574**

cutting data see page 146



Standard

DIN 371/DIN 374

Article no.

6574

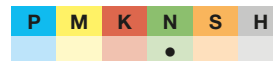
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M8 x 1	1.000	8.00	6.20	7.00	90.00	16.00	35.00	DIN 371	6574 8.005
M10 x 1	1.000	10.00	8.00	9.00	90.00	18.00	35.00	DIN 371	6574 10.005
M12 x 1,5	1.500	9.00	7.00	10.50	100.00	15.00	40.00	DIN 374	6574 12.007
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	15.00	40.00	DIN 374	6574 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	15.00	44.00	DIN 374	6574 16.007

Taps

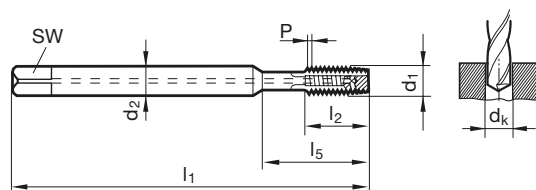
Taps with coolant ducts for ISO metric fine threads

Article no. **6576**

cutting data see page 146



with internal cooling: radial and axial exits • short cutting form



Standard

DIN 371/DIN 374

Article no.

6576

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M8 x 1	1.000	8.00	6.20	7.00	90.00	16.00	35.00	DIN 371	6576 8.005
M10 x 1	1.000	10.00	8.00	9.00	90.00	18.00	35.00	DIN 371	6576 10.005
M12 x 1,5	1.500	9.00	7.00	10.50	100.00	15.00	40.00	DIN 374	6576 12.007
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	15.00	40.00	DIN 374	6576 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	15.00	44.00	DIN 374	6576 16.007



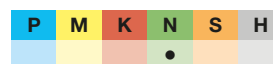
Through-hole taps AL

Taps for UNC threads

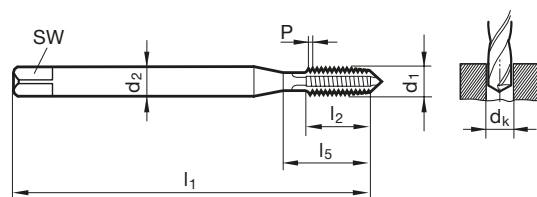
Article no. **6556**



cutting data see page 146



Taps



Standard

DIN 371/DIN 376

Article no.

6556

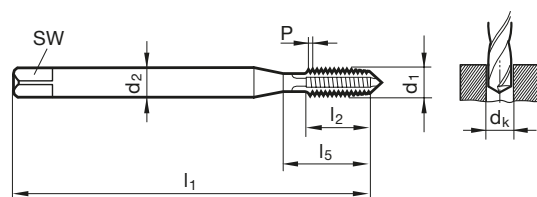
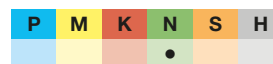
d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
2 - 56	56	2.80	2.10	1.85	45.00	9.00	14.50	~DIN 371	6556 2.184
4 - 40	40	3.50	2.70	2.35	56.00	11.00	18.00	~DIN 371	6556 2.845
6 - 32	32	4.00	3.00	2.85	56.00	12.00	20.00	~DIN 371	6556 3.505
8 - 32	32	4.50	3.40	3.50	63.00	12.00	21.00	~DIN 371	6556 4.166
10 - 24	24	6.00	4.90	3.90	70.00	14.00	25.00	~DIN 371	6556 4.826
12 - 24	24	6.00	4.90	4.50	80.00	16.00	30.00	~DIN 371	6556 5.486
1/4 - 20	20	7.00	5.50	5.10	80.00	16.00	30.00	~DIN 371	6556 6.350
5/16 - 18	18	8.00	6.20	6.60	90.00	18.00	35.00	~DIN 371	6556 7.938
3/8 - 16	16	10.00	8.00	8.00	100.00	20.00	39.00	~DIN 371	6556 9.525
7/16 - 14	14	8.00	6.20	9.40	100.00	22.00	42.00	~DIN 376	6556 11.113
1/2 - 13	13	9.00	7.00	10.80	110.00	25.00	49.00	~DIN 376	6556 12.700
9/16 - 12	12	11.00	9.00	12.20	110.00	28.00	53.00	~DIN 376	6556 14.288
5/8 - 11	11	12.00	9.00	13.50	110.00	30.00	53.00	~DIN 376	6556 15.875
3/4 - 10	10	14.00	11.00	16.50	125.00	33.00	62.00	~DIN 376	6556 19.050
7/8 - 9	9	18.00	14.50	19.50	140.00	35.00	62.00	~DIN 376	6556 22.225
1 - 8	8	18.00	14.50	22.25	160.00	38.00	73.00	~DIN 376	6556 25.400

Taps for UNF threads

Article no. **6557**



cutting data see page 146



Standard

DIN 371/DIN 374

Article no.

6557

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
2 - 64	64	2.80	2.10	1.85	45.00	9.00	14.50	~DIN 371	6557 2.184
4 - 48	48	3.50	2.70	2.40	56.00	10.00	18.00	~DIN 371	6557 2.845
6 - 40	40	4.00	3.00	2.95	56.00	11.00	20.00	~DIN 371	6557 3.505
8 - 36	36	4.50	3.40	3.50	63.00	12.00	21.00	~DIN 371	6557 4.166
10 - 32	32	6.00	4.90	4.10	70.00	14.00	25.00	~DIN 371	6557 4.826
12 - 28	28	6.00	4.90	4.60	80.00	16.00	30.00	~DIN 371	6557 5.486
1/4 - 28	28	7.00	5.50	5.50	80.00	16.00	30.00	~DIN 371	6557 6.350
5/16 - 24	24	8.00	6.20	6.90	90.00	17.00	35.00	~DIN 371	6557 7.938
3/8 - 24	24	10.00	8.00	8.50	90.00	18.00	35.00	~DIN 371	6557 9.525
7/16 - 20	20	8.00	6.20	9.90	100.00	22.00	42.00	~DIN 374	6557 11.113
1/2 - 20	20	9.00	7.00	11.50	100.00	20.00	40.00	~DIN 374	6557 12.700
9/16 - 18	18	11.00	9.00	12.90	100.00	22.00	40.00	~DIN 374	6557 14.288
5/8 - 18	18	12.00	9.00	14.50	100.00	22.00	44.00	~DIN 374	6557 15.875
3/4 - 16	16	14.00	11.00	17.50	110.00	25.00	44.00	~DIN 374	6557 19.050
7/8 - 14	14	18.00	14.50	20.40	125.00	25.00	44.00	~DIN 374	6557 22.225
1 - 12	12	18.00	14.50	23.25	140.00	28.00	50.00	~DIN 374	6557 25.400



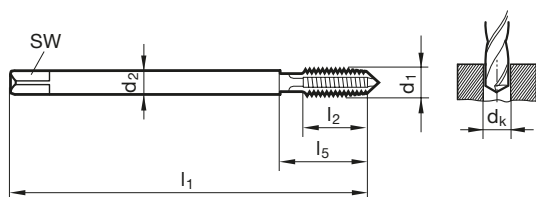
Taps for BSP threads

Article no. **6558**

cutting data see page 146



P	M	K	N	S	H
			•		



Standard

DIN 5156

Article no.

6558

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
G1/16	28	6.00	4.90	6.80	90.00	18.00	30.00	6558 7.723
G1/8	28	7.00	5.50	8.80	90.00	18.00	35.00	6558 9.728
G1/4	19	11.00	9.00	11.80	100.00	20.00	40.00	6558 13.157
G3/8	19	12.00	9.00	15.25	100.00	22.00	44.00	6558 16.662
G1/2	14	16.00	12.00	19.00	125.00	25.00	44.00	6558 20.955
G5/8	14	18.00	14.50	21.00	125.00	25.00	48.00	6558 22.911
G3/4	14	20.00	16.00	24.50	140.00	28.00	53.00	6558 26.441
G7/8	14	22.00	18.00	28.25	150.00	28.00	53.00	6558 30.201
G1	11	25.00	20.00	30.75	160.00	30.00	56.00	6558 33.249

Taps

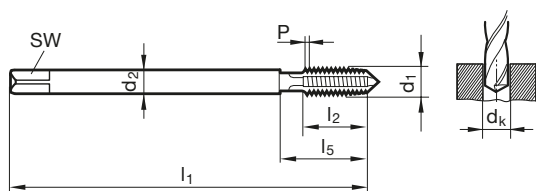
Taps for EG/STI threads

Article no. **6559**

cutting data see page 146



P	M	K	N	S	H
			•		



Standard

DIN 40435

Article no.

6559

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
EG/STI M2	0.400	2.80	2.10	2.10	50.00	9.00	14.00	6559 2.000
EG/STI M2,5	0.450	3.50	2.70	2.65	56.00	10.00	18.00	6559 2.500
EG/STI M3	0.500	4.50	3.40	3.15	63.00	12.00	21.00	6559 3.000
EG/STI M4	0.700	6.00	4.90	4.20	70.00	12.00	25.00	6559 4.000
EG/STI M5	0.800	6.00	4.90	5.25	80.00	14.00	30.00	6559 5.000
EG/STI M6	1.000	8.00	6.20	6.30	90.00	17.00	35.00	6559 6.000
EG/STI M8	1.250	10.00	8.00	8.40	100.00	20.00	39.00	6559 8.000
EG/STI M10	1.500	9.00	7.00	10.50	100.00	20.00	40.00	6559 10.000
EG/STI M12	1.750	11.00	9.00	12.50	110.00	28.00	53.00	6559 12.000
EG/STI M14	2.000	12.00	9.00	14.50	110.00	26.00	54.00	6559 14.000
EG/STI M16	2.000	14.00	11.00	16.50	125.00	33.00	62.00	6559 16.000



Taps for ISO metric threads

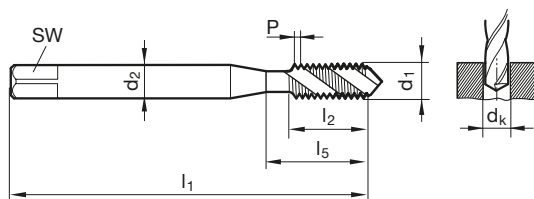
Article no. **8080**



cutting data see page 146



P	M	K	N	S	H
			•		



Standard **DIN 371/DIN 376**
Article no. **8080**

Taps

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M2	0.400	2.80	2.10	1.60	45.00	4.50	13.50	DIN 371	8080 2.000
M2,5	0.450	2.80	2.10	2.05	50.00	5.00	14.50	DIN 371	8080 2.500
M3	0.500	3.50	2.70	2.50	56.00	6.00	18.00	DIN 371	8080 3.000
M4	0.700	4.50	3.40	3.30	63.00	7.50	21.00	DIN 371	8080 4.000
M5	0.800	6.00	4.90	4.20	70.00	8.50	25.00	DIN 371	8080 5.000
M6	1.000	6.00	4.90	5.00	80.00	11.00	30.00	DIN 371	8080 6.000
M8	1.250	8.00	6.20	6.80	90.00	14.00	35.00	DIN 371	8080 8.000
M10	1.500	10.00	8.00	8.50	100.00	16.00	39.00	DIN 371	8080 10.000
M12	1.750	9.00	7.00	10.20	110.00	18.50	49.00	DIN 376	8080 12.000
M14	2.000	11.00	9.00	12.00	110.00	20.00	53.00	DIN 376	8080 14.000
M16	2.000	12.00	9.00	14.00	110.00	20.00	54.00	DIN 376	8080 16.000

Taps for ISO metric threads

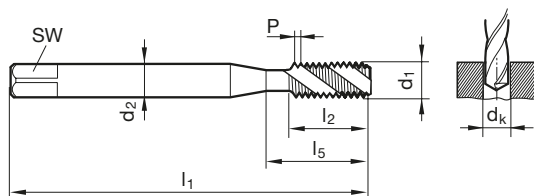
Article no. **8081**



cutting data see page 146



short cutting form



Standard **DIN 371/DIN 376**
Article no. **8081**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M2	0.400	2.80	2.10	1.60	45.00	4.50	13.50	DIN 371	8081 2.000
M2,5	0.450	2.80	2.10	2.05	50.00	5.00	14.50	DIN 371	8081 2.500
M3	0.500	3.50	2.70	2.50	56.00	6.00	18.00	DIN 371	8081 3.000
M4	0.700	4.50	3.40	3.30	63.00	7.50	21.00	DIN 371	8081 4.000
M5	0.800	6.00	4.90	4.20	70.00	8.50	25.00	DIN 371	8081 5.000
M6	1.000	6.00	4.90	5.00	80.00	11.00	30.00	DIN 371	8081 6.000
M8	1.250	8.00	6.20	6.80	90.00	14.00	35.00	DIN 371	8081 8.000
M10	1.500	10.00	8.00	8.50	100.00	16.00	39.00	DIN 371	8081 10.000
M12	1.750	9.00	7.00	10.20	110.00	18.50	49.00	DIN 376	8081 12.000
M14	2.000	11.00	9.00	12.00	110.00	20.00	53.00	DIN 376	8081 14.000
M16	2.000	12.00	9.00	14.00	110.00	20.00	54.00	DIN 376	8081 16.000



Taps for ISO metric threads

Article no. 6565

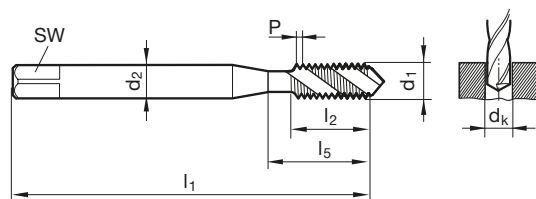


cutting data see page 146



with extra-long shank

P	M	K	N	S	H
			•		

Standard
Article no.

Company std.

6565

d1	P	d2	SW	dk	l1	l2	l5	Order no.
M3	0.500	3.50	2.70	2.50	90.00	6.00	18.00	6565 3.000
M4	0.700	4.50	3.40	3.30	125.00	7.50	21.00	6565 4.000
M5	0.800	6.00	4.90	4.20	140.00	8.50	25.00	6565 5.000
M6	1.000	6.00	4.90	5.00	160.00	11.00	30.00	6565 6.000
M8	1.250	8.00	6.20	6.80	180.00	14.00	35.00	6565 8.010
M10	1.500	10.00	8.00	8.50	200.00	16.00	39.00	6565 10.010
M12	1.750	9.00	7.00	10.20	220.00	18.50	158.00	6565 12.000
M14	2.000	11.00	9.00	12.00	220.00	20.00	160.00	6565 14.000
M16	2.000	12.00	9.00	14.00	220.00	20.00	160.00	6565 16.000
M20	2.500	16.00	12.00	17.50	280.00	25.00	217.00	6565 20.000

Taps



Blind hole taps AL

Taps with coolant ducts for ISO metric threads

Article no. **8083**



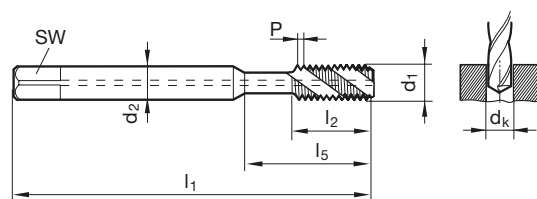
cutting data see page 146



with internal cooling $\geq$ M5

P	M	K	N	S	H
			•		

Taps



Standard

DIN 371/DIN 376

Article no.

8083

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M3	0.500	3.50	2.70	2.50	56.00	8.00	18.00	DIN 371	8083 3.000
M4	0.700	4.50	3.40	3.30	63.00	10.00	21.00	DIN 371	8083 4.000
M5	0.800	6.00	4.90	4.20	70.00	10.00	25.00	DIN 371	8083 5.000
M6	1.000	6.00	4.90	5.00	80.00	12.00	30.00	DIN 371	8083 6.000
M8	1.250	8.00	6.20	6.80	90.00	16.00	35.00	DIN 371	8083 8.000
M10	1.500	10.00	8.00	8.50	100.00	18.00	39.00	DIN 371	8083 10.000
M12	1.750	9.00	7.00	10.20	110.00	18.00	49.00	DIN 376	8083 12.000
M14	2.000	11.00	9.00	12.00	110.00	20.00	53.00	DIN 376	8083 14.000
M16	2.000	12.00	9.00	14.00	110.00	20.00	54.00	DIN 376	8083 16.000

Taps with coolant ducts for ISO metric threads

Article no. **8084**

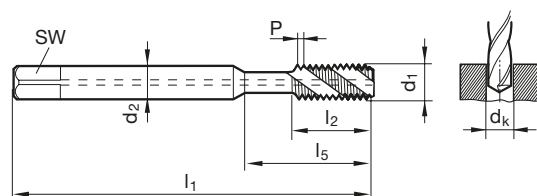


cutting data see page 146



short cutting form • with internal cooling $\geq$ M5

P	M	K	N	S	H
			•		



Standard

DIN 371/DIN 376

Article no.

8084

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M3	0.500	3.50	2.70	2.50	56.00	8.00	18.00	DIN 371	8084 3.000
M4	0.700	4.50	3.40	3.30	63.00	10.00	21.00	DIN 371	8084 4.000
M5	0.800	6.00	4.90	4.20	70.00	10.00	25.00	DIN 371	8084 5.000
M6	1.000	6.00	4.90	5.00	80.00	12.00	30.00	DIN 371	8084 6.000
M8	1.250	8.00	6.20	6.80	90.00	16.00	35.00	DIN 371	8084 8.000
M10	1.500	10.00	8.00	8.50	100.00	18.00	39.00	DIN 371	8084 10.000
M12	1.750	9.00	7.00	10.20	110.00	18.00	49.00	DIN 376	8084 12.000
M14	2.000	11.00	9.00	12.00	110.00	20.00	53.00	DIN 376	8084 14.000
M16	2.000	12.00	9.00	14.00	110.00	20.00	54.00	DIN 376	8084 16.000



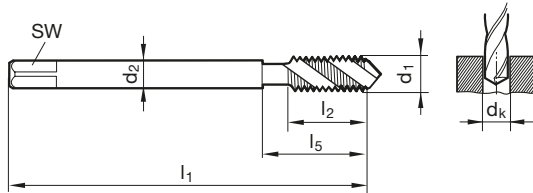
Taps for ISO metric fine threads

Article no. **6560**

cutting data see page 146



P	M	K	N	S	H
			•		

Standard
Article no.**DIN 374****6560**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
M4 x 0,5	0.500	2.80	2.10	3.50	63.00	5.00	21.00	6560 4.003
M5 x 0,5	0.500	3.50	2.70	4.50	70.00	5.00	25.00	6560 5.003
M6 x 0,5	0.500	4.50	3.40	5.50	80.00	5.00	30.00	6560 6.003
M6 x 0,75	0.750	4.50	3.40	5.20	80.00	8.00	30.00	6560 6.004
M8 x 1	1.000	6.00	4.90	7.00	90.00	11.00	35.00	6560 8.005
M10 x 1	1.000	7.00	5.50	9.00	90.00	11.00	35.00	6560 10.005
M10 x 1,25	1.250	7.00	5.50	8.80	100.00	14.00	39.00	6560 10.006
M12 x 1	1.000	9.00	7.00	11.00	100.00	11.00	40.00	6560 12.005
M12 x 1,25	1.250	9.00	7.00	10.80	100.00	15.00	40.00	6560 12.006
M12 x 1,5	1.500	9.00	7.00	10.50	100.00	15.00	40.00	6560 12.007
M14 x 1,25	1.250	11.00	9.00	12.80	100.00	15.00	40.00	6560 14.006
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	15.00	40.00	6560 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	15.00	44.00	6560 16.007
M18 x 1,5	1.500	14.00	11.00	16.50	110.00	16.00	44.00	6560 18.007
M20 x 1,5	1.500	16.00	12.00	18.50	125.00	16.00	44.00	6560 20.007
M22 x 1,5	1.500	18.00	14.50	20.50	125.00	16.00	44.00	6560 22.007
M24 x 1,5	1.500	18.00	14.50	22.50	140.00	16.00	48.00	6560 24.007

Taps

Taps for ISO metric fine threads

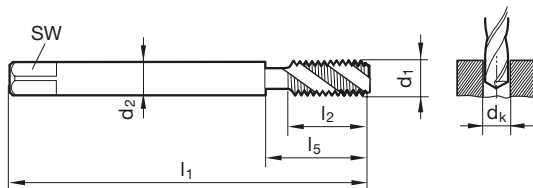
Article no. **6568**

cutting data see page 146



P	M	K	N	S	H
			•		

short cutting form

Standard
Article no.**DIN 374****6568**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
M6 x 0,75	0.750	4.50	3.40	5.20	80.00	8.00	30.00	6568 6.004
M8 x 0,75	0.750	6.00	4.90	7.20	80.00	8.00	30.00	6568 8.004
M8 x 1	1.000	6.00	4.90	7.00	90.00	11.00	35.00	6568 8.005
M10 x 1	1.000	7.00	5.50	9.00	90.00	11.00	35.00	6568 10.005
M10 x 1,25	1.250	7.00	5.50	8.80	100.00	14.00	39.00	6568 10.006
M12 x 1	1.000	9.00	7.00	11.00	100.00	11.00	40.00	6568 12.005
M12 x 1,25	1.250	9.00	7.00	10.80	100.00	15.00	40.00	6568 12.006
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	15.00	40.00	6568 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	15.00	44.00	6568 16.007
M18 x 1,5	1.500	14.00	11.00	16.50	110.00	16.00	44.00	6568 18.007
M20 x 1,5	1.500	16.00	12.00	18.50	125.00	16.00	44.00	6568 20.007
M24 x 1,5	1.500	18.00	14.50	22.50	140.00	16.00	48.00	6568 24.007



Taps for ISO metric fine threads

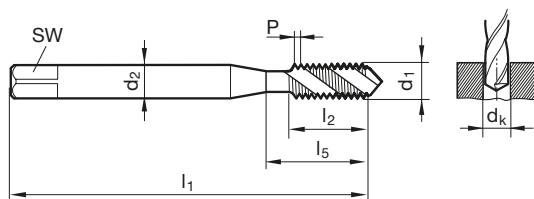
Article no. **6566**



cutting data see page 146



with extra-long shank



Standard								Company std.
Article no.								6566
d1	P	d2	SW	dk	l1	l2	l5	Order no.
M8 x 1	1.000	6.00	4.90	7.00	180.00	14.00	120.00	6566 8.005
M10 x 1	1.000	7.00	5.50	9.00	200.00	16.00	140.00	6566 10.005
M12 x 1,5	1.500	9.00	7.00	10.50	220.00	18.50	158.00	6566 12.007
M14 x 1,5	1.500	11.00	9.00	12.50	220.00	20.00	160.00	6566 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	220.00	20.00	160.00	6566 16.007
M20 x 1,5	1.500	16.00	12.00	18.50	280.00	25.00	217.00	6566 20.007

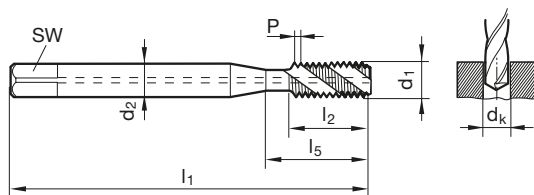
Taps

Taps with coolant ducts for ISO metric fine threads

Article no. **6577**



cutting data see page 146



Standard								DIN 371/DIN 374
Article no.								6577
d1	P	d2	SW	dk	l1	l2	l5	Order no.
M8 x 1	1.000	8.00	6.20	7.00	90.00	16.00	35.00	DIN 371 6577 8.005
M10 x 1	1.000	10.00	8.00	9.00	90.00	18.00	35.00	DIN 371 6577 10.005
M12 x 1,5	1.500	9.00	7.00	10.50	100.00	15.00	40.00	DIN 374 6577 12.007
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	15.00	40.00	DIN 374 6577 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	15.00	44.00	DIN 374 6577 16.007

Taps with coolant ducts for ISO metric fine threads

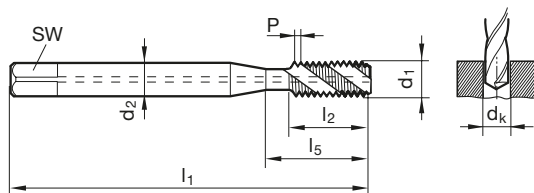
Article no. **6578**



cutting data see page 146



short cutting form



Standard								DIN 371/DIN 374
Article no.								6578
d1	P	d2	SW	dk	l1	l2	l5	Order no.
M8 x 1	1.000	8.00	6.20	7.00	90.00	16.00	35.00	DIN 371 6578 8.005
M10 x 1	1.000	10.00	8.00	9.00	90.00	18.00	35.00	DIN 371 6578 10.005
M12 x 1,5	1.500	9.00	7.00	10.50	100.00	15.00	40.00	DIN 374 6578 12.007
M14 x 1,5	1.500	11.00	9.00	12.50	100.00	15.00	40.00	DIN 374 6578 14.007
M16 x 1,5	1.500	12.00	9.00	14.50	100.00	15.00	44.00	DIN 374 6578 16.007



Taps for UNC threads

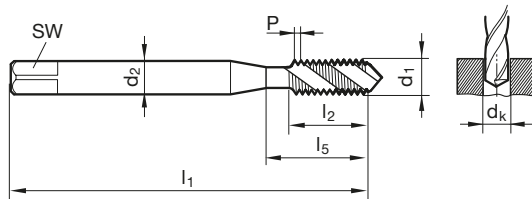
Article no. 6561



cutting data see page 146



P	M	K	N	S	H
			•		



Standard									DIN 371/DIN 376
Article no.									6561
d1	P	d2	SW	dk	l1	l2	l5		Order no.
G/inch	mm	mm	mm	mm	mm	mm	mm		
2 - 56	56	2.80	2.10	1.85	45.00	5.00	14.50	~DIN 371	6561 2.184
4 - 40	40	3.50	2.70	2.35	56.00	7.00	18.00	~DIN 371	6561 2.845
6 - 32	32	4.00	3.00	2.85	56.00	8.00	20.00	~DIN 371	6561 3.505
8 - 32	32	4.50	3.40	3.50	63.00	8.00	21.00	~DIN 371	6561 4.166
10 - 24	24	6.00	4.90	3.90	70.00	11.00	25.00	~DIN 371	6561 4.826
12 - 24	24	6.00	4.90	4.50	80.00	11.00	30.00	~DIN 371	6561 5.486
1/4 - 20	20	7.00	5.50	5.10	80.00	13.00	30.00	~DIN 371	6561 6.350
5/16 - 18	18	8.00	6.20	6.60	90.00	14.00	35.00	~DIN 371	6561 7.938
3/8 - 16	16	10.00	8.00	8.00	100.00	16.00	39.00	~DIN 371	6561 9.525
7/16 - 14	14	8.00	6.20	9.40	100.00	18.00	42.00	~DIN 376	6561 11.113
1/2 - 13	13	9.00	7.00	10.80	110.00	20.00	49.00	~DIN 376	6561 12.700
9/16 - 12	12	11.00	9.00	12.20	110.00	21.00	53.00	~DIN 376	6561 14.288
5/8 - 11	11	12.00	9.00	13.50	110.00	24.00	53.00	~DIN 376	6561 15.875
3/4 - 10	10	14.00	11.00	16.50	125.00	25.00	62.00	~DIN 376	6561 19.050
7/8 - 9	9	18.00	14.50	19.50	140.00	28.00	62.00	~DIN 376	6561 22.225
1 - 8	8	18.00	14.50	22.25	160.00	32.00	73.00	~DIN 376	6561 25.400

Taps

Taps for UNF threads

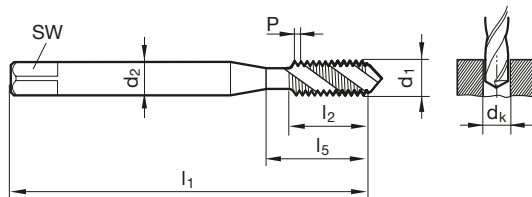
Article no. 6562



cutting data see page 146



P	M	K	N	S	H
			•		



Standard									DIN 371/DIN 374
Article no.									6562
d1	P	d2	SW	dk	l1	l2	l5		Order no.
G/inch	mm	mm	mm	mm	mm	mm	mm		
2 - 64	64	2.80	2.10	1.85	45.00	5.00	14.50	~DIN 371	6562 2.184
4 - 48	48	3.50	2.70	2.40	56.00	6.00	18.00	~DIN 371	6562 2.845
6 - 40	40	4.00	3.00	2.95	56.00	6.50	20.00	~DIN 371	6562 3.505
8 - 36	36	4.50	3.40	3.50	63.00	7.00	21.00	~DIN 371	6562 4.166
10 - 32	32	6.00	4.90	4.10	70.00	8.50	25.00	~DIN 371	6562 4.826
12 - 28	28	6.00	4.90	4.60	80.00	9.50	30.00	~DIN 371	6562 5.486
1/4 - 28	28	7.00	5.50	5.50	80.00	9.50	30.00	~DIN 371	6562 6.350
5/16 - 24	24	8.00	6.20	6.90	90.00	11.50	35.00	~DIN 371	6562 7.938
3/8 - 24	24	10.00	8.00	8.50	90.00	11.50	35.00	~DIN 371	6562 9.525
7/16 - 20	20	8.00	6.20	9.90	100.00	13.00	42.00	~DIN 374	6562 11.113
1/2 - 20	20	9.00	7.00	11.50	100.00	13.00	40.00	~DIN 374	6562 12.700
9/16 - 18	18	11.00	9.00	12.90	100.00	14.00	40.00	~DIN 374	6562 14.288
5/8 - 18	18	12.00	9.00	14.50	100.00	15.00	44.00	~DIN 374	6562 15.875
3/4 - 16	16	14.00	11.00	17.50	110.00	16.00	44.00	~DIN 374	6562 19.050
7/8 - 14	14	18.00	14.50	20.40	125.00	19.00	44.00	~DIN 374	6562 22.225
1 - 12	12	18.00	14.50	23.25	140.00	22.00	50.00	~DIN 374	6562 25.400



Taps for BSP threads

Article no. **6563**

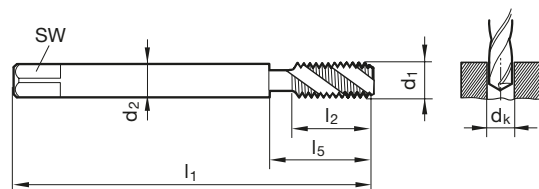


cutting data see page 146



P	M	K	N	S	H
			•		

Taps



Standard
Article no.

DIN 5156

6563

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
G1/16	28	6.00	4.90	6.80	90.00	11.00	30.00	6563 7.723
G1/8	28	7.00	5.50	8.80	90.00	11.00	35.00	6563 9.728
G1/4	19	11.00	9.00	11.80	100.00	14.00	40.00	6563 13.157
G3/8	19	12.00	9.00	15.25	100.00	14.00	44.00	6563 16.662
G1/2	14	16.00	12.00	19.00	125.00	18.00	44.00	6563 20.955
G5/8	14	18.00	14.50	21.00	125.00	18.00	48.00	6563 22.911
G3/4	14	20.00	16.00	24.50	140.00	20.00	53.00	6563 26.441
G7/8	14	22.00	18.00	28.25	150.00	22.00	53.00	6563 30.201
G1	11	25.00	20.00	30.75	160.00	24.00	56.00	6563 33.249

Taps for BSP threads

Article no. **6569**

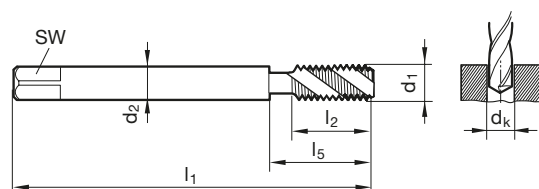


cutting data see page 146



short cutting form

P	M	K	N	S	H
			•		



Standard
Article no.

DIN 5156

6569

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm	Order no.
G1/16	28	6.00	4.90	6.80	90.00	11.00	30.00	6569 7.723
G1/8	28	7.00	5.50	8.80	90.00	11.00	35.00	6569 9.728
G1/4	19	11.00	9.00	11.80	100.00	14.00	40.00	6569 13.157
G3/8	19	12.00	9.00	15.25	100.00	14.00	44.00	6569 16.662
G1/2	14	16.00	12.00	19.00	125.00	18.00	44.00	6569 20.955
G5/8	14	18.00	14.50	21.00	125.00	18.00	48.00	6569 22.911
G3/4	14	20.00	16.00	24.50	140.00	20.00	53.00	6569 26.441
G7/8	14	22.00	18.00	28.25	150.00	22.00	53.00	6569 30.201
G1	11	25.00	20.00	30.75	160.00	24.00	56.00	6569 33.249



Taps for BSP threads

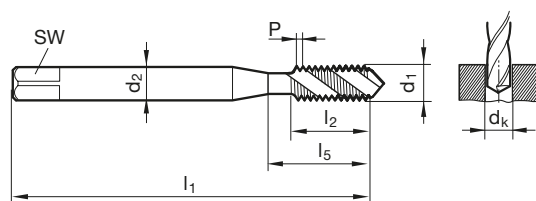
Article no. **6567**

cutting data see page 146



with extra-long shank

P	M	K	N	S	H
			•		



Standard

Company std.

Article no.

6567

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm
G1/8	28	7.00	5.50	8.80	200.00	16.00	140.00
G1/4	19	11.00	9.00	11.80	220.00	20.00	160.00
G3/8	19	12.00	9.00	15.25	250.00	25.00	160.00
G1/2	14	16.00	12.00	19.00	280.00	27.00	217.00

Order no.

6567 9.728

6567 13.157

6567 16.662

6567 20.955

Taps

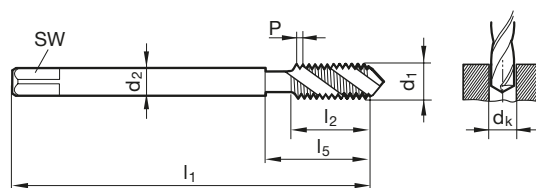
Taps for EG/STI threads

Article no. **6564**

cutting data see page 146



P	M	K	N	S	H
			•		



Standard

DIN 40435

Article no.

6564

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm
EG/STI M2	0.400	2.80	2.10	2.10	50.00	4.50	14.00
EG/STI M2,5	0.450	3.50	2.70	2.65	56.00	5.00	18.00
EG/STI M3	0.500	4.50	3.40	3.15	63.00	6.00	21.00
EG/STI M4	0.700	6.00	4.90	4.20	70.00	7.50	25.00
EG/STI M5	0.800	6.00	4.90	5.25	80.00	8.50	30.00
EG/STI M6	1.000	8.00	6.20	6.30	90.00	11.00	35.00
EG/STI M8	1.250	10.00	8.00	8.40	100.00	14.00	39.00
EG/STI M10	1.500	9.00	7.00	10.50	100.00	16.00	40.00
EG/STI M12	1.750	11.00	9.00	12.50	110.00	18.50	53.00
EG/STI M14	2.000	12.00	9.00	14.50	110.00	20.00	54.00
EG/STI M16	2.000	14.00	11.00	16.50	125.00	20.00	62.00

Order no.

6564 2.000

6564 2.500

6564 3.000

6564 4.000

6564 5.000

6564 6.000

6564 8.000

6564 10.000

6564 12.000

6564 14.000

6564 16.000



Fluteless taps for ISO metric threads

Article no. **8088**

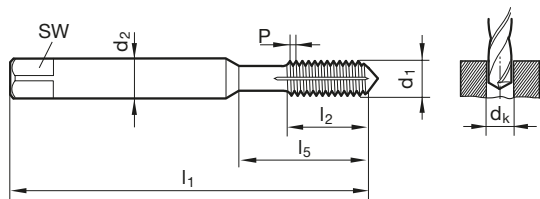


cutting data see page 146



for thread depths up to 3xD

P	M	K	N	S	H
			•		



Standard

~DIN 371/~DIN 376

Article no.

8088

Fluteless taps

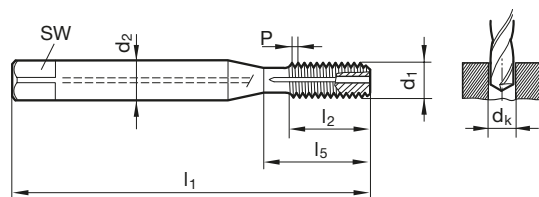
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M2	0.400	2.80	2.10	1.85	45.00	8.00	13.50	~DIN 371	8088 2.000
M2,5	0.450	2.80	2.10	2.30	50.00	9.00	14.50	~DIN 371	8088 2.500
M3	0.500	3.50	2.70	2.80	56.00	10.00	18.00	~DIN 371	8088 3.000
M4	0.700	4.50	3.40	3.70	63.00	12.00	21.00	~DIN 371	8088 4.000
M5	0.800	6.00	4.90	4.65	70.00	14.00	25.00	~DIN 371	8088 5.000
M6	1.000	6.00	4.90	5.55	80.00	16.00	30.00	~DIN 371	8088 6.000
M8	1.250	8.00	6.20	7.40	90.00	17.00	35.00	~DIN 371	8088 8.000
M10	1.500	10.00	8.00	9.30	100.00	20.00	39.00	~DIN 371	8088 10.000
M12	1.750	9.00	7.00	11.20	110.00	24.00	49.00	~DIN 376	8088 12.000
M14	2.000	11.00	9.00	13.10	110.00	26.00	53.00	~DIN 376	8088 14.000
M16	2.000	12.00	9.00	15.10	110.00	26.00	54.00	~DIN 376	8088 16.000



Fluteless taps with coolant ducts for ISO metric threads

Article no. **8089**


cutting data see page 147


with internal cooling $\geq$ M5 • short cutting form • for thread depths up to 3xD


Standard									~DIN 371/~DIN 376
Article no.									8089
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M2	0.400	2.80	2.10	1.85	45.00	8.00	13.50	~DIN 371	8089 2.000
M2,5	0.450	2.80	2.10	2.30	50.00	9.00	14.50	~DIN 371	8089 2.500
M3	0.500	3.50	2.70	2.80	56.00	10.00	18.00	~DIN 371	8089 3.000
M4	0.700	4.50	3.40	3.70	63.00	12.00	21.00	~DIN 371	8089 4.000
M5	0.800	6.00	4.90	4.65	70.00	14.00	25.00	~DIN 371	8089 5.000
M6	1.000	6.00	4.90	5.55	80.00	16.00	30.00	~DIN 371	8089 6.000
M8	1.250	8.00	6.20	7.40	90.00	17.00	35.00	~DIN 371	8089 8.000
M10	1.500	10.00	8.00	9.30	100.00	20.00	39.00	~DIN 371	8089 10.000
M12	1.750	9.00	7.00	11.20	110.00	24.00	49.00	~DIN 376	8089 12.000
M14	2.000	11.00	9.00	13.10	110.00	26.00	53.00	~DIN 376	8089 14.000
M16	2.000	12.00	9.00	15.10	110.00	26.00	54.00	~DIN 376	8089 16.000

Fluteless taps

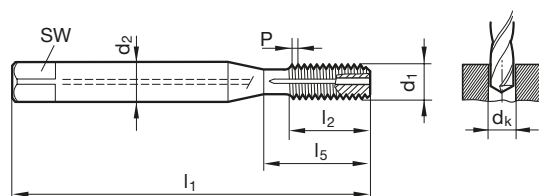
Fluteless taps with coolant ducts for ISO metric threads

Article no. **8090**


cutting data see page 147



for thread depths up to 3xD



Standard									DIN 371/DIN 376
Article no.									8090
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M5	0.800	6.00	4.90	4.65	70.00	8.50	25.00	~DIN 371	8090 5.000
M6	1.000	6.00	4.90	5.55	80.00	11.00	30.00	~DIN 371	8090 6.000
M8	1.250	8.00	6.20	7.40	90.00	14.00	35.00	~DIN 371	8090 8.000
M10	1.500	10.00	8.00	9.30	100.00	16.00	39.00	~DIN 371	8090 10.000
M12	1.750	9.00	7.00	11.20	110.00	18.50	49.00	~DIN 376	8090 12.000
M16	2.000	12.00	9.00	15.10	110.00	20.00	54.00	~DIN 376	8090 16.000
M20	2.500	16.00	12.00	18.90	140.00	25.00	62.00	~DIN 376	8090 20.000



Fluteless taps AL

Fluteless taps with coolant ducts for ISO metric threads

Article no. **8091**

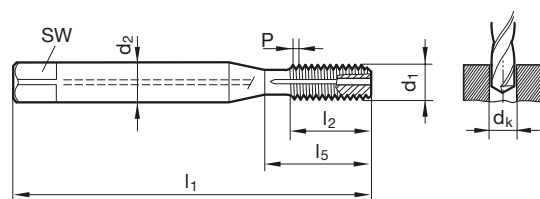


cutting data see page 147



for thread depths up to 3xD

P	M	K	N	S	H
			•		



Standard ~DIN 371/~DIN 376
Article no. **8091**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M5	0.800	6.00	4.90	4.65	70.00	8.50	25.00	~DIN 371	8091 5.000
M6	1.000	6.00	4.90	5.55	80.00	11.00	30.00	~DIN 371	8091 6.000
M8	1.250	8.00	6.20	7.40	90.00	14.00	35.00	~DIN 371	8091 8.000
M10	1.500	10.00	8.00	9.30	100.00	16.00	39.00	~DIN 371	8091 10.000
M12	1.750	9.00	7.00	11.20	110.00	18.50	49.00	~DIN 376	8091 12.000
M16	2.000	12.00	9.00	15.10	110.00	20.00	54.00	~DIN 376	8091 16.000
M20	2.500	16.00	12.00	18.90	140.00	25.00	62.00	~DIN 376	8091 20.000

Fluteless taps

Fluteless taps with coolant ducts for ISO metric threads

Article no. **8094**

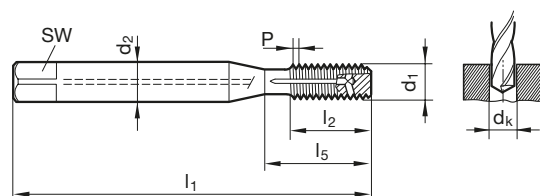


cutting data see page 147



with internal cooling ≥ M5 • for thread depths up to 3xD

P	M	K	N	S	H
			•		



Standard ~DIN 371/~DIN 376
Article no. **8094**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M3	0.500	3.50	2.70	2.80	56.00	6.00	18.00	~DIN 371	8094 3.000
M4	0.700	4.50	3.40	3.70	63.00	7.50	21.00	~DIN 371	8094 4.000
M5	0.800	6.00	4.90	4.65	70.00	8.50	25.00	~DIN 371	8094 5.000
M6	1.000	6.00	4.90	5.55	80.00	11.00	30.00	~DIN 371	8094 6.000
M8	1.250	8.00	6.20	7.40	90.00	14.00	35.00	~DIN 371	8094 8.000
M10	1.500	10.00	8.00	9.30	100.00	16.00	39.00	~DIN 371	8094 10.000
M12	1.750	9.00	7.00	11.20	110.00	18.50	49.00	~DIN 376	8094 12.000
M14	2.000	11.00	9.00	13.10	110.00	20.00	53.00	~DIN 376	8094 14.000
M16	2.000	12.00	9.00	15.10	110.00	20.00	54.00	~DIN 376	8094 16.000



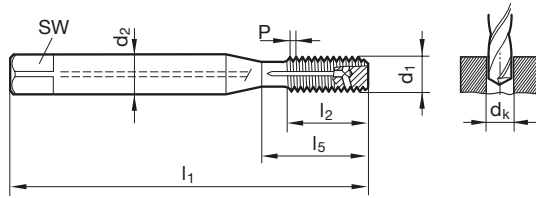
Fluteless taps with coolant ducts for ISO metric threads

Article no. **6580**


cutting data see page 147



for thread depths up to 3xD • short cutting form • with internal cooling ≥ M5



Standard									~DIN 371/~DIN 376
Article no.									6580
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M3	0.500	3.50	2.70	2.80	56.00	6.00	18.00	~DIN 371	6580 3.000
M4	0.700	4.50	3.40	3.70	63.00	7.50	21.00	~DIN 371	6580 4.000
M5	0.800	6.00	4.90	4.65	70.00	8.50	25.00	~DIN 371	6580 5.000
M6	1.000	6.00	4.90	5.55	80.00	11.00	30.00	~DIN 371	6580 6.000
M8	1.250	8.00	6.20	7.40	90.00	14.00	35.00	~DIN 371	6580 8.000
M10	1.500	10.00	8.00	9.30	100.00	16.00	39.00	~DIN 371	6580 10.000
M12	1.750	9.00	7.00	11.20	110.00	18.50	49.00	~DIN 376	6580 12.000
M14	2.000	11.00	9.00	13.10	110.00	20.00	53.00	~DIN 376	6580 14.000
M16	2.000	12.00	9.00	15.10	110.00	20.00	54.00	~DIN 376	6580 16.000

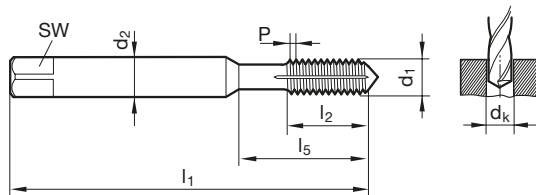
Fluteless taps for ISO metric fine threads

Article no. **6570**


cutting data see page 147



for thread depths up to 3xD



Standard									~DIN 374
Article no.									6570
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M8 x 1	1.000	6.00	4.90	7.55	90.00	17.00	35.00		6570 8.005
M10 x 1	1.000	7.00	5.50	9.55	90.00	16.00	35.00		6570 10.005
M10 x 1,25	1.250	7.00	5.50	9.40	100.00	20.00	39.00		6570 10.006
M12 x 1	1.000	9.00	7.00	11.55	100.00	20.00	40.00		6570 12.005
M12 x 1,25	1.250	9.00	7.00	11.40	100.00	20.00	40.00		6570 12.006
M12 x 1,5	1.500	9.00	7.00	11.30	100.00	20.00	40.00		6570 12.007
M14 x 1,5	1.500	11.00	9.00	13.30	100.00	20.00	40.00		6570 14.007
M16 x 1,5	1.500	12.00	9.00	15.30	100.00	22.00	44.00		6570 16.007
M20 x 1,5	1.500	16.00	12.00	19.30	125.00	25.00	44.00		6570 20.007



Fluteless taps AL

Fluteless taps with coolant ducts for ISO metric fine threads

Article no. **6572**

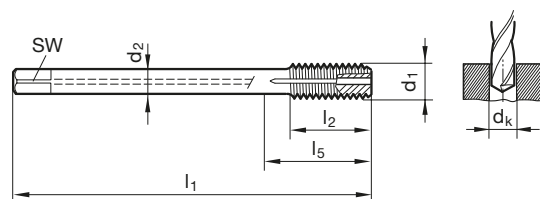


cutting data see page 147



for thread depths up to 3xD • short cutting form

P	M	K	N	S	H
			•		



Standard ~DIN 371/~DIN 374
Article no. **6572**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M8 x 1	1.000	8.00	6.20	7.55	90.00	11.00	35.00	~DIN 371	6572 8.005
M10 x 1	1.000	10.00	8.00	9.55	90.00	11.00	35.00	~DIN 371	6572 10.005
M10 x 1,25	1.250	10.00	8.00	9.40	100.00	14.00	39.00	~DIN 371	6572 10.006
M12 x 1	1.000	9.00	7.00	11.55	100.00	11.00	40.00	~DIN 374	6572 12.005
M12 x 1,25	1.250	9.00	7.00	11.40	100.00	15.00	40.00	~DIN 374	6572 12.006
M12 x 1,5	1.500	9.00	7.00	11.30	100.00	15.00	40.00	~DIN 374	6572 12.007
M14 x 1,5	1.500	11.00	9.00	13.30	100.00	15.00	40.00	~DIN 374	6572 14.007
M16 x 1,5	1.500	12.00	9.00	15.30	100.00	15.00	44.00	~DIN 374	6572 16.007
M20 x 1,5	1.500	16.00	12.00	19.30	125.00	16.00	44.00	~DIN 374	6572 20.007

Fluteless taps

Fluteless taps with coolant ducts for ISO metric fine threads

Article no. **8092**

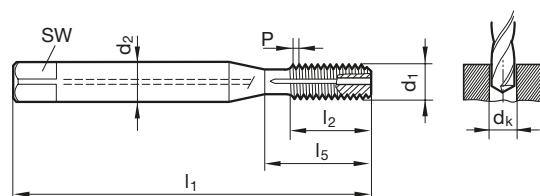


cutting data see page 147



for thread depths up to 3xD

P	M	K	N	S	H
			•		



Standard ~DIN 371/~DIN 374
Article no. **8092**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M8 x 1	1.000	8.00	6.20	7.55	90.00	11.00	35.00	~DIN 371	8092 8.005
M10 x 1	1.000	10.00	8.00	9.55	90.00	11.00	35.00	~DIN 371	8092 10.005
M10 x 1,25	1.250	10.00	8.00	9.40	100.00	14.00	39.00	~DIN 371	8092 10.006
M12 x 1	1.000	9.00	7.00	11.55	100.00	11.00	40.00	~DIN 374	8092 12.005
M12 x 1,5	1.500	9.00	7.00	11.30	100.00	15.00	40.00	~DIN 374	8092 12.007
M14 x 1,5	1.500	11.00	9.00	13.30	100.00	15.00	40.00	~DIN 374	8092 14.007
M16 x 1,5	1.500	12.00	9.00	15.30	100.00	15.00	44.00	~DIN 374	8092 16.007



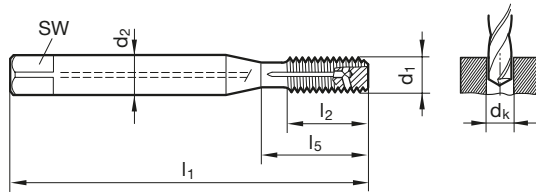
Fluteless taps with coolant ducts for ISO metric fine threads

Article no. **6579**


cutting data see page 147



for thread depths up to 3xD



Standard									~DIN 371/~DIN 374
Article no.									6579
Order no.									
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		
M8 x 1	1.000	8.00	6.20	7.55	90.00	11.00	35.00	~DIN 371	6579 8.005
M10 x 1	1.000	10.00	8.00	9.55	90.00	11.00	35.00	~DIN 371	6579 10.005
M12 x 1,5	1.500	9.00	7.00	11.30	100.00	15.00	40.00	~DIN 374	6579 12.007
M14 x 1,5	1.500	11.00	9.00	13.30	100.00	15.00	40.00	~DIN 374	6579 14.007
M16 x 1,5	1.500	12.00	9.00	15.30	100.00	15.00	44.00	~DIN 374	6579 16.007

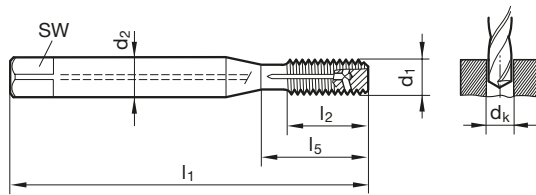
Fluteless taps with coolant ducts for ISO metric fine threads

Article no. **6581**


cutting data see page 147



for thread depths up to 3xD • short cutting form



Standard									~DIN 371/~DIN 374
Article no.									6581
Order no.									
d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		
M8 x 1	1.000	8.00	6.20	7.55	90.00	11.00	35.00	~DIN 371	6581 8.005
M10 x 1	1.000	10.00	8.00	9.55	90.00	11.00	35.00	~DIN 371	6581 10.005
M12 x 1,5	1.500	9.00	7.00	11.30	100.00	15.00	40.00	~DIN 374	6581 12.007
M14 x 1,5	1.500	11.00	9.00	13.30	100.00	15.00	40.00	~DIN 374	6581 14.007
M16 x 1,5	1.500	12.00	9.00	15.30	100.00	15.00	44.00	~DIN 374	6581 16.007



Fluteless taps AL

Fluteless taps for BSP threads

Article no. **6571**

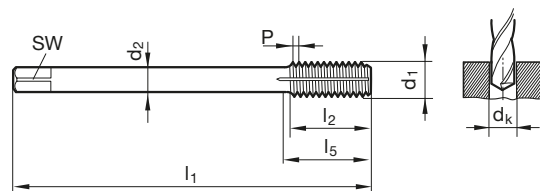


cutting data see page 147



for thread depths up to 3xD

P	M	K	N	S	H
			•		



Standard

DIN 2189

Article no.

6571

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm
G1/8	28	7.00	5.50	9.30	90.00	18.00	35.00
G1/4	19	11.00	9.00	12.50	100.00	20.00	40.00
G3/8	19	12.00	9.00	16.00	100.00	22.00	44.00
G1/2	14	16.00	12.00	20.00	125.00	25.00	44.00
G3/4	14	20.00	16.00	25.50	140.00	28.00	53.00

Order no.

6571 9.728

6571 13.157

6571 16.662

6571 20.955

6571 26.441

Fluteless taps

Fluteless taps with coolant ducts for BSP threads

Article no. **6573**

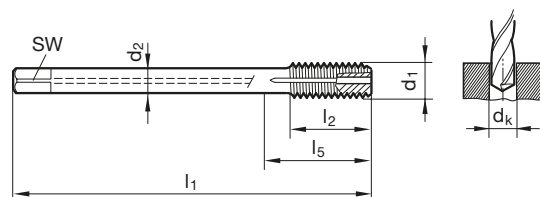


cutting data see page 147



for thread depths up to 3xD • short cutting form

P	M	K	N	S	H
			•		



Standard

DIN 2189

Article no.

6573

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm
G1/8	28	7.00	5.50	9.30	90.00	11.00	35.00
G1/4	19	11.00	9.00	12.50	100.00	14.00	40.00
G3/8	19	12.00	9.00	16.00	100.00	14.00	44.00
G1/2	14	16.00	12.00	20.00	125.00	18.00	44.00
G3/4	14	20.00	16.00	25.50	140.00	20.00	53.00

Order no.

6573 9.728

6573 13.157

6573 16.662

6573 20.955

6573 26.441

Fluteless taps with coolant ducts for BSP threads

Article no. **8093**

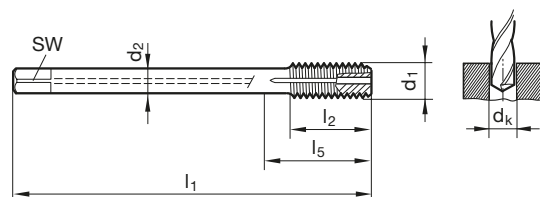


cutting data see page 147



for thread depths up to 3xD

P	M	K	N	S	H
			•		



Standard

DIN 2189

Article no.

8093

d1	P G/inch	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm
G1/8	28	7.00	5.50	9.30	90.00	11.00	35.00
G1/4	19	11.00	9.00	12.50	100.00	14.00	40.00
G3/8	19	12.00	9.00	16.00	100.00	14.00	44.00
G1/2	14	16.00	12.00	20.00	125.00	18.00	44.00
G3/4	14	20.00	16.00	25.50	140.00	20.00	53.00

Order no.

8093 9.728

8093 13.157

8093 16.662

8093 20.955

8093 26.441



Inox Pro



Fluteless tap InoxPro

Perfect dimensional accuracy

Up to twice the tool life
in stainless steel

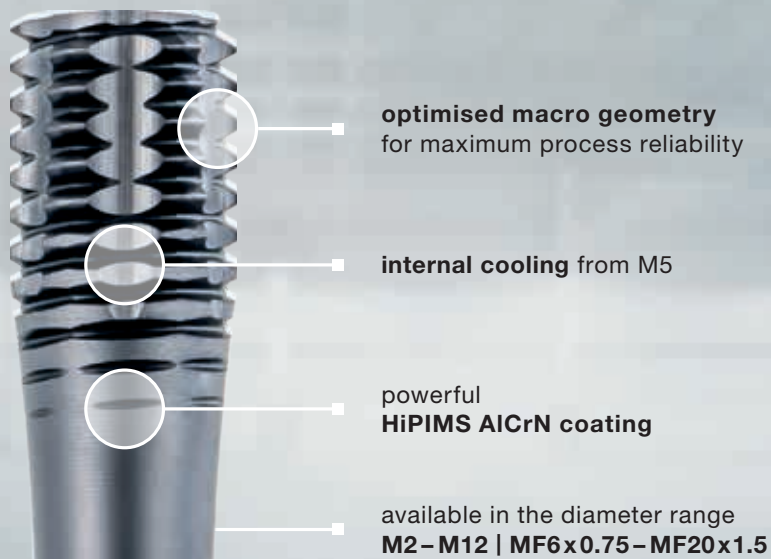
With the new InoxPro fluteless tap, you can overcome stainless steel challenges with maximum process reliability.

This is ensured by its perfectly synced macro and micro geometry with optimised oil groove geometry and polygon shape. In addition, the particularly smooth and temperature-resistant coating minimises tool wear during fluteless tapping.

With the InoxPro fluteless tap, you can also rest assured that you'll enjoy the highest tool life and perfect dimensional accuracy for your threads in combination with water-mixed emulsions.

x **Tool life** increased by 50 %

-  **X** outstanding tool lives thanks to smooth & temperature-resistant AlCrN coating
-  **X** reliable fluteless tapping, even with water-mixed emulsions
-  **X** optimised oil groove geometry & polygon shape for perfect thread quality



Application example

Component: Valve body, stainless steel (1.4301/ X5CrNi18-10)

Tool: #8100, M8

Customer target: Maximum tool life in large-scale batch production

Difficulty: Difficult deformability of stainless steel
due to high elongation at break coefficient

Cutting data:	Gühring	Competition
v_c	6 m/min	v_c 6 m/min
a_p	20 mm	a_p 20 mm
v_f	298 mm/min	v_f 298 mm/min

Tool life:	30 min	20 min
-------------------	--------	--------



Fluteless taps with coolant ducts for ISO metric threads

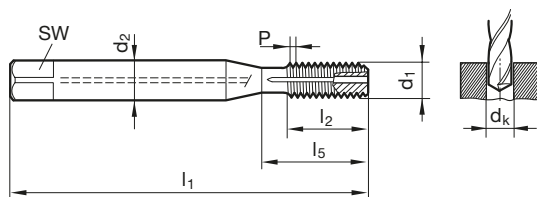
Article no. **8100**



cutting data see page 148



with internal cooling $\geq$ M5 • optimised polygon shape and cooling oil grooves • maximum process reliability



Standard **~DIN 371/~DIN 376**
Article no. **8100**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M2	0.400	2.80	2.10	1.85	45.00	3.20	13.50	~DIN 371	8100 2.000
M2,5	0.450	2.80	2.10	2.30	50.00	3.60	14.50	~DIN 371	8100 2.500
M3	0.500	3.50	2.70	2.80	56.00	4.80	18.00	~DIN 371	8100 3.000
M4	0.700	4.50	3.40	3.70	63.00	6.40	21.00	~DIN 371	8100 4.000
M5	0.800	6.00	4.90	4.65	70.00	6.40	25.00	~DIN 371	8100 5.000
M6	1.000	6.00	4.90	5.55	80.00	8.00	30.00	~DIN 371	8100 6.000
M8	1.250	8.00	6.20	7.40	90.00	11.20	35.00	~DIN 371	8100 8.000
M10	1.500	10.00	8.00	9.30	100.00	12.00	39.00	~DIN 371	8100 10.000
M12	1.750	9.00	7.00	11.20	110.00	14.00	49.00	~DIN 376	8100 12.000

Fluteless taps with coolant ducts for ISO metric fine threads

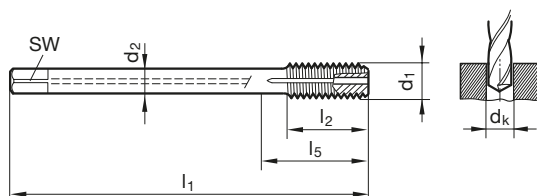
Article no. **8101**



cutting data see page 148



optimised polygon shape and cooling oil grooves • maximum process reliability



Standard **~DIN 371/~DIN 374**
Article no. **8101**

d1	P mm	d2 mm	SW mm	dk mm	l1 mm	l2 mm	l5 mm		Order no.
M6 x 0,75	0.750	6.00	4.90	5.65	80.00	8.00	30.00	~DIN 371	8101 6.004
M8 x 0,75	0.750	8.00	6.20	7.65	90.00	11.20	30.00	~DIN 371	8101 8.004
M8 x 1	1.000	8.00	6.20	7.55	90.00	11.20	35.00	~DIN 371	8101 8.005
M10 x 1	1.000	10.00	8.00	9.55	100.00	12.00	35.00	~DIN 371	8101 10.005
M10 x 1,25	1.250	10.00	8.00	9.40	100.00	12.00	39.00	~DIN 371	8101 10.006
M12 x 1	1.000	9.00	7.00	11.55	100.00	12.00	49.00	~DIN 376	8101 12.005
M12 x 1,5	1.500	9.00	7.00	11.30	100.00	12.00	49.00	~DIN 376	8101 12.007
M14 x 1,5	1.500	11.00	9.00	13.30	100.00	12.00	53.00	~DIN 376	8101 14.007
M16 x 1,5	1.500	12.00	9.00	15.30	100.00	12.00	54.00	~DIN 376	8101 16.007
M18 x 1,5	1.500	14.00	11.00	17.30	110.00	12.00	62.00	~DIN 376	8101 18.007
M20 x 1,5	1.500	16.00	12.00	19.30	125.00	12.00	62.00	~DIN 376	8101 20.007



Modular tap



Machining group	Through-, blind holes
	VHM
	F
	v_c (m/min)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	
M2.2.1 Duplex steel, high-strength stainless steels	
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	50
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	50
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	50
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	50
K1.3.1 Malleable cast iron, ferritic, 130 HB	50
K1.3.2 Malleable cast iron, pearlitic, 230 HB	50
K2.1.1 Vermicular graphite cast iron (GJV)	25
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	25
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	40
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	40
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	30
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	55
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	
N4.1.3 Non-metallic materials: Graphite	
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	
H2.1.1 Chilled cast iron, 400 HB	
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	

Cutting data



Taps ISO N



Machining group	Blind holes		Through-holes	
	VHM	HSS-E	VHM	HSS-E
	v_c (m/min)	v_c (m/min)	v_c (m/min)	v_c (m/min)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB				
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB				
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB				
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB				
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB				
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB				
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB				
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB				
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB				
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB				
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB				
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB				
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB				
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives				
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB				
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB				
M2.1.1 Stainless steel, austenitic, quenched, 180 HB				
M2.2.1 Duplex steel, high-strength stainless steels				
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB				
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB				
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB				
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB				
K1.3.1 Malleable cast iron, ferritic, 130 HB				
K1.3.2 Malleable cast iron, pearlitic, 230 HB				
K2.1.1 Vermicular graphite cast iron (GJV)				
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)				
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB		25		30
N1.1.2 Wrought aluminium alloys, hardened, 100 HB		25		30
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	55	20	60	25
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	55	20	60	25
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	40	15	45	20
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %		25		30
N3.1.2 Copper and copper alloys: CuZn, CuSnZn		25		30
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte		25		30
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics				
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.				
N4.1.3 Non-metallic materials: Graphite				
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB				
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB				
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB				
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB				
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB				
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²				
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²				
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC				
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC				
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC				
H2.1.1 Chilled cast iron, 400 HB				
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC				



Fluteless taps ISO N



Machining group	Through-, blind holes	Through-, blind holes
	VHM	HSS-E
	v_c (m/min)	v_c (m/min)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB		
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB		
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB		
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB		
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB		
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB		
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB		
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB		
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB		
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB		
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB		
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB		
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB		
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives		
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB		
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB		
M2.1.1 Stainless steel, austenitic, quenched, 180 HB		
M2.2.1 Duplex steel, high-strength stainless steels		
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB		
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB		
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB		
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB		
K1.3.1 Malleable cast iron, ferritic, 130 HB		
K1.3.2 Malleable cast iron, pearlitic, 230 HB		
K2.1.1 Vermicular graphite cast iron (GJV)		
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)		
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	70	25
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	70	25
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	70	25
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	70	25
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	55	25
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %		
N3.1.2 Copper and copper alloys: CuZn, CuSnZn		
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte		
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics		
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.		
N4.1.3 Non-metallic materials: Graphite		
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB		
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB		
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB		
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB		
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB		
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²		
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²		
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC		
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC		
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC		
H2.1.1 Chilled cast iron, 400 HB		
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC		

Cutting data



Fluteless taps InoxPro



Cutting data

Machining group	Through-, blind holes
	HSS-E
	
	v _c (m/min)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	10
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	10
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	7
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	6
M2.2.1 Duplex steel, high-strength stainless steels	6
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	
K1.3.1 Malleable cast iron, ferritic, 130 HB	
K1.3.2 Malleable cast iron, pearlitic, 230 HB	
K2.1.1 Vermicular graphite cast iron (GJV)	
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	
N4.1.3 Non-metallic materials: Graphite	
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	3
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	3
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	
H2.1.1 Chilled cast iron, 400 HB	
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	



AL



Reaming tools

Reaming in record time

Accurate high-performance reamers
for every application

GÜHRING

Page

154 **High-performance reamers HR 500**



P	M	K	N	S	H	Tool illustration	Ø tolerance	Hole type	Type	Shank form	Tool material	Surface	d1/mm	Article no.	Page
High-performance reamers, fixed-size series															
•	•	○	○	•	•		 $+0.005$ $+0$		HR 500 S		VHM		1.950 - 12.050	1675	156
•	•	○	○	•	•		 $+0.005$ $+0$		HR 500 D		VHM		1.950 - 12.050	1676	156
High-performance reamers, H7 series															
•	•	○	○	•	•		 H7		HR 500 S		VHM		2.000 - 20.000	1685	160
•	•	○	○	•	•		 H7		HR 500 D		VHM		2.000 - 20.000	1686	160
•	•	○	○	•	•		 H7		HR 500 Short S		VHM		3.000 - 14.000	4195	162
•	•	○	○	•	•		 H7		HR 500 Short D		VHM		3.000 - 14.000	4196	162
			•				 H7		HR 500 AL S		VHM		2.000 - 20.000	7285	163
			•				 H7		HR 500 AL D		VHM		2.000 - 20.000	7286	163



HR
500



HR 500

The perfect fit for any diameter range

Up to 50 x faster
than conventional reamers

The high-performance reamers from the HR 500 family are characterised by maximum performance and precision.

While conventional fixed sizes offer a range of ± 0.03 and in 10μ increments, Gühring is expanding the fixed-size series to a range of ± 0.05 and in 5μ increments. In this way, we now also cover numerous tolerances outside the H7 class and are the only tool manufacturer to close this gap in the market.

Gühring is also expanding the HR 500 range with a material specialist for aluminium and a compact dimension for machining in limited installation space.

x **Tool life** increased by 100 %
x **Machining time** reduced by 87.5 %

- X** precise reaming without compromises or expensive custom-made products
- X** 100 % more wear buffer and longer tool lives thanks to finer increments
- X** programme covers numerous tolerances even outside the H7 range
- X** universally applicable in a wide range of materials



extremely unequal blade pitch
for a smooth cut & excellent surface finishes

nanoA coating prevents built-up edges
and ensures maximum process reliability

available in the diameter range
Ø 1.95 – 12.05 mm

intermediate dimension in 5 µ increments
provides more wear buffer

Application example

Component: Mould insert, hardened steel (1.2399)

Tool: #1676, Ø 10 mm

Customer target: Increased tool life

Difficulty: Premature wear, insufficient dimensional accuracy

Cutting data:	Gühring	Competition
	v_c 50 m/min	v_c 10 m/min
	n 1,590 rpm	n 320 rpm
	v_f 500 mm/min	v_f 65 mm/min

Tool life:	230 min	115 min
-------------------	---------	---------



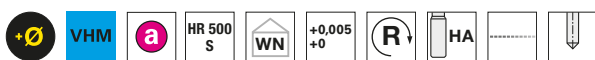
High-performance reamers HR 500

High-performance reamers, fixed-size series

Article no. **1675**



cutting data see page 164



P	M	K	N	S	H
●	●	○	○	●	●

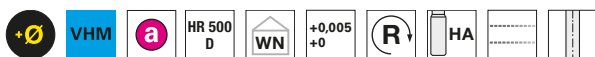
extremely unequal flute spacing • central internal coolant supply, outlet on the face • 5/1000 dimension • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks

High-performance reamers, fixed-size series

Article no. **1676**

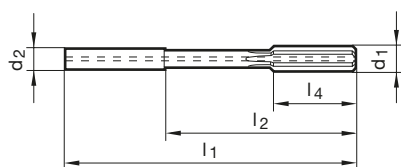


cutting data see page 164



P	M	K	N	S	H
●	●	○	○	●	●

extremely unequal flute spacing • central internal coolant supply, outlet via oil grooves on shank • 5/1000 dimension • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks



Article no.

1675 **1676**

High-performance reamers
HR 500

	d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.
NEW	1.950	4.00	50.0	22.0	8.0	4	1675 1.950 1676 1.950
NEW	1.955	4.00	50.0	22.0	8.0	4	1675 1.955 1676 1.955
NEW	1.960	4.00	50.0	22.0	8.0	4	1675 1.960 1676 1.960
NEW	1.965	4.00	50.0	22.0	8.0	4	1675 1.965 1676 1.965
NEW	1.970	4.00	50.0	22.0	8.0	4	1675 1.970 1676 1.970
NEW	1.975	4.00	50.0	22.0	8.0	4	1675 1.975 1676 1.975
NEW	1.980	4.00	50.0	22.0	8.0	4	1675 1.980 1676 1.980
NEW	1.985	4.00	50.0	22.0	8.0	4	1675 1.985 1676 1.985
NEW	1.990	4.00	50.0	22.0	8.0	4	1675 1.990 1676 1.990
NEW	1.995	4.00	50.0	22.0	8.0	4	1675 1.995 1676 1.995
NEW	2.000	4.00	50.0	22.0	8.0	4	1675 2.000 1676 2.000
NEW	2.005	4.00	50.0	22.0	8.0	4	1675 2.005 1676 2.005
NEW	2.010	4.00	50.0	22.0	8.0	4	1675 2.010 1676 2.010
NEW	2.015	4.00	50.0	22.0	8.0	4	1675 2.015 1676 2.015
NEW	2.020	4.00	50.0	22.0	8.0	4	1675 2.020 1676 2.020
NEW	2.025	4.00	50.0	22.0	8.0	4	1675 2.025 1676 2.025
NEW	2.030	4.00	50.0	22.0	8.0	4	1675 2.030 1676 2.030
NEW	2.035	4.00	50.0	22.0	8.0	4	1675 2.035 1676 2.035
NEW	2.040	4.00	50.0	22.0	8.0	4	1675 2.040 1676 2.040
NEW	2.045	4.00	50.0	22.0	8.0	4	1675 2.045 1676 2.045
NEW	2.050	4.00	50.0	22.0	8.0	4	1675 2.050 1676 2.050
NEW	2.950	4.00	68.0	40.0	12.0	4	1675 2.950 1676 2.950
NEW	2.955	4.00	68.0	40.0	12.0	4	1675 2.955 1676 2.955
NEW	2.960	4.00	68.0	40.0	12.0	4	1675 2.960 1676 2.960
NEW	2.965	4.00	68.0	40.0	12.0	4	1675 2.965 1676 2.965
NEW	2.970	4.00	68.0	40.0	12.0	4	1675 2.970 1676 2.970
NEW	2.975	4.00	68.0	40.0	12.0	4	1675 2.975 1676 2.975
NEW	2.980	4.00	68.0	40.0	12.0	4	1675 2.980 1676 2.980
NEW	2.985	4.00	68.0	40.0	12.0	4	1675 2.985 1676 2.985
NEW	2.990	4.00	68.0	40.0	12.0	4	1675 2.990 1676 2.990
NEW	2.995	4.00	68.0	40.0	12.0	4	1675 2.995 1676 2.995
NEW	3.000	4.00	68.0	40.0	12.0	4	1675 3.000 1676 3.000
NEW	3.005	4.00	68.0	40.0	12.0	4	1675 3.005 1676 3.005
NEW	3.010	4.00	68.0	40.0	12.0	4	1675 3.010 1676 3.010
NEW	3.015	4.00	68.0	40.0	12.0	4	1675 3.015 1676 3.015
NEW	3.020	4.00	68.0	40.0	12.0	4	1675 3.020 1676 3.020
NEW	3.025	4.00	68.0	40.0	12.0	4	1675 3.025 1676 3.025
NEW	3.030	4.00	68.0	40.0	12.0	4	1675 3.030 1676 3.030
NEW	3.035	4.00	68.0	40.0	12.0	4	1675 3.035 1676 3.035
NEW	3.040	4.00	68.0	40.0	12.0	4	1675 3.040 1676 3.040
NEW	3.045	4.00	68.0	40.0	12.0	4	1675 3.045 1676 3.045
NEW	3.050	4.00	68.0	40.0	12.0	4	1675 3.050 1676 3.050
NEW	3.950	4.00	68.0	40.0	12.0	4	1675 3.950 1676 3.950
NEW	3.955	4.00	68.0	40.0	12.0	4	1675 3.955 1676 3.955
NEW	3.960	4.00	68.0	40.0	12.0	4	1675 3.960 1676 3.960
NEW	3.965	4.00	68.0	40.0	12.0	4	1675 3.965 1676 3.965
NEW	3.970	4.00	68.0	40.0	12.0	4	1675 3.970 1676 3.970
NEW	3.975	4.00	68.0	40.0	12.0	4	1675 3.975 1676 3.975
NEW	3.980	4.00	68.0	40.0	12.0	4	1675 3.980 1676 3.980
NEW	3.985	4.00	68.0	40.0	12.0	4	1675 3.985 1676 3.985
NEW	3.990	4.00	68.0	40.0	12.0	4	1675 3.990 1676 3.990
NEW	3.995	4.00	68.0	40.0	12.0	4	1675 3.995 1676 3.995
NEW	4.000	4.00	68.0	40.0	12.0	4	1675 4.000 1676 4.000
NEW	4.005	4.00	68.0	40.0	12.0	4	1675 4.005 1676 4.005



						Article no.	1675	1676
	d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.	
NEW	4.010	4.00	68.0	40.0	12.0	4	1675 4.010	1676 4.010
	4.015	4.00	68.0	40.0	12.0	4	1675 4.015	1676 4.015
	4.020	4.00	68.0	40.0	12.0	4	1675 4.020	1676 4.020
NEW	4.025	4.00	68.0	40.0	12.0	4	1675 4.025	1676 4.025
	4.030	4.00	68.0	40.0	12.0	4	1675 4.030	1676 4.030
NEW	4.035	4.00	68.0	40.0	12.0	4	1675 4.035	1676 4.035
NEW	4.040	4.00	68.0	40.0	12.0	4	1675 4.040	1676 4.040
NEW	4.045	4.00	68.0	40.0	12.0	4	1675 4.045	1676 4.045
NEW	4.050	4.00	68.0	40.0	12.0	4	1675 4.050	1676 4.050
NEW	4.950	6.00	76.0	40.0	12.0	4	1675 4.950	1676 4.950
NEW	4.955	6.00	76.0	40.0	12.0	4	1675 4.955	1676 4.955
NEW	4.960	6.00	76.0	40.0	12.0	4	1675 4.960	1676 4.960
NEW	4.965	6.00	76.0	40.0	12.0	4	1675 4.965	1676 4.965
	4.970	6.00	76.0	40.0	12.0	4	1675 4.970	1676 4.970
	4.975	6.00	76.0	40.0	12.0	4	1675 4.975	1676 4.975
NEW	4.980	6.00	76.0	40.0	12.0	4	1675 4.980	1676 4.980
	4.985	6.00	76.0	40.0	12.0	4	1675 4.985	1676 4.985
NEW	4.990	6.00	76.0	40.0	12.0	4	1675 4.990	1676 4.990
	4.995	6.00	76.0	40.0	12.0	4	1675 4.995	1676 4.995
	5.000	6.00	76.0	40.0	12.0	4	1675 5.000	1676 5.000
NEW	5.005	6.00	76.0	40.0	12.0	4	1675 5.005	1676 5.005
	5.010	6.00	76.0	40.0	12.0	4	1675 5.010	1676 5.010
NEW	5.015	6.00	76.0	40.0	12.0	4	1675 5.015	1676 5.015
	5.020	6.00	76.0	40.0	12.0	4	1675 5.020	1676 5.020
NEW	5.025	6.00	76.0	40.0	12.0	4	1675 5.025	1676 5.025
	5.030	6.00	76.0	40.0	12.0	4	1675 5.030	1676 5.030
NEW	5.035	6.00	76.0	40.0	12.0	4	1675 5.035	1676 5.035
NEW	5.040	6.00	76.0	40.0	12.0	4	1675 5.040	1676 5.040
NEW	5.045	6.00	76.0	40.0	12.0	4	1675 5.045	1676 5.045
NEW	5.050	6.00	76.0	40.0	12.0	4	1675 5.050	1676 5.050
NEW	5.950	6.00	76.0	40.0	12.0	4	1675 5.950	1676 5.950
NEW	5.955	6.00	76.0	40.0	12.0	4	1675 5.955	1676 5.955
NEW	5.960	6.00	76.0	40.0	12.0	4	1675 5.960	1676 5.960
NEW	5.965	6.00	76.0	40.0	12.0	4	1675 5.965	1676 5.965
	5.970	6.00	76.0	40.0	12.0	4	1675 5.970	1676 5.970
	5.975	6.00	76.0	40.0	12.0	4	1675 5.975	1676 5.975
NEW	5.980	6.00	76.0	40.0	12.0	4	1675 5.980	1676 5.980
	5.985	6.00	76.0	40.0	12.0	4	1675 5.985	1676 5.985
NEW	5.990	6.00	76.0	40.0	12.0	4	1675 5.990	1676 5.990
	5.995	6.00	76.0	40.0	12.0	4	1675 5.995	1676 5.995
	6.000	6.00	76.0	40.0	12.0	4	1675 6.000	1676 6.000
NEW	6.005	6.00	76.0	40.0	12.0	4	1675 6.005	1676 6.005
	6.010	6.00	76.0	40.0	12.0	4	1675 6.010	1676 6.010
NEW	6.015	6.00	76.0	40.0	12.0	4	1675 6.015	1676 6.015
	6.020	6.00	76.0	40.0	12.0	4	1675 6.020	1676 6.020
NEW	6.025	6.00	76.0	40.0	12.0	4	1675 6.025	1676 6.025
	6.030	6.00	76.0	40.0	12.0	4	1675 6.030	1676 6.030
NEW	6.035	6.00	76.0	40.0	12.0	4	1675 6.035	1676 6.035
NEW	6.040	6.00	76.0	40.0	12.0	4	1675 6.040	1676 6.040
NEW	6.045	6.00	76.0	40.0	12.0	4	1675 6.045	1676 6.045
NEW	6.050	6.00	76.0	40.0	12.0	4	1675 6.050	1676 6.050
NEW	6.950	8.00	101.0	65.0	16.0	6	1675 6.950	1676 6.950
NEW	6.955	8.00	101.0	65.0	16.0	6	1675 6.955	1676 6.955
NEW	6.960	8.00	101.0	65.0	16.0	6	1675 6.960	1676 6.960
NEW	6.965	8.00	101.0	65.0	16.0	6	1675 6.965	1676 6.965
NEW	6.970	8.00	101.0	65.0	16.0	6	1675 6.970	1676 6.970
NEW	6.975	8.00	101.0	65.0	16.0	6	1675 6.975	1676 6.975
NEW	6.980	8.00	101.0	65.0	16.0	6	1675 6.980	1676 6.980
NEW	6.985	8.00	101.0	65.0	16.0	6	1675 6.985	1676 6.985
NEW	6.990	8.00	101.0	65.0	16.0	6	1675 6.990	1676 6.990
NEW	6.995	8.00	101.0	65.0	16.0	6	1675 6.995	1676 6.995
	7.000	8.00	101.0	65.0	16.0	6	1675 7.000	1676 7.000
NEW	7.005	8.00	101.0	65.0	16.0	6	1675 7.005	1676 7.005
NEW	7.010	8.00	101.0	65.0	16.0	6	1675 7.010	1676 7.010
NEW	7.015	8.00	101.0	65.0	16.0	6	1675 7.015	1676 7.015
NEW	7.020	8.00	101.0	65.0	16.0	6	1675 7.020	1676 7.020
NEW	7.025	8.00	101.0	65.0	16.0	6	1675 7.025	1676 7.025
NEW	7.030	8.00	101.0	65.0	16.0	6	1675 7.030	1676 7.030
NEW	7.035	8.00	101.0	65.0	16.0	6	1675 7.035	1676 7.035
NEW	7.040	8.00	101.0	65.0	16.0	6	1675 7.040	1676 7.040
NEW	7.045	8.00	101.0	65.0	16.0	6	1675 7.045	1676 7.045
NEW	7.050	8.00	101.0	65.0	16.0	6	1675 7.050	1676 7.050
NEW	7.950	8.00	101.0	65.0	16.0	6	1675 7.950	1676 7.950
NEW	7.955	8.00	101.0	65.0	16.0	6	1675 7.955	1676 7.955
NEW	7.960	8.00	101.0	65.0	16.0	6	1675 7.960	1676 7.960
NEW	7.965	8.00	101.0	65.0	16.0	6	1675 7.965	1676 7.965
	7.970	8.00	101.0	65.0	16.0	6	1675 7.970	1676 7.970
NEW	7.975	8.00	101.0	65.0	16.0	6	1675 7.975	1676 7.975
	7.980	8.00	101.0	65.0	16.0	6	1675 7.980	1676 7.980
NEW	7.985	8.00	101.0	65.0	16.0	6	1675 7.985	1676 7.985
	7.990	8.00	101.0	65.0	16.0	6	1675 7.990	1676 7.990
NEW	7.995	8.00	101.0	65.0	16.0	6	1675 7.995	1676 7.995
	8.000	8.00	101.0	65.0	16.0	6	1675 8.000	1676 8.000
NEW	8.005	8.00	101.0	65.0	16.0	6	1675 8.005	1676 8.005



High-performance reamers HR 500

High-performance reamers
HR 500

						Article no.	1675	1676
	d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.	
NEW	8.010	8.00	101.0	65.0	16.0	6	1675 8.010	1676 8.010
	8.015	8.00	101.0	65.0	16.0	6	1675 8.015	1676 8.015
	8.020	8.00	101.0	65.0	16.0	6	1675 8.020	1676 8.020
NEW	8.025	8.00	101.0	65.0	16.0	6	1675 8.025	1676 8.025
	8.030	8.00	101.0	65.0	16.0	6	1675 8.030	1676 8.030
NEW	8.035	8.00	101.0	65.0	16.0	6	1675 8.035	1676 8.035
NEW	8.040	8.00	101.0	65.0	16.0	6	1675 8.040	1676 8.040
NEW	8.045	8.00	101.0	65.0	16.0	6	1675 8.045	1676 8.045
NEW	8.050	8.00	101.0	65.0	16.0	6	1675 8.050	1676 8.050
NEW	8.950	10.00	101.0	61.0	19.0	6	1675 8.950	1676 8.950
NEW	8.955	10.00	101.0	61.0	19.0	6	1675 8.955	1676 8.955
NEW	8.960	10.00	101.0	61.0	19.0	6	1675 8.960	1676 8.960
NEW	8.965	10.00	101.0	61.0	19.0	6	1675 8.965	1676 8.965
NEW	8.970	10.00	101.0	61.0	19.0	6	1675 8.970	1676 8.970
NEW	8.975	10.00	101.0	61.0	19.0	6	1675 8.975	1676 8.975
NEW	8.980	10.00	101.0	61.0	19.0	6	1675 8.980	1676 8.980
NEW	8.985	10.00	101.0	61.0	19.0	6	1675 8.985	1676 8.985
NEW	8.990	10.00	101.0	61.0	19.0	6	1675 8.990	1676 8.990
NEW	8.995	10.00	101.0	61.0	19.0	6	1675 8.995	1676 8.995
NEW	9.000	10.00	101.0	61.0	19.0	6	1675 9.000	1676 9.000
NEW	9.005	10.00	101.0	61.0	19.0	6	1675 9.005	1676 9.005
NEW	9.010	10.00	101.0	61.0	19.0	6	1675 9.010	1676 9.010
NEW	9.015	10.00	101.0	61.0	19.0	6	1675 9.015	1676 9.015
NEW	9.020	10.00	101.0	61.0	19.0	6	1675 9.020	1676 9.020
NEW	9.025	10.00	101.0	61.0	19.0	6	1675 9.025	1676 9.025
NEW	9.030	10.00	101.0	61.0	19.0	6	1675 9.030	1676 9.030
NEW	9.035	10.00	101.0	61.0	19.0	6	1675 9.035	1676 9.035
NEW	9.040	10.00	101.0	61.0	19.0	6	1675 9.040	1676 9.040
NEW	9.045	10.00	101.0	61.0	19.0	6	1675 9.045	1676 9.045
NEW	9.050	10.00	101.0	61.0	19.0	6	1675 9.050	1676 9.050
NEW	9.950	10.00	101.0	61.0	19.0	6	1675 9.950	1676 9.950
NEW	9.955	10.00	101.0	61.0	19.0	6	1675 9.955	1676 9.955
NEW	9.960	10.00	101.0	61.0	19.0	6	1675 9.960	1676 9.960
NEW	9.965	10.00	101.0	61.0	19.0	6	1675 9.965	1676 9.965
NEW	9.970	10.00	101.0	61.0	19.0	6	1675 9.970	1676 9.970
NEW	9.975	10.00	101.0	61.0	19.0	6	1675 9.975	1676 9.975
NEW	9.980	10.00	101.0	61.0	19.0	6	1675 9.980	1676 9.980
NEW	9.985	10.00	101.0	61.0	19.0	6	1675 9.985	1676 9.985
NEW	9.990	10.00	101.0	61.0	19.0	6	1675 9.990	1676 9.990
NEW	9.995	10.00	101.0	61.0	19.0	6	1675 9.995	1676 9.995
NEW	10.000	10.00	101.0	61.0	19.0	6	1675 10.000	1676 10.000
NEW	10.005	10.00	101.0	61.0	19.0	6	1675 10.005	1676 10.005
NEW	10.010	10.00	101.0	61.0	19.0	6	1675 10.010	1676 10.010
NEW	10.015	10.00	101.0	61.0	19.0	6	1675 10.015	1676 10.015
NEW	10.020	10.00	101.0	61.0	19.0	6	1675 10.020	1676 10.020
NEW	10.025	10.00	101.0	61.0	19.0	6	1675 10.025	1676 10.025
NEW	10.030	10.00	101.0	61.0	19.0	6	1675 10.030	1676 10.030
NEW	10.035	10.00	101.0	61.0	19.0	6	1675 10.035	1676 10.035
NEW	10.040	10.00	101.0	61.0	19.0	6	1675 10.040	1676 10.040
NEW	10.045	10.00	101.0	61.0	19.0	6	1675 10.045	1676 10.045
NEW	10.050	10.00	101.0	61.0	19.0	6	1675 10.050	1676 10.050
NEW	10.950	12.00	130.0	85.0	19.0	6	1675 10.950	1676 10.950
NEW	10.955	12.00	130.0	85.0	19.0	6	1675 10.955	1676 10.955
NEW	10.960	12.00	130.0	85.0	19.0	6	1675 10.960	1676 10.960
NEW	10.965	12.00	130.0	85.0	19.0	6	1675 10.965	1676 10.965
NEW	10.970	12.00	130.0	85.0	19.0	6	1675 10.970	1676 10.970
NEW	10.975	12.00	130.0	85.0	19.0	6	1675 10.975	1676 10.975
NEW	10.980	12.00	130.0	85.0	19.0	6	1675 10.980	1676 10.980
NEW	10.985	12.00	130.0	85.0	19.0	6	1675 10.985	1676 10.985
NEW	10.990	12.00	130.0	85.0	19.0	6	1675 10.990	1676 10.990
NEW	10.995	12.00	130.0	85.0	19.0	6	1675 10.995	1676 10.995
NEW	11.000	12.00	130.0	85.0	19.0	6	1675 11.000	1676 11.000
NEW	11.005	12.00	130.0	85.0	19.0	6	1675 11.005	1676 11.005
NEW	11.010	12.00	130.0	85.0	19.0	6	1675 11.010	1676 11.010
NEW	11.015	12.00	130.0	85.0	19.0	6	1675 11.015	1676 11.015
NEW	11.020	12.00	130.0	85.0	19.0	6	1675 11.020	1676 11.020
NEW	11.025	12.00	130.0	85.0	19.0	6	1675 11.025	1676 11.025
NEW	11.030	12.00	130.0	85.0	19.0	6	1675 11.030	1676 11.030
NEW	11.035	12.00	130.0	85.0	19.0	6	1675 11.035	1676 11.035
NEW	11.040	12.00	130.0	85.0	19.0	6	1675 11.040	1676 11.040
NEW	11.045	12.00	130.0	85.0	19.0	6	1675 11.045	1676 11.045
NEW	11.050	12.00	130.0	85.0	19.0	6	1675 11.050	1676 11.050
NEW	11.950	12.00	130.0	85.0	19.0	6	1675 11.950	1676 11.950
NEW	11.955	12.00	130.0	85.0	19.0	6	1675 11.955	1676 11.955
NEW	11.960	12.00	130.0	85.0	19.0	6	1675 11.960	1676 11.960
NEW	11.965	12.00	130.0	85.0	19.0	6	1675 11.965	1676 11.965
NEW	11.970	12.00	130.0	85.0	19.0	6	1675 11.970	1676 11.970
NEW	11.975	12.00	130.0	85.0	19.0	6	1675 11.975	1676 11.975
NEW	11.980	12.00	130.0	85.0	19.0	6	1675 11.980	1676 11.980
NEW	11.985	12.00	130.0	85.0	19.0	6	1675 11.985	1676 11.985
NEW	11.990	12.00	130.0	85.0	19.0	6	1675 11.990	1676 11.990
NEW	11.995	12.00	130.0	85.0	19.0	6	1675 11.995	1676 11.995
NEW	12.000	12.00	130.0	85.0	19.0	6	1675 12.000	1676 12.000
NEW	12.005	12.00	130.0	85.0	19.0	6	1675 12.005	1676 12.005



Article no.							1675	1676
	d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.	
NEW	12.010	12.00	130.0	85.0	19.0	6	1675 12.010	1676 12.010
	12.015	12.00	130.0	85.0	19.0	6	1675 12.015	1676 12.015
	12.020	12.00	130.0	85.0	19.0	6	1675 12.020	1676 12.020
NEW	12.025	12.00	130.0	85.0	19.0	6	1675 12.025	1676 12.025
NEW	12.030	12.00	130.0	85.0	19.0	6	1675 12.030	1676 12.030
	12.035	12.00	130.0	85.0	19.0	6	1675 12.035	1676 12.035
NEW	12.040	12.00	130.0	85.0	19.0	6	1675 12.040	1676 12.040
NEW	12.045	12.00	130.0	85.0	19.0	6	1675 12.045	1676 12.045
NEW	12.050	12.00	130.0	85.0	19.0	6	1675 12.050	1676 12.050



High-performance reamers HR 500

High-performance reamers, H7 series

Article no. **1685**



cutting data see page 164



H7 series in accordance with DIN 1420 • extremely unequal flute spacing • central internal coolant supply, outlet on the face • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks

P	M	K	N	S	H
●	●	○	○	●	●

High-performance reamers, H7 series

Article no. **1686**

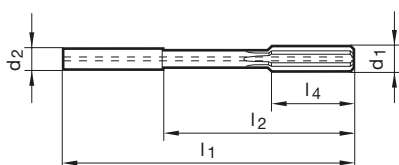


cutting data see page 164



H7 series in accordance with DIN 1420 • extremely unequal flute spacing • central internal coolant supply, outlet via oil grooves on shank • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks

P	M	K	N	S	H
●	●	○	○	●	●



Article no.

1685 **1686**

High-performance reamers
HR 500

	d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.
	2.000	4.00	50.0	22.0	8.0	4	1685 2.000 1686 2.000
NEW	2.100	4.00	50.0	22.0	8.0	4	1685 2.100 1686 2.100
NEW	2.200	4.00	50.0	22.0	8.0	4	1685 2.200 1686 2.200
	2.500	4.00	50.0	22.0	8.0	4	1685 2.500 1686 2.500
NEW	2.800	4.00	50.0	22.0	8.0	4	1685 2.800 1686 2.800
	3.000	4.00	68.0	40.0	12.0	4	1685 3.000 1686 3.000
NEW	3.100	4.00	68.0	40.0	12.0	4	1685 3.100 1686 3.100
NEW	3.200	4.00	68.0	40.0	12.0	4	1685 3.200 1686 3.200
	3.500	4.00	68.0	40.0	12.0	4	1685 3.500 1686 3.500
NEW	3.800	4.00	68.0	40.0	12.0	4	1685 3.800 1686 3.800
	4.000	4.00	68.0	40.0	12.0	4	1685 4.000 1686 4.000
NEW	4.100	4.00	68.0	40.0	12.0	4	1685 4.100 1686 4.100
NEW	4.200	6.00	76.0	40.0	12.0	4	1685 4.200 1686 4.200
	4.500	6.00	76.0	40.0	12.0	4	1685 4.500 1686 4.500
NEW	4.800	6.00	76.0	40.0	12.0	4	1685 4.800 1686 4.800
	5.000	6.00	76.0	40.0	12.0	4	1685 5.000 1686 5.000
NEW	5.100	6.00	76.0	40.0	12.0	4	1685 5.100 1686 5.100
NEW	5.200	6.00	76.0	40.0	12.0	4	1685 5.200 1686 5.200
	5.500	6.00	76.0	40.0	12.0	4	1685 5.500 1686 5.500
NEW	5.800	6.00	76.0	40.0	12.0	4	1685 5.800 1686 5.800
	6.000	6.00	76.0	40.0	12.0	4	1685 6.000 1686 6.000
NEW	6.100	6.00	76.0	40.0	12.0	4	1685 6.100 1686 6.100
NEW	6.200	8.00	101.0	65.0	16.0	6	1685 6.200 1686 6.200
NEW	6.350	8.00	101.0	65.0	16.0	6	1685 6.350 1686 6.350
	6.500	8.00	101.0	65.0	16.0	6	1685 6.500 1686 6.500
NEW	6.800	8.00	101.0	65.0	16.0	6	1685 6.800 1686 6.800
	7.000	8.00	101.0	65.0	16.0	6	1685 7.000 1686 7.000
NEW	7.100	8.00	101.0	65.0	16.0	6	1685 7.100 1686 7.100
NEW	7.200	8.00	101.0	65.0	16.0	6	1685 7.200 1686 7.200
	7.500	8.00	101.0	65.0	16.0	6	1685 7.500 1686 7.500
NEW	7.800	8.00	101.0	65.0	16.0	6	1685 7.800 1686 7.800
	8.000	8.00	101.0	65.0	16.0	6	1685 8.000 1686 8.000
NEW	8.100	8.00	101.0	65.0	16.0	6	1685 8.100 1686 8.100
NEW	8.200	10.00	101.0	61.0	19.0	6	1685 8.200 1686 8.200
	8.500	10.00	101.0	61.0	19.0	6	1685 8.500 1686 8.500
NEW	8.800	10.00	101.0	61.0	19.0	6	1685 8.800 1686 8.800
	9.000	10.00	101.0	61.0	19.0	6	1685 9.000 1686 9.000
NEW	9.100	10.00	101.0	61.0	19.0	6	1685 9.100 1686 9.100
NEW	9.200	10.00	101.0	61.0	19.0	6	1685 9.200 1686 9.200
	9.500	10.00	101.0	61.0	19.0	6	1685 9.500 1686 9.500
NEW	9.800	10.00	101.0	61.0	19.0	6	1685 9.800 1686 9.800
	10.000	10.00	101.0	61.0	19.0	6	1685 10.000 1686 10.000
NEW	10.100	10.00	101.0	61.0	19.0	6	1685 10.100 1686 10.100
NEW	10.200	12.00	130.0	85.0	19.0	6	1685 10.200 1686 10.200
	10.500	12.00	130.0	85.0	19.0	6	1685 10.500 1686 10.500
NEW	10.800	12.00	130.0	85.0	19.0	6	1685 10.800 1686 10.800
	11.000	12.00	130.0	85.0	19.0	6	1685 11.000 1686 11.000
NEW	11.100	12.00	130.0	85.0	19.0	6	1685 11.100 1686 11.100
NEW	11.200	12.00	130.0	85.0	19.0	6	1685 11.200 1686 11.200
	11.500	12.00	130.0	85.0	19.0	6	1685 11.500 1686 11.500
NEW	11.800	12.00	130.0	85.0	19.0	6	1685 11.800 1686 11.800
	12.000	12.00	130.0	85.0	19.0	6	1685 12.000 1686 12.000
NEW	12.100	12.00	130.0	85.0	19.0	6	1685 12.100 1686 12.100
NEW	12.200	14.00	130.0	85.0	22.0	6	1685 12.200 1686 12.200



Article no.							1685	1686
	d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.	
NEW	12.500	14.00	130.0	85.0	22.0	6	1685 12.500	1686 12.500
NEW	12.700	14.00	130.0	85.0	22.0	6	1685 12.700	1686 12.700
NEW	12.800	14.00	130.0	85.0	22.0	6	1685 12.800	1686 12.800
	13.000	14.00	130.0	85.0	22.0	6	1685 13.000	1686 13.000
NEW	13.100	14.00	130.0	85.0	22.0	6	1685 13.100	1686 13.100
NEW	13.200	14.00	130.0	85.0	22.0	6	1685 13.200	1686 13.200
NEW	13.500	14.00	130.0	85.0	22.0	6	1685 13.500	1686 13.500
NEW	13.800	14.00	130.0	85.0	22.0	6	1685 13.800	1686 13.800
	14.000	14.00	130.0	85.0	22.0	6	1685 14.000	1686 14.000
NEW	14.500	16.00	150.0	102.0	22.0	6	1685 14.500	1686 14.500
	15.000	16.00	150.0	102.0	22.0	6	1685 15.000	1686 15.000
NEW	15.500	16.00	150.0	102.0	22.0	6	1685 15.500	1686 15.500
	16.000	16.00	150.0	102.0	22.0	6	1685 16.000	1686 16.000
NEW	16.500	18.00	150.0	102.0	25.0	6	1685 16.500	1686 16.500
	17.000	18.00	150.0	102.0	25.0	6	1685 17.000	1686 17.000
NEW	17.500	18.00	150.0	102.0	25.0	6	1685 17.500	1686 17.500
	18.000	18.00	150.0	102.0	25.0	6	1685 18.000	1686 18.000
NEW	18.500	20.00	150.0	100.0	25.0	6	1685 18.500	1686 18.500
	19.000	20.00	150.0	100.0	25.0	6	1685 19.000	1686 19.000
NEW	19.500	20.00	150.0	100.0	25.0	6	1685 19.500	1686 19.500
	20.000	20.00	150.0	100.0	25.0	6	1685 20.000	1686 20.000



High-performance reamers, H7 series

Article no. **4195**



cutting data see page 164



P	M	K	N	S	H
●	●	○	○	●	●

H7 series in accordance with DIN 1420 • extremely unequal flute spacing • central internal coolant supply, outlet on the face • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks

High-performance reamers, H7 series

Article no. **4196**

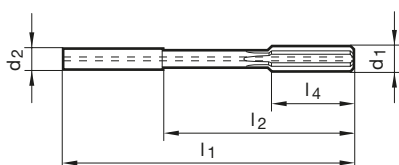


cutting data see page 164



P	M	K	N	S	H
●	●	○	○	●	●

H7 series in accordance with DIN 1420 • extremely unequal flute spacing • central internal coolant supply, outlet via oil grooves on shank • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks



Article no.

4195

4196

High-performance reamers
HR 500

d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z	Order no.
3.000	4.00	50.0	22.0	10.0	4	4195 3.000 4196 3.000
3.500	4.00	50.0	22.0	10.0	4	4195 3.500 4196 3.500
4.000	4.00	50.0	22.0	10.0	4	4195 4.000 4196 4.000
4.500	6.00	58.0	22.0	10.0	4	4195 4.500 4196 4.500
5.000	6.00	58.0	22.0	10.0	4	4195 5.000 4196 5.000
5.500	6.00	58.0	22.0	10.0	4	4195 5.500 4196 5.500
6.000	6.00	58.0	22.0	10.0	4	4195 6.000 4196 6.000
6.500	8.00	76.0	40.0	16.0	6	4195 6.500 4196 6.500
7.000	8.00	76.0	40.0	16.0	6	4195 7.000 4196 7.000
7.500	8.00	76.0	40.0	16.0	6	4195 7.500 4196 7.500
8.000	8.00	76.0	40.0	16.0	6	4195 8.000 4196 8.000
8.500	10.00	76.0	36.0	19.0	6	4195 8.500 4196 8.500
9.000	10.00	76.0	36.0	19.0	6	4195 9.000 4196 9.000
9.500	10.00	76.0	36.0	19.0	6	4195 9.500 4196 9.500
10.000	10.00	76.0	36.0	19.0	6	4195 10.000 4196 10.000
10.500	12.00	80.0	35.0	19.0	6	4195 10.500 4196 10.500
11.000	12.00	80.0	35.0	19.0	6	4195 11.000 4196 11.000
11.500	12.00	80.0	35.0	19.0	6	4195 11.500 4196 11.500
12.000	12.00	80.0	35.0	19.0	6	4195 12.000 4196 12.000
13.000	14.00	90.0	45.0	22.0	6	4195 13.000 4196 13.000
14.000	14.00	90.0	45.0	22.0	6	4195 14.000 4196 14.000



High-performance reamers, H7 series

Article no. 7285



cutting data see page 165



P	M	K	N	S	H
			•		

H7 series in accordance with DIN 1420 • extremely unequal flute spacing • central internal coolant supply, outlet on the face • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks

High-performance reamers, H7 series

Article no. 7286

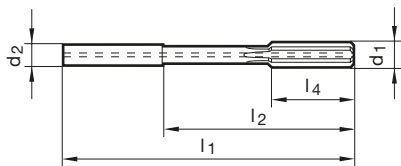


cutting data see page 165



P	M	K	N	S	H
			•		

H7 series in accordance with DIN 1420 • extremely unequal flute spacing • central internal coolant supply, outlet via oil grooves on shank • intermediate dimensions of Ø 1.95-20.1 mm possible • for clamping in hydraulic and shrink fit chucks



Article no.

7285

7286

d1 mm	d2 h6 mm	l1 mm	l2 mm	l4 mm	Z
2.000	4.00	50.0	22.0	8.0	4
3.000	4.00	68.0	40.0	12.0	4
4.000	4.00	68.0	40.0	12.0	4
5.000	6.00	76.0	40.0	12.0	4
6.000	6.00	76.0	40.0	12.0	4
7.000	8.00	101.0	65.0	16.0	6
8.000	8.00	101.0	65.0	16.0	6
9.000	10.00	101.0	61.0	19.0	6
10.000	10.00	101.0	61.0	19.0	6
11.000	12.00	130.0	85.0	19.0	6
12.000	12.00	130.0	85.0	19.0	6
13.000	14.00	130.0	85.0	22.0	6
14.000	14.00	130.0	85.0	22.0	6
15.000	16.00	150.0	102.0	22.0	6
16.000	16.00	150.0	102.0	22.0	6
17.000	18.00	150.0	102.0	25.0	6
18.000	18.00	150.0	102.0	25.0	6
19.000	20.00	150.0	100.0	25.0	6
20.000	20.00	150.0	100.0	25.0	6

Order no.	
7285 2.000	7286 2.000
7285 3.000	7286 3.000
7285 4.000	7286 4.000
7285 5.000	7286 5.000
7285 6.000	7286 6.000
7285 7.000	7286 7.000
7285 8.000	7286 8.000
7285 9.000	7286 9.000
7285 10.000	7286 10.000
7285 11.000	7286 11.000
7285 12.000	7286 12.000
7285 13.000	7286 13.000
7285 14.000	7286 14.000
7285 15.000	7286 15.000
7285 16.000	7286 16.000
7285 17.000	7286 17.000
7285 18.000	7286 18.000
7285 19.000	7286 19.000
7285 20.000	7286 20.000

High-performance reamers
HR 500



Fixed-size / H7 / Short



Cutting data

Machining group	a V _c (m/min)	f (mm/rev) with nom. Ø									
		2	3	4	6	8	10	12	14	16	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	180	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	180	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	180	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	180	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	162	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	162	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	144	0.30	0.50	0.65	1.20	1.55	1.90	2.05	2.15	2.30	2.50
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	180	0.30	0.45	0.60	1.15	1.45	1.75	1.90	2.05	2.15	2.35
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	180	0.30	0.45	0.60	1.15	1.45	1.75	1.90	2.05	2.15	2.35
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	180	0.30	0.45	0.60	1.15	1.45	1.75	1.90	2.05	2.15	2.35
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	121	0.30	0.45	0.60	1.15	1.45	1.75	1.90	2.05	2.15	2.35
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	180	0.25	0.40	0.60	1.05	1.35	1.65	1.80	1.90	2.00	2.20
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	121	0.25	0.40	0.60	1.05	1.35	1.65	1.80	1.90	2.00	2.20
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	80	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	62	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	62	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	80	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
M2.2.1 Duplex steel, high-strength stainless steels	50	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	80	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	72	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	96	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	96	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
K1.3.1 Malleable cast iron, ferritic, 130 HB	80	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
K1.3.2 Malleable cast iron, pearlitic, 230 HB	72	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
K2.1.1 Vermicular graphite cast iron (GJV)											
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)											
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB											
N1.1.2 Wrought aluminium alloys, hardened, 100 HB											
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB											
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB											
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB											
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %											
N3.1.2 Copper and copper alloys: CuZn, CuSnZn											
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte											
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	80	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	80	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
N4.1.3 Non-metallic materials: Graphite	48	0.25	0.35	0.50	0.90	1.15	1.40	1.55	1.65	1.70	1.90
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	30	0.05	0.10	0.15	0.25	0.30	0.40	0.40	0.45	0.45	0.50
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	24	0.05	0.10	0.15	0.25	0.30	0.40	0.40	0.45	0.45	0.50
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	15	0.05	0.10	0.15	0.25	0.30	0.40	0.40	0.45	0.45	0.50
H2.1.1 Chilled cast iron, 400 HB	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	40	0.10	0.20	0.25	0.45	0.60	0.70	0.75	0.80	0.85	0.95



HR 500 AL



Machining group	 V _c (m/min)	f (mm/rev) with nom. Ø									
		2	3	4	6	8	10	12	14	16	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB											
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB											
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB											
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB											
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB											
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB											
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB											
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB											
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB											
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB											
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB											
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB											
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB											
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives											
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB											
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB											
M2.1.1 Stainless steel, austenitic, quenched, 180 HB											
M2.2.1 Duplex steel, high-strength stainless steels											
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB											
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB											
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB											
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB											
K1.3.1 Malleable cast iron, ferritic, 130 HB											
K1.3.2 Malleable cast iron, pearlitic, 230 HB											
K2.1.1 Vermicular graphite cast iron (GJV)											
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)											
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	260	0.35	0.55	0.75	1.35	1.75	2.15	2.30	2.45	2.60	2.85
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	260	0.35	0.55	0.75	1.35	1.75	2.15	2.30	2.45	2.60	2.85
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	260	0.35	0.55	0.75	1.35	1.75	2.15	2.30	2.45	2.60	2.85
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	195	0.35	0.55	0.75	1.35	1.75	2.15	2.30	2.45	2.60	2.85
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	195	0.35	0.55	0.75	1.35	1.75	2.15	2.30	2.45	2.60	2.85
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %											
N3.1.2 Copper and copper alloys: CuZn, CuSnZn											
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte											
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics											
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.											
N4.1.3 Non-metallic materials: Graphite											
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB											
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB											
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB											
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB											
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB											
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²											
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²											
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC											
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC											
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC											
H2.1.1 Chilled cast iron, 400 HB											
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC											

Cutting data



Grooving tools

Grooving tools that just make sense

Cleverly combined:
maximum precision & process reliability

GÜHRING

Page

171	Indexable inserts for parting off
172	Tool holders for indexable inserts
174	General accessories



Grooving tools

High flexibility when grooving and parting off

System 222 for grooving and parting off has been expanded

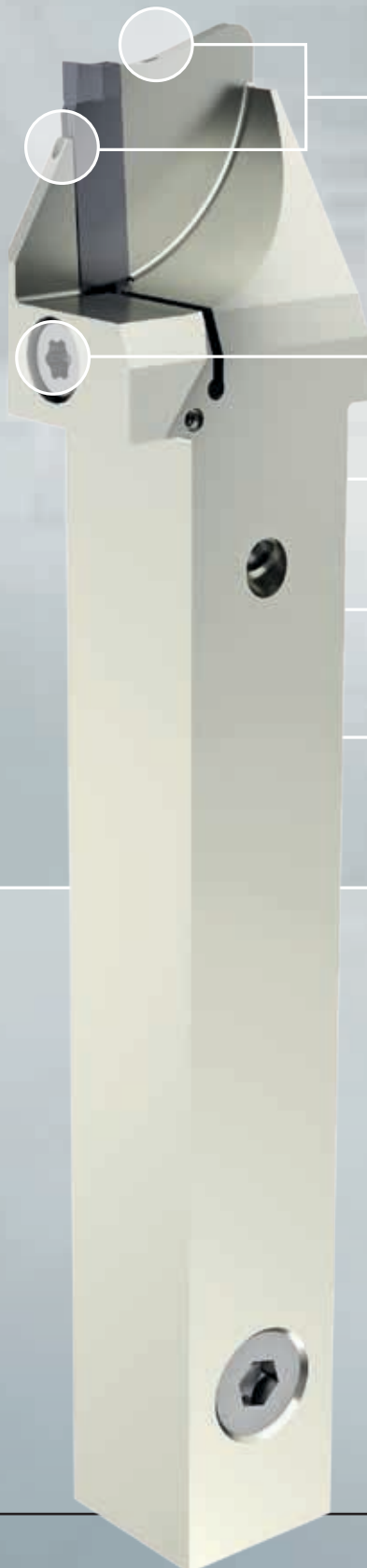
**Optimised head length for tight spaces
in sliding headstock lathes.**

Even more flexibility when grooving and parting off:
This is ensured by the new tool holders with an optimised
head length, which are ideally suited for narrow spaces
in sliding headstock lathes.

They are characterised by their newly developed clamping
screw with Torx Plus on both sides in the same size.
This allows the indexable inserts to be clamped from both
the top and bottom.

x Tool life increased by 80 %

-  X long tool life
-  X maximum stability
-  X reliable chip removal



optimised IC supply
on the clearance & rake face

Torx Plus screw on both sides
enables clamping from above and below

nickel-plated surface
for optimum protection against wear

high-strength cutting material
for a long tool life

various designs
for 2 mm insert width

Application example

Component: Drive shaft, 42CrMo4

Tool: Indexable insert: 26601 22,020; holder: 26106

Customer target: Surface finish of $R_z = 3-6 \mu\text{m}$,
very good chip constriction, consistent tool life

Difficulty: Tool life fluctuating, approx. 500 parting cuts, poor surface
 $R_z = 8-15 \mu\text{m}$; chip constriction too low

Cutting data:	Gühring	Competition
v_c	170 m/min	v_c 170 m/min
f	0.10 rev	f 0.08 rev

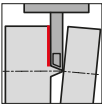
Tool life:	900 parting cuts	500 parting cuts
-------------------	------------------	------------------



P	M	K	N	S	H	Tool illustration	Type	Cutting direction	Tool material	Surface	Design	Article no.	Page
Indexable inserts for parting off													
●	○	○	○	○	○		GZ222		VHM			26601	171
Square shank holder straight, external machining, without IC													
								GH222				26104	172
								GH222				26105	172
Square shank holders straight, external machining, with IC													
								GH222				26106	173
								GH222				26107	173
Accessories													
												25930	174
												25931	174



Indexable inserts for parting off



with chip former • geometry .PP sintered • for tool holders type
GH222/GS222



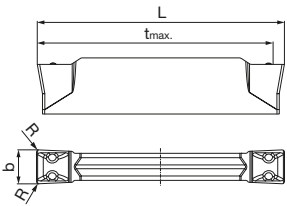
P	M	K	N	S	H
•	○	○	○	○	○

VHM

GZ222



cutting data see page 175



Article no.

26601

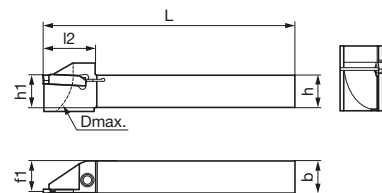


b mm	L mm	R mm	tmax. mm	Code no.	Description
2.00	22.00	0.20	21.00	22.020	GZ222.0200.020.PP.02.N



Square shank holder straight, external machining, without IC

for sliding headstock lathes • for indexable inserts type 222
• tmax. 21 mm: maximum grooving depth before 2nd cutting edge engages
without internal coolant supply • Shank tolerance ± 0.05 mm



Dmax. = 34	
max. Ø	tmax.
34	17
42	11
52	9



Right-hand design as shown. Left-hand design is mirror image.

Article no. **26104**



h mm	b mm	L mm	L2 mm	h1 mm	f1 mm	Dmax. mm	Size	Code no.	Description
9.52	9.52	101.60	20.00	9.52	8.52	18.00	02	22.100	GH222.0375.400.00.02.R.00.18
10.00	10.00	100.00	20.00	10.00	9.00	18.00	02	22.110	GH222.1010.100.00.02.R.00.18
12.00	12.00	125.00	20.00	12.00	11.00	22.00	02	22.120	GH222.1212.125.00.02.R.00.22
12.70	12.70	127.00	20.00	12.70	11.70	22.00	02	22.130	GH222.0500.500.00.02.R.00.22
15.87	15.87	127.00	26.00	15.87	14.87	34.00	02	22.140	GH222.0625.500.00.02.R.00.34
16.00	16.00	125.00	26.00	16.00	15.00	34.00	02	22.150	GH222.1616.125.00.02.R.00.34

On the left-hand design, the designation changes to .L

Article no. **26105**



Spare parts

Article no.	Clamping screw	Tightening torque Nm	Description
25930			
Code 15.000	M5x17 IP15	4.4	GH222.0375....; GH222.1010....
	M5x19 IP15	4.4	GH222.1212....; GH222.0500....
	M5x22,5 IP15	4.4	GH222.0625....; GH222.1616....
Article no.	Torx Plus wrench		
25931			
Code 15.001	T15IP		



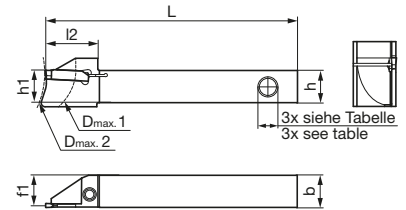
Square shank holders straight, external machining, with IC

for sliding headstock lathes • for indexable inserts type 222 • t_{max.} 21 mm:
maximum grooving depth before 2nd cutting edge engages
with internal coolant supply from above and below • Shank tolerance ± 0.05 mm



9,52/9,52	M8x1	
10/10	M8x1	
12/12	M8x1	
12,7/12,7	M8x1	
15,87/15,87	G1/8	
16/16	G1/8	

D _{max. 1} = 34	
max. Ø	t _{max.}
34	17
42	11
52	9



Right-hand design as shown. Left-hand design is mirror image.

Article no. **26106**



h mm	b mm	L mm	L2 mm	h1 mm	f1 mm	D _{max. 1} mm	D _{max. 2} mm	Size	Code no.	Description
9.52	9.52	101.60	21.00	9.52	8.52	18.00	65.00	02	22.100	GH222.0375.400.00.02.R.IK.18
10.00	10.00	100.00	21.00	10.00	9.00	18.00	65.00	02	22.110	GH222.1010.100.00.02.R.IK.18
12.00	12.00	125.00	21.00	12.00	11.00	22.00	65.00	02	22.120	GH222.1212.125.00.02.R.IK.22
12.70	12.70	127.00	21.00	12.70	11.70	22.00	65.00	02	22.130	GH222.0500.500.00.02.R.IK.22
15.87	15.87	127.00	27.00	15.87	14.87	34.00	82.00	02	22.140	GH222.0625.500.00.02.R.IK.34
16.00	16.00	125.00	27.00	16.00	15.00	34.00	82.00	02	22.150	GH222.1616.125.00.02.R.IK.34

On the left-hand design, the designation changes to .L

Article no. **26107**



Spare parts

Article no.	Clamping screw	Tightening torque Nm	Description
25930			
Code 15.000	M5x17 IP15	4.4	GH222.0375....; GH222.1010....
	M5x19 IP15	4.4	GH222.1212....; GH222.0500....
	M5x22,5 IP15	4.4	GH222.0625....; GH222.1616....
Article no.	Torx Plus wrench		
25931			
Code 15.001	T15IP		

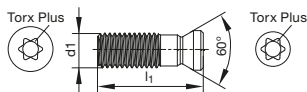


Clamping screws

NEW



for shank holders
system 222 GH22 for
sliding headstock lathes



Article no.		25930
-------------	--	-------

Size	d1	l1 mm	Code no.
15IP	M5	17.000	15.000
15IP	M5	19.000	15.001
15IP	M5	22.500	15.002

Torx Plus wrench

NEW



Allen key for GH222 for
sliding headstock lathes
• allen key code no.
15.001



Article no.		25931
-------------	--	-------

Size	l1 mm	Code no.
15IP	58.000	15.000
25IP	62.000	15.001
25IP	67.000	15.002

Article no. index

Your success comes first

With Gühring you keep track of everything

GÜHRING

Article no.	Page	Cutting values	Description	Tool material	Type
1675	156	164	High-performance reamers, fixed-size series	Solid carbide	HR 500 S
1676	156	164	High-performance reamers, fixed-size series	Solid carbide	HR 500 D
1685	160	164	High-performance reamers, H7 series	Solid carbide	HR 500 S
1686	160	164	High-performance reamers, H7 series	Solid carbide	HR 500 D
4193	72	98	PCD face and corner milling cutters	PCD	
4194	72	98	PCD face and corner milling cutters	PCD	
4195	162	164	High-performance reamers, H7 series	Solid carbide	HR 500 Short S
4196	162	164	High-performance reamers, H7 series	Solid carbide	HR 500 Short D
4199	97		Tool holders for screw-in milling cutters HSK-A		
4203	73		Coolant distributor		PF 3000
4868	116		Sockets		
4869	116		Retaining screw		
4889	116		Retaining screw		
5768	28	58	Ratio drills with coolant ducts	Solid carbide	RT 100 AL
6062	26	58	Ratio drills with coolant ducts	Solid carbide	RT 100 AL
6063	30	59	Ratio drills with coolant ducts	Solid carbide	RT 100 AL
6064	32	60	Ratio drills with coolant ducts	Solid carbide	RT 100 AL
6065	22	56	Flat bottom drills with coolant ducts, 3-fluted	Solid carbide	FB 200 U
6066	23	57	Flat bottom drills with coolant ducts, 3-fluted	Solid carbide	FB 200 U
6071	50	63	Single-fluted gun drills EB 100 M AL	Solid carbide	EB 100 M AL
6073	51	63	Single-fluted gun drills EB 100 M AL	Solid carbide	EB 100 M AL
6074	52	63	Single-fluted gun drills EB 100 M AL	Solid carbide	EB 100 M AL
6120	114	145	Interchangeable heads	Solid carbide	GG
6121	115		Interchangeable shanks	HSS-E	
6139	114	145	Interchangeable heads	Solid carbide	GG
6555	122	146	Taps for ISO metric fine threads	HSS-E	Tap AL
6556	124	146	Taps for UNC threads	HSS-E	Tap AL
6557	124	146	Taps for UNF threads	HSS-E	Tap AL
6558	125	146	Taps for BSP threads	HSS-E	Tap AL
6559	125	146	Taps for EG/STI threads	HSS-E	Tap AL
6560	129	146	Taps for ISO metric fine threads	HSS-E	Tap AL
6561	131	146	Taps for UNC threads	HSS-E	Tap AL
6562	131	146	Taps for UNF threads	HSS-E	Tap AL
6563	132	146	Taps for BSP threads	HSS-E	Tap AL
6564	133	146	Taps for EG/STI threads	HSS-E	Tap AL
6565	127	146	Taps for ISO metric threads	HSS-E	Tap AL
6566	130	146	Taps for ISO metric fine threads	HSS-E	Tap AL
6567	133	146	Taps for BSP threads	HSS-E	Tap AL
6568	129	146	Taps for ISO metric fine threads	HSS-E	Tap AL
6569	132	146	Taps for BSP threads	HSS-E	Tap AL
6570	137	147	Fluteless taps for ISO metric fine threads	HSS-E	Fluteless tap AL
6571	140	147	Fluteless taps for BSP threads	HSS-E	Fluteless tap AL
6572	138	147	Fluteless taps with coolant ducts for ISO metric fine threads	HSS-E	Fluteless tap AL
6573	140	147	Fluteless taps with coolant ducts for BSP threads	HSS-E	Fluteless tap AL
6574	123	146	Taps with coolant ducts for ISO metric fine threads	Solid carbide	Tap AL
6575	121	146	Taps with coolant ducts for ISO metric threads	Solid carbide	Tap AL
6576	123	146	Taps with coolant ducts for ISO metric fine threads	Solid carbide	Tap AL
6577	130	146	Taps with coolant ducts for ISO metric fine threads	Solid carbide	Tap AL
6578	130	146	Taps with coolant ducts for ISO metric fine threads	Solid carbide	Tap AL
6579	139	147	Fluteless taps with coolant ducts for ISO metric fine threads	Solid carbide	Fluteless tap AL
6580	137	147	Fluteless taps with coolant ducts for ISO metric threads	Solid carbide	Fluteless tap AL
6581	139	147	Fluteless taps with coolant ducts for ISO metric fine threads	Solid carbide	Fluteless tap AL
6793	86	102	End mills (single-fluted)	Solid carbide	AL
6935	87	102	End mills (single-fluted)	Solid carbide	AL
6936	88	102	End mills (single-fluted)	Solid carbide	AL
6937	89	102	End mills (single-fluted)	Solid carbide	AL
7052	18	55	Ratio drills without coolant ducts	Solid carbide	RT 100 H
7053	14	54	Micro-precision drills without coolant ducts	Solid carbide	RT 100 H
7285	163	165	High-performance reamers, H7 series	Solid carbide	HR 500 AL S
7286	163	165	High-performance reamers, H7 series	Solid carbide	HR 500 AL D
8065	78	99	Micro-precision milling cutters RF 100 AL	Solid carbide	RF 100 AL Micro
8066	79	100	Micro-precision milling cutters RF 100 AL	Solid carbide	RF 100 AL Micro
8069	76	99	Micro-precision milling cutters RF 100 AL	Solid carbide	RF 100 AL Micro
8070	77	100	Micro-precision milling cutters RF 100 AL	Solid carbide	RF 100 AL Micro
8080	126	146	Taps for ISO metric threads	HSS-E	Tap AL
8081	126	146	Taps for ISO metric threads	HSS-E	Tap AL
8082	120	146	Taps for ISO metric threads	HSS-E	Tap AL
8083	128	146	Taps with coolant ducts for ISO metric threads	Solid carbide	Tap AL
8084	128	146	Taps with coolant ducts for ISO metric threads	Solid carbide	Tap AL
8085	121	146	Taps with coolant ducts for ISO metric threads	Solid carbide	Tap AL
8088	134	146	Fluteless taps for ISO metric threads	HSS-E	Fluteless tap AL
8089	135	147	Fluteless taps with coolant ducts for ISO metric threads	HSS-E	Fluteless tap AL

Article no.	Page	Cutting values	Description	Tool material	Type
8090	135	147	Fluteless taps with coolant ducts for ISO metric threads	HSS-E	Fluteless tap AL
8091	136	147	Fluteless taps with coolant ducts for ISO metric threads	HSS-E	Fluteless tap AL
8092	138	147	Fluteless taps with coolant ducts for ISO metric fine threads	HSS-E	Fluteless tap AL
8093	140	147	Fluteless taps with coolant ducts for BSP threads	HSS-E	Fluteless tap AL
8094	136	147	Fluteless taps with coolant ducts for ISO metric threads	Solid carbide	Fluteless tap AL
8100	144	148	Fluteless taps with coolant ducts for ISO metric threads	HSS-E	INOX PRO
8101	144	148	Fluteless taps with coolant ducts for ISO metric fine threads	HSS-E	INOX PRO
8135	87	102	End mills (single-fluted)	Solid carbide	AL
8136	88	102	End mills (single-fluted)	Solid carbide	AL
8137	89	102	End mills (single-fluted)	Solid carbide	AL
8138	86	102	End mills (single-fluted)	Solid carbide	AL
8240	82	101	Ratio end mills RF 100 AL	Solid carbide	RF 100 AL
8241	82	101	Ratio end mills RF 100 AL	Solid carbide	RF 100 AL
8254	83	101	Ratio end mills RF 100 AL	Solid carbide	RF 100 AL
8255	83	101	Ratio end mills RF 100 AL	Solid carbide	RF 100 AL
9500	53	64	Jobber drills	HSS	N
25930	174		Clamping screws		
25931	174		Torx Plus wrench		
26104	172		Square shank holder straight, external machining, without IC		GH222
26105	172		Square shank holder straight, external machining, without IC		GH222
26106	173		Square shank holders straight, external machining, with IC		GH222
26107	173		Square shank holder straight, external machining, without IC		GH222
26601	171	175	Indexable inserts for parting off	Solid carbide	GZ222
28000	92		High feed milling cutters with indexable inserts, straight shank Weldon		
28001	93		High feed milling cutters with indexable inserts, screw-in thread		
28002	94		High feed milling cutters with indexable inserts, shell milling cutter		
28003	96	103	Indexable inserts XNMX, double-sided	Solid carbide	XNMX
28004	96	104	Indexable inserts XNMX, double-sided	Solid carbide	XNMX
28009	96	103	Indexable inserts XNMX, double-sided	Solid carbide	XNMX
28500	36		Indexable insert drills with internal cooling		GMD
28501	38		Indexable insert drills with internal cooling		GMD
28502	40		Indexable insert drills with internal cooling		GMD
28503	42		Indexable insert drills with internal cooling		GMD
28504	44	61	Indexable inserts SOLX, single-sided, external	Solid carbide	SOLX
28505	44	62	Indexable inserts SOLX, single-sided, external	Solid carbide	SOLX
28508	45	61	Indexable inserts XOLX, single-sided, internal	Solid carbide	XOLX
28509	45	62	Indexable inserts XOLX, single-sided, internal	Solid carbide	XOLX
28900	46		Clamping screws		



Parting off



Machining group	System 222				
	v_c (m/min) by width		PP neutral	PM L/R	MP
	2	3	f (mm/rev)		
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	100	120	0.130	0.060	0.100
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	100	120	0.130	0.060	0.100
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	100	120	0.130	0.060	0.100
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	100	120	0.130	0.060	0.100
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	100	120	0.130	0.060	0.100
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	100	120	0.130	0.060	0.100
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	100	120	0.130	0.060	0.100
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	100	120	0.130	0.060	0.100
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	100	120	0.130	0.060	0.100
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	100	120	0.130	0.060	0.100
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	100	120	0.130	0.060	0.100
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	100	120	0.130	0.060	0.100
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	100	120	0.130	0.060	0.100
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	90	110	0.100	0.045	0.075
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	90	110	0.100	0.045	0.075
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	90	110	0.100	0.045	0.075
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	90	110	0.100	0.045	0.075
M2.2.1 Duplex steel, high-strength stainless steels	90	110	0.100	0.045	0.075
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	100	120	0.165	0.075	
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	100	120	0.165	0.075	
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	100	120	0.165	0.075	
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	100	120	0.165	0.075	
K1.3.1 Malleable cast iron, ferritic, 130 HB	100	120	0.165	0.075	
K1.3.2 Malleable cast iron, pearlitic, 230 HB	100	120	0.165	0.075	
K2.1.1 Vermicular graphite cast iron (GJV)	100	120	0.130	0.060	
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	100	120	0.130	0.060	
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB					
N1.1.2 Wrought aluminium alloys, hardened, 100 HB					
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB					
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB					
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB					
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %					
N3.1.2 Copper and copper alloys: CuZn, CuSnZn					
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte					
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics					
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.					
N4.1.3 Non-metallic materials: Graphite					
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB					
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB					
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB					
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB					
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB					
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²					
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²					
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC					
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC					
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC					
H2.1.1 Chilled cast iron, 400 HB					
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC					

Cutting data

Material examples cutting data tables

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
P1.1.1	Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB			
P1.1.2	Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB			
1.0037	St 37-2	S235JR	-	E24-2
1.0038	St 37-3	S275J2G3	A570.36	E28-3
1.0045	S 355 JR	S 1207	-	E36-2
1.0050	St 50-2	E 295	A570 Gr. 50	A50-2
1.0060	St 60-2	-	A572 Gr. 65	A60-2
1.0114	S 235 J0	S 235 J0	-	E24-3
1.0143	S 275 J0	S 275 J0	-	E28-3
1.0144	St 44-3 N	S 275 J2 G3	A573 Gr. 81	E28-3
1.0149	Ro St 44-2	S 275 J0 H	-	-
1.0301	C10	C10	1010	34C10, XC10
1.0330	St 12	Fe P01	-	DC 01/Fe P01
1.0338	St4	Fe P04	A620(1008)	Fe 14
1.0401	C15	-	1015	C18RR, XC18
1.0402	C22	1 C 22	1020	C20
1.0443	GS-45		A2765-35	E23-45M
1.0539	S355NH			TSE355-4
1.0545	S355N			E355R
1.0546	S355NL			E355FP
1.0547	S355J0H			TSE355-3
1.0549	S355NLH			
1.0553	St52-3U		A14880-40	320-560M
1.0562	St E 355		A633 Gr. C	FeE355KGN
1.0570	St 52-3	S355JR	1	E36-3
1.0715	9SMn28		1213	S250
1.0718	9SMnPb28		12L13	S250Pb
1.0721	10S20		1108	10S20
1.0722	10SPb20		11L08	10PbF2
1.0736	9SMn36		1215	S300
1.0737	9SMnPb36		12L14	S300Pb
1.0972	S315MC			E315D
1.0976	S355MC			E355D
1.0982	S460MC			
1.0984	S500MC			E490D
1.0986	S500MC			E560D
1.1121	Ck10		1010	XC10
1.1141	Ck15	32C	1015	XC15
1.1151	C22E		1020	2C22
1.8900	StE380		A572-60	
P1.1.3	Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB			
P1.1.4	Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB			
1.0501	C35		1035	1C35
1.0503	C45		1045	XC42H1TS
1.0511	C40		1040	1C40
1.0540	C50			
1.0551	GS-52		A2770-36	280-480M
1.0553	St52-3U		A14880-40	320-560M
1.0577	S 355 J 2 G 4		A738	A52FP
1.0726	35S20	8M	1140	35MF6
1.0727	45S20		1146	45MF4
1.1157	40Mn4	15	1039	40M5
1.1158	C25E		1025	XC25
1.1166	34Mn5		1536	
1.1167	36Mn5		1335	40M5
1.1170	28Mn6	14A	1330	20M5
1.1178	C30E			XC32
1.1180	C35R		1035	3C35
1.1181	C35E		1035	XC38
1.1191	Ck45		1045	XC45
1.1206	C50E		1050	2C50
1.1213	Cf53		1050	XC48HTS

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
P1.1.5	Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB			
1.0501	C35		1035	1C35
1.0503	C45		1045	XC42H1TS
1.0614	C76D		1074	XC75
1.0616	C86D		1086	XC80
1.0618	C92D		1095	XC90
1.0726	35S20	8M	1140	35MF6
1.1157	40Mn4	15	1039	40M5
1.1165	30Mn5		1036	35M5
1.1167	36Mn5		1335	40M5
1.1186	C40E		1040	2C40
1.1191	Ck45		1045	2C45
1.1201	C45R		1049	3C45
1.1213	Cf53		1050	XC48HTS
1.7242	18CrMo4			
1.7337	16CrMo4-4		A387 Gr.12	
1.7362	12CrMo195			Z10CD5-05
P1.1.6	Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB			
1.0603	C67		107	XC65
1.0605	C75		1075	
1.1203	Ck55		1055	2C55
1.1209	C55R		1055	3C55
1.1221	Ck60	43D	1060	2C60
1.1231	C67E		1070	XC68
1.1248	C75E		1074	XC75
1.1269	C85E		1086	XC90
1.1274	Ck 101	C 100S	1095	XC100
1.1545	C 105 W1	C 105U	W1	Y1 105
1.1663	C125W		W112	Y2120
P1.1.7	Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB			
1.0070	St 70-2		1055	A70-2
1.0535	C55		1055	1C55
1.0601	C60	43D	1060	1C60
1.1203	Ck55		1055	2C55
1.1221	Ck60	43D	1060	2C60
1.1274	Ck 101	C 100S	1095	XC100
1.1545	C 105 W1	C 105U	W1	Y1 105
1.1663	C125W		W112	Y2120
1.5120	38MnSi4			
1.5710	36NiCr6	111A	3135	35NC6
1.7701	51CrMoV4			
P2.1.1	Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB			
1.0904	55Si7	45	9255	55S7
1.0961	60SiCr7		9262	60SC6
1.2067	102CR6	100CR6	L3	Y100C6
1.2108	90CrSi5		L1	
1.2210	115CrV3		L2	100C3
1.2241	51CrV4			
1.2330	35CrMo4		4135	34CD4
1.2419	105WCr6			105WC13
1.2510	100MnCrW4		01	90 MWCV 5
1.2542	45WCrV7		S1	
1.2550	60WCrV7		S1	55WC20
1.2713	55NiCrMoV6		L6	55NCDV7
1.2721	50NiCr13		L6	55NCV6
1.2842	90MnCrV8		02	90MV8
1.3501	100Cr2		E50100	
1.3505	100Cr6	31	52100	100C6
1.5024	46Si7			45S7
1.5025	51Si7	50Si7	9259H	51S7
1.5027	60Si7	60Si7	9260	60S7
1.5028	65Si7		9260H	
1.5415	15Mo3		A204Gr.A	15D3

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB				
1.5419	20Mo4		4419	
1.5423	16Mo5		4520	
1.5622	14Ni6		A350-LF5	16N6
1.5732	14NiCr10		3415	14NC11
1.5752	14NiCr14	36A	3310	12NC15
1.6511	36CrNiMo4	110	9840	40NCD3
1.6523	21NiCrMo2	362	8620	20NCD2
1.6546	40NiCrMo2-2		8740	
1.6566	17NiCrMo6-4			
1.6587	17CrNiMo6			18NCD6
1.6657	10NiCrMo13-4			
1.7015	10Cr3		5015	12C3
1.7033	34Cr4	18B	5132	32C4
1.7035	41Cr4	18	5140	42C4
1.7131	16MnCr5		5115	16MC5
1.7139	16MnCrS5			
1.7176	55Cr3	48	5155	55C3
1.7225	42CrMo4	42 CrMo 4	4140	42 CD 4
1.7228	55NiCrMoV6G	33		
1.7380	10CrMo9-10		A182F22	12CD9-10
1.7715	14MoV6-3			
1.8159	50CrV4	47	6150	50CrV4
1.8161	58CrV4			
1.8509	41CrAlMo7	41B	A355A	40CAD6-12
1.8523	39CrMoV13-9	40C		
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB				
1.5415	15Mo3		A204Gr.A	15D3
1.5423	16Mo5		4520	
1.5622	14Ni6		A350-LF5	16N6
1.5732	14NiCr10		3415	14NC11
1.5752	14NiCr14	36A	3310	12NC15
1.5755	31NiCr14			18NC13
1.6565	40NiCrMo6	24	4340	35NCD6
1.6587	17CrNiMo6			18NCD6
1.6657	10NiCrMo13-4			
1.6957	26NiCrMoV14-5			
1.7015	10Cr3		5015	12C3
1.7262	15CrMo5			12CD4
1.7335	13CrMo4-4		A182-F11	15CD4-5
1.7380	10CrMo9-10		A182F22	12CD9-10
1.7715	14MoV6-3			
1.7733	24CrMoV55			20CDV6
1.7755	GS-45CrMoV10-4			
1.8070	21CrMoV511			
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB				
1.1730	C45W3		C45W	XC48
1.2332	47CrMo4	19A	4142	42CD4
1.5736	36NiCr10		3435	30NC11
1.6523	21NiCrMo2	362	8620	20NCD2
1.7033	34Cr4	18B	5132	32C4
1.7218	25CrMo4		4130	25CD4
1.8515	32CrMo12	40B		30CD12
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB				
1.0904	55Si7	45	9255	55S7
1.0961	60SiCr7		9262	60SC6
1.2067	100Cr6		L3	Y100C6
1.2419	105WCr6			105WC13
1.2542	45WCrV7		S1	
1.2713	55NiCrMoV6		L6	55NCDV7
1.4882	X50CrMnNiNbN219			Z50CMNNb21-09
1.5120	38MnSi4			

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB				
1.5710	36NiCr6	111A	3135	35NC6
1.5755	31NiCr14			18NC13
1.6511	36CrNiMo4	110	9840	40NCD3
1.6546	40NiCrMo2-2		8740	
1.7035	41Cr4	18	5140	42C4
1.7176	55Cr3	48	5155	55C3
1.7220	34CrMo4		4135	35CD4
1.7223	41CrMo4		4142	
1.7225	42CrMo4	42 CrMo 4	4140	42 CD 4
1.7361	32CrMo12	40B		30CD12
1.8159	50CrV4	47	6150	50CrV4
1.8161	58CrV4			
1.8509	41CrAlMo7	41B	A355A	40CAD6-12
1.8523	39CrMoV13-9	40C		
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB				
1.2080	X210Cr12	X210Cr12	D3	Z200C12
1.2162	21MnCr5			20MC5
1.2311	40CrMnMo7			40CMD8
1.2312	40CrMnMoS8.6		P20+S	40CMD8S
1.2316	X36CrMo17	X38CrMo16		
1.2343	X38CrMoV5-1		H11	Z38CDV5
1.2344	X40CrMoV5-1		H13	Z40CDV5
1.2363	X100CrMoV5-1		A2	Z100CDV5
1.2379	X155CrVMo121		D2	Z160CDV12
1.2436	X210CrW12		D4(D6)	Z200CD12
1.2510	100MnCrW4		O1	90 MWCV 5
1.2581	X30WCrV9-3		H21	Z30WCV9
1.2601	X165CrMoV12			
1.2606	X37CrMoW51		H12	Z35CWDV5
1.2764	X19NiCrMo4			
1.2767	X45NiCrMo4			45NCD16
1.2842	90MnCrV8		O2	90MV8
1.3243	S6-5-2-5		T15	KCV06-05-05-04-02
1.3249	S18-1-2-5		T4	Z80WKCV18-05-04
1.3343	S6-5-2		M2	Z85WDCV
1.3348	S2-9-2		M7	Z100DCWV09-04-02
1.3355	S18-0-1		T1	Z80WCV18-4-01
1.4718	X45CrSi9-3	52	HNv3	Z45CS9
1.5662	X8Ni9		ASMA353	9Ni
1.5680	12Ni19		2515	Z18N5
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB				
1.2080	X210Cr12	X210Cr12	D3	Z200C12
1.2344	X40CrMoV5-1		H13	Z40CDV5
1.2363	X100CrMoV5-1		A2	Z100CDV5
1.2436	X210CrW12		D4(D6)	Z200CD12
1.2581	X30WCrV9-3		H21	Z30WCV9
1.2601	X165CrMoV12			
1.2714	55NiCrMoV7		6F3/L6	55NiCrMoV7
1.3202	S12-1-4-5			
1.3207	S10-4-3-10			Z130WKCDV
1.3243	S6-5-2-5		T15	KCV06-05-05-04-02
1.3246	S7-4-2-5		M35	Z110WKCDV07-05-04
1.3247	S2-10-1-8		M42	Z110DKCWV09-08-04
1.3255	S18-1-2-5		T4	Z80WKCV18-05-04
1.3343	S6-5-2		M2	Z85WDCV
1.3348	S2-9-2		M7	Z100DCWV09-04-02
1.3355	S18-0-1		T1	Z80WCV18-4-01
1.4718	X45CrSi9-3	52	HNv3	Z45CS9
1.4935	X20CrMoWV121		422	
1.5680	12Ni19		2515	Z18N5

Material examples cutting data tables

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives				
1.4005	X12CrS13		416	Z11CF13
1.4029	X29CrS13			
1.4035	X46CrS13			
1.4104	X14CrMoS17		430F	Z10CF17
1.4105	X6CrMoS17			
1.4523	X2CrMoTiS18-2			
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB				
1.4000	X6Cr13		403	Z6C13
1.4001	X7Cr14		410 S	Z8C13
1.4002	X6CrAl13		405	Z6CA13
1.4006	X12Cr13	56A	410	Z10C13
1.4016	X6Cr17	X8Cr17	430	Z8C17
1.4027	GX20Cr14			Z20C13M
1.4028	X30Cr13		420	Z30C13
1.4034	X46Cr13			Z40C14
1.4057	X19CrNi17-2	57	431	Z15CN16-02
1.4086	GX120Cr29			
1.4112	X90CrMoV18		440B	
1.4113	X6CrMo17		434	Z8CD17-01
1.4313	X3CrNi13-4		CA6-NM	Z4CND13-04M
1.4340	GX40CrNi274			
1.4417	X2CrNiMoSi195		S31500	
1.4418	X4CrNiMo165			Z6CND16-04-01
1.4510	X6CrTi17		XM8	Z4CT17
1.4511	X6CrNb17			Z4CNb17
1.4512	X6CrTi12		409	Z3CT12
1.4720	X20CrMo13			
1.4724	X10CrA113		405	Z10C13
1.4742	X10CrA118	60	430	Z10CAS18
1.4747	X80CrNiSi20	59	HNV6	Z80CSN20-02
1.4749	X18CrN28		446	
1.4762	X10CrA124		446	Z10CAS24
1.4871	X53CrMnNiN21-9		EV8	Z52CMN21-09
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB				
1.4000	X6Cr13		403	Z6C13
1.4001	X7Cr14		410 S	Z8C13
1.4006	X12Cr13	56A	410	Z10C13
1.4016	X6Cr17	X8Cr17	430	Z8C17
1.4021	X20Cr13		420	Z20C13
1.4027	GX20Cr14			Z20C13M
1.4031	X40Cr13		420	Z40C14
1.4034	X46Cr13			Z40C14
1.4057	X19CrNi17-2	57	431	Z15CN16-02
1.4113	X6CrMo17		434	Z8CD17-01
1.4313	X3CrNi13-4		CA6-NM	Z4CND13-04M
1.4544	A 700		321	Z 10 CNT 18 11
1.4546	X5CrNiNb18-10		348	
M2.1.1 Stainless steel, austenitic, quenched, 180 HB				
1.4020	X13MnNiN18-13-2			
1.4301	X5CrNi18-10		304	Z5CN18-09
1.4303	X4CrNi18-12			
1.4305	X8CrNiS18-9	58M	303	Z8CNF18-09
1.4306	X2CrNi19-11	X3CrNi1810KD	304L	Z2CN18-09
1.4307	X2CrNi18-9			
1.4310	X10CrNi18-8		301	Z12CN17-07
1.4311	X2CrNiN18-10		304LN	Z2CN18-10
1.4315	X5CrNiN19-9			
1.4318	X2CrNiN18-7			

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
M2.1.1 Stainless steel, austenitic, quenched, 180 HB				
1.4325	X9CrNi18-9			
1.4335	X1CrNi25-21			
1.4361	X1CrNiSi18-15-4			
1.4369	X11CrNiMnN19-8-6			
1.4371	X2CrMnNiN17-7-5		202	Z8CMN18-08-05
1.4372	X12CrMnNiN17-7-5			
1.4373	X12CrMnNiN18-9-5			
1.4376	X8CrMnNi19-6-3			
1.4378	X6CrMnNiN8-13-3			
1.4401	X5CrNiMo17-12-2		316	Z3CND17-11-01
1.4404	X2CrNiMo17-12-2		316L	Z2CND17-12
1.4406	X2CrNiMoN17-11-2		316LN	Z2CND17-12AZ
1.4432	X2CrNiMo17-12-3			
1.4434	X2CrNiMoN18-12-4			
1.4435	X2CrNiMo18-14-3		316L	Z3CND17-12-03
1.4438	X2CrNiMo18-15-4		317L	Z2CND19-15-04
1.4439	X2CrNiMoN17-13-5		(s31726)	Z3CND18-14-06AZ
1.4449	X2CrNiMo18-12-3		317	
1.4466	X1CrNiMoN25-22-2			
1.4529	X1NiCrMoCuN25-20-7			
1.4539	X1NiCrMoCu25-20-5			Z2NCUD25-20
1.4541	X6CrNiTi18-10		321	Z6CNT18-10
1.4547	X1CrNiMoCuN20-18-7		S31254	
1.4550	X6CrNiNb18-10	58F	347	Z6CNNb18-10
1.4558	X2NiCrAlTi32-20			
1.4560	X3CrNiCu19-9-2			
1.4563	X1NiCrMoCu31-27-4			
1.4565	X2CrNiMnMoN25-18-6-5			
1.4567	X3CrNiCu18-9-4			
1.4570	X6CrNiCuS18-9-2			
1.4571	X6CrNiMoTi17-12-2	58J	316Ti	Z6NDT17-12
1.4578	X3CrNiCuMo17-11-3-2			
1.4580	X6CrNiMoNb17-12-2			
1.4597	X8CrMnCuNb17-8-3			
1.4598	X2CrNiMoCuS17-10-2			
1.4615	X3CrMnNiCu15-8-5-3			
1.4618	X9CrMnNiCu17-8-5-2			
1.4640	X5CrNiCu19-6-2			
1.4646	X6CrMnNiCuN18-12-4-2			
1.4650	X2CrNiCu19-10			
1.4652	X1CrNiMoCuN24-22-8			
1.4659	X1CrNiMoCuNW24-22-6			
M2.1.1 Duplex steel, high-strength stainless steels				
1.4062	X2CrNiN22-2			
1.4669	X1CrNiMoCuN25-25-5			
1.4424	X2CrNiMo20-7-2			
1.4362	X2CrNiN23-4		S32304	Z2CN23-04AZ
1.4162	X2CrMnNiMoN25-18-6-5			
1.4482	X2CrMnNiMoN22-5-3			
1.4462	X2CrNiMoN22-5-3			Z3CND22-05Az
1.4662	X1CrNiMoCuN26-25-5			
1.4507	X2CrNiMoCuN25-6-3			
1.4460	X1CrNiMoCuN20-18-7		329	
1.4410	X2CrNiMoN25-7-4			Z5CND20-12M
1.4501	X2CrNiMoCuWN25-7-4			
1.4477	X2CrNiMoCuN25-6-3			
1.4658	X1NiCrMoCu25-20-5			

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB				
0.6010	GG10	GJL-100	A48 20 B	Ft 10 D
0.6015	GG15	GJL-150	A48 25 B	Ft 15 D
0.6020	GG20	GJL-200	A48 30 B	Ft 20 D
0.6025	GG25	GJL-250	A48 40 B	Ft 25 D
0.6660	GGL-NiCr 20 2	GJLA-XNiCr 20-2	1050/700/7	L-NC 202
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB				
0.6025	GG25	GJL-250	A48 40 B	Ft 25 D
0.6030	GG30	GJL-300	A48 45 B	Ft 30 D
0.6035	GG35	GJL-350	A48 50 B	Ft 35 D
0.6040	GG40	GJL-400	A48 60 B	Ft 40 D
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB				
0.7033	GGG35.3	GJS-350-22-LT	-	FGS 370-17
0.7040	GGG40	GJS-400-15	60-40-18	FCS 400-12
0.7043	GGG40.3	GJS-400-18-LT	60-40-18	FGS 370-17
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB				
0.7050	GGG50	GJS-500-7	80-55-06	FGS 500-7
0.7060	GGG60	GJS-600-3	80-55-06	FGS 600-3
0.7070	GGG70	GJS-700-2	100-70-03	FGS 700-2
0.7652	GGG NiMn 13-7	GJSA-XNiMn 13-7	-	FGS Ni13 Mn7
0.7660	GGG NiCr 20-2	GJSA-XNiCr 20-2	A436 D2	FGS Ni20 Cr2
K1.3.1 Malleable cast iron, ferritic, 130 HB				
0.8135	GTS-35	GJMB350-10	32510	MN 35-10
K1.3.2 Malleable cast iron, pearlitic, 230 HB				
0.8145	GTS-45	GJMB450-6	A220-40010	MN 450
0.8155	GTS-55	GJMB-550-4	50005	MP 50-5
0.8165	GTS-65	GJMB-650-2	70003	MN 650-3
0.8170	GTS-70	GJMB-700-2	90001	MN 700-2
K2.1.1 Vermicular graphite cast iron (GJV)				
5.2100	GJV-300			
5.2201	GJV-400			
5.2301	GJV-500			
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)				
5.3400	GJS-800-10			
5.3402	GJS-900-8			
5.3403	GJS-1050-6			

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB				
3.0205	Al99		Al99	
3.0255	Al99.5		1000	A59050C
3.3206	AlMgSi0.5	AW-6060		
3.3315	AlMg1			
N1.1.2 Wrought aluminium alloys, hardened, 100 HB				
3.1325	AlCuMg1			
3.1655	AlCuSiPb			
3.2315	AlMgSi1			
3.4345	AlZnMgCu0,5		7050	AZ4GU/9051
3.4365	AlZnMgCu1,5		7075	7075
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB				
3.2163	AlSi9Cu3			
3.2382	AlSi10Mg			
3.2383	AlSi0Mg(Cu)		A360.2	
3.2581	AlSi12			
3.3561	AlMg5			
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB				
2.1871	AlCu4TiMg			
3.1754	AlCu4Ni2Mg			
3.2371	AlSi7Mg		4218B	
3.2373	AlSi9MGWA		SC64D	A-S7G
3.2381	AlSi10Mg			
3.5106	MgAg3SE2Zr1		QE22	
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %				
2.0375	CuZn36Pb3			
2.1090	CuSn75pb		C93200	U-E7Z5pb4
2.1096	CuSn5ZnNb		c83600	
2.1098	CuSn2Znpb		C83600	
2.1182	CuPb15Sn		C23000	U-pb15E8
N3.1.2 Copper and copper alloys: CuZn, CuSnZn, 90 HB				
2.0240	CuZn15			
2.0321	CuZn37		C27200	CuZn36,CuZn37
2.0590	CuZn40Fe			
2.0592	CuZn35Al1		C86500	HTB1
2.0596	CuZn34Al2		C86200	U-Z36N3
2.1293	CuCrZr		C18200	U-Cr0-8Zr
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte				
2.0060	E-Cu57			
2.0966	CuAl10Ni5Fe4		C63000	U-A10N
2.0975	CuAl10Ni		B-148-52	
2.1050	CuSn10		c90700	
2.1052	G-CuSn12		C90800	UE12P
2.1292	G-CuCrF35		C81500	

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB				
1.4558	X2NiCrAlTi3220		N08800	
1.4562	X1NiCrMoCu32287		N08031	
1.4563	X1NiCrMoCuN31274		N08028	Z1NCUDU31-27-03
1.4864	X12NiCrSi36-16		330	Z12NCS37-18
1.4865	GX40NiCrSi38-18			
1.4958	X5NiCrAlTi3120			
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB				
1.4977	X40CoCrNi2020			Z42CNKDOWNb
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB				
2.4360	NiCu30Fe			NU30
2.4603	NiCr 30 FeMo		5390A	NC22FeD
2.4610	NiMo16Cr16Ti			
2.4630	NiCr20Ti			NC20T
2.4631	NiCr20TiAl			NC20TA
2.4642	NiCr29Fe			Nnc30Fe
2.4856	NiCr22Mo9Nb			NC22FeDNb
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB				
2.4375	NiCu30Al		4676	NU30AT
2.4662	NiFe35Cr14MoTi		5660	ZSNCDT42
2.4668	NiCr19Fe19NbMo		5383	NC19eNB
2.4670	S-NiCr13Al16MoNb		5391	NC12AD
2.4694	NiCr16Fe7TiAl			
2.4955	NiFe25Cr20NbTi			
2.4964	CoCr20W15Ni		5772	KC20WN
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB				
2.4669	NiCr15Fe7TiAl			NC15TNbA
2.4685	G-NiMo28			
2.4810	G-NiMo30			
2.4973	NiCr19Co11MoTi		AMS 5399	NC19KDT
3.7115	TiAl5Sn2			
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²				
2.4674	NiCo15Cr10MoAlTi		AMS 5397	
3.7025	Ti1		R50250	
3.7225	Ti1pd		R52250	
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²				
3.7124	TiCu2			
3.7145	TiAl6Sn2Zr4Mo2Si		R54620	
3.7165	TiAl6V4		AMS R56400	T-A6V
3.7185	TiAl4Mo4Sn2			
3.7195	TiAl3V2.5			

Mat. no.	DIN	EN	AISI/ASTM/SAE	AFNOR
H1.1.1 H1.1.2 H1.1.3	Hardened steel, hardened and tempered, < 55 HRC Hardened steel, hardened and tempered, < 60 HRC Hardened steel, hardened and tempered, > 60 HRC			
1.1231	Ck 67	C 67S	1070	XC 68
1.1248	Ck 75	C 75S	1078, 1080	XC 75
1.1274	Ck 101	C 100S	1095	XC100
1.1545	C 105 W1	C 105U	W1	Y1 105
1.1730	C 45 W3			
1.2067	102CR6	100CR6		
1.2343	X37CrMoV5-1			
1.2361	X91CrMoV18			
1.2379	X155CrMoV12-1			
1.2762	75CrMoNiW67			
1.3401	GX120Mn12		A128(A)	Z120M12
1.6746	32NiCrMo14-5	32nCrMo145		35NCD14
1.7131	16MnCr5			
1.7176	55Cr3	48	5155	55C3
1.7225	42CrMo4	42 CrMo 4	4140	42 CD 4
H2.1.1 Chilled cast iron, 400 HB				
0.9620	GX260NiCr42	GJN-HV520	A532 IB	FB Ni4 Cr2 BC
0.9625	GX330NiCr42	GJN-HV550	A532 IA	FB Ni4 Cr2 HC
0.9630	GX300 CrNiSi 9 5 2	GJN-HV600	A532 ID	FB Cr9 Ni5
0.9640	GX300CrMoNi1521			
0.9650	GX260Cr27			
0.9655	GX300CrNM0271			
1.4841	X15CrNiSi25-20	X 15 CrNiSi 25 20	310	Z15CNS25-20
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC				
0.9635	GX300 CrMo 15 3			
0.9645	GX260 CrMoNi 20 21			



Online shop

- check prices and see if an item is in stock in real time
- download tool data
- automatic reordering thanks to subscription function



Individual authorisation management and maximum access security for your account



Personal purchasing conditions are stored in the system



Provision of CAD data and cutting values



Information on tool availability and stock information



Intelligent search function thanks to advanced search criteria and ordering via own material numbers



Detailed documentation and history of your order processes along with a watch list for future purchases



Easy forwarding of shopping carts for approval and release



OCI interface, data interface

ISO codes

P	Steel, high-alloyed steel
M	Stainless steel
K	Grey cast iron, spheroidal graphite iron and malleable cast iron
N	Aluminium and other non-ferrous metals
S	Special, super and titanium alloys
H	Hardened steel and chilled cast iron
O	Fibre-reinforced plastics (FRP), graphite

On the programme pages you will find for every tool recommendations regarding suitability for the application groups and details of max. tensile strength and hardness.

- optimal suitability
- limited suitability

Surfaces

- bright

● steam tempered

● nitrided

◐ nitrided lands

● golden brown

● AlCrN
- FIRE/nanoFIRE

● TiAlN

● TiAlN SuperA

● TiAlN nanoA

● TiCN

● TiN
- TiSiN

● Perrox

● Carbo

● Cristall C

● Signum

● Raptor
- nickel-plated

● burnished

● Endurum

● Ferrox

● Sirius

● Zenit

Pictograms



New product



Dimension extension

Tool material	VHM	HM	HSS	HSCO	HSS-E	M42	HSS-E-PM	Cermet	PKD									
	Solid carbide	Carbide	High-speed steel					Cermet	Polycrystalline diamond									
Machining depth	3xD	5xD	7xD	8xD	10xD	12xD	15xD	20xD	25xD	80xD	~5xD	~10xD	>25xD	GL 600	GL 1200	GL 2000	...	
Tolerance on Ø	m7	h5	h6	h7	H7	h8	ISO2/6H	6HX	ISO3/6G	6GX	7GX	6H +0,1	±0,015	+0,004 +0,005	...			
Shank form	HA to DIN 6535	HB	HE	B	-HA	Cyl cylindrical		MK Morse taper	3 3-flats on shank			TBM-SEH Standard groove rear						
Standard	DIN 208 to DIN	DIN 338	DIN 340	DIN 371	DIN 376	DIN 371/376	DIN 1897	DIN 6527 K	DIN 6527 L	DIN 6537 K	DIN 6537 L	DIN 5156	DIN 6528	~DIN 8094	... to Gühring Standard			
Type	N	H	W	VA	NRf	RT 100 HF	RT 100 U	RT 100 T	RT 100 XF	GU 3FS	GT 500 DZ	EB 80 XXL	HT 800 WP	MTMH3-Z	TM SP	GE104	...	
Internal coolant	with internal coolant				without internal coolant													
Cutting direction	R right-hand		L left-hand		N neutral													
Web thinning																		
Hole type	Through-hole threads			Blind-hole threads			Through-hole and blind-hole threads											
Form	A	B	C	D	DR	R												
Application	Slotting	Roughing	Ramping	Helix	Drilling	Finishing	Copying											
Length	short (DIN)	long (DIN)		2,5xD	+	medium length			3xD	extra length		4xD	5xD					
No. of cutting edges	2	3	4	5	6	6+	2-4	3-4	4-5	5-6	...							
	No. of major cutting edges																	
Helix angle	2-4°	0°	7°	20°	30°	45°	35° 38°	36° 38° 37°	40° 42°	44° 45° 46°	...							
	Size of helix angle/no. of different helix angles																	
Rake angle	-2°	-3°	-7°	0°	3°	4°	7°	9°	10°	12°	...							
	Rake angle of circumference cutting edges																	
Cutting edge form	45° Corner chamfer	R±0,01 Radius with tolerance		R±0,02		R±0,01	R±0,03	R±0,05	...		60°	82°	90°	120°	135°	140°	160° 125°	...
	Point angle																	
Feed	for lateral feed				for lateral feed and oblique plunging					for lateral feed, oblique plunging and drilling								
Hardness	48 HRC	55 HRC	62 HRC	63 HRC	65 HRC	66 HRC												
	workable material hardness in HRC																	

GÜHRING

Gühring KG | P.O. Box 100247 | 72423 Albstadt | Germany
Gühring KG | Herderstrasse 50–54 | 72458 Albstadt | Germany
Telephone: +49 74 31 17-0 | info@guehring.de | www.guehring.com