

GUHRING

ISSUE 2009



SuperLine

Hightech tools with outstanding
price-performance-ratio

Pricelist 04

NEW:
with extended
drill range



GUHRING SUPERLINE

SuperLine is our high-tech tool range for the following applications

- drilling
- milling
- tapping
- fluteless tapping
- reaming

All SL-tools excel thanks to

- their convincing cost-performance ratio,
- their outstanding quality,
- their immediate availability and
- the customer friendly service for the entire duration of application.

Convincing cost-performance ratio

SL-tools are produced in large volumes on state-of-the-art, partly Guhring developed, new precision grinding machines. The extreme productivity achieved with this manufacturing concept brings cost advantages that we fully pass on to the customer. Add this to the guaranteed high SL quality the customer receives a cost efficiency ratio that has no equal.

Outstanding quality

SL quality – means highest accuracy and process reliability! We invest in state-of-the-art manufacturing processes to DIN ISO 9001 as well as VDA 6.4 and provide our personnel with intensive training.

All SL tools are produced in ultra fine Guhring carbide or carefully selected high performance high speed steel. Add to this a majority coating with our well proven, versatile multilayer FIRE coating or application orientated surface finishes from bright to TiCN. The efficiency of tool material and coating complement the proven and tested cutting edge geometries.

Immediate availability

The immediate availability of SL tools ex-stock is one of the corner stones for the success of this range. For you as a customer it means: Order today and apply tomorrow! For us as tool manufacturer it

means: Guaranteeing the sophisticated logistics from raw material via production to delivery. Put us to the test. SL tools are ready and available now.

Customer friendly service

We accompany our SL tools not only up to the successful sale and initial application. We care for SL tools during the entire duration of their application. First and foremost it includes regrinding and recoating. Both these services are available from Guhring - with original geometries and original coatings. After all, who has more expertise for offering these services than the tool manufacturer?

Our collection service picks up the tools directly from your production and returns them there again. Or send them for refurbishing by courier and have them returned again by this method. In any case, SL tools are delivered to you after regrinding and recoating on schedule and in top SL quality!

SL RANGE SUMMARY

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SL THREAD CUTTING TOOLS	Summary Standard range	page 6 page 55
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SL RE-GRINDING AND RE-COATING		page 90
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Conditions of sale

No liability can be accepted for printing errors or technical changes of any kind. Our Conditions of Sale and Terms of Payment apply. Available on request.

All products marked with "DIN", deviating from the dimensions listed in the catalogue, can be delivered, as long as they are in conformity with the DIN standard form. The DIN standard forms are available at the "Deutsches Institut für Normung e.V.", 10787 Berlin or at www.din.de.

Packaging detail

Tool group	Standard	Units per package
Solid carbide twist drills	all DIN standards and Guhring standards	all sizes supplied 1 unit per package
High speed steel twist drills	DIN 1897 DIN 338	≤ 7.5 mm packed in units of 10 > 7.5 ... 10.6 mm bright packed in units of 5 > 7.5 ... 10.6 mm TiN packed in units of 10 > 10.6 mm 1 unit per package
High speed steel taps and fluteless taps	DIN 371, ~ DIN 371 DIN 376, ~ DIN 376	≤ M6 packed in units of 10 > M6 1 unit per package
Solid carbide milling cutters and reamers	all DIN standards and Guhring standards	all sizes supplied 1 unit per package

Standard	Type	Tool illustration	Drilling depth	Tool material	Surface	Shank design	Diameter range	Guhring no.	Discount group	Standard range, page
Ratio drills with oil feed										
DIN 6537 K	RT 100 U		3 x D	Solid carbide	F	HA	3.00 - 20.00	5510	155	14
DIN 6537 K	RT 100 U		3 x D	Solid carbide	F	HE	3.00 - 20.00	5610	155	14
DIN 6537 L	RT 100 U		5 x D	Solid carbide	F	HA	3.00 - 20.00	5511	155	18
DIN 6537 L	RT 100 U		5 x D	Solid carbide	F	HE	3.00 - 20.00	5611	155	18
Guhring std.	RT 100 U		7 x D	Solid carbide	F	HA	3.00 - 20.00	5512	155	22
Guhring std.	RT 100 U		7 x D	Solid carbide	F	HE	3.00 - 20.00	5612	155	22
Guhring std.	RT 100		12 x D	Solid carbide	F	HA	3.00 - 20.00	5525	155	25
Guhring std.	RT 150 GG		10 x D	Solid carbide	○	HA	3.00 - 16.00	5513	155	28
Ratio drills without oil feed										
DIN 6537 K	RT 100 U		3 x D	Solid carbide	F	HA	3.00 - 20.00	5514	155	30
DIN 6537 K	RT 100 U		3 x D	Solid carbide	F	HE	3.00 - 20.00	5614	155	30
DIN 6537 L	RT 100 U		5 x D	Solid carbide	F	HA	3.00 - 20.00	5515	155	34
DIN 6537 L	RT 100 U		5 x D	Solid carbide	F	HE	3.00 - 20.00	5615	155	34
Ratio drills 3-flute										
DIN 6537 L	FT 200		5 x D	Solid carbide	○	HA	3.00 - 20.00	5518	155	38

○ bright ○ steam tempered ● nitrided

Standard	Type	Tool illustration	Drilling depth	Tool material	Surface	Shank design	Diameter range	Gühring no.	Discount group	Standard range, page
Stub drills										
DIN 1897	GU 500 DZ		3 x D	HSCO	○		1.00 - 14.00	5524	159	40
DIN 1897	GU 500 DZ		3 x D	HSCO	Ⓢ		1.00 - 14.00	5520	159	40
DIN 1897	GT 500 DZ		3 x D	HSS-E-PM	Ⓢ		1.00 - 14.00	5521	159	40
DIN 6539	N		3 x D	Solid carbide	○		2.00 - 12.00	5516	155	43
Jobber drills										
DIN 338	GU 500 DZ		5 x D	HSCO	○		1.00 - 14.00	5523	159	45
DIN 338	GU 500 DZ		5 x D	HSCO	Ⓢ		1.00 - 14.00	5519	159	45
DIN 338	GT 500 DZ		5 x D	HSS-E-PM	Ⓢ		1.00 - 14.00	5522	159	45
Gühring std.	N		5 x D	Solid carbide	○		2.00 - 12.00	5517	155	48

Standard	Type	Form	Tolerance	Tool illustration	Tool material	Surface	Diameter range	Gühring no.	Discount group	Standard range, page
Machine taps for metric ISO threads										
DIN 371	N R40	C	ISO 2 / 6H		HSS-E	●	3.00 - 10.00	5554	156	56
DIN 371	N R40	C	ISO 2 / 6H	NEW	HSS-E	●S	3.00 - 10.00	5592	156	56
DIN 371	H R40	C	ISO 2 / 6H		HSS-E	●	3.00 - 10.00	5552	156	56
DIN 371	H R40	C	ISO 2 / 6H	NEW	HSS-E	●C	3.00 - 10.00	5591	156	56
DIN 371	VA R40	C	ISO 2 / 6H		HSS-E	●	3.00 - 10.00	5553	156	57
DIN 371	VA R40	C	ISO 2 / 6H	NEW	HSS-E	●S	3.00 - 10.00	5596	156	57
DIN 371	N R40	C	ISO 2 / 6H		HSS-E	●	3.00 - 10.00	5555	156	57
DIN 371	N R40	C	ISO 2 / 6H	NEW	HSS-E	●S	3.00 - 10.00	5594	156	57
DIN 371	AI R45	C	ISO 2 / 6H		HSS-E	○	3.00 - 10.00	5551	156	57
DIN 376	N R40	C	ISO 2 / 6H	NEW	HSS-E	●	12.00 - 20.00	5589	156	58
DIN 371	H	C	ISO 2 / 6H IC ≥ M5	NEW	Solid carbide	○	4.00 - 10.00	5593	156	59
DIN 371	N	B	ISO 2 / 6H		HSS-E	●	3.00 - 10.00	5560	156	60
DIN 371	N	B	ISO 2 / 6H	NEW	HSS-E	●S	3.00 - 10.00	5590	156	60
DIN 371	H	B	ISO 2 / 6H		HSS-E	●	3.00 - 10.00	5558	156	60
DIN 371	H	B	ISO 2 / 6H	NEW	HSS-E	●C	3.00 - 10.00	5587	156	60

○ bright ● steam tempered ● nitrided

Standard	Type	Form	Tolerance	Tool illustration	Tool material	Surface	Diameter range	Guhring no.	Discount group	Standard range, page
Machine taps for metric ISO threads										
DIN 371	VA	B	ISO 2 / 6H		HSS-E-PM	●	3.00 - 10.00	5559	156	61
DIN 371	VA	B	ISO 2 / 6H	NEW ★	HSS-E	Ⓢ	3.00 - 10.00	5588	156	61
DIN 371	N	B	ISO 2 / 6H	NEW ★	HSS-E	●	3.00 - 10.00	5561	156	61
DIN 371	N	B	ISO 2 / 6H	NEW ★	HSS-E	Ⓢ	3.00 - 10.00	5586	156	61
DIN 371	Al	B	ISO 2 / 6H		HSS-E	○	3.00 - 10.00	5557	156	62
DIN 371	GG	C	6HX		HSS-E	●	3.00 - 10.00	5550	156	62
DIN 371	GG	C	6HX	NEW ★	HSS-E	ⓐ	3.00 - 10.00	5595	156	62
DIN 376	N	B	ISO 2 / 6H	NEW ★	HSS-E	●	12.00 - 20.00	5563	156	63
Fluteless machine taps for metric ISO threads										
~ DIN 371	N	C	6HX	NEW ★	HSS-E	Ⓢ	3.00 - 10.00	5598	156	64
~ DIN 376	N	C	6HX	NEW ★	HSS-E	Ⓢ	12.00 - 16.00	5599	156	65

Explanation of colour-coding for SL thread cutting and milling tools:

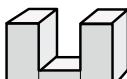
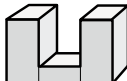
- General steels, i. e. structural steels, free-cutting steels, case hardened steels and unalloyed heat-treatable steels
- High tensile steels, i. e. alloyed heat-treatable steels, tool steels and high speed steels
- Stainless and acid resistant steels, i. e., austenitic stainless steels, martensitic stainless steels, ferritic steels
- Universal, i. e. common structural steels, free-cutting steels, case hardened steels, unalloyed heat-treatable steels, nitriding steels, spheroidal graphite iron
- Al and Al-alloys
- Cast materials, i. e. cast iron, spheroidal graphite and malleable cast iron, compacted graphite iron
- Special alloys, i. e. Ti and Ti-alloys, Ni-alloys (SL milling cutters)

ⓐ TiAlN

ⓐ TiCN

ⓐ FIRE

ⓐ TiN

HA	HB	Surface finish	Type		No. of flutes	Colour-ring designation p. 7	Width of cut													
								< 850 N/mm ²	850-1200 N/mm ²	< 750 N/mm ²	> 750 N/mm ²	< Si 3%	Si 3%-12%	< 850 N/mm ²	850-1200 N/mm ²	< 200 HB 30	> 200 HB 30	< 1000 N/mm ²	1000-1600 N/mm ²	< 54 HRC
Guhring no.																				
	5534	F	N		RF100	4														
5735	5535	F	N		RF100	4	0.5 x D													
5582		F	N		RF100	4														
5505		F	NH			3	1 x D													
5506	5546	F	NH			3														
	5574	F	NH			3	0.1 - 0.2 x D													
	5504	F	NRf			4														
	5583	F	HR		54HRC	4	0.5 x D													
5745	5545	F	NH			6-10														
5729		F	NH			6-8	0.02 - 0.05 x D													
5730	5530	F	N			2														
5549		F	N			2														
	5543	○	W			2														
5507	5531	F	N			3														
	5573	F	N			3														
	5532	F	N			4														
5556		F	N			4	0.1 - 0.2 x D													
5585	5533	F	N			2	Depth of cut 													
	5584	F	N			4	0.02 - 0.05 x D													

○ bright ○ steam tempered ● optimal suitability ● limited suitability

Standard	Type	Shank design	Tool illustration		Tool material	Surface	Diameter range	Gühring no.	Discount group	Standard range, page
RF 100 U - Ratio end mills Std.										
centre cutting										
DIN 6527 K	N	HB			Solid carbide	F	6.00 - 20.00	5534	157	68
DIN 6527 L	N	HA			Solid carbide	F	4.00 - 25.00	5735	157	69
DIN 6527 L	N	HB			Solid carbide	F	4.00 - 25.00	5535	157	69
Gühring std.	N	HA			Solid carbide	F	10.00 - 25.00	5582	157	69
GH 100 U - slot drills (3-fluted)										
centre cutting										
DIN 6527 K	NH	HA			Solid carbide	F	3.00 - 20.00	5505	157	70
DIN 6527 L	NH	HA			Solid carbide	F	3.00 - 20.00	5506	157	71
DIN 6527 L	NH	HB			Solid carbide	F	3.00 - 20.00	5546	157	71
GH 100 U - Mini slot drills (3-fluted)										
Gühring std.	NH	<Ø2.0 HA/HB			Solid carbide	F	1.00 - 10.00	5574	157	71
GS 100 U - roughing end mills with fine teeth										
for materials < 48 HRC, cutting over centre										
DIN 6527 L	NRf	HB			Solid carbide	F	6.00 - 20.00	5504	157	72
GS 100 H - roughing end mills with fine teeth										
for materials < 56 HRC, cutting over centre										
DIN 6527 L	HR	HB			DK 500 UF	F	6.00 - 20.00	5583	157	72

Standard	Type	Shank design	Tool illustration	Tool material	Surface	Diameter range	Gühring no.	Discount group	Standard range, page
GH 100 U - multi-tooth end mills									
for superfine finishing of materials < 50 HRC									
Gühring std.	NH	HA		Solid carbide	F	3.00 - 25.00	5745	157	73
Gühring std.	NH	HB		Solid carbide	F	6.00 - 20.00	5545	157	73
Gühring std.	NH	HA		Solid carbide	F	6.00 - 20.00	5729	157	73
Slot drills (2-fluted)									
centre cutting									
DIN 6527 L	N	HA		Solid carbide	F	2.00 - 12.00	5730	157	74
DIN 6527 L	N	HB		Solid carbide	F	2.00 - 20.00	5530	157	74
XL slot drills (2-fluted)									
centre cutting									
Gühring std.	N	HA		Solid carbide	F	3.00 - 20.00	5549	157	74
AI slotting end mills (2-fluted)									
centre cutting									
DIN 6527 L	W	HB		Solid carbide	○	3.00 - 20.00	5543	157	75
Slot drills (3-fluted)									
centre cutting									
DIN 6527 L	N	HA		Solid carbide	F	2.00 - 16.00	5507	157	75
DIN 6527 L	N	HB		Solid carbide	F	2.00 - 20.00	5531	157	75
Mini slot drills (3-fluted)									
centre cutting									
Gühring std.	N	<Ø2.0 HA/HB		Solid carbide	F	0.50 - 20.00	5573	157	76

○ bright ○ steam tempered ● nitrided

Standard	Type	Shank design	Tool illustration	Tool material	Surface	Diameter range	Gühring no.	Discount group	Standard range, page
End mills (4-fluted)									
centre cutting									
DIN 6527 L	N	HB		Solid carbide	F	2.00 - 20.00	5532	157	76
XL end mills (4-fluted)									
centre cutting									
Gühring std.	N	HA		Solid carbide	F	3.00 - 20.00	5556	157	77
Ball nose slot drills (2-fluted)									
centre cutting									
DIN 6527 L	N	HA	 	Solid carbide	F	0.50 - 20.00	5585	157	78
DIN 6527 L	N	HB		Solid carbide	F	4.00 - 12.00	5533	157	78
Ball nose end mills (4-fluted)									
centre cutting									
DIN 6527 L	N	HB	 	Solid carbide	F	3.00 - 20.00	5584	157	78

Standard	Form	Tool illustration	Tool material	Surface	Diameter range	Guhring no.	Discount group	Standard range, page
NC machine chucking reamers								
Guhring std.		 NEW	Solid carbide		0.98 - 12.05	5527	154	86

Reaming recommendations for carbide NC reamers

Through hole or blind hole

Straight-fluted reamers are generally applied in blind holes as they, due to their cutting edge geometry, evacuate the chips from the hole against the direction of the feed. Blind holes can be machined with this tool, if sufficient space at the bottom is available.

Interrupted holes

Spiral reamers are preferred for the application in interrupted holes because the cutting edge geometry, in comparison to straight-fluted tools, possesses a lesser tendency of grabbing on the oblique hole. If the oblique hole is $> 0.25 \times D$, spiral reamers can also be applied in blind holes.

Tool material
Carbide grade
Surface finish
Guhring no.
DIN

Carbide
K10

5527
Guhring std.


Surface finish:

 bright

 optimally suited

 optimally suited, if sufficient space at bottom of hole

Material	Hole type	Stock removal allowance	
High-alloyed and hard-ened steels < 52 HRC, cast materials such as GG10/GG20/GGG40/GGG50	Through hole	standard	
		large (0.5-0.6 mm)	
		interrupted holes	
	Blind hole	standard	
		large (0.5-0.6 mm)	
		interrupted holes	
Soft non-ferrous metals, i. e. aluminium, brass etc.	Through hole	standard	
		large (0.5-0.6 mm)	
		interrupted holes	
	Blind hole	standard	
		interrupted holes	

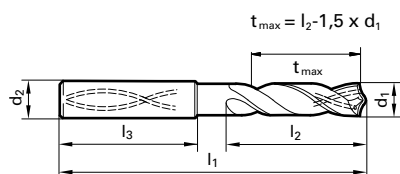
 bright

 steam tempered

DRILLS



GUHRING



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
1/8	3.000	6.000	62.00	20.00	36.00
	3.100	6.000	62.00	20.00	36.00
	3.170	6.000	62.00	20.00	36.00
	3.200	6.000	62.00	20.00	36.00
	3.250	6.000	62.00	20.00	36.00
	3.300	6.000	62.00	20.00	36.00
	3.400	6.000	62.00	20.00	36.00
9/64	3.500	6.000	62.00	20.00	36.00
	3.570	6.000	62.00	20.00	36.00
	3.600	6.000	62.00	20.00	36.00
	3.700	6.000	62.00	20.00	36.00
	3.800	6.000	66.00	24.00	36.00
	3.900	6.000	66.00	24.00	36.00
	3.970	6.000	66.00	24.00	36.00
5/32	4.000	6.000	66.00	24.00	36.00
	4.100	6.000	66.00	24.00	36.00
	4.200	6.000	66.00	24.00	36.00
	4.300	6.000	66.00	24.00	36.00
	4.370	6.000	66.00	24.00	36.00
11/64	4.400	6.000	66.00	24.00	36.00
	4.500	6.000	66.00	24.00	36.00
	4.600	6.000	66.00	24.00	36.00
	4.650	6.000	66.00	24.00	36.00
	4.700	6.000	66.00	24.00	36.00
	4.760	6.000	66.00	28.00	36.00
	4.800	6.000	66.00	28.00	36.00
3/16	4.900	6.000	66.00	28.00	36.00
	5.000	6.000	66.00	28.00	36.00
	5.100	6.000	66.00	28.00	36.00
	5.160	6.000	66.00	28.00	36.00
13/64	5.200	6.000	66.00	28.00	36.00
	5.300	6.000	66.00	28.00	36.00
	5.400	6.000	66.00	28.00	36.00
	5.500	6.000	66.00	28.00	36.00
	5.550	6.000	66.00	28.00	36.00
7/32	5.560	6.000	66.00	28.00	36.00

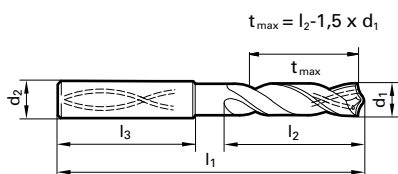
☐ bright

☐ steam tempered

☒ nitrided

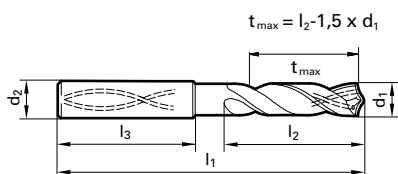
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5510	5610
DIN 6537 K	
Solid carbide	
K / P	
F	F
RT 100 U	
HA	HE
3 x D	
right-hand	
m7	
155	



A TiAlN **C** TiCN **F** FIRE **S** TiN

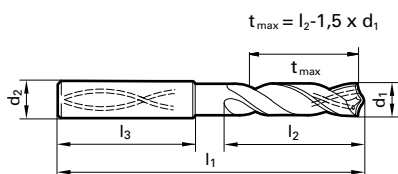
Guhring no.	5510	5610
Standard	DIN 6537 K	
Tool material	Solid carbide	
Carbide grade	K / P	
Surface	F	F
Type	RT 100 U	
Shank design	HA	HE
Drilling depth	3 x D	
Cutting direction	right-hand	
Tolerance	m7	
Discount group	155	



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
11/32	8.500	10.000	89.00	4700	40.00
	8.600	10.000	89.00	4700	40.00
	8.700	10.000	89.00	4700	40.00
	8.730	10.000	89.00	4700	40.00
	8.800	10.000	89.00	4700	40.00
	8.900	10.000	89.00	4700	40.00
23/64	9.000	10.000	89.00	4700	40.00
	9.100	10.000	89.00	4700	40.00
	9.130	10.000	89.00	4700	40.00
	9.200	10.000	89.00	4700	40.00
3/8	9.250	10.000	89.00	4700	40.00
	9.300	10.000	89.00	4700	40.00
	9.400	10.000	89.00	4700	40.00
	9.500	10.000	89.00	4700	40.00
	9.520	10.000	89.00	4700	40.00
	9.600	10.000	89.00	4700	40.00
25/64	9.700	10.000	89.00	4700	40.00
	9.800	10.000	89.00	4700	40.00
	9.900	10.000	89.00	4700	40.00
	9.920	10.000	89.00	4700	40.00
	10.000	10.000	89.00	4700	40.00
13/32	10.100	12.000	102.00	55.00	45.00
	10.200	12.000	102.00	55.00	45.00
	10.300	12.000	102.00	55.00	45.00
	10.320	12.000	102.00	55.00	45.00
	10.400	12.000	102.00	55.00	45.00
7/16	10.500	12.000	102.00	55.00	45.00
	10.600	12.000	102.00	55.00	45.00
	10.700	12.000	102.00	55.00	45.00
	10.800	12.000	102.00	55.00	45.00
7/16	10.900	12.000	102.00	55.00	45.00
	11.000	12.000	102.00	55.00	45.00
	11.100	12.000	102.00	55.00	45.00
	11.110	12.000	102.00	55.00	45.00
	11.200	12.000	102.00	55.00	45.00
7/16	11.300	12.000	102.00	55.00	45.00

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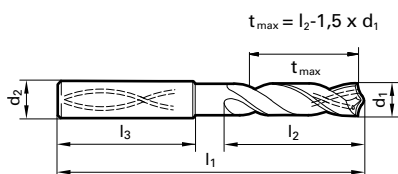
 bright steam tempered nitrided



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	11.400	12.000	102.00	55.00	45.00
	11.500	12.000	102.00	55.00	45.00
	11.600	12.000	102.00	55.00	45.00
15/32	11.700	12.000	102.00	55.00	45.00
	11.800	12.000	102.00	55.00	45.00
	11.900	12.000	102.00	55.00	45.00
	11.910	12.000	102.00	55.00	45.00
	12.000	12.000	102.00	55.00	45.00
1/2	12.200	14.000	107.00	60.00	45.00
	12.500	14.000	107.00	60.00	45.00
	12.700	14.000	107.00	60.00	45.00
	13.000	14.000	107.00	60.00	45.00
	13.500	14.000	107.00	60.00	45.00
	13.700	14.000	107.00	60.00	45.00
9/16	14.000	14.000	107.00	60.00	45.00
	14.200	16.000	115.00	65.00	48.00
	14.290	16.000	115.00	65.00	48.00
	14.500	16.000	115.00	65.00	48.00
	14.700	16.000	115.00	65.00	48.00
	15.000	16.000	115.00	65.00	48.00
	15.200	16.000	115.00	65.00	48.00
	15.500	16.000	115.00	65.00	48.00
	15.700	16.000	115.00	65.00	48.00
	16.000	16.000	115.00	65.00	48.00
	16.500	18.000	123.00	73.00	48.00
	17.000	18.000	123.00	73.00	48.00
	17.500	18.000	123.00	73.00	48.00
	18.000	18.000	123.00	73.00	48.00
	18.500	20.000	131.00	79.00	50.00
	19.000	20.000	131.00	79.00	50.00
	19.500	20.000	131.00	79.00	50.00
	20.000	20.000	131.00	79.00	50.00

[illegible]

Guhring no.	5511	5611
Standard	DIN 6537 L	
Tool material	Solid carbide	
Carbide grade	K / P	
Surface	F	F
Type	RT 100 U	
Shank design	HA	HE
Drilling depth	5 x D	
Cutting direction	right-hand	
Tolerance	m7	
Discount group	155	

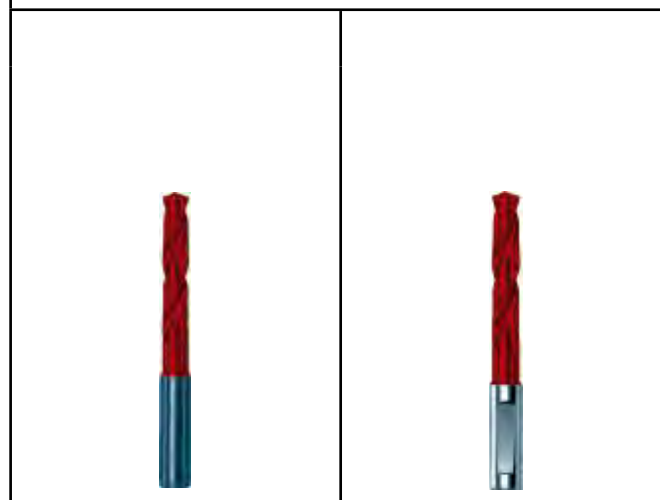


d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
1/8	3.000	6.000	66.00	28.00	36.00
	3.100	6.000	66.00	28.00	36.00
	3.170	6.000	66.00	28.00	36.00
	3.200	6.000	66.00	28.00	36.00
	3.250	6.000	66.00	28.00	36.00
	3.300	6.000	66.00	28.00	36.00
	3.400	6.000	66.00	28.00	36.00
	3.500	6.000	66.00	28.00	36.00
	3.570	6.000	66.00	28.00	36.00
9/64	3.600	6.000	66.00	28.00	36.00
	3.700	6.000	66.00	28.00	36.00
	3.800	6.000	74.00	36.00	36.00
	3.900	6.000	74.00	36.00	36.00
	3.970	6.000	74.00	36.00	36.00
	4.000	6.000	74.00	36.00	36.00
	4.100	6.000	74.00	36.00	36.00
	4.200	6.000	74.00	36.00	36.00
	4.300	6.000	74.00	36.00	36.00
11/64	4.370	6.000	74.00	36.00	36.00
	4.400	6.000	74.00	36.00	36.00
	4.500	6.000	74.00	36.00	36.00
	4.600	6.000	74.00	36.00	36.00
	4.650	6.000	74.00	36.00	36.00
	4.700	6.000	74.00	36.00	36.00
3/16	4.760	6.000	82.00	44.00	36.00
	4.800	6.000	82.00	44.00	36.00
	4.900	6.000	82.00	44.00	36.00
	5.000	6.000	82.00	44.00	36.00
	5.100	6.000	82.00	44.00	36.00
	5.160	6.000	82.00	44.00	36.00
13/64	5.200	6.000	82.00	44.00	36.00
	5.300	6.000	82.00	44.00	36.00
	5.400	6.000	82.00	44.00	36.00
	5.500	6.000	82.00	44.00	36.00
	5.550	6.000	82.00	44.00	36.00
	5.560	6.000	82.00	44.00	36.00

Availability

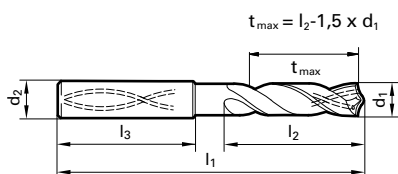
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 bright steam tempered nitrided

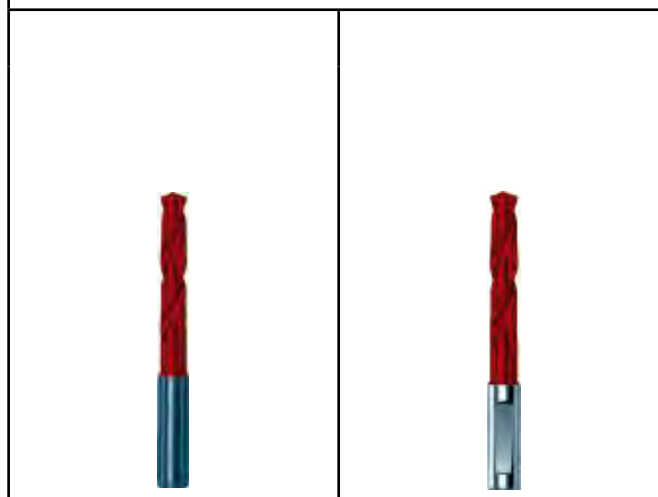
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Guhring no.
Standard
Tool material
Carbide grade
Surface
Type
Shank design
Drilling depth
Cutting direction
Tolerance
Discount group

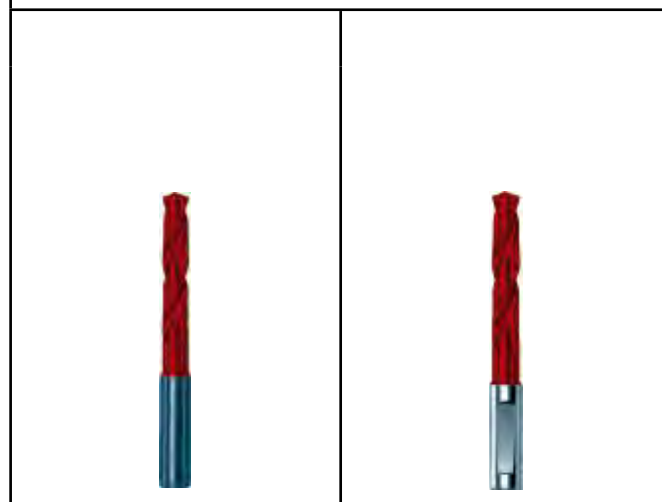
5511	5611
DIN 6537 L	
Solid carbide	
K / P	
	
RT 100 U	
HA	HE
5 x D	
right-hand	
m7	
155	

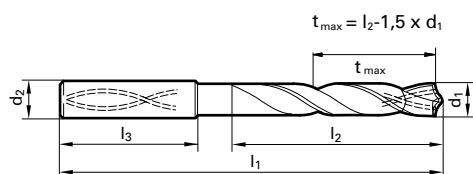


d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
11/32	8.500	10.000	103.00	61.00	40.00
	8.600	10.000	103.00	61.00	40.00
	8.700	10.000	103.00	61.00	40.00
	8.730	10.000	103.00	61.00	40.00
	8.800	10.000	103.00	61.00	40.00
	8.900	10.000	103.00	61.00	40.00
23/64	9.000	10.000	103.00	61.00	40.00
	9.100	10.000	103.00	61.00	40.00
	9.130	10.000	103.00	61.00	40.00
	9.200	10.000	103.00	61.00	40.00
3/8	9.250	10.000	103.00	61.00	40.00
	9.300	10.000	103.00	61.00	40.00
	9.400	10.000	103.00	61.00	40.00
	9.500	10.000	103.00	61.00	40.00
	9.520	10.000	103.00	61.00	40.00
	9.600	10.000	103.00	61.00	40.00
25/64	9.700	10.000	103.00	61.00	40.00
	9.800	10.000	103.00	61.00	40.00
	9.900	10.000	103.00	61.00	40.00
	9.920	10.000	103.00	61.00	40.00
	10.000	10.000	103.00	61.00	40.00
13/32	10.100	12.000	118.00	71.00	45.00
	10.200	12.000	118.00	71.00	45.00
	10.300	12.000	118.00	71.00	45.00
	10.320	12.000	118.00	71.00	45.00
	10.400	12.000	118.00	71.00	45.00
7/16	10.500	12.000	118.00	71.00	45.00
	10.600	12.000	118.00	71.00	45.00
	10.700	12.000	118.00	71.00	45.00
7/16	10.800	12.000	118.00	71.00	45.00
	10.900	12.000	118.00	71.00	45.00
	11.000	12.000	118.00	71.00	45.00
	11.100	12.000	118.00	71.00	45.00
	11.200	12.000	118.00	71.00	45.00
7/16	11.300	12.000	118.00	71.00	45.00
	11.400	12.000	118.00	71.00	45.00

[illegible]

○ bright ● steam tempered ● nitrided

[illegible]



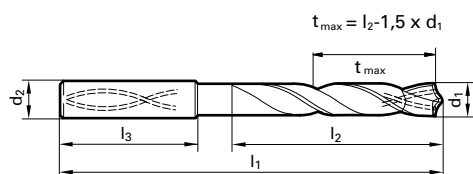
d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
1/8	3.000	6.000	70.00	30.00	36.00
	3.100	6.000	70.00	30.00	36.00
	3.170	6.000	70.00	30.00	36.00
	3.200	6.000	70.00	30.00	36.00
	3.250	6.000	70.00	30.00	36.00
	3.300	6.000	70.00	30.00	36.00
	3.400	6.000	75.00	35.50	36.00
	3.500	6.000	75.00	35.50	36.00
	3.570	6.000	75.00	35.50	36.00
9/64	3.600	6.000	75.00	35.50	36.00
	3.700	6.000	75.00	35.50	36.00
	3.800	6.000	75.00	37.50	36.00
	3.900	6.000	75.00	37.50	36.00
	3.970	6.000	75.00	37.50	36.00
	4.000	6.000	75.00	37.50	36.00
	4.100	6.000	75.00	37.50	36.00
	4.200	6.000	75.00	37.50	36.00
	4.300	6.000	85.00	45.00	36.00
11/64	4.370	6.000	85.00	45.00	36.00
	4.400	6.000	85.00	45.00	36.00
	4.500	6.000	85.00	45.00	36.00
	4.600	6.000	85.00	45.00	36.00
	4.650	6.000	85.00	45.00	36.00
	4.700	6.000	85.00	45.00	36.00
3/16	4.760	6.000	90.00	50.00	36.00
	4.800	6.000	90.00	50.00	36.00
	4.900	6.000	90.00	50.00	36.00
	5.000	6.000	90.00	50.00	36.00
	5.100	6.000	90.00	50.00	36.00
	5.160	6.000	90.00	50.00	36.00
13/64	5.200	6.000	90.00	50.00	36.00
	5.300	6.000	90.00	50.00	36.00
	5.400	6.000	97.00	57.00	36.00
	5.500	6.000	97.00	57.00	36.00
	5.700	6.000	97.00	57.00	36.00
	5.800	6.000	97.00	57.00	36.00

☐ bright

☐ steam tempered

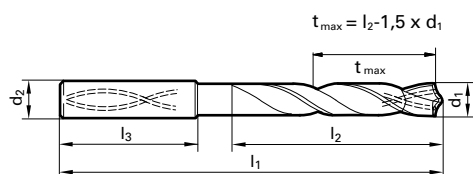
☒ nitrided

[illegible]

[illegible]

d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	5.900	6.000	97.00	57.00	36.00
	6.000	6.000	97.00	57.00	36.00
	6.200	8.000	106.00	66.00	36.00
1/4	6.300	8.000	106.00	66.00	36.00
	6.350	8.000	106.00	66.00	36.00
	6.500	8.000	106.00	66.00	36.00
	6.600	8.000	106.00	66.00	36.00
	6.700	8.000	106.00	66.00	36.00
	6.800	8.000	106.00	66.00	36.00
	6.900	8.000	116.00	76.00	36.00
	7.000	8.000	116.00	76.00	36.00
	7.100	8.000	116.00	76.00	36.00
	7.200	8.000	116.00	76.00	36.00
	7.500	8.000	116.00	76.00	36.00
	7.600	8.000	116.00	76.00	36.00
	7.700	8.000	116.00	76.00	36.00
	7.800	8.000	116.00	76.00	36.00
	8.000	8.000	116.00	76.00	36.00
	8.100	10.000	131.00	87.00	40.00
	8.200	10.000	131.00	87.00	40.00
	8.400	10.000	131.00	87.00	40.00
	8.500	10.000	131.00	87.00	40.00
	8.600	10.000	131.00	87.00	40.00
	8.700	10.000	131.00	87.00	40.00
	8.800	10.000	131.00	87.00	40.00
	9.000	10.000	131.00	87.00	40.00
	9.100	10.000	139.00	95.00	40.00
	9.200	10.000	139.00	95.00	40.00
	9.300	10.000	139.00	95.00	40.00
	9.400	10.000	139.00	95.00	40.00
3/8	9.500	10.000	139.00	95.00	40.00
	9.520	10.000	139.00	95.00	40.00
	9.700	10.000	139.00	95.00	40.00
	9.800	10.000	139.00	95.00	40.00
	9.900	10.000	139.00	95.00	40.00
	10.000	10.000	139.00	95.00	40.00

Guhring no.	5512	5612
Standard	Guhring std.	
Tool material	Solid carbide	
Carbide grade	K / P	
Surface	F	F
Type	RT 100 U	
Shank design	HA	HE
Drilling depth	7 x D	
Cutting direction	right-hand	
Tolerance	m7	
Discount group	155	



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	10.200	12.000	155.00	106.00	45.00
	10.500	12.000	155.00	106.00	45.00
	10.800	12.000	155.00	106.00	45.00
	11.000	12.000	155.00	106.00	45.00
	11.200	12.000	163.00	114.00	45.00
	11.500	12.000	163.00	114.00	45.00
	11.800	12.000	163.00	114.00	45.00
	12.000	12.000	163.00	114.00	45.00
	12.200	14.000	182.00	133.00	45.00
1/2	12.500	14.000	182.00	133.00	45.00
	12.700	14.000	182.00	133.00	45.00
	13.000	14.000	182.00	133.00	45.00
	13.500	14.000	182.00	133.00	45.00
	14.000	14.000	182.00	133.00	45.00
	14.200	16.000	204.00	152.00	48.00
	14.500	16.000	204.00	152.00	48.00
	15.000	16.000	204.00	152.00	48.00
	15.500	16.000	204.00	152.00	48.00
	16.000	16.000	204.00	152.00	48.00
	16.500	18.000	223.00	171.00	48.00
	17.000	18.000	223.00	171.00	48.00
	17.500	18.000	223.00	171.00	48.00
	18.000	18.000	223.00	171.00	48.00
	18.500	20.000	244.00	190.00	50.00
3/4	19.000	20.000	244.00	190.00	50.00
	19.050	20.000	244.00	190.00	50.00
	19.500	20.000	244.00	190.00	50.00
	20.000	20.000	244.00	190.00	50.00

[illegible]

 bright steam tempered nitrided

Guhring no.
 Standard
 Tool material
 Carbide grade
 Surface
 Type
 Shank design
 Drilling depth
 Cutting direction
 Tolerance
 Discount group

5525

Guhring std.

Solid carbide

K / P

F

RT 100

HA

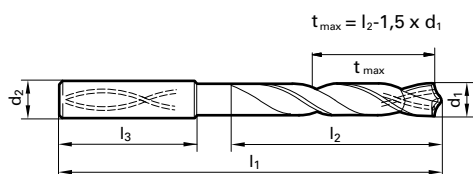
12 x D

right-hand

m7

155

SL Drills



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	3.000	6.000	90.00	50.00	36.00
	3.100	6.000	90.00	50.00	36.00
	3.170	6.000	90.00	50.00	36.00
	3.200	6.000	90.00	50.00	36.00
	3.300	6.000	90.00	50.00	36.00
	3.400	6.000	90.00	50.00	36.00
	3.500	6.000	90.00	50.00	36.00
	3.600	6.000	90.00	50.00	36.00
	3.700	6.000	90.00	50.00	36.00
	3.800	6.000	102.00	64.00	36.00
	3.900	6.000	102.00	64.00	36.00
	4.000	6.000	102.00	64.00	36.00
	4.100	6.000	102.00	64.00	36.00
	4.200	6.000	102.00	64.00	36.00
	4.300	6.000	102.00	64.00	36.00
	4.400	6.000	102.00	64.00	36.00
	4.500	6.000	102.00	64.00	36.00
	4.600	6.000	102.00	64.00	36.00
	4.700	6.000	102.00	64.00	36.00
	4.800	6.000	116.00	78.00	36.00
	4.900	6.000	116.00	78.00	36.00
	5.000	6.000	116.00	78.00	36.00
	5.100	6.000	116.00	78.00	36.00
	5.200	6.000	116.00	78.00	36.00
	5.300	6.000	116.00	78.00	36.00
	5.400	6.000	116.00	78.00	36.00
	5.500	6.000	116.00	78.00	36.00
	5.600	6.000	116.00	78.00	36.00
	5.700	6.000	116.00	78.00	36.00
	5.800	6.000	116.00	78.00	36.00
	5.900	6.000	116.00	78.00	36.00
	6.000	6.000	116.00	78.00	36.00
	6.100	8.000	146.00	108.00	36.00
	6.200	8.000	146.00	108.00	36.00
	6.300	8.000	146.00	108.00	36.00
1/4	6.350	8.000	146.00	108.00	36.00

Availability



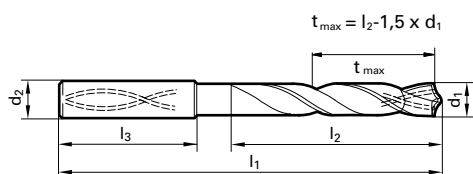
A TiAlN

C TiCN

F FIRE

S TiN

Guhring no.	5525
Standard	Guhring std.
Tool material	Solid carbide
Carbide grade	K / P
Surface	F
Type	RT 100
Shank design	HA
Drilling depth	12 x D
Cutting direction	right-hand
Tolerance	m7
Discount group	155



d1		d2	l1	l2	l3	Availability
inch	mm	mm	mm	mm	mm	
	6.400	8.000	146.00	108.00	36.00	●
	6.500	8.000	146.00	108.00	36.00	●
	6.600	8.000	146.00	108.00	36.00	●
	6.700	8.000	146.00	108.00	36.00	●
	6.800	8.000	146.00	108.00	36.00	●
	6.900	8.000	146.00	108.00	36.00	●
	7.000	8.000	146.00	108.00	36.00	●
	7.100	8.000	146.00	108.00	36.00	●
	7.200	8.000	146.00	108.00	36.00	●
	7.300	8.000	146.00	108.00	36.00	●
	7.400	8.000	146.00	108.00	36.00	●
	7.500	8.000	146.00	108.00	36.00	●
	7.600	8.000	146.00	108.00	36.00	●
	7.700	8.000	146.00	108.00	36.00	●
	7.800	8.000	146.00	108.00	36.00	●
	7.900	8.000	146.00	108.00	36.00	●
	8.000	8.000	146.00	108.00	36.00	●
	8.100	10.000	162.00	120.00	40.00	●
	8.200	10.000	162.00	120.00	40.00	●
	8.300	10.000	162.00	120.00	40.00	●
	8.400	10.000	162.00	120.00	40.00	●
	8.500	10.000	162.00	120.00	40.00	●
	8.600	10.000	162.00	120.00	40.00	●
	8.700	10.000	162.00	120.00	40.00	●
	8.800	10.000	162.00	120.00	40.00	●
	8.900	10.000	162.00	120.00	40.00	●
	9.000	10.000	162.00	120.00	40.00	●
	9.100	10.000	162.00	120.00	40.00	●
	9.200	10.000	162.00	120.00	40.00	●
	9.300	10.000	162.00	120.00	40.00	●
3/8	9.400	10.000	162.00	120.00	40.00	●
	9.500	10.000	162.00	120.00	40.00	●
	9.520	10.000	162.00	120.00	40.00	●
	9.600	10.000	162.00	120.00	40.00	●
	9.700	10.000	162.00	120.00	40.00	●
	9.800	10.000	162.00	120.00	40.00	●

 bright steam tempered nitrided

Guhring no.
 Standard
 Tool material
 Carbide grade
 Surface
 Type
 Shank design
 Drilling depth
 Cutting direction
 Tolerance
 Discount group

5525

Guhring std.

Solid carbide

K / P

F

RT 100

HA

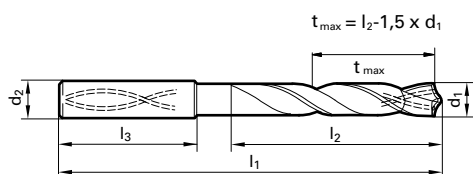
12 x D

right-hand

m7

155

SL Drills



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	9.900	10.000	162.00	120.00	40.00
	10.000	10.000	162.00	120.00	40.00
	10.200	12.000	204.00	156.00	45.00
	10.500	12.000	204.00	156.00	45.00
	11.000	12.000	204.00	156.00	45.00
	11.500	12.000	204.00	156.00	45.00
	12.000	12.000	204.00	156.00	45.00
1/2	12.500	14.000	230.00	182.00	45.00
	12.700	14.000	230.00	182.00	45.00
	13.000	14.000	230.00	182.00	45.00
	13.500	14.000	230.00	182.00	45.00
	14.000	14.000	230.00	182.00	45.00
	14.500	16.000	260.00	208.00	48.00
	15.000	16.000	260.00	208.00	48.00
	15.500	16.000	260.00	208.00	48.00
	16.000	16.000	260.00	208.00	48.00
	16.500	18.000	285.00	234.00	48.00
	17.000	18.000	285.00	234.00	48.00
	17.500	18.000	285.00	234.00	48.00
	18.000	18.000	285.00	234.00	48.00
	18.500	20.000	310.00	258.00	50.00
3/4	19.000	20.000	310.00	258.00	50.00
	19.050	20.000	310.00	258.00	50.00
	19.500	20.000	310.00	258.00	50.00
	20.000	20.000	310.00	258.00	50.00

Availability



A TiAlN

C TiCN

F FIRE

S TiN

Guhring no.
 Standard
 Tool material
 Carbide grade
 Surface
 Type
 Shank design
 Drilling depth
 Cutting direction
 Tolerance
 Discount group

5513

Guhring std.

Solid carbide

K



RT 150 GG

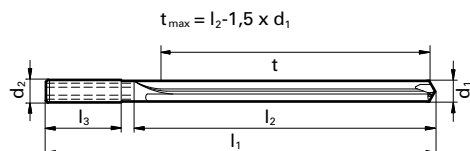
HA

10 x D

right-hand

m7

155



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
1/8	3.000	6.000	91.00	42.00	36.00
	3.170	6.000	91.00	42.00	36.00
	3.250	6.000	91.00	42.00	36.00
9/64	3.300	6.000	91.00	42.00	36.00
	3.500	6.000	91.00	48.00	36.00
	3.570	6.000	91.00	48.00	36.00
5/32	3.800	6.000	121.00	77.00	36.00
	3.970	6.000	121.00	77.00	36.00
	4.000	6.000	121.00	77.00	36.00
	4.200	6.000	121.00	77.00	36.00
	4.500	6.000	121.00	77.00	36.00
	5.000	6.000	121.00	82.00	36.00
1/4	5.500	6.000	121.00	82.00	36.00
	6.000	6.000	121.00	82.00	36.00
	6.350	8.000	146.00	106.00	36.00
	6.500	8.000	146.00	106.00	36.00
	6.800	8.000	146.00	106.00	36.00
	7.000	8.000	146.00	106.00	36.00
	7.500	8.000	146.00	106.00	36.00
	7.800	8.000	146.00	106.00	36.00
	8.000	8.000	146.00	106.00	36.00
	8.500	10.000	175.00	130.00	40.00
	9.000	10.000	175.00	130.00	40.00
	9.500	10.000	175.00	130.00	40.00
3/8	9.520	10.000	175.00	130.00	40.00
	10.000	10.000	175.00	130.00	40.00
	10.200	12.000	209.00	159.00	45.00
	10.500	12.000	209.00	159.00	45.00
	11.000	12.000	209.00	159.00	45.00
	11.500	12.000	209.00	159.00	45.00
1/2	12.000	12.000	209.00	159.00	45.00
	12.500	14.000	233.00	183.00	45.00
	12.700	14.000	233.00	183.00	45.00
	13.000	14.000	233.00	183.00	45.00
	13.500	14.000	233.00	183.00	45.00
	14.000	14.000	233.00	183.00	45.00

Availability


☐ bright

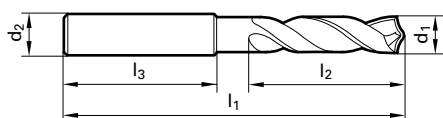
☐ steam tempered

☒ nitrided

5513
Guhring std.
Solid carbide
K

RT 150 GG
HA
10 x D
right-hand
m7
155

[illegible]



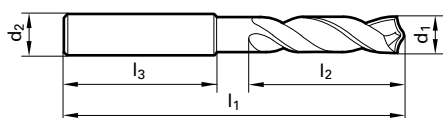
d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
1/8	3.000	6.000	62.00	20.00	36.00
	3.100	6.000	62.00	20.00	36.00
	3.170	6.000	62.00	20.00	36.00
	3.200	6.000	62.00	20.00	36.00
	3.250	6.000	62.00	20.00	36.00
	3.300	6.000	62.00	20.00	36.00
	3.400	6.000	62.00	20.00	36.00
	3.500	6.000	62.00	20.00	36.00
	3.570	6.000	62.00	20.00	36.00
9/64	3.600	6.000	62.00	20.00	36.00
	3.700	6.000	62.00	20.00	36.00
	3.800	6.000	66.00	24.00	36.00
	3.900	6.000	66.00	24.00	36.00
	3.970	6.000	66.00	24.00	36.00
	4.000	6.000	66.00	24.00	36.00
	4.100	6.000	66.00	24.00	36.00
	4.200	6.000	66.00	24.00	36.00
	4.300	6.000	66.00	24.00	36.00
11/64	4.370	6.000	66.00	24.00	36.00
	4.400	6.000	66.00	24.00	36.00
	4.500	6.000	66.00	24.00	36.00
	4.600	6.000	66.00	24.00	36.00
	4.650	6.000	66.00	24.00	36.00
	4.700	6.000	66.00	24.00	36.00
3/16	4.760	6.000	66.00	28.00	36.00
	4.800	6.000	66.00	28.00	36.00
	4.900	6.000	66.00	28.00	36.00
	5.000	6.000	66.00	28.00	36.00
	5.100	6.000	66.00	28.00	36.00
	5.160	6.000	66.00	28.00	36.00
13/64	5.200	6.000	66.00	28.00	36.00
	5.300	6.000	66.00	28.00	36.00
	5.400	6.000	66.00	28.00	36.00
	5.500	6.000	66.00	28.00	36.00
	5.550	6.000	66.00	28.00	36.00
	5.560	6.000	66.00	28.00	36.00

 bright

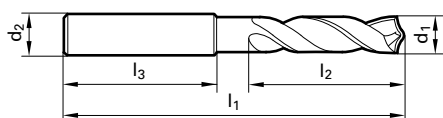
☐ steam tempered

☒ nitrided

[illegible]

[illegible]

d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	5.600	6.000	66.00	28.00	36.00
	5.700	6.000	66.00	28.00	36.00
	5.800	6.000	66.00	28.00	36.00
15/64	5.900	6.000	66.00	28.00	36.00
	5.950	6.000	66.00	28.00	36.00
	6.000	6.000	66.00	28.00	36.00
	6.100	8.000	79.00	34.00	36.00
	6.200	8.000	79.00	34.00	36.00
	6.300	8.000	79.00	34.00	36.00
1/4	6.350	8.000	79.00	34.00	36.00
	6.400	8.000	79.00	34.00	36.00
	6.500	8.000	79.00	34.00	36.00
	6.600	8.000	79.00	34.00	36.00
	6.700	8.000	79.00	34.00	36.00
	6.750	8.000	79.00	34.00	36.00
	6.800	8.000	79.00	34.00	36.00
	6.900	8.000	79.00	34.00	36.00
	7.000	8.000	79.00	34.00	36.00
9/32	7.100	8.000	79.00	41.00	36.00
	7.140	8.000	79.00	41.00	36.00
	7.200	8.000	79.00	41.00	36.00
	7.300	8.000	79.00	41.00	36.00
	7.400	8.000	79.00	41.00	36.00
	7.500	8.000	79.00	41.00	36.00
19/64	7.540	8.000	79.00	41.00	36.00
	7.600	8.000	79.00	41.00	36.00
	7.700	8.000	79.00	41.00	36.00
	7.800	8.000	79.00	41.00	36.00
	7.900	8.000	79.00	41.00	36.00
	7.940	8.000	79.00	41.00	36.00
5/16	8.000	8.000	79.00	41.00	36.00
	8.100	10.000	89.00	47.00	40.00
	8.200	10.000	89.00	47.00	40.00
	8.300	10.000	89.00	47.00	40.00
	8.330	10.000	89.00	47.00	40.00
	8.400	10.000	89.00	47.00	40.00



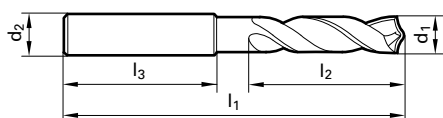
d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
11/32	8.500	10.000	89.00	4700	40.00
	8.600	10.000	89.00	4700	40.00
	8.700	10.000	89.00	4700	40.00
	8.730	10.000	89.00	4700	40.00
	8.800	10.000	89.00	4700	40.00
	8.900	10.000	89.00	4700	40.00
23/64	9.000	10.000	89.00	4700	40.00
	9.100	10.000	89.00	4700	40.00
	9.130	10.000	89.00	4700	40.00
	9.200	10.000	89.00	4700	40.00
3/8	9.250	10.000	89.00	4700	40.00
	9.300	10.000	89.00	4700	40.00
	9.400	10.000	89.00	4700	40.00
	9.500	10.000	89.00	4700	40.00
	9.520	10.000	89.00	4700	40.00
	9.600	10.000	89.00	4700	40.00
25/64	9.700	10.000	89.00	4700	40.00
	9.800	10.000	89.00	4700	40.00
	9.900	10.000	89.00	4700	40.00
	9.920	10.000	89.00	4700	40.00
13/32	10.000	10.000	89.00	4700	40.00
	10.100	12.000	102.00	55.00	45.00
	10.200	12.000	102.00	55.00	45.00
	10.300	12.000	102.00	55.00	45.00
	10.320	12.000	102.00	55.00	45.00
7/16	10.400	12.000	102.00	55.00	45.00
	10.500	12.000	102.00	55.00	45.00
	10.600	12.000	102.00	55.00	45.00
	10.700	12.000	102.00	55.00	45.00
7/16	10.800	12.000	102.00	55.00	45.00
	10.900	12.000	102.00	55.00	45.00
	11.000	12.000	102.00	55.00	45.00
	11.100	12.000	102.00	55.00	45.00
	11.110	12.000	102.00	55.00	45.00
7/16	11.200	12.000	102.00	55.00	45.00
	11.300	12.000	102.00	55.00	45.00

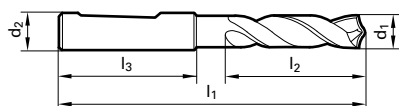
☐ bright☐ steam tempered

☒ nitrided

[illegible]

5514	5614
DIN 6537 K	
Solid carbide	
K / P	
F	F
RT 100 U	
HA	HE
3 x D	
right-hand	
m7	
155	

[illegible]

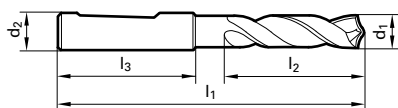


d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
1/8	3.000	6.000	66.00	28.00	36.00
	3.100	6.000	66.00	28.00	36.00
	3.170	6.000	66.00	28.00	36.00
	3.200	6.000	66.00	28.00	36.00
	3.250	6.000	66.00	28.00	36.00
	3.300	6.000	66.00	28.00	36.00
9/64	3.400	6.000	66.00	28.00	36.00
	3.500	6.000	66.00	28.00	36.00
	3.570	6.000	66.00	28.00	36.00
	3.600	6.000	66.00	28.00	36.00
	3.700	6.000	66.00	28.00	36.00
	3.800	6.000	74.00	36.00	36.00
5/32	3.900	6.000	74.00	36.00	36.00
	3.970	6.000	74.00	36.00	36.00
	4.000	6.000	74.00	36.00	36.00
	4.100	6.000	74.00	36.00	36.00
	4.200	6.000	74.00	36.00	36.00
	4.300	6.000	74.00	36.00	36.00
11/64	4.370	6.000	74.00	36.00	36.00
	4.400	6.000	74.00	36.00	36.00
	4.500	6.000	74.00	36.00	36.00
	4.600	6.000	74.00	36.00	36.00
	4.650	6.000	74.00	36.00	36.00
	4.700	6.000	74.00	36.00	36.00
3/16	4.760	6.000	82.00	44.00	36.00
	4.800	6.000	82.00	44.00	36.00
	4.900	6.000	82.00	44.00	36.00
13/64	5.000	6.000	82.00	44.00	36.00
	5.100	6.000	82.00	44.00	36.00
	5.160	6.000	82.00	44.00	36.00
	5.200	6.000	82.00	44.00	36.00
	5.300	6.000	82.00	44.00	36.00
	5.400	6.000	82.00	44.00	36.00
7/32	5.500	6.000	82.00	44.00	36.00
	5.550	6.000	82.00	44.00	36.00
	5.560	6.000	82.00	44.00	36.00

 bright

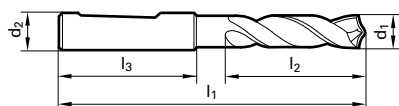
☐ steam tempered☒ nitrided[illegible]

5515	5615
DIN 6537 L	
Solid carbide	
K / P	
F	F
RT 100 U	
HA	HE
5 x D	
right-hand	
m7	
155	
	



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	5.600	6.000	82.00	44.00	36.00
	5.700	6.000	82.00	44.00	36.00
	5.800	6.000	82.00	44.00	36.00
	5.900	6.000	82.00	44.00	36.00
	5.950	6.000	82.00	44.00	36.00
15/64	6.000	6.000	82.00	44.00	36.00
	6.100	8.000	91.00	53.00	36.00
	6.200	8.000	91.00	53.00	36.00
1/4	6.300	8.000	91.00	53.00	36.00
	6.350	8.000	91.00	53.00	36.00
	6.400	8.000	91.00	53.00	36.00
	6.500	8.000	91.00	53.00	36.00
	6.600	8.000	91.00	53.00	36.00
17/64	6.700	8.000	91.00	53.00	36.00
	6.750	8.000	91.00	53.00	36.00
	6.800	8.000	91.00	53.00	36.00
	6.900	8.000	91.00	53.00	36.00
	7.000	8.000	91.00	53.00	36.00
	7.100	8.000	91.00	53.00	36.00
	7.140	8.000	91.00	53.00	36.00
	7.200	8.000	91.00	53.00	36.00
	7.300	8.000	91.00	53.00	36.00
	7.400	8.000	91.00	53.00	36.00
	7.500	8.000	91.00	53.00	36.00
	7.540	8.000	91.00	53.00	36.00
	7.600	8.000	91.00	53.00	36.00
19/64	7.700	8.000	91.00	53.00	36.00
	7.800	8.000	91.00	53.00	36.00
	7.900	8.000	91.00	53.00	36.00
5/16	7.940	8.000	91.00	53.00	36.00
	8.000	8.000	91.00	53.00	36.00
	8.100	10.000	103.00	61.00	40.00
21/64	8.200	10.000	103.00	61.00	40.00
	8.300	10.000	103.00	61.00	40.00
	8.330	10.000	103.00	61.00	40.00
	8.400	10.000	103.00	61.00	40.00

[illegible]



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
11/32	8.500	10.000	103.00	61.00	40.00
	8.600	10.000	103.00	61.00	40.00
	8.700	10.000	103.00	61.00	40.00
	8.730	10.000	103.00	61.00	40.00
	8.800	10.000	103.00	61.00	40.00
	8.900	10.000	103.00	61.00	40.00
23/64	9.000	10.000	103.00	61.00	40.00
	9.100	10.000	103.00	61.00	40.00
	9.130	10.000	103.00	61.00	40.00
	9.200	10.000	103.00	61.00	40.00
3/8	9.250	10.000	103.00	61.00	40.00
	9.300	10.000	103.00	61.00	40.00
	9.400	10.000	103.00	61.00	40.00
	9.500	10.000	103.00	61.00	40.00
	9.520	10.000	103.00	61.00	40.00
	9.600	10.000	103.00	61.00	40.00
25/64	9.700	10.000	103.00	61.00	40.00
	9.800	10.000	103.00	61.00	40.00
	9.900	10.000	103.00	61.00	40.00
	9.920	10.000	103.00	61.00	40.00
	10.000	10.000	103.00	61.00	40.00
13/32	10.100	12.000	118.00	71.00	45.00
	10.200	12.000	118.00	71.00	45.00
	10.300	12.000	118.00	71.00	45.00
	10.320	12.000	118.00	71.00	45.00
	10.400	12.000	118.00	71.00	45.00
7/16	10.500	12.000	118.00	71.00	45.00
	10.600	12.000	118.00	71.00	45.00
	10.700	12.000	118.00	71.00	45.00
7/16	10.800	12.000	118.00	71.00	45.00
	10.900	12.000	118.00	71.00	45.00
	11.000	12.000	118.00	71.00	45.00
	11.100	12.000	118.00	71.00	45.00
	11.200	12.000	118.00	71.00	45.00
7/16	11.300	12.000	118.00	71.00	45.00
	11.400	12.000	118.00	71.00	45.00

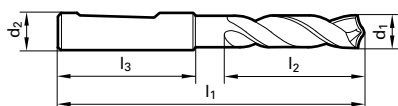
☐ bright

☐ steam tempered

☒ nitrided

[illegible]

5515	5615
DIN 6537 L	
Solid carbide	
K / P	
	
RT 100 U	
HA	HE
5 x D	
right-hand	
m7	
155	

[illegible]

Guhring no.

Standard

Tool material

Carbide grade

Surface

Type

Shank design

Drilling depth

Cutting direction

Tolerance

Discount group

5518

DIN 6537 L

Solid carbide

K

FT 200

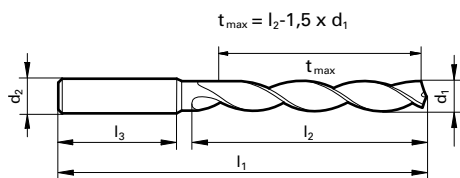
HA

5 x D

right-hand

m7

155



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	3.000	6.000	66.00	28.00	36.00
	3.100	6.000	66.00	28.00	36.00
	3.200	6.000	66.00	28.00	36.00
	3.300	6.000	66.00	28.00	36.00
	3.500	6.000	66.00	28.00	36.00
	3.700	6.000	66.00	28.00	36.00
	3.800	6.000	74.00	36.00	36.00
	4.000	6.000	74.00	36.00	36.00
	4.100	6.000	74.00	36.00	36.00
	4.200	6.000	74.00	36.00	36.00
	4.500	6.000	74.00	36.00	36.00
	4.800	6.000	82.00	44.00	36.00
	5.000	6.000	82.00	44.00	36.00
	5.100	6.000	82.00	44.00	36.00
	5.200	6.000	82.00	44.00	36.00
	5.300	6.000	82.00	44.00	36.00
	5.500	6.000	82.00	44.00	36.00
	5.800	6.000	82.00	44.00	36.00
	6.000	6.000	82.00	44.00	36.00
	6.100	8.000	91.00	53.00	36.00
	6.200	8.000	91.00	53.00	36.00
	6.400	8.000	91.00	53.00	36.00
	6.500	8.000	91.00	53.00	36.00
	6.700	8.000	91.00	53.00	36.00
	6.800	8.000	91.00	53.00	36.00
	7.000	8.000	91.00	53.00	36.00
	7.100	8.000	91.00	53.00	36.00
	7.400	8.000	91.00	53.00	36.00
	7.500	8.000	91.00	53.00	36.00
	7.800	8.000	91.00	53.00	36.00
	8.000	8.000	91.00	53.00	36.00
	8.100	10.000	103.00	61.00	40.00
	8.200	10.000	103.00	61.00	40.00
	8.400	10.000	103.00	61.00	40.00
	8.500	10.000	103.00	61.00	40.00
	8.600	10.000	103.00	61.00	40.00

Availability



 bright

☐ steam tempered

☒ nitrided

Guhring no.
Standard
Tool material
Carbide grade
Surface
Type
Shank design
Drilling depth
Cutting direction
Tolerance
Discount group

5518

DIN 6537 L

Solid carbide

K



FT 200

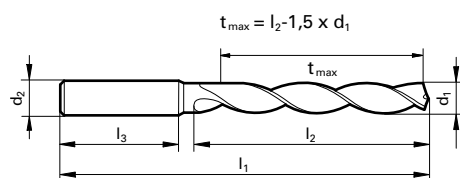
HA

5 x D

right-hand

m7

155



d1		d2	l1	l2	l3
inch	mm	mm	mm	mm	mm
	8.700	10.000	103.00	61.00	40.00
	8.800	10.000	103.00	61.00	40.00
	9.000	10.000	103.00	61.00	40.00
	9.100	10.000	103.00	61.00	40.00
	9.500	10.000	103.00	61.00	40.00
	9.800	10.000	103.00	61.00	40.00
	10.000	10.000	103.00	61.00	40.00
	10.100	12.000	118.00	71.00	45.00
	10.200	12.000	118.00	71.00	45.00
	10.300	12.000	118.00	71.00	45.00
	10.500	12.000	118.00	71.00	45.00
	11.000	12.000	118.00	71.00	45.00
	11.200	12.000	118.00	71.00	45.00
	11.500	12.000	118.00	71.00	45.00
	11.800	12.000	118.00	71.00	45.00
	12.000	12.000	118.00	71.00	45.00
	12.100	14.000	124.00	77.00	45.00
	12.500	14.000	124.00	77.00	45.00
	13.000	14.000	124.00	77.00	45.00
	13.500	14.000	124.00	77.00	45.00
	14.000	14.000	124.00	77.00	45.00
	14.500	16.000	133.00	83.00	48.00
	15.000	16.000	133.00	83.00	48.00
	15.500	16.000	133.00	83.00	48.00
	16.000	16.000	133.00	83.00	48.00
	16.500	18.000	143.00	93.00	48.00
	17.000	18.000	143.00	93.00	48.00
	17.500	18.000	143.00	93.00	48.00
	18.000	18.000	143.00	93.00	48.00
	18.500	20.000	153.00	101.00	50.00
	19.000	20.000	153.00	101.00	50.00
	19.500	20.000	153.00	101.00	50.00
	20.000	20.000	153.00	101.00	50.00

Availability

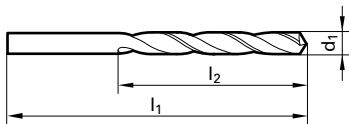


A TiAIN

C TiCN

F FIRE

S TiN

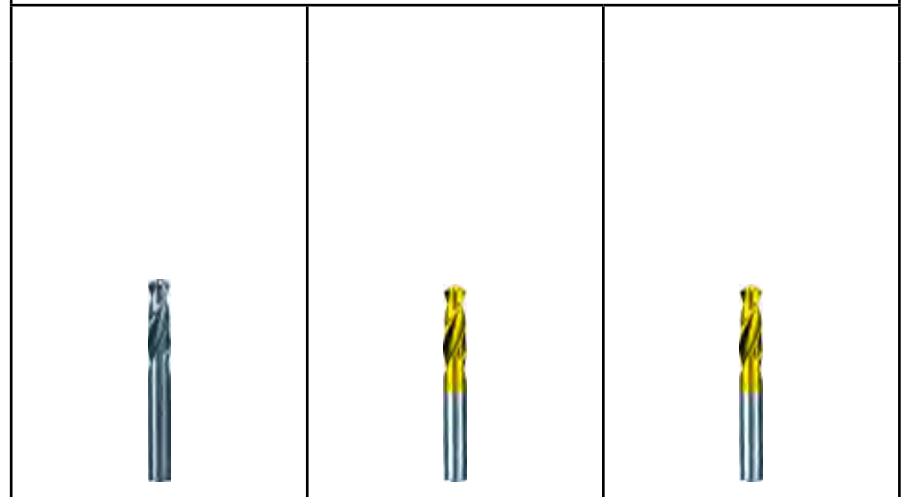


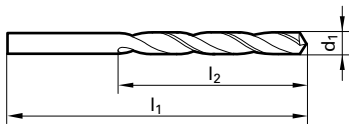
d1		l1	l2
inch	mm	mm	mm
	1.000	26.00	6.00
	1.100	28.00	7.00
	1.200	30.00	8.00
	1.300	30.00	8.00
	1.400	32.00	9.00
	1.500	32.00	9.00
	1.600	34.00	10.00
	1.700	34.00	10.00
	1.800	36.00	11.00
	1.900	36.00	11.00
	2.000	38.00	12.00
	2.100	38.00	12.00
3/32	2.200	40.00	13.00
	2.300	40.00	13.00
	2.380	43.00	14.00
	2.400	43.00	14.00
	2.500	43.00	14.00
	2.600	43.00	14.00
7/64	2.700	46.00	16.00
	2.780	46.00	16.00
	2.800	46.00	16.00
	2.900	46.00	16.00
	3.000	46.00	16.00
	3.100	49.00	18.00
1/8	3.170	49.00	18.00
	3.200	49.00	18.00
	3.300	49.00	18.00
	3.400	52.00	20.00
	3.500	52.00	20.00
	3.570	52.00	20.00
9/64	3.600	52.00	20.00
	3.700	52.00	20.00
	3.800	55.00	22.00
5/32	3.900	55.00	22.00
	3.970	55.00	22.00
	4.000	55.00	22.00
	4.100	55.00	22.00
	4.200	55.00	22.00
	4.300	58.00	24.00

[illegible]

 bright steam tempered nitrided

5524	5520	5521
DIN 1897		
HSCO		HSS-E-PM
○	Ⓢ	Ⓢ
GU 500 DZ		GT 500 DZ
right-hand		
h8		
159		

[illegible]



d1		l1	l2
inch	mm	mm	mm
5/16	7.600	79.00	37.00
	7.700	79.00	37.00
	7.800	79.00	37.00
	7.900	79.00	37.00
	7.940	79.00	37.00
	8.000	79.00	37.00
	8.100	79.00	37.00
	8.200	79.00	37.00
	8.300	79.00	37.00
11/32	8.400	79.00	37.00
	8.500	79.00	37.00
	8.600	84.00	40.00
	8.700	84.00	40.00
	8.730	84.00	40.00
	8.800	84.00	40.00
	8.900	84.00	40.00
	9.000	84.00	40.00
	9.100	84.00	40.00
	9.200	84.00	40.00
	9.300	84.00	40.00
	9.400	84.00	40.00
	9.500	84.00	40.00
	9.600	89.00	43.00
	9.700	89.00	43.00
	9.800	89.00	43.00
	9.900	89.00	43.00
	10.000	89.00	43.00
	10.100	89.00	43.00
	10.200	89.00	43.00
	10.300	89.00	43.00
7/16	10.500	89.00	43.00
	11.000	95.00	47.00
	11.110	95.00	47.00
	11.500	95.00	47.00
	12.000	102.00	51.00
	12.500	102.00	51.00
	13.000	102.00	51.00
	13.500	107.00	54.00
	14.000	107.00	54.00

[illegible]

 bright steam tempered nitrided

5516
DIN 6539
Solid carbide
K

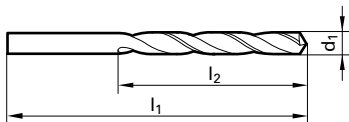
N
right-hand
h7
155

[illegible]

Guhring no.
Standard
Tool material
Carbide grade
Surface
Type
Cutting direction
Tolerance
Discount group

5516
DIN 6539
Solid carbide
K

N
right-hand
h7
155



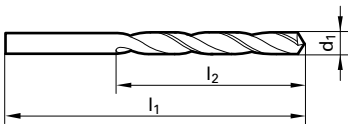
d1		l1	l2
inch	mm	mm	mm
1/4	5.500	66.00	28.00
	5.800	66.00	28.00
	6.000	66.00	28.00
	6.350	70.00	31.00
9/32	6.500	70.00	31.00
	6.800	74.00	34.00
	7.000	74.00	34.00
	7.140	74.00	34.00
5/16	7.500	74.00	34.00
	7.940	79.00	37.00
	8.000	79.00	37.00
11/32	8.500	79.00	37.00
	8.730	84.00	40.00
	8.800	84.00	40.00
	9.000	84.00	40.00
	9.500	84.00	40.00
	10.000	89.00	43.00
	10.200	89.00	43.00
7/16	10.500	89.00	43.00
	11.000	95.00	47.00
	11.110	95.00	47.00
15/32	11.500	95.00	47.00
	11.910	102.00	51.00
	12.000	102.00	51.00

[illegible]☐ bright☐ steam tempered

● nitrided

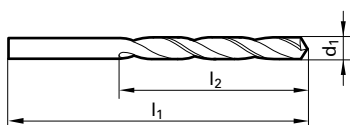
Guhring no.
Standard
Tool material
Carbide grade
Surface
Type
Cutting direction
Tolerance
Discount group

5523	5519	5522
DIN 338		
HSCO		HSS-E-PM
		
GU 500 DZ		GT 500 DZ
right-hand		
h8		
159		
		



d1		l1	l2
inch	mm	mm	mm
	1.000	34.00	12.00
	1.100	36.00	14.00
	1.200	38.00	16.00
	1.300	38.00	16.00
	1.400	40.00	18.00
	1.500	40.00	18.00
	1.600	43.00	20.00
	1.700	43.00	20.00
	1.800	46.00	22.00
	1.900	46.00	22.00
	2.000	49.00	24.00
	2.100	49.00	24.00
3/32	2.200	53.00	27.00
	2.300	53.00	27.00
	2.380	57.00	30.00
	2.400	57.00	30.00
	2.500	57.00	30.00
	2.600	57.00	30.00
7/64	2.700	61.00	33.00
	2.780	61.00	33.00
	2.800	61.00	33.00
	2.900	61.00	33.00
	3.000	61.00	33.00
	3.100	65.00	36.00
1/8	3.170	65.00	36.00
	3.200	65.00	36.00
	3.300	65.00	36.00
9/64	3.400	70.00	39.00
	3.500	70.00	39.00
	3.570	70.00	39.00
	3.600	70.00	39.00
	3.700	70.00	39.00
	3.800	75.00	43.00
5/32	3.900	75.00	43.00
	3.970	75.00	43.00
	4.000	75.00	43.00
	4.100	75.00	43.00
	4.200	75.00	43.00
	4.300	80.00	47.00

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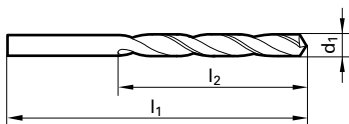


d1		l1	l2
inch	mm	mm	mm
11/64	4.370	80.00	47.00
	4.400	80.00	47.00
	4.500	80.00	47.00
3/16	4.600	80.00	47.00
	4.700	80.00	47.00
	4.760	86.00	52.00
	4.800	86.00	52.00
	4.900	86.00	52.00
	5.000	86.00	52.00
13/64	5.100	86.00	52.00
	5.160	86.00	52.00
	5.200	86.00	52.00
	5.300	86.00	52.00
	5.400	93.00	57.00
	5.500	93.00	57.00
7/32	5.560	93.00	57.00
	5.600	93.00	57.00
	5.700	93.00	57.00
	5.800	93.00	57.00
	5.900	93.00	57.00
	5.950	93.00	57.00
15/64	6.000	93.00	57.00
	6.100	101.00	63.00
	6.200	101.00	63.00
1/4	6.300	101.00	63.00
	6.350	101.00	63.00
	6.400	101.00	63.00
	6.500	101.00	63.00
	6.600	101.00	63.00
	6.700	101.00	63.00
	6.800	109.00	69.00
	6.900	109.00	69.00
	7.000	109.00	69.00
9/32	7.100	109.00	69.00
	7.140	109.00	69.00
	7.200	109.00	69.00
	7.300	109.00	69.00
	7.400	109.00	69.00
	7.500	109.00	69.00

[illegible]

○ bright ● steam tempered ● nitrided

5523	5519	5522
DIN 338		
HSCO		HSS-E-PM
○	Ⓢ	Ⓢ
GU 500 DZ		GT 500 DZ
right-hand		
h8		
159		



d1		l1	l2
inch	mm	mm	mm
	7600	11700	75.00
	7700	11700	75.00
	7800	11700	75.00
5/16	7900	11700	75.00
	7940	11700	75.00
	8000	11700	75.00
	8100	11700	75.00
	8200	11700	75.00
	8300	11700	75.00
	8400	11700	75.00
	8500	11700	75.00
	8600	125.00	81.00
11/32	8700	125.00	81.00
	8730	125.00	81.00
	8800	125.00	81.00
	9000	125.00	81.00
	9100	125.00	81.00
	9200	125.00	81.00
	9300	125.00	81.00
	9400	125.00	81.00
	9500	125.00	81.00
	9600	133.00	8700
	9700	133.00	8700
	9800	133.00	8700
	9900	133.00	8700
	10000	133.00	8700
	10100	133.00	8700
	10200	133.00	8700
	10300	133.00	8700
	10400	133.00	8700
7/16	10500	133.00	8700
	11000	142.00	94.00
	11100	142.00	94.00
	11500	142.00	94.00
	12000	151.00	101.00
	12500	151.00	101.00
	13000	151.00	101.00
	13500	160.00	108.00
	14000	160.00	108.00

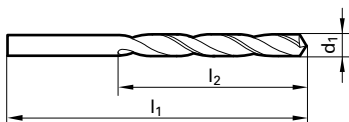
		
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[illegible]

Guhring no.
Standard
Tool material
Carbide grade
Surface
Type
Cutting direction
Tolerance
Discount group

5517
Guhring std.
Solid carbide
K

N
right-hand
h7
155



d1		l1	l2
inch	mm	mm	mm
	2.000	49.00	24.00
	2.100	49.00	24.00
	2.200	53.00	27.00
3/32	2.300	53.00	27.00
	2.380	57.00	30.00
	2.400	57.00	30.00
	2.500	57.00	30.00
	2.600	57.00	30.00
	2.700	61.00	33.00
7/64	2.780	61.00	33.00
	2.800	61.00	33.00
	2.900	61.00	33.00
	3.000	61.00	33.00
	3.100	65.00	36.00
	3.170	65.00	36.00
	3.200	65.00	36.00
	3.300	65.00	36.00
	3.400	70.00	39.00
9/64	3.500	70.00	39.00
	3.570	70.00	39.00
	3.600	70.00	39.00
	3.700	70.00	39.00
	3.800	75.00	43.00
	3.900	75.00	43.00
5/32	3.970	75.00	43.00
	4.000	75.00	43.00
	4.100	75.00	43.00
	4.200	75.00	43.00
	4.300	80.00	47.00
	4.370	80.00	47.00
11/64	4.400	80.00	47.00
	4.500	80.00	47.00
	4.600	80.00	47.00
	4.700	80.00	47.00
	4.760	86.00	52.00
	4.800	86.00	52.00
3/16	4.900	86.00	52.00
	5.000	86.00	52.00
	5.160	86.00	52.00

[illegible]☐ bright☐ steam tempered

☒ nitrided

5517
Guhring std.
Solid carbide
K

N
right-hand
h7
155

[illegible]

Tools with **bold** feed column no. are preferred choice.

Generally recommendations:

For safety reasons it is very important, that a drill does not exceed a speed of $n = 6,000 \text{ rev./min}$ when unsupported. The centrifugal forces can break these long tools before reaching the workpiece surface!

Application recommendations for 7xD, 10xD and 12xD drills:

Pilot holes are necessary for extra length SL drills $\geq 7xD$:
1.) the pilot hole can be produced with a short, rigid drill. The diameter should be 0.01 - 0.02 mm larger than the diameter of the SL drill, the drilling depth $> 1 \times D$.

2.) alternatively SL drills can produce their own pilot hole. Cutting speed and feed rate should be reduced by 30-40%.

The recommended minimum coolant pressure is 40 bar.

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250
50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250	1.250
63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600
80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600	2.000

Cooling:

- ☒ without coolant ducts
☐ with coolant ducts

Coolant:

- ☐ Air
☒ Neat oil
☐ Soluble oil

Cutting direction:

- ☒ R right-hand cutting
☐ L

Material group	Material examples, new description (old description in brackets) <i>Figures in bold = material no. to DIN EN</i>	Tensile strength Hardness MPa (N/mm ²)	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850	☐
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000	☐
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000	☐
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200	☐
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750	☐
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200	☐
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200	☐
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000	☐
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000	☐
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	≤330 HB	☐
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850	☐
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850	☐
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850	☐
Hardened steels	-	≤40-48 HRC >48-60 HRC	☐
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200	☐
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	≤240 HB <300 HB	☐
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)	≤240 HB <300 HB	☐
Chilled cast iron	-	≤350 HB	☐
Ti and Ti-alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5, -TiAl8Mo1V1	≤850 >850-1200	☐
Aluminium and Al-alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400	☐
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1.5	≤450	☐
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600	☐
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600	☐
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450	☐
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400	☐
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600	☐
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600	☐
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850	☐
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000	☐
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	-	☐
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-	☐
Kevlar	-	-	☐
Glass, carbon concent. plastics	GFK/CFK	-	☐

☐ bright ☐ steam tempered ☒ nitrided

$$\leq 7 \times D \leq 10 \times D \leq 12 \times D$$

SL Drills

Tools with **bold** feed column no. are preferred choice.

Generally recommendations:

For safety reasons it is very important, that a drill does not exceed a speed of $n = 6,000 \text{ rev./min}$ when unsupported. The centrifugal forces can break these long tools before reaching the workpiece surface!

Drill Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250
50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250	1.250
63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600
80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600	2.000

Coolant:

- ☒ Air
☒ Neat oil
☐ Soluble oil

☉ Cutting lip corrected to appr. 10°



R
 L

Material group	Material examples, new description (old description in brackets) <i>Figures in bold = material no. to DIN EN</i>	Tensile strength Hardness MPa (N/mm ²)	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850	●●
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000	●●
Unalloyed heat-treatable steels	1.4042 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000	●●●
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200	●●
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750	●●
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200	●●
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200	●●
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000	●●
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000	●●
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	≤330 HB	●●
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850	●●●
Hardened steels	-	≤40-48 HRC >48-60 HRC	●●
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200	●●
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	≤240 HB <300 HB	●●
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)	≤240 HB <300 HB	●●
Chilled cast iron	-	≤350 HB	●●
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, -TiAl8Mo1V1	≤850 >850-1200	●●
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400	●●
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450	●●
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600	●●
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600	●●
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450	●●
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400	●●
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600	●●
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600	●●
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850	●●
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000	●●
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	-	●●
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-	●●
Kevlar	-	-	●●
Glass, carbon concent. plastics	GFK/CFK	-	●●

○ bright

● steam tempered

● nitrided

$\leq 3 \times D$ drilling depth

$\leq 5 \times D$ drilling depth

Guhring no. straight		Tool material		HSCO		HSS-E-PM		Carbide		HSCO		HSS-E-PM		Carbide					
		Carbide grade		—		—		K10/K20		—		—		K10/K20					
		Type		GU 500		GU 500		N		GU 500		GU 500		N					
		Surface finish		○		S		○		○		S		○					
		DIN 1897	5524	5520			5521			5523	5519			5522					
		DIN 338						5516											
		DIN 6539													5517				
		G.S.																	
																			
○	S	V _c m/min	V _c m/min	Feed column no.		V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	○	S	V _c m/min	V _c m/min	Feed column no.		V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
35	45			6	6	40	6			35	45			6	6	40	6	80	4
30	35			5	5	32	5			30	35			5	5	70	4	70	4
40	50			6	6	45	6	80	5	40	50			6	6	80	5	80	5
30	40			6	6	40	5	70	4	30	40			6	6	70	4	70	4
32	42			6	6	42	6	80	4	32	42			6	6	80	4	80	4
28	35			6	6	40	5	70	4	28	35			6	6	70	4	70	4
20	22			5	5	28	4	60	4	20	22			5	5	60	4	60	4
15	18			4	4	25	4	60	4	15	18			4	4	25	4	60	4
13	15			3	3	20	3			13	15			3	3	20	3		
30	40			6	6	40	4	80	5	30	40			6	6	40	4	80	5
16	20			4	4	22	4	60	4	16	20			4	4	22	4	60	4
12	15			3	3	18	3			12	15			3	3	18	3		
15	18			4	4	20	4	50	4	15	18			4	4	20	4	50	4
10	12			3	3	15	3			10	12			3	3	15	3		
15	18			4	4	25	4	50	3	15	18			4	4	25	4	50	3
10	13			3	3	15	3			10	13			3	3	15	3		
10	13			3	3	15	3			10	13			3	3	15	3		
14	18			4	4	12	2	25	2							12	2	25	2
10	12			4	4	15	4	25	4	14	18			4	4	15	4	25	4
12	15			4	4	10	3	25	3	10	12			4	4	10	3	25	3
				4	4	12	3	25	3	12	15			4	4	12	3	25	3
								20	3									20	3
								15	2									15	2
36	45			6	6	50	6	90	4	36	45			6	6	50	6	90	4
30	36			6	6	40	6	80	4	30	36			6	6	40	6	80	4
30	40			6	6	45	6	80	4	30	40			6	6	45	6	70	4
22	28			6	6	32	6	70	4	22	28			6	6	32	6	60	4
						8	3									8	3		
								20	3									20	3
								15	2									15	2
50	70			7	7			200	7	50	70			7	7			200	7
50	70			7	7			200	7	50	70			7	7			200	7
65	85			7	7			150	6	65	85			7	7			150	6
60	70			6	6			120	6	60	70			6	6			120	6
60	70			6	6			180	5	60	70			6	6			180	5
25	32			5	5			80	5	25	32			5	5			80	5*
45	63			5	5			180	5*	45	63			5	5			180	5*
30	40			5	5			180	5*	30	40			5	5			180	5*
36	50			4	4			120	5	36	50			4	4			120	5
30	35			4	4			120	5	30	35			4	4			120	5
30	32			4	4			70	4	30	32			4	4			70	4
25	28			4	4			50	3	25	28			4	4			50	3
20	25			4	4			50	4	20	25			4	4			40	4
15	15			4	4			40	3	15	15			4	4			50	3
								80	3									80	3

SL Drills

A TiAlN

C TiCN

F FIRE

S TiN



ORDERING IS QUICK AND SIMPLE, AROUND THE CLOCK

Once you have selected the optimum Milling Cutter for your application then ordering is simple

- Just quote the Guhring number and size or code number to your usual tool supplier.
- Your supplier will confirm both the price and delivery – getting the product onto your machines in the fastest times.
- Guhring will support you with huge stocks held in Birmingham. Guhring also offer full technical support to ensure that you achieve the best performance from your Milling Cutters.

For further information or assistance please contact Guhring on the telephone and fax numbers on the back cover of the catalogue.

THREAD CUTTING TOOLS



GUHRING



Blind hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

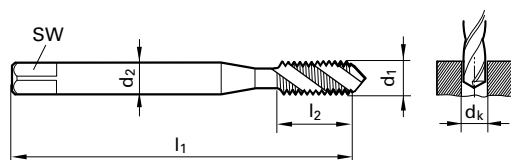
Form

Cutting direction

Tolerance

Discount group

5554	5592	5552	5591
DIN 2184-1			
DIN 371			
HSS-E			
			
N R40		H R40	
C			
right-hand			
ISO 2 / 6 H			
156			
	 Drill bit with black and silver coating and yellow band" data-bbox="365 535 425 885"/>		 Drill bit with black and silver coating and red band" data-bbox="865 535 925 885"/>

[illegible][illegible]☐ bright☐ steam tempered

☒ nitrided



see page 7



Blind hole

Guhring no.

Standard

Standard

Tool material

Surface

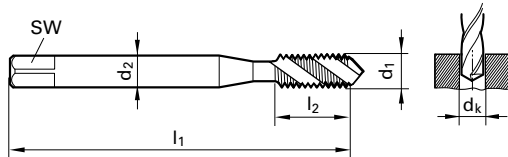
Type

Form

Cutting direction

Tolerance

Discount group

[illegible][illegible]

SL Thread cutting tools



Blind hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5589

DIN 2184-1

DIN 376

HSS-E



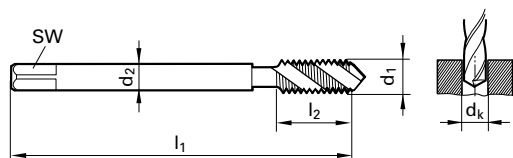
N R40

C

right-hand

ISO 2 / 6H

156

[illegible]

Availability

☐ bright☐ steam tempered

☒ nitrided



see page 7



Through hole and blind hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5593

DIN 2184-1

DIN 371

Solid carbide



H

C

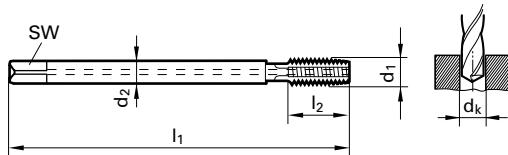
right-hand

ISO 2 / 6H

156

$$IC \geq M5$$


SLThread cutting tools

[illegible]

Availability





Through hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

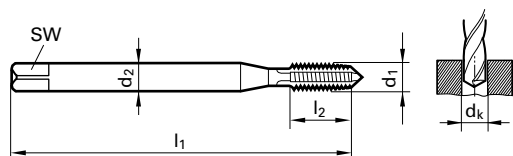
Form

Cutting direction

Tolerance

Discount group

5560	5590	5558	5587
DIN 2184-1			
DIN 371			
HSS-E			
			
N		H	
B			
right-hand			
ISO 2 / 6 H			
156			
	 Drill bit with black and silver coating, yellow band, yellow coating on the cutting edge" data-bbox="355 535 425 885"/>		 Drill bit with black and silver coating, red band, purple coating on the cutting edge" data-bbox="855 535 925 885"/>

[illegible][illegible]

☐ bright

☐ steam tempered☒ nitrided see page 7



Through hole

Guhring no.

Standard

Standard

Tool material

Surface

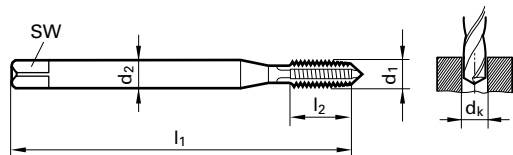
Type

Form

Cutting direction

Tolerance

Discount group

[illegible][illegible]

SL Thread cutting tools



Through hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

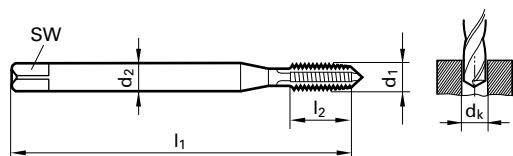
Form

Cutting direction

Tolerance

Discount group

5557	5550	5595
DIN 2184-1		
DIN 371		
HSS-E		
		
AI	GG	
B	C	
right-hand		
ISO 2 / 6H	6HX	
156		

[illegible]

Availability

[illegible]☐ bright☐ steam tempered☒ nitrided

see page 7



Through hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5563

DIN 2184-1

DIN 376

HSS-E



N

B

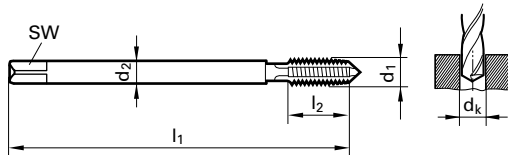
right-hand

ISO 2 / 6H

156



SLThread cutting tools

[illegible]

Availability





Through hole and blind hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5598

DIN 2174

~ DIN 371

HSS-E

S

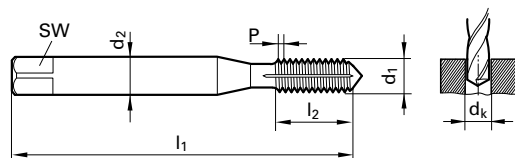
N

C

right-hand

6HX

156

[illegible]

Availability



☐ bright

☐ steam tempered☒ nitrided

see page 7



Through hole and blind hole

Guhring no.

Standard

Standard

Tool material

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5599

DIN 2174

~ DIN 376

HSS-E

S

N

C

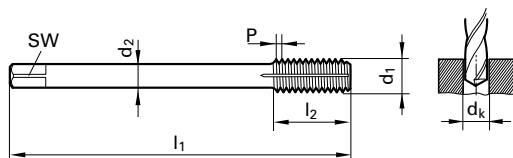
right-hand

6HX

156



SL Thread cutting tools

[illegible]

Availability





re-grinding



re-coating



delivery service

SL re-grinding
and re-coating service
see page 90

RE-GRINDING & RE-COATING

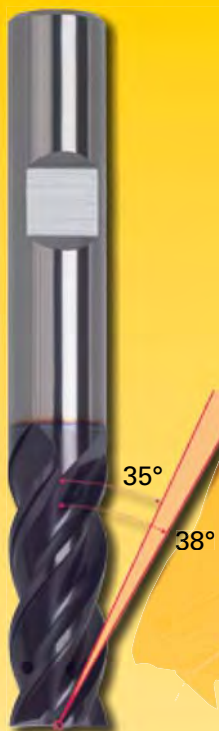
Guhring thinks big in all service matters. A comprehensive service is a matter of course even post tool sale. One area of our service program is the re-grinding and re-coating of tools – not only Guhring tools – to original geometries and original coatings so the efficiency of your tools is retained indefinitely.

MILLING CUTTERS



GUHRING

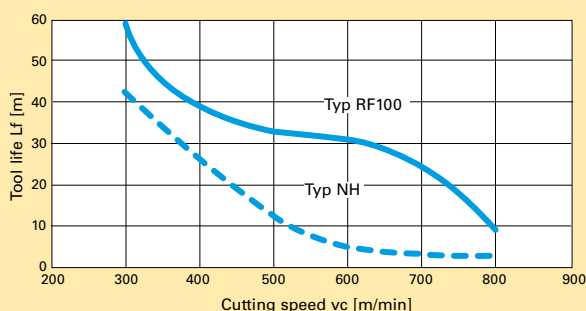
Guhring solid carbide Ratio end mills type RF 100



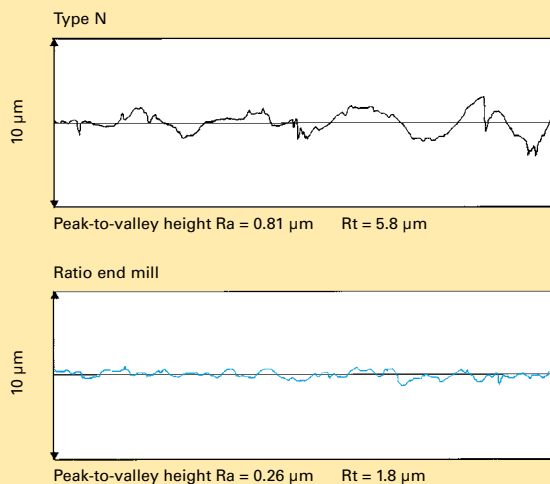
We have developed the Ratio end mill with uneven spiral angle primarily to prevent chattering and the so-called corkscrew effect (as found when withdrawing tools having a large spiral angle)

However, the uneven spiral angle does not only combat these two unwanted effects but offers the following additional advantages:

- up to 60% higher in feed rates
- longer tool life
- vibration-free machining
- suitable for roughing and finishing
- increased surface quality



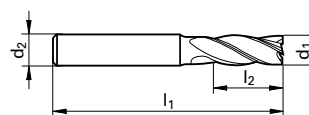
Tool life comparison between Ratio end mill RF 100 and a type NH end mill during finishing operation.



A hole surface quality comparison between a conventional end mill type N and a Ratio end mill clearly shows the Ratio end mill's quieter and more stable machining characteristics.

centre cutting

Guhring no.	5534
Standard	DIN 6527 K
Tool material	Solid carbide
Surface	
Application	
Type	N
Shank design	HB
Helix angle	35°/38°
Tolerance	h10
Discount group	157

[illegible]

Availability



 bright

☐ steam tempered

☒ nitrided

 see page 7

GH 100 U - High Performance High Helix End Mills

This new designed line of High Performance Milling Cutters are available as GH 100 U 3-Flute Slot Drills for Slot-Milling and Roughing applications, as well as 6-10- Flute end Mills for Super-Finishing Operations.

GH 100 U - Slot-Drills (3-Flute) with advanced design which reduces cost in your milling operation.

- Best chip removal
- Smooth run/high workpiece quality
- Micro Point Correction for more stability and longer tool life

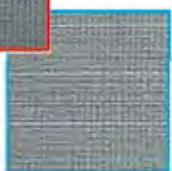


GH 100 U - End Mills (6-10-Flute)
with advanced design which reduces cost in your milling operation.

- less bending - extreme high workpiece quality
- very high feed rates - less cycle time in production
- increased tool life



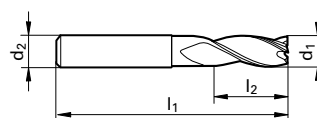
GH 100 U
4-Flute Workpiece Surface



*Conventional
4-Flute Workpiece Surface*

centre cutting

Guhring no.	5505
Standard	DIN 6527 K
Tool material	Solid carbide
Surface	
Application	
Type	NH
Shank design	HA
Helix angle	45°
Tolerance	h10
Discount group	157

[illegible]

Availability



 bright

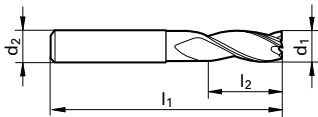
☐ steam tempered

☒ nitrided

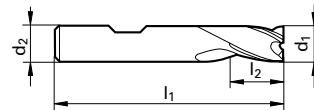
 see page 7

centre cutting

Guhring no.	5506	5546
Standard	DIN 6527 L	
Tool material	Solid carbide	
Surface		
Application		
Type	NH	
Shank design	HA	HB
Helix angle	45°	
Tolerance	h10	
Discount group	157	

[illegible]

Guhring no.	5574
Standard	Guhring std.
Tool material	Solid carbide
Surface	
Application	
Type	NH
Shank design	<Ø2.0 HA/HB
Helix angle	45°
Tolerance	e8
Discount group	157

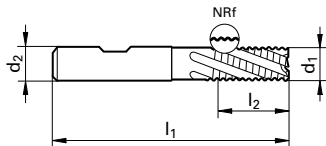
[illegible]

SL Milling Cutters

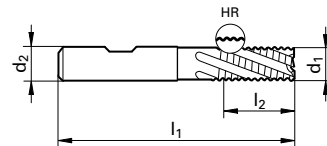
for materials < 48 HRC, cutting over centre

for materials < 56 HRC, cutting over centre

Guhring no.	5504
Standard	DIN 6527 L
Tool material	Solid carbide
Surface	
Application	
Type	NRf
Shank design	HB
Helix angle	30°
Tolerance	h10
Discount group	157

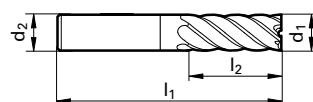
[illegible]

Guhring no.	5583
Standard	DIN 6527 L
Tool material	DK 500 UF
Surface	
Application	
Type	HR
Shank design	HB
Helix angle	20°
Tolerance	h10
Discount group	157

[illegible]☐ bright☐ steam tempered☒ nitrided see page 7

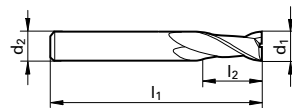
for superfine finishing of materials < 50 HRC

Guhring no.	5729
Standard	Guhring std.
Tool material	Solid carbide
Surface	
Application	
Type	NH
Shank design	HA
Helix angle	45°
Tolerance	h10
Discount group	157

[illegible]

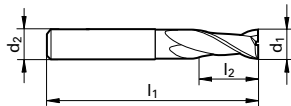
centre cutting

Guhring no.	5549
Standard	Guhring std.
Tool material	Solid carbide
Surface	
Application	
Type	N
Shank design	HA
Helix angle	30°
Tolerance	h10
Discount group	157

[illegible] see page 7

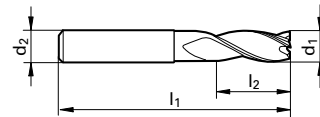
centre cutting

Guhring no.	5543
Standard	DIN 6527 L
Tool material	Solid carbide
Surface	
Application	
Type	W
Shank design	HB
Helix angle	45°
Tolerance	e8
Discount group	157

[illegible]

centre cutting

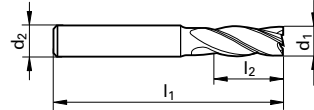
Guhring no.	5507	5531
Standard	DIN 6527 L	
Tool material	Solid carbide	
Surface		
Application		
Type	N	
Shank design	HA	HB
Helix angle	30°	
Tolerance	h10	
Discount group	157	

[illegible]

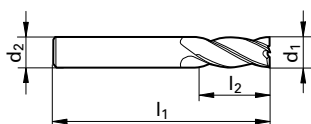
SL Milling Cutters

centre cutting

Guhring no.	5532
Standard	DIN 6527 L
Tool material	Solid carbide
Surface	
Application	
Type	N
Shank design	HB
Helix angle	30°
Tolerance	h10
Discount group	157

[illegible] see page 7

Guhring no.	5556
Standard	Guhring std.
Tool material	Solid carbide
Surface	
Application	
Type	N
Shank design	HA
Helix angle	30°
Tolerance	h10
Discount group	157

[illegible]

Availability



Especially the die and mould industry places ever higher demands on milling cutters – primarily with regard to accuracy and tool life. Therefore, Guhring's cutting tool program now includes radius milling cutters that are perfectly adapted to satisfy these demands and provide optimal machining results thanks to application orientated geometries, carbide grades and coatings. The advantages are especially high form and contour accuracy of the workpiece, minimal wear and therefore excellent tool life.

- outside diameter and the radius is ground in one-pass
- radius point geometry with constant helix-radius-correction
- reduced neck ground for collision reduction with protruding edges



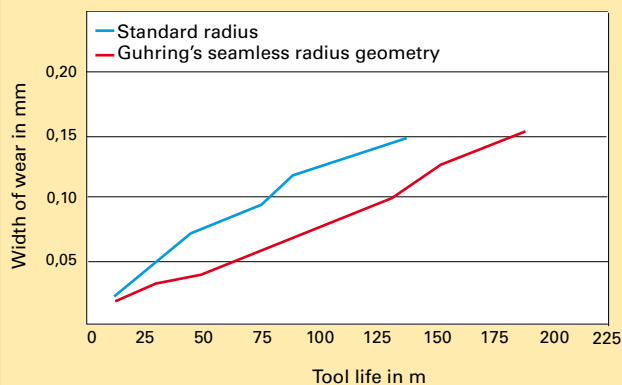
High wear protection thanks to radius geometry with constant rake angle and continuous spiral.



Reduced neck ground for collision reduction



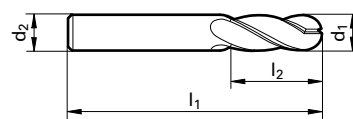
Seamless
radius area
provides
high form
and contour
accuracy.



Wear comparison:
Guhring's seamless radius geometry reduces wear and provides a considerably longer tool life in comparison with tools ground with conventional full radius.

centre cutting

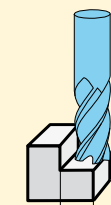
Guhring no.	5584
Standard	DIN 6527 L
Tool material	Solid carbide
Surface	
Application	 
Type	N
Shank design	HB
Helix angle	30°
Tolerance	h10
Discount group	157

[illegible] see page 7

Application	Width of cut
Slot Milling Operations Milling of slots or keyways, ramp milling or plunging.	 $1 \times D$
Roughing Operations Removing material in large cuts, pocket milling including ramping.	 $0.5 - 1 \times D$
Finishing Operations Side milling with smaller cutting width but better workpiece surface quality.	 $0.1 - 0.2 \times D$
Fine Finishing Operations Side milling with yet smaller cutting width but yet better workpiece surface quality.	 $0.02 - 0.05 \times D$
Trace Milling Operations Tracing or 3D copying with extremely small cutting width or depth.	Radius $0.02 - 0.05 \times D$ Torus $\frac{D-2 \times R}{2}$

Feed rate adjustment: Modifying the cutting depth and width

- when modifying the cutting depth a_p , the feed rate must be reduced in accordance with the illustration on the right
- cutting speed or revolutions remain unchanged up to cutting depths of $3 \times D$, must only be adapted over $3 \times D$
- double reduction applies when also modifying the cutting width a_e !



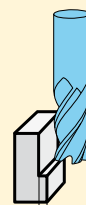
$$a_e = 1 \times D$$

$$f_z = 25 \%$$



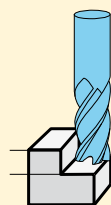
$$a_e = 0,5 \times D$$

$$f_z = 50 \%$$



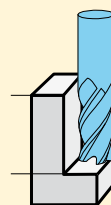
$$a_e = 0,25 \times D$$

$$f_z = 100 \%$$



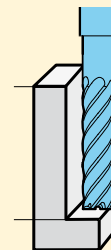
$$a_p = 1 \times D$$

$$f_z = 100 \%$$



$$a_p = 2 \times D$$

$$f_z = 50 \%$$



$$a_p = 3 \times D$$

$$f_z = 25 \%$$

Plunging strategies

for drilling:

- reduce feed rate v_f (mm/min.)
- Attention: Danger of breakage through abrupt load increase!

Oblique plunging up to 15° (preferred):

- reduction in feed rate v_f (mm/min.) not required

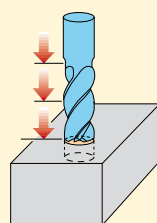
Oblique plunging between 15° and 30°:

- reduce feed rate v_f (mm/min.)

Helical plunging:

- feed 0.1 to 0.2 per cycle
- reduce feed rate v_f (mm/min.)
- hole diameter $1.8 \times D$

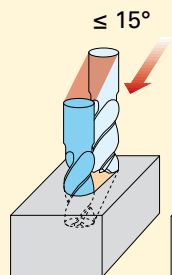
Drilling



$$90^\circ$$

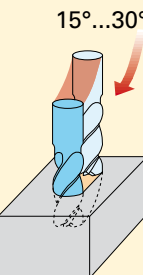
$$f_z = 70 \%$$

Oblique plunging



$$\leq 15^\circ$$

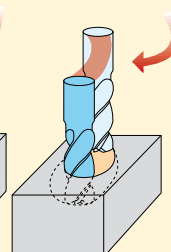
$$f_z = 100 \%$$



$$15^\circ \dots 30^\circ$$

$$f_z = 30 \%$$

Helical plunging



$$f_z = 15 \%$$

Tools with **bold** feed column no. (FC no.) are preferred choice.

a_e = Width of cut

a_p = Depth of cut

Schneidstoff

Carbide-UF

Carbide-UF

N

N

Gühring no.	DIN 6527	HA
Gühring no.	DIN 6527	HB
Gühring no.	Gühring std.	HA
Gühring no.	Gühring std.	HB

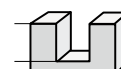
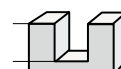
* For large cutting depths on unstable machines f_z and v_c must be reduced or a 4-flute tool RF 100 (Gühring no. 5582) must be applied.

** To improve the surface quality, the milling angle should be 10°-15°.



$a_e = 1 \times D$

$a_e = 1 \times D$



$a_p = 0.5 \times D$

$a_p = 0.5 \times D$

Cutter-Ø mm	Feed column no.															
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	f_z (mm/tooth)															
2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

Material group	Material examples	Tens. strength Hard-MPa (N/mm ²) ness
Common structural steels	1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0425 P265GH 1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤500 >500-850
Free-cutting steels	1.0718 11SMnPb30, 1.0736 11SMn37 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤850 850-1000
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C45E 1.0601 C60, 1.1221 C60E	≤700 700-850 850-1000
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-1000 1000-1200
Unalloyed case hard. steels	1.0301 C10, 1.1121 C10E	≤750
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	850-1000 1000-1200
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-1000 1000-1200
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6	≤850 850-1000
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	>850-1000
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4	≤330 HB
Stainless steels, sulphured austenitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17 1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10 1.4057 X20CrNi17-2, 1.4122 X39CrMo17-1	≤750 750-800 850-1200
Hardened steels	-	≤40-54 HRC >54-60 HRC
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	≤240 HB <300 HB
Spheroidal graphite and malleable cast iron	0.7050 EN-GJS-500-7(GG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)	≤240 HB <300 HB
Chilled cast iron	-	≤350 HB
Ti and Ti-alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5	≤850 850-1200
Al and Al-alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤450
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si	≤450
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	≤450
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600
long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 850-1000
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	-
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-
		a_p with f_z -correction

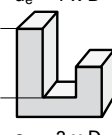
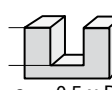
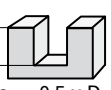
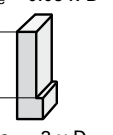
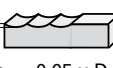
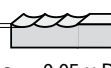
v_c m/min	FC no.	v_c m/min	FC no.
85 - 105	42	85 - 105	42
81 - 99	41	81 - 99	41
85 - 105	41	85 - 105	41
76 - 94	41	76 - 94	41
63 - 77	42	63 - 77	42
90 - 110	41	90 - 110	41
85 - 105	41	85 - 105	41
76 - 94	40	76 - 94	40
45 - 55	42	45 - 55	42
45 - 55	42	45 - 55	42
40 - 50	40	40 - 50	40
36 - 44	41	36 - 44	41
27 - 33	40	27 - 33	40
90 - 110	41	90 - 110	41
81 - 99	40	81 - 99	40
45 - 55	40	45 - 55	40
36 - 44	40	36 - 44	40
495 - 605	43		
225 - 275	44		
90 - 110	43		
81 - 99	42		
72 - 88	42		
63 - 77	40		
1 x D = 75%		1 x D = 75%	
1,5 x D = 50%		1,5 x D = 50%	

○ bright

● steam tempered

● nitrided

● ● ● ● ● ● see page 7

Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF									
N	NH	W	N	NH	NH	N	N	N									
5549	5505 5506						5585**										
	5546	5543					5533**	5584**									
					5745	5729*											
			5573	5574	5545												
																	
$a_e = 1 \times D$ 	$a_e = 1 \times D$ 	$a_e = 1 \times D$ 	$a_e = 1 \times D$ 	$a_e = 1 \times D$ 	$a_e = 0.05 \times D$ 	$a_e = 0.05 \times D$ 	$a_e = 0.05 \times D$ 	$a_e = 0.05 \times D$ 									
V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.
72 - 88	39	94 - 116	43			85 - 105	42	94 - 116	43	171 - 209	48	136 - 168	45	153 - 187	48	153 - 187	48
67 - 83	38	89 - 109	42			81 - 99	41	89 - 109	42	157 - 193	47	126 - 154	44	144 - 176	47	144 - 176	47
72 - 88	38	94 - 116	42			85 - 105	41	94 - 116	42	171 - 209	47	136 - 168	44	153 - 187	47	153 - 187	47
54 - 66	39	69 - 85	43			63 - 77	42	69 - 85	43	126 - 154	46	100 - 124	43	153 - 187	46	153 - 187	46
72 - 88	38	94 - 116	42			85 - 105	41	94 - 116	42	171 - 209	47	136 - 168	44	135 - 165	47	135 - 165	47
63 - 77	38	84 - 104	42			76 - 94	41	84 - 104	42	153 - 187	47	122 - 150	44	135 - 165	47	135 - 165	47
54 - 66	39	69 - 85	43			63 - 77	42	69 - 85	43	126 - 154	46	100 - 124	43	117 - 143	46	117 - 143	46
63 - 77	39	84 - 104	43			76 - 94	42	84 - 104	43	153 - 187	46	122 - 150	43	126 - 154	46	126 - 154	46
54 - 66	39	69 - 85	43							126 - 154	45	100 - 124	42	153 - 187	45	153 - 187	45
67 - 83	38	99 - 121	42			90 - 110	41	99 - 121	42	189 - 231	47	151 - 185	44	198 - 242	47	198 - 242	47
63 - 77	38	84 - 104	42			76 - 94	41	84 - 104	42	153 - 187	47	122 - 150	44	171 - 209	47	171 - 209	47
45 - 55	39	59 - 73	43							117 - 143	46	93 - 115	43	108 - 132	46	108 - 132	46
72 - 88	38	94 - 116	42			85 - 105	41	94 - 116	42	171 - 209	47	136 - 168	44	144 - 176	47	144 - 176	47
63 - 77	37	84 - 104	41							153 - 187	45	122 - 150	42	135 - 165	45	135 - 165	45
63 - 77	38	84 - 104	42			76 - 94	41	84 - 104	42	153 - 187	47	122 - 150	44	135 - 165	47	135 - 165	47
54 - 66	37	69 - 85	41			63 - 77	40	69 - 85	41	126 - 154	45	100 - 124	42	117 - 143	45	117 - 143	45
40 - 50	39	49 - 61	43			45 - 55	42	49 - 61	43	94 - 116	46	75 - 93	43	85 - 105	46	85 - 105	46
		49 - 61	41							94 - 116	45	75 - 93	42	85 - 105	45	85 - 105	45
		49 - 61	43			45 - 55	42	49 - 61	43	94 - 116	46	75 - 93	43	85 - 105	46	85 - 105	46
		45 - 55	41			40 - 50	40	45 - 55	41	81 - 99	45	64 - 80	42	76 - 94	45	76 - 94	45
		39 - 49	42			36 - 44	41	39 - 49	42	76 - 94	46	61 - 75	43	67 - 83	46	67 - 83	46
		49 - 61	41							49 - 61	43	39 - 49	41	49 - 61	44	49 - 61	44
		29 - 37	41					29 - 37	41	54 - 66	45	32 - 40	42	49 - 61	45	49 - 61	45
94 - 116	38	118 - 146	42			108 - 132	41	118 - 146	42	220 - 270	47	132 - 162	44	198 - 242	47	198 - 242	47
85 - 105	37	108 - 134	41			99 - 121	40	108 - 134	41	202 - 248	46	121 - 149	43	189 - 231	46	189 - 231	46
81 - 99	38	99 - 121	42			90 - 110	41	99 - 121	42	180 - 220	47	108 - 132	44	171 - 209	47	171 - 209	47
67 - 83	37	89 - 109	41			81 - 99	40	89 - 109	41	157 - 193	46	94 - 116	41	144 - 176	46	144 - 176	46
		59 - 73	41			54 - 66	40	59 - 73	41					99 - 121	44	99 - 121	44
58 - 72	37	49 - 61	41			45 - 55	40	49 - 61	41	94 - 116	45	56 - 70	42				
31 - 39	37	39 - 49	41			36 - 44	40	39 - 49	41	76 - 94	44	45 - 57	41				
				297 - 363	46	297 - 363	46	297 - 363	46	810 - 990	50	486 - 594	41	720 - 880	50		
				360 - 440	46	360 - 440	46	360 - 440	46	720 - 880	50	432 - 528	41	855 - 1045	50		
		217 - 267	43	144 - 176	45	144 - 176	45	217 - 267	43	405 - 495	48	243 - 297	45	342 - 418	48		
		178 - 218	44	117 - 143	46	117 - 143	46	178 - 218	44	324 - 396	49	194 - 238	46	288 - 352	49		
				171 - 209	47	171 - 209	47	171 - 209	47	450 - 550	50			405 - 495	50		
		118 - 146	44	81 - 99	46	81 - 99	46	118 - 146	44	216 - 264	49			180 - 220	49		
		99 - 121	44	72 - 88	46	72 - 88	46	99 - 121	44	198 - 242	48	118 - 146	45	171 - 209	48		
				67 - 83	45	67 - 83	45	67 - 83	45	162 - 198	48			162 - 198	48		
		99 - 121	43	72 - 88	45	72 - 88	45	99 - 121	43	198 - 242	48	118 - 146	45	180 - 220	48		
		79 - 97	42	63 - 77	44	63 - 77	44	79 - 97	42	153 - 187	47	91 - 113	44	171 - 209	47		
				63 - 77	45	63 - 77	45	63 - 77	45	153 - 187	47			198 - 242	47		
				54 - 66	43	54 - 66	43	54 - 66	43	126 - 154	46	75 - 93	43	189 - 231	46		
				81 - 99	43	81 - 99	43	81 - 99	43	216 - 264	46						
				72 - 88	43	72 - 88	43	72 - 88	43	198 - 242	46						
3 x D = 50%	1 x D = 75% 1,5 x D = 50%	1 x D = 75% 1,5 x D = 50%	1,5 x D = 75%	1,5 x D = 75%													

Tools with **bold** feed column no. (FC no.) are preferred choice.

a_e = Width of cut

a_p = Depth of cut

Schneidstoff

Typ

Guhring no.	DIN 6527	HA	5735*	5582
	DIN 6527	HB	5535* 5534*	
	Guhring std.	HA		
	Guhring std.	HB		

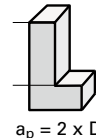
* With this application, optimal chip evacuation must be ensured.
Slot milling only recommended
> Ø 5 mm.

**** In the event of excessive edge wear through vibration, the feed rate should be reduced by 30%.**

RF 100
54HRC

RF 100


$$a_e = 0.5-1.0 \times D$$
$$a_e = 0.25 \times D$$

$$a_p = 1 \times D$$

$$a_p = 2 \times D$$

Cutter-Ø mm	Feed column no.															
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	f _z (mm/tooth)															
2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.080	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

Material group	Material examples	Tens. strength Hard. MPa (N/mm ²) ness
Common structural steels	 1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0425 P265GH 1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤500 >500-850
Free-cutting steels	 1.0718 11SMnPb30, 1.0736 11SMn37 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤850 850-1000
Unalloyed heat-treatable steels	 1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C45E 1.0601 C60, 1.1221 C60E	≤700 700-850 850-1000
Alloyed heat-treatable steels	 1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-1000 1000-1200
Unalloyed case hard. steels	 1.0301 C10, 1.1121 C10E	≤750
Alloyed case hardened steels	 1.7043 38Cr4 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	850-1000 1000-1200
Nitriding steels	 1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-1000 1000-1200
Tool steels	 1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6	≤850 850-1000
High speed steels	 1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	>650-1000
Spring steels	 1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4	≤330 HB
Stainless steels, sulphured austenitic martensitic	 1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17 1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10 1.4057 X20CrNi17-2, 1.4122 X39CrMo17-1	≤750 750-800 850-1200
Hardened steels	–	≤40-54 HRC >54-60 HRC
Special alloys	 Nimonic, Inconel, Monel, Hastelloy	≤1200
Cast iron	 0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	≤240 HB <300 HB
Spheroidal graphite and malleable cast iron	 0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)	≤240 HB <300 HB
Chilled cast iron	 –	≤350 HB
Ti and Ti-alloys	 3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5	≤850 850-1200
Al and Al-alloys	 3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤450
Al wrought alloys	 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si	≤450
Al cast alloys ≤ 10 % Si	 3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600
> 10 % Si	 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600
Magnesium alloys	 MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	≤450
Copper, low-alloyed	 2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤400
Brass, short-chipping	 2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600
long-chipping	 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600
Bronze, short-chipping	 2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600
	2.0790 CuNi18Zn19Pb	>600-850
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 850-1000
Duroplastics	Bakelit, Resopal, Pertinax, Moltopen	–
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	–
		f _z -correction

v_c m/min	Fc no.	v_c m/min	Fc no.
170 - 208 157 - 193	51 50	110 - 136 102 - 126	47 46
170 - 208 151 - 185 126 - 154	50 50 49	110 - 136 98 - 120 81 - 101	46 46 45
189 - 231	50	123 - 151	46
170 - 208 151 - 185	50 48	110 - 136 98 - 120	46 44
94 - 116	49	61 - 75	45
80 - 100 70 - 90 65 - 70	49 48 49	60 - 80 55 - 75 50 - 65	45 44 45
56 - 70	48		
182 - 224 157 - 193	50 49	118 - 146 102 - 126	46 45
54 - 86 44 - 72	43 42	61 - 75 49 - 61	44 43
		370 - 440	47
		175 - 215	47
		75 - 95 60 - 75	45 45
a _p 1.5 x D = 50% a _e 0.25 x D = 150%		a _p 0.5 x D = 75% a _p 2 x D = 50%	

 bright

☐ steam tempered

● nitrided

 see page 7

Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF	Carbide-UF									
NH	W	NRf	HR	N	N	N	N	W									
5505 5506				5735	5582		5556										
5546	5543	5504**	5583**	5535 5534		5532		5543									
$a_e = 0.5-1.0 \times D$	$a_e = 0.5-1.0 \times D$	$a_e = 0.5-1.0 \times D$	$a_e = 0.5-1.0 \times D$	$a_e = 0.1 \times D$	$a_e = 0.1 \times D$	$a_e = 0.1 \times D$	$a_e = 0.1 \times D$	$a_e = 0.1 \times D$									
$a_p = 1 \times D$	$a_p = 1 \times D$	$a_p = 1 \times D$	$a_p = 1 \times D$	$a_p = 1 \times D$	$a_p = 2 \times D$	$a_p = 1 \times D$	$a_p = 2 \times D$	$a_p = 1 \times D$									
V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.	V_c m/min	Fc no.
170 - 208	49			97 - 119	43			212 - 260	49	139 - 171	44	157 - 193	48	103 - 127	43		
157 - 193	48			90 - 110	42			194 - 238	48	127 - 157	43	144 - 176	47	94 - 116	42		
170 - 208	48			97 - 119	42			212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42		
126 - 154	47			72 - 88	41			158 - 194	47	109 - 135	42	117 - 143	46	81 - 99	41		
170 - 208	48			97 - 119	42			212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42		
151 - 185	48			86 - 106	42			194 - 238	48	121 - 149	43	144 - 176	47	90 - 110	42		
126 - 154	47			72 - 88	41			158 - 194	47	103 - 127	42	117 - 143	46	76 - 94	41		
151 - 185	47			86 - 106	41			188 - 230	47	121 - 149	42	139 - 171	46	90 - 110	41		
126 - 154	46			72 - 88	40	72 - 88	39	158 - 194	46	103 - 127	41	117 - 143	45	76 - 94	40		
189 - 231	48			108 - 132	42			236 - 290	48	134 - 164	43	175 - 215	47	99 - 121	42		
151 - 185	48			86 - 106	42	86 - 106	41	188 - 230	48	121 - 149	43	139 - 171	47	90 - 110	42		
113 - 139	47			64 - 80	41	64 - 80	40	139 - 171	47	90 - 112	42	103 - 127	46	67 - 83	41		
170 - 208	48			97 - 119	42	97 - 119	41	212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42		
151 - 185	46			86 - 106	40	86 - 106	39	194 - 238	46	121 - 149	41	144 - 176	45	90 - 110	40		
151 - 185	48			86 - 106	42	86 - 106	41	188 - 230	48	121 - 149	43	139 - 171	47	90 - 110	42		
126 - 154	46			72 - 88	40	72 - 88	39	158 - 194	46	103 - 127	41	117 - 143	45	76 - 94	40		
94 - 116	47					54 - 66	47	121 - 149	47	79 - 97	42	90 - 110	46	58 - 72	41		
67 - 83	46					54 - 66	26	121 - 149	46								
67 - 83	47			54 - 66	41			121 - 149	47	72 - 90	44	90 - 110	46				
58 - 72	46			46 - 58	40			103 - 127	46	62 - 75	43	76 - 94	45				
54 - 66	47			43 - 53	41	43 - 53	40	97 - 119	47	58 - 72	44	72 - 88	46				
31 - 39	44			25 - 31	38	25 - 31	38	61 - 75	44								
				18 - 22	38												
40 - 50	46			32 - 40	42			72 - 90	46			54 - 66	45				
157 - 193	48			126 - 154	44	126 - 154	42	255 - 313	48	182 - 224	43	189 - 231	47	135 - 165	42		
144 - 176	47			115 - 141	43	115 - 141	41	255 - 313	47	163 - 201	42	189 - 231	46	121 - 149	41		
130 - 160	48			104 - 128	44	104 - 128	42	231 - 283	48	152 - 186	43	171 - 209	47	112 - 138	42		
112 - 138	47			90 - 110	43	90 - 110	41	194 - 238	47	127 - 157	42	144 - 176	46	94 - 116	41		
76 - 94	45					61 - 75	39	134 - 164	45			99 - 121	44				
67 - 83	46			54 - 66	41			121 - 149	46	79 - 97	41	90 - 110	45	58 - 72	40		
54 - 66	45			43 - 53	40			97 - 119	45	61 - 75	40	72 - 88	44	45 - 55	39		
		297 - 363	46							220 - 280	46	765 - 935	50	450 - 550	45	342 - 418	51
		360 - 440	46							250 - 300	45					414 - 506	50
		144 - 176	44							220 - 250	44	373 - 457	48	225 - 275	43	165 - 203	49
117 - 143	45			117 - 143	45					200 - 240	45	306 - 374	49	180 - 220	44		
		171 - 209	46							210 - 260	46					197 - 241	51
		81 - 99	45							110 - 120	45	198 - 242	49	135 - 165	44	93 - 115	50
		72 - 88	44	117 - 143	44	117 - 143	42			100 - 120	44	180 - 220	48	108 - 132	43	82 - 102	49
		67 - 83	44	94 - 116	44					90 - 110	44	144 - 176	48	90 - 110	43	77 - 95	49
		72 - 88	44	117 - 143	44	117 - 143	42			100 - 120	44	180 - 220	48	108 - 132	43	82 - 102	49
63 - 77	43			87 - 107	43	87 - 107	41					135 - 165	47				
63 - 77	43			87 - 107	43											72 - 90	48
54 - 66	42			72 - 90	42												
81 - 99	42															93 - 115	47
72 - 88	42															82 - 102	47
$a_p 0.5 \times D = 120\%$ $a_p 2 \times D = 50\%$		$a_p 0.5 \times D = 120\%$ $a_p 2 \times D = 50\%$		$a_p 1.5 \times D = 50\%$ $a_e 0.25 \times D = 140\%$		$a_p 0.5 \times D = 120\%$		$a_p 2 \times D = 50\%$		$a_p 3 \times D = 50\%$		$a_p 2 \times D = 50\%$		$a_p 3 \times D = 50\%$		$a_p 2 \times D = 50\%$	



TM VENDING MACHINE

Guhring's modular TM Vending Machine relieves the customer of all tasks regarding tool storage and administration. Drawer and spiral modules enable the individual adaptation to specific customer storage requirements. The intelligent software ensures tool availability around the clock and detailed evaluation of all consumption and movement data.

REAMERS



GUHRING

Product information

- $\varnothing > 4,0$ mm with highly unequal flute spacing
- left hand spiral flutes
- tolerance:
from $\varnothing 0.98$ to 5.03 mm:
 $0.000/+0.004$
from $\varnothing 5.97$ to 12.05 mm:
 $0.000/+0.005$

NC machine chucking reamers are similar to DIN 8093 with straight shank (h6) for standardised tool clamping in hydraulic or shrink fit chucks. The combination of NC machine chucking reamer and hydraulic, high precision clamping or shrink fit chuck respectively offers highest concentricity and process reliability for the production of holes to required tolerances.

Guhring no.

Standard

Tool material

Carbide grade

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5527

Guhring std.

Solid carbide

K10



right-hand

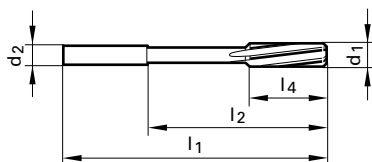
see product information

154

NEW



Availability



d1	d2 h6	l1	l2	l4	Z
mm	mm	mm	mm	mm	
0.980	4.000	50.00	22.00	6.00	3
0.990	4.000	50.00	22.00	6.00	3
1.000	4.000	50.00	22.00	6.00	3
1.010	4.000	50.00	22.00	6.00	3
1.020	4.000	50.00	22.00	6.00	3
1.030	4.000	50.00	22.00	9.00	3
1.480	4.000	50.00	22.00	9.00	3
1.490	4.000	50.00	22.00	9.00	3
1.500	4.000	50.00	22.00	9.00	3
1.510	4.000	50.00	22.00	9.00	3
1.520	4.000	50.00	22.00	9.00	3
1.530	4.000	50.00	22.00	9.00	3
1.980	4.000	50.00	22.00	12.00	4
1.990	4.000	50.00	22.00	12.00	4
2.000	4.000	50.00	22.00	12.00	4
2.010	4.000	50.00	22.00	12.00	4
2.020	4.000	50.00	22.00	12.00	4
2.030	4.000	50.00	22.00	12.00	4
2.480	4.000	60.00	32.00	16.00	4
2.490	4.000	60.00	32.00	16.00	4
2.500	4.000	60.00	32.00	16.00	4
2.510	4.000	60.00	32.00	16.00	4
2.520	4.000	60.00	32.00	16.00	4
2.530	4.000	60.00	32.00	16.00	4
2.970	4.000	64.00	36.00	17.00	6
2.980	4.000	64.00	36.00	17.00	6
2.990	4.000	64.00	36.00	17.00	6
3.000	4.000	64.00	36.00	17.00	6
3.010	4.000	64.00	36.00	17.00	6
3.020	4.000	64.00	36.00	17.00	6
3.030	4.000	64.00	36.00	17.00	6
3.970	4.000	77.00	45.00	21.00	6
3.980	4.000	77.00	45.00	21.00	6
3.990	4.000	77.00	45.00	21.00	6
4.000	4.000	77.00	45.00	21.00	6
4.010	4.000	77.00	45.00	21.00	6

○ bright

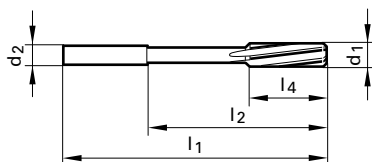
● steam tempered

● nitrided

Product information

- $\varnothing > 4,0$ mm with highly unequal flute spacing
- left hand spiral flutes
- tolerance:
from $\varnothing 0.98$ to 5.03 mm:
0.000/+0.004
from $\varnothing 5.97$ to 12.05 mm:
0.000/+0.005

NC machine chucking reamers are similar to DIN 8093 with straight shank (h6) for standardised tool clamping in hydraulic or shrink fit chucks. The combination of NC machine chucking reamer and hydraulic, high precision clamping or shrink fit chuck respectively offers highest concentricity and process reliability for the production of holes to required tolerances.



d1	d2 h6	l1	l2	l4	Z
mm	mm	mm	mm	mm	
4.020	4.000	77.00	45.00	21.00	6
4.030	4.000	77.00	45.00	21.00	6
4.970	6.000	93.00	59.00	26.00	6
4.980	6.000	93.00	59.00	26.00	6
4.990	6.000	93.00	59.00	26.00	6
5.000	6.000	93.00	59.00	26.00	6
5.010	6.000	93.00	59.00	26.00	6
5.020	6.000	93.00	59.00	26.00	6
5.030	6.000	93.00	59.00	26.00	6
5.970	6.000	93.00	57.00	26.00	6
5.980	6.000	93.00	57.00	26.00	6
5.990	6.000	93.00	57.00	26.00	6
6.000	6.000	93.00	57.00	26.00	6
6.010	6.000	93.00	57.00	26.00	6
6.020	6.000	93.00	57.00	26.00	6
6.030	6.000	93.00	57.00	26.00	6
7.000	8.000	109.00	69.00	31.00	6
7.970	8.000	117.00	75.00	33.00	6
7.980	8.000	117.00	75.00	33.00	6
7.990	8.000	117.00	75.00	33.00	6
8.000	8.000	117.00	75.00	33.00	6
8.010	8.000	117.00	75.00	33.00	6
8.020	8.000	117.00	75.00	33.00	6
8.030	8.000	117.00	75.00	33.00	6
8.040	8.000	117.00	75.00	33.00	6
9.000	10.000	125.00	81.00	36.00	6
9.970	10.000	133.00	87.00	38.00	6
9.980	10.000	133.00	87.00	38.00	6
9.990	10.000	133.00	87.00	38.00	6
10.000	10.000	133.00	87.00	38.00	6
10.010	10.000	133.00	87.00	38.00	6
10.020	10.000	133.00	87.00	38.00	6
10.030	10.000	133.00	87.00	38.00	6
10.040	10.000	133.00	87.00	38.00	6
10.050	10.000	133.00	87.00	38.00	6
11.970	12.000	151.00	105.00	44.00	6

Guhring no.

Standard

Tool material

Carbide grade

Surface

Type

Form

Cutting direction

Tolerance

Discount group

5527

Guhring std.

Solid carbide

K10



right-hand

see product information

154

NEW



Availability



Product information

- $\varnothing > 4,0$ mm with highly unequal flute spacing
- left hand spiral flutes
- tolerance:
from $\varnothing 0.98$ to 5.03 mm:
0.000/+0.004
from $\varnothing 5.97$ to 12.05 mm:
0.000/+0.005

NC machine chucking reamers are similar to DIN 8093 with straight shank (h6) for standardised tool clamping in hydraulic or shrink fit chucks. The combination of NC machine chucking reamer and hydraulic, high precision clamping or shrink fit chuck respectively offers highest concentricity and process reliability for the production of holes to required tolerances.

Guhring no.

Standard

Tool material

Carbide grade

Surface

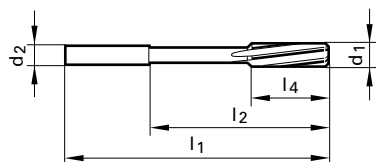
Type

Form

Cutting direction

Tolerance

Discount group

[illegible]

5527

Guhring std.

Solid carbide

K10

right-hand

see product information

154

NEW



Availability



 bright

☐ steam tempered

☒ nitrided

Tools with **bold** feed column no.
are preferred choice.

For blind holes with close diameter tolerances
choose straight-fluted reamers.

Tool material/Carbide grade

Carbide/K10

Form

-

Surface finish

○

Guhr.
no.

straight

Guhring std.

5527

Reamer- Ø mm	Feed column no.				
	71	72	73	74	75
	f (mm/rev.)				
< 4.00	0.080	0.100	0.125	0.300	0.500
4.00	0.100	0.125	0.160	0.300	0.500
5.00	0.100	0.125	0.160	0.400	0.700
6.30	0.125	0.160	0.200	0.400	1.000
8.00	0.160	0.200	0.250	0.600	1.400
10.00	0.200	0.250	0.315	0.600	1.400
12.50	0.200	0.250	0.315	0.800	1.800
16.00	0.250	0.315	0.400	0.800	2.200
20.00	0.315	0.400	0.500	0.800	2.200
25.00	0.400	0.500	0.630	1.000	2.500
31.50	0.400	0.500	0.630	1.000	3.000
40.00	0.500	0.630	0.800	1.200	3.000
50.00	0.630	0.800	1.000	1.400	3.000
> 50.00	0.800	1.000	1.250	1.600	3.000

○ bright

Coolant:

- soluble oil
- neat oil
- air



SL Reamers

Material group	Material examples <i>Figures in bold = material no. to DIN EN 10 027</i>	Tensile strength N/mm ²	Hard- ness	Cool- ant	v _c m/min	Feed column no.
Common structural steels	1.0035 S185, 1.0486 StE P275N, 1.0345 P235GH, 1.0425 P265GH 1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤500 >500-850		● ●	18 16	72 72
Free-cutting steels	1.0718 11SMnPb30, 1.0736 115Mn37 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤850 850-1000		● ●	18 16	72 72
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C45E 1.0601 C60, 1.1221 C60E	≤ 700 700-850 850-1000		● ● ●	18 16 14	71 71 71
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-1000 1000-1200		● ●	14 12	71 71
Unalloyed case hardened steels	1.0301 C10, 1.1121 C10E	≤750		●	18	71
Alloyed case hardened steels	1.7043 38Cr4 1.5752 14NiCr14, 1.7131 16MnCr5, 1.7264 20CrMo5	850-1000 1000-1200		● ●	14 12	71 71
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-1000 1000-1200		● ●	14 12	71 71
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 850-1000		● ●	12 10	71 71
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 61CrV4	≥650-1000		● ●	10	71
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4	≤330 HB		● ●	10	71
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18 9 1.4301 X5CrNi18 10, 1.4541 X6CrNiTi18 10, 1.4571 X6CrNiMoTi 17 12 2 1.4057 X17CrNi16-1, 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18 2	≤850 ≤850 ≤850		● ● ●	8 6 6	71 71 71
Hardened steels	-	≤40-48 HRC >48-60 HRC		● ●		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		● ●	6	71
Cast iron	EN-GJL100 ... EN-GJL200 (previously GG10 ... GG20) EN-GJL250 ... EN-GJL350 (previously GG25 ... GG45)	≤240 HB <300 HB		● ●	20 18	71 71
Spheroidal graphite and malleable cast iron	EN-GJMW-350-4, EN-GJMB-550-4, EN-GJS-500-7 (prev. GTW35, GTS55, GGG50) EN-GJMB-700-2, EN-GJS-700-2 (prev. GTW65, GTS70, GGG70)	≤240 HB <300 HB		● ●	20 18	71 71
Chilled cast iron	-	≤350 HB		●	4	
Ti and Ti-alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤850 850-1200		● ●	10 10	71 71
Aluminium and Al-alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		●	30	73
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1.5	≤450		●	30	73
Al cast iron ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		● ●	40 30	72 72
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	≤450		●	25	72
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn5Pb	≤400		●	25	72
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600 ≤600		● ●	35 30	72 72
Bronze, short-chipping	2.1090 CuSn7Zn5Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		● ●	35 30	72 72
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 850-100		● ●	30 25	72 72
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	-		●	20	73
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		●	20	73
Kevlar	Kevlar	-		●	20	73
Glass, carbon concent. plastics	GFK/CFK	-		●	20	73

A TiAlN

C TiCN

F FIRE

S TiN

SL regrind service

Diameter	SL drills				SL reamers	
	Solid carbide Ratio drills RT 100	Solid carbide Ratio drills RT 150	Solid carbide Ratio drills FT 200	Solid carbide twist drills type N	Solid carbide NC reamers	
	Availability	Availability	Availability	Availability	Bevel	Bevel + face grinding
6.00	●	●	●	●	●	●
8.00	●	●	●	●	●	●
10.00	●	●	●	●	●	●
12.00	●	●	●	●	●	●
14.00	●	●	●	●	●	●
16.00	●	●	●	●	●	●
18.00	●	●	●	●	●	●
20.00	●	●	●	●	●	●

SL regrind service

Diameter	SL milling cutters			
	Solid carbide slot drills		Solid carbide end mills	
	up to 2 cutting edges	> 2 cutting edges	up to 4 cutting edges	up to 6 cutting edges
Availability	Availability	Availability	Availability	Availability
6.00	●	●	●	●
8.00	●	●	●	●
10.00	●	●	●	●
12.00	●	●	●	●
14.00	●	●	●	●
16.00	●	●	●	●
18.00	●	●	●	●
20.00	●	●	●	●
Reform face Corner radius Ball nose radius	additional charge 50% additional charge 50%		additional charge 50% additional charge 50% additional charge 100%	

SL recoating service

Diameter	All SL tools	
	Coating with	
	S	A C F
Availability	Availability	Availability
6.00	●	●
8.00	●	●
10.00	●	●
12.00	●	●
14.00	●	●
16.00	●	●
18.00	●	●
20.00	●	●

In addition to the SL standard tool range Guhring's SL Plus range offers special tools with an excellent cost-performance ratio and shortest delivery times.

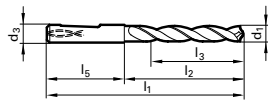
The following pages provide a brief summary of our SL Plus range, more detailed information and order forms are available on request or visit our website at www.guehring.de.

Solid carbide Ratio drills type RT

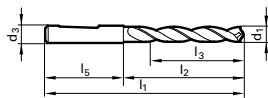
Form F

High performance twist drill for the machining of materials with a high tensile strength up to approx. 1400 N/mm². High rigidity and wear resistance make this tool especially suited for drilling hard, abrasive or hardened, as well as short- and long-chipping materials. Typically, excellently suited materials are heat-treatable steels, high-alloyed steels, stainless, acid- and heat-resistant steels, Inconel, Hastelloy, Monel, including cast iron, brass, bronze, Al and magnesium including alloys, Ti and Ti alloys and sintered metal.

Type RT without step with coolant ducts



Type RT without step without coolant ducts

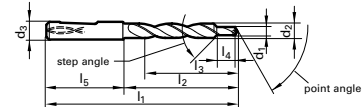


Tolerances: nominal $\varnothing d_1 = m7$; shank- $\varnothing d_3 = h6$
Point geometry: form F = without corner prep.
 form U = with corner prep.

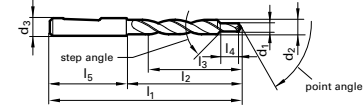
Form U

High performance twist drill for the machining of long- and short-chipping materials such as structural and case hardened steels, cast steel, heat-treatable steels and alloyed steel with a tensile strength up to approximately 1200 N/mm², including carbon steel, cast iron and high-alloyed AlSi alloys.

Type RT with step and coolant ducts



Type RT with step without coolant ducts



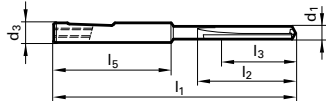
Tolerances: step- $\varnothing d_1 = m7$; body- $\varnothing d_2 = h7$; shank- $\varnothing d_3 = h6$
Point geometry: form F = without corner prep.
 form U = with corner prep.

Solid carbide straight shank Ratio drills type RTG

High performance drill for the machining of short-chipping materials such as cast iron, grey cast iron, heat-treatable grey cast iron, malleable cast iron and spheroidal graphite iron, Al alloys with a high Si content. For the production of holes with extremely high alignment accuracy (min.

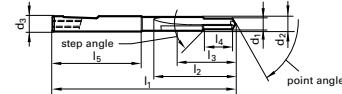
deviation from straightness). Exceptionally good centering characteristics, exacting diameter tolerances (up to IT7), very good surface qualities. High cutting speeds, high productivity. The point geometries available are relieved cone or 2-facets per cutting edge.

Type RTG without step with coolant ducts



Tolerances: nominal $\varnothing d_1 = m7$; shank $\varnothing d_3 = h6$
Point geometry: relieved cone or 2-facets per cutting edge

Type RTG with step and coolant ducts



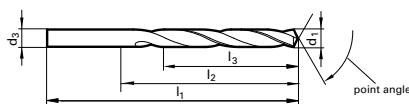
Tolerances: step- $\varnothing d_1 = m7$; body- $\varnothing d_2 = h7$; shank $\varnothing d_3 = h6$
Point geometry: relieved cone or 2-facets per cutting edge

Solid carbide twist drills type N

For the drilling of cast steel, grey cast iron, white cast iron, austenitic manganese steel, bronze, light and non-ferrous metals. Furthermore suited for the efficient machining of abrasive materials (AlSi alloys),

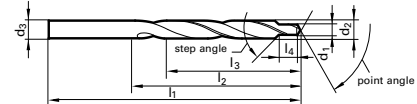
fibre-reinforced plastics and other Duroplastics prone to cause severe abrasion to the cutting lip and lands of the drill.

Type N without step and without coolant ducts



Tolerances: nominal $\varnothing d_1 = h7$; shank- $\varnothing d_3 = h6$
Point geometry: 2-facets per cutting edge

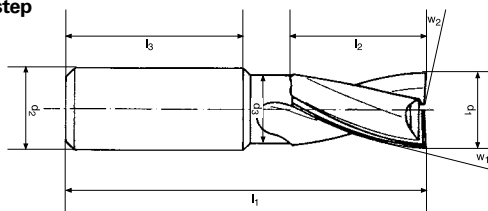
Type N with step without coolant ducts



Tolerances: step- $\varnothing d_1 = h7$; body- $\varnothing d_2 = h7$; shank- $\varnothing d_3 = h6$
Point geometry: 2-facets per cutting edge

Solid carbide milling cutters

without step



SL Plus milling cutters are especially suitable for applications in the machine and equipment industry, the die and mould industry, the aircraft industry, the machining of turbine blades as well as the automotive industry. Typical applications are the machining of standard steels, high-alloyed tool steels, Cr-Ni-steels, Ti-alloys, Al and cast iron. In addition, SL Plus milling cutters are suitable for HSC milling of 3D forms, as well as for hard machining of materials up to approx. 62 HRC. The tools excel through high contour accuracy and optimal concentricity. The SL Plus solid carbide end mills are available with internal coolant.