

# GUHRING



## *Super Line*

*SUPER PRICE*

*SUPER QUALITY*

*SUPER AVAILABILITY*

EDITION  
2016  
ENHANCED  
PROGRAMME



High-tech tools

at a

super price



- convincing **price-performance-ratio**
- exceptional **quality**
- immediate **availability**
- customer-friendly **service**






# SuperLine

// Guhring's SuperLine is a selected programme of high-tech tools for the machining operations drilling, milling, threading and reaming. The carbide or selected high speed steel precision tools are optimised with state-of-the-art coatings. Thanks to innovative manufacturing processes, world-wide uniform quality standards and large manufacturing quantities, the SuperLine range is unique regarding economic efficiency, quality, delivery time and service.





## // Immediate availability

The immediate availability of SuperLine tools is a pillar of the programme.

For you as the customer it means order today and apply tomorrow.  
For us as manufacturer it means we can ensure an intelligent solution regarding raw materials, manufacture and delivery.  
SL tools are available ex-stock. Put us to the test.





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PRODUCTION CENTRES

48

SALES COMPANIES

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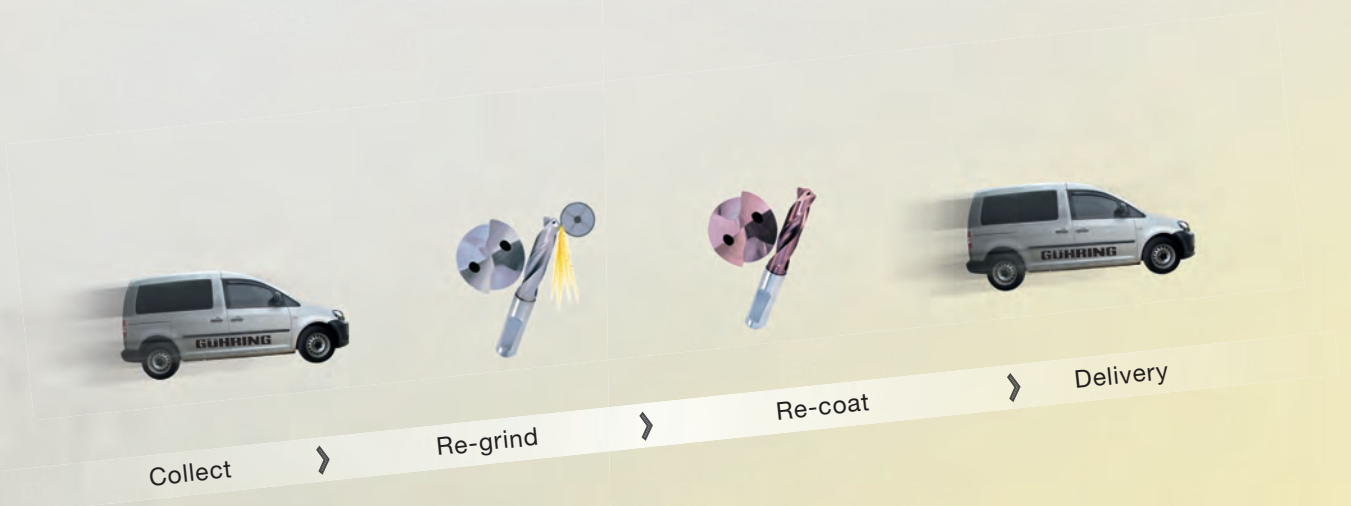
SERVICE CENTRES

## // Service near to the customer

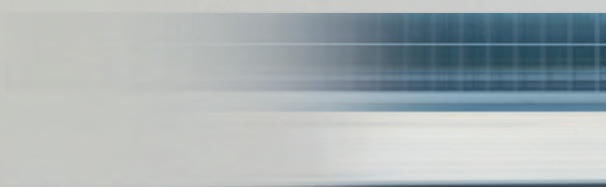
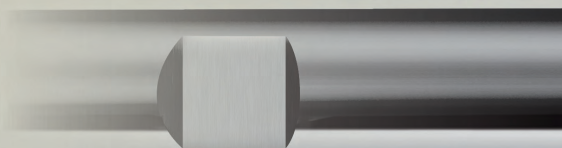
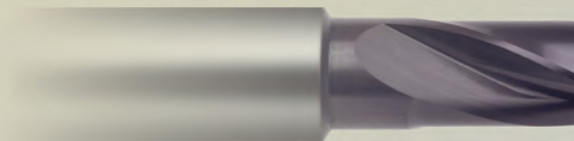
Guhring provides a re-grind and re-coating service to ensure a long tool life of SuperLine tools. The high-tech tools are refurbished with original coatings and geometries and subsequently regain their performance.

In addition, Guhring's own collection and delivery service ensures on schedule logistics for tool refurbishment.

Thanks to a global service network including re-grind centres as well as world-wide uniform manufacturing facilities we guarantee maximum quality standards close to the customer.



# Superline







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### Ratio drills with oil feed

•	•	•	•	•	•		3xD	HA	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5510	72	16
•	•	•	•	•	•		3xD	HE	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5610	72	16
•	•	•	•	•	•		3xD	HA	RT 100 VA	DIN 6537K	VHM	a	3.000 - 20.000	5526	72	19
•	•	•	•	•	•		3xD	HE	RT 100 VA	DIN 6537K	VHM	a	3.000 - 20.000	5528	72	19
•	•	•	•	•	•		5xD	HA	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5511	72	22
•	•	•	•	•	•		5xD	HE	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5611	72	22
•	•	•	•	•	•		5xD	HB	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5650	72	22
•	•	•	•	•	•		5xD	HA	RT 100 VA	DIN 6537L	VHM	a	3.000 - 20.000	5580	72	26
•	•	•	•	•	•		5xD	HE	RT 100 VA	DIN 6537L	VHM	a	3.000 - 20.000	5581	72	26
•	•	•	•	•	•		7xD	HA	RT 100 U	WN	VHM	F	3.000 - 20.000	5512	72	29
•	•	•	•	•	•		7xD	HE	RT 100 U	WN	VHM	F	3.000 - 20.000	5612	72	29
•	•	•	•	•	•		12xD	HA	RT 100 U	WN	VHM	F	3.000 - 20.000	5525	72	32
•	•	•	•	•	•		10xD	HA	RT 150 GG	WN	VHM	○	3.000 - 16.000	5513	72	35

### Ratio drills without oil feed

•	•	•	•	•	•		3xD	HA	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5514	72	37
•	•	•	•	•	•		3xD	HE	RT 100 U	DIN 6537K	VHM	F	3.000 - 20.000	5614	72	37
•	•	•	•	•	•		5xD	HA	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5515	72	40
•	•	•	•	•	•		5xD	HE	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5615	72	40
•	•	•	•	•	•		5xD	HB	RT 100 U	DIN 6537L	VHM	F	3.000 - 20.000	5651	72	40

### 3-flute Ratio drills

•	•	•	•	•	•		5xD	HA	FT 200	DIN 6537L	VHM	○	3.000 - 20.000	5518	72	43
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### Stub drills

•	•	•	•	•	•		3xD	Cyl	N	DIN 6539	VHM	○	2.000 - 12.000	5516	74	45
•	•	•	•	•	•		~3xD	Cyl	GU500 DZ	DIN 1897	HSCO	○	1.000 - 14.000	5524	74	47
•	•	•	•	•	•		~3xD	Cyl	GU500 DZ	DIN 1897	HSCO	Ⓢ	1.000 - 14.000	5520	74	47



P	M	K	N	S	H	Tool illustration	Drilling depth	Shank form	Type	Standard	Tool material	Surface	d1/mm	Article no.	Cutting data page	Page
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### Stub drills

•	○	•	○	○	○		~3xD	Cyl	GT 500 DZ	DIN 1897	HSS-E-PM	Ⓢ	1.000 - 14.000	5521	74	50
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### Jobber drills

○	○	○	•	○			5xD	Cyl	N	WN	VHM	○	2.000 - 12.000	5517	74	53
•	•	•	•				~5xD	Cyl	GU 500 DZ	DIN 338	HSCO	○	1.000 - 14.000	5523	74	55
•	•	•	•				~5xD	Cyl	GU 500 DZ	DIN 338	HSCO	Ⓢ	1.000 - 14.000	5519	74	55
•	○	○	○	○	○		~5xD	Cyl	GT 500 DZ	DIN 338	HSS-E-PM	Ⓢ	1.000 - 14.000	5522	74	58
•	•	•					~5xD	Cyl	N	DIN 338	HSS	Ⓢ	1.000 - 16.000	9651	74	61

### Long series twist drills

•	•	•	•				~10xD	Cyl	GU 500 DZ	DIN 340	HSCO	○	1.000 - 14.000	5536	74	65
•	•	•	•				~10xD	Cyl	GU 500 DZ	DIN 340	HSCO	Ⓢ	1.000 - 14.000	5537	74	65

### Solid carbide micro-precision drills without coolant ducts

•	○	○	○	○	○		NEW	Cyl	N	WN	VHM	Ⓐ	0.100 - 3.000	5652	72	68
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### 142° NC-spotting drills

○	○	○	○	○	○		NEW	HB	N	WN	VHM	○	4.000 - 20.000	5649		69
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### Set of jobber drills

•	•	•	•				NEW	~5xD	Cyl	GU 500 DZ	DIN 338	HSCO	○		12	70
•	•	•					NEW	~5xD	Cyl	N	DIN 338	HSS	Ⓢ		234	71

P	M	K	N	S	H	Tool illustration	Standard	Type	Form	Tolerance on Ø	Tool material	Surface	d1/mm	Article no.	Cutting data page	Page
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## Machine taps for ISO metric threads

≤ 800							DIN 371/376	NR40	C	ISO2/6H	HSS-E	○	M3 - M20	5554	96	78
≤ 800							DIN 371/376	NR40	C	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5592	96	78
≤ 1200							DIN 371/376	HR40	C	ISO2/6H	HSS-E	○	M3 - M20	5552	96	79
≤ 1200							DIN 371/376	HR40	C	ISO2/6H	HSS-E	Ⓒ	M3 - M20	5591	96	79
	•						DIN 371/376	VA R40	C	ISO2/6H	HSS-E	○	M3 - M20	5553	96	80
	•						DIN 371/376	VA R40	C	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5596	96	80
≤ 1000	○	○					DIN 371/376	NR40	C	ISO2/6H	HSS-E	○	M3 - M20	5555	96	81
≤ 1000	○	○					DIN 371/376	NR40	C	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5594	96	81
			•				DIN 371/376	AI R45	C	ISO2/6H	HSS-E	○	M3 - M20	5551	96	82
			•	≥ 7			DIN 371/376	H	C	6HX	VHM	○	M4 - M20	5593	96	83
≤ 800							DIN 371/376	N	B	ISO2/6H	HSS-E	○	M3 - M20	5560	94	84
≤ 800							DIN 371/376	N	B	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5590	94	84
≤ 1200							DIN 371/376	H	B	ISO2/6H	HSS-E	○	M3 - M20	5558	94	85
≤ 1200							DIN 371/376	H	B	ISO2/6H	HSS-E	Ⓒ	M3 - M20	5587	94	85
≤ 1000	•						DIN 371/376	VA	B	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5588	94	86
≤ 1000	•						DIN 371/376	N	B	ISO2/6H	HSS-E	○	M3 - M20	5597	94	86
≤ 1000	•						DIN 371	N	B	ISO2/6H	HSS-E-PM	○	M3 - M10	5559	94	87
≤ 1000	○						DIN 371/376	N	B	ISO2/6H	HSS-E	○	M3 - M20	5561	94	88
≤ 1000	○						DIN 371/376	N	B	ISO2/6H	HSS-E	Ⓢ	M3 - M20	5586	94	88
			•				DIN 371/376	AI	B	ISO2/6H	HSS-E	○	M3 - M20	5557	94	89
			•				DIN 371/376	GG	C	6HX	HSS-E	●	M3 - M20	5550	94	90
			•				DIN 371/376	GG	C	6HX	HSS-E	Ⓕ	M3 - M20	5595	94	90

## Fluteless machine taps for ISO metric threads

•	•	○	•				~DIN 371	N	C	6HX	HSS-E	Ⓢ	M3 - M10	5598	94	91
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P	M	K	N	S	H	Tool illustration	Standard	Type	Form	Tolerance on Ø	Tool material	Surface	d1/mm	Article no.	Cutting data page	Page
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## Fluteless machine taps for ISO metric threads

•	•	○	•				~DIN 376	N	C	6HX	HSS-E	S	M12 - M16	5599	94	92
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## Thread milling cutters without chamfer for ISO metric threads

•	○	•	•	•	≤65		NEW	WN	TM SP		VHM	C	M 6 - M20	5547	96	93
•	○	•	•	•	≤55		NEW	WN	TM SP		VHM	C	M 6 - M20	5548	96	93

P	M	K	N	S	H	Tool illustration	Z	Feed	Shank form	Length	Tool material	Surface	d1/mm	Article no.	Cutting data page	Page
Standard Ratio end mills RF 100 U																
•	○	•	○				4		HB		VHM	F	6.000 - 20.000	5534	126	100
•	○	•	○				4		HA		VHM	F	4.000 - 25.000	5735	126	101
•	○	•	○				4		HB		VHM	F	4.000 - 25.000	5535	126	101
•	○	•	○				4		HA		VHM	F	10.000 - 25.000	5582	126	102
Ratio end mills RF 100 VA																
•	•	○	•				4		HA		VHM	a	3.000 - 25.000	5653	126	103
•	•	○	•				4		HB		VHM	a	3.000 - 25.000	5654	126	103
Ratio end mills Alu RF 100 A																
		•					3		HB		VHM	○	3.000 - 20.000	5655	126	104
Slot drills GH 100 U (3-fluted)																
•	•	•	•	○			3		HA		VHM	F	3.000 - 20.000	5505	124	105
•	•	•	•	○			3		HA		VHM	F	3.000 - 20.000	5506	124	106
•	•	•	•	○			3		HB		VHM	F	3.000 - 20.000	5546	124	106
Mini slot drills (3-fluted)																
•	○	•	○				3		HA/ HB		VHM	F	1.000 - 10.000	5574	124	107
Roughing end mills GS 100 U (fine teeth)																
•	•	•	○				4		HB		VHM	F	6.000 - 20.000	5504	126	108
Hard roughing end mills GS 100 H (fine teeth)																
○	•	•	•				4		HB		VHM	Y	6.000 - 20.000	5583	126	109
Multi-tooth end mills GH 100 U																
•	•	•	•	•			6+		HA		VHM	F	3.000 - 25.000	5745	124	110
•	•	•	•	•			6+		HB		VHM	F	3.000 - 25.000	5545	124	110
•	•	•	•	•			6+		HA		VHM	F	6.000 - 20.000	5729	124	111
Slot drills (2-fluted)																
•	•	•	•				2		HA		VHM	F	2.000 - 20.000	5730	124	112
•	•	•	•				2		HB		VHM	F	2.000 - 20.000	5530	124	112



P	M	K	N	S	H	Tool illustration	Z	Feed	Shank form	Length	Tool material	Surface	d1/mm	Article no.	Cutting data page	Page		
XL slot drills (2-fluted)												VHM	F	3.000 - 20.000	5549	124	113	
Al slot drills (2-fluted)												VHM	○	3.000 - 20.000	5543	124	114	
Slot drills (3-fluted)												VHM	F	2.000 - 20.000	5507	124	115	
												VHM	F	2.000 - 20.000	5531	124	115	
Mini slot drills (3-fluted)												VHM	F	0.500 - 20.000	5573	124	116	
End mills (4-fluted)												VHM	F	2.000 - 20.000	5532	126	117	
XL end mills (4-fluted)												VHM	F	3.000 - 20.000	5556	126	118	
Ball nose slot drills (2-fluted)												VHM	F	0.500 - 20.000	5533	124	119	
												VHM	F	0.500 - 20.000	5585	124	119	
Ball nose end mills (4-fluted)												VHM	F	3.000 - 20.000	5584	124	120	
Chamfering milling cutters													VHM	A	4.000 - 12.000	5578	126	121
													VHM	A	4.000 - 12.000	5579	126	121
Ratio end mill sets RF 100 U													VHM	F		5635		122

P	M	K	N	S	H	Tool illustration	Drilling depth	Standard	Form	Cutting direction	Tool material	Surface	d1/mm	Article no.	Cutting data page	Page
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## NC machine reamers

•	○	•	•	•	52							0.980 - 12.050	<b>5527</b>	132	130
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# 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.

Article no. 5527





TWIST DRILLS



Ratio drills with oil feed



**P** • web thinning  $\geq \varnothing 3.000$  • facet point grinding • main cutting edge form straight • optimised cutting geometry

**M** ○

**K** •

**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AISI-alloys

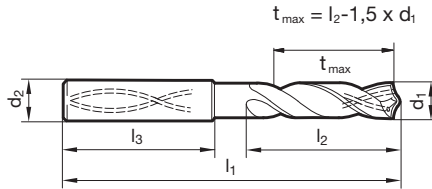
**S** ○

**H** ○

Tool material	Solid carbide	
Surface	<b>F</b>	<b>F</b>
Shank form	HA	HE

**GÜHRING NAVIGATOR**

Cutting data page 72



						Article no.	5510	5610
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	62.00	20.00	36.00	●	●	
3.100		6.00	62.00	20.00	36.00	●	●	
3.170	1/8	6.00	62.00	20.00	36.00	●	●	
3.200		6.00	62.00	20.00	36.00	●	●	
3.250		6.00	62.00	20.00	36.00	●	●	
3.300		6.00	62.00	20.00	36.00	●	●	
3.400		6.00	62.00	20.00	36.00	●	●	
3.500		6.00	62.00	20.00	36.00	●	●	
3.570	9/64	6.00	62.00	20.00	36.00	●	●	
3.600		6.00	62.00	20.00	36.00	●	●	
3.700		6.00	62.00	20.00	36.00	●	●	
3.800		6.00	66.00	24.00	36.00	●	●	
3.900		6.00	66.00	24.00	36.00	●	●	
3.970	5/32	6.00	66.00	24.00	36.00	●	●	
4.000		6.00	66.00	24.00	36.00	●	●	
4.100		6.00	66.00	24.00	36.00	●	●	
4.200		6.00	66.00	24.00	36.00	●	●	
4.300		6.00	66.00	24.00	36.00	●	●	
4.370	11/64	6.00	66.00	24.00	36.00	●	●	
4.400		6.00	66.00	24.00	36.00	●	●	
4.500		6.00	66.00	24.00	36.00	●	●	
4.600		6.00	66.00	24.00	36.00	●	●	
4.650		6.00	66.00	24.00	36.00	●	●	
4.700		6.00	66.00	24.00	36.00	●	●	
4.760	3/16	6.00	66.00	28.00	36.00	●	●	
4.800		6.00	66.00	28.00	36.00	●	●	
4.900		6.00	66.00	28.00	36.00	●	●	
5.000		6.00	66.00	28.00	36.00	●	●	
5.100		6.00	66.00	28.00	36.00	●	●	
5.160	13/64	6.00	66.00	28.00	36.00	●	●	
5.200		6.00	66.00	28.00	36.00	●	●	
5.300		6.00	66.00	28.00	36.00	●	●	
5.400		6.00	66.00	28.00	36.00	●	●	
5.500		6.00	66.00	28.00	36.00	●	●	
5.550		6.00	66.00	28.00	36.00	●	●	
5.560	7/32	6.00	66.00	28.00	36.00	●	●	



SL Twist drills

						Article no.	5510	5610
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	66.00	28.00	36.00	●	●	
5.700		6.00	66.00	28.00	36.00	●	●	
5.800		6.00	66.00	28.00	36.00	●	●	
5.900		6.00	66.00	28.00	36.00	●	●	
5.950	15/64	6.00	66.00	28.00	36.00	●	●	
6.000		6.00	66.00	28.00	36.00	●	●	
6.100		8.00	79.00	34.00	36.00	●	●	
6.200		8.00	79.00	34.00	36.00	●	●	
6.300		8.00	79.00	34.00	36.00	●	●	
6.350	1/4	8.00	79.00	34.00	36.00	●	●	
6.400		8.00	79.00	34.00	36.00	●	●	
6.500		8.00	79.00	34.00	36.00	●	●	
6.600		8.00	79.00	34.00	36.00	●	●	
6.700		8.00	79.00	34.00	36.00	●	●	
6.750	17/64	8.00	79.00	34.00	36.00	●	●	
6.800		8.00	79.00	34.00	36.00	●	●	
6.900		8.00	79.00	34.00	36.00	●	●	
7.000		8.00	79.00	34.00	36.00	●	●	
7.100		8.00	79.00	41.00	36.00	●	●	
7.140	9/32	8.00	79.00	41.00	36.00	●	●	
7.200		8.00	79.00	41.00	36.00	●	●	
7.300		8.00	79.00	41.00	36.00	●	●	
7.400		8.00	79.00	41.00	36.00	●	●	
7.500		8.00	79.00	41.00	36.00	●	●	
7.540	19/64	8.00	79.00	41.00	36.00	●	●	
7.600		8.00	79.00	41.00	36.00	●	●	
7.700		8.00	79.00	41.00	36.00	●	●	
7.800		8.00	79.00	41.00	36.00	●	●	
7.900		8.00	79.00	41.00	36.00	●	●	
7.940	5/16	8.00	79.00	41.00	36.00	●	●	
8.000		8.00	79.00	41.00	36.00	●	●	
8.100		10.00	89.00	47.00	40.00	●	●	
8.200		10.00	89.00	47.00	40.00	●	●	
8.300		10.00	89.00	47.00	40.00	●	●	
8.330	21/64	10.00	89.00	47.00	40.00	●	●	
8.400		10.00	89.00	47.00	40.00	●	●	
8.500		10.00	89.00	47.00	40.00	●	●	
8.600		10.00	89.00	47.00	40.00	●	●	
8.700		10.00	89.00	47.00	40.00	●	●	
8.730	11/32	10.00	89.00	47.00	40.00	●	●	
8.800		10.00	89.00	47.00	40.00	●	●	
8.900		10.00	89.00	47.00	40.00	●	●	
9.000		10.00	89.00	47.00	40.00	●	●	
9.100		10.00	89.00	47.00	40.00	●	●	
9.130	23/64	10.00	89.00	47.00	40.00	●	●	
9.200		10.00	89.00	47.00	40.00	●	●	
9.250		10.00	89.00	47.00	40.00	●	●	
9.300		10.00	89.00	47.00	40.00	●	●	
9.400		10.00	89.00	47.00	40.00	●	●	
9.500		10.00	89.00	47.00	40.00	●	●	
9.520	3/8	10.00	89.00	47.00	40.00	●	●	
9.600		10.00	89.00	47.00	40.00	●	●	
9.700		10.00	89.00	47.00	40.00	●	●	
9.800		10.00	89.00	47.00	40.00	●	●	
9.900		10.00	89.00	47.00	40.00	●	●	
9.920	25/64	10.00	89.00	47.00	40.00	●	●	
10.000		10.00	89.00	47.00	40.00	●	●	
10.100		12.00	102.00	55.00	45.00	●	●	
10.200		12.00	102.00	55.00	45.00	●	●	
10.300		12.00	102.00	55.00	45.00	●	●	



						Article no.	5510	5610
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	102.00	55.00	45.00	●	●	
10.400		12.00	102.00	55.00	45.00	●	●	
10.500		12.00	102.00	55.00	45.00	●	●	
10.600		12.00	102.00	55.00	45.00	●	●	
10.700		12.00	102.00	55.00	45.00	●	●	
10.800		12.00	102.00	55.00	45.00	●	●	
10.900		12.00	102.00	55.00	45.00	●	●	
11.000		12.00	102.00	55.00	45.00	●	●	
11.100		12.00	102.00	55.00	45.00	●	●	
11.110	7/16	12.00	102.00	55.00	45.00	●	●	
11.200		12.00	102.00	55.00	45.00	●	●	
11.300		12.00	102.00	55.00	45.00	●	●	
11.400		12.00	102.00	55.00	45.00	●	●	
11.500		12.00	102.00	55.00	45.00	●	●	
11.600		12.00	102.00	55.00	45.00	●	●	
11.700		12.00	102.00	55.00	45.00	●	●	
11.800		12.00	102.00	55.00	45.00	●	●	
11.900		12.00	102.00	55.00	45.00	●	●	
11.910	15/32	12.00	102.00	55.00	45.00	●	●	
12.000		12.00	102.00	55.00	45.00	●	●	
12.200		14.00	107.00	60.00	45.00	●	●	
12.400		14.00	107.00	60.00	45.00	●	●	
12.500		14.00	107.00	60.00	45.00	●	●	
12.700	1/2	14.00	107.00	60.00	45.00	●	●	
12.800		14.00	107.00	60.00	45.00	●	●	
13.000		14.00	107.00	60.00	45.00	●	●	
13.500		14.00	107.00	60.00	45.00	●	●	
13.700		14.00	107.00	60.00	45.00	●	●	
13.800		14.00	107.00	60.00	45.00	●	●	
14.000		14.00	107.00	60.00	45.00	●	●	
14.200		16.00	115.00	65.00	48.00	●	●	
14.290	9/16	16.00	115.00	65.00	48.00	●	●	
14.300		16.00	115.00	65.00	48.00	●	●	
14.500		16.00	115.00	65.00	48.00	●	●	
14.700		16.00	115.00	65.00	48.00	●	●	
14.800		16.00	115.00	65.00	48.00	●	●	
15.000		16.00	115.00	65.00	48.00	●	●	
15.200		16.00	115.00	65.00	48.00	●	●	
15.500		16.00	115.00	65.00	48.00	●	●	
15.700		16.00	115.00	65.00	48.00	●	●	
16.000		16.00	115.00	65.00	48.00	●	●	
16.500		18.00	123.00	73.00	48.00	●	●	
17.000		18.00	123.00	73.00	48.00	●	●	
17.500		18.00	123.00	73.00	48.00	●	●	
17.700		18.00	123.00	73.00	48.00	●	●	
18.000		18.00	123.00	73.00	48.00	●	●	
18.500		20.00	131.00	79.00	50.00	●	●	
19.000		20.00	131.00	79.00	50.00	●	●	
19.500		20.00	131.00	79.00	50.00	●	●	
20.000		20.00	131.00	79.00	50.00	●	●	





Ratio drills with oil feed



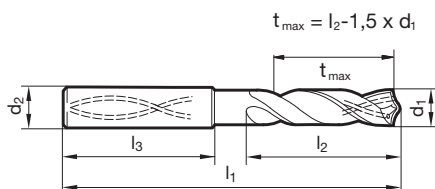
<b>P</b>	web thinning ≥ Ø 3.000 • facet point grinding • main cutting edge form straight • optimised cutting geometry
<b>M</b>	•
<b>K</b>	
<b>N</b>	stainless/acid-/heat-resistant steels • Titanium and Titanium alloys
<b>S</b>	• Inconel, Hastelloy, Monel
<b>H</b>	

Tool material	Solid carbide	
Surface	<b>a</b>	<b>a</b>
Shank form	HA	HE
	<b>NEW</b>	<b>NEW</b>

SL Twist drills

**GUHRING NAVIGATOR**

Cutting data page 72



						Article no.	5526	5528
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	62.00	20.00	36.00	•	•	
3.100		6.00	62.00	20.00	36.00	•	•	
3.170	1/8	6.00	62.00	20.00	36.00	•	•	
3.200		6.00	62.00	20.00	36.00	•	•	
3.250		6.00	62.00	20.00	36.00	•	•	
3.300		6.00	62.00	20.00	36.00	•	•	
3.400		6.00	62.00	20.00	36.00	•	•	
3.500		6.00	62.00	20.00	36.00	•	•	
3.570	9/64	6.00	62.00	20.00	36.00	•	•	
3.600		6.00	62.00	20.00	36.00	•	•	
3.700		6.00	62.00	20.00	36.00	•	•	
3.800		6.00	66.00	24.00	36.00	•	•	
3.900		6.00	66.00	24.00	36.00	•	•	
3.970	5/32	6.00	66.00	24.00	36.00	•	•	
4.000		6.00	66.00	24.00	36.00	•	•	
4.100		6.00	66.00	24.00	36.00	•	•	
4.200		6.00	66.00	24.00	36.00	•	•	
4.300		6.00	66.00	24.00	36.00	•	•	
4.370	11/64	6.00	66.00	24.00	36.00	•	•	
4.400		6.00	66.00	24.00	36.00	•	•	
4.500		6.00	66.00	24.00	36.00	•	•	
4.600		6.00	66.00	24.00	36.00	•	•	
4.650		6.00	66.00	24.00	36.00	•	•	
4.700		6.00	66.00	24.00	36.00	•	•	
4.760	3/16	6.00	66.00	28.00	36.00	•	•	
4.800		6.00	66.00	28.00	36.00	•	•	
4.900		6.00	66.00	28.00	36.00	•	•	
5.000		6.00	66.00	28.00	36.00	•	•	
5.100		6.00	66.00	28.00	36.00	•	•	
5.160	13/64	6.00	66.00	28.00	36.00	•	•	
5.200		6.00	66.00	28.00	36.00	•	•	
5.300		6.00	66.00	28.00	36.00	•	•	
5.400		6.00	66.00	28.00	36.00	•	•	
5.500		6.00	66.00	28.00	36.00	•	•	
5.550		6.00	66.00	28.00	36.00	•	•	
5.560	7/32	6.00	66.00	28.00	36.00	•	•	



						Article no.	5526	5528
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	66.00	28.00	36.00	●	●	
5.700		6.00	66.00	28.00	36.00	●	●	
5.800		6.00	66.00	28.00	36.00	●	●	
5.900		6.00	66.00	28.00	36.00	●	●	
5.950	15/64	6.00	66.00	28.00	36.00	●	●	
6.000		6.00	66.00	28.00	36.00	●	●	
6.100		8.00	79.00	34.00	36.00	●	●	
6.200		8.00	79.00	34.00	36.00	●	●	
6.300		8.00	79.00	34.00	36.00	●	●	
6.350	1/4	8.00	79.00	34.00	36.00	●	●	
6.400		8.00	79.00	34.00	36.00	●	●	
6.500		8.00	79.00	34.00	36.00	●	●	
6.600		8.00	79.00	34.00	36.00	●	●	
6.700		8.00	79.00	34.00	36.00	●	●	
6.750	17/64	8.00	79.00	34.00	36.00	●	●	
6.800		8.00	79.00	34.00	36.00	●	●	
6.900		8.00	79.00	34.00	36.00	●	●	
7.000		8.00	79.00	34.00	36.00	●	●	
7.100		8.00	79.00	41.00	36.00	●	●	
7.140	9/32	8.00	79.00	41.00	36.00	●	●	
7.200		8.00	79.00	41.00	36.00	●	●	
7.300		8.00	79.00	41.00	36.00	●	●	
7.400		8.00	79.00	41.00	36.00	●	●	
7.500		8.00	79.00	41.00	36.00	●	●	
7.540	19/64	8.00	79.00	41.00	36.00	●	●	
7.600		8.00	79.00	41.00	36.00	●	●	
7.700		8.00	79.00	41.00	36.00	●	●	
7.800		8.00	79.00	41.00	36.00	●	●	
7.900		8.00	79.00	41.00	36.00	●	●	
7.940	5/16	8.00	79.00	41.00	36.00	●	●	
8.000		8.00	79.00	41.00	36.00	●	●	
8.100		10.00	89.00	47.00	40.00	●	●	
8.200		10.00	89.00	47.00	40.00	●	●	
8.300		10.00	89.00	47.00	40.00	●	●	
8.330	21/64	10.00	89.00	47.00	40.00	●	●	
8.400		10.00	89.00	47.00	40.00	●	●	
8.500		10.00	89.00	47.00	40.00	●	●	
8.600		10.00	89.00	47.00	40.00	●	●	
8.700		10.00	89.00	47.00	40.00	●	●	
8.730	11/32	10.00	89.00	47.00	40.00	●	●	
8.800		10.00	89.00	47.00	40.00	●	●	
8.900		10.00	89.00	47.00	40.00	●	●	
9.000		10.00	89.00	47.00	40.00	●	●	
9.100		10.00	89.00	47.00	40.00	●	●	
9.130	23/64	10.00	89.00	47.00	40.00	●	●	
9.200		10.00	89.00	47.00	40.00	●	●	
9.250		10.00	89.00	47.00	40.00	●	●	
9.300		10.00	89.00	47.00	40.00	●	●	
9.400		10.00	89.00	47.00	40.00	●	●	
9.500		10.00	89.00	47.00	40.00	●	●	
9.520	3/8	10.00	89.00	47.00	40.00	●	●	
9.600		10.00	89.00	47.00	40.00	●	●	
9.700		10.00	89.00	47.00	40.00	●	●	
9.800		10.00	89.00	47.00	40.00	●	●	
9.900		10.00	89.00	47.00	40.00	●	●	
9.920	25/64	10.00	89.00	47.00	40.00	●	●	
10.000		10.00	89.00	47.00	40.00	●	●	
10.100		12.00	102.00	55.00	45.00	●	●	
10.200		12.00	102.00	55.00	45.00	●	●	
10.300		12.00	102.00	55.00	45.00	●	●	



SL Twist drills

						Article no.	5526	5528
						Discount group	155	155
						Cutting direction	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	102.00	55.00	45.00	●	●	
10.400		12.00	102.00	55.00	45.00	●	●	
10.500		12.00	102.00	55.00	45.00	●	●	
10.600		12.00	102.00	55.00	45.00	●	●	
10.700		12.00	102.00	55.00	45.00	●	●	
10.800		12.00	102.00	55.00	45.00	●	●	
10.900		12.00	102.00	55.00	45.00	●	●	
11.000		12.00	102.00	55.00	45.00	●	●	
11.100		12.00	102.00	55.00	45.00	●	●	
11.110	7/16	12.00	102.00	55.00	45.00	●	●	
11.200		12.00	102.00	55.00	45.00	●	●	
11.300		12.00	102.00	55.00	45.00	●	●	
11.400		12.00	102.00	55.00	45.00	●	●	
11.500		12.00	102.00	55.00	45.00	●	●	
11.600		12.00	102.00	55.00	45.00	●	●	
11.700		12.00	102.00	55.00	45.00	●	●	
11.800		12.00	102.00	55.00	45.00	●	●	
11.900		12.00	102.00	55.00	45.00	●	●	
11.910	15/32	12.00	102.00	55.00	45.00	●	●	
12.000		12.00	102.00	55.00	45.00	●	●	
12.200		14.00	107.00	60.00	45.00	●	●	
12.500		14.00	107.00	60.00	45.00	●	●	
12.700	1/2	14.00	107.00	60.00	45.00	●	●	
13.000		14.00	107.00	60.00	45.00	●	●	
13.500		14.00	107.00	60.00	45.00	●	●	
13.700		14.00	107.00	60.00	45.00	●	●	
14.000		14.00	107.00	60.00	45.00	●	●	
14.200		16.00	115.00	65.00	48.00	●	●	
14.290	9/16	16.00	115.00	65.00	48.00	●	●	
14.500		16.00	115.00	65.00	48.00	●	●	
14.700		16.00	115.00	65.00	48.00	●	●	
15.000		16.00	115.00	65.00	48.00	●	●	
15.200		16.00	115.00	65.00	48.00	●	●	
15.500		16.00	115.00	65.00	48.00	●	●	
15.700		16.00	115.00	65.00	48.00	●	●	
16.000		16.00	115.00	65.00	48.00	●	●	
16.500		18.00	123.00	73.00	48.00	●	●	
17.000		18.00	123.00	73.00	48.00	●	●	
17.500		18.00	123.00	73.00	48.00	●	●	
18.000		18.00	123.00	73.00	48.00	●	●	
18.500		20.00	131.00	79.00	50.00	●	●	
19.000		20.00	131.00	79.00	50.00	●	●	
19.500		20.00	131.00	79.00	50.00	●	●	
20.000		20.00	131.00	79.00	50.00	●	●	



Ratio drills with oil feed



**P** ● web thinning ≥ Ø 3.000 • facet point grinding • main cutting edge form straight • optimised cutting geometry

**M** ○

**K** ●

**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AISI-alloys

**S** ○

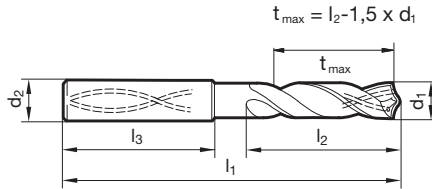
**H** ○

Tool material	Solid carbide		
Surface	F	F	F
Shank form	HA	HE	HB



**GÜHRING NAVIGATOR**

Cutting data page 72



						Article no.	5511	5611	5650
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
3.000		6.00	66.00	28.00	36.00	●	●	●	
3.100		6.00	66.00	28.00	36.00	●	●	●	
3.170	1/8	6.00	66.00	28.00	36.00	●	●	●	
3.200		6.00	66.00	28.00	36.00	●	●	●	
3.250		6.00	66.00	28.00	36.00	●	●	●	
3.300		6.00	66.00	28.00	36.00	●	●	●	
3.400		6.00	66.00	28.00	36.00	●	●	●	
3.500		6.00	66.00	28.00	36.00	●	●	●	
3.570	9/64	6.00	66.00	28.00	36.00	●	●	●	
3.600		6.00	66.00	28.00	36.00	●	●	●	
3.700		6.00	66.00	28.00	36.00	●	●	●	
3.800		6.00	74.00	36.00	36.00	●	●	●	
3.900		6.00	74.00	36.00	36.00	●	●	●	
3.970	5/32	6.00	74.00	36.00	36.00	●	●	●	
4.000		6.00	74.00	36.00	36.00	●	●	●	
4.100		6.00	74.00	36.00	36.00	●	●	●	
4.200		6.00	74.00	36.00	36.00	●	●	●	
4.300		6.00	74.00	36.00	36.00	●	●	●	
4.370	11/64	6.00	74.00	36.00	36.00	●	●	●	
4.400		6.00	74.00	36.00	36.00	●	●	●	
4.500		6.00	74.00	36.00	36.00	●	●	●	
4.600		6.00	74.00	36.00	36.00	●	●	●	
4.650		6.00	74.00	36.00	36.00	●	●	●	
4.700		6.00	74.00	36.00	36.00	●	●	●	
4.760	3/16	6.00	82.00	44.00	36.00	●	●	●	
4.800		6.00	82.00	44.00	36.00	●	●	●	
4.900		6.00	82.00	44.00	36.00	●	●	●	
5.000		6.00	82.00	44.00	36.00	●	●	●	
5.100		6.00	82.00	44.00	36.00	●	●	●	
5.160	13/64	6.00	82.00	44.00	36.00	●	●	●	
5.200		6.00	82.00	44.00	36.00	●	●	●	
5.300		6.00	82.00	44.00	36.00	●	●	●	
5.400		6.00	82.00	44.00	36.00	●	●	●	
5.500		6.00	82.00	44.00	36.00	●	●	●	
5.550		6.00	82.00	44.00	36.00	●	●	●	
5.560	7/32	6.00	82.00	44.00	36.00	●	●	●	






						Article no.	5511	5611	5650
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
5.600		6.00	82.00	44.00	36.00	●	●	●	
5.700		6.00	82.00	44.00	36.00	●	●	●	
5.800		6.00	82.00	44.00	36.00	●	●	●	
5.900		6.00	82.00	44.00	36.00	●	●	●	
5.950	15/64	6.00	82.00	44.00	36.00	●	●	●	
6.000		6.00	82.00	44.00	36.00	●	●	●	
6.100		8.00	91.00	53.00	36.00	●	●	●	
6.200		8.00	91.00	53.00	36.00	●	●	●	
6.300		8.00	91.00	53.00	36.00	●	●	●	
6.350	1/4	8.00	91.00	53.00	36.00	●	●	●	
6.400		8.00	91.00	53.00	36.00	●	●	●	
6.500		8.00	91.00	53.00	36.00	●	●	●	
6.600		8.00	91.00	53.00	36.00	●	●	●	
6.700		8.00	91.00	53.00	36.00	●	●	●	
6.750	17/64	8.00	91.00	53.00	36.00	●	●	●	
6.800		8.00	91.00	53.00	36.00	●	●	●	
6.900		8.00	91.00	53.00	36.00	●	●	●	
7.000		8.00	91.00	53.00	36.00	●	●	●	
7.100		8.00	91.00	53.00	36.00	●	●	●	
7.140	9/32	8.00	91.00	53.00	36.00	●	●	●	
7.200		8.00	91.00	53.00	36.00	●	●	●	
7.300		8.00	91.00	53.00	36.00	●	●	●	
7.400		8.00	91.00	53.00	36.00	●	●	●	
7.500		8.00	91.00	53.00	36.00	●	●	●	
7.540	19/64	8.00	91.00	53.00	36.00	●	●	●	
7.600		8.00	91.00	53.00	36.00	●	●	●	
7.700		8.00	91.00	53.00	36.00	●	●	●	
7.800		8.00	91.00	53.00	36.00	●	●	●	
7.900		8.00	91.00	53.00	36.00	●	●	●	
7.940	5/16	8.00	91.00	53.00	36.00	●	●	●	
8.000		8.00	91.00	53.00	36.00	●	●	●	
8.100		10.00	103.00	61.00	40.00	●	●	●	
8.200		10.00	103.00	61.00	40.00	●	●	●	
8.300		10.00	103.00	61.00	40.00	●	●	●	
8.330	21/64	10.00	103.00	61.00	40.00	●	●	●	
8.400		10.00	103.00	61.00	40.00	●	●	●	
8.500		10.00	103.00	61.00	40.00	●	●	●	
8.600		10.00	103.00	61.00	40.00	●	●	●	
8.700		10.00	103.00	61.00	40.00	●	●	●	
8.730	11/32	10.00	103.00	61.00	40.00	●	●	●	
8.800		10.00	103.00	61.00	40.00	●	●	●	
8.900		10.00	103.00	61.00	40.00	●	●	●	
9.000		10.00	103.00	61.00	40.00	●	●	●	
9.100		10.00	103.00	61.00	40.00	●	●	●	
9.130	23/64	10.00	103.00	61.00	40.00	●	●	●	
9.200		10.00	103.00	61.00	40.00	●	●	●	
9.250		10.00	103.00	61.00	40.00	●	●	●	
9.300		10.00	103.00	61.00	40.00	●	●	●	
9.340		10.00	103.00	61.00	40.00	●	●	●	
9.400		10.00	103.00	61.00	40.00	●	●	●	
9.500		10.00	103.00	61.00	40.00	●	●	●	
9.520	3/8	10.00	103.00	61.00	40.00	●	●	●	
9.600		10.00	103.00	61.00	40.00	●	●	●	
9.700		10.00	103.00	61.00	40.00	●	●	●	
9.800		10.00	103.00	61.00	40.00	●	●	●	
9.900		10.00	103.00	61.00	40.00	●	●	●	
9.920	25/64	10.00	103.00	61.00	40.00	●	●	●	
10.000		10.00	103.00	61.00	40.00	●	●	●	
10.100		12.00	118.00	71.00	45.00	●	●	●	
10.200		12.00	118.00	71.00	45.00	●	●	●	



						Article no.	5511	5611	5650
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
10.300		12.00	118.00	71.00	45.00	●	●	●	
10.320	13/32	12.00	118.00	71.00	45.00	●	●	●	
10.400		12.00	118.00	71.00	45.00	●	●	●	
10.500		12.00	118.00	71.00	45.00	●	●	●	
10.600		12.00	118.00	71.00	45.00	●	●	●	
10.700		12.00	118.00	71.00	45.00	●	●	●	
10.800		12.00	118.00	71.00	45.00	●	●	●	
10.900		12.00	118.00	71.00	45.00	●	●	●	
11.000		12.00	118.00	71.00	45.00	●	●	●	
11.100	7/16	12.00	118.00	71.00	45.00	●	●	●	
11.110		12.00	118.00	71.00	45.00	●	●	●	
11.200		12.00	118.00	71.00	45.00	●	●	●	
11.300		12.00	118.00	71.00	45.00	●	●	●	
11.400		12.00	118.00	71.00	45.00	●	●	●	
11.500		12.00	118.00	71.00	45.00	●	●	●	
11.600		12.00	118.00	71.00	45.00	●	●	●	
11.700		12.00	118.00	71.00	45.00	●	●	●	
11.800		12.00	118.00	71.00	45.00	●	●	●	
11.900	15/32	12.00	118.00	71.00	45.00	●	●	●	
11.910		12.00	118.00	71.00	45.00	●	●	●	
12.000		12.00	118.00	71.00	45.00	●	●	●	
12.100		14.00	124.00	77.00	45.00	●	●	●	
12.200		14.00	124.00	77.00	45.00	●	●	●	
12.500		14.00	124.00	77.00	45.00	●	●	●	
12.600	1/2	14.00	124.00	77.00	45.00	●	●	●	
12.700		14.00	124.00	77.00	45.00	●	●	●	
12.800		14.00	124.00	77.00	45.00	●	●	●	
12.900		14.00	124.00	77.00	45.00	●	●	●	
13.000		14.00	124.00	77.00	45.00	●	●	●	
13.300		14.00	124.00	77.00	45.00	●	●	●	
13.400		14.00	124.00	77.00	45.00	●	●	●	
13.500		14.00	124.00	77.00	45.00	●	●	●	
13.700		14.00	124.00	77.00	45.00	●	●	●	
13.800		14.00	124.00	77.00	45.00	●	●	●	
14.000		14.00	124.00	77.00	45.00	●	●	●	
14.100		16.00	133.00	83.00	48.00	●	●	●	
14.200	9/16	16.00	133.00	83.00	48.00	●	●	●	
14.290		16.00	133.00	83.00	48.00	●	●	●	
14.400		16.00	133.00	83.00	48.00	●	●	●	
14.500		16.00	133.00	83.00	48.00	●	●	●	
14.700		16.00	133.00	83.00	48.00	●	●	●	
14.800		16.00	133.00	83.00	48.00	●	●	●	
15.000		16.00	133.00	83.00	48.00	●	●	●	
15.100		16.00	133.00	83.00	48.00	●	●	●	
15.200		16.00	133.00	83.00	48.00	●	●	●	
15.300		16.00	133.00	83.00	48.00	●	●	●	
15.500		16.00	133.00	83.00	48.00	●	●	●	
15.700		16.00	133.00	83.00	48.00	●	●	●	
15.800		16.00	133.00	83.00	48.00	●	●	●	
16.000		16.00	133.00	83.00	48.00	●	●	●	
16.500		18.00	143.00	93.00	48.00	●	●	●	
16.700		18.00	143.00	93.00	48.00	●	●	●	
17.000		18.00	143.00	93.00	48.00	●	●	●	
17.500		18.00	143.00	93.00	48.00	●	●	●	
17.700		18.00	143.00	93.00	48.00	●	●	●	
18.000		18.00	143.00	93.00	48.00	●	●	●	
18.500		20.00	153.00	101.00	50.00	●	●	●	
18.900		20.00	153.00	101.00	50.00	●	●	●	
19.000		20.00	153.00	101.00	50.00	●	●	●	
19.050	3/4	20.00	153.00	101.00	50.00	●	●	●	



						Article no.	5511	5611	5650
						Discount group	155	155	155
						Cutting direction			
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
19.500		20.00	153.00	101.00	50.00	•	•	•	
20.000		20.00	153.00	101.00	50.00	•	•	•	

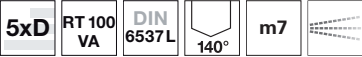
# GM 300

toolholders and clamping devices  
for every application

Overview and selection guide can be found on page 138.



**Ratio drills with oil feed**

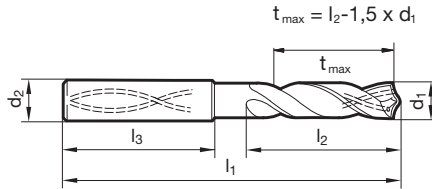


**P** web thinning ≥ Ø 3.000 • facet point grinding • main cutting edge form straight • optimised cutting geometry

- M** •
- K**
- N** stainless/acid-/heat-resistant steels • Titanium and Titanium alloys
- S** • Inconel, Hastelloy, Monel
- H**

**GÜHRING NAVIGATOR**

Cutting data page 72





Tool material	Solid carbide	
Surface	<b>a</b>	<b>a</b>
Shank form	HA	HE
	<b>NEW</b>	<b>NEW</b>



						Article no.	5580	5581
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	66.00	28.00	36.00	•	•	
3.100		6.00	66.00	28.00	36.00	•	•	
3.170	1/8	6.00	66.00	28.00	36.00	•	•	
3.200		6.00	66.00	28.00	36.00	•	•	
3.250		6.00	66.00	28.00	36.00	•	•	
3.300		6.00	66.00	28.00	36.00	•	•	
3.400		6.00	66.00	28.00	36.00	•	•	
3.500		6.00	66.00	28.00	36.00	•	•	
3.570	9/64	6.00	66.00	28.00	36.00	•	•	
3.600		6.00	66.00	28.00	36.00	•	•	
3.700		6.00	66.00	28.00	36.00	•	•	
3.800		6.00	74.00	36.00	36.00	•	•	
3.900		6.00	74.00	36.00	36.00	•	•	
3.970	5/32	6.00	74.00	36.00	36.00	•	•	
4.000		6.00	74.00	36.00	36.00	•	•	
4.100		6.00	74.00	36.00	36.00	•	•	
4.200		6.00	74.00	36.00	36.00	•	•	
4.300		6.00	74.00	36.00	36.00	•	•	
4.370	11/64	6.00	74.00	36.00	36.00	•	•	
4.400		6.00	74.00	36.00	36.00	•	•	
4.500		6.00	74.00	36.00	36.00	•	•	
4.600		6.00	74.00	36.00	36.00	•	•	
4.650		6.00	74.00	36.00	36.00	•	•	
4.700		6.00	74.00	36.00	36.00	•	•	
4.760	3/16	6.00	82.00	44.00	36.00	•	•	
4.800		6.00	82.00	44.00	36.00	•	•	
4.900		6.00	82.00	44.00	36.00	•	•	
5.000		6.00	82.00	44.00	36.00	•	•	
5.100		6.00	82.00	44.00	36.00	•	•	
5.160	13/64	6.00	82.00	44.00	36.00	•	•	
5.200		6.00	82.00	44.00	36.00	•	•	
5.300		6.00	82.00	44.00	36.00	•	•	
5.400		6.00	82.00	44.00	36.00	•	•	
5.500		6.00	82.00	44.00	36.00	•	•	
5.550		6.00	82.00	44.00	36.00	•	•	
5.560	7/32	6.00	82.00	44.00	36.00	•	•	



						Article no.	5580	5581
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	82.00	44.00	36.00	●	●	
5.700		6.00	82.00	44.00	36.00	●	●	
5.800		6.00	82.00	44.00	36.00	●	●	
5.900		6.00	82.00	44.00	36.00	●	●	
5.950	15/64	6.00	82.00	44.00	36.00	●	●	
6.000		6.00	82.00	44.00	36.00	●	●	
6.100		8.00	91.00	53.00	36.00	●	●	
6.200		8.00	91.00	53.00	36.00	●	●	
6.300		8.00	91.00	53.00	36.00	●	●	
6.350	1/4	8.00	91.00	53.00	36.00	●	●	
6.400		8.00	91.00	53.00	36.00	●	●	
6.500		8.00	91.00	53.00	36.00	●	●	
6.600		8.00	91.00	53.00	36.00	●	●	
6.700		8.00	91.00	53.00	36.00	●	●	
6.750	17/64	8.00	91.00	53.00	36.00	●	●	
6.800		8.00	91.00	53.00	36.00	●	●	
6.900		8.00	91.00	53.00	36.00	●	●	
7.000		8.00	91.00	53.00	36.00	●	●	
7.100		8.00	91.00	53.00	36.00	●	●	
7.140	9/32	8.00	91.00	53.00	36.00	●	●	
7.200		8.00	91.00	53.00	36.00	●	●	
7.300		8.00	91.00	53.00	36.00	●	●	
7.400		8.00	91.00	53.00	36.00	●	●	
7.500		8.00	91.00	53.00	36.00	●	●	
7.540	19/64	8.00	91.00	53.00	36.00	●	●	
7.600		8.00	91.00	53.00	36.00	●	●	
7.700		8.00	91.00	53.00	36.00	●	●	
7.800		8.00	91.00	53.00	36.00	●	●	
7.900		8.00	91.00	53.00	36.00	●	●	
7.940	5/16	8.00	91.00	53.00	36.00	●	●	
8.000		8.00	91.00	53.00	36.00	●	●	
8.100		10.00	103.00	61.00	40.00	●	●	
8.200		10.00	103.00	61.00	40.00	●	●	
8.300		10.00	103.00	61.00	40.00	●	●	
8.330	21/64	10.00	103.00	61.00	40.00	●	●	
8.400		10.00	103.00	61.00	40.00	●	●	
8.500		10.00	103.00	61.00	40.00	●	●	
8.600		10.00	103.00	61.00	40.00	●	●	
8.700		10.00	103.00	61.00	40.00	●	●	
8.730	11/32	10.00	103.00	61.00	40.00	●	●	
8.800		10.00	103.00	61.00	40.00	●	●	
8.900		10.00	103.00	61.00	40.00	●	●	
9.000		10.00	103.00	61.00	40.00	●	●	
9.100		10.00	103.00	61.00	40.00	●	●	
9.130	23/64	10.00	103.00	61.00	40.00	●	●	
9.200		10.00	103.00	61.00	40.00	●	●	
9.250		10.00	103.00	61.00	40.00	●	●	
9.300		10.00	103.00	61.00	40.00	●	●	
9.400		10.00	103.00	61.00	40.00	●	●	
9.500		10.00	103.00	61.00	40.00	●	●	
9.520	3/8	10.00	103.00	61.00	40.00	●	●	
9.600		10.00	103.00	61.00	40.00	●	●	
9.700		10.00	103.00	61.00	40.00	●	●	
9.800		10.00	103.00	61.00	40.00	●	●	
9.900		10.00	103.00	61.00	40.00	●	●	
9.920	25/64	10.00	103.00	61.00	40.00	●	●	
10.000		10.00	103.00	61.00	40.00	●	●	
10.100		12.00	118.00	71.00	45.00	●	●	
10.200		12.00	118.00	71.00	45.00	●	●	
10.300		12.00	118.00	71.00	45.00	●	●	



						Article no.	5580	5581
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	118.00	71.00	45.00	●	●	
10.400		12.00	118.00	71.00	45.00	●	●	
10.500		12.00	118.00	71.00	45.00	●	●	
10.600		12.00	118.00	71.00	45.00	●	●	
10.700		12.00	118.00	71.00	45.00	●	●	
10.800		12.00	118.00	71.00	45.00	●	●	
10.900		12.00	118.00	71.00	45.00	●	●	
11.000		12.00	118.00	71.00	45.00	●	●	
11.100		12.00	118.00	71.00	45.00	●	●	
11.110	7/16	12.00	118.00	71.00	45.00	●	●	
11.200		12.00	118.00	71.00	45.00	●	●	
11.300		12.00	118.00	71.00	45.00	●	●	
11.400		12.00	118.00	71.00	45.00	●	●	
11.500		12.00	118.00	71.00	45.00	●	●	
11.600		12.00	118.00	71.00	45.00	●	●	
11.700		12.00	118.00	71.00	45.00	●	●	
11.800		12.00	118.00	71.00	45.00	●	●	
11.900		12.00	118.00	71.00	45.00	●	●	
11.910	15/32	12.00	118.00	71.00	45.00	●	●	
12.000		12.00	118.00	71.00	45.00	●	●	
12.200		14.00	124.00	77.00	45.00	●	●	
12.500		14.00	124.00	77.00	45.00	●	●	
12.700	1/2	14.00	124.00	77.00	45.00	●	●	
13.000		14.00	124.00	77.00	45.00	●	●	
13.500		14.00	124.00	77.00	45.00	●	●	
13.700		14.00	124.00	77.00	45.00	●	●	
14.000		14.00	124.00	77.00	45.00	●	●	
14.200		16.00	133.00	83.00	48.00	●	●	
14.290	9/16	16.00	133.00	83.00	48.00	●	●	
14.500		16.00	133.00	83.00	48.00	●	●	
14.700		16.00	133.00	83.00	48.00	●	●	
15.000		16.00	133.00	83.00	48.00	●	●	
15.200		16.00	133.00	83.00	48.00	●	●	
15.500		16.00	133.00	83.00	48.00	●	●	
15.700		16.00	133.00	83.00	48.00	●	●	
16.000		16.00	133.00	83.00	48.00	●	●	
16.500		18.00	143.00	93.00	48.00	●	●	
17.000		18.00	143.00	93.00	48.00	●	●	
17.500		18.00	143.00	93.00	48.00	●	●	
18.000		18.00	143.00	93.00	48.00	●	●	
18.500		20.00	153.00	101.00	50.00	●	●	
19.000		20.00	153.00	101.00	50.00	●	●	
19.500		20.00	153.00	101.00	50.00	●	●	
20.000		20.00	153.00	101.00	50.00	●	●	





Ratio drills with oil feed



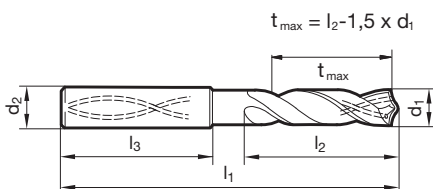
- P** ● web thinning ≥ Ø 3.000 • facet point grinding • main cutting edge form straight • optimised cutting geometry
- M** ○
- K** ●
- N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AISI-alloys
- S** ○
- H** ○

Tool material	Solid carbide	
Surface	<b>F</b>	<b>F</b>
Shank form	HA	HE

SL Twist drills

**GÜHRING** NAVIGATOR

Cutting data page 72



						Article no.	5512	5612
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	70.00	30.00	36.00	●	●	
3.100		6.00	70.00	30.00	36.00	●	●	
3.170	1/8	6.00	70.00	30.00	36.00	●	●	
3.200		6.00	70.00	30.00	36.00	●	●	
3.250		6.00	70.00	30.00	36.00	●	●	
3.300		6.00	70.00	30.00	36.00	●	●	
3.400		6.00	75.00	35.50	36.00	●	●	
3.500		6.00	75.00	35.50	36.00	●	●	
3.570	9/64	6.00	75.00	35.50	36.00	●	●	
3.600		6.00	75.00	35.50	36.00	●	●	
3.700		6.00	75.00	35.50	36.00	●	●	
3.800		6.00	75.00	37.50	36.00	●	●	
3.900		6.00	75.00	37.50	36.00	●	●	
3.970	5/32	6.00	75.00	37.50	36.00	●	●	
4.000		6.00	75.00	37.50	36.00	●	●	
4.100		6.00	75.00	37.50	36.00	●	●	
4.200		6.00	75.00	37.50	36.00	●	●	
4.300		6.00	85.00	45.00	36.00	●	●	
4.370	11/64	6.00	85.00	45.00	36.00	●	●	
4.400		6.00	85.00	45.00	36.00	●	●	
4.500		6.00	85.00	45.00	36.00	●	●	
4.600		6.00	85.00	45.00	36.00	●	●	
4.650		6.00	85.00	45.00	36.00	●	●	
4.700		6.00	85.00	45.00	36.00	●	●	
4.760	3/16	6.00	90.00	50.00	36.00	●	●	
4.800		6.00	90.00	50.00	36.00	●	●	
4.900		6.00	90.00	50.00	36.00	●	●	
5.000		6.00	90.00	50.00	36.00	●	●	
5.100		6.00	90.00	50.00	36.00	●	●	
5.160	13/64	6.00	90.00	50.00	36.00	●	●	
5.200		6.00	90.00	50.00	36.00	●	●	
5.300		6.00	90.00	50.00	36.00	●	●	
5.400		6.00	97.00	57.00	36.00	●	●	
5.500		6.00	97.00	57.00	36.00	●	●	
5.600		6.00	97.00	57.00	36.00	●	●	
5.700		6.00	97.00	57.00	36.00	●	●	



						Article no.	5512	5612
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.800		6.00	97.00	57.00	36.00	●	●	
5.900		6.00	97.00	57.00	36.00	●	●	
6.000		6.00	97.00	57.00	36.00	●	●	
6.100		8.00	106.00	66.00	36.00	●		
6.200		8.00	106.00	66.00	36.00	●	●	
6.300		8.00	106.00	66.00	36.00	●	●	
6.350	1/4	8.00	106.00	66.00	36.00	●	●	
6.500		8.00	106.00	66.00	36.00	●	●	
6.600		8.00	106.00	66.00	36.00	●	●	
6.700		8.00	106.00	66.00	36.00	●	●	
6.800		8.00	106.00	66.00	36.00	●	●	
6.900		8.00	116.00	76.00	36.00	●	●	
7.000		8.00	116.00	76.00	36.00	●	●	
7.100		8.00	116.00	76.00	36.00	●	●	
7.200		8.00	116.00	76.00	36.00	●	●	
7.300		8.00	116.00	76.00	36.00	●		
7.400		8.00	116.00	76.00	36.00	●		
7.500		8.00	116.00	76.00	36.00	●	●	
7.600		8.00	116.00	76.00	36.00	●	●	
7.700		8.00	116.00	76.00	36.00	●	●	
7.800		8.00	116.00	76.00	36.00	●	●	
8.000		8.00	116.00	76.00	36.00	●	●	
8.100		10.00	131.00	87.00	40.00	●	●	
8.200		10.00	131.00	87.00	40.00	●	●	
8.400		10.00	131.00	87.00	40.00	●	●	
8.500		10.00	131.00	87.00	40.00	●	●	
8.600		10.00	131.00	87.00	40.00	●	●	
8.700		10.00	131.00	87.00	40.00	●	●	
8.800		10.00	131.00	87.00	40.00	●	●	
9.000		10.00	131.00	87.00	40.00	●	●	
9.100		10.00	139.00	95.00	40.00	●	●	
9.200		10.00	139.00	95.00	40.00	●	●	
9.300		10.00	139.00	95.00	40.00	●	●	
9.400		10.00	139.00	95.00	40.00	●	●	
9.500		10.00	139.00	95.00	40.00	●	●	
9.520	3/8	10.00	139.00	95.00	40.00	●	●	
9.700		10.00	139.00	95.00	40.00	●	●	
9.800		10.00	139.00	95.00	40.00	●	●	
9.900		10.00	139.00	95.00	40.00	●	●	
10.000		10.00	139.00	95.00	40.00	●	●	
10.200		12.00	155.00	106.00	45.00	●	●	
10.500		12.00	155.00	106.00	45.00	●	●	
10.700		12.00	155.00	106.00	45.00	●	●	
10.800		12.00	155.00	106.00	45.00	●	●	
11.000		12.00	155.00	106.00	45.00	●	●	
11.200		12.00	163.00	114.00	45.00	●	●	
11.500		12.00	163.00	114.00	45.00	●	●	
11.800		12.00	163.00	114.00	45.00	●	●	
12.000		12.00	163.00	114.00	45.00	●	●	
12.200		14.00	182.00	133.00	45.00	●	●	
12.500		14.00	182.00	133.00	45.00	●	●	
12.700	1/2	14.00	182.00	133.00	45.00	●	●	
13.000		14.00	182.00	133.00	45.00	●	●	
13.500		14.00	182.00	133.00	45.00	●	●	
14.000		14.00	182.00	133.00	45.00	●	●	
14.200		16.00	204.00	152.00	48.00	●	●	
14.500		16.00	204.00	152.00	48.00	●	●	
15.000		16.00	204.00	152.00	48.00	●	●	
15.500		16.00	204.00	152.00	48.00	●	●	
16.000		16.00	204.00	152.00	48.00	●	●	



						Article no.	5512	5612
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
16.500		18.00	223.00	171.00	48.00	●	●	
17.000		18.00	223.00	171.00	48.00	●	●	
17.500		18.00	223.00	171.00	48.00	●	●	
18.000		18.00	223.00	171.00	48.00	●	●	
18.500		20.00	244.00	190.00	50.00	●	●	
19.000		20.00	244.00	190.00	50.00	●	●	
19.050	3/4	20.00	244.00	190.00	50.00	●	●	
19.500		20.00	244.00	190.00	50.00	●	●	
20.000		20.00	244.00	190.00	50.00	●	●	

**Ratio drills with oil feed**


**P** ● web thinning  $\geq \varnothing 3.000$  • facet point grinding • main cutting edge form straight • optimised cutting geometry

**M** ○

**K** ●

**N** ○

**S** ○

**H** ○

structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AISI-alloys

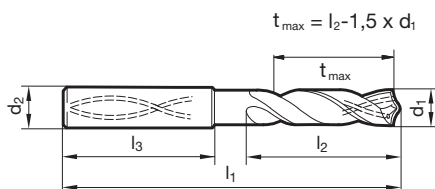
 Tool material **Solid carbide**

 Surface **F**

Shank form HA

**GÜHRING NAVIGATOR**

Cutting data page 72


 Article no. **5525**

 Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	90.00	50.00	36.00	●
3.100		6.00	90.00	50.00	36.00	●
3.170	1/8	6.00	90.00	50.00	36.00	●
3.200		6.00	90.00	50.00	36.00	●
3.250		6.00	90.00	50.00	36.00	●
3.300		6.00	90.00	50.00	36.00	●
3.400		6.00	90.00	50.00	36.00	●
3.500		6.00	90.00	50.00	36.00	●
3.600		6.00	90.00	50.00	36.00	●
3.700		6.00	90.00	50.00	36.00	●
3.800		6.00	102.00	64.00	36.00	●
3.900		6.00	102.00	64.00	36.00	●
4.000		6.00	102.00	64.00	36.00	●
4.100		6.00	102.00	64.00	36.00	●
4.200		6.00	102.00	64.00	36.00	●
4.300		6.00	102.00	64.00	36.00	●
4.400		6.00	102.00	64.00	36.00	●
4.500		6.00	102.00	64.00	36.00	●
4.600		6.00	102.00	64.00	36.00	●
4.700		6.00	102.00	64.00	36.00	●
4.800		6.00	116.00	78.00	36.00	●
4.900		6.00	116.00	78.00	36.00	●
5.000		6.00	116.00	78.00	36.00	●
5.100		6.00	116.00	78.00	36.00	●
5.200		6.00	116.00	78.00	36.00	●
5.300		6.00	116.00	78.00	36.00	●
5.400		6.00	116.00	78.00	36.00	●
5.500		6.00	116.00	78.00	36.00	●
5.600		6.00	116.00	78.00	36.00	●
5.700		6.00	116.00	78.00	36.00	●
5.800		6.00	116.00	78.00	36.00	●
5.900		6.00	116.00	78.00	36.00	●
6.000		6.00	116.00	78.00	36.00	●
6.100		8.00	146.00	108.00	36.00	●
6.200		8.00	146.00	108.00	36.00	●
6.300		8.00	146.00	108.00	36.00	●





Article no. 5525						Availability
Discount group 155						
Cutting direction (R)						
d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
6.350	1/4	8.00	146.00	108.00	36.00	●
6.400		8.00	146.00	108.00	36.00	●
6.500		8.00	146.00	108.00	36.00	●
6.600		8.00	146.00	108.00	36.00	●
6.700		8.00	146.00	108.00	36.00	●
6.800		8.00	146.00	108.00	36.00	●
6.900		8.00	146.00	108.00	36.00	●
7.000		8.00	146.00	108.00	36.00	●
7.100		8.00	146.00	108.00	36.00	●
7.200		8.00	146.00	108.00	36.00	●
7.300		8.00	146.00	108.00	36.00	●
7.400		8.00	146.00	108.00	36.00	●
7.500		8.00	146.00	108.00	36.00	●
7.600		8.00	146.00	108.00	36.00	●
7.700		8.00	146.00	108.00	36.00	●
7.800		8.00	146.00	108.00	36.00	●
7.900		8.00	146.00	108.00	36.00	●
8.000		8.00	146.00	108.00	36.00	●
8.100		10.00	162.00	120.00	40.00	●
8.200		10.00	162.00	120.00	40.00	●
8.300		10.00	162.00	120.00	40.00	●
8.400		10.00	162.00	120.00	40.00	●
8.500		10.00	162.00	120.00	40.00	●
8.600		10.00	162.00	120.00	40.00	●
8.700		10.00	162.00	120.00	40.00	●
8.800		10.00	162.00	120.00	40.00	●
8.900		10.00	162.00	120.00	40.00	●
9.000		10.00	162.00	120.00	40.00	●
9.100		10.00	162.00	120.00	40.00	●
9.200		10.00	162.00	120.00	40.00	●
9.300		10.00	162.00	120.00	40.00	●
9.400		10.00	162.00	120.00	40.00	●
9.500		10.00	162.00	120.00	40.00	●
9.520	3/8	10.00	162.00	120.00	40.00	●
9.600		10.00	162.00	120.00	40.00	●
9.700		10.00	162.00	120.00	40.00	●
9.800		10.00	162.00	120.00	40.00	●
9.900		10.00	162.00	120.00	40.00	●
10.000		10.00	162.00	120.00	40.00	●
10.200		12.00	204.00	156.00	45.00	●
10.500		12.00	204.00	156.00	45.00	●
11.000		12.00	204.00	156.00	45.00	●
11.500		12.00	204.00	156.00	45.00	●
12.000		12.00	204.00	156.00	45.00	●
12.500		14.00	230.00	182.00	45.00	●
12.700	1/2	14.00	230.00	182.00	45.00	●
13.000		14.00	230.00	182.00	45.00	●
13.500		14.00	230.00	182.00	45.00	●
14.000		14.00	230.00	182.00	45.00	●
14.500		16.00	260.00	208.00	48.00	●
15.000		16.00	260.00	208.00	48.00	●
15.500		16.00	260.00	208.00	48.00	●
16.000		16.00	260.00	208.00	48.00	●
16.500		18.00	285.00	234.00	48.00	●
17.000		18.00	285.00	234.00	48.00	●
17.500		18.00	285.00	234.00	48.00	●
18.000		18.00	285.00	234.00	48.00	●
18.500		20.00	310.00	258.00	50.00	●
19.000		20.00	310.00	258.00	50.00	●
19.050	3/4	20.00	310.00	258.00	50.00	●

Article no. **5525**

 Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
19.500		20.00	310.00	258.00	50.00	●
20.000		20.00	310.00	258.00	50.00	●



# GM 300

toolholders and  
clamping devices  
for every application

Overview and selection guide can be found on page 138.



Ratio drills with oil feed



Tool material **Solid carbide**

Surface ○

Shank form HA

**P** web thinning ≥ Ø 3.000 • relieved cone • close diameter tolerances  
 • very good surface quality of hole • observe coolant pressure

**M**

**K** •

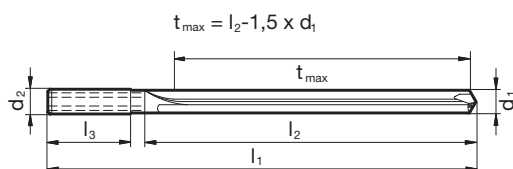
**N** • aluminium and Al-alloys • Al materials with high Si-content • grey cast iron, malleable and spheroidal iron

**S**

**H**

**GÜHRING NAVIGATOR**

Cutting data page 72



Article no. **5513**

Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	91.00	42.00	36.00	●
3.170	1/8	6.00	91.00	42.00	36.00	●
3.250		6.00	91.00	42.00	36.00	●
3.300		6.00	91.00	42.00	36.00	●
3.500		6.00	91.00	48.00	36.00	●
3.570	9/64	6.00	91.00	48.00	36.00	●
3.800		6.00	121.00	77.00	36.00	●
3.970	5/32	6.00	121.00	77.00	36.00	●
4.000		6.00	121.00	77.00	36.00	●
4.200		6.00	121.00	77.00	36.00	●
4.500		6.00	121.00	77.00	36.00	●
5.000		6.00	121.00	82.00	36.00	●
5.500		6.00	121.00	82.00	36.00	●
6.000		6.00	121.00	82.00	36.00	●
6.350	1/4	8.00	146.00	106.00	36.00	●
6.500		8.00	146.00	106.00	36.00	●
6.800		8.00	146.00	106.00	36.00	●
7.000		8.00	146.00	106.00	36.00	●
7.500		8.00	146.00	106.00	36.00	●
7.800		8.00	146.00	106.00	36.00	●
8.000		8.00	146.00	106.00	36.00	●
8.500		10.00	175.00	130.00	40.00	●
9.000		10.00	175.00	130.00	40.00	●
9.500		10.00	175.00	130.00	40.00	●
9.520	3/8	10.00	175.00	130.00	40.00	●
10.000		10.00	175.00	130.00	40.00	●
10.200		12.00	209.00	159.00	45.00	●
10.500		12.00	209.00	159.00	45.00	●
11.000		12.00	209.00	159.00	45.00	●
11.500		12.00	209.00	159.00	45.00	●
12.000		12.00	209.00	159.00	45.00	●
12.500		14.00	233.00	183.00	45.00	●
12.700	1/2	14.00	233.00	183.00	45.00	●
13.000		14.00	233.00	183.00	45.00	●
13.500		14.00	233.00	183.00	45.00	●
14.000		14.00	233.00	183.00	45.00	●



Article no. **5513**

Discount group **155**

Cutting direction 

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
14.500		16.00	260.00	207.00	48.00	●
15.000		16.00	260.00	207.00	48.00	●
15.500		16.00	260.00	207.00	48.00	●
16.000		16.00	260.00	207.00	48.00	●





Ratio drills without oil feed



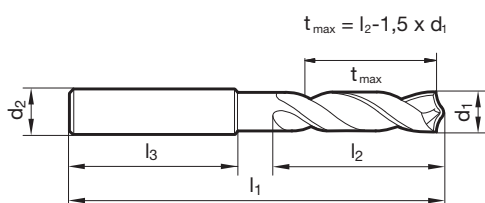
- P** ● web thinning ≥ Ø 3.000 • facet point grinding • main cutting edge form straight • optimised cutting geometry
- M** ○
- K** ●
- N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AISI-alloys
- S** ○
- H** ○

Tool material	Solid carbide	
Surface	<b>F</b>	<b>F</b>
Shank form	HA	HE

SL Twist drills

**GUHRING NAVIGATOR**

Cutting data page 72



						Article no.	5514	5614
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
3.000		6.00	62.00	20.00	36.00	●	●	
3.100		6.00	62.00	20.00	36.00	●	●	
3.170	1/8	6.00	62.00	20.00	36.00	●	●	
3.200		6.00	62.00	20.00	36.00	●	●	
3.250		6.00	62.00	20.00	36.00	●	●	
3.300		6.00	62.00	20.00	36.00	●	●	
3.400		6.00	62.00	20.00	36.00	●	●	
3.500		6.00	62.00	20.00	36.00	●	●	
3.570	9/64	6.00	62.00	20.00	36.00	●	●	
3.600		6.00	62.00	20.00	36.00	●	●	
3.700		6.00	62.00	20.00	36.00	●	●	
3.800		6.00	66.00	24.00	36.00	●	●	
3.900		6.00	66.00	24.00	36.00	●	●	
3.970	5/32	6.00	66.00	24.00	36.00	●	●	
4.000		6.00	66.00	24.00	36.00	●	●	
4.100		6.00	66.00	24.00	36.00	●	●	
4.200		6.00	66.00	24.00	36.00	●	●	
4.300		6.00	66.00	24.00	36.00	●	●	
4.370	11/64	6.00	66.00	24.00	36.00	●	●	
4.400		6.00	66.00	24.00	36.00	●	●	
4.500		6.00	66.00	24.00	36.00	●	●	
4.600		6.00	66.00	24.00	36.00	●	●	
4.650		6.00	66.00	24.00	36.00	●	●	
4.700		6.00	66.00	24.00	36.00	●	●	
4.760	3/16	6.00	66.00	28.00	36.00	●	●	
4.800		6.00	66.00	28.00	36.00	●	●	
4.900		6.00	66.00	28.00	36.00	●	●	
5.000		6.00	66.00	28.00	36.00	●	●	
5.100		6.00	66.00	28.00	36.00	●	●	
5.160	13/64	6.00	66.00	28.00	36.00	●	●	
5.200		6.00	66.00	28.00	36.00	●	●	
5.300		6.00	66.00	28.00	36.00	●	●	
5.400		6.00	66.00	28.00	36.00	●	●	
5.500		6.00	66.00	28.00	36.00	●	●	
5.550		6.00	66.00	28.00	36.00	●	●	
5.560	7/32	6.00	66.00	28.00	36.00	●	●	



						Article no.	5514	5614
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
5.600		6.00	66.00	28.00	36.00	●	●	
5.700		6.00	66.00	28.00	36.00	●	●	
5.800		6.00	66.00	28.00	36.00	●	●	
5.900		6.00	66.00	28.00	36.00	●	●	
5.950	15/64	6.00	66.00	28.00	36.00	●	●	
6.000		6.00	66.00	28.00	36.00	●	●	
6.100		8.00	79.00	34.00	36.00	●	●	
6.200		8.00	79.00	34.00	36.00	●	●	
6.300		8.00	79.00	34.00	36.00	●	●	
6.350	1/4	8.00	79.00	34.00	36.00	●	●	
6.400		8.00	79.00	34.00	36.00	●	●	
6.500		8.00	79.00	34.00	36.00	●	●	
6.600		8.00	79.00	34.00	36.00	●	●	
6.700		8.00	79.00	34.00	36.00	●	●	
6.750	17/64	8.00	79.00	34.00	36.00	●	●	
6.800		8.00	79.00	34.00	36.00	●	●	
6.900		8.00	79.00	34.00	36.00	●	●	
7.000		8.00	79.00	34.00	36.00	●	●	
7.100		8.00	79.00	41.00	36.00	●	●	
7.140	9/32	8.00	79.00	41.00	36.00	●	●	
7.200		8.00	79.00	41.00	36.00	●	●	
7.300		8.00	79.00	41.00	36.00	●	●	
7.400		8.00	79.00	41.00	36.00	●	●	
7.500		8.00	79.00	41.00	36.00	●	●	
7.540	19/64	8.00	79.00	41.00	36.00	●	●	
7.600		8.00	79.00	41.00	36.00	●	●	
7.700		8.00	79.00	41.00	36.00	●	●	
7.800		8.00	79.00	41.00	36.00	●	●	
7.900		8.00	79.00	41.00	36.00	●	●	
7.940	5/16	8.00	79.00	41.00	36.00	●	●	
8.000		8.00	79.00	41.00	36.00	●	●	
8.100		10.00	89.00	47.00	40.00	●	●	
8.200		10.00	89.00	47.00	40.00	●	●	
8.300		10.00	89.00	47.00	40.00	●	●	
8.330	21/64	10.00	89.00	47.00	40.00	●	●	
8.400		10.00	89.00	47.00	40.00	●	●	
8.500		10.00	89.00	47.00	40.00	●	●	
8.600		10.00	89.00	47.00	40.00	●	●	
8.700		10.00	89.00	47.00	40.00	●	●	
8.730	11/32	10.00	89.00	47.00	40.00	●	●	
8.800		10.00	89.00	47.00	40.00	●	●	
8.900		10.00	89.00	47.00	40.00	●	●	
9.000		10.00	89.00	47.00	40.00	●	●	
9.100		10.00	89.00	47.00	40.00	●	●	
9.130	23/64	10.00	89.00	47.00	40.00	●	●	
9.200		10.00	89.00	47.00	40.00	●	●	
9.250		10.00	89.00	47.00	40.00	●	●	
9.300		10.00	89.00	47.00	40.00	●	●	
9.400		10.00	89.00	47.00	40.00	●	●	
9.500		10.00	89.00	47.00	40.00	●	●	
9.520	3/8	10.00	89.00	47.00	40.00	●	●	
9.600		10.00	89.00	47.00	40.00	●	●	
9.700		10.00	89.00	47.00	40.00	●	●	
9.800		10.00	89.00	47.00	40.00	●	●	
9.900		10.00	89.00	47.00	40.00	●	●	
9.920	25/64	10.00	89.00	47.00	40.00	●	●	
10.000		10.00	89.00	47.00	40.00	●	●	
10.100		12.00	102.00	55.00	45.00	●	●	
10.200		12.00	102.00	55.00	45.00	●	●	
10.300		12.00	102.00	55.00	45.00	●	●	



SL Twist drills

						Article no.	5514	5614
						Discount group	155	155
						Cutting direction		
d1		d2 h6	l1	l2	l3	Availability		
mm	inch	mm	mm	mm	mm			
10.320	13/32	12.00	102.00	55.00	45.00	●	●	
10.400		12.00	102.00	55.00	45.00	●	●	
10.500		12.00	102.00	55.00	45.00	●	●	
10.600		12.00	102.00	55.00	45.00	●	●	
10.700		12.00	102.00	55.00	45.00	●	●	
10.800		12.00	102.00	55.00	45.00	●	●	
10.900		12.00	102.00	55.00	45.00	●	●	
11.000		12.00	102.00	55.00	45.00	●	●	
11.100		12.00	102.00	55.00	45.00	●	●	
11.110	7/16	12.00	102.00	55.00	45.00	●	●	
11.200		12.00	102.00	55.00	45.00	●	●	
11.300		12.00	102.00	55.00	45.00	●	●	
11.400		12.00	102.00	55.00	45.00	●	●	
11.500		12.00	102.00	55.00	45.00	●	●	
11.600		12.00	102.00	55.00	45.00	●	●	
11.700		12.00	102.00	55.00	45.00	●	●	
11.800		12.00	102.00	55.00	45.00	●	●	
11.900		12.00	102.00	55.00	45.00	●	●	
11.910	15/32	12.00	102.00	55.00	45.00	●	●	
12.000		12.00	102.00	55.00	45.00	●	●	
12.200		14.00	107.00	60.00	45.00	●	●	
12.500		14.00	107.00	60.00	45.00	●	●	
12.700	1/2	14.00	107.00	60.00	45.00	●	●	
12.800		14.00	107.00	60.00	45.00	●	●	
13.000		14.00	107.00	60.00	45.00	●	●	
13.200		14.00	107.00	60.00	45.00	●	●	
13.500		14.00	107.00	60.00	45.00	●	●	
13.700		14.00	107.00	60.00	45.00	●	●	
14.000		14.00	107.00	60.00	45.00	●	●	
14.200		16.00	115.00	65.00	48.00	●	●	
14.290	9/16	16.00	115.00	65.00	48.00	●	●	
14.500		16.00	115.00	65.00	48.00	●	●	
14.700		16.00	115.00	65.00	48.00	●	●	
15.000		16.00	115.00	65.00	48.00	●	●	
15.200		16.00	115.00	65.00	48.00	●	●	
15.500		16.00	115.00	65.00	48.00	●	●	
15.700		16.00	115.00	65.00	48.00	●	●	
16.000		16.00	115.00	65.00	48.00	●	●	
16.500		18.00	123.00	73.00	48.00	●	●	
17.000		18.00	123.00	73.00	48.00	●	●	
17.500		18.00	123.00	73.00	48.00	●	●	
18.000		18.00	123.00	73.00	48.00	●	●	
18.500		20.00	131.00	79.00	50.00	●	●	
19.000		20.00	131.00	79.00	50.00	●	●	
19.500		20.00	131.00	79.00	50.00	●	●	
20.000		20.00	131.00	79.00	50.00	●	●	

Ratio drills without oil feed



**P** • web thinning  $\geq \varnothing 3.000$  • facet point grinding • main cutting edge form straight • optimised cutting geometry

**M** ○

**K** •

**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • steels (alloyed/unalloyed) up to 1200 N/mm<sup>2</sup> • cast materials • bronze, brass • high-alloyed AISI-alloys

**S** ○

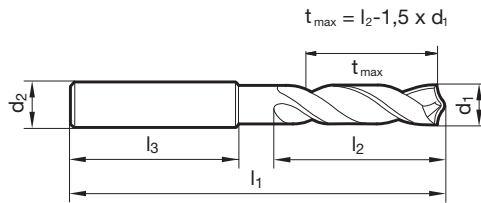
**H** ○

Tool material	Solid carbide		
Surface	F	F	F
Shank form	HA	HE	HB



**GÜHRING NAVIGATOR**

Cutting data page 72



						Article no.	5515	5615	5651
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
3.000		6.00	66.00	28.00	36.00	●	●	●	
3.100		6.00	66.00	28.00	36.00	●	●	●	
3.170	1/8	6.00	66.00	28.00	36.00	●	●	●	
3.200		6.00	66.00	28.00	36.00	●	●	●	
3.250		6.00	66.00	28.00	36.00	●	●	●	
3.300		6.00	66.00	28.00	36.00	●	●	●	
3.400		6.00	66.00	28.00	36.00	●	●	●	
3.500		6.00	66.00	28.00	36.00	●	●	●	
3.570	9/64	6.00	66.00	28.00	36.00	●	●	●	
3.600		6.00	66.00	28.00	36.00	●	●	●	
3.700		6.00	66.00	28.00	36.00	●	●	●	
3.800		6.00	74.00	36.00	36.00	●	●	●	
3.900		6.00	74.00	36.00	36.00	●	●	●	
3.970	5/32	6.00	74.00	36.00	36.00	●	●	●	
4.000		6.00	74.00	36.00	36.00	●	●	●	
4.100		6.00	74.00	36.00	36.00	●	●	●	
4.200		6.00	74.00	36.00	36.00	●	●	●	
4.300		6.00	74.00	36.00	36.00	●	●	●	
4.370	11/64	6.00	74.00	36.00	36.00	●	●	●	
4.400		6.00	74.00	36.00	36.00	●	●	●	
4.500		6.00	74.00	36.00	36.00	●	●	●	
4.600		6.00	74.00	36.00	36.00	●	●	●	
4.650		6.00	74.00	36.00	36.00	●	●	●	
4.700		6.00	74.00	36.00	36.00	●	●	●	
4.760	3/16	6.00	82.00	44.00	36.00	●	●	●	
4.800		6.00	82.00	44.00	36.00	●	●	●	
4.900		6.00	82.00	44.00	36.00	●	●	●	
5.000		6.00	82.00	44.00	36.00	●	●	●	
5.100		6.00	82.00	44.00	36.00	●	●	●	
5.160	13/64	6.00	82.00	44.00	36.00	●	●	●	
5.200		6.00	82.00	44.00	36.00	●	●	●	
5.300		6.00	82.00	44.00	36.00	●	●	●	
5.400		6.00	82.00	44.00	36.00	●	●	●	
5.500		6.00	82.00	44.00	36.00	●	●	●	
5.550		6.00	82.00	44.00	36.00	●	●	●	
5.560	7/32	6.00	82.00	44.00	36.00	●	●	●	





						Article no.	5515	5615	5651
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
5.600		6.00	82.00	44.00	36.00	●	●	●	
5.700		6.00	82.00	44.00	36.00	●	●	●	
5.800		6.00	82.00	44.00	36.00	●	●	●	
5.900		6.00	82.00	44.00	36.00	●	●	●	
5.950	15/64	6.00	82.00	44.00	36.00	●	●	●	
6.000		6.00	82.00	44.00	36.00	●	●	●	
6.100		8.00	91.00	53.00	36.00	●	●	●	
6.200		8.00	91.00	53.00	36.00	●	●	●	
6.300		8.00	91.00	53.00	36.00	●	●	●	
6.350	1/4	8.00	91.00	53.00	36.00	●	●	●	
6.400		8.00	91.00	53.00	36.00	●	●	●	
6.500		8.00	91.00	53.00	36.00	●	●	●	
6.600		8.00	91.00	53.00	36.00	●	●	●	
6.700		8.00	91.00	53.00	36.00	●	●	●	
6.750	17/64	8.00	91.00	53.00	36.00	●	●	●	
6.800		8.00	91.00	53.00	36.00	●	●	●	
6.900		8.00	91.00	53.00	36.00	●	●	●	
7.000		8.00	91.00	53.00	36.00	●	●	●	
7.100		8.00	91.00	53.00	36.00	●	●	●	
7.140	9/32	8.00	91.00	53.00	36.00	●	●	●	
7.200		8.00	91.00	53.00	36.00	●	●	●	
7.300		8.00	91.00	53.00	36.00	●	●	●	
7.400		8.00	91.00	53.00	36.00	●	●	●	
7.500		8.00	91.00	53.00	36.00	●	●	●	
7.540	19/64	8.00	91.00	53.00	36.00	●	●	●	
7.600		8.00	91.00	53.00	36.00	●	●	●	
7.700		8.00	91.00	53.00	36.00	●	●	●	
7.800		8.00	91.00	53.00	36.00	●	●	●	
7.900		8.00	91.00	53.00	36.00	●	●	●	
7.940	5/16	8.00	91.00	53.00	36.00	●	●	●	
8.000		8.00	91.00	53.00	36.00	●	●	●	
8.100		10.00	103.00	61.00	40.00	●	●	●	
8.200		10.00	103.00	61.00	40.00	●	●	●	
8.300		10.00	103.00	61.00	40.00	●	●	●	
8.330	21/64	10.00	103.00	61.00	40.00	●	●	●	
8.400		10.00	103.00	61.00	40.00	●	●	●	
8.500		10.00	103.00	61.00	40.00	●	●	●	
8.600		10.00	103.00	61.00	40.00	●	●	●	
8.700		10.00	103.00	61.00	40.00	●	●	●	
8.730	11/32	10.00	103.00	61.00	40.00	●	●	●	
8.800		10.00	103.00	61.00	40.00	●	●	●	
8.900		10.00	103.00	61.00	40.00	●	●	●	
9.000		10.00	103.00	61.00	40.00	●	●	●	
9.100		10.00	103.00	61.00	40.00	●	●	●	
9.130	23/64	10.00	103.00	61.00	40.00	●	●	●	
9.200		10.00	103.00	61.00	40.00	●	●	●	
9.250		10.00	103.00	61.00	40.00	●	●	●	
9.300		10.00	103.00	61.00	40.00	●	●	●	
9.400		10.00	103.00	61.00	40.00	●	●	●	
9.500		10.00	103.00	61.00	40.00	●	●	●	
9.520	3/8	10.00	103.00	61.00	40.00	●	●	●	
9.600		10.00	103.00	61.00	40.00	●	●	●	
9.700		10.00	103.00	61.00	40.00	●	●	●	
9.800		10.00	103.00	61.00	40.00	●	●	●	
9.900		10.00	103.00	61.00	40.00	●	●	●	
9.920	25/64	10.00	103.00	61.00	40.00	●	●	●	
10.000		10.00	103.00	61.00	40.00	●	●	●	
10.100		12.00	118.00	71.00	45.00	●	●	●	
10.200		12.00	118.00	71.00	45.00	●	●	●	
10.300		12.00	118.00	71.00	45.00	●	●	●	



						Article no.	5515	5615	5651
						Discount group	155	155	155
						Cutting direction	(R)	(R)	(R)
d1		d2 h6	l1	l2	l3	Availability			
mm	inch	mm	mm	mm	mm				
10.320	13/32	12.00	118.00	71.00	45.00	●	●	●	
10.400		12.00	118.00	71.00	45.00	●	●	●	
10.500		12.00	118.00	71.00	45.00	●	●	●	
10.600		12.00	118.00	71.00	45.00	●	●	●	
10.700		12.00	118.00	71.00	45.00	●	●	●	
10.800		12.00	118.00	71.00	45.00	●	●	●	
10.900		12.00	118.00	71.00	45.00	●	●	●	
11.000		12.00	118.00	71.00	45.00	●	●	●	
11.100		12.00	118.00	71.00	45.00	●	●	●	
11.110	7/16	12.00	118.00	71.00	45.00	●	●	●	
11.200		12.00	118.00	71.00	45.00	●	●	●	
11.300		12.00	118.00	71.00	45.00	●	●	●	
11.400		12.00	118.00	71.00	45.00	●	●	●	
11.500		12.00	118.00	71.00	45.00	●	●	●	
11.600		12.00	118.00	71.00	45.00	●	●	●	
11.700		12.00	118.00	71.00	45.00	●	●	●	
11.800		12.00	118.00	71.00	45.00	●	●	●	
11.900		12.00	118.00	71.00	45.00	●	●	●	
11.910	15/32	12.00	118.00	71.00	45.00	●	●	●	
12.000		12.00	118.00	71.00	45.00	●	●	●	
12.200		14.00	124.00	77.00	45.00	●	●	●	
12.500		14.00	124.00	77.00	45.00	●	●	●	
12.700	1/2	14.00	124.00	77.00	45.00	●	●	●	
13.000		14.00	124.00	77.00	45.00	●	●	●	
13.500		14.00	124.00	77.00	45.00	●	●	●	
13.700		14.00	124.00	77.00	45.00	●	●	●	
14.000		14.00	124.00	77.00	45.00	●	●	●	
14.200		16.00	133.00	83.00	48.00	●	●	●	
14.290	9/16	16.00	133.00	83.00	48.00	●	●	●	
14.500		16.00	133.00	83.00	48.00	●	●	●	
14.700		16.00	133.00	83.00	48.00	●	●	●	
15.000		16.00	133.00	83.00	48.00	●	●	●	
15.200		16.00	133.00	83.00	48.00	●	●	●	
15.500		16.00	133.00	83.00	48.00	●	●	●	
15.700		16.00	133.00	83.00	48.00	●	●	●	
16.000		16.00	133.00	83.00	48.00	●	●	●	
16.500		18.00	143.00	93.00	48.00	●	●	●	
17.000		18.00	143.00	93.00	48.00	●	●	●	
17.500		18.00	143.00	93.00	48.00	●	●	●	
18.000		18.00	143.00	93.00	48.00	●	●	●	
18.500		20.00	153.00	101.00	50.00	●	●	●	
19.000		20.00	153.00	101.00	50.00	●	●	●	
19.500		20.00	153.00	101.00	50.00	●	●	●	
20.000		20.00	153.00	101.00	50.00	●	●	●	



3-flute Ratio drills



Tool material **Solid carbide**

Surface ○

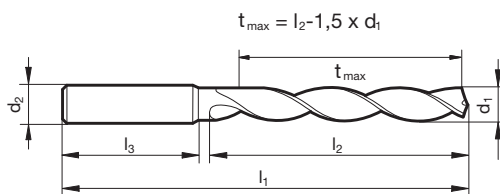
Shank form HA

**P** web thinning ≥ Ø 3.000 • spiro-point • wide flutes • optimal centering  
• suitable for interrupted cutting

- M**
- K** •
- N** • cast iron • long chipping Al-alloys • brass, bronzes
- S**
- H**

**GÜHRING** NAVIGATOR

Cutting data page 72



Article no. **5518**

Discount group **155**

Cutting direction

d1		d2 h6	l1	l2	l3	Availability
mm	inch	mm	mm	mm	mm	
3.000		6.00	66.00	28.00	36.00	●
3.100		6.00	66.00	28.00	36.00	●
3.200		6.00	66.00	28.00	36.00	●
3.300		6.00	66.00	28.00	36.00	●
3.500		6.00	66.00	28.00	36.00	●
3.700		6.00	66.00	28.00	36.00	●
3.800		6.00	74.00	36.00	36.00	●
4.000		6.00	74.00	36.00	36.00	●
4.100		6.00	74.00	36.00	36.00	●
4.200		6.00	74.00	36.00	36.00	●
4.500		6.00	74.00	36.00	36.00	●
4.800		6.00	82.00	44.00	36.00	●
5.000		6.00	82.00	44.00	36.00	●
5.100		6.00	82.00	44.00	36.00	●
5.200		6.00	82.00	44.00	36.00	●
5.300		6.00	82.00	44.00	36.00	●
5.500		6.00	82.00	44.00	36.00	●
5.800		6.00	82.00	44.00	36.00	●
6.000		6.00	82.00	44.00	36.00	●
6.100		8.00	91.00	53.00	36.00	●
6.200		8.00	91.00	53.00	36.00	●
6.400		8.00	91.00	53.00	36.00	●
6.500		8.00	91.00	53.00	36.00	●
6.700		8.00	91.00	53.00	36.00	●
6.800		8.00	91.00	53.00	36.00	●
7.000		8.00	91.00	53.00	36.00	●
7.100		8.00	91.00	53.00	36.00	●
7.400		8.00	91.00	53.00	36.00	●
7.500		8.00	91.00	53.00	36.00	●
7.800		8.00	91.00	53.00	36.00	●
8.000		8.00	91.00	53.00	36.00	●
8.100		10.00	103.00	61.00	40.00	●
8.200		10.00	103.00	61.00	40.00	●
8.400		10.00	103.00	61.00	40.00	●
8.500		10.00	103.00	61.00	40.00	●
8.600		10.00	103.00	61.00	40.00	●



						Article no.	5518
						Discount group	155
						Cutting direction	(R)
d1		d2 h6	l1	l2	l3	Availability	
mm	inch	mm	mm	mm	mm		
8.700		10.00	103.00	61.00	40.00	●	
8.800		10.00	103.00	61.00	40.00	●	
9.000		10.00	103.00	61.00	40.00	●	
9.100		10.00	103.00	61.00	40.00	●	
9.500		10.00	103.00	61.00	40.00	●	
9.800		10.00	103.00	61.00	40.00	●	
10.000		10.00	103.00	61.00	40.00	●	
10.100		12.00	118.00	71.00	45.00	●	
10.200		12.00	118.00	71.00	45.00	●	
10.300		12.00	118.00	71.00	45.00	●	
10.500		12.00	118.00	71.00	45.00	●	
11.000		12.00	118.00	71.00	45.00	●	
11.200		12.00	118.00	71.00	45.00	●	
11.500		12.00	118.00	71.00	45.00	●	
11.800		12.00	118.00	71.00	45.00	●	
12.000		12.00	118.00	71.00	45.00	●	
12.100		14.00	124.00	77.00	45.00	●	
12.500		14.00	124.00	77.00	45.00	●	
13.000		14.00	124.00	77.00	45.00	●	
13.500		14.00	124.00	77.00	45.00	●	
14.000		14.00	124.00	77.00	45.00	●	
14.500		16.00	133.00	83.00	48.00	●	
15.000		16.00	133.00	83.00	48.00	●	
15.500		16.00	133.00	83.00	48.00	●	
16.000		16.00	133.00	83.00	48.00	●	
16.500		18.00	143.00	93.00	48.00	●	
17.000		18.00	143.00	93.00	48.00	●	
17.500		18.00	143.00	93.00	48.00	●	
18.000		18.00	143.00	93.00	48.00	●	
18.500		20.00	153.00	101.00	50.00	●	
19.000		20.00	153.00	101.00	50.00	●	
19.500		20.00	153.00	101.00	50.00	●	
20.000		20.00	153.00	101.00	50.00	●	



Stub drills

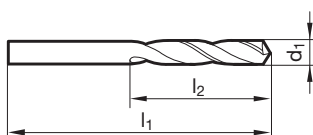


Tool material	<b>Solid carbide</b>
Surface	○
Shank form	cyl.

- P** ○ web thinning ≥ Ø 2.100 • facet point grinding • main cutting edge form straight
- M** ○
- K** ○
- N** ● structural and case hardened steels • free-cutting steels, heat-treatable steels • grey cast iron • bronze, brass
- S** ○ • aluminium and Al-alloys • magnesium and magnesium alloys • plastics and fiber reinforced plastics
- H** ○

**GÜHRING** NAVIGATOR

Cutting data page 74




Article no.	<b>5516</b>
Discount group	<b>155</b>
Cutting direction	

d1		l1	l2	Availability
mm	inch	mm	mm	
2.000		38.000	12.000	●
2.100		38.000	12.000	●
2.200		40.000	13.000	●
2.300		40.000	13.000	●
2.380	3/32	43.000	14.000	●
2.400		43.000	14.000	●
2.500		43.000	14.000	●
2.600		43.000	14.000	●
2.700		46.000	16.000	●
2.780	7/64	46.000	16.000	●
2.800		46.000	16.000	●
2.900		46.000	16.000	●
3.000		46.000	16.000	●
3.100		49.000	18.000	●
3.170	1/8	49.000	18.000	●
3.200		49.000	18.000	●
3.300		49.000	18.000	●
3.400		52.000	20.000	●
3.500		52.000	20.000	●
3.570	9/64	52.000	20.000	●
3.600		52.000	20.000	●
3.700		52.000	20.000	●
3.800		55.000	22.000	●
3.900		55.000	22.000	●
3.970	5/32	55.000	22.000	●
4.000		55.000	22.000	●
4.100		55.000	22.000	●
4.200		55.000	22.000	●
4.300		58.000	24.000	●
4.370	11/64	58.000	24.000	●
4.400		58.000	24.000	●
4.500		58.000	24.000	●
4.600		58.000	24.000	●
4.700		58.000	24.000	●
4.760	3/16	62.000	26.000	●
4.800		62.000	26.000	●





Article no.				5516
Discount group				155
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.900		62.000	26.000	●
5.000		62.000	26.000	●
5.200		62.000	26.000	●
5.500		66.000	28.000	●
5.800		66.000	28.000	●
6.000		66.000	28.000	●
6.350	1/4	70.000	31.000	●
6.500		70.000	31.000	●
6.800		74.000	34.000	●
7.000		74.000	34.000	●
7.140	9/32	74.000	34.000	●
7.500		74.000	34.000	●
7.940	5/16	79.000	37.000	●
8.000		79.000	37.000	●
8.500		79.000	37.000	●
8.730	11/32	84.000	40.000	●
8.800		84.000	40.000	●
9.000		84.000	40.000	●
9.500		84.000	40.000	●
10.000		89.000	43.000	●
10.200		89.000	43.000	●
10.500		89.000	43.000	●
11.000		95.000	47.000	●
11.110	7/16	95.000	47.000	●
11.500		95.000	47.000	●
11.910	15/32	102.000	51.000	●
12.000		102.000	51.000	●



Stub drills



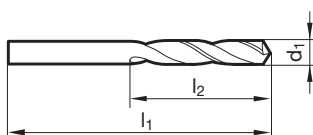
- P** • web thinning  $\geq \varnothing 1.000$  • facet point grinding • Co-alloyed high speed steel • low feed force required • low torque required • universal application
- M** •
- K** •
- N** • alloyed/unalloyed steels up to 800 N/mm<sup>2</sup> • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics
- S** •
- H** •

Tool material	HSCO	
Surface		
Shank form	cyl.	cyl.

SL Twist drills

**GÜHRING** NAVIGATOR

Cutting data page 74



				Article no.	5524	5520
				Discount group	159	159
				Cutting direction		
d1		l1	l2	Availability		
mm	inch	mm	mm			
1.000		26.000	6.000	•	•	•
1.100		28.000	7.000	•	•	•
1.200		30.000	8.000	•	•	•
1.300		30.000	8.000	•	•	•
1.400		32.000	9.000	•	•	•
1.500		32.000	9.000	•	•	•
1.600		34.000	10.000	•	•	•
1.700		34.000	10.000	•	•	•
1.800		36.000	11.000	•	•	•
1.900		36.000	11.000	•	•	•
2.000		38.000	12.000	•	•	•
2.100		38.000	12.000	•	•	•
2.200		40.000	13.000	•	•	•
2.300		40.000	13.000	•	•	•
2.380	3/32	43.000	14.000	•	•	•
2.400		43.000	14.000	•	•	•
2.500		43.000	14.000	•	•	•
2.600		43.000	14.000	•	•	•
2.700		46.000	16.000	•	•	•
2.780	7/64	46.000	16.000	•	•	•
2.800		46.000	16.000	•	•	•
2.900		46.000	16.000	•	•	•
3.000		46.000	16.000	•	•	•
3.100		49.000	18.000	•	•	•
3.170	1/8	49.000	18.000	•	•	•
3.200		49.000	18.000	•	•	•
3.300		49.000	18.000	•	•	•
3.400		52.000	20.000	•	•	•
3.500		52.000	20.000	•	•	•
3.570	9/64	52.000	20.000	•	•	•
3.600		52.000	20.000	•	•	•
3.700		52.000	20.000	•	•	•
3.800		55.000	22.000	•	•	•
3.900		55.000	22.000	•	•	•
3.970	5/32	55.000	22.000	•	•	•
4.000		55.000	22.000	•	•	•



				Article no.	5524	5520
				Discount group	159	159
				Cutting direction	(R)	(R)
d1		l1	l2	Availability		
mm	inch	mm	mm			
4.100		55.000	22.000	●		●
4.200		55.000	22.000	●		●
4.300		58.000	24.000	●		●
4.370	11/64	58.000	24.000	●		●
4.400		58.000	24.000	●		●
4.500		58.000	24.000	●		●
4.600		58.000	24.000	●		●
4.700		58.000	24.000	●		●
4.760	3/16	62.000	26.000	●		●
4.800		62.000	26.000	●		●
4.900		62.000	26.000	●		●
5.000		62.000	26.000	●		●
5.100		62.000	26.000	●		●
5.160	13/64	62.000	26.000	●		●
5.200		62.000	26.000	●		●
5.300		62.000	26.000	●		●
5.400		66.000	28.000	●		●
5.500		66.000	28.000	●		●
5.560	7/32	66.000	28.000	●		●
5.600		66.000	28.000	●		●
5.700		66.000	28.000	●		●
5.800		66.000	28.000	●		●
5.900		66.000	28.000	●		●
5.950	15/64	66.000	28.000	●		●
6.000		66.000	28.000	●		●
6.100		70.000	31.000	●		●
6.200		70.000	31.000	●		●
6.300		70.000	31.000	●		●
6.350	1/4	70.000	31.000	●		●
6.400		70.000	31.000	●		●
6.500		70.000	31.000	●		●
6.600		70.000	31.000	●		●
6.700		70.000	31.000	●		●
6.800		74.000	34.000	●		●
6.900		74.000	34.000	●		●
7.000		74.000	34.000	●		●
7.100		74.000	34.000	●		●
7.140	9/32	74.000	34.000	●		●
7.200		74.000	34.000	●		●
7.300		74.000	34.000	●		●
7.400		74.000	34.000	●		●
7.500		74.000	34.000	●		●
7.600		79.000	37.000	●		●
7.700		79.000	37.000	●		●
7.800		79.000	37.000	●		●
7.900		79.000	37.000	●		●
7.940	5/16	79.000	37.000	●		●
8.000		79.000	37.000	●		●
8.100		79.000	37.000	●		●
8.200		79.000	37.000	●		●
8.300		79.000	37.000	●		●
8.400		79.000	37.000	●		●
8.500		79.000	37.000	●		●
8.600		84.000	40.000	●		●
8.700		84.000	40.000	●		●
8.730	11/32	84.000	40.000	●		●
8.800		84.000	40.000	●		●
8.900		84.000	40.000	●		●
9.000		84.000	40.000	●		●
9.100		84.000	40.000	●		●



SL Twist drills

				Article no.	5524	5520
				Discount group	159	159
				Cutting direction	(R)	(R)
d1		l1	l2	Availability		
mm	inch	mm	mm			
9.200		84.000	40.000	●		●
9.300		84.000	40.000	●		●
9.400		84.000	40.000	●		●
9.500		84.000	40.000	●		●
9.600		89.000	43.000	●		●
9.700		89.000	43.000	●		●
9.800		89.000	43.000	●		●
9.900		89.000	43.000	●		●
10.000		89.000	43.000	●		●
10.100		89.000	43.000	●		●
10.200		89.000	43.000	●		●
10.300		89.000	43.000	●		●
10.400		89.000	43.000	●		●
10.500		89.000	43.000	●		●
11.000		95.000	47.000	●		●
11.110	7/16	95.000	47.000	●		●
11.500		95.000	47.000	●		●
12.000		102.000	51.000	●		●
12.500		102.000	51.000	●		●
13.000		102.000	51.000	●		●
13.500		107.000	54.000	●		●
14.000		107.000	54.000	●		●

**Stub drills**

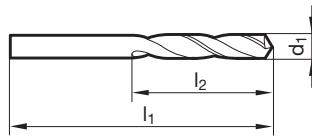


- P** ● web thinning  $\geq \varnothing 1.000$  • relieved cone • PM-Co-alloyed high speed steel • especially high rigidity • especially high wear resistance
- M** ○
- K** ●
- N** ○ high-alloyed steels • heat treatable and case hardened steels • cast iron, brass, bronze
- S** ○
- H** ○

Tool material	<b>HSS-E-PM</b>
Surface	<b>S</b>
Shank form	cyl.

**GÜHRING NAVIGATOR**

Cutting data page 74



Article no.	<b>5521</b>
Discount group	<b>159</b>
Cutting direction	

d1		l1	l2	Availability
mm	inch	mm	mm	
1.000		26.000	6.000	●
1.100		28.000	7.000	●
1.200		30.000	8.000	●
1.300		30.000	8.000	●
1.400		32.000	9.000	●
1.500		32.000	9.000	●
1.600		34.000	10.000	●
1.700		34.000	10.000	●
1.800		36.000	11.000	●
1.900		36.000	11.000	●
2.000		38.000	12.000	●
2.100		38.000	12.000	●
2.200		40.000	13.000	●
2.300		40.000	13.000	●
2.380	3/32	43.000	14.000	●
2.400		43.000	14.000	●
2.500		43.000	14.000	●
2.600		43.000	14.000	●
2.700		46.000	16.000	●
2.780	7/64	46.000	16.000	●
2.800		46.000	16.000	●
2.900		46.000	16.000	●
3.000		46.000	16.000	●
3.100		49.000	18.000	●
3.170	1/8	49.000	18.000	●
3.200		49.000	18.000	●
3.300		49.000	18.000	●
3.400		52.000	20.000	●
3.500		52.000	20.000	●
3.570	9/64	52.000	20.000	●
3.600		52.000	20.000	●
3.700		52.000	20.000	●
3.800		55.000	22.000	●
3.900		55.000	22.000	●
3.970	5/32	55.000	22.000	●
4.000		55.000	22.000	●





Article no.				5521
Discount group				159
Cutting direction				(R)
d1		l1	l2	Availability
mm	inch	mm	mm	
4.100		55.000	22.000	●
4.200		55.000	22.000	●
4.300		58.000	24.000	●
4.370	11/64	58.000	24.000	●
4.400		58.000	24.000	●
4.500		58.000	24.000	●
4.600		58.000	24.000	●
4.700		58.000	24.000	●
4.760	3/16	62.000	26.000	●
4.800		62.000	26.000	●
4.900		62.000	26.000	●
5.000		62.000	26.000	●
5.100		62.000	26.000	●
5.160	13/64	62.000	26.000	●
5.200		62.000	26.000	●
5.300		62.000	26.000	●
5.400		66.000	28.000	●
5.500		66.000	28.000	●
5.560	7/32	66.000	28.000	●
5.600		66.000	28.000	●
5.700		66.000	28.000	●
5.800		66.000	28.000	●
5.900		66.000	28.000	●
5.950	15/64	66.000	28.000	●
6.000		66.000	28.000	●
6.100		70.000	31.000	●
6.200		70.000	31.000	●
6.300		70.000	31.000	●
6.350	1/4	70.000	31.000	●
6.400		70.000	31.000	●
6.500		70.000	31.000	●
6.600		70.000	31.000	●
6.700		70.000	31.000	●
6.800		74.000	34.000	●
6.900		74.000	34.000	●
7.000		74.000	34.000	●
7.100		74.000	34.000	●
7.140	9/32	74.000	34.000	●
7.200		74.000	34.000	●
7.300		74.000	34.000	●
7.400		74.000	34.000	●
7.500		74.000	34.000	●
7.600		79.000	37.000	●
7.700		79.000	37.000	●
7.800		79.000	37.000	●
7.900		79.000	37.000	●
7.940	5/16	79.000	37.000	●
8.000		79.000	37.000	●
8.100		79.000	37.000	●
8.200		79.000	37.000	●
8.300		79.000	37.000	●
8.400		79.000	37.000	●
8.500		79.000	37.000	●
8.730	11/32	84.000	40.000	●
8.800		84.000	40.000	●
9.000		84.000	40.000	●
9.300		84.000	40.000	●
9.500		84.000	40.000	●
9.800		89.000	43.000	●
10.000		89.000	43.000	●

Article no.				<b>5521</b>
Discount group				<b>159</b>
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
10.200		89.000	43.000	●
10.500		89.000	43.000	●
11.000		95.000	47.000	●
11.110	7/16	95.000	47.000	●
11.500		95.000	47.000	●
12.000		102.000	51.000	●
12.500		102.000	51.000	●
13.000		102.000	51.000	●
13.500		107.000	54.000	●
14.000		107.000	54.000	●

# GM 300

toolholders and clamping devices  
for every application

Overview and selection guide can be found on page 138.





Jobber drills

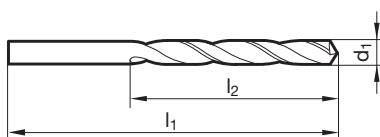


Tool material	<b>Solid carbide</b>
Surface	○
Shank form	cyl.

- P** ○ web thinning ≥ Ø 2.100 • facet point grinding • main cutting edge form straight
- M** ○
- K** ○
- N** ● structural and case hardened steels • free-cutting steels, heat-treatable steels • grey cast iron • bronze, brass
- S** ○ • aluminium and Al-alloys • magnesium and magnesium alloys • plastics and fiber reinforced plastics
- H** ○


**GUHRING NAVIGATOR**

Cutting data page 74



Article no.				5517
Discount group				155
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
2.000		49.000	24.000	●
2.100		49.000	24.000	●
2.200		53.000	27.000	●
2.300		53.000	27.000	●
2.380	3/32	57.000	30.000	●
2.400		57.000	30.000	●
2.500		57.000	30.000	●
2.600		57.000	30.000	●
2.700		61.000	33.000	●
2.780	7/64	61.000	33.000	●
2.800		61.000	33.000	●
2.900		61.000	33.000	●
3.000		61.000	33.000	●
3.100		65.000	36.000	●
3.170	1/8	65.000	36.000	●
3.200		65.000	36.000	●
3.300		65.000	36.000	●
3.400		70.000	39.000	●
3.500		70.000	39.000	●
3.570	9/64	70.000	39.000	●
3.600		70.000	39.000	●
3.700		70.000	39.000	●
3.800		75.000	43.000	●
3.900		75.000	43.000	●
3.970	5/32	75.000	43.000	●
4.000		75.000	43.000	●
4.100		75.000	43.000	●
4.200		75.000	43.000	●
4.300		80.000	47.000	●
4.370	11/64	80.000	47.000	●
4.400		80.000	47.000	●
4.500		80.000	47.000	●
4.600		80.000	47.000	●
4.700		80.000	47.000	●
4.760	3/16	86.000	52.000	●
4.800		86.000	52.000	●



Article no.				5517
Discount group				155
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
4.900		86.000	52.000	●
5.000		86.000	52.000	●
5.160	13/64	86.000	52.000	●
5.500		93.000	57.000	●
5.560	7/32	93.000	57.000	●
5.950	15/64	93.000	57.000	●
6.000		93.000	57.000	●
6.350	1/4	101.000	63.000	●
6.500		101.000	63.000	●
6.800		109.000	69.000	●
7.000		109.000	69.000	●
7.140	9/32	109.000	69.000	●
7.500		109.000	69.000	●
7.940	5/16	117.000	75.000	●
8.000		117.000	75.000	●
8.500		117.000	75.000	●
8.730	11/32	125.000	81.000	●
9.000		125.000	81.000	●
9.500		125.000	81.000	●
10.000		133.000	87.000	●
10.200		133.000	87.000	●
10.500		133.000	87.000	●
11.000		142.000	94.000	●
11.110	7/16	142.000	94.000	●
11.500		142.000	94.000	●
11.910	15/32	151.000	101.000	●
12.000		151.000	101.000	●



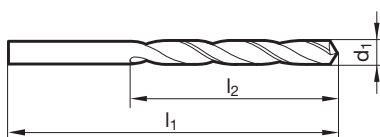
Jobber drills



- P** • web thinning  $\geq \varnothing 1.000$  • facet point grinding • Co-alloyed high speed steel • low feed force required • low torque required • universal application
- M** •
- K** •
- N** • alloyed/unalloyed steels up to 800 N/mm<sup>2</sup> • cold/hot work steels • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics
- S** •
- H** •

**GÜHRING** NAVIGATOR

Cutting data page 74



Tool material	HSCO	
Surface		
Shank form	cyl.	cyl.

SL Twist drills



				Article no.	5523	5519
				Discount group	159	159
				Cutting direction		
d1		l1	l2	Availability		
mm	inch	mm	mm			
1.000		34.000	12.000	•	•	•
1.100		36.000	14.000	•	•	•
1.200		38.000	16.000	•	•	•
1.300		38.000	16.000	•	•	•
1.400		40.000	18.000	•	•	•
1.500		40.000	18.000	•	•	•
1.600		43.000	20.000	•	•	•
1.700		43.000	20.000	•	•	•
1.800		46.000	22.000	•	•	•
1.900		46.000	22.000	•	•	•
2.000		49.000	24.000	•	•	•
2.100		49.000	24.000	•	•	•
2.200		53.000	27.000	•	•	•
2.300		53.000	27.000	•	•	•
2.380	3/32	57.000	30.000	•	•	•
2.400		57.000	30.000	•	•	•
2.500		57.000	30.000	•	•	•
2.600		57.000	30.000	•	•	•
2.700		61.000	33.000	•	•	•
2.780	7/64	61.000	33.000	•	•	•
2.800		61.000	33.000	•	•	•
2.900		61.000	33.000	•	•	•
3.000		61.000	33.000	•	•	•
3.100		65.000	36.000	•	•	•
3.170	1/8	65.000	36.000	•	•	•
3.200		65.000	36.000	•	•	•
3.300		65.000	36.000	•	•	•
3.400		70.000	39.000	•	•	•
3.500		70.000	39.000	•	•	•
3.570	9/64	70.000	39.000	•	•	•
3.600		70.000	39.000	•	•	•
3.700		70.000	39.000	•	•	•
3.800		75.000	43.000	•	•	•
3.900		75.000	43.000	•	•	•
3.970	5/32	75.000	43.000	•	•	•
4.000		75.000	43.000	•	•	•



				Article no.	5523	5519
				Discount group	159	159
				Cutting direction	(R)	(R)
d1		l1	l2	Availability		
mm	inch	mm	mm			
4.100		75.000	43.000	●		●
4.200		75.000	43.000	●		●
4.300		80.000	47.000	●		●
4.370	11/64	80.000	47.000	●		●
4.400		80.000	47.000	●		●
4.500		80.000	47.000	●		●
4.600		80.000	47.000	●		●
4.700		80.000	47.000	●		●
4.760	3/16	86.000	52.000	●		●
4.800		86.000	52.000	●		●
4.900		86.000	52.000	●		●
5.000		86.000	52.000	●		●
5.100		86.000	52.000	●		●
5.160	13/64	86.000	52.000	●		●
5.200		86.000	52.000	●		●
5.300		86.000	52.000	●		●
5.400		93.000	57.000	●		●
5.500		93.000	57.000	●		●
5.560	7/32	93.000	57.000	●		●
5.600		93.000	57.000	●		●
5.700		93.000	57.000	●		●
5.800		93.000	57.000	●		●
5.900		93.000	57.000	●		●
5.950	15/64	93.000	57.000	●		●
6.000		93.000	57.000	●		●
6.100		101.000	63.000	●		●
6.200		101.000	63.000	●		●
6.300		101.000	63.000	●		●
6.350	1/4	101.000	63.000	●		●
6.400		101.000	63.000	●		●
6.500		101.000	63.000	●		●
6.600		101.000	63.000	●		●
6.700		101.000	63.000	●		●
6.800		109.000	69.000	●		●
6.900		109.000	69.000	●		●
7.000		109.000	69.000	●		●
7.100		109.000	69.000	●		●
7.140	9/32	109.000	69.000	●		●
7.200		109.000	69.000	●		●
7.300		109.000	69.000	●		●
7.400		109.000	69.000	●		●
7.500		109.000	69.000	●		●
7.600		117.000	75.000	●		●
7.700		117.000	75.000	●		●
7.800		117.000	75.000	●		●
7.900		117.000	75.000	●		●
7.940	5/16	117.000	75.000	●		●
8.000		117.000	75.000	●		●
8.100		117.000	75.000	●		●
8.200		117.000	75.000	●		●
8.300		117.000	75.000	●		●
8.400		117.000	75.000	●		●
8.500		117.000	75.000	●		●
8.600		125.000	81.000	●		●
8.700		125.000	81.000	●		●
8.730	11/32	125.000	81.000	●		●
8.800		125.000	81.000	●		●
8.900		125.000	81.000	●		●
9.000		125.000	81.000	●		●
9.100		125.000	81.000	●		●





				Article no.	5523	5519
				Discount group	159	159
				Cutting direction	(R)	(R)
d1		l1	l2	Availability		
mm	inch	mm	mm			
9.200		125.000	81.000	●		●
9.300		125.000	81.000	●		●
9.400		125.000	81.000	●		●
9.500		125.000	81.000	●		●
9.600		133.000	87.000	●		●
9.700		133.000	87.000	●		●
9.800		133.000	87.000	●		●
9.900		133.000	87.000	●		●
10.000		133.000	87.000	●		●
10.100		133.000	87.000	●		●
10.200		133.000	87.000	●		●
10.300		133.000	87.000	●		●
10.400		133.000	87.000	●		●
10.500		133.000	87.000	●		●
11.000		142.000	94.000	●		●
11.110	7/16	142.000	94.000	●		●
11.500		142.000	94.000	●		●
12.000		151.000	101.000	●		●
12.500		151.000	101.000	●		●
13.000		151.000	101.000	●		●
13.500		160.000	108.000	●		●
14.000		160.000	108.000	●		●

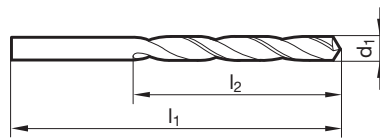
SL Twist drills

**Jobber drills**


<b>P</b> ●	web thinning $\geq \varnothing 1.000$ • relieved cone • PM-Co-alloyed high speed steel • especially high rigidity • especially high wear resistance
<b>M</b> ○	
<b>K</b> ●	
<b>N</b> ○	high-alloyed steels • heat treatable and case hardened steels • cast iron, brass, bronze
<b>S</b> ○	
<b>H</b> ○	

**GÜHRING NAVIGATOR**

Cutting data page 74



Tool material	<b>HSS-E-PM</b>
Surface	<b>S</b>
Shank form	cyl.

 Article no. **5522**

 Discount group **159**

Cutting direction

d1		l1	l2	Availability
mm	inch	mm	mm	
1.000		34.000	12.000	●
1.100		36.000	14.000	●
1.200		38.000	16.000	●
1.300		38.000	16.000	●
1.400		40.000	18.000	●
1.500		40.000	18.000	●
1.600		43.000	20.000	●
1.700		43.000	20.000	●
1.800		46.000	22.000	●
1.900		46.000	22.000	●
2.000		49.000	24.000	●
2.100		49.000	24.000	●
2.200		53.000	27.000	●
2.300		53.000	27.000	●
2.380	3/32	57.000	30.000	●
2.400		57.000	30.000	●
2.500		57.000	30.000	●
2.600		57.000	30.000	●
2.700		61.000	33.000	●
2.780	7/64	61.000	33.000	●
2.800		61.000	33.000	●
2.900		61.000	33.000	●
3.000		61.000	33.000	●
3.100		65.000	36.000	●
3.170	1/8	65.000	36.000	●
3.200		65.000	36.000	●
3.300		65.000	36.000	●
3.400		70.000	39.000	●
3.500		70.000	39.000	●
3.570	9/64	70.000	39.000	●
3.600		70.000	39.000	●
3.700		70.000	39.000	●
3.800		75.000	43.000	●
3.900		75.000	43.000	●
3.970	5/32	75.000	43.000	●
4.000		75.000	43.000	●



Article no.				5522
Discount group				159
Cutting direction				(R)
d1		l1	l2	Availability
mm	inch	mm	mm	
4.100		75.000	43.000	●
4.200		75.000	43.000	●
4.300		80.000	47.000	●
4.370	11/64	80.000	47.000	●
4.400		80.000	47.000	●
4.500		80.000	47.000	●
4.600		80.000	47.000	●
4.700		80.000	47.000	●
4.760	3/16	86.000	52.000	●
4.800		86.000	52.000	●
4.900		86.000	52.000	●
5.000		86.000	52.000	●
5.100		86.000	52.000	●
5.160	13/64	86.000	52.000	●
5.200		86.000	52.000	●
5.300		86.000	52.000	●
5.400		93.000	57.000	●
5.500		93.000	57.000	●
5.560	7/32	93.000	57.000	●
5.600		93.000	57.000	●
5.700		93.000	57.000	●
5.800		93.000	57.000	●
5.900		93.000	57.000	●
5.950	15/64	93.000	57.000	●
6.000		93.000	57.000	●
6.100		101.000	63.000	●
6.200		101.000	63.000	●
6.300		101.000	63.000	●
6.350	1/4	101.000	63.000	●
6.400		101.000	63.000	●
6.500		101.000	63.000	●
6.600		101.000	63.000	●
6.700		101.000	63.000	●
6.800		109.000	69.000	●
6.900		109.000	69.000	●
7.000		109.000	69.000	●
7.100		109.000	69.000	●
7.140	9/32	109.000	69.000	●
7.200		109.000	69.000	●
7.300		109.000	69.000	●
7.400		109.000	69.000	●
7.500		109.000	69.000	●
7.600		117.000	75.000	●
7.700		117.000	75.000	●
7.800		117.000	75.000	●
7.900		117.000	75.000	●
7.940	5/16	117.000	75.000	●
8.000		117.000	75.000	●
8.100		117.000	75.000	●
8.200		117.000	75.000	●
8.300		117.000	75.000	●
8.400		117.000	75.000	●
8.500		117.000	75.000	●
8.730	11/32	125.000	81.000	●
8.800		125.000	81.000	●
9.000		125.000	81.000	●
9.300		125.000	81.000	●
9.500		125.000	81.000	●
9.800		133.000	87.000	●
10.000		133.000	87.000	●



				Article no.	5522
				Discount group	159
				Cutting direction	
d1		l1	l2	Availability	
mm	inch	mm	mm		
10.200		133.000	87.000	●	
10.500		133.000	87.000	●	
11.000		142.000	94.000	●	
11.110	7/16	142.000	94.000	●	
11.500		142.000	94.000	●	
12.000		151.000	101.000	●	
12.500		151.000	101.000	●	
13.000		151.000	101.000	●	
13.500		160.000	108.000	●	
14.000		160.000	108.000	●	



Jobber drills



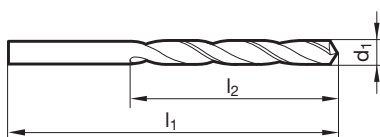
- P** • web thinning  $\geq \varnothing 1.000$  • relieved cone • tip coating
- M**
- K** •
- N** • alloyed/unalloyed steel and cast steel • grey cast iron, malleable and spheroidal iron • sintered powder metal and graphite
- S**
- H**

Tool material	<b>HSS</b>
Surface	<b>S</b>
Shank form	cyl.



**GÜHRING** NAVIGATOR

Cutting data page 74




Article no. **9651**

Discount group **159**

Cutting direction

d1		l1	l2	Availability
mm	inch	mm	mm	
1.000		34.000	12.000	●
1.100		36.000	14.000	●
1.190	3/64	38.000	16.000	●
1.200		38.000	16.000	●
1.300		38.000	16.000	●
1.400		40.000	18.000	●
1.500		40.000	18.000	●
1.590	1/16	43.000	20.000	●
1.600		43.000	20.000	●
1.700		43.000	20.000	●
1.800		46.000	22.000	●
1.900		46.000	22.000	●
1.980	5/64	49.000	24.000	●
2.000		49.000	24.000	●
2.100		49.000	24.000	●
2.200		53.000	27.000	●
2.300		53.000	27.000	●
2.380	3/32	57.000	30.000	●
2.400		57.000	30.000	●
2.500		57.000	30.000	●
2.600		57.000	30.000	●
2.700		61.000	33.000	●
2.780	7/64	61.000	33.000	●
2.800		61.000	33.000	●
2.900		61.000	33.000	●
3.000		61.000	33.000	●
3.100		65.000	36.000	●
3.170	1/8	65.000	36.000	●
3.200		65.000	36.000	●
3.300		65.000	36.000	●
3.400		70.000	39.000	●
3.500		70.000	39.000	●
3.570	9/64	70.000	39.000	●
3.600		70.000	39.000	●
3.700		70.000	39.000	●
3.800		75.000	43.000	●




Article no.				9651
Discount group				159
Cutting direction				
d1		l1	l2	Availability
mm	inch	mm	mm	
3.900		75.000	43.000	●
3.970	5/32	75.000	43.000	●
4.000		75.000	43.000	●
4.100		75.000	43.000	●
4.200		75.000	43.000	●
4.300		80.000	47.000	●
4.370	11/64	80.000	47.000	●
4.400		80.000	47.000	●
4.500		80.000	47.000	●
4.600		80.000	47.000	●
4.700		80.000	47.000	●
4.760	3/16	86.000	52.000	●
4.800		86.000	52.000	●
4.900		86.000	52.000	●
5.000		86.000	52.000	●
5.100		86.000	52.000	●
5.160	13/64	86.000	52.000	●
5.200		86.000	52.000	●
5.300		86.000	52.000	●
5.400		93.000	57.000	●
5.500		93.000	57.000	●
5.560	7/32	93.000	57.000	●
5.600		93.000	57.000	●
5.700		93.000	57.000	●
5.800		93.000	57.000	●
5.900		93.000	57.000	●
5.950	15/64	93.000	57.000	●
6.000		93.000	57.000	●
6.100		101.000	63.000	●
6.200		101.000	63.000	●
6.300		101.000	63.000	●
6.350	1/4	101.000	63.000	●
6.400		101.000	63.000	●
6.500		101.000	63.000	●
6.600		101.000	63.000	●
6.700		101.000	63.000	●
6.750	17/64	109.000	69.000	●
6.800		109.000	69.000	●
6.900		109.000	69.000	●
7.000		109.000	69.000	●
7.100		109.000	69.000	●
7.140	9/32	109.000	69.000	●
7.200		109.000	69.000	●
7.300		109.000	69.000	●
7.400		109.000	69.000	●
7.500		109.000	69.000	●
7.540	19/64	117.000	75.000	●
7.600		117.000	75.000	●
7.700		117.000	75.000	●
7.800		117.000	75.000	●
7.900		117.000	75.000	●
7.940	5/16	117.000	75.000	●
8.000		117.000	75.000	●
8.100		117.000	75.000	●
8.200		117.000	75.000	●
8.300		117.000	75.000	●
8.330	21/64	117.000	75.000	●
8.400		117.000	75.000	●
8.500		117.000	75.000	●
8.600		125.000	81.000	●





Article no.				9651
Discount group				159
Cutting direction				(R)
d1		l1	l2	Availability
mm	inch	mm	mm	
8.700		125.000	81.000	●
8.730	11/32	125.000	81.000	●
8.800		125.000	81.000	●
8.900		125.000	81.000	●
9.000		125.000	81.000	●
9.100		125.000	81.000	●
9.130	23/64	125.000	81.000	●
9.200		125.000	81.000	●
9.300		125.000	81.000	●
9.400		125.000	81.000	●
9.500		125.000	81.000	●
9.520	3/8	133.000	87.000	●
9.600		133.000	87.000	●
9.700		133.000	87.000	●
9.800		133.000	87.000	●
9.900		133.000	87.000	●
9.920	25/64	133.000	87.000	●
10.000		133.000	87.000	●
10.100		133.000	87.000	●
10.200		133.000	87.000	●
10.300		133.000	87.000	●
10.320	13/32	133.000	87.000	●
10.400		133.000	87.000	●
10.500		133.000	87.000	●
10.600		133.000	87.000	●
10.700		142.000	94.000	●
10.720	27/64	142.000	94.000	●
10.800		142.000	94.000	●
10.900		142.000	94.000	●
11.000		142.000	94.000	●
11.100		142.000	94.000	●
11.110	7/16	142.000	94.000	●
11.200		142.000	94.000	●
11.300		142.000	94.000	●
11.400		142.000	94.000	●
11.500		142.000	94.000	●
11.510	29/64	142.000	94.000	●
11.600		142.000	94.000	●
11.700		142.000	94.000	●
11.800		142.000	94.000	●
11.900		151.000	101.000	●
11.910	15/32	151.000	101.000	●
12.000		151.000	101.000	●
12.100		151.000	101.000	●
12.200		151.000	101.000	●
12.300	31/64	151.000	101.000	●
12.400		151.000	101.000	●
12.500		151.000	101.000	●
12.600		151.000	101.000	●
12.700	1/2	151.000	101.000	●
12.800		151.000	101.000	●
12.900		151.000	101.000	●
13.000		151.000	101.000	●
13.100	33/64	151.000	101.000	●
13.200		151.000	101.000	●
13.250		160.000	108.000	●
13.300		160.000	108.000	●
13.400		160.000	108.000	●
13.490	17/32	160.000	108.000	●
13.500		160.000	108.000	●



				Article no.	9651
				Discount group	159
				Cutting direction	
d1		l1	l2	Availability	
mm	inch	mm	mm		
13.600		160.000	108.000	●	
13.700		160.000	108.000	●	
13.750		160.000	108.000	●	
13.800		160.000	108.000	●	
13.890	35/64	160.000	108.000	●	
13.900		160.000	108.000	●	
14.000		160.000	108.000	●	
14.250		169.000	114.000	●	
14.290	9/16	169.000	114.000	●	
14.500		169.000	114.000	●	
14.680	37/64	169.000	114.000	●	
14.750		169.000	114.000	●	
15.000		169.000	114.000	●	
15.080	19/32	178.000	120.000	●	
15.250		178.000	120.000	●	
15.480	39/64	178.000	120.000	●	
15.500		178.000	120.000	●	
15.750		178.000	120.000	●	
16.000		178.000	120.000	●	



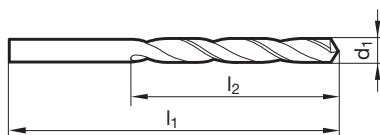
Long series twist drills



- P** • web thinning  $\geq \text{Ø } 1.000$  • facet point grinding • Co-alloyed high speed steel • low feed force required • low torque required • increased wear resistance • universal application
- M** •
- K** •
- N** • alloyed/unalloyed steels up to 800 N/mm<sup>2</sup> • cold/hot work steels
- S** • antifriction bearing steels • non-ferrous metals • cast materials • stainless steels • plastics
- H** •

**GÜHRING** NAVIGATOR

Cutting data page 74



SL Twist drills

			Article no.	5536	5537
			Discount group	159	159
			Cutting direction	(R)	(R)
d1	l1	l2	Availability		
mm	mm	mm			
1.000	56.000	33.000	•	•	•
1.100	60.000	37.000	•	•	•
1.200	65.000	41.000	•	•	•
1.300	65.000	41.000	•	•	•
1.400	70.000	45.000	•	•	•
1.500	70.000	45.000	•	•	•
1.600	76.000	50.000	•	•	•
1.700	76.000	50.000	•	•	•
1.800	80.000	53.000	•	•	•
1.900	80.000	53.000	•	•	•
2.000	85.000	56.000	•	•	•
2.100	85.000	56.000	•	•	•
2.200	90.000	59.000	•	•	•
2.300	90.000	59.000	•	•	•
2.400	95.000	62.000	•	•	•
2.500	95.000	62.000	•	•	•
2.600	95.000	62.000	•	•	•
2.700	100.000	66.000	•	•	•
2.800	100.000	66.000	•	•	•
2.900	100.000	66.000	•	•	•
3.000	100.000	66.000	•	•	•
3.100	106.000	69.000	•	•	•
3.200	106.000	69.000	•	•	•
3.300	106.000	69.000	•	•	•
3.400	112.000	73.000	•	•	•
3.500	112.000	73.000	•	•	•
3.600	112.000	73.000	•	•	•
3.700	112.000	73.000	•	•	•
3.800	119.000	78.000	•	•	•
3.900	119.000	78.000	•	•	•
4.000	119.000	78.000	•	•	•
4.100	119.000	78.000	•	•	•
4.200	119.000	78.000	•	•	•
4.300	126.000	82.000	•	•	•
4.400	126.000	82.000	•	•	•
4.500	126.000	82.000	•	•	•



			Article no.	5536	5537
			Discount group	159	159
			Cutting direction	(R)	(R)
d1	l1	l2	Availability		
mm	mm	mm			
4.600	126.000	82.000	●	●	
4.700	126.000	82.000	●	●	
4.800	132.000	87.000	●	●	
4.900	132.000	87.000	●	●	
5.000	132.000	87.000	●	●	
5.100	132.000	87.000	●	●	
5.200	132.000	87.000	●	●	
5.300	132.000	87.000	●	●	
5.400	139.000	91.000	●	●	
5.500	139.000	91.000	●	●	
5.600	139.000	91.000	●	●	
5.700	139.000	91.000	●	●	
5.800	139.000	91.000	●	●	
5.900	139.000	91.000	●	●	
6.000	139.000	91.000	●	●	
6.100	148.000	97.000	●	●	
6.200	148.000	97.000	●	●	
6.300	148.000	97.000	●	●	
6.400	148.000	97.000	●	●	
6.500	148.000	97.000	●	●	
6.600	148.000	97.000	●	●	
6.700	148.000	97.000	●	●	
6.800	156.000	102.000	●	●	
6.900	156.000	102.000	●	●	
7.000	156.000	102.000	●	●	
7.100	156.000	102.000	●	●	
7.200	156.000	102.000	●	●	
7.300	156.000	102.000	●	●	
7.400	156.000	102.000	●	●	
7.500	156.000	102.000	●	●	
7.600	165.000	109.000	●	●	
7.700	165.000	109.000	●	●	
7.800	165.000	109.000	●	●	
7.900	165.000	109.000	●	●	
8.000	165.000	109.000	●	●	
8.100	165.000	109.000	●	●	
8.200	165.000	109.000	●	●	
8.300	165.000	109.000	●	●	
8.400	165.000	109.000	●	●	
8.500	165.000	109.000	●	●	
8.600	175.000	115.000	●	●	
8.700	175.000	115.000	●	●	
8.800	175.000	115.000	●	●	
8.900	175.000	115.000	●	●	
9.000	175.000	115.000	●	●	
9.100	175.000	115.000	●	●	
9.200	175.000	115.000	●	●	
9.300	175.000	115.000	●	●	
9.400	175.000	115.000	●	●	
9.500	175.000	115.000	●	●	
9.600	184.000	121.000	●	●	
9.700	184.000	121.000	●	●	
9.800	184.000	121.000	●	●	
9.900	184.000	121.000	●	●	
10.000	184.000	121.000	●	●	
10.100	184.000	121.000	●	●	
10.200	184.000	121.000	●	●	
10.300	184.000	121.000	●	●	
10.400	184.000	121.000	●	●	
10.500	184.000	121.000	●	●	



			Article no.	5536	5537
			Discount group	159	159
			Cutting direction	(R)	(R)
d1	l1	l2	Availability		
mm	mm	mm			
11.000	195.000	128.000	●	●	
11.500	195.000	128.000	●	●	
12.000	205.000	134.000	●	●	
12.500	205.000	134.000	●	●	
13.000	205.000	134.000	●	●	
13.500	214.000	140.000	●	●	
14.000	214.000	140.000	●	●	

SL Twist drills

**Solid carbide micro-precision drills without coolant ducts**



**P** ● facet point grinding

**M** ○

**K** ●

**N** ○ structural and case hardened steels • free-cutting steels, heat-treatable steels • alloyed steels up to 1200 N/mm<sup>2</sup>

**S** ○ • cast materials

**H** ○

Tool material **Solid carbide**

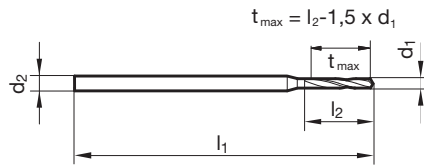
Surface **A**

Shank form cyl.



**GÜHRING NAVIGATOR**

Cutting data page 72



Article no. **5652**

Discount group **155**

Cutting direction

d1	d2	l1	l2	Availability
mm	mm	mm	mm	
0.100	3.000	38.000	1.200	●
0.200	3.000	38.000	2.500	●
0.300	3.000	38.000	5.000	●
0.400	3.000	38.000	7.000	●
0.500	3.000	38.000	7.000	●
0.600	3.000	38.000	7.000	●
0.700	3.000	38.000	8.000	●
0.800	3.000	38.000	10.000	●
0.900	3.000	38.000	10.000	●
1.000	3.000	38.000	10.000	●
1.100	3.000	38.000	10.000	●
1.200	3.000	38.000	10.000	●
1.300	3.000	38.000	10.000	●
1.400	3.000	38.000	10.000	●
1.500	3.000	38.000	10.000	●
1.600	3.000	38.000	12.000	●
1.700	3.000	38.000	12.000	●
1.800	3.000	38.000	12.000	●
1.900	3.000	38.000	12.000	●
2.000	3.000	38.000	12.000	●
2.100	3.000	38.000	12.000	●
2.200	3.000	38.000	12.000	●
2.400	3.000	38.000	12.000	●
2.500	3.000	38.000	12.000	●
2.600	3.000	38.000	12.000	●
2.800	3.000	38.000	12.000	●
3.000	3.000	38.000	12.000	●



**Solid carbide micro-precision drills with internal cooling**

from Ø 1.4 mm for drilling depths up to 5xD, 8xD, 15xD can be found in our ExclusiveLine® programme.

**EXCLUSIVELINE®**





142° NC-spotting drills



**P** ○ facet point grinding • only suitable for spotting •  $\geq \varnothing 6.0$  mm with clamping surface shank form HB

**M** ○

**K** ○

**N** ○ universal application

**S** ○

**H** ○

Tool material **Solid carbide**

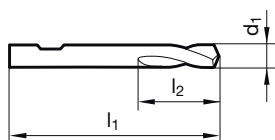
Surface ○

Shank form HB



SL Twist drills

**GUHRING** NAVIGATOR



Article no. **5649**

Discount group **155**

Cutting direction

d1		l1	l2
mm	inch	mm	mm
4.000		55.000	12.000
6.000		66.000	16.000
8.000		79.000	21.000
10.000		89.000	25.000
12.000		102.000	30.000
16.000		115.000	37.500
20.000		131.000	45.000

Availability
●
●
●
●
●
●
●



# NC spotting drills

NC spotting drills with 90° and 120° point angles in HSS, HSCO and solid carbide and with various coatings can be found in our main programme.



**Set of jobber drills**



- P** • relieved cone • Drills are available in the sets of popular sizes as shown. For bench use the sets can be supplied in bakelite stands. For more portable use the box is recommended. Other drill set compositions on request.
- M** •
- K** •
- N** •
- S** •
- H** •

Tool material	<b>HSCO</b>
Surface	○
Shank form	cyl.



Article no. **12**

Discount group **159**

Cutting direction

d1	increasing by	Pieces/set	Code no.
mm	mm		
1.0-13.0	0,5	25	7.014
1.0-10.5	0,5	24	7.018

Availability	●
	●



Set of jobber drills



- P** • relieved cone • Drills are available in the sets of popular sizes as shown. For bench use the sets can be supplied in bakelite stands. For more portable use the box is recommended. Other drill set compositions on request.
- M** •
- K** •
- N** •
- S** •
- H** •

Tool material	<b>HSS</b>
Surface	<b>S</b>
Shank form	cyl.



SL Twist drills



Article no.	<b>234</b>
Discount group	<b>159</b>
Cutting direction	<b>(R)</b>

d1	increasing by	Pieces/set	Code no.	Availability
mm	mm			
1.0-13.0	0,5	25	6.014	●
1.0-10.0	0,5	19	6.013	●
1.0-5.9	0,1	50	6.015	●
6.0-10.0	0,1	41	6.016	●
1.0-10.5	0,5	24	6.018	●

# GÜHRINGNAVIGATOR Ratio drills

## Generally recommendations:

For safety reasons it is very important, that a drill does not exceed a speed of  $n = 6,000$  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  $> 1xD$ .

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.

Article no. HA
Article no. HE
Article no. HB
Standard/DIN
Tool material
Carbide grade
Type
Surface finish
Cooling
Std. range page

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

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

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength N/mm <sup>2</sup>	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2)	≤500		
	<b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36)	≤850		
	<b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30)	≤700		
	<b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45)	≤850		
	<b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		
Unalloyed case hard. steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6	≤1000		
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤350 HB	
Hardened steels	-		≤48 HRC	
			≤66 HRC	
Stainless steels, sulphured	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.86681</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤900		
austenitic	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤1100		
martensitic	<b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20)		≤240 HB	
	<b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)		≤350 HB	
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35)		≤240 HB	
	<b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)		≤350 HB	
Chilled cast iron	-		≤350 HB	
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)		≤220 HB	
	<b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		≤300 HB	
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000		
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2	≤850		
	<b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
	<b>2.0790</b> CuNi18Zn19Pb	≤850		
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850		
	<b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



# GÜHRINGNAVIGATOR Twist drills

## 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  $> 1xD$ .

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.

Article no.
Standard/DIN
Tool material
Carbide grade
Type
Surface finish
Std. range page

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

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

### Coolant:

- Air
- Neat oil
- Soluble oil

\* TiN-tip coated

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength N/mm <sup>2</sup>	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		○
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		○
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		○
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		○
Unalloyed case hard. steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		○
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400		○
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		○
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400		○
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		○
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤350 HB	○
Hardened steels	-		≤48 HRC ≤66 HRC	○
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.86681</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤900 ≤1100 ≤1500		○
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)		≤240 HB ≤350 HB	○
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	○
Chilled cast iron	-		≤350 HB	○
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		≤220 HB ≤300 HB	○
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400		○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		○
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		○
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		○
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		○
Al cast alloys ≤ 10 % Si ≤ 24 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		○
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		○
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		○
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		○
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 ≤850		○
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 ≤1000		○
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics	GFK/CFK	≤1000		○



≤3xD		
5524 5520	5521	5516
1897 1897	1897	6539
HSCO	HSS-E-PM	Sol. carb.
- -	-	K10/K20
GU 500	GU 500	N
○ S	○ S	○
47	50	45

≤5xD		
5523 5519	9651	5522
338 338	338	338
HSCO	HSCO	HSS-E-PM
- -	-	-
GU 500	GU 500	GT 500
○ S	○ S	○ S
55	61	58

≤10xD		
5536 5537		
340 340		
HSCO		
- -		
GU 500		
○ S		
65		



○ S				○				○ S				○				○ S						
V <sub>c</sub> m/min	V <sub>c</sub> m/min	Feed col. no.	Feed col. no.	V <sub>c</sub> m/min	Feed col. no.	V <sub>c</sub> m/min	Feed col. no.	V <sub>c</sub> m/min	V <sub>c</sub> m/min	Feed col. no.	Feed col. no.	V <sub>c</sub> m/min	Feed col. no.	V <sub>c</sub> m/min	Feed col. no.	V <sub>c</sub> m/min	V <sub>c</sub> m/min	Feed col. no.	Feed col. no.			
35	45	6	6	40	6	80	4	35	45	6	6	32	6	40	6	80	4	29	32	5	5	
30	35	5	5	32	5	70	4	30	35	5	5	26	5	32	5	70	4	22	25	4	4	
40	50	6	6	45	6	80	5	40	50	6	6	36	6	45	6	80	5	32	35	5	5	
30	40	6	6	40	5	70	4	30	40	6	6	36	5	40	5	70	4	25	28	5	5	
32	44	6	6	42	6	80	4	32	44	6	6	31	5	42	6	80	4	25	28	5	5	
28	44	6	6	40	5	70	4	28	44	6	6	31	5	40	5	70	4	22	25	5	5	
20	40	5	5	28	4	60	4	20	40	5	5	28	4	28	4	60	4	13	15	4	4	
15	27	4	4	25	4	60	4	15	27	4	4	24	4	25	4	60	4	12	13	3	3	
13	22	3	3	20	3			13	22	3	3			20	3			11	12	2	2	
30	44	6	6	40	4	80	5	30	44	6	6	36	6	40	4	80	5	25	28	5	5	
16	22	4	4	22	4	60	4	16	22	4	4	22	4	22	4	60	4	12	14	3	3	
12	18	3	3	18	3			12	18	3	3	18	3	18	3			11	12	2	2	
15	22	4	4	20	4	50	4	15	22	4	4	16	4	20	4	50	4	12	13	3	3	
10	16	3	3	15	3			10	16	3	3			15	3			7	8	2	2	
15	20	4	4	21	4	50	3	15	20	4	4	20	4	21	4	50	3	12	13	3	9	
10	15	3	3	16	3			10	15	3	3			16	3			9	10	2	2	
10	13	3	3	15	3			10	13	3	3			15	3			9	10	2	2	
9		2		12	2	25	2	9		2				12	2							
						20	3									20	3					
						10										10						
14	20	4	4	15	4	25	2	14	20	4	4			15	4	25	2	12	13	3	3	
10	16	4	4	10	3	15	1	10	16	4	4			10	3	15	1	7	8	3	3	
12	18	4	4	12	3	25	2	12	18	4	4			12	3	25	2	11	12	3	3	
36	45	6	6	50	6	90	4	36	45	6	6	36	6	50	6	90	4	29	32	6	6	
30	40	6	6	40	6	80	4	30	40	6	6	36	6	40	6	80	4	23	26	6	6	
30	40	6	6	44	6	80	4	30	40	6	6	31	6	44	6	80	4	25	28	6	6	
22	30	6	6	32	6	70	4	22	30	6	6	24	6	32	6	70	4	18	20	6	6	
				8	3	10								8	3	10						
				5	2	15	2							5	2	15	2					
						15	1									15	1					
						15	1									15	1					
50	70	7	7			200	7	50	70	7	7			200	7	45	50	7	7			
50	70	7	7			200	7	50	70	7	7			200	7	45	50	7	7			
65	85	7	7			150	6	65	85	7	7			150	6	54	60	7	7			
60	70	6	6			120	6	60	70	6	6			120	6	45	50	6	6			
60	80	6	6			180	6	60	80	6	6	90	6	180	6	45	50	6	6			
70	80	5	5	80	5	80	5	70	80	5	5	70	5	80	5	80	5	60	70	5	5	
45	77	5	5			180	5	45	77	5	5	80	5	180	5	40	50	5	5			
30	44	5	5	60	5	180	5	30	44	5	5	50	5	180	5	25	28	5	5			
36	50	4	4	50	5	120	5	36	50	4	4	36	4	50	5	120	5	31	35	4	4	
30	40	4	4	45	4	120	5	30	40	4	4	33	4	45	4	120	5	22	25	4	4	
30	32	4	4	40	4	70	4	30	32	4	4	18	4	40	4	70	4	22	24	4	4	
25	28	4	4	32	4	50	3	25	28	4	4	18	4	32	4	50	3	18	20	4	4	
20	25	4	4	25	4	50	4	20	25	4	4	29	4	25	4	50	4	16	18	4	4	
15	27	4	4			40	3	15	27	4	4	36	5			40	3	11	12	4	4	
						80	3									80	3					









# THREAD CUTTING TOOLS

## Machine taps for ISO metric threads



**P** ≤ 800

**GÜHRING NAVIGATOR**

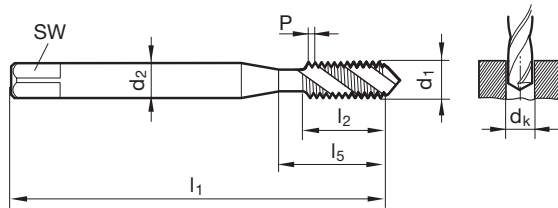
Cutting data page 96



SL Thread cutting tools

<b>M</b>	
<b>K</b>	
<b>N</b>	
<b>S</b>	
<b>H</b>	

Tool material	<b>HSS-E</b>	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	● <b>S</b>
Type	N R40	N R40
Form	C	C
Internal cooling	☒	☒



**DIN 2184-1 DIN 371/DIN 376**

Article no.

**5554**

**5592**

Discount group

**156**

**156**

d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	●



Machine taps for ISO metric threads



P	≤ 1200
M	
K	
N	
S	
H	

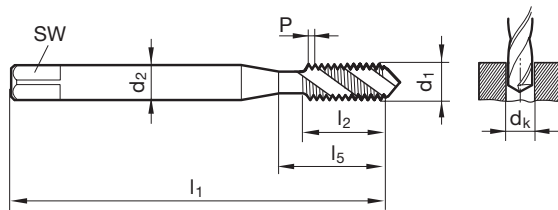
**GÜHRING** NAVIGATOR

Cutting data page 96



Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	●
Type	H R40	H R40
Form	C	C
Internal cooling	☒	☒

SL Thread cutting tools



DIN 2184-1 DIN 371/DIN 376								Article no.	5552	5591
								Discount group	156	156
d1	P	d2	SW	dk	l1	l2	l5	Availability		
	mm	mm	mm	mm	mm	mm	mm			
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●	●	
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●	●	
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●	●	
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●	●	
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●	●	
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●	●	
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●	●	
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	●	
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	●	

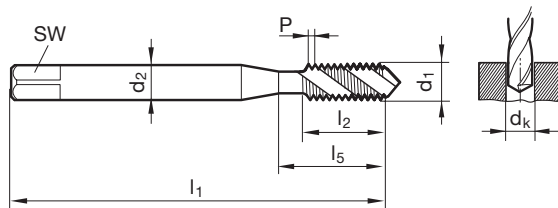
## Machine taps for ISO metric threads


**P** **GÜHRING NAVIGATOR**
**M** • Cutting data page 96


SL Thread cutting tools

**K**  
**N**  
**S**  
**H**

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	● <b>S</b>
Type	VA R40	VA R40
Form	C	C
Internal cooling	☒	☒



DIN 2184-1 DIN 371/DIN 376

Article no.

5553

5596

Discount group

156

156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	●



Machine taps for ISO metric threads



P	≤ 1000
M	○
K	○
N	○
S	○
H	○

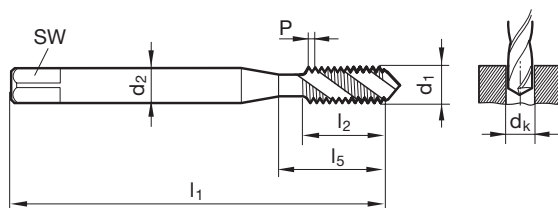
**GÜHRING** NAVIGATOR

Cutting data page 96



Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	●
Type	N R40	N R40
Form	C	C
Internal cooling	☒	☒

SL Thread cutting tools



DIN 2184-1 DIN 371/DIN 376

Article no.

5555

5594

Discount group

156

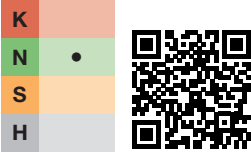
156

d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●	●

## Machine taps for ISO metric threads

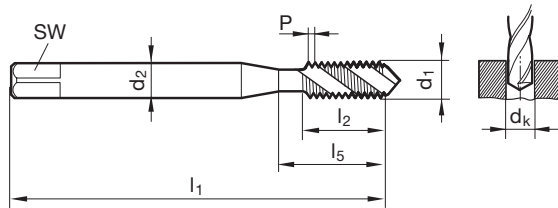

**P** **GUHRING** NAVIGATOR

Cutting data page 96



SL Thread cutting tools

Tool material	<b>HSS-E</b>
Tolerance on Ø	ISO2/6H
Surface	○
Type	AI R45
Form	C
Internal cooling	☒


**DIN 2184-1 DIN 371/DIN 376**

Article no.

**5551**

Discount group

**156**

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.50	56.00	6.00	18.00	●
M4	0.70	4.50	3.40	3.30	63.00	7.50	21.00	●
M5	0.80	6.00	4.90	4.20	70.00	8.50	25.00	●
M6	1.00	6.00	4.90	5.00	80.00	11.00	30.00	●
M8	1.25	8.00	6.20	6.80	90.00	14.00	35.00	●
M10	1.50	10.00	8.00	8.50	100.00	16.00	39.00	●
M12	1.75	9.00	7.00	10.20	110.00	18.50	49.00	●
M16	2.00	12.00	9.00	14.00	110.00	20.00	54.00	●
M20	2.50	16.00	12.00	17.50	140.00	25.00	62.00	●



Machine taps for ISO metric threads



P	
M	
K	•
N	≥ 7
S	
H	

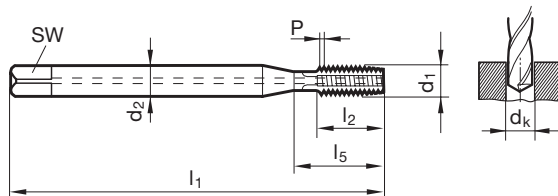
**GÜHRING** NAVIGATOR

Cutting data page 96



Tool material	<b>Solid carbide</b>
Tolerance on Ø	6HX
Surface	○
Type	H
Form	C
Internal cooling	

SL Thread cutting tools



DIN 2184-1 DIN 371/DIN 376	Article no.	<b>5593</b>
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	Discount group	<b>156</b>
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d1	P	d2	SW	dk	l1	l2	l5	Availability
	mm	mm	mm	mm	mm	mm	mm	
M4	0.70	4.50	3.40	3.30	63.00	10.00	21.00	●
M5	0.80	6.00	4.90	4.20	70.00	10.00	25.00	●
M6	1.00	6.00	4.90	5.00	80.00	12.00	30.00	●
M8	1.25	8.00	6.20	6.80	90.00	16.00	35.00	●
M10	1.50	10.00	8.00	8.50	100.00	18.00	39.00	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●



## Machine taps for ISO metric threads


**P** ≤ 800

**GUHRING NAVIGATOR**

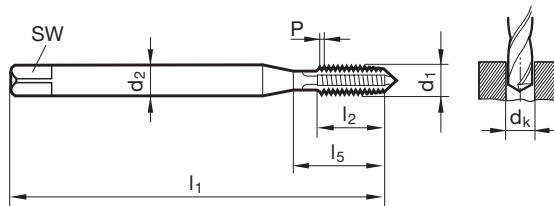
Cutting data page 94



SL Thread cutting tools

<b>M</b>	
<b>K</b>	
<b>N</b>	
<b>S</b>	
<b>H</b>	

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	● <b>S</b>
Type	N	N
Form	B	B
Internal cooling	☒	☒


**DIN 2184-1 DIN 371/DIN 376**

Article no.

**5560**
**5590**

Discount group

**156**
**156**

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●



Machine taps for ISO metric threads



P	≤ 1200
M	
K	
N	
S	
H	

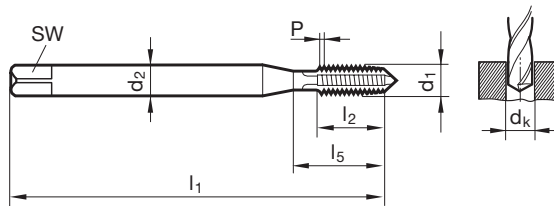
**GUHRING** NAVIGATOR

Cutting data page 94



Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	● <sup>C</sup>
Type	H	H
Form	B	B
Internal cooling	☒	☒

SL Thread cutting tools



DIN 2184-1 DIN 371/DIN 376		Article no.							
		5558	5587						
		Discount group							
		156	156						
d1	P	d2	SW	dk	l1	l2	l5	Availability	
	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●

## Machine taps for ISO metric threads



**P** ≤ 1000

**GÜHRING NAVIGATOR**

**M** •

Cutting data page 94

**K**

**N**

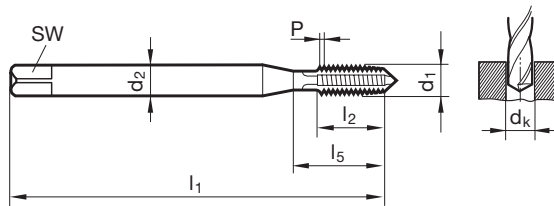
**S**

**H**



SL Thread cutting tools

Tool material	<b>HSS-E</b>	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	<b>S</b>	●
Type	VA	N
Form	B	B
Internal cooling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



**DIN 2184-1 DIN 371/DIN 376**

Article no.

**5588**

**5597**

Discount group

**156**

**156**

d1	P	d2	SW	dk	l1	l2	l5	Availability	
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●

## Machine taps for ISO metric threads



P ≤ 1000

GÜHRING NAVIGATOR

M •

Cutting data page 94

K

N

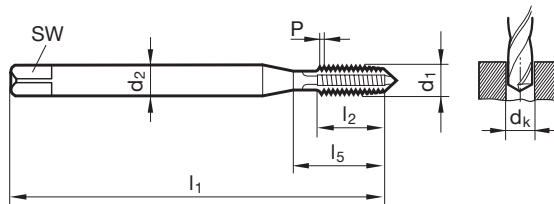
S

H



Tool material	HSS-E-PM
Tolerance on Ø	ISO2/6H
Surface	●
Type	N
Form	B
Internal cooling	☒

SL Thread cutting tools



DIN 2184-1 DIN 371

Article no.

5559

Discount group

156

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●

## Machine taps for ISO metric threads



**P** ≤ 1000

**GÜHRING NAVIGATOR**

Cutting data page 94

**M** ○

**K**

**N**

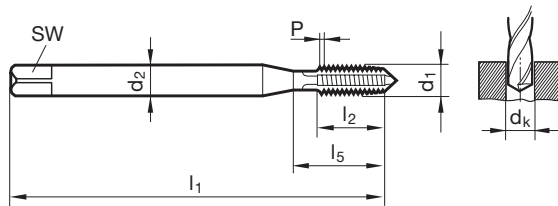
**S**

**H**



SL Thread cutting tools

Tool material	HSS-E	
Tolerance on Ø	ISO2/6H	ISO2/6H
Surface	●	● <b>S</b>
Type	N	N
Form	B	B
Internal cooling	☒	☒

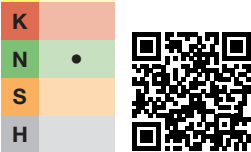


DIN 2184-1 DIN 371/DIN 376								Article no.	5561	5586
								Discount group	156	156
d1	P	d2	SW	dk	l1	l2	l5	Availability		
	mm	mm	mm	mm	mm	mm	mm			
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●	
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●	
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●	
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●	
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●	
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●	
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●	
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●	
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●	

## Machine taps for ISO metric threads

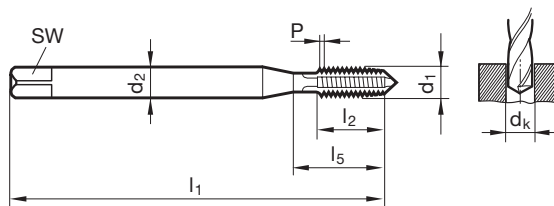

**P** **GÜHRING** NAVIGATOR

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Tool material	<b>HSS-E</b>
Tolerance on Ø	ISO2/6H
Surface	○
Type	AI
Form	B
Internal cooling	☒

SL Thread cutting tools



DIN 2184-1 DIN 371/DIN 376

Article no.

5557

Discount group

156

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●

## Machine taps for ISO metric threads



### **P** **GÜHRING** NAVIGATOR

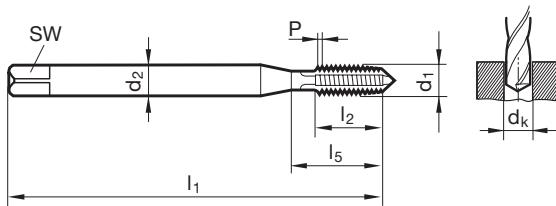
Cutting data page 94



SL Thread cutting tools

<b>P</b>	
<b>M</b>	
<b>K</b>	•
<b>N</b>	
<b>S</b>	
<b>H</b>	

Tool material	<b>HSS-E</b>	
Tolerance on Ø	6HX	6HX
Surface	●	● <b>F</b>
Type	GG	GG
Form	C	C
Internal cooling	☒	☒



DIN 2184-1 DIN 371/DIN 376		Article no.		Discount group		Availability			
d1	P	d2	SW	dk	l1	l2	l5		
mm	mm	mm	mm	mm	mm	mm	mm		
M3	0.50	3.50	2.70	2.50	56.00	10.00	18.00	●	●
M4	0.70	4.50	3.40	3.30	63.00	12.00	21.00	●	●
M5	0.80	6.00	4.90	4.20	70.00	14.00	25.00	●	●
M6	1.00	6.00	4.90	5.00	80.00	16.00	30.00	●	●
M8	1.25	8.00	6.20	6.80	90.00	17.00	35.00	●	●
M10	1.50	10.00	8.00	8.50	100.00	20.00	39.00	●	●
M12	1.75	9.00	7.00	10.20	110.00	24.00	49.00	●	●
M16	2.00	12.00	9.00	14.00	110.00	26.00	54.00	●	●
M20	2.50	16.00	12.00	17.50	140.00	32.00	62.00	●	●



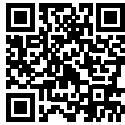
## Fluteless machine taps for ISO metric threads


**P** • **GÜHRING NAVIGATOR**
**M** • Cutting data page 94

**K** •

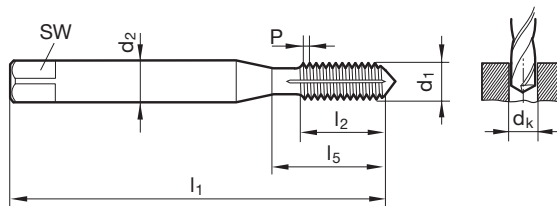
**N** ○

**S** •

**H** •


Tool material	<b>HSS-E</b>
Tolerance on Ø	6HX
Surface	<b>S</b>
Type	N
Form	C
Internal cooling	

SL Thread cutting tools



DIN 2174 ~DIN 371

Article no.

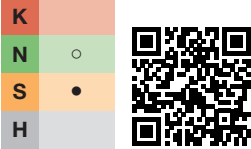
5598

Discount group

156

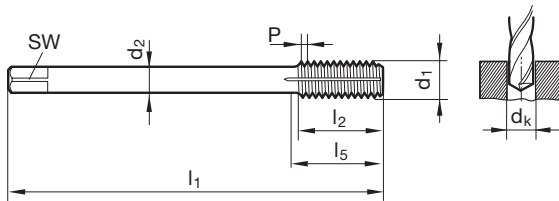
d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M3	0.50	3.50	2.70	2.80	56.00	10.00	18.00	•
M4	0.70	4.50	3.40	3.70	63.00	12.00	21.00	•
M5	0.80	6.00	4.90	4.65	70.00	14.00	25.00	•
M6	1.00	6.00	4.90	5.55	80.00	16.00	30.00	•
M8	1.25	8.00	6.20	7.40	90.00	17.00	35.00	•
M10	1.50	10.00	8.00	9.30	100.00	20.00	39.00	•

## Fluteless machine taps for ISO metric threads


**P** • **GUHRING NAVIGATOR**
**M** • Cutting data page 94


SL Thread cutting tools

Tool material	<b>HSS-E</b>
Tolerance on Ø	6HX
Surface	<b>S</b>
Type	N
Form	C
Internal cooling	


**DIN 2174 ~DIN 376**

Article no.

**5599**

Discount group

**156**

d1	P	d2	SW	dk	l1	l2	l5	Availability
mm	mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.00	7.00	11.20	110.00	24.00	49.00	•
M14	2.00	11.00	9.00	13.10	110.00	26.00	53.00	•
M16	2.00	12.00	9.00	15.10	110.00	26.00	54.00	•



Thread milling cutters without chamfer for ISO metric threads



P	•
M	○
K	•
N	•
S	•
H	≤55

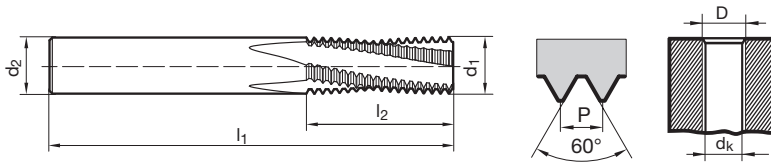
**GUHRING NAVIGATOR**

Cutting data page 96



Tool material	Solid carbide	
Tolerance on Ø		
Surface	Ⓢ	Ⓢ
Type	TM SP	TM SP
Shank form	HB	HA
Internal cooling		

SL Thread cutting tools



Company std.							Article no.		5547	5548
							Discount group		153	153
D	P	d1	d2	dk	l1	l2	Z	Code no.	Availability	
	mm	mm	mm	mm	mm	mm				
M6	1.000	4.800	6.000	5.00	54.000	13.500	3	6.000	•	•
M8	1.250	6.400	8.000	6.80	62.000	18.100	3	8.000	•	•
M10	1.500	7.950	10.000	8.50	74.000	21.800	3	10.000	•	•
M12	1.750	9.950	10.000	10.20	74.000	25.400	4	12.000	•	•
M14	2.000	11.200	12.000	12.00	90.000	31.000	4	14.000	•	•
M16	2.000	12.800	14.000	14.00	90.000	35.000	4	16.000	•	•
M20	2.500	14.950	16.000	17.50	102.000	41.300	4	20.000	•	•

## GÜHRING NAVIGATOR

Article no.
Thread type
Tolerance
Standard/DIN
Tool material
Type
Surface finish
Cooling
Shank tolerance
Std. range page

## Cooling:

☒ without coolant ducts

## Coolant:

- Air
- Neat oil
- Soluble oil
- △ Paste

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength N/mm <sup>2</sup>	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		●●△
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		●●△
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		●●△
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		●●△
Unalloyed case hard. steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		●●△
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400		●●△
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		●●△
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400		●●△
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		●●△
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤350 HB	●●△
Hardened steels	-		≤48 HRC ≤66 HRC	●●
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.86681</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤900 ≤1100 ≤1500		●●△
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)		≤240 HB ≤350 HB	●●
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	●●
Chilled cast iron	-		≤350 HB	●●
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		≤220 HB ≤300 HB	●●
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400		●●
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		●●
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		●●
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		●△●
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		●△●
Al cast alloys ≤ 10 % Si ≤ 24 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		●△●
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		●△●
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		●△●
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		●△●
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 ≤850		●△●
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 ≤1000		●△●
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		●
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		●
Kevlar	Kevlar	≤1000		●
Glass, carbon concentr. plastics	GFK/CFK	≤1000		●



≤3xD

Fluteless taps

5560	5590	5561	5586	5558	5587	5588	5559	5557	5550	5595	5598	5599
M	M	M	M	M	M	M	M	M	M	M	M	M
6H	6H	6H	6H	6H	6H	6H	6H	6H	6HX	6HX	6HX	6HX
371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	~371	~376
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E-PM	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
N/B	N/B	N/B	N/B	H/B	H/B	VA/B	VA/B	Al/B	GG/C	GG/C	N/C	N/C
×	×	×	×	×	×	×	×	×	×	×	×	axial
h9	h9	h9	h9	h9	h9	h9	h9	h9	h9	h9	h9	h9
84	84	88	88	85	85	86	87	89	90	90	91	92

SL thread cutting tools



V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min
10	12	12	15			10	12				15	15
8	10	12	15			10	12				15	15
8	10	10	12			8	10				15	15
6	8	10	12			8	10				15	15
10	12	12	15			10	12				15	15
10	12	12	15			10	12				15	15
		10	12			8	10				12	12
		6	8	10	12	4	6				12	12
				8	10						8	8
10	12	12	15			10	12				15	15
		6	8	10	12	4	6				15	15
				8	10						8	8
		6	8	10	12	4	6				15	15
				8	10						8	8
				10	12						12	12
				8	10						8	8
				8	10						8	8
				8	10						10	10
		4	6			10	8				6	6
		4	6			10	8				6	6
						8	6				4	4
									15	25		
									15	25		
									10	20		
									10	20		
									10	15		
									8	15		
									8	15		
									8	15		
										10		
								15			20	20
								15			20	20
											20	20
								15				
								15			20	20
								15			20	20
								15			20	20

**GÜHRING**NAVIGATOR

SL thread cutting tools

Article no.
Thread type
Tolerance
Standard/DIN
Tool material
Type
Surface finish
Cooling
Shank tolerance
Std. range page

Milling part diameter	Feed column no.					
	1	2	3	4	5	6
	$f_z$ (mm/z) up-cut milling					
4.80	0.010	0.020	0.025	0.030	0.045	0.050
6.40	0.012	0.025	0.030	0.035	0.050	0.055
7.95	0.018	0.030	0.040	0.050	0.060	0.060
9.95	0.020	0.040	0.050	0.060	0.070	0.075
11.20	0.022	0.045	0.050	0.060	0.080	0.085
12.80	0.025	0.050	0.050	0.065	0.085	0.090
14.95	0.030	0.050	0.055	0.065	0.090	0.100

Cooling:  
 without coolant ducts

Coolant:  
 Air  
 Neat oil  
 Soluble oil  
 Paste

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength N/mm <sup>2</sup>	Hardness	Coolant
Common structural steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		
Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		
Unalloyed case hard. steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850		
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400		
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400		
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤350 HB	
Hardened steels	-		≤48 HRC ≤66 HRC	
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.86681</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤900 ≤1100 ≤1500		
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)		≤240 HB ≤350 HB	
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	
Chilled cast iron	-		≤350 HB	
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		≤220 HB ≤300 HB	
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400		
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		
≤ 24 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400		
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤600		
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		
long-chipping	<b>2.0790</b> CuNi18Zn19Pb	≤850		
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 ≤1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
Kevlar	Kevlar	≤1000		
Glass, carbon concentr. plastics	GFK/CFK	≤1000		



≤3xD										≤2xD	
5554	5592	5555	5594	5552	5591	5596	5553	5551	5593	5547	5548
M	M	M	M	M	M	M	M	M	M	M	M
6H	6H	6H	6H	6H	6H	6H	6H	6H	6HX		
371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376	371/376		
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	Sol. carb.	Sol. carb.	Sol. carb.
N R40/C	N R40/C	N R40/C	N R40/C	H R40/C	H R40/C	VA R40/C	VA R40/C	Al R45/C	H/C	TM SP/HB	TM SP/HA
									axial		axial
h9	h9	h9	h9	h9	h9	h9	h9	h9	h6		
78	78	81	81	79	79	80	80	82	83	93	93

SL thread cutting tools

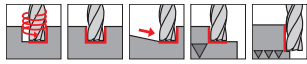
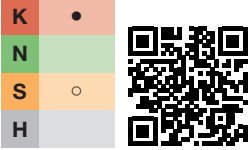
V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	V <sub>c</sub> m/min	Feed col. no.	V <sub>c</sub> m/min	Feed col. no.
8	12	10 10	15 15								110 4	110 4	110 4
		10 8	15 10								110 4	110 4	110 4
8 8	12 12	10 10 8	15 15 10								110 4	110 4	110 4
		4	6	8 6	10 8						90 3	90 3	90 3
8	12	10 4	15 6	8 6	10 8						110 4	110 4	110 4
		4	6	8 6	10 8						90 3	90 3	90 3
		4	6	8 6	10 8						90 3	90 3	90 3
		4	6	8 6	10 8						90 3	90 3	90 3
				6	8						90 3	90 3	90 3
				6	8						90 3	90 3	90 3
											25 1	25 1	25 1
						10 10 6	8 8 4				60 2	60 2	60 2
											60 2	60 2	60 2
											120 4	120 4	120 4
											120 4	120 4	120 4
											120 4	120 4	120 4
											120 4	120 4	120 4
											100 3	100 3	100 3
											120 4	120 4	120 4
											120 4	120 4	120 4
											100 3	100 3	100 3
											100 3	100 3	100 3
											35 2	35 2	35 2
											35 2	35 2	35 2
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											250 5	250 5	250 5
											350 5	350 5	350 5
											350 6	350 6	350 6





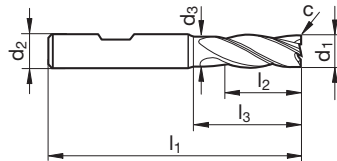


# MILLING CUTTERS

**Standard Ratio end mills RF 100 U**

**P** • **GUHRING NAVIGATOR**
**M** ○ Cutting data page 126

 Tool material **Solid carbide**

 Surface **F**

 Type **N**

 Shank form **HB**

 Article no. **5534**

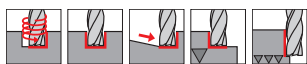
 Discount group **157**

d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
6.000	6.000	5.700	54.000	10.000	17.000	0.150	4	6.000	●
8.000	8.000	7.700	58.000	12.000	21.000	0.150	4	8.000	●
10.000	10.000	9.500	66.000	14.000	24.000	0.200	4	10.000	●
12.000	12.000	11.500	73.000	16.000	26.000	0.200	4	12.000	●
14.000	14.000	13.500	75.000	18.000	28.000	0.250	4	14.000	●
16.000	16.000	15.500	82.000	22.000	32.000	0.350	4	16.000	●
20.000	20.000	19.500	92.000	26.000	40.000	0.450	4	20.000	●





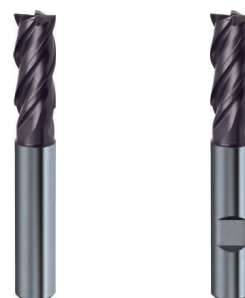
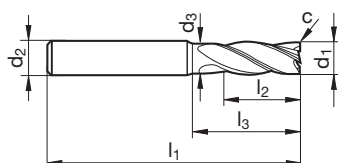
Standard Ratio end mills RF 100 U



**P** • **GUHRING NAVIGATOR**  
**M** ○ Cutting data page 126  
**K** •  
**N** •  
**S** ○  
**H** •



Tool material	Solid carbide	
Surface	F	F
Type	N	N
Shank form	HA	HB



SL Milling cutters

									Article no.	5735	5535
									Discount group	157	157
d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability		
mm	mm	mm	mm	mm	mm	mm x 45°					
4.000	6.000	3.800	57.000	11.000	18.000	0.100	4	4.000	•	•	
5.000	6.000	4.800	57.000	13.000	18.000	0.100	4	5.000	•	•	
6.000	6.000	5.700	57.000	13.000	20.000	0.150	4	6.000	•	•	
8.000	8.000	7.700	63.000	19.000	26.000	0.150	4	8.000	•	•	
10.000	10.000	9.500	72.000	22.000	30.000	0.200	4	10.000	•	•	
12.000	12.000	11.500	83.000	26.000	36.000	0.200	4	12.000	•	•	
14.000	14.000	13.500	83.000	26.000	36.000	0.250	4	14.000	•	•	
16.000	16.000	15.500	92.000	32.000	42.000	0.350	4	16.000	•	•	
18.000	18.000	17.500	92.000	32.000	42.000	0.400	4	18.000	•	•	
20.000	20.000	19.500	104.000	38.000	52.000	0.450	4	20.000	•	•	
25.000	25.000	24.000	121.000	45.000	63.000	0.600	4	25.000	•	•	

# RF 100 U

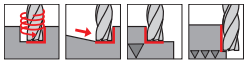
## set of Ratio end mills

can be found on page 122.



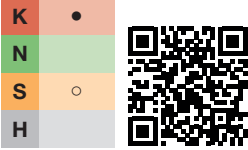
Article no. 5635 1,000 (page 122 in this brochure)  
 consisting of Article no. 5535,  
 1 piece each Ø 6 / 8 / 10 / 12 / 16 mm

## Standard Ratio end mills RF 100 U



**P** • **GUHRING NAVIGATOR**

**M** ○ Cutting data page 126

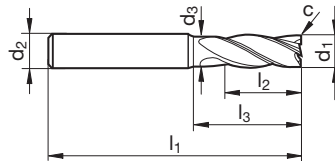


Tool material **Solid carbide**

Surface **F**

Type **N**

Shank form **HA**



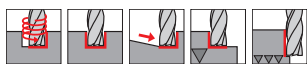
Article no. **5582**

Discount group **157**

d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
10.000	10.000	9.500	100.000	40.000	48.000	0.200	4	10.000	●
12.000	12.000	11.500	150.000	45.000	58.000	0.200	4	12.000	●
16.000	16.000	15.500	150.000	65.000	78.000	0.350	4	16.000	●
20.000	20.000	19.500	150.000	65.000	78.000	0.450	4	20.000	●
25.000	25.000	24.000	150.000	75.000	92.000	0.600	4	25.000	●



Ratio end mills RF 100 VA



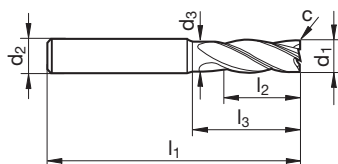
**P** • **GUHRING NAVIGATOR**

**M** • Cutting data page 126

- K**
- N** ○
- S** •
- H**



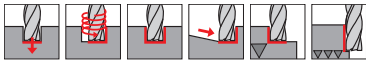
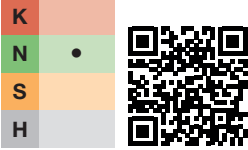
Tool material	Solid carbide	
Surface	a	a
Type	N	N
Shank form	HA	HB
	NEW	NEW



SL Milling cutters

									Article no.	5653	5654
									Discount group	157	157
d1 h10	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability		
mm	mm	mm	mm	mm	mm	mm x 45°					
3.000	6.000	2.800	57.000	8.000	15.000	0.100	4	3.000	●	●	
4.000	6.000	3.800	57.000	11.000	18.000	0.150	4	4.000	●	●	
5.000	6.000	4.800	57.000	13.000	18.000	0.150	4	5.000	●	●	
6.000	6.000	5.700	57.000	13.000	20.000	0.200	4	6.000	●	●	
8.000	8.000	7.700	63.000	19.000	26.000	0.250	4	8.000	●	●	
10.000	10.000	9.500	72.000	22.000	30.000	0.300	4	10.000	●	●	
12.000	12.000	11.500	83.000	26.000	36.000	0.350	4	12.000	●	●	
14.000	14.000	13.500	83.000	26.000	36.000	0.400	4	14.000	●	●	
16.000	16.000	15.500	92.000	32.000	42.000	0.500	4	16.000	●	●	
18.000	18.000	17.500	92.000	32.000	42.000	0.600	4	18.000	●	●	
20.000	20.000	19.500	104.000	38.000	52.000	0.600	4	20.000	●	●	
25.000	25.000	24.000	121.000	45.000	63.000	0.750	4	25.000	●	●	

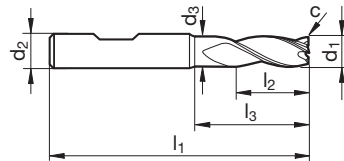
## Ratio end mills Alu RF 100 A


**P** **GUHRING NAVIGATOR**
**M** Cutting data page 126

 Tool material **Solid carbide**

Surface ○

Type W

Shank form HB


 Article no. **5655**

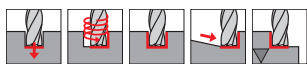
 Discount group **157**

d1 e8	d2 h6	d3	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm	mm x 45°			
3.000	6.000	2.800	57.000	8.000	15.000	0.030	3	3.000	●
4.000	6.000	3.800	57.000	11.000	18.000	0.040	3	4.000	●
5.000	6.000	4.800	57.000	13.000	18.000	0.050	3	5.000	●
6.000	6.000	5.700	57.000	13.000	20.000	0.060	3	6.000	●
8.000	8.000	7.700	63.000	19.000	26.000	0.080	3	8.000	●
10.000	10.000	9.500	72.000	22.000	30.000	0.100	3	10.000	●
12.000	12.000	11.500	83.000	26.000	36.000	0.120	3	12.000	●
16.000	16.000	15.500	92.000	32.000	42.000	0.160	3	16.000	●
20.000	20.000	19.500	104.000	38.000	52.000	0.200	3	20.000	●





Slot drills GH 100 U (3-fluted)



**P** • **GUHRING NAVIGATOR**

**M** • Cutting data page 124

**K** •

**N** •

**S** ○

**H**

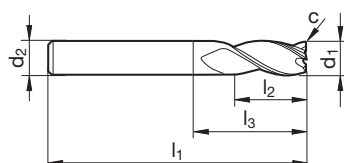


Tool material **Solid carbide**

Surface **F**

Type **NH**

Shank form **HA**

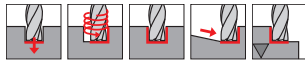


SL Milling cutters

Article no. **5505**

Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.000	50.000	4.000	7.900	0.050	3	3.000	●
4.000	6.000	54.000	5.000	8.900	0.060	3	4.000	●
5.000	6.000	54.000	6.000	11.400	0.080	3	5.000	●
6.000	6.000	54.000	7.000	18.000	0.090	3	6.000	●
8.000	8.000	58.000	9.000	22.000	0.120	3	8.000	●
9.000	10.000	66.000	10.000	19.400	0.140	3	9.000	●
10.000	10.000	66.000	11.000	26.000	0.150	3	10.000	●
12.000	12.000	73.000	12.000	28.000	0.180	3	12.000	●
16.000	16.000	82.000	16.000	34.000	0.190	3	16.000	●
20.000	20.000	92.000	20.000	42.000	0.240	3	20.000	●

**Slot drills GH 100 U (3-fluted)**

**P** • **GUHRING NAVIGATOR**
**M** • Cutting data page 124

**K** •

**N** •

**S** ○

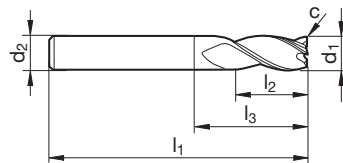
**H**

 Tool material **Solid carbide**

 Surface **F** **F**

Type NH NH

Shank form HA HB


 Article no. **5506** **5546**

 Discount group **157** **157**

d1 h10 mm	d2 h6 mm	l1 mm	l2 mm	l3 mm	c mm x 45°	Z	Code no.	Availability	
3.000	6.000	57.000	7.000	10.900	0.050	3	3.000	●	●
3.500	6.000	57.000	7.000	10.900	0.050	3	3.500	●	●
4.000	6.000	57.000	8.000	11.900	0.060	3	4.000	●	●
5.000	6.000	57.000	10.000	15.400	0.080	3	5.000	●	●
6.000	6.000	57.000	10.000	21.000	0.090	3	6.000	●	●
7.000	8.000	63.000	13.000	21.400	0.110	3	7.000	●	●
8.000	8.000	63.000	16.000	27.000	0.120	3	8.000	●	●
10.000	10.000	72.000	19.000	32.000	0.150	3	10.000	●	●
12.000	12.000	83.000	22.000	38.000	0.180	3	12.000	●	●
14.000	14.000	83.000	22.000	38.000	0.210	3	14.000	●	●
16.000	16.000	92.000	26.000	44.000	0.190	3	16.000	●	●
18.000	18.000	92.000	26.000	44.000	0.220	3	18.000	●	●
20.000	20.000	104.000	32.000	54.000	0.240	3	20.000	●	●



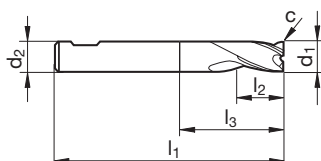
Mini slot drills (3-fluted)



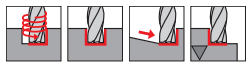
Tool material	<b>Solid carbide</b>
Surface	<b>F</b>
Type	NH
Shank form	HA/HB

**P** • **GUHRING NAVIGATOR**  
**M** • Cutting data page 124  
**K** ○  
**N** •  
**S** ○  
**H** ○

SL Milling cutters



Article no.								5574
Discount group								157
d1 e8	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
1.000	3.000	38.000	2.000	3.400	0.025	3	1.000	●
1.200	3.000	38.000	2.000	3.400	0.025	3	1.200	●
1.500	3.000	38.000	3.000	5.900	0.025	3	1.500	●
1.800	3.000	38.000	3.000	5.900	0.025	3	1.800	●
2.000	6.000	45.000	4.000	6.900	0.025	3	2.000	●
2.500	6.000	45.000	5.000	7.900	0.050	3	2.500	●
3.000	6.000	45.000	6.000	9.900	0.050	3	3.000	●
3.500	6.000	45.000	6.000	9.900	0.050	3	3.500	●
4.000	6.000	45.000	7.000	10.900	0.050	3	4.000	●
4.500	6.000	45.000	8.000	13.400	0.050	3	4.500	●
5.000	6.000	45.000	8.000	13.400	0.050	3	5.000	●
5.500	6.000	45.000	8.000	14.400	0.050	3	5.500	●
5.750	6.000	45.000	10.000	3.800	0.050	3	5.750	●
6.000	6.000	45.000	10.000	15.000	0.050	3	6.000	●
6.750	8.000	55.000	10.000	18.400	0.100	3	6.750	●
7.000	8.000	55.000	12.000	12.000	0.100	3	7.000	●
7.750	8.000	55.000	12.000	12.000	0.100	3	7.750	●
8.000	8.000	55.000	13.000	19.000	0.100	3	8.000	●
8.700	10.000	55.000	14.000	23.400	0.100	3	8.700	●
9.000	10.000	55.000	14.000	23.400	0.100	3	9.000	●
9.700	10.000	55.000	16.000	16.300	0.100	3	9.700	●
10.000	10.000	55.000	16.000	25.000	0.100	3	10.000	●

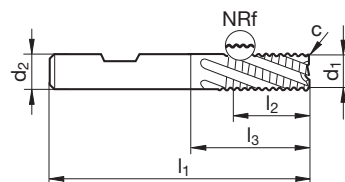
**Roughing end mills GS 100 U (fine teeth)**


<b>P</b>	•	<b>GUHRING NAVIGATOR</b> Cutting data page 126 
<b>M</b>	•	
<b>K</b>	•	
<b>N</b>	○	
<b>S</b>	○	
<b>H</b>		

 Tool material **Solid carbide**

 Surface **F**

 Type **NRf**

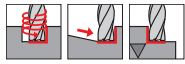
 Shank form **HB**

 Article no. **5504**

 Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
6.000	6.000	57.000	13.000	21.000	0.300	4	6.000	●
8.000	8.000	63.000	19.000	27.000	0.300	4	8.000	●
10.000	10.000	72.000	22.000	32.000	0.300	4	10.000	●
12.000	12.000	83.000	26.000	38.000	0.500	4	12.000	●
16.000	16.000	92.000	32.000	44.000	0.500	4	16.000	●
20.000	20.000	104.000	38.000	54.000	0.500	4	20.000	●



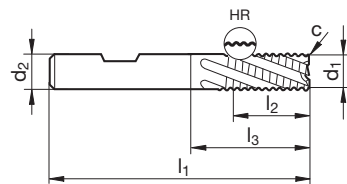
Hard roughing end mills GS 100 H (fine teeth)



**P** ○ **GUHRING NAVIGATOR**  
**M** □ Cutting data page 126  
**K** ●  
**N** □  
**S** □  
**H** ●



Tool material	<b>Solid carbide</b>
Surface	Ⓨ
Type	HR
Shank form	HB

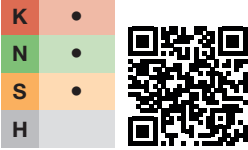


SL Milling cutters

Article no.	<b>5583</b>
Discount group	<b>157</b>

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
6.000	6.000	57.000	13.000	21.000	0.300	4	6.000	●
8.000	8.000	63.000	19.000	27.000	0.300	4	8.000	●
10.000	10.000	72.000	22.000	32.000	0.300	4	10.000	●
12.000	12.000	83.000	26.000	38.000	0.500	4	12.000	●
16.000	16.000	92.000	32.000	44.000	0.500	4	16.000	●
20.000	20.000	104.000	38.000	54.000	0.500	4	20.000	●

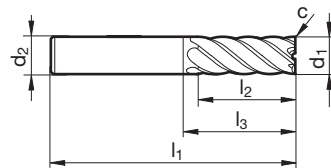
## Multi-tooth end mills GH 100 U


**P** • **GUHRING NAVIGATOR**
**M** • Cutting data page 124

 Tool material **Solid carbide**

 Surface **F** **F**

Type NH NH

Shank form HA HB


 Article no. **5745** **5545**

 Discount group **157** **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.000	57.000	8.000	11.400	0.050	6	3.000	●
4.000	6.000	57.000	11.000	15.900	0.050	6	4.000	●
5.000	6.000	57.000	13.000	17.900	0.050	6	5.000	●
6.000	6.000	57.000	13.000	21.000	0.050	6	6.000	● ●
8.000	8.000	63.000	19.000	27.000	0.100	6	8.000	● ●
10.000	10.000	72.000	22.000	32.000	0.100	6	10.000	● ●
12.000	12.000	83.000	26.000	38.000	0.100	6	12.000	● ●
16.000	16.000	92.000	32.000	44.000	0.150	6	16.000	● ●
20.000	20.000	104.000	38.000	54.000	0.150	8	20.000	● ●
25.000	25.000	121.000	45.000	65.000	0.200	10	25.000	●

## Multi-tooth end mills GH 100 U



**P** • **GUHRING NAVIGATOR**

**M** • Cutting data page 124

**K** •

**N** •

**S** •

**H** •

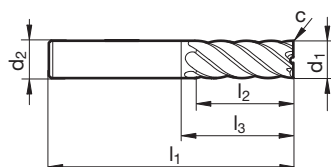


Tool material **Solid carbide**

Surface **F**

Type **NH**

Shank form **HA**



SL Milling cutters

Article no. **5729**

Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
6.000	6.000	75.000	30.000	39.000	0.050	6	6.000	●
8.000	8.000	100.000	40.000	64.000	0.100	6	8.000	●
10.000	10.000	100.000	40.000	60.000	0.100	6	10.000	●
12.000	12.000	150.000	45.000	105.000	0.100	6	12.000	●
16.000	16.000	150.000	65.000	102.000	0.150	6	16.000	●
20.000	20.000	150.000	65.000	100.000	0.150	8	20.000	●



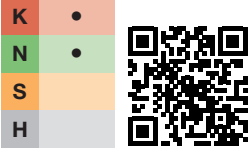
## Slot drills (2-fluted)


 Tool material **Solid carbide**

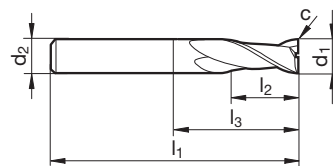
 Surface **F** **F**

Type N N

Shank form HA HB

**P** • **GUHRING NAVIGATOR**
**M** • Cutting data page 124


SL Milling cutters


 Article no. **5730** **5530**

 Discount group **157** **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability	
mm	mm	mm	mm	mm	mm x 45°				
2.000	6.000	57.000	6.000	9.400	0.025	2	2.000	•	•
3.000	6.000	57.000	7.000	11.900	0.050	2	3.000	•	•
4.000	6.000	57.000	8.000	13.400	0.050	2	4.000	•	•
5.000	6.000	57.000	10.000	16.900	0.050	2	5.000	•	•
6.000	6.000	57.000	10.000	21.000	0.050	2	6.000	•	•
8.000	8.000	63.000	16.000	27.000	0.100	2	8.000	•	•
10.000	10.000	72.000	19.000	32.000	0.100	2	10.000	•	•
12.000	12.000	83.000	22.000	38.000	0.100	2	12.000	•	•
16.000	16.000	92.000	26.000	44.000	0.150	2	16.000		•
20.000	20.000	104.000	32.000	54.000	0.150	2	20.000		•



XL slot drills (2-fluted)

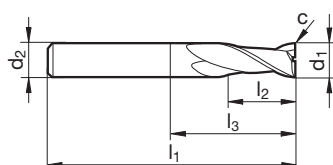


Tool material	<b>Solid carbide</b>
Surface	<b>F</b>
Type	N
Shank form	HA

**P** • **GUHRING NAVIGATOR**  
**M** • Cutting data page 124  
**K** •  
**N** •  
**S** •  
**H** •



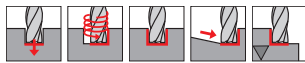
SL Milling cutters



Article no. **5549**

Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	3.000	75.000	20.000	47.000	0.050	2	3.000	●
4.000	4.000	75.000	25.000	47.000	0.050	2	4.000	●
5.000	5.000	75.000	30.000	47.000	0.050	2	5.000	●
6.000	6.000	75.000	30.000	39.000	0.050	2	6.000	●
8.000	8.000	100.000	40.000	64.000	0.100	2	8.000	●
10.000	10.000	100.000	40.000	60.000	0.100	2	10.000	●
12.000	12.000	150.000	45.000	105.000	0.100	2	12.000	●
16.000	16.000	150.000	65.000	102.000	0.150	2	16.000	●
20.000	20.000	150.000	65.000	100.000	0.150	2	20.000	●

**Al slot drills (2-fluted)**

**P** **GUHRING NAVIGATOR**
**M** Cutting data page 124

**K**
**N** •

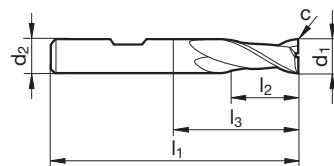
**S**
**H**

 Tool material **Solid carbide**

Surface ○

Type W

Shank form HB


 Article no. **5543**

 Discount group **157**

d1 e8	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	6.000	57.000	7.000	10.900	0.030	2	3.000	●
4.000	6.000	57.000	8.000	11.900	0.030	2	4.000	●
5.000	6.000	57.000	10.000	15.400	0.030	2	5.000	●
6.000	6.000	57.000	10.000	21.000	0.030	2	6.000	●
8.000	8.000	63.000	16.000	27.000	0.050	2	8.000	●
10.000	10.000	72.000	19.000	32.000	0.050	2	10.000	●
12.000	12.000	83.000	22.000	38.000	0.100	2	12.000	●
16.000	16.000	92.000	26.000	44.000	0.100	2	16.000	●
20.000	20.000	104.000	32.000	54.000	0.100	2	20.000	●

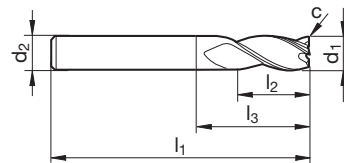


Slot drills (3-fluted)



Tool material	Solid carbide	
Surface	F	F
Type	N	N
Shank form	HA	HB

**P** • **GUHRING NAVIGATOR**  
**M** • Cutting data page 124  
**K** •  
**N** •  
**S** •  
**H** •



SL Milling cutters

								Article no.	5507	5531
								Discount group	157	157
d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability		
mm	mm	mm	mm	mm	mm x 45°					
2.000	6.000	57.000	6.000	10.400	0.025	3	2.000	•	•	
2.500	6.000	57.000	7.000	11.400	0.050	3	2.500	•		
3.000	6.000	57.000	7.000	11.400	0.050	3	3.000	•	•	
3.500	6.000	57.000	7.000	11.400	0.050	3	3.500	•		
4.000	6.000	57.000	8.000	13.900	0.050	3	4.000	•	•	
5.000	6.000	57.000	10.000	16.900	0.050	3	5.000	•	•	
6.000	6.000	57.000	10.000	21.000	0.050	3	6.000	•	•	
8.000	8.000	63.000	16.000	27.000	0.100	3	8.000	•	•	
10.000	10.000	72.000	19.000	32.000	0.100	3	10.000	•	•	
12.000	12.000	83.000	22.000	38.000	0.100	3	12.000	•	•	
14.000	14.000	83.000	22.000	38.000	0.150	3	14.000	•		
16.000	16.000	92.000	26.000	44.000	0.150	3	16.000	•	•	
20.000	20.000	104.000	32.000	54.000	0.150	3	20.000		•	

Mini slot drills (3-fluted)



Tool material **Solid carbide**

Surface **F**

Type **N**

Shank form **HA/HB**

**P** • **GUHRING NAVIGATOR**

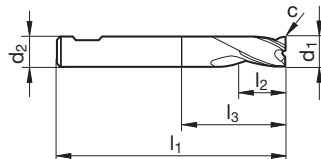
**M** • Cutting data page 124

**K** ○

**N** ○

**S** •

**H**



Article no. **5573**

Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
0.500	3.000	38.000	1.500	3.400	0.025	3	0.500	●
0.600	3.000	38.000	1.500	3.400	0.025	3	0.600	●
0.800	3.000	38.000	2.000	3.900	0.025	3	0.800	●
1.000	3.000	38.000	2.000	3.900	0.025	3	1.000	●
1.200	3.000	38.000	2.000	3.900	0.025	3	1.200	●
1.500	3.000	38.000	2.000	3.900	0.025	3	1.500	●
1.800	3.000	38.000	2.000	3.900	0.025	3	1.800	●
2.000	6.000	38.000	4.000	7.400	0.025	3	2.000	●
2.500	6.000	38.000	5.000	8.400	0.050	3	2.500	●
3.000	6.000	38.000	5.000	8.400	0.050	3	3.000	●
3.500	6.000	38.000	6.000	9.400	0.050	3	3.500	●
4.000	6.000	38.000	7.000	10.400	0.050	3	4.000	●
4.500	6.000	38.000	8.000	12.400	0.050	3	4.500	●
5.000	6.000	38.000	8.000	12.400	0.050	3	5.000	●
5.500	6.000	38.000	8.000	12.400	0.050	3	5.500	●
5.750	6.000	38.000	8.000	12.400	0.050	3	5.750	●
6.000	6.000	38.000	8.000	14.000	0.050	3	6.000	●
6.750	8.000	42.000	10.000	15.400	0.100	3	6.750	●
7.000	8.000	42.000	10.000	16.400	0.100	3	7.000	●
7.750	8.000	42.000	10.000	16.400	0.100	3	7.750	●
8.000	8.000	43.000	11.000	19.000	0.100	3	8.000	●
8.700	10.000	48.000	11.000	17.400	0.100	3	8.700	●
9.000	10.000	48.000	11.000	17.400	0.100	3	9.000	●
9.700	10.000	48.000	11.000	17.400	0.100	3	9.700	●
10.000	10.000	50.000	13.000	23.000	0.100	3	10.000	●
12.000	12.000	55.000	15.000	25.000	0.100	3	12.000	●
14.000	14.000	58.000	15.000	28.000	0.150	3	14.000	●
16.000	16.000	62.000	18.000	29.000	0.150	3	16.000	●
20.000	20.000	75.000	22.000	41.000	0.150	3	20.000	●

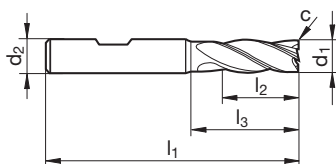


End mills (4-fluted)



Tool material	<b>Solid carbide</b>
Surface	<b>F</b>
Type	N
Shank form	HB

**P** • **GUHRING NAVIGATOR**  
**M** • Cutting data page 126  
**K** •  
**N** •  
**S** •  
**H** •



SL Milling cutters

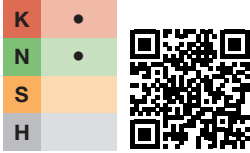
							Article no.	5532
							Discount group	157
d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
2.000	6.000	57.000	7.000	11.400	0.025	4	2.000	●
3.000	6.000	57.000	8.000	12.900	0.050	4	3.000	●
4.000	6.000	57.000	11.000	16.900	0.050	4	4.000	●
5.000	6.000	57.000	13.000	19.900	0.050	4	5.000	●
6.000	6.000	57.000	13.000	21.000	0.050	4	6.000	●
7.000	8.000	63.000	16.000	23.900	0.100	4	7.000	●
8.000	8.000	63.000	19.000	27.000	0.100	4	8.000	●
9.000	10.000	72.000	19.000	28.400	0.100	4	9.000	●
10.000	10.000	72.000	22.000	32.000	0.100	4	10.000	●
12.000	12.000	83.000	26.000	38.000	0.100	4	12.000	●
14.000	14.000	83.000	26.000	38.000	0.150	4	14.000	●
16.000	16.000	92.000	32.000	44.000	0.150	4	16.000	●
18.000	18.000	92.000	32.000	44.000	0.150	4	18.000	●
20.000	20.000	104.000	38.000	54.000	0.150	4	20.000	●

**XL end mills (4-fluted)**

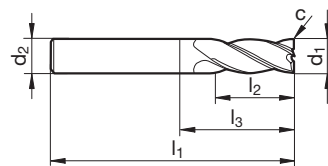
 Tool material **Solid carbide**

 Surface **F**

 Type **N**

 Shank form **HA**
**P** • **GUHRING NAVIGATOR**
**M** • Cutting data page 126


SL Milling cutters


 Article no. **5556**

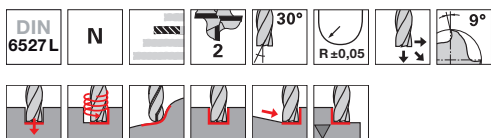
 Discount group **157**

d1 h10	d2 h6	l1	l2	l3	c	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm x 45°			
3.000	3.000	75.000	20.000	47.000	0.050	4	3.000	●
4.000	4.000	75.000	25.000	47.000	0.050	4	4.000	●
5.000	5.000	75.000	30.000	47.000	0.050	4	5.000	●
6.000	6.000	75.000	30.000	39.000	0.050	4	6.000	●
8.000	8.000	100.000	40.000	64.000	0.100	4	8.000	●
10.000	10.000	100.000	40.000	60.000	0.100	4	10.000	●
12.000	12.000	150.000	45.000	105.000	0.100	4	12.000	●
14.000	14.000	150.000	45.000	105.000	0.150	4	14.000	●
16.000	16.000	150.000	65.000	102.000	0.150	4	16.000	●
20.000	20.000	150.000	65.000	100.000	0.150	4	20.000	●





**Ball nose slot drills (2-fluted)**



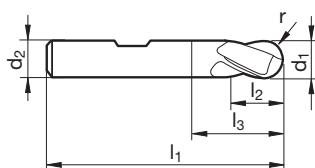
- P** •
- M** •
- K** •
- N** •
- S** •
- H** ○

**GUHRING NAVIGATOR**

Cutting data page 124

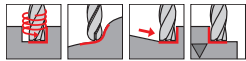
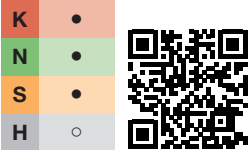


Tool material	Solid carbide	
Surface	F	F
Type	N	N
Shank form	HB	HA



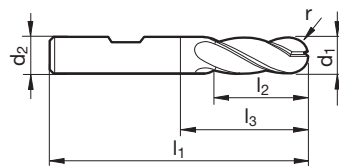
SL Milling cutters

								Article no.	5533	5585
								Discount group	157	157
d1 h10	d2 h6	l1	l2	l3	r	Z	Code no.	Availability		
mm	mm	mm	mm	mm	mm					
0.500	3.000	38.000	1.000	2.100	0.250	2	0.500		•	
1.000	3.000	38.000	2.000	3.900	0.500	2	1.000		•	
1.500	3.000	38.000	3.000	6.400	0.750	2	1.500		•	
2.000	6.000	57.000	6.000	9.400	1.000	2	2.000		•	
3.000	6.000	57.000	7.000	11.900	1.500	2	3.000		•	
4.000	6.000	57.000	8.000	13.400	2.000	2	4.000	•	•	
5.000	6.000	57.000	10.000	16.900	2.500	2	5.000	•	•	
6.000	6.000	57.000	10.000	21.000	3.000	2	6.000	•	•	
8.000	8.000	63.000	16.000	27.000	4.000	2	8.000	•	•	
10.000	10.000	72.000	19.000	32.000	5.000	2	10.000	•	•	
12.000	12.000	83.000	22.000	38.000	6.000	2	12.000	•	•	
20.000	20.000	104.000	32.000	54.000	10.000	2	20.000		•	

**Ball nose end mills (4-fluted)**

**P** • **GUHRING NAVIGATOR**
**M** • Cutting data page 124

 Tool material **Solid carbide**

 Surface **F**

 Type **N**

 Shank form **HB**

 Article no. **5584**

 Discount group **157**

d1 h10	d2 h6	l1	l2	l3	r	Z	Code no.	Availability
mm	mm	mm	mm	mm	mm			
3.000	6.000	57.000	8.000	12.400	1.500	4	3.000	●
4.000	6.000	57.000	11.000	15.900	2.000	4	4.000	●
5.000	6.000	57.000	13.000	19.400	2.500	4	5.000	●
6.000	6.000	57.000	13.000	21.000	3.000	4	6.000	●
8.000	8.000	63.000	19.000	27.000	4.000	4	8.000	●
10.000	10.000	72.000	22.000	32.000	5.000	4	10.000	●
12.000	12.000	83.000	26.000	38.000	6.000	4	12.000	●
20.000	20.000	104.000	38.000	54.000	10.000	4	20.000	●



Chamfering milling cutters



**P** • **GUHRING NAVIGATOR**  
**M** • Cutting data page 126  
**K** •  
**N** •  
**S** •  
**H** ○



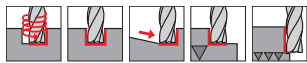
Tool material	Solid carbide	
Surface	<b>A</b>	<b>A</b>
Type	N	N
Shank form	HA	HB
	<b>NEW</b>	<b>NEW</b>



SL Milling cutters

						Article no.	5578	5579
						Discount group	157	157
d1 js9	d2 h6	l1	l2	Z	Code no.	Availability		
mm	mm	mm	mm					
4.000	4.000	50.000	2.000	4	4.000	•		
6.000	6.000	57.000	3.000	4	6.000	•	•	
8.000	8.000	63.000	4.000	4	8.000	•	•	
10.000	10.000	72.000	5.000	4	10.000	•	•	
12.000	12.000	83.000	6.000	4	12.000	•	•	

Ratio end mill sets RF 100 U



P	•
M	○
K	•
N	•
S	○
H	•

SL Milling cutters

Tool material **Solid carbide**

Surface **F**

Type **N**

Shank form **HB**



Article no. **5635**

Discount group **157**

Ø-range	Pieces/set	Code no.	Availability
mm	Piece		
6.0/8.0/10.0/12.0/16.0	5	1.000	•

# Guhring GM 300

**|GÜHROJET|**

Tool holders with peripheral cooling

An Overview and Selection Guide can be found on page 138.



**GÜHRING**NAVIGATOR Milling cutters

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

ae = Width of cut

ap = Depth of cut

**Slot milling**

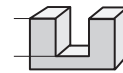
Art. no.	Tool material	Type	monol. TK	
			N	N
DIN 6527	HA	HA	<b>5730</b>	<b>5507</b>
DIN 6527	HB	HB	<b>5530</b>	<b>5531</b>
Company std.	HA	HA		
Company std.	HB	HB		

\* For large cutting depths on unstable machines fz and vc 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°.

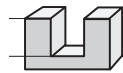


ae = 1xD

ae = 1xD



ap = 0,5 x D



ap = 0,5 x D

Cutter-Ø mm	Feed column no.															
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	fz (mm/tooth)															
<b>2,00</b>	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
<b>3,00</b>	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
<b>5,00</b>	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
<b>6,00</b>	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
<b>8,00</b>	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
<b>10,00</b>	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
<b>12,00</b>	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
<b>16,00</b>	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
<b>20,00</b>	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
<b>25,00</b>	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	Tensile str. N/mm²	Hardness	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.
Common structural steels	1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0425 P265GH	≤500		85 - 105	<b>42</b>	85 - 105	<b>42</b>
	1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤1000		81 - 99	<b>41</b>	81 - 99	<b>41</b>
Free-cutting steels	1.0718 11SMnPb30, 1.0736 11SMn37	≤850		85 - 105	<b>41</b>	85 - 105	<b>41</b>
	1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤1000		63 - 77	<b>42</b>	63 - 77	<b>42</b>
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E	≤700		85 - 105	<b>41</b>	85 - 105	<b>41</b>
	1.0503 C45, 1.1191 C45E	≤850		76 - 94	<b>41</b>	76 - 94	<b>41</b>
	1.0601 C60, 1.1221 C60E	≤1000		63 - 77	<b>42</b>	63 - 77	<b>42</b>
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	≤1000		76 - 94	<b>42</b>	76 - 94	<b>42</b>
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1400		63 - 77	<b>42</b>	63 - 77	<b>42</b>
Unalloyed case hard. steels	1.0301 C10, 1.1121 C10E	≤850		90 - 110	<b>41</b>	90 - 110	<b>41</b>
Alloyed case hardened steels	1.7043 38Cr4	≤1000		76 - 94	<b>41</b>	76 - 94	<b>41</b>
	1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1400		54 - 66	<b>42</b>	54 - 66	<b>42</b>
Nitriding steels	1.8504 34CrAl6	≤1000		85 - 105	<b>41</b>	85 - 105	<b>41</b>
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1400		76 - 94	<b>40</b>	76 - 94	<b>40</b>
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		76 - 94	<b>41</b>	76 - 94	<b>41</b>
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6	≤1400		63 - 77	<b>40</b>	63 - 77	<b>40</b>
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		45 - 55	<b>42</b>	45 - 55	<b>42</b>
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4		≤350 HB	45 - 55	<b>40</b>		
Hardened steels	-		≤48 HRC	45 - 55	<b>40</b>		
	-		≤66 HRC				
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17	≤900		45 - 55	<b>42</b>	45 - 55	<b>42</b>
	1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10	≤1100		40 - 50	<b>40</b>	40 - 50	<b>40</b>
	1.4057 X20CrNi17-2, 1.4122 X39CrMo17-1	≤1500		36 - 44	<b>41</b>	36 - 44	<b>41</b>
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	108 - 132	<b>41</b>	108 - 132	<b>41</b>
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤350 HB	99 - 121	<b>40</b>	99 - 121	<b>40</b>
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	90 - 110	<b>41</b>	90 - 110	<b>41</b>
	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤350 HB	81 - 99	<b>40</b>	81 - 99	<b>40</b>
Chilled cast iron	-		≤350 HB	54 - 66	<b>40</b>	54 - 66	<b>40</b>
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)		≤220 HB				
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤300 HB				
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	≤1000					
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1400					
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		27 - 33	<b>40</b>	27 - 33	<b>40</b>
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		45 - 55	<b>40</b>	45 - 55	<b>40</b>
	3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5	≤1400		36 - 44	<b>40</b>	36 - 44	<b>40</b>
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		405 - 495	<b>43</b>		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si	≤650		495 - 605	<b>43</b>		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		198 - 242	<b>42</b>		
	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		162 - 198	<b>43</b>		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		225 - 275	<b>44</b>		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		108 - 132	<b>43</b>		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		90 - 110	<b>43</b>		
	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		81 - 99	<b>42</b>		
Bronze, short-chipping	2.1090 CuSn7Zn19Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		90 - 110	<b>42</b>		
	2.0790 CuNi18Zn19Pb	≤850		72 - 88	<b>41</b>		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		72 - 88	<b>42</b>		
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		63 - 77	<b>40</b>		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		108 - 132	<b>40</b>		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		99 - 121	<b>40</b>		
Kevlar	Kevlar	≤1000					
Glass, carbon concentr. plastics	GFK/CFK	≤1000					

1xD = 75%  
1,5xD = 50%

1xD = 75%  
1,5xD = 50%





**GÜHRING**NAVIGATOR Milling cutters

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

ae = Width of cut

ap = Depth of cut

SL Milling cutters

**Roughing**

Article no.	Tool material	Sol. carb.	
		N	N
DIN 6527	HA	<b>5735*</b>	<b>5582</b>
DIN 6527	HB	<b>5535*</b>	<b>5534*</b>
Company std.	HA		

\* 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%.

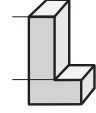
**RF100**  
54HRC

**RF100**



ae = 0.5-1.0xD

ae = 0.25xD



ap = 1xD

ap = 2xD

Cutter-Ø mm	Feed column no.															
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
	fz (mm/tooth)															
<b>2,00</b>	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
<b>3,00</b>	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
<b>5,00</b>	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
<b>6,00</b>	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
<b>8,00</b>	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
<b>10,00</b>	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
<b>12,00</b>	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
<b>16,00</b>	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
<b>20,00</b>	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
<b>25,00</b>	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	Tensile str. N/mm²	Hardness	Vc m/min	Feed col. no.	Vc m/min	Feed col. no.
Common structural steels	<b>1.0035</b> S185, <b>1.0486</b> P275N, <b>1.0345</b> P235GH, <b>1.0425</b> P265GH	≤500		170 - 208	<b>51</b>	110 - 136	<b>47</b>
	<b>1.0050</b> E295, <b>1.0070</b> E360, <b>1.8937</b> P500NH	≤1000		157 - 193	50	102 - 126	<b>46</b>
Free-cutting steels	<b>1.0718</b> 11SMnPb30, <b>1.0736</b> 11SMn37	≤850		170 - 208	50	110 - 136	<b>46</b>
	<b>1.0727</b> 46 S20, <b>1.0728</b> 60 S20, <b>1.0757</b> 46SPb20	≤1000		126 - 154	<b>49</b>	81 - 101	<b>45</b>
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E	≤700		170 - 208	50	110 - 136	<b>46</b>
	<b>1.0503</b> C45, <b>1.1191</b> C45E	≤850		151 - 185	50	98 - 120	<b>46</b>
	<b>1.0601</b> C60, <b>1.1221</b> C60E	≤1000		126 - 154	<b>49</b>	81 - 101	<b>45</b>
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4	≤1000		151 - 185	<b>49</b>	98 - 120	<b>45</b>
	<b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1400		126 - 154	<b>48</b>	81 - 101	<b>44</b>
Unalloyed case hard. steels	<b>1.0301</b> C10, <b>1.1121</b> C10E	≤850		189 - 231	50	123 - 151	<b>46</b>
Alloyed case hardened steels	<b>1.7043</b> 38Cr4	≤1000		151 - 185	<b>50</b>	98 - 120	<b>46</b>
	<b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1400		113 - 139	<b>49</b>	73 - 91	<b>45</b>
Nitriding steels	<b>1.8504</b> 34CrAl6	≤1000		170 - 208	<b>50</b>	110 - 136	<b>46</b>
	<b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1400		151 - 185	<b>48</b>	98 - 120	44
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9	≤850		151 - 185	50	98 - 120	<b>46</b>
	<b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6	≤1400		126 - 154	<b>48</b>	81 - 101	<b>44</b>
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400		94 - 116	<b>49</b>	61 - 75	45
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4		≤350 HB	94 - 116	<b>48</b>		
Hardened steels	-		≤48 HRC	44 - 54	<b>46</b>		
	-		≤66 HRC				
Stainless steels, sulphured	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17	≤900		80 - 100	49	60 - 80	45
	<b>1.4301</b> X5CrNi18-10, <b>1.4541</b> X6CrNiTi18-10	≤1100		70 - 90	48	55 - 75	44
	<b>1.4057</b> X20CrNi17-2, <b>1.4122</b> X39CrMo17-1	≤1500		65 - 70	<b>49</b>	50 - 65	45
Cast iron	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20)		≤240 HB	220 - 270	50	143 - 175	46
	<b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)		≤350 HB	201 - 247	<b>49</b>	131 - 161	45
Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35)		≤240 HB	182 - 224	50	118 - 146	46
	<b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤350 HB	157 - 193	<b>49</b>	102 - 126	45
Chilled cast iron	-		≤350 HB	107 - 131	<b>47</b>	69 - 85	43
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35)		≤220 HB				
	<b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		≤300 HB				
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000)	≤1000					
	<b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1400					
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		56 - 70	<b>48</b>		
Ti and Ti-alloys	<b>3.7024</b> Ti99.5, <b>3.7114</b> TiAl5Sn2.5, <b>3.7124</b> TiCu2	≤850		54 - 86	43	61 - 75	44
	<b>3.7154</b> TiAl6Zr5, <b>3.7164</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2.5	≤1400		44 - 72	<b>42</b>	49 - 61	43
Aluminium and Al-alloys	<b>3.0255</b> Al99.5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400				300 - 380	47
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si	≤650				370 - 440	47
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600				150 - 185	45
	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600				115 - 145	46
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400				175 - 215	47
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500				80 - 100	46
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600				75 - 95	45
	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0.5	≤600				60 - 75	45
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600				75 - 95	45
	<b>2.0790</b> CuNi18Zn19Pb	≤850				55 - 70	44
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10	≤850					
	<b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤1000					
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150					
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100					
Kevlar	Kevlar	≤1000					
Glass, carbon concentr. plastics	GFK/CFK	≤1000					

ap 1,5xD = 50%      ap 0,5xD = 75%  
 ae 0,25xD = 150%      ap 2xD = 50%





Finishing

Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.	Sol. carb.
N	W	NRf	HR	N	N	N	N	N
5653				5735	5582		5556	
5654	5655	5504**	5583**	5535 5534		5532		5578
								5579

RF100VA

RF100Alu

54HRC

RF100  
54HRC

RF100



$a_e = 0.5-1.0xD$

$a_e = 0.5-1.0xD$

$a_e = 0.5-1.0xD$

$a_e = 0.5-1.0xD$

$a_e = 0.1xD$

$a_e = 0.1xD$

$a_e = 0.1xD$

$a_e = 0.1xD$

$a_e = 0.1xD$



$a_p = 1xD$

$a_p = 1xD$

$a_p = 1xD$

$a_p = 1xD$

$a_p = 1xD$

$a_p = 2xD$

$a_p = 1xD$

$a_p = 2xD$

$a_p = 1xD$

Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed	Vc	Feed
m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.	m/min	col. no.
170 - 208	49			97 - 119	43			212 - 260	49	139 - 171	44	157 - 193	48	103 - 127	43	170 - 208	51
157 - 193	48			90 - 110	42			194 - 238	48	127 - 157	43	144 - 176	47	94 - 116	42	157 - 193	50
170 - 208	48			97 - 119	42			212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42	170 - 208	50
126 - 154	47			72 - 88	41			158 - 194	47	109 - 135	42	117 - 143	46	81 - 99	41	126 - 154	49
170 - 208	48			97 - 119	42			212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42	170 - 208	50
151 - 185	48			86 - 106	42			194 - 238	48	121 - 149	43	144 - 176	47	90 - 110	42	151 - 185	50
126 - 154	47			72 - 88	41			158 - 194	47	103 - 127	42	117 - 143	46	76 - 94	41	126 - 154	49
151 - 185	47			86 - 106	41			188 - 230	47	121 - 149	42	139 - 171	46	90 - 110	41	151 - 185	49
126 - 154	46			72 - 88	40	72 - 88	39	158 - 194	46	103 - 127	41	117 - 143	45	76 - 94	40	126 - 154	48
189 - 231	48			108 - 132	42			236 - 290	48	134 - 164	43	175 - 215	47	99 - 121	42	189 - 231	50
151 - 185	48			86 - 106	42	86 - 106	41	188 - 230	48	121 - 149	43	139 - 171	47	90 - 110	42	151 - 185	50
113 - 139	47			64 - 80	41	64 - 80	40	139 - 171	47	90 - 112	42	103 - 127	46	67 - 83	41	113 - 139	49
170 - 208	48			97 - 119	42	97 - 119	41	212 - 260	48	139 - 171	43	157 - 193	47	103 - 127	42	170 - 208	50
151 - 185	46			86 - 106	40	86 - 106	39	194 - 238	46	121 - 149	41	144 - 176	45	90 - 110	40	151 - 185	48
151 - 185	48			86 - 106	42	86 - 106	41	188 - 230	48	121 - 149	43	139 - 171	47	90 - 110	42	151 - 185	50
126 - 154	46			72 - 88	40	72 - 88	39	158 - 194	46	103 - 127	41	117 - 143	45	76 - 94	40	126 - 154	48
94 - 116	47					54 - 66	47	121 - 149	47	79 - 97	42	90 - 110	46	58 - 72	41	94 - 116	49
67 - 83	46					54 - 66	26	121 - 149	46							94 - 116	48
31 - 39	44			25 - 31	38	25 - 31	38	61 - 75	44							44 - 54	46
						18 - 22	38										
80 - 120	47			54 - 66	41			121 - 149	47	72 - 90	44	90 - 110	46			80 - 100	49
70 - 90	46			46 - 58	40			103 - 127	46	62 - 75	43	76 - 94	45			70 - 90	48
50 - 70	47			43 - 53	41	43 - 53	40	97 - 119	47	58 - 72	44	72 - 88	46			65 - 70	49
				126 - 154	44	126 - 154	42	255 - 313	48	182 - 224	43	189 - 231	47	135 - 165	42	220 - 270	50
				115 - 141	43	115 - 141	41	255 - 313	47	163 - 201	42	189 - 231	46	121 - 149	41	201 - 247	49
				104 - 128	44	104 - 128	42	231 - 283	48	152 - 186	43	171 - 209	47	112 - 138	42	182 - 224	50
				90 - 110	43	90 - 110	41	194 - 238	47	127 - 157	42	144 - 176	46	94 - 116	41	157 - 193	49
						61 - 75	39	134 - 164	45			99 - 121	44			107 - 131	47
40 - 50	46			32 - 40	42			72 - 90	46			54 - 66	45			56 - 70	48
67 - 83	46			54 - 66	41			121 - 149	46	79 - 97	41	90 - 110	45	58 - 72	40	54 - 86	43
54 - 66	45			43 - 53	40			97 - 119	45	61 - 75	40	72 - 88	44	45 - 55	39	44 - 72	42
		810 - 990	50							220 - 280	46	765 - 935	50	450 - 550	45	342 - 418	51
		720 - 880	50							250 - 300	45					414 - 506	50
		405 - 495	48							220 - 250	44	373 - 457	48	225 - 275	43	165 - 203	49
117 - 143	45			324 - 396	49					200 - 240	45	306 - 374	49	180 - 220	44		
		450 - 550	50							210 - 260	46					197 - 241	51
		216 - 264	49							110 - 120	45	198 - 242	49	135 - 165	44	93 - 115	50
				117 - 143	44	117 - 143	42			100 - 120	44	180 - 220	48	108 - 132	43	82 - 102	49
				162 - 198	48	94 - 116	44			90 - 110	44	144 - 176	48	90 - 110	43	77 - 95	49
				198 - 242	48	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			153 - 187	47											72 - 90	48
54 - 66	42			126 - 154	46	72 - 90	42										
81 - 99	42			216 - 264	46											93 - 115	47
72 - 88	42			198 - 242	46											82 - 102	47

$a_p 0,5xD = 120\%$   
 $a_p 2xD = 50\%$

$a_p 0,5xD = 120\%$   
 $a_p 2xD = 50\%$

$a_p 1,5xD = 50\%$   
 $a_e 0,25xD = 140\%$

$a_p 0,5xD = 120\%$

$a_p 2xD = 50\%$

$a_p 3xD = 50\%$

$a_p 2xD = 50\%$

$a_p 3xD = 50\%$

$a_p 2xD = 50\%$

SL Milling cutters





REAMERS



NC machine reamers



<b>P</b>	•	Ø > 3.75 mm with extremely unequal flute spacing • ≤ Ø 5.50 mm: 0.000/+0.004 • > Ø 5.50 mm: 0.00/+0.005
<b>M</b>	○	
<b>K</b>	•	
<b>N</b>	•	
<b>S</b>	•	
<b>H</b>	52	

Tool material **Solid carbide**

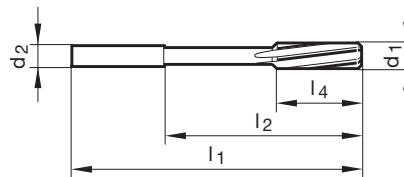
Surface ○

Form B

Shank form HA

**GÜHRING** NAVIGATOR

Cutting data page 132



Article no. **5527**

Discount group **154**

d1	d2 h6	l1	l2	l4	Z	Code no.	Availability
mm	mm	mm	mm	mm			
0.980	4.000	50.000	22.000	6.000	3	0.980	●
0.990	4.000	50.000	22.000	6.000	3	0.990	●
1.000	4.000	50.000	22.000	6.000	3	1.000	●
1.010	4.000	50.000	22.000	6.000	3	1.010	●
1.020	4.000	50.000	22.000	6.000	3	1.020	●
1.030	4.000	50.000	22.000	9.000	3	1.030	●
1.480	4.000	50.000	22.000	9.000	3	1.480	●
1.490	4.000	50.000	22.000	9.000	3	1.490	●
1.500	4.000	50.000	22.000	9.000	3	1.500	●
1.510	4.000	50.000	22.000	9.000	3	1.510	●
1.520	4.000	50.000	22.000	9.000	3	1.520	●
1.530	4.000	50.000	22.000	9.000	3	1.530	●
1.980	4.000	50.000	22.000	12.000	4	1.980	●
1.990	4.000	50.000	22.000	12.000	4	1.990	●
2.000	4.000	50.000	22.000	12.000	4	2.000	●
2.010	4.000	50.000	22.000	12.000	4	2.010	●
2.020	4.000	50.000	22.000	12.000	4	2.020	●
2.030	4.000	50.000	22.000	12.000	4	2.030	●
2.480	4.000	60.000	32.000	16.000	4	2.480	●
2.490	4.000	60.000	32.000	16.000	4	2.490	●
2.500	4.000	60.000	32.000	16.000	4	2.500	●
2.510	4.000	60.000	32.000	16.000	4	2.510	●
2.520	4.000	60.000	32.000	16.000	4	2.520	●
2.530	4.000	60.000	32.000	16.000	4	2.530	●
2.970	4.000	64.000	36.000	17.000	6	2.970	●
2.980	4.000	64.000	36.000	17.000	6	2.980	●
2.990	4.000	64.000	36.000	17.000	6	2.990	●
3.000	4.000	64.000	36.000	17.000	6	3.000	●
3.010	4.000	64.000	36.000	17.000	6	3.010	●
3.020	4.000	64.000	36.000	17.000	6	3.020	●



Article no. 5527							Availability
Discount group 154							
d1	d2 h6	l1	l2	l4	Z	Code no.	
mm	mm	mm	mm	mm			
3.030	4.000	64.000	36.000	17.000	6	3.030	●
3.970	4.000	77.000	45.000	21.000	6	3.970	●
3.980	4.000	77.000	45.000	21.000	6	3.980	●
3.990	4.000	77.000	45.000	21.000	6	3.990	●
4.000	4.000	77.000	45.000	21.000	6	4.000	●
4.010	4.000	77.000	45.000	21.000	6	4.010	●
4.020	4.000	77.000	45.000	21.000	6	4.020	●
4.030	4.000	77.000	45.000	21.000	6	4.030	●
4.970	6.000	93.000	59.000	26.000	6	4.970	●
4.980	6.000	93.000	59.000	26.000	6	4.980	●
4.990	6.000	93.000	59.000	26.000	6	4.990	●
5.000	6.000	93.000	59.000	26.000	6	5.000	●
5.010	6.000	93.000	59.000	26.000	6	5.010	●
5.020	6.000	93.000	59.000	26.000	6	5.020	●
5.030	6.000	93.000	59.000	26.000	6	5.030	●
5.970	6.000	93.000	57.000	26.000	6	5.970	●
5.980	6.000	93.000	57.000	26.000	6	5.980	●
5.990	6.000	93.000	57.000	26.000	6	5.990	●
6.000	6.000	93.000	57.000	26.000	6	6.000	●
6.010	6.000	93.000	57.000	26.000	6	6.010	●
6.020	6.000	93.000	57.000	26.000	6	6.020	●
6.030	6.000	93.000	57.000	26.000	6	6.030	●
7.000	8.000	109.000	69.000	31.000	6	7.000	●
7.970	8.000	117.000	75.000	33.000	6	7.970	●
7.980	8.000	117.000	75.000	33.000	6	7.980	●
7.990	8.000	117.000	75.000	33.000	6	7.990	●
8.000	8.000	117.000	75.000	33.000	6	8.000	●
8.010	8.000	117.000	75.000	33.000	6	8.010	●
8.020	8.000	117.000	75.000	33.000	6	8.020	●
8.030	8.000	117.000	75.000	33.000	6	8.030	●
8.040	8.000	117.000	75.000	33.000	6	8.040	●
9.000	10.000	125.000	81.000	36.000	6	9.000	●
9.970	10.000	133.000	87.000	38.000	6	9.970	●
9.980	10.000	133.000	87.000	38.000	6	9.980	●
9.990	10.000	133.000	87.000	38.000	6	9.990	●
10.000	10.000	133.000	87.000	38.000	6	10.000	●
10.010	10.000	133.000	87.000	38.000	6	10.010	●
10.020	10.000	133.000	87.000	38.000	6	10.020	●
10.030	10.000	133.000	87.000	38.000	6	10.030	●
10.040	10.000	133.000	87.000	38.000	6	10.040	●
10.050	10.000	133.000	87.000	38.000	6	10.050	●
11.970	12.000	151.000	105.000	44.000	6	11.970	●
11.980	12.000	151.000	105.000	44.000	6	11.980	●
11.990	12.000	151.000	105.000	44.000	6	11.990	●
12.000	12.000	151.000	105.000	44.000	6	12.000	●
12.010	12.000	151.000	105.000	44.000	6	12.010	●
12.020	12.000	151.000	105.000	44.000	6	12.020	●
12.030	12.000	151.000	105.000	44.000	6	12.030	●
12.040	12.000	151.000	105.000	44.000	6	12.040	●
12.050	12.000	151.000	105.000	44.000	6	12.050	●

SL Reamers

Solid carbide reamer with  
**H7 tolerance**



Article no. 1449

can be found in Guhring's main programme.

# GÜHRING NAVIGATOR

## NC chucking reamers

Article no. HB	5527
Standard/DIN	Company std.
Tool material	Carbide
Carbide grade	K10
Shank form	cyl.
Surface	○
Std. range page	130

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

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

SL Reamers

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:

- Air
- Neat oil
- Soluble oil



Material group	Material examples, new description (old description in brackets) Figures in bold = material no. to DIN EN	Tensile str. N/mm <sup>2</sup>	Hard- ness	Cool- ant	V <sub>c</sub> m/min	Feed column no.	
Common structural steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 ≤1000		○ ○	18 16	<b>72</b> <b>72</b>	
	Free-cutting steels	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 ≤1000		○ ○	18 16	<b>72</b> <b>72</b>
Unalloyed heat-treatable steels		<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤700 ≤850 ≤1000		○ ○ ○	18 16 14	<b>71</b> <b>72</b> <b>71</b>
	Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	≤1000 ≤1400		○ ○	14 12	<b>71</b> <b>71</b>
		Unalloyed case hard. steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤850	○	18	<b>71</b>
Alloyed case hardened steels	<b>1.7276</b> 10CrMo11, <b>1.5125</b> 11MnSi6 <b>1.5752</b> 15NiCr13, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	≤1000 ≤1400		● ●	14 12	<b>71</b> <b>71</b>	
	Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≤1000 ≤1400		○ ●	14 12	<b>71</b> <b>71</b>
Tool steels		<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 ≤1400		○ ●	12 10	<b>71</b> <b>71</b>
	High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≤1400	●	10	<b>71</b>	
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤350 HB	●			
Hardened steels	-		≤48 HRC ≤66 HRC	● ●	6	<b>71</b>	
	Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.86681</b> X6CrMoS17, <b>1.4305</b> <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi <b>1.4057</b> X20CrNi172 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b>	≤900 ≤1100 ≤1500		● ● ●	8 6 6	<b>71</b> <b>71</b> <b>71</b>
Cast iron		<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤240 HB ≤350 HB	○ ○	20 18	<b>71</b> <b>71</b>	
		Spheroidal graphite iron and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤240 HB ≤350 HB	○ ○	20 18	<b>71</b> <b>71</b>
Chilled cast iron	-		≤350 HB	○			
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		≤220 HB ≤300 HB	○ ○	16 16	<b>71</b> <b>71</b>	
	New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	≤1000 ≤1400	○ ○	12 12	<b>71</b> <b>71</b>	
Special alloys		Nimonic, Inconel, Monel, Hastelloy	≤2000	●	6	<b>71</b>	
Ti and Ti-alloys	<b>3.7024</b> Ti99.5, <b>3.7114</b> TiAl5Sn2.5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2.5, - TiAl8Mo1V1	≤850 ≤1400		● ●	10 10	<b>71</b> <b>71</b>	
	Aluminium and Al-alloys	<b>3.0255</b> Al99.5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400	○	30	<b>73</b>	
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1.5	≤650		○	30	<b>73</b>	
Al cast alloys ≤ 10 % Si ≤ 24 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		○ ○	40 30	<b>72</b> <b>72</b>	
	Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤400	○	25	<b>72</b>	
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤500		○	25	<b>72</b>	
Brass, short-chipping long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0.5	≤600 ≤600		○ ○	35 30	<b>72</b> <b>72</b>	
	Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 ≤850		○ ●	35 30	<b>72</b> <b>72</b>
Bronze, long-chipping		<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 ≤1000		○ ●	30 25	<b>72</b> <b>72</b>
	Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150	○	20	<b>73</b>	
	Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100	○	20	<b>73</b>	
Kevlar	Kevlar	≤1000	○				
Glass, carbon concentr. plastics	GFK/CFK	≤1000	○				



# RE-GRINDING & RE-COATING



**SL re-grind service**

Diameter	SL drilling tools				SL reaming tools	
	Solid carbide Ratio drill RT 100	Solid carbide Ratio drill RT 150	Solid carbide Ratio drill FT 200	Solid carbide Ratio drill type N	Solid carbide NC reamer	
	€ / item	€ / Item	€ / Item	€ / Item	Bevel lead € / Item	Bevel lead + face grinding € / Item
6.00	•	•	•	•	•	•
8.00	•	•	•	•	•	•
10.00	•	•	•	•	•	•
12.00	•	•	•	•	•	•
14.00	•	•	•	•	•	•
16.00	•	•	•	•	•	•
18.00	•	•	•	•	•	•
20.00	•	•	•	•	•	•

**SL re-grind service**

Diameter	SL milling tools			
	Solid carbide end mills up to 4 cutting edges	Sol. carb. roughing milling cutters up to 4 cutting edges	Solid carbide Ratio end mills up to 4 cutting edges	Solid carbide radius cutters
	€ / Item	€ / Item	€ / Item	€ / Item
6.00	•	•	•	•
8.00	•	•	•	•
10.00	•	•	•	•
12.00	•	•	•	•
14.00	•	•	•	•
16.00	•	•	•	•
18.00	•	•	•	•
20.00	•	•	•	•

**SL re-coating service**

Diameter	All SL tools up to 7 x D			5525
	Coating with			Head coating with
	TiN, TiCN, TiAlN	Fire, nanoFire, nanoA	Signum	Fire
€ / Item	€ / Item	€ / Item	€ / Item	
6.00	•	•	•	•
8.00	•	•	•	•
10.00	•	•	•	•
12.00	•	•	•	•
14.00	•	•	•	•
16.00	•	•	•	•
18.00	•	•	•	•
20.00	•	•	•	•

Re-grind and  
re-coating centres

# EUROPE

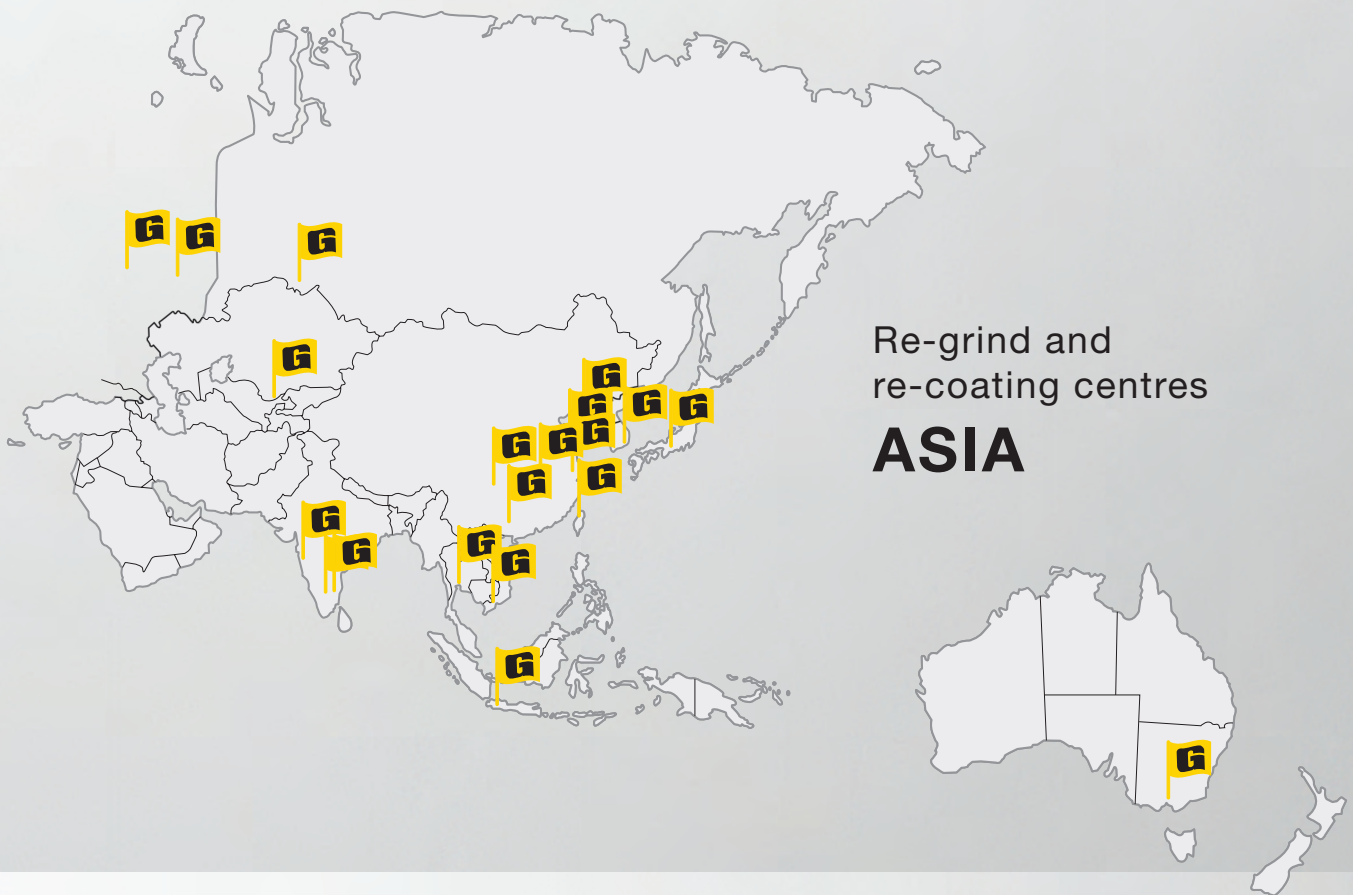


## Germany

Albstadt Werk II	Sigmaringer Str. 160, 72458 Albstadt · ☎ +49 (0) 74 31 17 0 · info@guehring.de · www.guehring.de
Chemnitz	Röhrsdorfer Allee 39, 09247 Röhrsdorf/Chemnitz · ☎ +49 (0) 37 22 50 40 · info@guehring.de · www.guehring.de
Eisenach	Industriestrasse 3, 99820 Hörselberg-Hainich · ☎ +49 (0) 36 92 0701 · info@guehring.de · www.guehring.de
Ramstein-Miesenbach	Robert-Bosch-Straße 7, 66877 Ramstein-Miesenbach · ☎ +49 (0) 63 71 40 69 894 · info@guehring.de · www.guehring.de
Leverkusen	Campusallee 18, Halle 3.1, 51381 Leverkusen · ☎ +49 (0) 21 71 36 33 5-0 · info@guehring.de · www.guehring.de
Neutraubling	Harteringer Str. 3, 93073 Neutraubling · ☎ +49 (0) 9401 91 33 37 2 · info@guehring.de · www.guehring.de
Wehingen	Steinstr. 40, 78564 Wehingen · ☎ +49 (0) 74 26 60 03 98 · info@guehring.de · www.guehring.de

## Europe

France	Guehring France S.A.R.L. · 74370 Metz-Tessy · ☎ +33 4 50 27 64 42 · info@guhring-france.com · www.guhring-france.com
Great Britain	Guehring Ltd. · B35 7AG Birmingham · ☎ +44 12 17 49 55 44 · info@guhring.co.uk · www.guhring.co.uk
Italy	Gühring s.r.l. Unipersonale · 23873 Missaglia (LC) · ☎ +39 0 39 59 31 51 · info@guhring-italy.com · www.guhring.it
Netherlands	Gühring Nederland B.V. · 5651 GG Eindhoven · ☎ +31 40 25 43 30 5 · info@guhring.nl · www.guhring.nl
Austria	Gühring Ges.m.b.H · 1230 Wien · ☎ +43 15 44 16 70 · verkauf@guehring.at · www.guehring.at
Poland	Gühring Sp. z.o.o. · 41-300 Dąbrowa Górnicza · ☎ +48 32 428 70 19 · biuro@guehring.pl · www.guehring.pl
Poland	Gühring Aviation Tools Services Sp.z o.o. · 36-002 Rzeszów · ☎ +48 32 428 70 00 · biuro@guehring.pl · www.guehring.pl
Poland	Gühring Sp. z.o.o., 43-300 Bielsko Biala · ☎ +48 33 813 24 25 · biuro@guehring.pl · www.guehring.pl
Rumania	Gühring s.r.l. - Romania · 550018 Sibiu · ☎ +40 26 95 03 10 3 · romania@guehring.de · www.guehring.de
Russia	Guehring 000 · 603058 Nizhnii Novgorod · ☎ +7 831 272 70 51 · info@guehring.ru · www.guhring.ru
Russia	Guehring 000 · 423800 Naberezhnye Chelny · ☎ +7 83 12 72 70 51 · info@guhring.ru · www.guhring.ru
Sweden	Guehring Sweden AB · 53155 Lidköping · ☎ +46 51 02 12 50 · info@guehring.se · www.guhring.se
Spain	Guehring S.A. · 28026 Madrid · ☎ +34 9 13 92 09 70 · guhring@guhring.es · www.guhring.es
Czech Republic	Gühring s.r.o. · 33021 Line-Sulkov · ☎ +420 378 212 200 · sekretariat@guehring.de · www.guehring.cz
Turkey	Gühring Takım San. Tic. Ltd.Şti. · Yenimahalle Kartal/ Istanbul · ☎ +90 316 504 4275 · www.guhring.com.tr
Turkey	Gühring Takım San. Tic. Ltd.Şti. · Çiğli / İzmir · ☎ +90 232 328 00 58 · infoizmir@guhring.com.tr · www.guhring.com.tr



## Asia

China	Guhring Cutting Tools Co., Ltd. · 213022 Changzhou · ☎ +86 51 98 51 09 71 3 · info@guhringchina.com · www.guhringchina.com
China	Guhring Cutting Tools Co., Ltd. · 430000 Wuhan · ☎ +86 27 81 32 83 98 · info@guhringchina.com · www.guhringchina.com
China	Guhring Cutting Tools Co., Ltd. · 545001 Dalian · ☎ +86 411 62 77 91 55 · info@guhringchina.com · www.guhringchina.com
China	Guhring Cutting Tools Co., Ltd. · 110000 Shenyang · ☎ +86 411 62 77 91 56 · info@guhringchina.com · www.guhringchina.com
China	Guhring Cutting Tools Co., Ltd. · 276800 Rizhao · ☎ +86 63 38 62 01 98 · info@guhringchina.com · www.guhringchina.com
China	Guhring Cutting Tools Co., Ltd. · 545000 Liuzhou · ☎ +86 77 23 71 52 65 · info@guhringchina.com · www.guhringchina.com
China	Guhring Cutting Tools Co., Ltd. · 401120 Chongqing · ☎ +86 23 67 18 62 89 · info@guhringchina.com · www.guhringchina.com
India	Guhring India Pvt. Ltd. · Bangalore--560 099 · ☎ +91 80 40 32 2500-2509 · info@guhring.in · www.guhring.in
India	Guhring India Pvt. Ltd. · Gurgaon--122050 · ☎ +91 124 4830560 · info@guhring.in · www.guhring.in
India	Guhring India Pvt. Ltd. · Pune--412111 · ☎ +91 9975491730 · info@guhring.in · www.guhring.in
India	Guhring India Pvt. Ltd. · Tamilnadu--6020117 · ☎ +91 959 1989553 · info@guhring.in · www.guhring.in
Indonesia	PT. Guhring Indonesia · Bekasi 17550 Indonesia · ☎ +62 / 2189830357 · sales@guhring.co.id · www.guhring.co.id
Japan	Guhring Japan Co., Ltd. · 104-0052 Tokyo · ☎ +81 33 53 62 80 0 · tokyo.sales@guhring.co.jp · www.guhring.co.jp
Russia	Gühring OOO · 644000 Omsk · ☎ +7 83 12 72 70 51 · info@guhring.ru · www.guhring.ru
South Korea	Gühring Korea Co. Ltd. · 343-880 Choongnam · ☎ +82 26 89 85 42 · info@guhring.co.kr · www.guhring.co.kr
South Korea	Gühring Korea AS Center · 343-880 Ulsan City · ☎ +82 52 28 81 970 · info@guhring.co.kr · www.guhring.co.kr
Taiwan	Guhring Taiwan Ltd. · Taoyuan County 328 · ☎ +886 3 498 7530 · info@guhring.com.tw · www.guhring.com.tw
Thailand	Guehring (Thailand) Co., Ltd. · 10540 Samutprakam · ☎ +66 21 74 52 00 1 · info.thailand@guehring.de · www.guehring.co.th
Uzbekistan	FE LLC "GUHRING" · 100084 Taschkent · ☎ +99871 205 10 25 · info@guhring.uz · www.guhring.uz
Vietnam	Guhring Vietnam LLC · Binh Duong Province · ☎ +84 650 2220216 · info@guhring.vn · info@guhring.vn

## Oceania

Australia	Guhring Pty. Ltd. · Oakleigh South VIC 3167 · ☎ +61 (0) 39 94 84 60 0 · guhring@guhring.com.au · www.guhring.com.au
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Re-grind and  
re-coating centres

## AMERICA AND AFRICA



### America

Brasil	Guhring Brasil Ferramentas Ltda · CEP 13329-600 - Salto - SP · ☎ +55 11 2842 3066 · vendas@guhring-brasil.com · www.guhring-brasil.com
Mexico	Guhring Mexicana S.A. de C.V. · 76246 Queretaro · ☎ +52 (442) 2216192 · contacto@guhring.de · www.guhring.com.mx
USA	Guhring, Inc. · Brookfield WI 53045 · ☎ +1 26 27 84 67 30 · reconditioning@guhring.com · www.guhring.com
USA	Guhring, Inc. · New Hudson MI 48165 · ☎ +1 24 84 86 37 83 · reconditioning@guhring.com · www.guhring.com
USA	Guhring, Inc. · Huntington Beach CA 92649 · ☎ +1 71 48 41 35 82 · reconditioning@guhring.com · www.guhring.com
USA	Guhring, Inc. · Bloomfield CT 06002 · ☎ +1 86 02 16 59 48 · reconditioning@guhring.com · www.guhring.com

### Africa

South Africa	Guhring Cutting Tools (Pty) Ltd. · 6390 Porth Elizabeth · ☎ +27 (0) 41 372 2047 · info@guhring.co.za · www.guhring.co.za
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	Art. no.	Clamping chucks	Description	Clamping diameter range
Hydraulic chucks	4299		HSK-A hydraulic chuck with increased clamping force	6 - 32 mm
	4296		4296 HSK-A hydraulic chuck with radial length setting	6 - 32 mm
	4267		HSK-C hydraulic chuck with increased clamping force	6 - 32 mm
	4295		HSK-C hydraulic chuck	6 - 32 mm
	4213		ISO taper hydraulic chuck DIN 69871 AD/B with increased clamping force	6 - 32 mm
	4221		MAS/BT hydraulic chuck with increased clamping force	6 - 32 mm
	4368		Reduction bushes for hydraulic chucks without peripheral cooling	3 - 25 mm
	4369		Reduction bushes for hydraulic chucks with peripheral cooling	3 - 25 mm
	HPC chucks	4300		HSK precision clamping chuck
4301			SK-A clamping chuck DIN 69871 AD	3 - 20 mm
4302			Clamping sleeves for precision clamping chucks without peripheral cooling	3 - 20 mm
4235			Clamping sleeves for precision clamping chucks with peripheral cooling	3 - 20 mm

## Shrink fit chucks

Art. no.	Clamping chucks	Description	Clamping diameter range
4726		HSK-A shrink fit chuck TSG 3000	6 - 32 mm
4727		ISO taper shrink fit chuck DIN 69871 AD/B TSG 3000	6 - 32 mm
4728		MAS-BT shrink fit chuck TSG 3000	6 - 32 mm
4755		<b>GÜHROJet</b> HSK-A shrink fit chuck with peripheral cooling	6 - 20 mm
4729		<b>GÜHROJet</b> ISO taper shrink fit chuck DIN 69871 AD/B	6 - 20 mm
4736		HSK-A shrink fit chuck	6 - 32 mm
4758		HSK-C shrink fit chuck	6 - 32 mm
4737		HSK-E shrink fit chuck	3 - 32 mm
4738		ISO taper shrink fit chuck DIN 69871 AD	3 - 32 mm
4739		MAS-BT shrink fit chuck	3 - 32 mm
4719		Shrink fit extension	3 - 20 mm

Clamping chucks / tool holders for straight tool shanks		Characteristics	Main application	Main feature
<p>TSG 3000 / shrink fit chucks / shrink fit extensions</p>		<p>maximum concentricity; very slender non-interference; good rigidity; high clamping force; modular lengthening; patented dampening screw ensures concentricity</p>	<p>drilling, countersinking, milling, reaming, universal and HSC application</p>	<p>accurate and universal; slender; high clamping force</p>
<p>Hydraulic chucks / HMC 3000 / reduction bushes</p>		<p>high dampening with maximum concentricity; simple handling; flexible application thanks to reduction bushes also with GÜHROJET</p>	<p>reaming, drilling, countersinking, HSC application, light milling</p>	<p>simple handling</p>
<p>HPC precision power chucks / clamping sleeves</p>		<p>maximum clamping force and rigidity thanks to mechanical clamping transmission; high accuracy and balancing quality; flexible application thanks to clamping sleeves also with GÜHROJET</p>	<p>heavy HPC and fast accurate HSC milling, drilling, universal application</p>	<p>highest clamping force and rigidity</p>
<p>Straight shank holders "Weldon" / "Whistle-Notch"</p>		<p>robust, cost-efficient clamping chuck for heavy machining in the lower speed and accuracy range</p>	<p>roughing, milling, drilling</p>	<p>simple operation; secure clamping</p>
<p>Collet chucks ER</p>		<p>very flexible clamping chuck for various shank dimensions and tolerances; for lower level machining tasks</p>	<p>light machining, centering, chamfering, drilling, threading; intermediate shank dimensions</p>	<p>highly flexible</p>





Concentricity	with 5xD	Clamping force	Rigidity	Dampening	Interference contour	Handling	Actuation
< 3 $\mu$ m	< 5 $\mu$ m	very high	very high	low	small / minimal	good	shrink fit device
< 3 $\mu$ m	< 5 $\mu$ m	very high	high	very high	medium	very good / very flexible	hexagon key
< 3 $\mu$ m	< 8 $\mu$ m	extremely high	extremely high	high	medium	very good / flexible	hexagon key / torque wrench
< 10 $\mu$ m	< 25 $\mu$ m	very safe	very high	low	large	good	hexagon key
< 10 $\mu$ m	< 20 $\mu$ m	medium	low	high	large (mini = small)	good	hook spanner

Guhring's tool dispensing systems TM 326, TM 426 and TM 526 optimise your tool storage and your tool management. Gain increased security of your tool stock and increase the transparency of your tool management!



# GUHRING



Tool Management  
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**GÜHRING**

Article no.	Page	Drilling depth	Standard	Description	Tool material	Type	Form
12	70	~5xD	DIN 338	Set of jobber drills	HSCO	GU 500 DZ	
234	71	~5xD	DIN 338	Set of jobber drills	HSS	N	
5504	108		DIN 6527L	Roughing end mills GS 100 U (fine teeth)	Solid carbide	NRf	B
5505	105		DIN 6527K	Slot drills GH 100 U (3-fluted)	Solid carbide	NH	A
5506	106		DIN 6527L	Slot drills GH 100 U (3-fluted)	Solid carbide	NH	A
5507	115		DIN 6527L	Slot drills (3-fluted)	Solid carbide	N	A
5510	16	3xD	DIN 6537K	Ratio drills with oil feed	Solid carbide	RT 100 U	
5511	22	5xD	DIN 6537L	Ratio drills with oil feed	Solid carbide	RT 100 U	
5512	29	7xD	Company std.	Ratio drills with oil feed	Solid carbide	RT 100 U	
5513	35	10xD	Company std.	Ratio drills with oil feed	Solid carbide	RT 150 GG	
5514	37	3xD	DIN 6537K	Ratio drills without oil feed	Solid carbide	RT 100 U	
5515	40	5xD	DIN 6537L	Ratio drills without oil feed	Solid carbide	RT 100 U	
5516	45	3xD	DIN 6539	Stub drills	Solid carbide	N	
5517	53	5xD	Company std.	Jobber drills	Solid carbide	N	
5518	43	5xD	DIN 6537L	3-flute Ratio drills	Solid carbide	FT 200	
5519	55	~5xD	DIN 338	Jobber drills	HSCO	GU 500 DZ	
5520	47	~3xD	DIN 1897	Stub drills	HSCO	GU 500 DZ	
5521	50	~3xD	DIN 1897	Stub drills	HSS-E-PM	GT 500 DZ	
5522	58	~5xD	DIN 338	Jobber drills	HSS-E-PM	GT 500 DZ	
5523	55	~5xD	DIN 338	Jobber drills	HSCO	GU 500 DZ	
5524	47	~3xD	DIN 1897	Stub drills	HSCO	GU 500 DZ	
5525	32	12xD	Company std.	Ratio drills with oil feed	Solid carbide	RT 100 U	
5526	19	3xD	DIN 6537K	Ratio drills with oil feed	Solid carbide	RT 100 VA	
5527	130		Company std.	NC machine reamers	Solid carbide		B
5528	19	3xD	DIN 6537K	Ratio drills with oil feed	Solid carbide	RT 100 VA	
5530	112		DIN 6527L	Slot drills (2-fluted)	Solid carbide	N	B
5531	115		DIN 6527L	Slot drills (3-fluted)	Solid carbide	N	B
5532	117		DIN 6527L	End mills (4-fluted)	Solid carbide	N	B
5533	119		DIN 6527L	Ball nose slot drills (2-fluted)	Solid carbide	N	B
5534	100		DIN 6527K	Standard Ratio end mills RF 100 U	Solid carbide	N	B
5535	101		DIN 6527L	Standard Ratio end mills RF 100 U	Solid carbide	N	B
5536	65	~10xD	DIN 340	Long series twist drills	HSCO	GU 500 DZ	
5537	65	~10xD	DIN 340	Long series twist drills	HSCO	GU 500 DZ	
5543	114		DIN 6527L	Al slot drills (2-fluted)	Solid carbide	W	B
5545	110		Company std.	Multi-tooth end mills GH 100 U	Solid carbide	NH	B
5546	106		DIN 6527L	Slot drills GH 100 U (3-fluted)	Solid carbide	NH	B
5547	93		Company std.	Thread milling cutters without chamfer for ISO metric threads	Solid carbide	TM SP	
5548	93		Company std.	Thread milling cutters without chamfer for ISO metric threads	Solid carbide	TM SP	
5549	113		Company std.	XL slot drills (2-fluted)	Solid carbide	N	A
5550	90		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	GG	C
5551	82		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	AI R45	C
5552	79		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	H R40	C
5553	80		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	VA R40	C
5554	78		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N R40	C
5555	81		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N R40	C
5556	118		Company std.	XL end mills (4-fluted)	Solid carbide	N	A
5557	89		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	AI	B
5558	85		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	H	B
5559	87		DIN 371	Machine taps for ISO metric threads	HSS-E-PM	N	B
5560	84		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N	B
5561	88		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N	B
5573	116		Company std.	Mini slot drills (3-fluted)	Solid carbide	N	
5574	107		Company std.	Mini slot drills (3-fluted)	Solid carbide	NH	
5578	121		Company std.	Chamfering milling cutters	Solid carbide	N	
5579	121		Company std.	Chamfering milling cutters	Solid carbide	N	
5580	26	5xD	DIN 6537L	Ratio drills with oil feed	Solid carbide	RT 100 VA	
5581	26	5xD	DIN 6537L	Ratio drills with oil feed	Solid carbide	RT 100 VA	
5582	102		Company std.	Standard Ratio end mills RF 100 U	Solid carbide	N	
5583	109		DIN 6527L	Hard roughing end mills GS 100 H (fine teeth)	Solid carbide	HR	B
5584	120		DIN 6527L	Ball nose end mills (4-fluted)	Solid carbide	N	B
5585	119		DIN 6527L	Ball nose slot drills (2-fluted)	Solid carbide	N	A
5586	88		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N	B
5587	85		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	H	B
5588	86		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N	B
5590	84		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N	B
5591	79		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	H R40	C
5592	78		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N R40	C
5593	83		DIN 371/DIN 376	Machine taps for ISO metric threads	Solid carbide	H	C
5594	81		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N R40	C
5595	90		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	GG	C
5596	80		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	VA R40	C
5597	86		DIN 371/DIN 376	Machine taps for ISO metric threads	HSS-E	N	B



Article no.	Page	Drilling depth	Standard	Description	Tool material	Type	Form
5598	91		~DIN 371	Fluteless machine taps for ISO metric threads	HSS-E	N	C
5599	92		~DIN 376	Fluteless machine taps for ISO metric threads	HSS-E	N	C
5610	16	3xD	DIN 6537K	Ratio drills with oil feed	Solid carbide	RT 100 U	
5611	22	5xD	DIN 6537L	Ratio drills with oil feed	Solid carbide	RT 100 U	
5612	29	7xD	Company std.	Ratio drills with oil feed	Solid carbide	RT 100 U	
5614	37	3xD	DIN 6537K	Ratio drills without oil feed	Solid carbide	RT 100 U	
5615	40	5xD	DIN 6537L	Ratio drills without oil feed	Solid carbide	RT 100 U	
5635	122		DIN 6527L	Ratio end mill sets RF 100 U	Solid carbide	N	
5649	69		Company std.	142° NC-spotting drills	Solid carbide	N	
5650	22	5xD	DIN 6537L	Ratio drills with oil feed	Solid carbide	RT 100 U	
5651	40	5xD	DIN 6537L	Ratio drills without oil feed	Solid carbide	RT 100 U	
5652	68		Company std.	Solid carbide micro-precision drills without coolant ducts	Solid carbide	N	
5653	103		DIN 6527L	Ratio end mills RF 100 VA	Solid carbide	N	A
5654	103		DIN 6527L	Ratio end mills RF 100 VA	Solid carbide	N	B
5655	104		Company std.	Ratio end mills Alu RF 100 A	Solid carbide	W	
5729	111		Company std.	Multi-tooth end mills GH 100 U	Solid carbide	NH	
5730	112		DIN 6527L	Slot drills (2-fluted)	Solid carbide	N	A
5735	101		DIN 6527L	Standard Ratio end mills RF 100 U	Solid carbide	N	A
5745	110		Company std.	Multi-tooth end mills GH 100 U	Solid carbide	NH	
9651	61	~5xD	DIN 338	Jobber drills	HSS	N	

# ISO code

P	Steel, high-alloyed steel
M	Stainless steel Stainless
K	Grey cast iron, spher, graphite/mall. cast iron
N	Aluminium and other non-ferrous metals
S	Special, super and titanium alloys
H	Hardened steel and chilled cast iron

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

- optimal suitability
- limited suitability

# Coatings

- |                  |                   |                      |                           |                   |
|------------------|-------------------|----------------------|---------------------------|-------------------|
| ○ bright         | ● <b>A</b> TiAlN  | ● <b>P</b> AlCrN     | ● <b>S</b> Sirius         | ● <b>Y</b> Signum |
| ● steam tempered | ● <b>C</b> TiCN   | ● <b>S</b> TiN       | ● <b>F</b> FIRE/nano FIRE |                   |
| ● nitrided       | ● <b>Cb</b> Carbo | ● <b>M</b> MolyGlide | ● <b>a</b> TiAlN nanoA    |                   |



# Pictograms

Tool material	<b>HSS</b>	<b>HSS-E</b>	<b>HSCO</b>	<b>HSS-E-PM</b>	<b>VHM</b>									
	High-speed steel				Solid carbide finest grain (HM-UF)									
Cutting depth	<b>3xD</b>	<b>5xD</b>	<b>7xD</b>	<b>10xD</b>	<b>12xD</b>	<b>~3xD</b>	<b>~5xD</b>	<b>~7xD</b>	<b>~10xD</b>					
Ø-tolerance	<b>m7</b>	<b>h6</b>	<b>h7</b>	<b>h8</b>	<b>6HX</b>	ISO2/6H								
Shank form	<b>HA</b>	<b>HB</b>	<b>HE</b>	<b>Cyl</b>										
	to DIN 6535			Cylindrical										
Standard	<b>DIN 333</b>	<b>DIN 338</b>	<b>DIN 340</b>	<b>DIN 371</b>	<b>DIN 376</b>	<b>DIN 371/376</b>	<b>DIN 1897</b>	<b>DIN 6527K</b>	<b>DIN 6527L</b>	<b>DIN 6537K</b>	<b>DIN 6537L</b>	<b>DIN 6539</b>	<b>~DIN 371</b>	<b>~DIN 376</b>
	to DIN													
	<b>WN</b>													
	to Guhring standard													
Type	<b>N</b>	<b>H</b>	<b>W</b>	<b>AI</b>	<b>NH</b>	<b>RT 100 U</b>	<b>RT 150 GG</b>	<b>FT 200</b>	<b>GU 500 DZ</b>	<b>GT 500 DZ</b>				
	<b>NR40</b>	<b>AI R45</b>	<b>HR40</b>	<b>VA R40</b>	<b>TM SP</b>	<b>GG</b>	<b>NRF</b>	<b>HR</b>						
Internal cooling														
	with Internal cooling			without Internal cooling										
Cutting direction														
	right													
Hole type														
	Trough hole		Blind hole			Through/blind hole								
Form	<b>B</b>	<b>C</b>												
Application														
	Slotting	Roughing	Ramping	Helix	Drilling	Finishing	Copying							
Length														
	short (DIIN)		long (DIN)			extra length								
No. of cutting edges														
	no. of major cutting edges													
Helix angle														
	Size of helix angle / no. of different helix angles													
Rake angle														
	Rake angle of circumference cutting edges													
Cutting edge form														
	Corner chamfer	Radius with tolerance	Chamfer end mill angles				Point angle							
Feed														
	for lateral feed			for lateral feed and oblique plunging				for lateral feed, oblique plunging and drilling						



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**Guhring KG**

P.O. Box 100247 | 72423 Albstadt  
Herderstraße 50-54 | 72458 Albstadt

Tel. + 49 74 31 17-0  
Fax + 49 74 31 17-21279  
info@guehring.de  
www.guehring.de