PoverLine

Made by **GUHRING**

PERFECT HSS / HSCO TOOLS





HIGH-QUALITY TOOLS AT ATTRACTIVE PRICES

Discover our high-quality tool range for the following applications:

DRILLING

TAPPING

MILLING

REAMING

COUNTERSINKING



PowerLine

YOUR BENEFITS:

- High quality
- Attractive prices
- Customer friendly service
- Made in EU
- World-wide uniform technical standards





CLOSE TO THE CUSTOMER – WORLD-WIDE

In order for you to benefit from the advantages of our tooling solutions all over the world, Guhring is represented internationally with own production plants, service centers, sales companies and countless sales and marketing partners. World-wide uniform technical standards ensure that you can always and everywhere rely on the same high Guhring quality.



- 61 Production plants and service centers
- 46 Sales companies
- 25 Sales and marketing partners

Twist	drills
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Programme
PowerLineNavigator

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Threading tools

Programme

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Milling cutters

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Reamers

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Countersinks

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TWIST DRILLS

TWIST	DRI	LLS									
Standard	Type		Tool illustration		Cutting direction	Tool material	Surface	Diameter range	PowerLine no.	Discount group	Page
Stub drills											
DIN 1897	N			r	ight-hand	HSS	>Ø 2,36	2.00 -13.00	8900	101	10
DIN 1897	G 500		- 5-	r	ight-hand	HSCO	S	2.00 -13.00	8904	101	12
Jobber dri	ills										
DIN 338	N			r	ight-hand	HSS	>Ø 2,36	1.00 -13.00	8902	101	13
DIN 338	N			r	ight-hand	HSS	S head coated	2.00 -13.00	8906	101	17
DIN 338	GT 100		0.4040	r	ight-hand	HSS	>Ø 2,36	1.00 -13.00	8916	101	18
in-house std.	N			r	ight-hand	HSS	0	13.00 -25.00	8908	101	20
Jobber dri	ills sets										
DIN 338 Set consi jobber dr PowerLin	ills,	02		r	ight-hand	HSS	™ 2,36	1.00 -13.00	8901	101	19
Long serie	es twist	drills									
DIN 340	GT 100			533 r	ight-hand	HSS	>Ø 2,36	1.00 -13.00	8918	101	21
Extra leng	th twist	drills									
DIN 1869 R1	GT 100	<u> </u>		3333 r	ight-hand	HSS	>Ø 2,36	2.00 -13.00	8920	101	24
DIN 1869 R3	GT 100		3 4349494	:5550 r	ight-hand	HSS	>Ø 2,36	2.50 -13.00	8922	101	25
Twist drills	S										
DIN 345	N	_		r	ight-hand	HSS	0	9.00 -40.00	8924	101	26
90° NC-sp	otting d	rills									
in-house std.	N			r	ight-hand	HSS	S	6.00 -16.00	8914	101	28
Center dri	lls witho	out flat									
DIN 333	Α			r	ight-hand	HSS	0	0.50 -12.50	8912	101	29
Straight sh	hank dri	lls double-e	nded								
in-house std.	DK 77			r	ight-hand	HSS	>Ø 2,36	2.00 -10.00	8910	101	30
Spot weld	drills										
in-house std.				r	ight-hand	HSCO	0	6.00 -8.00	8926	101	31
○ bright		steam tempe	red $\bigcirc_{2,}^{>}$	^{≥ø} bright/steam	tempered	>Ø brig	ght/nitrided l	ands S TiN	J		



THREADING TOOLS

Taps for ISD metric threads	INKEA	יאווטי	G TOOLS								
DIN 2184-1 N R40	Standard	Туре	Tool	lillustration			Surface				Page
Tap set with core drills and countersinks	Taps for IS	O metri	c threads								
Set consists of:		N R40			right-hand	HSS-E	0	3.00 -10.00	8950	203	36
In-house N R40	Tap set wit	th core	drills and counte	ersinks							
Standard Type Tool illustration Cutting direction Tool material Surface Diameter range PowerLine group Pag		N R40		 taps, PowerLine twist drills, Powe 90° countersinks 	erLine no. 8906 s,	HSS-E		Ø 2.5 - 8.5	8903	112	37
Slot drills (2-fluted) Slot drills (2-fluted)	MILLIN	IG C	UTTERS								_
DIN 327 N	Standard	Type	Tool	lillustration			Surface				Page
DIN 327 N M42 20.00 -30.00 8972 112 41	Slot drills (2-fluted)								
DIN 327 N	DIN 327	Ν		F		M42	0	1.00 -25.00	8970	112	40
Standard Form Tool Illustration Cutting direction material Surface Diameter range PowerLine no. Discount Pag Group Pag P	Slot drills (3-fluted)								
Standard Form Tool illustration Cutting direction Tool material Surface Diameter range PowerLine Discount Pag group						M42	0	20.00 -30.00	8972	112	41
Machine reamers Machine reamers DIN 208 B	REAMI	ERS			Cutting	Tool	Curfooo	Diameter	Dowert inc	Discount	Dogo
DIN 208 B right-hand HSS-E 4.00 -40.00 8980 105 44 DIN 208 A right-hand HSS-E 6.00 -40.00 8982 105 45 DIN 212 B right-hand HSS-E 1.00 -3.00 8984 105 46 DIN 212-2 B right-hand HSS-E 4.00 -20.00 8986 105 47 DIN 212 A right-hand HSS-E 1.50 -3.00 8988 105 48 DIN 212-2 A right-hand HSS-E 4.00 -20.00 8990 105 49 COUNTERSINKS Standard Form Tool illustration Cutting direction Tool material Surface planeter range PowerLine no. Discount procunt			Tool	lillustration			Surface				raye
DIN 208 A right-hand HSS-E 6.00 -40.00 8982 105 45 DIN 212 B right-hand HSS-E 1.00 -3.00 8984 105 46 DIN 212-2 B right-hand HSS-E 4.00 -20.00 8986 105 47 DIN 212 A right-hand HSS-E 1.50 -3.00 8988 105 48 DIN 212-2 A right-hand HSS-E 4.00 -20.00 8990 105 49 COUNTERSINKS Standard Form Tool illustration Cutting direction Tool material Diameter range PowerLine no. Discount Pagroup Pagroup 90° countersinks 5.00 -31.00 8940 105 54 Counterbores with fixed pilots for fine tolerances HSS 4.30 -20.00 8942 105 55	Machine re	amers									
DIN 212 B right-hand HSS-E 1.00 -3.00 8984 105 46 DIN 212-2 B right-hand HSS-E 4.00 -20.00 8986 105 47 DIN 212 A right-hand HSS-E 1.50 -3.00 8988 105 48 DIN 212-2 A right-hand HSS-E 4.00 -20.00 8990 105 49 COUNTERSINKS Standard Form Tool illustration Cutting direction Tool material Surface Diameter range PowerLine no. Discount Pag group Pag group PowerLine no. Discount power Pag group Pag gro	DIN 208	В			right-hand	HSS-E	0	4.00 -40.00	8980	105	44
DIN 212-2 B right-hand HSS-E 4.00 -20.00 8986 105 47 DIN 212 A right-hand HSS-E 1.50 -3.00 8988 105 48 DIN 212-2 A right-hand HSS-E 4.00 -20.00 8990 105 49 COUNTERSINKS Standard Form Tool illustration Cutting direction Tool material Surface planeter range PowerLine processer Discount processer Page processer DIN 373 HSS 5.00 -31.00 8940 105 54 Counterbores with fixed pilots for fine tolerances HSS 4.30 -20.00 8942 105 55	DIN 208	Α		==	right-hand	HSS-E	0	6.00 -40.00	8982	105	45
DIN 212 A right-hand HSS-E 1.50 -3.00 8988 105 48 DIN 212-2 A right-hand HSS-E 4.00 -20.00 8990 105 49 COUNTERSINKS Standard Form Tool illustration Cutting direction Tool material Surface Diameter range no. PowerLine no. Discount proup group Pag group 90° countersinks HSS 5.00 -31.00 8940 105 54 Counterbores with fixed pilots for fine tolerances HSS 4.30 -20.00 8942 105 55	DIN 212	В	=		right-hand	HSS-E	0	1.00 -3.00	8984	105	46
DIN 212-2 A right-hand HSS-E 4.00 -20.00 8990 105 49 COUNTERSINKS Standard Form Tool illustration Cutting direction material Surface Diameter range no. Discount group 90° countersinks DIN 335 C HSS 5.00 -31.00 8940 105 54 Counterbores with fixed pilots for fine tolerances DIN 373 HSS 4.30 -20.00 8942 105 55	DIN 212-2	В			right-hand	HSS-E	0	4.00 -20.00	8986	105	47
COUNTERSINKS Standard Form Tool illustration Cutting direction material Surface Diameter range PowerLine no. Discount Pag group 90° countersinks DIN 335 C HSS 5.00 -31.00 8940 105 54 Counterbores with fixed pilots for fine tolerances HSS 4.30 -20.00 8942 105 55	DIN 212	Α			right-hand	HSS-E	0	1.50 -3.00	8988	105	48
Standard Form Tool illustration Cutting direction material Surface Diameter range PowerLine no. Discount Pag group Pag 90° countersinks DIN 335 C HSS	DIN 212-2	Α			right-hand	HSS-E	0	4.00 -20.00	8990	105	49
90° countersinks 90° counter	COUN.	TERS	SINKS								
DIN 335 C HSS	Standard	Form	Tool	lillustration			Surface				Page
Counterbores with fixed pilots for fine tolerances HSS 4.30 -20.00 8942 105 55	90° counte	rsinks									
DIN 373	DIN 335	С				HSS	0	5.00 -31.00	8940	105	54
	Counterbo	res with	fixed pilots for	fine tolerances							
bright steam tempered	DIN 373		_			HSS	\circ	4.30 -20.00	8942	105	55

PowerLine

SPECIAL DESIGN
HIGH SPEED STEEL DRILLS
FOR SPECIAL
MACHINING TASKS



TWIST DRILLS





PowerLine no.	8900
Standard	DIN 1897
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

 ∞ range: 2.000 - 13.000

 Point angle: Relieved cone 118°

 Web this 118°

Web thinned ≥Ø: 2.00 mm

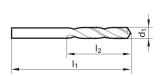




mm	d1	l1	12	Availability
2.100 38.000 12.000 2.200 40.000 13.000 2.300 40.000 13.000 2.400 43.000 14.000 2.500 43.000 14.000 2.600 43.000 14.000 2.700 46.000 16.000 2.800 46.000 16.000 3.000 46.000 16.000 3.000 46.000 18.000 3.200 49.000 18.000 3.300 49.000 18.000 3.300 49.000 18.000 3.500 52.000 20.000 3.500 52.000 20.000 3.600 52.000 20.000 3.700 52.000 20.000 3.800 55.000 20.000 3.900 55.000 22.000 4.100 55.000 22.000 4.200 55.000 22.000 4.200 55.000 24.000 4.500 58.000 24.000 4.600 58.000 24.000 <td< td=""><td>mm</td><td>mm</td><td>mm</td><td>Availability</td></td<>	mm	mm	mm	Availability
2,200 40,000 13,000 2,300 40,000 13,000 2,400 43,000 14,000 2,500 43,000 14,000 2,600 43,000 14,000 2,700 46,000 16,000 2,800 46,000 16,000 2,900 46,000 16,000 3,100 49,000 18,000 3,200 49,000 18,000 3,300 49,000 18,000 3,500 52,000 20,000 3,500 52,000 20,000 3,600 52,000 20,000 3,800 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 4,600 58,000 24,000 4,600 58,000 24,000 4,800 62,000 26,000 5,000 62,000 26,000	2.000	38.000	12.000	•
2,200 40,000 13,000 2,300 40,000 13,000 2,400 43,000 14,000 2,500 43,000 14,000 2,600 43,000 14,000 2,700 46,000 16,000 2,800 46,000 16,000 2,900 46,000 16,000 3,100 49,000 18,000 3,200 49,000 18,000 3,300 49,000 18,000 3,500 52,000 20,000 3,500 52,000 20,000 3,600 52,000 20,000 3,800 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 4,600 58,000 24,000 4,600 58,000 24,000 4,800 62,000 26,000 5,000 62,000 26,000	2.100	38.000	12.000	•
2,400 43,000 14,000 2,500 43,000 14,000 2,600 43,000 14,000 2,700 46,000 16,000 2,800 46,000 16,000 3,000 46,000 16,000 3,100 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 3,600 52,000 20,000 3,700 52,000 20,000 3,800 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 4,400 58,000 24,000 4,600 58,000 24,000 4,800 62,000 26,000 4,900 62,000 26,000 5,000 26,000 26,000	2.200	40.000	13.000	•
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2.700 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 3.200 49.000 18.000 3.300 49.000 18.000 3.400 52.000 20.000 3.500 52.000 20.000 3.600 52.000 20.000 3.700 52.000 20.000 3.800 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 4.400 58.000 24.000 4.500 58.000 24.000 4.800 62.000 26.000 4.900 62.000 26.000 5.100 62.000 26.000	2.500	43.000	14.000	
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4.600 58.000 24.000 4.700 58.000 24.000 4.800 62.000 26.000 4.900 62.000 26.000 5.000 62.000 26.000 5.100 62.000 26.000 5.200 62.000 26.000	4.400	58.000	24.000	•
4.700 58.000 24.000 4.800 62.000 26.000 4.900 62.000 26.000 5.000 62.000 26.000 5.100 62.000 26.000 5.200 62.000 26.000	4.500	58.000	24.000	•
4.800 62.000 26.000 4.900 62.000 26.000 5.000 62.000 26.000 5.100 62.000 26.000 5.200 62.000 26.000	4.600	58.000	24.000	•
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4.900 62.000 26.000 5.000 62.000 26.000 5.100 62.000 26.000 5.200 62.000 26.000				•
5.100 62.000 26.000 5.200 62.000 26.000	4.900		26.000	•
5.200 62.000 26.000			26.000	•
				•
F 000	5.200	62.000	26.000	
	5.300	62.000	26.000	•
5.400 66.000 28.000		66.000	28.000	•
5.500 66.000 28.000		66.000	28.000	•
5.600 66.000 28.000	5.600	66.000	28.000	•
5.700 66.000 28.000			28.000	•
5.800 66.000 28.000	5.800	66.000	28.000	•



PowerLine no.	8900
Standard	DIN 1897
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
1000	
Discount group	101



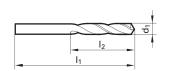


d1	l1	I2	Availability
mm	mm	mm	Availability
5.900	66.000	28.000	•
6.000	66.000	28.000	•
6.100	70.000	31.000	•
6.200	70.000	31.000	•
6.300	70.000	31.000	•
6.400	70.000	31.000	•
6.500	70.000	31.000	•
6.600	70.000	31.000	•
6.700	70.000	31.000	•
6.800	74.000	34.000	•
6.900	74.000	34.000	•
7.000	74.000	34.000	•
7.100	74.000	34.000	•
7.200	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	•
8.000	79.000	37.000	•
8.500	79.000	37.000	•
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	•
11.500	95.000	47.000	•
12.000	102.000	51.000	•
12.500	102.000	51.000	•
13.000	102.000	51.000	•



PowerLine no.	8904
Standard	DIN 1897
Tool material	HSCO
Surface finish	S
Туре	G 500
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 2.000 - 13.000
Point geometry: Facet point grind
Point angle: 118°
Web thinned ≥Ø: 2.00 mm



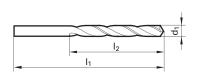


d1	I1	12	Avoilability
mm	mm	mm	Availability
2.000	38.000	12.000	•
2.500	43.000	14.000	•
3.000	46.000	16.000	•
3.200	49.000	18.000	•
3.300	49.000	18.000	•
3.500	52.000	20.000	•
4.000	55.000	22.000	•
4.200	55.000	22.000	•
4.500	58.000	24.000	•
5.000	62.000	26.000	•
5.100	62.000	26.000	•
5.200	62.000	26.000	•
5.500	66.000	28.000	•
6.000	66.000	28.000	
6.500	70.000	31.000	•
6.800	74.000	34.000	•
7.000	74.000	34.000	•
7.500	74.000	34.000	•
8.000	79.000	37.000	•
8.500	79.000	37.000	•
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	•
11.500	95.000	47.000	•
12.000	102.000	51.000	•
12.500	102.000	51.000	•
13.000	102.000	51.000	•



PowerLine no.	8902
Standard	DIN 338
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 1.000 - 13.000
Point geometry: Relieved cone
Point angle: 118°
Web thinned ≥Ø: 1.00 mm



80.000

80.000

80.000

80.000

86.000



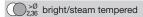
47.000

47.000

47.000

47.000

52.000



4.400

4.500

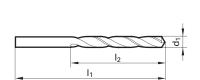
4.600

4.700

4.800



PowerLine no.	8902
Standard	DIN 338
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101



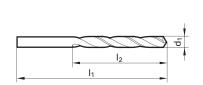


d1	l1	12	Availability
mm	mm	mm	Availability
4.900	86.000	52.000	•
5.000	86.000	52.000	•
5.100	86.000	52.000	•
5.200	86.000	52.000	•
5.300	86.000	52.000	•
5.400	93.000	57.000	•
5.500	93.000	57.000	•
5.600	93.000	57.000	
5.700	93.000	57.000	•
5.800	93.000	57.000	•
5.900	93.000	57.000	
6.000	93.000	57.000	•
6.100	101.000	63.000	
6.200	101.000	63.000	
6.300	101.000	63.000	
6.400	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	•
7.200	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	•
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	•

>Ø bright/steam tempered



PowerLine no.	8902
Standard	DIN 338
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

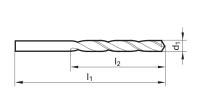




d1	I1	12	Availability
mm	mm	mm	Availability
8.800	125.000	81.000	•
8.900	125.000	81.000	•
9.000	125.000	81.000	•
9.100	125.000	81.000	•
9.200	125.000	81.000	•
9.300	125.000	81.000	•
9.400	125.000	81.000	•
9.500	125.000	81.000	•
9.600	133.000	87.000	•
9.700	133.000	87.000	•
9.800	133.000	87.000	•
9.900	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	•
10.600	133.000	87.000	•
10.700	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	•
11.200	142.000	94.000	•
11.300	142.000	94.000	•
11.400	142.000	94.000	•
11.500	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	•
12.000	151.000	101.000	•
12.100	151.000	101.000	•
12.200	151.000	101.000	•
12.300	151.000	101.000	•
12.400	151.000	101.000	•
12.500	151.000	101.000	•
12.600	151.000	101.000	•



PowerLine no.	8902
Standard	DIN 338
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101



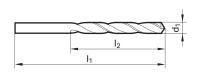


d1	l1	12	Availability
mm	mm	mm	Availability
12.700	151.000	101.000	•
12.800	151.000	101.000	•
12.900 13.000	151.000 151.000	101.000 101.000	
13.000	151.000	101.000	•



PowerLine no.	8906
Standard	DIN 338
Tool material	HSS
Surface finish	S
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 2.000 - 13.000
Point geometry: Relieved cone
Point angle: 118°
Web thinned ≥Ø: 2.00 mm





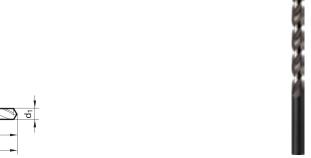
d1	I1	12	Availability
mm	mm	mm	Availability
2.000	49.000	24.000	•
2.500	57.000	30.000	•
3.000	61.000	33.000	•
3.300	65.000	36.000	•
3.500	70.000	39.000	•
4.000	75.000	43.000	
4.200	75.000	43.000	•
4.500	80.000	47.000	
4.900	86.000	52.000	•
5.000	86.000	52.000	•
5.300	86.000	52.000	•
5.500	93.000	57.000	•
5.600	93.000	57.000	•
6.000	93.000	57.000	
6.500	101.000	63.000	•
6.800	109.000	69.000	•
7.000	109.000	69.000	
7.500	109.000	69.000	
8.000	117.000	75.000	
8.500	117.000	75.000	•
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	•
11.500	142.000	94.000	•
12.000	151.000	101.000	•
12.500	151.000	101.000	•
13.000	151.000	101.000	•



PowerLine no.	8916
Standard	DIN 338
Tool material	HSS
Surface finish	>Ø 2,36
Туре	GT 100
Cutting direction	right-hand
Tolerance	h8
Discount group	101

 ∞ range:
 1.000 - 13.000
 Point geometry:
 Relieved cone
 130°
 Web this
 ...
 130°

Web thinned ≥Ø: 1.00 mm



d1	l1	12	Availability
mm	mm	mm	Availability
1.000	34.000	12.000	•
1.500	40.000	18.000	•
2.000	49.000	24.000	•
2.500	57.000	30.000	•
3.000	61.000	33.000	•
3.300	65.000	36.000	•
3.500	70.000	39.000	•
4.000	75.000	43.000	•
4.200	75.000	43.000	•
4.500	80.000	47.000	•
5.000	86.000	52.000	•
5.500	93.000	57.000	•
6.000	93.000	57.000	•
6.500	101.000	63.000	•
6.800	109.000	69.000	•
7.000	109.000	69.000	•
7.500	109.000	69.000	•
8.000	117.000	75.000	•
8.500	117.000	75.000	•
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	•
11.500	142.000	94.000	•
12.000	151.000	101.000	•
12.500	151.000	101.000	
13.000	151.000	101.000	•



PowerLine no.	8901
Standard	DIN 338
Tool material	HSS
Surface finish	>Ø 2,36
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

PowerLine drills are available in the sets of popular sizes as shown.

Other drill set compositions on request.

Set consists of: jobber drills, PowerLine no. 8902



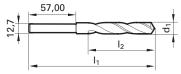
Code no.	Ø range	in increments of	piece	Availability
	mm		per set	
0.014	1.0-13.0	0.5	25	•
>Ø byjabt/ataaya t				

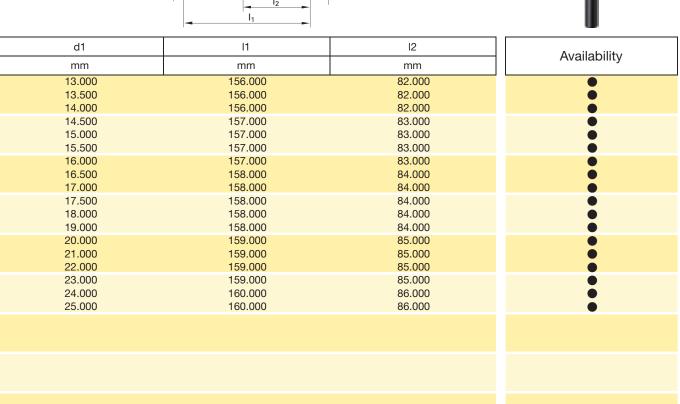


PowerLine no.	8908
Standard	in-house std.
Tool material	HSS
Surface finish	
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 13.000 - 25.000 Point geometry: Relieved cone Point angle: 118°

Point angle: 118° Web thinned ≥Ø: 14.01 mm





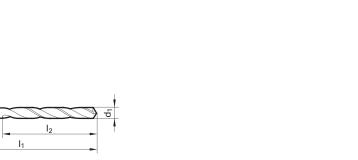
steam tempered



PowerLine no. 8918	
Standard DIN 340	
Tool material HSS	
Surface finish	
Type GT 100	
Cutting direction right-han	
Tolerance h8	
Discount group 101	

Ø range: 1.000 - 13.000 Point geometry: Relieved cone

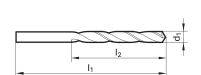
Point angle: 130° Web thinned ≥Ø: 1.00 mm



d1	l1	12	Availability
mm	mm	mm	Availability
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	•
4.600	126.000	82.000	•
4.700	126.000	82.000	•
4.800	132.000	87.000	•



PowerLine no.	8918
Standard	DIN 340
Tool material	HSS
Surface finish	>Ø 2,36
Туре	GT 100
Cutting direction	right-hand
Tolerance	h8
Discount group	101

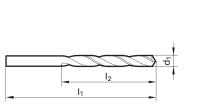




d1	l1	12	Availability
mm	mm	mm	Availability
4.900	132.000	87.000	•
5.000	132.000	87.000	•
5.100	132.000	87.000	•
5.200	132.000	87.000	•
5.300	132.000	87.000	•
5.400	139.000	91.000	•
5.500	139.000	91.000	•
5.600	139.000	91.000	•
5.700	139.000	91.000	•
5.800	139.000	91.000	•
5.900	139.000	91.000	•
6.000	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	•



PowerLine no.	8918
Standard	DIN 340
Tool material	HSS
Surface finish	>Ø 2,36
Туре	GT 100
Cutting direction	right-hand
Tolerance	h8
Discount group	101





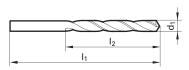
d1	l1	12	Availability
mm	mm	mm	Availability
8.800	175.000	115.000	•
8.900	175.000	115.000	•
9.000	175.000	115.000	•
9.500	175.000	115.000	•
10.000	184.000	121.000	•
10.500	184.000	121.000	•
11.000	195.000	128.000	
11.500	195.000	128.000	
12.000	205.000	134.000	
12.500	205.000	134.000	•
13.000	205.000	134.000	
10.000	200.000	104.000	•
7			

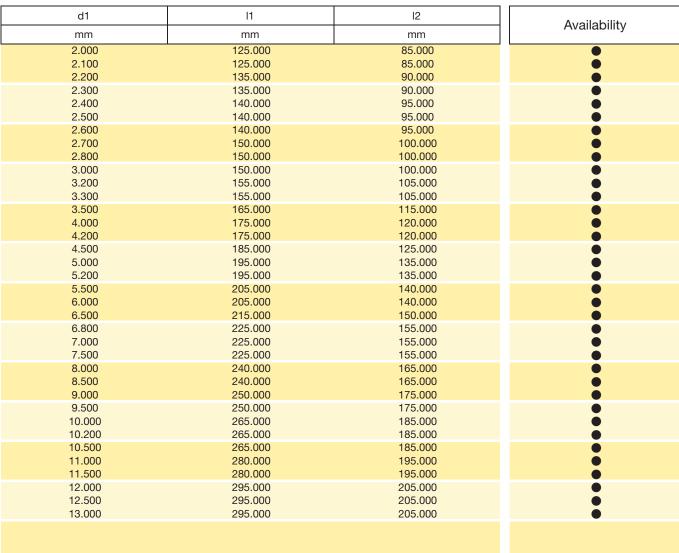


PowerLine no.	8920
Standard	DIN 1869 R1
Tool material	HSS
Surface finish	>Ø 2,36
Туре	GT 100
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 2.000 - 13.000 Point geometry: Relieved cone

Point angle: 130° Web thinned ≥Ø: 2.00 mm



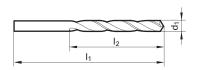




PowerLine no.	8922
Standard	DIN 1869 R3
Tool material	HSS
Surface finish	>Ø 2,36
Туре	GT 100
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 2.500 - 13.000 Point geometry: Relieved cone

Point angle: 130° Web thinned ≥Ø: 2.50 mm



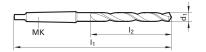
d1	I1	12	Availability
mm	mm	mm	Availability
2.500	225.000	150.000	•
3.000	240.000	160.000	•
3.300	250.000	170.000	•
3.500	265.000	180.000	•
4.000	280.000	190.000	•
4.200	280.000	190.000	
4.500	295.000	200.000	
5.000	315.000	210.000	
5.500	330.000	225.000	
6.000	330.000	225.000	
6.500	350.000	235.000	
6.800	370.000	250.000	
7.000	370.000	250.000	
7.500	370.000	250.000	
8.000	390.000	265.000	
8.500	390.000	265.000	
9.000	410.000	280.000	
9.500	410.000	280.000	
10.000	430.000	295.000	
10.500	430.000	295.000	
11.000	455.000	310.000	
11.500	455.000	310.000	
12.000	480.000	330.000	
12.500	480.000	330.000	
13.000	480.000	330.000	



PowerLine no.	8924
Standard	DIN 345
Tool material	HSS
Surface finish	
Туре	N
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 9.000 - 40.000
Point geometry: Relieved cone
Point angle: 118°
Web thinned ≥Ø: 14.01 mm





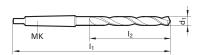
d1	MK	I1	12	Availability
mm		mm	mm	Availability
9.000	1	162.000	81.000	•
9.500	1	162.000	81.000	
10.000	1	168.000	87.000	
10.200	1	168.000	87.000	•
10.500	1	168.000	87.000	
11.000	1	175.000	94.000	
11.500	1	175.000	94.000	•
12.000	1	182.000	101.000	
12.500	1	182.000	101.000	
13.000	1	182.000	101.000	•
13.500	1	189.000	108.000	•
14.000	1	189.000	108.000	•
14.500	2	212.000	114.000	•
15.000	2	212.000	114.000	•
15.500	2	218.000	120.000	•
16.000	2	218.000	120.000	•
16.500	2	223.000	125.000	•
17.000	2	223.000	125.000	•
17.500	2	228.000	130.000	•
18.000	2	228.000	130.000	•
18.500	2	233.000	135.000	•
19.000	2	233.000	135.000	•
19.500	2	238.000	140.000	•
20.000	2	238.000	140.000	•
20.500	2	243.000	145.000	•
21.000	2	243.000	145.000	•
21.500	2	248.000	150.000	•
22.000	2	248.000	150.000	•
22.500	2	253.000	155.000	•
23.000	2	253.000	155.000	•
23.500	3	276.000	155.000	•
24.000	3	281.000	160.000	•
24.500	3	281.000	160.000	
25.000	3	281.000	160.000	•
25.500	3	286.000	165.000	•
26.000	3	286.000	165.000	•
26.500	3	286.000	165.000	•
27.000	3	291.000	170.000	•
27.500	3	291.000	170.000	•



PowerLine no.
Standard
Tool material
Surface finish
Туре
Cutting direction
Tolerance
Discount group

8924
DIN 345
HSS
N
right-hand
h8
101



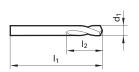


d1	MK	l1	12	Availability
mm		mm	mm	Availability
28.000	3	291.000	170.000	•
28.500	3	296.000	175.000	
29.000	3	296.000	175.000	
29.500	3	296.000	175.000	
30.000	3	296.000	175.000	
30.500	3	301.000	180.000	
31.000	3	301.000	180.000	
31.500	3	301.000	180.000	
32.000	4	334.000	185.000	•
33.000	4	334.000	185.000	•
34.000	4	339.000	190.000	•
35.000	4	339.000	190.000	
36.000	4	344.000	195.000	
37.000	4	344.000	195.000	
38.000	4	349.000	200.000	
39.000	4	349.000	200.000	
40.000	4	349.000	200.000	•



PowerLine no.	8914
Standard	in-house std.
Tool material	HSS
Surface finish	S
Туре	N
Cutting direction	right-hand
Tolerance	h6
Discount group	101

∞ range: 6.000 - 16.000
Point geometry: Relieved cone
Point angle: 90°



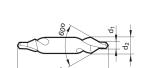


d1	I1	12	Availability
mm	mm	mm	Availability
6.000 8.000 10.000 12.000 16.000	66.000 79.000 89.000 102.000 115.000	16.000 21.000 25.000 30.000 37.500	
~			



PowerLine no.	8912
Standard	DIN 333
Tool material	HSS
Surface finish	
Form	Α
Cutting direction	right-hand
Discount group	101

Ø range: 0.500 - 12.500
Point geometry: Relieved cone
Point angle: 118°
Web thinned ≥Ø: 5.01 mm





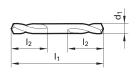
d1	I1	12	Availability
mm	mm	mm	Availability
0.500	3.150	25.000	•
0.800	3.150	25.000	•
1.000	3.150	31.500	•
1.250	3.150	31.500	•
1.600	4.000	35.500	•
2.000	5.000	40.000	•
2.500	6.300	45.000	•
3.150	8.000	50.000	•
4.000	10.000	56.000	•
5.000	12.500	63.000	•
6.300	16.000	71.000	•
8.000	20.000	80.000	•
10.000	25.000	100.000	•
12.500	31.500	125.000	•



PowerLine no.	8910
Standard	in-house std.
Tool material	HSS
Surface finish	>Ø 2,36
Туре	DK 77
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 2.000 - 10.000 Point geometry: Relieved cone

118° Point angle: Web thinned ≥Ø: 2.00 mm



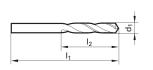


d1	I1	12	Availability
mm	mm	mm	Availability
2.000	38.000	7.500	•
2.500	43.000	9.500	•
3.000	46.000	10.600	•
3.200	49.000	11.200	•
3.300	49.000	11.200	•
4.000	55.000	14.000	
4.100	55.000	14.000	
4.200 4.800	55.000 62.000	14.000 17.000	
4.900	62.000	17.000	
5.000	62.000	17.000	
5.200	62.000	17.000	ě
6.000	66.000	19.000	
8.000	79.000	25.000	
10.000	89.000	25.000	



PowerLine no.	8926
Standard in	-house std.
Tool material	HSCO
Surface finish	\bigcirc
Туре	
Cutting direction	right-hand
Tolerance	h8
Discount group	101

Ø range: 6.000 - 8.000
Point geometry: Relieved cone
Point angle: 115°/180°
Web thinned ≥Ø: 6.00 mm





d1	l1	12	Availability
mm	mm	mm	Availability
6.000	66.000	28.000	•
8.000	79.000	37.000	•
hright			

Tools with bold feed column no. are preferred choice.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the PowerLineNavigator on the internet: www.guehring.de.

PowerLine no.
Standard/DIN
Tool material
Surface finish
Type
Std. range page

		Feed column no.							
Drill-Ø mm	1	2	3	4	5	6	7	8	9
					f (mm/rev.))			
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

CO	olant.
	Air
	Neat oil
	Soluble oil

80,00 0,400 0,500 0,63	0 0,800 1,000 1,250 1,600 1,600 2,0	00			
Material group	Material examples, new description (old description in b Figures in bold = material no. to DIN EN	rackets)	Tensile str MPa (N/m		Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235	* **			
	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P50	, ,	≤1000		
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SI	,	≤850		
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20) (45SPb20)	≤1000		
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30)		≤700		
	1.0503 C45, 1.1191 C45E (Ck45)		≤850		
Aller and broad to relate the related	1.0601 C60, 1.1221 C60E (Ck60)		≤1000		
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4		≤1000 ≤1400		
Linella, and same bandanced stable	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4				
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)		≤850		
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6		≤1000 ≤1400		
Nitriding stools	1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5				
Nitriding steels	1.8504 34CrAl6		≤1000 <1400		
Testedos	1.8519 31CrMoV9, 1.8550 34CrAINi7		≤1400		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	0707 V45NEO A4. 4	≤850 ≤1400		
TP-b	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1	.2767 X45NiCrMo4			
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3		≤1400	050 UD	
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	0.17 4 4007 1/00 1/10	10.0	≤350 HB	_
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrM				•
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.45				
martensitic	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-	1, 1.4521 X2CrMoTi18	-2 ≤1500		
Hardened steels	-			≤48 HRC ≤66 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy		≤2000		
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20)		≤240 HB	
	0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤350 HB	
Spheroidal graphite iron and	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350	-4 (GTW35)		≤240 HB	
malleable cast iron	0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700	-2 (GTS70)		≤350 HB	
Chilled cast iron	-			≤350 HB	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2		≤850		
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5	i, - TiAl8Mo1V1	≤1400		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1		≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.	4365 AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi8)	≤600		
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiM	g	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-M	lgAl6Zn1	≤400		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb		≤500		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn4	3Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5		≤600		Ŏ
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10 2.0790 CuNi18Zn19Pb)Sn	≤600 ≤850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10		≤850		
D I I'	2.0980 CuAl11Ni, 2.1247 CuBe2		≤1000		
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		≤100		
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6			≤220 HB ≤300 HB	
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)		≤1000 ≤1400		
Kevlar Glass, carbon concentrated plastics	Kevlar GFK/CFK		≤1000 ≤1000		8
>Ø bright/steam tempered	steam tempered	>Ø bright/	nitrided lands	nitrided lands	

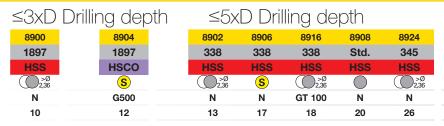
8922

1869

HSS GT 100

25





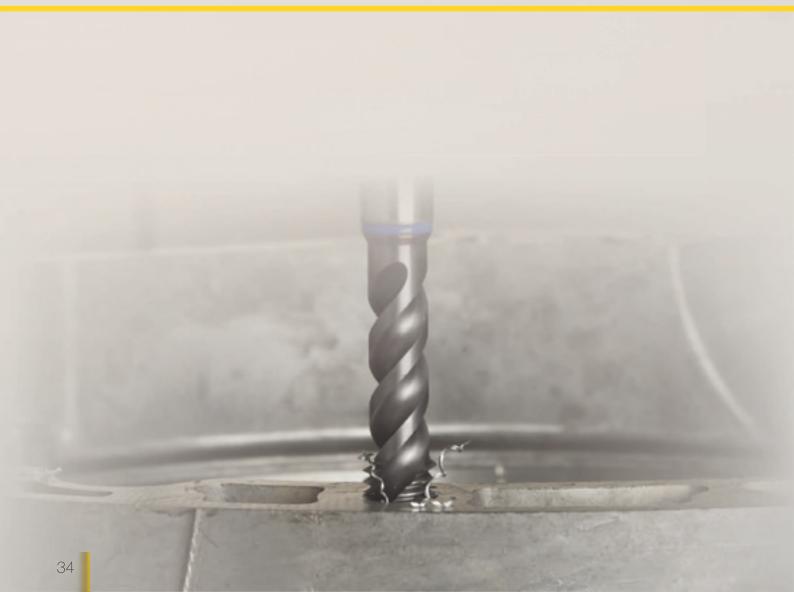
≤10xD	>10xD
8918	8920
340	1869
HSS	HSS
>Ø 2,36	>0
GT 100	GT 100
21	24

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			ш			UII.								
v _c m/min	Feed col. no.	v _c m/min	Feed col. no.	v _c m/min		Fe	ed column r			v _c m/min	Feed col. no.	v _c m/min	Feed co	umn no.
27	6	45	6	27	6	6	6	6	6	24	6	22	5	5
22	5	35	5	22	5	5	5	5	5	20	5	18	4	4
30	6	50	6	30	6	6	6	6	6	27	6	22	5	5 4
30 25	5 5	40 42	6	30 25	5 5	5 5	5 5	5 5	5 5	27	5	18	4	
25 25	5 5	42 35	6	25 25	5	5	5	5	5 5	22 22	5 5	22 18	4 4	4 4
23	3	22	5	20	3	3	3	3	3	22	3	70	7	7
		18	4											
		15	3											
30	6	40	6	30	6	6	6	6	6	27	6	22	5	5
		20	4											
		15	3											
		18	4											
		12	3											
16	4	18	4	16	4	4	4	4	4	14	4	12	3	3
		13	3									6	2	2
		13	3											
		10	4											
		18 12	4 4											
		15	4											
		13	7											
30	6	45	6	30	6	6	6	6	6	27	6	22	5	5
30	6	36	6	30	6	6	6	6	6	27	6	18	5	5
25	6	40	6	25	6	6	6	6	6	22	6	20	5	5
20	6	28	6	25	6	6	6	6	6	18	6	14	5	5
		70	_											
		70 70	7											
50	7	70 85	7	70	7	7	7	7	7	45	7	45	6	6
50	6	70	6	70 70	6	6	6	6	6	45 45	6	36	5	5
70	6	70	6	50	6	6	6	6	6		-	55	5	5
60	5	32	5	50	5	5	5	5	5	54	5	22	4	4
		63	5	70										
40	5	40	5	40	5	5	5	5	5	36	5	28	4	4
30	4	50	4	30	4	4		4	4			22	3	3
25	4	35	4	25	4	4		4	4			20	3	3
15	4	32	4	15	4	4	4	4	4	22	4	18	3	3
40		28	4	40										
18	4	25	4	18	4	4	4	4	4	14	4	12	3	3
28	5	15	4	28	5	5		5	5			18	4	4

PowerLine

PERFECT THREADS,
HIGH CUTTING
PERFORMANCE AND
MAXIMUM PROCESS
RELIABILITY



THREADING TOOLS

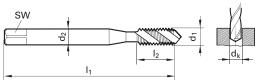




PowerLine no.
Standard
Standard
Tool material
Surface finish
Туре
Form
Cutting direction
Tolerance
Discount group

8950
DIN 2184-1
DIN 371
HSS-E
N R40
С
right-hand
ISO2/6H
203

Ø range: M 3 - M10





		-	<u>'1</u>	-				
Code no.	d1	Р	d2	SW	dk	l1	12	Availability
	mm	mm	mm		mm	mm	mm	Availability
3.000	M 3	0.500	3.500	2.7	2.50	56.000	6.000	•
4.000 5.000	M 4 M 5	0.700 0.800	4.500 6.000	3.4 4.9	3.30 4.20	63.000 70.000	7.500 8.500	
6.000	M 6	1.000	6.000	4.9	5.00	80.000	11.000	
8.000	M 8	1.250	8.000	6.2	6.80	90.000	14.000	
10.000	M10	1.500	10.000	8.0	8.50	100.000	16.000	•
steam tempe	ered							



		PowerLine no.	8903
		Standard	in-house std.
		Standard	-
		Tool material	HSS-E
		Surface finish	0
		Туре	N R40
		Form	С
		Cutting direction	right-hand
		Tolerance	ISO2/6H
		Discount group	203
a rongo	BA O BA4O		

Ø range: M 3 - M10

Set consists of:

Taps, 6 pcs. PowerLine no. 8950 (DIN 371), steam tempered, M3 / M4 / M5 / M6 / M8 / M10



Twist drills, 6 pcs. PowerLine no. 8906 (DIN 338), TiN head coated, Ø 2.5 / 3.3 / 4.2 / 5.0 / 6.8 / 8.5



90° countersinks, 2 pcs. PowerLine no. 8940 (DIN 335), bright, Ø 6.3 / 12.4





Code no.	Ø range	Piece	Availability
		per set	
1.000	M 3-M10	14	•

PowerLine

MILLING CUTTERS WITH NEARLY INFINITE TOOL LIFE FOR STRONG PERFORMANCE AND QUALITY



Milling cutters

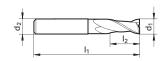
MILLING CUTTERS





PowerLine no.	8970
Standard	DIN 327
Tool material	M42
Surface finish	
Туре	N
Shank form	В
Helix	30 °
Tolerance	e8/h10
Discount group	112

Ø range: 1.000 - 25.000



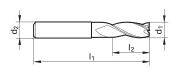


d1	d2	Tolerance	I1	12	z	Availability
mm	mm		mm	mm		Availability
1.000	6.000	h10	47.000	2.000	2	•
1.500	6.000	h10	47.000	3.000	2	•
2.000	6.000	e8	48.000	4.000	2	
2.500	6.000	e8	49.000	5.000	2	•
3.000	6.000	e8	49.000	5.000	2	•
4.000	6.000	e8	51.000	7.000	2	
5.000	6.000	e8	52.000	8.000	2	
6.000	6.000	e8	52.000	8.000	2 2	•
6.500	10.000	h10	60.000	10.000	2	•
7.000	10.000	e8	60.000	10.000	2	•
8.000	10.000	e8	61.000	11.000	2 2	•
9.000	10.000	h10	61.000	11.000	2	•
10.000	10.000	e8	63.000	13.000	2	
11.000	12.000	h10	70.000	13.000	2	•
12.000	12.000	e8	73.000	16.000	2	
13.000	12.000	h10	73.000	16.000	2	•
14.000	12.000	e8	73.000	16.000	2	•
15.000	12.000	h10	73.000	16.000	2	•
16.000	16.000	e8	79.000	19.000	2 2	•
17.000	16.000	h10	79.000	19.000	2	•
18.000	16.000	e8	79.000	19.000	2	•
19.000	16.000	h10	79.000	19.000	2	•
20.000	20.000	e8	88.000	22.000	2	•
22.000	20.000	e8	88.000	22.000	2	•
25.000	25.000	e8	102.000	26.000	2	•
<u> </u>						



PowerLine no.	8972
Standard	DIN 327
Tool material	M42
Surface finish	
Туре	N
Shank form	В
Helix	30°
Tolerance	e8/h10
Discount group	112

Ø range: 20.000 - 30.000





d1	d2	Tolerance	l1	l2	Z	Availability
mm	mm		mm	mm		Availability
20.000	20.000	e8	88.000	22.000	3 3	•
30.000	25.000	h10	102.000	26.000	3	•
<u></u>						

Universal end mills 2- and 3-fluted Type N



fz-corrections:* $ap = 2 \times d$; fz -30% fz-corrections:** $ap = 1-2 \times d$; fz +25% fz-corrections:*** $ap = 1-2 \times d$; fz +60%

Application	Feed width (ae)	Feed depth (ap)		
Slotting*	1 x d	0.5 up to 1.0 x d		
Roughing*	0.5 up to 0.9 x d	0.5 up to 1.0 x d		
Finishing	0.05 up to 0.1 x d	1.0 up to 2.0 x d		
HPC-roughing**	0.25 up to 0.5 x d	1.0 up to 2.0 x d		
HSC-roughing***	0.1 up to 0.25 x d	1.0 up to 2.0 x d		

Material	Hardness	usable type	Type of application	cut Vc	fz (mm/z)							
		, , , , , , , , , , , , , , , , , , ,			3	6	8	10	12	16	20	25
Structural + free-cutting steels, unalloyed heat-treatable + case hardened steels 1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0050, 1.0070, 1.8937	5	2-fluted	Slotting	125	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
1.0718 11SMnPb30, 1.0736 11SMn37 1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C30E 1.0301 C10, 1.1121 C10E 1.1750 C75W, 1.2076 102Cr6, 1.2307 29CrMoV9		2- or 3-fluted	Roughing	140	0.014	0.028	0.039	0.049	0.060	0.070	0.084	0.119
		4-fluted	Finishing	190	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
Free-cutting steels, unalloyed case hardened steels, nitriding steels 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	850-	2-fluted	Slotting	110	0.013	0.025	0.032	0.042	0.049	0.063	0.070	0.105
.0601 C60, 1.1221 C60E .7043 38Cr4 .5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5		2- or 3-fluted	Roughing	130	0.014	0.028	0.039	0.049	0.060	0.070	0.084	0.119
1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	N/mm ²	4-fluted	Finishing	150	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
Alloyed heat-treatable, tool and high speed steels 1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4		2-fluted	Slotting	95	0.011	0.021	0.028	0.039	0.046	0.056	0.067	0.098
1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2379 X155CrVMo12-1	850- 1,400 N/mm ²	2- or 3-fluted	Roughing	115	0.014	0.028	0.035	0.046	0.056	0.067	0.077	0.112
1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3 Spring steel = 1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4	IN/IIIIII-	4-fluted	Finishing	140				0.035				
	up to	2-fluted	Slotting	50			_	0.024				
Hardened steel		2- or 3-fluted	Roughing	75	-		-	0.027				
Tool steel, heat-treatable steel, spring steel, high-speed steel, case hardened steel, etc.		4-fluted	Finishing	105	0.009	0.018	0.024	0.030	0.036	0.042	0.054	0.078
Z.B.: 1.2344 X40CrMoV5-1; 1.2767 X45NiCrMo4;	54-60	2-fluted	Slotting									
1.2379 X155CrVMo12-1 ;1.2080 X210Cr12 1.3343 S 6-5-2	HRC	2- or 3-fluted	Roughing									
		4-fluted	Finishing									
Stainless steel	up to	2-fluted	Slotting	85	-		-	0.030		0.042		
1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X10CrNiS18-9 USA = 303, 410, 420F, 430, 430F	750 N/mm ²	2- or 3-fluted	Roughing	100		0.021		0.036		0.054		
500A = 500, 410, 4201, 4001	14/111111-	4-fluted	Finishing	125				0.033				
Stainless steel	750-850 N/mm ²	2-fluted	Slotting	55			_	0.027				
1.4301X5CrNi18-10, 1.4303 X5CrNi18-12 1.4310 XCrNi18-8 USA = 304, 304L, 420		2- or 3-fluted	Roughing	85	-		-	0.033		0.048		0.084
- 004, 004L, 420		4-fluted	Finishing	100			_	0.030				0.078
Stainless steel	above	2-fluted	Slotting	50	1		-	0.024		0.036		0.060
1.4438 X2CrNiMo18-15-4, 1.4404 X2CrNiMo17-12-2, 1.4571 X6CrNiTi18-10 USA = 310, 316, 316B, 316L, 317	850 N/mm ²	2- or 3-fluted	Roughing	70	-		-	0.027	_	0.039	_	_
557 - 516, 5162, 5162, 517	14/11111-	4-fluted	Finishing	85	-		_					0.072
Special alloys (nickel based "Ni")	up to	2-fluted	Slotting	20	0.006			0.015			0.030	
Nimonic, Inconel, Monel, Hastelloy	1,300 N/mm ²	2- or 3-fluted	Roughing	25	-		_	0.021		0.033		
	19/111111	4-fluted	Finishing	30			_	0.027				
Titanium alloys ("Ti")		2-fluted	Slotting	40			0.021			0.039		
3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5	1,300 N/mm ²	2- or 3-fluted	Roughing	60	-		_	0.033		0.048		0.084
6.7 10.4 11/10210, 6.7 10.4 11/1004, 6.7 10.4 11/1040112,0	19/111111	4-fluted	Finishing	90	_		_	0.033				0.084
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron	up to	2-fluted	Slotting	115	0.012		-					
0.6010 EN-GL100 (GG10), 0.6020 EN-GJL-200 (GG20), 0.7050 EN-GJS-500-7 (GGG50), 0.8535 EN-GJMW-350-4 (GTW35)	240 HB 30		Roughing	125	_		_	0.042				
2.1 233 2.1 233 223 1 (a. 1. 1. 2. 2. 1. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		4-fluted	Finishing	155				0.036				
Cast iron, grey cast iron, spheroidal graphite and malleable cast iron	above	2-fluted	Slotting	100			_	0.033				
0.6025 EN-GL250 (GG25), 0.6035 EN-GJL-350 (GG35), 0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)	240 HB 30		Roughing	115	_		-	0.039				
(4-fluted	Finishing	140				0.036				
Aluminium, Al-wrought alloys, Al-alloys	up to	2-fluted	Slotting	350				0.046				
3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	3% Si	2- or 3-fluted	Roughing	420	-			0.049	_		_	
		4-fluted	Finishing	700	_			0.042				
Aluminium-cast alloys 3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	above	2-fluted 2- or 3-fluted	Slotting Roughing	160 200	_			0.039				
3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	3% Si		0 0									
		4-fluted 2-fluted	Finishing Slotting	245 125				0.042				
Magnesium-alloys		-	Roughing	150	-		-	0.039				
MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	_	2- or 3-fluted 4-fluted	Finishing	200	-		-	0.046				
Non formula motale (connex chest ex leng chicains have ex leng						-				-		
Non-ferrous metals (copper, short- or long-chipping brass or bronze) 2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb 2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	up to	2-fluted	Slotting	175	-			0.032				
2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5 2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	850 N/mm ²	2- or 3-fluted 4-fluted	Roughing Finishing	210				0.039				
2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10		- nateu	i ii ii Si iii ig	200	5.011	J.UZ I	5.020	5.003	5.040	5.000	5.007	5.030

All recommendations are valid for coated tools. For bright milling cutters please vc - 40% and fz - 25%!

Reamers

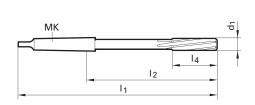
REAMERS





PowerLine no. 8980 Standard **DIN 208** HSS-E **Tool material** Surface finish \bigcirc Form В **Cutting direction** right-hand Tolerance H7 105 Discount group

Ø range: 4.000 - 40.000





d1	Morsetaper	I1	12	14	Z	Availability
mm	MK	mm	mm	mm		Availability
4.000	1	125.000	63.000	19.000	6	•
5.000	1	133.000	71.000	23.000	6	•
6.000	1	138.000	76.000	26.000	6	•
8.000	1	156.000	94.000	33.000	6	•
9.000	1	162.000	100.000	36.000	6	•
10.000	1	168.000	106.000	38.000	6	•
11.000	1	175.000	113.000	41.000	6	•
12.000	1	182.000	120.000	44.000	6	
13.000	1	182.000	120.000	44.000	6	
14.000	1	189.000	127.000	47.000	8	
15.000	2	204.000	129.000	50.000	8	
16.000	2	210.000	135.000	52.000	8	
17.000	2	214.000	139.000	54.000	8	
18.000	2	219.000	144.000	56.000	8	
19.000	2	223.000	148.000	58.000	8	
20.000	2	228.000	153.000	60.000	8	•
21.000	2	232.000	157.000	62.000	8	•
22.000	2	237.000	162.000	64.000	8	
23.000	2	241.000	166.000	66.000	8	
24.000	3	268.000	174.000	68.000	8	
25.000	3	268.000	174.000	68.000	8	
26.000	3	273.000	179.000	70.000	8	
27.000	3	277.000	183.000	71.000	10	•
28.000	3	277.000	183.000	71.000	10	
29.000	3	281.000	187.000	73.000	10	
30.000	3	281.000	187.000	73.000	10	
32.000	4	317.000	199.500	77.000	10	
33.000	4	317.000	199.500	77.000	10	
34.000	4	321.000	203.500	78.000	10	
35.000	4	321.000	203.500	78.000	10	
36.000	4	325.000	207.500	79.000	10	
38.000	4	329.000	211.500	81.000	10	
40.000	4	329.000	211.500	81.000	10	

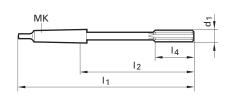
obright



PowerLine no.
Standard
Tool material
Surface finish
Form
Cutting direction
Tolerance
Discount group

8982
DIN 208
HSS-E
Α
right-hand
H7
105

Ø range: 6.000 - 40.000





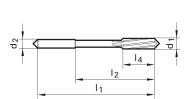
d1	Morsetaper	l1	12	14	z	Avoilability
mm	MK	mm	mm	mm		Availability
6.000	1	138.000	76.000	26.000	6	•
8.000	1	156.000	94.000	33.000	6	•
10.000	1	168.000	106.000	38.000	6	•
12.000	1	182.000	120.000	44.000	6	•
14.000	1	189.000	127.000	47.000	8	•
16.000	2	210.000	135.000	52.000	8	•
18.000	2	219.000	144.000	56.000	8	•
20.000	2 2	228.000	153.000	60.000	8	•
21.000		232.000	157.000	62.000	8	•
22.000	2	237.000	162.000	64.000	8	•
23.000	2	241.000	166.000	66.000	8	•
24.000	3	268.000	174.000	68.000	8	•
25.000	3	268.000	174.000	68.000	8	•
26.000	3	273.000	179.000	70.000	8	•
30.000	3	281.000	187.000	73.000	10	•
32.000	4	317.000	199.500	77.000	10	•
35.000	4	321.000	203.500	78.000	10	•
40.000	4	329.000	211.500	81.000	10	•
hright						

45



PowerLine no.	8984
Standard	DIN 212
Tool material	HSS-E
Surface finish	\bigcirc
Form	В
Cutting direction	right-hand
Tolerance	H7
Discount group	105

1.000 - 3.000 Ø range:



d1	d2	l1	12	14	Z
mm	mm	mm	mm	mm	
1.000	1.000	34.000	15.000	5.500	3
1.200	1.200	38.000	16.500	7.500	3
1.500	1.500	40.000	18.000	8.000	3
1.900	1.900	46.000	22.000	10.000	4
2.000	2.000	49.000	24.000	11.000	4
2.500	2.500	57.000	29.000	14.000	4
3.000	3.000	61.000	33.000	15.000	6

Availability
•

bright

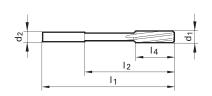




PowerLine no.
Standard
Tool material
Surface finish
Form
Cutting direction
Tolerance
Discount group

8986
DIN 212-2
HSS-E
B
right-hand
H7
105

Ø range: 4.000 - 20.000



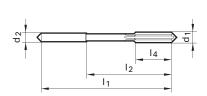


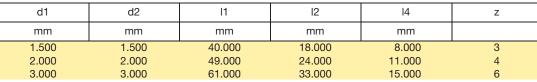
d1	d2	l1	12	14	Z	Availability
mm	mm	mm	mm	mm		Availability
4.000	4,000	75.000	47.000	19.000	6	•
4.500	4,500	80.000	52.000	21.000	6	•
5.000	5,000	86.000	58.000	23.000	6	•
5.500	5,600	93.000	57.000	26.000	6	•
6.000	5,600	93.000	57.000	26.000	6	•
7.000	7,100	109.000	73.000	31.000	6	•
8.000	8,000	117.000	81.000	33.000	6	•
9.000	9,000	125.000	85.000	36.000	6	•
10.000	10,000	133.000	93.000	38.000	6	•
11.000	10,000	142.000	102.000	41.000	6	•
12.000	10,000	151.000	111.000	44.000	6	•
13.000	10,000	151.000	111.000	44.000	6	•
14.000	12,500	160.000	115.000	47.000	8	•
15.000	12,500	162.000	117.000	50.000	8	•
16.000	12,500	170.000	125.000	52.000	8	•
17.000	14,000	175.000	130.000	54.000	8	•
18.000	14,000	182.000	137.000	56.000	8	•
19.000	16,000	189.000	141.000	58.000	8	•
20.000	16,000	195.000	147.000	60.000	8	•



PowerLine no. 8988 Standard **DIN 212 Tool material** HSS-E Surface finish \bigcirc Form Α right-hand **Cutting direction** H7 Tolerance 105 Discount group

Ø range: 1.500 - 3.000







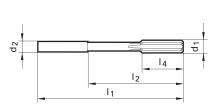
1.500	1.500	40.000	18.000	8.000	3	•
2.000 3.000	2.000 3.000	49.000	24.000	11.000 15.000	4 6	•
3.000	3.000	61.000	33.000	15.000	6	•
bright						



PowerLine no.
Standard
Tool material
Surface finish
Form
Cutting direction
Tolerance
Discount group

8990
DIN 212-2
HSS-E
Α
right-hand
H7
105

Ø range: 4.000 - 20.000





d1	d2	I1	12	14	z
mm	mm	mm	mm	mm	
4.000	4.000	75.000	47.000	19.000	6
5.000	5.000	86.000	58.000	23.000	6
6.000	6.000	93.000	57.000	26.000	6
8.000	8.000	117.000	81.000	33.000	6
10.000	10.000	133.000	93.000	38.000	6
12.000	12.000	151.000	111.000	44.000	6
14.000	14.000	160.000	115.000	47.000	8
15.000	15.000	162.000	117.000	50.000	8
16.000	16.000	170.000	125.000	52.000	8
20.000	20.000	195.000	147.000	60.000	8

Availability
•

PowerLineNavigator Reamers

Tools with bold feed column no. are preferred choice.

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

For exact definition of tools please refer to the "Standard range and technical data" pages.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the PowerLineNavigator on the internet: www.guehring.de.

PowerLine no. Standard/DIN **Tool material** Surface finish Form Std. range page

			Fe	ed column	no.			Coolant:
Reamer Ø mm	71	72	73	74	75	76	77	○ AirNeat oil
				f (mm/rev.)				Soluble oil
< 4.00	0.080	0.100	0.125	0.300	0.500	0.800	1.000	
4.00	0.100	0.125	0.160	0.300	0.500	1.000	1.200	
5.00	0.100	0.125	0.160	0.400	0.600	1.000	1.400	
6.30	0.125	0.160	0.200	0.400	0.700	1.200	1.600	
8.00	0.160	0.200	0.250	0.600	1.000	1.800	2.400	
10.00	0.200	0.250	0.315	0.600	1.200	1.800	2.400	
12.50	0.200	0.250	0.315	0.800	1.200	2.000	2.500	
16.00	0.250	0.315	0.400	0.800	1.400	2.200	2.600	
20.00	0.315	0.400	0.500	0.800	1.400	2.200	2.600	
25.00	0.400	0.500	0.630	1.000	1.600	2.500	3.000	
31.50	0.400	0.500	0.630	1.000	2.000	3.000	3.600	
40.00	0.500	0.630	0.800	1.200	2.000	3.000	3.600	
50.00	0.630	0.800	1.000	1.400	2.200	3.200	3.600	
> 50.00	0.800	1.000	1.250	1.600	2.200	3.200	3.600	

Material group	Material examples, new description (old description in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		
	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤1000		
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤1000		
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30)	≤700		
	1.0503 C45, 1.1191 C45E (Ck45)	≤850		
	1.0601 C60, 1.1221 C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	≤1000		
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1400		
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6	≤1000		
	1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1400		
Nitriding steels	1.8504 34CrAl6	≤1000		
	1.8519 31CrMoV9, 1.8550 34CrAINi7	≤1400		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤1400		
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤900		Ó
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤1100		ŏ
martensitic	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		Ŏ
Hardened steels	-		≤48 HRC ≤66 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20)		≤240 HB	
	0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤350 HB	6 8
Spheroidal graphite iron and	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35)		≤240 HB	
malleable cast iron	0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤350 HB	
Chilled cast iron	-		≤350 HB	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850	3000 TID	
Trana Tranoys	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al-alloys	3.0255 Al99.5, 3.2315 AlMqSi1, 3.3515 AlMq1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
biolize, short-chipping	2.0790 CuNi18Zn19Pb	≤850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		
Bronze, long-crilipping	2.0980 CuAl11Ni, 2.1247 CuBe2	≤000 ≤1000		
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		
•		≤100 ≤100		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≥100	-000 LID	
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)		≤220 HB ≤300 HB	
New cost materials ADI	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6	-1000	≥300 ⊓D	
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	≤1000 ≤1400		
Varday	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)			
Kevlar	Kevlar CFK/CFK	≤1000 <1000		
Glass, carbon concentrated plastics	GFK/CFK	≤1000		
○ bright				



Machine reamers

8988	8984	8990	8986	8982	8980
212	212	212-2	212-2	208	208
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	0	0	0	0	0
Α	В	Α	В	Α	В
48	46	49	47	45	44



	•	u u	u u	ш	•	-
V _C m/min			Feed co	lumn no.		
16	72	72	72	72	72	72
12	72	72	72	72	72	72
12 10	72 71	72 71	72 71	72 71	72 71	72 71
14	72	72	72	72	72	72
12	71	71	71	71	71	71
10	71	71	71	71	71	71
10	71	71	71	71	71	71
8	71	71	71	71	71	71
16	72	72	72	72	72	72
10 8	71 71	71 71	71 71	71 71	71 71	71 71
10	71	71	71	71	71	71
8	71	71	71	71	71	71
14	72	72	72	72	72	72
10	71	71	71	71	71	71
10	71	71	71	71	71	71
6	72	72	72	72	72	72
6	72	72	72	72	72 72	72 72
4	72	72	72	72	72	72
14 12	71 71	71 71	71 71	71 71	71 71	71 71
12	71	71	71	71		71
10	71 71	71 71	71	71	71 71	71 71
6	71	71	71	71	71	71
4	71	71	71	71	71	71
18 18	73 73	73 73	73 73	73 73	73 73	73 73
20	72	72	72	72	72	72
18	72	72	72	72	72	72
20	72	72	72	72	72	72
18	72	72	72	72	72	72
18	72 72	72	72 72	72 72	72 72	72 72
16 20	72	72 72	72	72	72	72
18	72	72	72	72	72	72
18	72	72	72	72	72	72
14	72	72	72	72	72	72
12	73 73	73	73	73	73	73
14	/3	73	73	73 71	73 71	73 71
8 8	71 71	71 71	71 71	71 71	71 71	71 71
-						

PowerLine

COUNTERSINKS FOR THE MACHINING OF HOLE ENTRIES



COUNTERSINKS

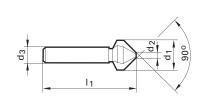




PowerLine no. Standard Tool material Surface finish Form Discount group

8940	
DIN 335	
HSS	
\bigcirc	
С	
105	

Ø range: 5.000 - 31.000



d3



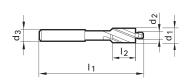
d1	d2	d3	I1	Z	Availability
mm	mm	mm	mm		Availability
5.000	1.500	4.000	40.000	3	•
6.300	1.500	5.000	45.000		
8.000	2.000	6.000	50.000	3 3	•
8.300	2.000	6.000	50.000		•
10.000	2.500	6.000	50.000	3	•
10.400	2.500	6.000	50.000	3 3 3 3 3 3	•
11.500	2.800	8.000	56.000	3	
12.400	2.800	8.000	56.000	3	
13.400	2.900	8.000	56.000	3	•
15.000	3.200	10.000	60.000	3	•
16.500	3.200	10.000	60.000	3	•
20.500	3.500	10.000	63.000	3 3 3	
25.000	3.800	10.000	67.000		•
30.000	4.200	12.000	71.000	3	
31.000	4.200	12.000	71.000	3 3 3	

bright



PowerLine no.	8942
Standard	DIN 373
Tool material	HSS
Surface finish	\bigcirc
Form	
Discount group	105

Ø range: 4.300 - 20.000





d1	d2	d3	I1	12	Z	Availability
mm	mm	mm	mm	mm		Availability
4.300	2.200	4.300	56.000	10.000	2	•
6.000	3.200	5.000	71.000	14.000	3 3	•
8.000 10.000	4.300 5.300	5.000 8.000	71.000 80.000	14.000 18.000	3	
11.000	6.400	8.000	80.000	18.000	3 3	
15.000	8.400	12.500	100.000	22.000	3	
18.000	10.500	12.500	100.000	22.000	3	
20.000	13.000	12.500	100.000	22.000	3	•

PowerLineNavigator Countersinks

Tools with bold feed column no. are preferred choice.

For exact definition of tools please refer to the "Standard range and technical data" pages.

For multi-fluted countersinking tools the \varnothing -range for the respective flute no. is in brackets.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the PowerLineNavigator on the internet: www.guehring.de.

PowerLine no.
Standard/DIN
Tool material
Surface finish
Angle of taper
Form
Pilot
Std. range page

Counter-			Feed co	lumn no.		
sink Ø	81	82	83	84	85	86
mm			f (mn	n/rev.)		
2.00	0.03	0.04	0.06	0.08	0.10	0.13
2.50	0.03	0.05	0.07	0.10	0.13	0.16
3.15	0.03	0.05	0.08	0.11	0.15	0.20
4.00	0.04	0.06	0.09	0.13	0.17	0.22
5.00	0.04	0.07	0.10	0.14	0.18	0.23
6.30	0.04	0.07	0.12	0.15	0.19	0.24
8.00	0.05	0.08	0.13	0.16	0.20	0.25
10.00	0.06	0.09	0.14	0.17	0.22	0.26
12.50	0.06	0.10	0.15	0.19	0.23	0.28
16.00	0.07	0.11	0.17	0.21	0.26	0.31
20.00	0.08	0.13	0.18	0.23	0.28	0.33
25.00	0.09	0.15	0.21	0.26	0.30	0.38
31.50	0.12	0.17	0.24	0.30	0.36	0.42
40.00	0.14	0.21	0.28	0.34	0.40	0.46
50.00	0.17	0.24	0.31	0.36	0.42	0.48
63.00	0.20	0.27	0.33	0.38	0.44	0.50
80.00	0.23	0.30	0.35	0.40	0.46	0.52
100.00	0.25	0.30	0.35	0.40	0.46	0.52

	Coolant:	
86	○ Air ■ Neat oil	
	Soluble oil	
0.13	•	
0.16		
0.20		
0.22		
0.23		
0.24		
0.25		
0.26		
0.28		
0.31		
0.33		
0.38		
0.42		
0.46		
0.48		
0.0		

Material group	Material examples, new description (old description in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm²)	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500 ≤1000		
For a March of	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)			_
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850 ≤1000		
I leadlessed back two stable at all	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)			_
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30)	≤700 ≤850		
	1.0503 C45, 1.1191 C45E (Ck45)	≤850 ≤1000		
Alloyed heat treatable stools	1.0601 C60, 1.1221 C60E (Ck60)	≤1000		
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	≤1000 ≤1400		
Unalloyed case hardened steels	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤850		
Alloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10) 1.7276 10CrMo11, 1.5125 11MnSi6	≤1000		
Alloyed case hardened steels	1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400		
Nitriding stools	1.8504 34CrAl6	≤1000		
Nitriding steels	1.8519 31CrMoV9, 1.8550 34CrAINi7	≤1000 ≤1400		
Tool steels	,	≤850		
TOOL Steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850 ≤1400		
High speed steels	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4 1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400 ≤1400		
Spring steels		≤1400	≤350 HB	
Stainless steels, sulphured	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4) 1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	-000	≥330 HD	
•		≤900 ≤1100		
austenitic martensitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		
Hardened steels	1.4037 A2001N1172 (A1701N110-2), 1.4122 A3901N1017-1, 1.4321 A201N101110-2	≤1000	≤48 HRC	
naidelled steels			≤46 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20)		≤240 HB	
	0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤350 HB	ŎŎ
Spheroidal graphite iron and	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35)		≤240 HB	
malleable cast iron	0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤350 HB	Ŏ
Chilled cast iron	-		≤350 HB	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
	2.0790 CuNi18Zn19Pb	≤850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	≤150		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		
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		
Kevlar	Kevlar	≤1000		0
Glass, carbon concentrated plastics	GFK/CFK	≤1000		
bright				
Singin				



Countersinks

8940
335
HSS
\bigcirc
90°
С
54

Counterbores

8942
373
HSS
С
with fixed pilot
55





	U U		UI .
v _c m/min	Feed column no.	v _c m/min	Feed column no.
32	85	32	85
30 32	85 85	30	85 85
32 30	85	32 30	85
32	85	32	85
30	85	30	85
20	84	20	84
15	84	15	84
12	84	12	84
25	85	25	85
15	84	15	84
10	84	10	84
15	85	15	85
12	84	12	84
17	84	17	84
15	84	15	84
15	84	15	84
10	84	10	84
16	84	16	84
12	84	12	84
14	84	14	84
8	84	8	84
25	85	25	85
16	84	16	84
22	84	22	84
20	84	20	84
8	84	8	84
15	85	15	85
10	85	10	85
90	85	90	85
70	86	70	86
40	85 85	40	85 85
30 100	86	30 100	86
60	84	60	84
80	85	80	85
50	85	50	85
30	86	30	86
26	86	26	86
24	86	24	86
20	86	20	86
30	84	30	84
40	85	40	85
70	84	70	84
70	07	, ,	07



MINI POWERLINE-BOX

THE MOST DEMANDED TOOLS FROM OUR PRODUCTION PROGRAMME ALWAYS AT HAND IN YOUR FIRM

- ₹ Tools immediately available
- Possibility to choose tools according to your needs





PowerLine no.	Standard range page	Discount group	Standard	Description	Tool material	Туре	Form	Shank form
8900	10	101	DIN 1897	Stub drills	HSS	N		2
8901	19	101	DIN 338	Jobber drill sets	HSS	N		
8902	13	101	DIN 338	Jobber drills	HSS	N		
8903	37	203	in-house std.	Tap set with core drills and countersinks	HSS-E	N R40	С	
8904	12	101	DIN 1897	Stub drills	HSCO	G 500		
8906	17	101	DIN 338	Jobber drills	HSS	N		
8908	20	101	in-house std.	Jobber drills, shank Ø 12.7 mm	HSS	N DK 77		
8910 8912	30 29	101 101	in-house std. DIN 333	Straight shank drills double-ended Center drills without flat	HSS HSS	DK 77	^	
8914	28	101	in-house std.	90° NC-spotting drills	HSS	N	Α	
8916	18	101	DIN 338	Jobber drills	HSS	GT 100		
8918	21	101	DIN 340	Long series twist drills	HSS	GT 100		
8920	24	101	DIN 1869 R1	Extra length twist drills, series 1	HSS	GT 100		
8922	25	101	DIN 1869 R3	Extra length twist drills, series 3	HSS	GT 100		
8924	26	101	DIN 345	Taper shank twist drills	HSS	N		
8926	31	101	in-house std.	Spot weld drills	HSCO			
8940	54	105	DIN 335	90° countersinks	HSS		С	
8942	55	105	DIN 373	Counterbores with fixed pilots for fine tolerances	HSS			
8950	36	203		Taps for ISO metric threads	HSS-E	N R40	С	Б
8970	40	112	DIN 327	Slot drills (2-fluted) Slot drills (3-fluted)	M42 M42	N N		B B
8972 8980	41 44	112 105	DIN 327 DIN 208	Machine reamers	M42 HSS-E	N	В	В
8982	44	105	DIN 208 DIN 208	Machine reamers Machine reamers	HSS-E		А	
8984	46	105	DIN 212	Machine reamers	HSS-E		В	
8986	47	105	DIN 212-2	Machine reamers	HSS-E		В	
8988	48	105	DIN 212	Machine reamers	HSS-E		Α	
8990	49	105	DIN 212-2	Machine reamers	HSS-E		Α	



Guhring KG

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