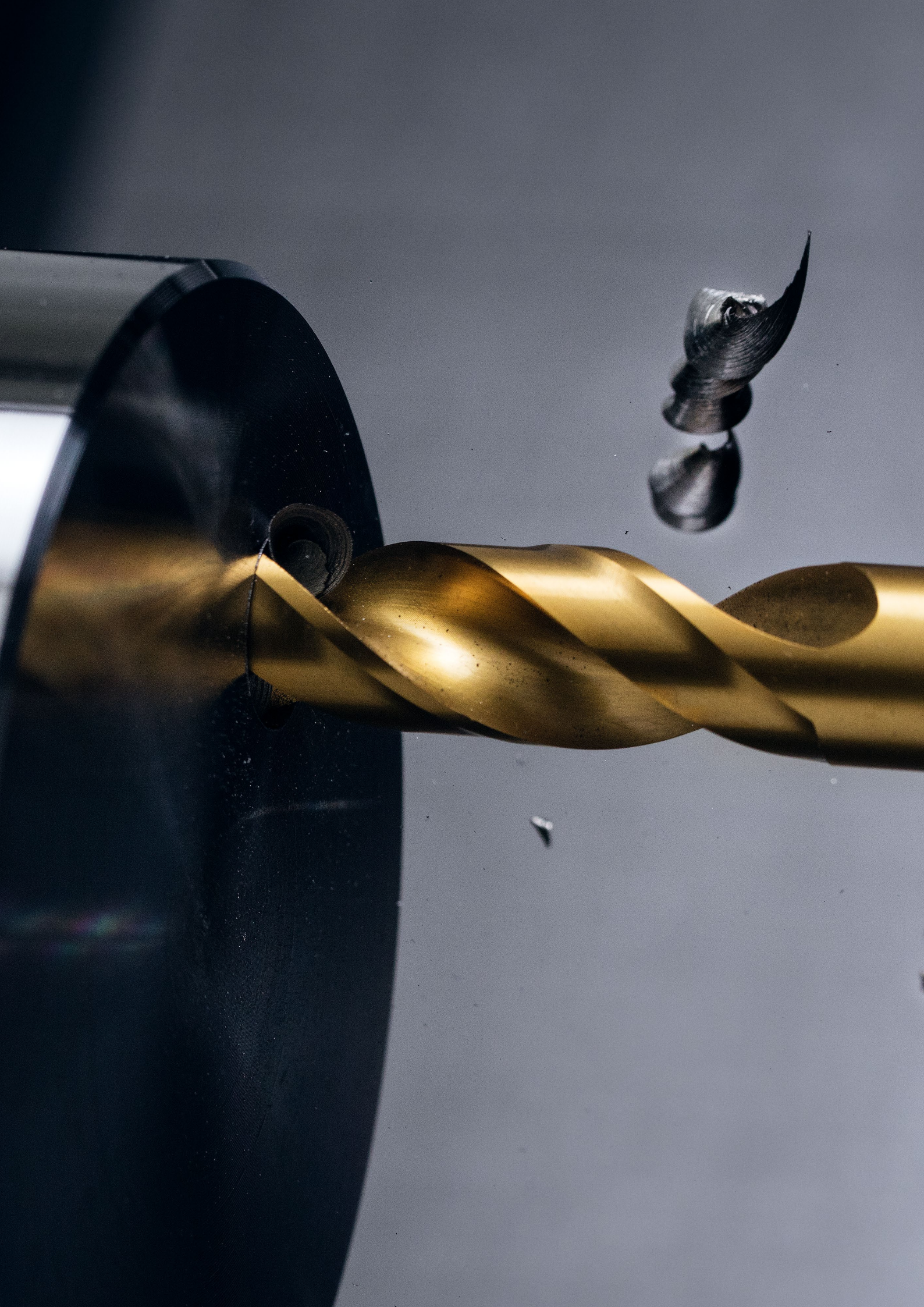
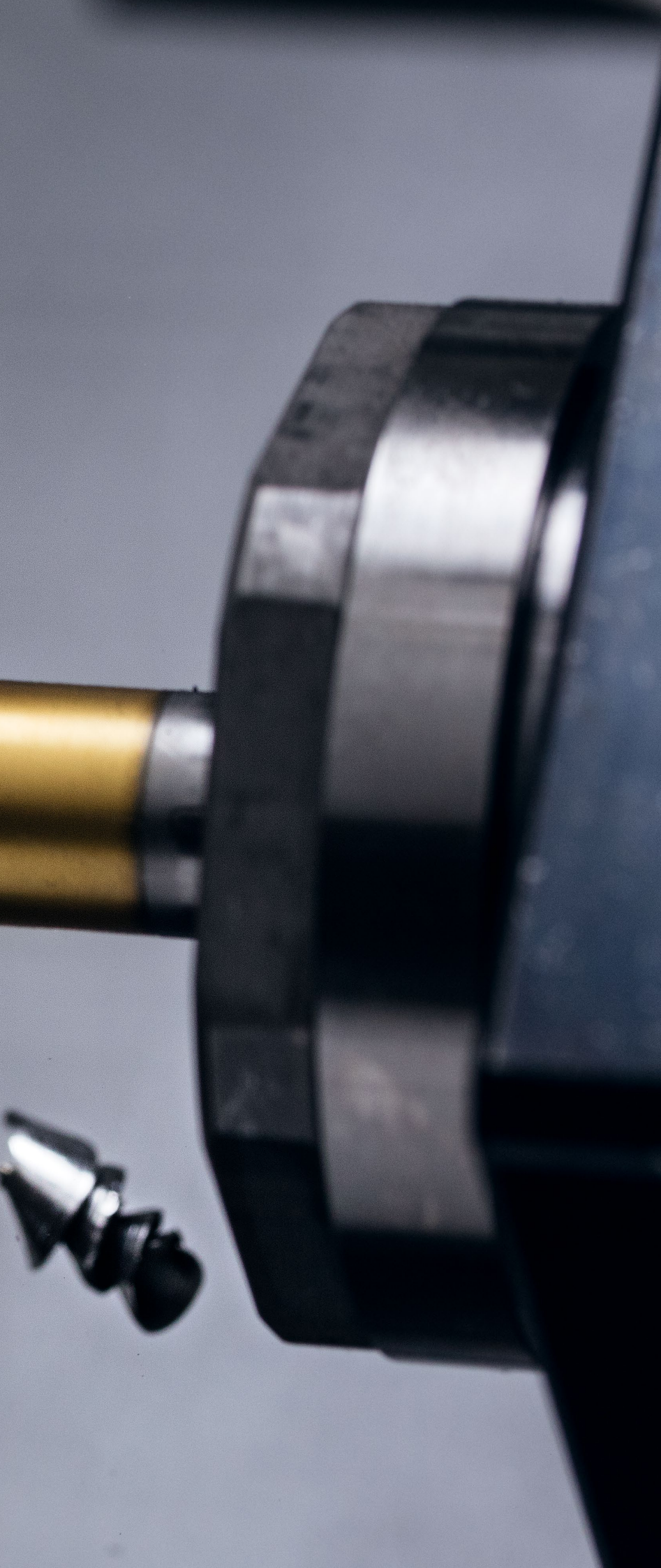






1 HSS drilling **1**

Solid drilling and bore machining

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

6 Taps and thread formers

Threading

7 Circular and Thread Milling

8 Thread turning

9 Turning Tools

Turning

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

13 HSS Milling Cutters

Milling

14 Solid Carbide milling cutters

15 Milling tools with
indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and
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WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank



Version



Int. coolant supply



self-centering

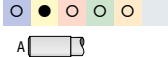
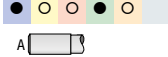
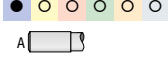
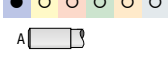
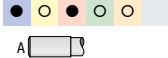
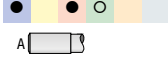
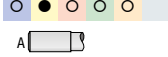
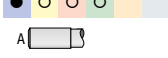
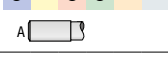
- = Main Application
- = Extended application



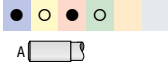
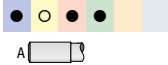
Toolfinder

	Tool type	Material/ Coating	Description	DIN 1897	DIN 338	DIN 340	Series 1	Series 2	Series 3
				3xD	5xD	10xD	> 10xD		
Steel – Universal	VX	HSS-E TiN	▲ universal high-performance drill ▲ shank DIN 1835A ▲ self centering	8	16				
	UNI	HSS-E PM TiN	▲ wear-resistant due to HSS-E-PM and TiN coating ▲ universal high-performance drill	9-14	17-22				
	UNI	HSS-E TiN	▲ as for type VX ▲ without standard shank to DIN 1835 A ▲ available as a set	9-14	17-22	26-28			
	N	HSS vap.	▲ stable twist drill ▲ also suitable for portable drills ▲ available in set	9-14	17-22				
	WT	HSS-E vap.	▲ for high alloy steel and special alloys (Hastelloy, Inconel, Nimonic)	9-14					
	WT	HSS-E TiN	▲ as type WT HSS-E vap. ▲ higher wear resistance due to coating	9-14					
	WTL-L	HSS F-nit	▲ left-hand cutting ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands	15	23				
	WNXi	HSS-E	▲ very good chip evacuation with thro' coolant ▲ for long chipping materials to 1000 N/mm ²		25				
	WNXi	HSS-E TiN	▲ as type WNXi HSS-E ▲ higher wear resistance due to coating		25				
	WTL	HSS-E F-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands		17-22	26-28			
	WTL	HSS-E TiN	▲ as WTL HSS-E, but higher v _c and wear resistance due to coating ▲ suitable for steel and cast iron		17-22				
	WTL	HSS-E TiCN	▲ as WTL TiN, but higher v _c and wear resistance possible with high alloy steels		23				
	WTL	HSS F-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands			26-28	29	30	30
	WTL	HSS TiN	▲ as WTL HSS, but higher v _c and wear resistance due to coating			26-28			
	WNX	HSS-E	▲ wide chip flutes for long-chipping materials ▲ self-centring	9-14					
	NC	HSS	▲ suitable for use with drill bushes ▲ very good chip evacuation with thro' coolant			25			
	NC	HSS TiAlN	▲ as NC, but higher v _c and wear resistance due to coating			25			
Stainless steel	VA	HSS-E	▲ specialist for stainless and acid-resistant materials ▲ special geometry	9-14	17-22				
Non-ferrous metals	W	HSS	▲ specialist for non-ferrous metals		17-22				
	WTW	HSS	▲ for non-ferrous metals to 500 N/mm ² ▲ for deep holes			26-28			

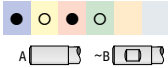
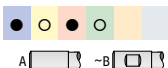
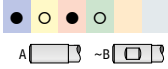
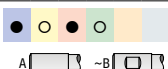
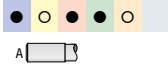
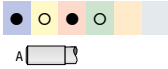
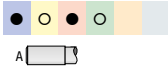
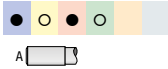
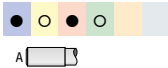
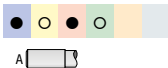
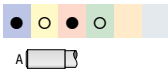
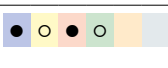
HSS Drills Overview

	Tool type	Material Coating	Point angle	Diameter in mm DC	Steel Stainless steel Cast iron Non-ferrous metals Heat-resistant Hardened materials	coated uncoated	WNT \ Performance
3xD without thro' coolant							
	VX	HSS-E TiN	118°	2-20	 		8
	UNI	HSS-E PM TiN	130°	1-14	 		9-14
	UNI	HSS-E TiN	118°	1-14			9-14
	N	HSS vap.	118°	0,4-20			9-14
	VA	HSS-E	130°	1-12			9-14
	WNX	HSS-E	130°	1-20			9-14
	WT	HSS-E vap.	130°	0,4-25			9-14
	WT	HSS-E TiN	130°	1-20			9-14
	WTL-L	HSS F-nit	130°	1-19	 left-hand cutting		15
5xD without thro' coolant							
	VX	HSS-E TiN	118°	2-20	 		16
	UNI	HSS-E PM TiN	130°	1-14	 		17-22
	UNI	HSS-E TiN	118°	0,9-14			17-22
	N	HSS vap.	118°	0,2-20			17-22
	VA	HSS-E	130°	1-12			17-22
	WTL	HSS-E F-nit.	130°	1-16			17-22
	WTL	HSS-E TiN	130°	1-16			17-22
	WTL	HSS-E TiCN	130°	3-12			23
	W	HSS	130°	0,20-20			17-22
	WTL-L	HSS F-nit.	130°	1-16	 left-hand cutting		23

HSS Drills Overview

	Tool type	Material Coating	Point angle	Diameter in mm DC	Steel Stainless steel Cast iron Non-ferrous metals Heat-resistant Hardened materials	coated uncoated	WNT \ Performance
5xD with thro' coolant							
	WNXi	HSS-E	130°	5-20		☐	25
	WNXi	HSS-E TiN	130°	5-20		☒	25
up to 10xD without thro' coolant							
	UNI	HSS-E TiN	118°	1-14		☒	26-28
	WTL	HSS TiN	130°	1-14		☒	26-28
	WTL	HSS-E F-nit.	130°	1-12		☒	26-28
	WTL	HSS F-nit.	130°	1-14		☒	26-28
	WTW	HSS	130°	1-14		☐	26-28
up to 10xD with thro' coolant							
	NC	HSS	130°	3-13		☐	25
	NC	HSS TiAlN	130°	3-13		☒	25
over 10xD without thro' coolant							
	WTL	HSS Series 1	130°	2-13		☒	29
	WTL	HSS Series 2	130°	2-13		☒	30
	WTL	HSS Series 3	130°	2,5-13		☒	30
Mini-drill							
	N	HSS-E PM	118°	0,15-1,45		☐	31
Twist Drill Sets							
	N	HSS vap.	118°	1-10		☒	24
	UNI	HSS-E TiN	118°	1-10		☒	24

HSS Drills Overview

	Tool type	Material Coating	Point angle	Diameter in mm DC	Steel Stainless steel Cast iron Non-ferrous metals Heat-resistant Hardened materials	coated uncoated	WNT \ Performance
NC Spot Drill							
	NC-A	HSS	90°	3-20		☐	35-37
	NC-A	HSS TiN	90°	3-20		☒	35+36
	NC-A	HSS	120°	3-20		☐	35+36
	NC-A	HSS TiN	120°	3-20		☒	35+36
Centre drills							
	ZB	HSS	118°	0,5-6,3		☐	DIN 333 – Form A/B/R 37-39
	ZB	HSS TiN	118°	0,5-6,3		☒	DIN 333 – Form A 38
	ZB	HSS-E	118°	0,5-6,3		☐	DIN 333 – Form A 38
Core drills							
	N	HSS	120°	3,8-12		☐	3 flute 40
Stepped drills							
	SB	HSS vap.	118°	2,5-10,2		☒	Countersinking angle 90° 41
	SB	HSS	118°	2,5-10,2		☐	Countersinking angle 90° 41
	SB	HSS vap.	118°	3,2-10,5		☒	Countersinking angle 90° 41
	SB	HSS	118°	3,2-10,5		☐	Countersinking angle 90° 41
	SB	HSS vap.	118°	3,4-11		☒	Countersinking angle 180° 42
	SB	HSS	118°	3,4-11		☐	Countersinking angle 180° 42
	SB	HSS vap.	118°	3,3-21		☒	Countersinking angle 60° 44

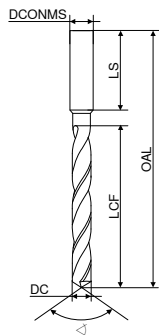
HSS Drills Overview

	Tool type	Material Coating	Point angle	Diameter in mm DC	Steel Stainless steel Cast iron Non-ferrous metals Heat-resistant Hardened materials	coated uncoated	WNT \ Performance
Drills with Morse taper							
3xD							
	WT	HSS-E vap.	130°	10-30	 MK 		31
5xD							
	N	HSS vap.	118°	10-60	 MK 		32
	WTL	HSS-E F-nit	130°	10-27	 MK 		32
10xD							
	N	HSS vap.	118°	10-50	 MK 		33
	WTL	HSS-E F-nit	130°	10-26	 MK 		33
above 10xD							
	WTL	HSS Series 1	130°	10-30	 MK 		34
	WTL	HSS Series 2	130°	10-30	 MK 		34
Core drills							
	N	HSS vap.	120°	10-30	 MK 	3 flute	 40
Stepped drills							
	SB	HSS vap.	118°	5,5-22	 MK 	Countersinking angle 180°	 43

High-performance twist drills similar to DIN 1897, extra-short

- ▲ shank to DIN 1835 A
- ▲ special point thinning
- ▲ very good centering behaviour
- ▲ 4 facet
- ▲ highest Performance

≤ 3xD



VX

TiN



A

118°

HSS-E

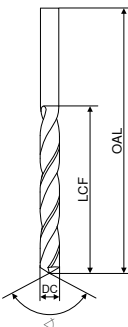
T2

DC _{h8}	OAL	LCF	DCONMS _{h6}	LS	Article no. 10 122 ...	EUR
2,00	44	12	3	28	9,01	020
2,10	44	12	3	28	9,91	021
2,20	45	13	3	28	10,81	022
2,30	45	13	3	28	10,81	023
2,40	46	14	3	28	11,34	024
2,50	46	14	3	28	9,76	025
2,60	46	14	3	28	11,34	026
2,70	48	16	3	28	11,87	027
2,80	48	16	3	28	11,87	028
2,90	48	16	3	28	11,87	029
3,00	48	16	3	28	10,81	030
3,10	50	18	4	28	10,81	031
3,20	50	18	4	28	10,81	032
3,30	50	18	4	28	10,92	033
3,40	52	20	4	28	10,92	034
3,50	52	20	4	28	10,40	035
3,60	52	20	4	28	11,23	036
3,70	52	20	4	28	11,76	037
3,80	54	22	4	28	11,45	038
3,90	54	22	4	28	11,76	039
4,00	54	22	4	28	9,59	040
4,10	66	22	6	36	9,59	041
4,20	66	22	6	36	10,02	042
4,30	68	24	6	36	10,59	043
4,40	68	24	6	36	11,87	044
4,50	68	24	6	36	9,69	045
4,60	68	24	6	36	12,72	046
4,70	68	24	6	36	12,82	047
4,80	70	26	6	36	12,82	048
4,90	70	26	6	36	12,82	049
5,00	70	26	6	36	10,81	050
5,10	70	26	6	36	12,82	051
5,20	70	26	6	36	13,03	052
5,30	70	26	6	36	13,35	053
5,40	72	28	6	36	14,52	054
5,50	72	28	6	36	11,45	055
5,55	72	28	6	36	14,52	055
5,60	72	28	6	36	14,52	056
5,70	72	28	6	36	14,52	057
5,80	72	28	6	36	14,52	058
5,90	72	28	6	36	14,52	059
6,00	72	28	6	36	11,97	060
6,10	75	31	8	36	18,65	061
6,20	75	31	8	36	18,65	062
6,30	75	31	8	36	22,68	063
6,40	75	31	8	36	19,18	064
6,50	75	31	8	36	14,20	065
6,60	75	31	8	36	22,99	066
6,70	75	31	8	36	22,99	067
6,80	78	34	8	36	24,69	068
6,90	78	34	8	36	25,01	069
7,00	78	34	8	36	18,87	070

DC _{h8}	OAL	LCF	DCONMS _{h6}	LS	Article no. 10 122 ...	EUR
7,10	78	34	8	36	27,77	071
7,20	78	34	8	36	27,66	072
7,30	78	34	8	36	27,66	073
7,40	78	34	8	36	27,77	074
7,45	78	34	8	36	27,77	745
7,50	78	34	8	36	19,93	075
7,60	81	37	8	36	27,87	076
7,70	81	37	8	36	31,05	077
7,80	81	37	8	36	31,05	078
7,90	81	37	8	36	31,05	079
8,00	81	37	8	36	20,46	080
8,10	87	37	10	40	34,12	081
8,20	87	37	10	40	34,12	082
8,30	87	37	10	40	34,12	083
8,40	87	37	10	40	34,12	084
8,50	87	37	10	40	23,10	085
8,60	91	40	10	40	35,61	086
8,70	91	40	10	40	35,61	087
8,80	91	40	10	40	35,61	088
8,90	91	40	10	40	35,61	089
9,00	91	40	10	40	25,44	090
9,10	91	40	10	40	43,76	091
9,20	91	40	10	40	43,76	092
9,30	91	40	10	40	43,76	093
9,35	91	40	10	40	43,76	935
9,40	91	40	10	40	43,76	094
9,50	91	40	10	40	30,52	095
9,60	93	43	10	40	32,96	096
9,70	93	43	10	40	32,96	097
9,80	93	43	10	40	32,96	098
9,90	93	43	10	40	32,96	099
10,00	93	43	10	40	29,24	100
10,10	100	43	12	45	45,99	101
10,20	100	43	12	45	43,13	102
10,30	100	43	12	45	44,72	103
10,40	100	43	12	45	47,58	104
10,50	100	43	12	45	42,07	105
10,60	100	43	12	45	51,08	106
10,70	104	47	12	45	46,63	107
10,80	104	47	12	45	44,82	108
10,90	104	47	12	45	65,81	109
11,00	104	47	12	45	42,07	110
11,10	104	47	12	45	41,76	111
11,50	104	47	12	45	43,76	115
11,70	104	47	12	45	50,02	117
11,80	104	47	12	45	52,46	118
11,90	108	51	12	45	65,92	119
12,00	108	51	12	45	50,44	120
12,10	111	51	16	48	37,20	121
12,20	111	51	16	48	55,42	122
12,30	111	51	16	48	68,14	123
12,40	111	51	16	48	81,18	124
12,50	111	51	16	48	52,78	125
12,60	111	51	16	48	107,00	126
12,70	111	51	16	48	116,60	127
12,80	111	51	16	48	55,32	128
12,90	111	51	16	48	81,60	129
13,00	111	51	16	48	56,70	130
13,50	114	54	16	48	83,72	135
14,00	114	54	16	48	83,72	140
14,50	116	56	16	48	107,00	145
15,00	116	56	16	48	100,90	150
15,50	118	58	16	48	110,20	155
16,00	118	58	16	48	105,60	160
16,50	126	60	20	50	164,30	165
17,00	126	60	20	50	164,30	170
17,50	128	62	20	50	164,30	175
18,00	128	62	20	50	164,30	180
18,50	130	64	20	50	164,30	185
19,00	130	64	20	50	164,30	190
19,50	132	66	20	50	164,30	195
20,00	132	66	20	50	145,20	200

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

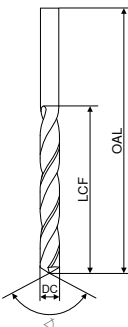
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD				UNI	UNI	N	VA	WNX	WT	WT
				TiN	TiN	vap.			vap.	TiN
										
				∠ 130° HSS-E-PM T2	∠ 118° HSS-E T2	∠ 118° HSS T2	∠ 130° HSS-E T2	∠ 130° HSS-E T2	∠ 130° HSS-E T2	∠ 130° HSS-E T2
DC _{ns}	DC	OAL	LCF	Article no. 10 113 ... EUR	Article no. 10 107 ... EUR	Article no. 10 105 ... EUR	Article no. 10 130 ... EUR	Article no. 10 106 ... EUR	Article no. 10 109 ... EUR	Article no. 10 110 ... EUR
mm	inch	mm	mm							
0,40		19	2,5			4,02 004 ¹⁾			6,74 00400 ¹⁾	
0,50		20	3,0			3,01 005 ¹⁾			4,98 00500 ¹⁾	
0,55		21	3,5						11,66 00550 ¹⁾	
0,60		21	3,5			3,70 006 ¹⁾			5,93 00600 ¹⁾	
0,65		22	4,0						6,46 00650 ¹⁾	
0,70		23	4,5			3,44 007 ¹⁾			5,44 00700 ¹⁾	
0,75		23	4,5						5,66 00750 ¹⁾	
0,80		24	5,0			2,64 008 ¹⁾			4,73 00800 ¹⁾	
0,85		24	5,0						5,34 00850 ¹⁾	
0,90		25	5,5			2,64 009 ¹⁾			4,73 00900 ¹⁾	
0,95		25	5,5						5,34 00950 ¹⁾	
1,00		26	6,0	7,90 010 ²⁾	4,75 010	1,46 010 ¹⁾	2,01 010	3,06 010	3,36 01000 ¹⁾	4,66 010
1,05		26	6,0						4,52 01050 ¹⁾	
1,10		28	7,0	7,90 011 ²⁾	4,75 011	1,54 011 ¹⁾	2,01 011	3,35 011	3,21 01100 ¹⁾	4,86 011
1,15		28	7,0						3,60 01150 ¹⁾	
1,20		30	8,0	8,10 012 ²⁾	4,87 012	1,54 012 ¹⁾	1,83 012	3,32 012	3,13 01200 ¹⁾	4,54 012
1,25		30	8,0						3,60 01250 ¹⁾	
1,30		30	8,0	8,53 013 ²⁾	5,12 013	1,54 013 ¹⁾	1,83 013	3,22 013	3,21 01300 ¹⁾	4,86 013
1,35		32	9,0						3,60 01350 ¹⁾	
1,40		32	9,0	7,81 014 ²⁾	4,68 014	1,54 014 ¹⁾	1,83 014	3,22 014	3,21 01400 ¹⁾	4,86 014
1,45		32	9,0						3,60 01450 ¹⁾	
1,50		32	9,0	7,37 015 ²⁾	4,42 015	1,21 015 ¹⁾	1,83 015	2,95 015	2,98 01500 ¹⁾	4,54 015
1,55		34	10,0						4,68 01550 ¹⁾	
1,60		34	10,0	7,72 016 ²⁾	4,62 016	1,42 016 ¹⁾	2,23 016	3,19 016	2,90 01600 ¹⁾	4,40 016
1,65		34	10,0						3,85 01650 ¹⁾	
1,70		34	10,0	7,81 017 ²⁾	4,68 017	1,42 017 ¹⁾	2,23 017	3,16 017	2,87 01700 ¹⁾	4,33 017
1,75		36	11,0						3,55 01750 ¹⁾	
1,80		36	11,0	7,72 018 ²⁾	4,62 018	1,50 018 ¹⁾	2,23 018	3,16 018	2,92 01800 ¹⁾	4,46 018
1,83		36	11,0						5,25 01830 ¹⁾	
1,85		36	11,0						3,33 01850 ¹⁾	
1,90		36	11,0	7,72 019 ²⁾	4,62 019	1,42 019 ¹⁾	2,23 019	3,13 019	2,92 01900 ¹⁾	4,46 019
1,95		38	12,0						5,19 01950 ¹⁾	
2,00		38	12,0	6,46 020 ²⁾	3,87 020	0,93 020 ¹⁾	2,23 020	2,66 020	2,57 02000 ¹⁾	3,78 020
2,05		38	12,0						4,68 02050 ¹⁾	
2,10		38	12,0	7,90 021 ²⁾	4,75 021	1,35 021 ¹⁾	2,23 021	2,95 021	2,84 02100 ¹⁾	4,26 021
2,15		40	13,0						4,40 02150 ¹⁾	
2,20		40	13,0	7,90 022 ²⁾	4,75 022	1,35 022 ¹⁾	2,23 022	2,98 022	3,31 02200 ¹⁾	4,66 022
2,25		40	13,0						3,55 02250 ¹⁾	
2,30		40	13,0	6,65 023 ²⁾	4,02 023	1,42 023 ¹⁾	2,23 023	3,11 023	3,06 02300 ¹⁾	4,66 023
2,35		40	13,0						4,98 02350 ¹⁾	
2,38	3/32	43	14,0	7,32 238 ²⁾	4,37 238					
2,40		43	14,0	7,95 024 ²⁾	4,80 024	1,42 024	2,23 024	3,16 024	3,18 02400	4,82 024
2,45		43	14,0						3,78 02450	
Steel				●	●	●	○	●	●	●
Stainless steel				○	●		●	○	○	○
Cast iron				●	●	●	○	○	○	○
Non ferrous metals				○	●	○	○	●	○	○
Heat resistant alloys				○	○		○	○	○	○
Hardened materials					○				○	○

1) uncoated
2) self-centering

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High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
																	
				130° HSS-E-PM T2		118° HSS-E T2		118° HSS T2		130° HSS-E T2		130° HSS-E T2		130° HSS-E T2		130° HSS-E T2	
DC _{h8}	DC	OAL	LCF	Article no. 10 113 ...		Article no. 10 107 ...		Article no. 10 105 ...		Article no. 10 130 ...		Article no. 10 106 ...		Article no. 10 109 ...		Article no. 10 110 ...	
mm	inch	mm	mm	EUR		EUR		EUR		EUR		EUR		EUR		EUR	
2,50		43	14,0	6,94	025 2)	4,21	025	1,06	025	2,23	025	2,95	025	2,72	02500	4,13	025
2,55		43	14,0											4,98	02550		
2,60		43	14,0	8,20	026 2)	4,95	026	1,46	026	2,23	026	3,16	026	3,18	02600	4,82	026
2,65		43	14,0											4,98	02650		
2,70		46	16,0	8,73	027 2)	5,26	027	1,46	027	2,23	027	3,19	027	3,33	02700	5,11	027
2,75		46	16,0											4,98	02750		
2,78	7/64	46	16,0	8,48	278 2)	5,09	278										
2,80		46	16,0	8,10	028 2)	4,87	028	1,46	028	2,23	028	3,35	028	3,33	02800	5,11	028
2,85		46	16,0											4,95	02850		
2,90		46	16,0	8,62	029 2)	5,19	029	1,46	029	2,23	029	3,48	029	3,33	02900	5,11	029
2,95		46	16,0											3,55	02950		
3,00		46	16,0	7,32	030 2)	4,37	030	1,06	030	2,23	030	3,16	030	2,92	03000	4,35	030
3,05		49	18,0											3,67	03050		
3,10		49	18,0	7,81	031 2)	4,68	031	1,46	031	2,23	031	3,62	031	3,33	03100	5,01	031
3,15		49	18,0											5,34	03150		
3,17	1/8	49	18,0	7,72	317 2)	4,62	317										
3,20		49	18,0	7,37	032 2)	4,42	032	1,35	032	2,23	032	3,11	032	3,18	03200	4,73	032
3,25		49	18,0											3,70	03250		
3,30		49	18,0	7,37	033 2)	4,42	033	1,42	033	2,23	033	3,35	033	3,44	03300	5,11	033
3,35		49	18,0											4,95	03350		
3,40		52	20,0	8,53	034 2)	5,12	034	1,80	034	2,23	034	3,82	034	3,41	03400	5,11	034
3,45		52	20,0											3,70	03450		
3,50		52	20,0	7,37	035 2)	4,42	035	1,21	035	2,23	035	3,73	035	3,36	03500	4,63	035
3,55		52	20,0											3,78	03550		
3,57	9/64	52	20,0	8,34	357 2)	5,02	357										
3,60		52	20,0	9,79	036 2)	5,88	036	1,80	036	2,57	036	3,82	036	3,44	03600	5,11	036
3,70		52	20,0	8,48	037 2)	5,09	037	1,80	037	2,57	037	3,82	037	3,67	03700	5,50	037
3,75		52	20,0											3,85	03750		
3,80		55	22,0	9,01	038 2)	5,42	038	1,80	038	2,57	038	4,05	038	3,55	03800	5,23	038
3,85		55	22,0											5,93	03850		
3,90		55	22,0	10,21	039 2)	6,15	039	1,80	039			4,05	039	3,64	03900	5,50	039
3,95		55	22,0											6,00	03950		
3,97	5/32	55	22,0	9,19	397 2)	5,50	397										
4,00		55	22,0	8,34	040 2)	5,02	040	1,27	040	3,81	040	4,02	040	3,60	04000	4,73	040
4,05		55	22,0											4,23	04050		
4,10		55	22,0	9,54	041 2)	5,75	041	1,54	041	3,81	041	4,08	041	3,74	04100	5,23	041
4,15		55	22,0											5,96	04150		
4,20		55	22,0	8,34	042 2)	5,02	042	1,50	042	3,81	042	3,73	042	3,67	04200	5,23	042
4,25		55	22,0											6,49	04250		
4,30		58	24,0	9,50	043 2)	5,71	043	2,41	043	3,81	043	4,20	043	3,88	04300	5,81	043
4,35		58	24,0											6,51	04350		
4,37	11/64	58	24,0	12,82	437 2)	7,68	437										
4,40		58	24,0	10,21	044 2)	6,15	044	2,41	044			4,20	044	4,04	04400	5,96	044
Steel				●		●		●		○		●		●		●	
Stainless steel				○		●				●		○		○		○	
Cast iron				●		●		●		○		○		○		○	
Non ferrous metals				○		●		○		○		●		○		○	
Heat resistant alloys				○		○				○		○		○		○	
Hardened materials						○								○		○	

1) uncoated
2) self-centering

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High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
																	
				130° HSS-E-PM T2		118° HSS-E T2		118° HSS T2		130° HSS-E T2		130° HSS-E T2		130° HSS-E T2		130° HSS-E T2	
DC _{h8}	DC	OAL	LCF	Article no. 10 113 ...		Article no. 10 107 ...		Article no. 10 105 ...		Article no. 10 130 ...		Article no. 10 106 ...		Article no. 10 109 ...		Article no. 10 110 ...	
mm	inch	mm	mm	EUR		EUR		EUR		EUR		EUR		EUR		EUR	
4,45		58	24,0											6,70	04450		
4,50		58	24,0	9,50	045 2)	5,71	045	1,54	045	4,01	045	4,20	045	3,85	04500	4,93	045
4,55		58	24,0											6,51	04550		
4,60		58	24,0	9,54	046 2)	5,75	046	2,44	046	4,01	046	4,36	046	4,28	04600	6,49	046
4,65		58	24,0											5,83	04650	6,59	465
4,70		58	24,0	10,70	047 2)	6,40	047	2,44	047	4,01	047	4,66	047	4,42	04700	6,59	047
4,75		58	24,0											5,83	04750		
4,76	3/16	62	26,0	10,70	476 2)	6,40	476										
4,80		62	26,0	10,81	048 2)	6,51	048	2,44	048	4,14	048	4,87	048	4,63	04800	6,56	048
4,85		62	26,0											5,34	04850		
4,90		62	26,0	10,92	049 2)	6,57	049	2,44	049	4,14	049	5,09	049	5,08	04900	6,56	049
4,95		62	26,0											7,61	04950		
5,00		62	26,0	9,19	050 2)	5,50	050	1,64	050	4,14	050	4,50	050	4,13	05000	5,34	050
5,05		62	26,0											8,99	05050		
5,10		62	26,0	10,12	051 2)	6,09	051	2,49	051	4,14	051	5,21	051	5,50	05100	6,76	051
5,15		62	26,0											9,54	05150		
5,16	13/64	62	26,0	12,08	516 2)	7,24	516										
5,20		62	26,0	10,92	052 2)	6,57	052	2,49	052	4,70	052	5,28	052	6,59	05200	6,87	052
5,25		62	26,0											7,80	05250		
5,30		62	26,0	12,40	053 2)	7,47	053	2,49	053	4,70	053	5,44	053	7,25	05300	6,99	053
5,35		66	28,0											12,93	05350		
5,40		66	28,0	12,08	054 2)	7,28	054	2,84	054			5,71	054	7,80	05400	7,72	054
5,45		66	28,0											12,50	05450		
5,50		66	28,0	10,37	055 2)	6,22	055	2,16	055	4,70	055	5,63	055	5,25	05500	5,75	055
5,55		66	28,0											14,20	05550	7,48	555
5,56	7/32	66	28,0	11,34	556 2)	6,80	556										
5,60		66	28,0	12,40	056 2)	7,47	056	2,84	056	4,73	056	5,99	056	8,69	05600	7,48	056
5,70		66	28,0	13,25	057 2)	7,94	057	2,84	057	4,73	057	6,04	057	8,84	05700	7,48	057
5,75		66	28,0											10,43	05750		
5,80		66	28,0	12,72	058 2)	7,65	058	2,84	058	4,73	058	6,14	058	8,99	05800	7,48	058
5,85		66	28,0											15,15	05850		
5,90		66	28,0	13,99	059 2)	8,39	059	2,84	059	4,73	059	6,20	059	9,41	05900	7,70	059
5,95	15/64	66	28,0	21,20	595 2)	12,82	595							9,54	05950		
6,00		66	28,0	11,23	060 2)	6,69	060	2,16	060	5,10	060	5,48	060	5,25	06000	6,03	060
6,05		70	31,0											15,15	06050		
6,10		70	31,0	13,15	061 2)	7,88	061	3,06	061	5,10	061	6,46	061	9,92	06100	9,66	061
6,15		70	31,0											11,02	06150		
6,20		70	31,0	13,15	062 2)	7,88	062	3,06	062	5,10	062	6,54	062	10,43	06200	9,95	062
6,25		70	31,0											13,03	06250		
6,30		70	31,0	15,05	063 2)	9,00	063	3,06	063	5,10	063	6,59	063	11,13	06300	10,14	063
6,35	1/4	70	31,0	13,78	635 2)	8,29	635							7,80	06350		
6,40		70	31,0	13,88	064 2)	8,36	064	3,17	064	5,82	064	6,93	064	11,34	06400	10,19	064
6,45		70	31,0											14,73	06450		
Steel				●		●		●		○		●		●		●	
Stainless steel				○		●				●		○		○		○	
Cast iron				●		●		●		○		○		○		○	
Non ferrous metals				○		●		○		○		●		○		○	
Heat resistant alloys				○		○				○		○		○		○	
Hardened materials						○								○		○	

1) uncoated
2) self-centering

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High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
				130°		118°		118°		130°		130°		130°		130°	
				HSS-E-PM		HSS-E		HSS		HSS-E		HSS-E		HSS-E		HSS-E	
				T2		T2		T2		T2		T2		T2		T2	
DC _{h8}	DC	OAL	LCF	Article no.		Article no.		Article no.		Article no.		Article no.		Article no.		Article no.	
mm	inch	mm	mm	10 113 ...		10 107 ...		10 105 ...		10 130 ...		10 106 ...		10 109 ...		10 110 ...	
				EUR		EUR		EUR		EUR		EUR		EUR		EUR	
6,50		70	31,0	13,15	065 ²⁾	7,88	065	2,56	065	5,82	065	6,56	065	6,14	06500	7,55	065
6,55		70	31,0											15,58	06550		
6,60		70	31,0	14,41	066 ²⁾	8,70	066	3,17	066	5,82	066	7,14	066	11,87	06600	10,17	066
6,65		70	31,0											16,42	06650		
6,70		70	31,0	15,90	067 ²⁾	9,53	067	3,48	067	5,82	067	7,38	067	12,08	06700	10,34	067
6,75		74	34,0	19,60	675 ²⁾	11,66	675							12,19	06750		
6,80		74	34,0	16,01	068 ²⁾	9,58	068	4,02	068	6,02	068	8,23	068	12,50	06800	11,02	068
6,85		74	34,0											17,60	06850		
6,90		74	34,0	15,79	069 ²⁾	9,44	069	4,32	069	6,02	069	8,44	069	12,72	06900	11,02	069
7,00		74	34,0	14,62	070 ²⁾	8,80	070	3,14	070	6,02	070	7,14	070	6,99	07000	9,04	070
7,05		74	34,0											19,71	07050		
7,10		74	34,0	17,70	071 ²⁾	10,70	071	4,47	071	6,02	071	9,95	071	12,93	07100	12,19	071
7,14	9/32	74	34,0	23,52	714 ²⁾	14,09	714										
7,20		74	34,0	18,23	072 ²⁾	11,02	072	4,54	072	6,41	072	10,43	072	13,46	07200	12,19	072
7,25		74	34,0											16,01	07250		
7,30		74	34,0	19,60	073 ²⁾	11,76	073	4,67	073			11,02	073	13,56	07300	12,29	073
7,35		74	34,0											17,80	07350		
7,40		74	34,0	18,34	074 ²⁾	11,13	074	5,01	074			12,08	074	13,78	07400	12,29	074
7,50		74	34,0	15,26	075 ²⁾	9,17	075	3,48	075	6,41	075	7,83	075	8,13	07500	9,46	075
7,60		79	37,0	23,85	076 ²⁾	14,31	076	5,55	076			11,34	076	14,41	07600	13,68	076
7,70		79	37,0	25,75	077 ²⁾	15,48	077	5,55	077	6,75	077	11,66	077	15,05	07700	13,68	077
7,75		79	37,0											18,65	07750		
7,80		79	37,0	19,71	078 ²⁾	11,87	078	5,55	078			11,66	078	15,37	07800	13,78	078
7,90		79	37,0	27,55	079 ²⁾	16,54	079	5,63	079	6,75	079	11,13	079	15,68	07900	13,78	079
7,94	5/16	79	37,0	18,87	794 ²⁾	11,34	794										
8,00		79	37,0	18,23	080 ²⁾	11,02	080	3,56	080	7,28	080	8,00	080	7,61	08000	9,83	080
8,05		79	37,0											25,12	08050		
8,10		79	37,0	23,32	081 ²⁾	13,99	081	6,05	081	7,28	081	12,29	081	16,42	08100	13,88	081
8,15		79	37,0											25,12	08150		
8,20		79	37,0	24,27	082 ²⁾	14,52	082	6,48	082	7,28	082	12,62	082	17,17	08200	13,88	082
8,25		79	37,0											19,50	08250		
8,30		79	37,0	25,44	083 ²⁾	15,26	083	6,57	083	7,28	083	12,93	083	18,12	08300	14,09	083
8,40		79	37,0	24,38	084 ²⁾	14,73	084	6,74	084	8,06	084	13,46	084	18,97	08400	14,09	084
8,50		79	37,0	21,20	085 ²⁾	12,82	085	5,12	085	8,06	085	9,73	085	9,16	08500	11,76	085
8,55		84	40,0											28,71	08550		
8,60		84	40,0			14,31	086	6,74	086	8,06	086	13,78	086	19,50	08600	14,41	086
8,70		84	40,0			16,42	087	6,88	087	8,06	087	14,20	087	20,46	08700	14,41	087
8,73	11/32	84	40,0	33,49	873 ²⁾	20,13	873										
8,75		84	40,0														
8,80		84	40,0	26,60	088 ²⁾	15,90	088	6,95	088			15,90	088	25,12	08750		
8,90		84	40,0			20,34	089	7,23	089			10,43	089	21,30	08800	14,52	088
8,95		84	40,0											21,73	08900	15,26	089
9,00		84	40,0	21,52	090 ²⁾	13,03	090	4,67	090	9,24	090	9,51	090	27,87	08950		
														9,74	09000	11,87	090
Steel				●		●		●		○		●		●		●	
Stainless steel				○		●				●		○		○		○	
Cast iron				●		●		●		○		○		○		○	
Non ferrous metals				○		●		○		○		●		○		○	
Heat resistant alloys				○		○				○		○		○		○	
Hardened materials						○								○		○	

1) uncoated
2) self-centering

→ v_c Page 46+47

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD				UNI	UNI	N	VA	WNX	WT	WT
				TiN	TiN	vap.			vap.	TiN
				130° HSS-E-PM T2	118° HSS-E T2	118° HSS T2	130° HSS-E T2	130° HSS-E T2	130° HSS-E T2	130° HSS-E T2
DC _{h8}	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm	EUR	EUR	EUR	EUR	EUR	EUR	EUR
9,05		84	40,0						22,99 09050	
9,10		84	40,0		17,17 091	8,11 091		16,54 091	22,26 09100	18,87 091
9,20		84	40,0		17,27 092	8,76 092	9,74 092	17,80 092	22,99 09200	18,87 092
9,25		84	40,0						25,85 09250	
9,30		84	40,0	24,38 093 ²⁾	14,73 093	9,14 093	9,74 093	12,29 093	24,16 09300	18,87 093
9,40		84	40,0		20,03 094	9,29 094		12,29 094	24,48 09400	18,87 094
9,50		84	40,0	23,85 095 ²⁾	14,31 095	7,80 095	9,86 095	11,66 095	10,60 09500	15,58 095
9,60		89	43,0		20,99 096	9,81 096		18,54 096	24,48 09600	19,60 096
9,65		89	43,0						27,87 09650	
9,70		89	43,0		20,34 097	9,95 097		18,54 097	24,79 09700	19,60 097
9,75		89	43,0						27,87 09750	
9,80		89	43,0	28,40 098 ²⁾	17,17 098	10,49 098	10,81 098	18,87 098	25,12 09800	20,99 098
9,90		89	43,0		21,73 099	10,49 099		19,50 099	25,44 09900	20,99 099
10,00		89	43,0	23,42 100 ²⁾	14,09 100	5,63 100	11,23 100	10,43 100	12,50 10000	14,52 100
10,05		89	43,0						33,06 10050	
10,10		89	43,0		20,99 101	11,45 101			33,91 10100	
10,20		89	43,0	29,67 102 ²⁾	17,91 102	9,95 102	11,23 102	18,54 102	19,50 10200	20,34 102
10,25		89	43,0						29,78 10250	
10,30		89	43,0		19,50 103	12,19 103			31,47 10300	
10,40		89	43,0		22,79 104	12,93 104			37,20 10400	
10,50		89	43,0	28,19 105 ²⁾	17,07 105	10,49 105	12,08 105	15,48 105	21,73 10500	19,40 105
10,60		95	47,0			15,58 106			37,41 10600	
10,70		95	47,0			16,01 107			37,41 10700	
10,75		95	47,0						32,53 10750	
10,80		95	47,0			16,42 108		20,56 108	36,35 10800	43,56 108
10,90		95	47,0			16,42 109			37,20 10900	
11,00		95	47,0	31,26 110 ²⁾	18,65 110	10,49 110	12,50 110	18,34 110	22,99 11000	19,40 110
11,10		95	47,0			16,42 111			42,18 11100	
11,11	7/16	95	47,0	36,77 111 ²⁾	22,15 111					
11,20		95	47,0			17,27 112			44,19 11200	
11,30		95	47,0			17,60 113			46,74 11300	
11,40		95	47,0			17,60 114			47,05 11400	
11,50		95	47,0	36,04 115 ²⁾	21,83 115	11,02 115	14,31 115	23,85 115	25,85 11500	20,56 115
11,60		95	47,0			17,60 116				
11,70		95	47,0			17,60 117	15,48 117		47,05 11700	
11,75		95	47,0						51,19 11750	
11,80		95	47,0			18,12 118		29,67 118	47,05 11800	24,48 118
11,90		102	51,0			18,34 119				
12,00		102	51,0	35,29 120 ²⁾	21,30 120	13,46 120	15,58 120	23,85 120	30,52 12000	23,85 120
12,10		102	51,0			18,76 121			46,74 12100	
12,20		102	51,0			18,76 122			47,05 12200	
12,25		102	51,0						51,93 12250	
12,30		102	51,0	59,77 123 ²⁾	35,51 123	18,97 123		29,67 123	36,14 12300	36,45 123
Steel				●	●	●	○	●	●	●
Stainless steel				○	●		●	○	○	○
Cast iron				●	●	●	○	○	○	○
Non ferrous metals				○	●	○	○	●	○	○
Heat resistant alloys				○	○		○	○	○	○
Hardened materials					○				○	○

- 1) uncoated
2) self-centering

→ v_c Page 46+47

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
																	
				130° HSS-E-PM T2		118° HSS-E T2		118° HSS T2		130° HSS-E T2		130° HSS-E T2		130° HSS-E T2		130° HSS-E T2	
DC _{h8}	DC	OAL	LCF	Article no. 10 113 ...		Article no. 10 107 ...		Article no. 10 105 ...		Article no. 10 130 ...		Article no. 10 106 ...		Article no. 10 109 ...		Article no. 10 110 ...	
mm	inch	mm	mm	EUR		EUR		EUR		EUR		EUR		EUR		EUR	
12,40		102	51,0					18,97	124					47,05	12400		
12,50		102	51,0	38,68	125 ²⁾	23,21	125	13,99	125			24,27	125	31,16	12500	24,48	125
12,60		102	51,0					19,40	126					32,00	12600		
12,70		102	51,0	49,39	127 ²⁾	29,46	127	18,54	127					32,00	12700		
12,80		102	51,0					20,13	128			36,35	128	47,48	12800	46,21	128
12,90		102	51,0					20,99	129					47,48	12900		
13,00		102	51,0	38,68	130 ²⁾	23,21	130	14,20	130			26,81	130	33,06	13000	25,12	130
13,20		102	51,0					21,73	132					47,48	13200		
13,30		107	54,0					22,05	133								
13,50		107	54,0	41,12	135 ²⁾	24,79	135	16,42	135			33,49	135	35,71	13500	27,34	135
13,80		107	54,0					22,68	138			43,24	138			29,04	138
14,00		107	54,0	51,29	140 ²⁾	30,94	140	16,74	140			31,16	140	35,71	14000	28,40	140
14,50		111	56,0					18,54	145			39,43	145	44,82	14500	28,93	145
14,75		111	56,0					28,61	147								
14,80		111	56,0									54,89	148				
15,00		111	56,0					18,34	150			36,57	150	42,82	15000	29,89	150
15,25		115	58,0					31,69	152					94,74	15250		
15,50		115	58,0					19,93	155			55,74	155	54,58	15500	39,10	155
15,75		115	58,0													40,90	157
16,00		115	58,0					20,13	160			44,09	160	44,62	16000	38,57	160
16,50		119	60,0					24,06	165			45,25	165	72,17	16500	57,87	165
17,00		119	60,0					24,48	170			45,68	170	62,32	17000	55,85	170
17,50		123	62,0					25,44	175			46,84	175	72,81	17500	53,41	175
17,75		123	62,0													64,85	177
18,00		123	62,0					25,65	180			47,16	180	68,36	18000	61,04	180
18,50		127	64,0					28,30	185					87,01	18500	68,99	185
19,00		127	64,0					29,78	190			48,86	190	72,81	19000	67,30	190
19,50		131	66,0					31,69	195					84,99	19500	75,56	195
19,75		131	66,0													76,94	197
20,00		131	66,0					31,69	200			51,40	200	74,39	20000	72,06	200
20,50		136	68,0											118,70	20500		
21,00		136	68,0											114,50	21000		
21,50		141	70,0											121,90	21500		
22,00		141	70,0											122,90	22000		
22,20		141	70,0											129,30	22200		
23,00		146	72,0											136,80	23000		
24,00		151	75,0											145,20	24000		
25,00		151	75,0											166,40	25000		
Steel				●		●		●		○		●		●		●	
Stainless steel				○		●				●		○		○		○	
Cast iron				●		●		●		○		○		○		○	
Non ferrous metals				○		●		○		○		●		○		○	
Heat resistant alloys				○		○				○		○		○		○	
Hardened materials						○								○		○	

- 1) uncoated
2) self-centering

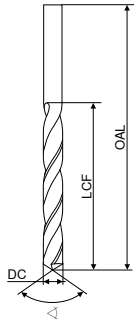
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High-performance twist drills similar to DIN 1897, extra-short

▲ left-hand cutting

≤ 3xD

WTL-L

130°
HSS
T2

DC _{h8}	OAL	LCF	Article no. 10 112 ...	EUR
mm	mm	mm		
1,0	26	6	3,67 010 ¹⁾	
1,1	28	7	4,07 011 ¹⁾	
1,2	30	8	3,78 012 ¹⁾	
1,3	30	8	3,78 013 ¹⁾	
1,4	32	9	3,57 014 ¹⁾	
1,5	32	9	3,16 015 ¹⁾	
1,6	34	10	3,52 016 ¹⁾	
1,7	34	10	3,38 017 ¹⁾	
1,8	36	11	3,36 018 ¹⁾	
1,9	36	11	3,21 019 ¹⁾	
2,0	38	12	2,79 020 ¹⁾	
2,1	38	12	3,02 021 ¹⁾	
2,2	40	13	3,38 022 ¹⁾	
2,3	40	13	3,52 023 ¹⁾	
2,4	43	14	3,60 024 ²⁾	
2,5	43	14	3,06 025 ²⁾	
2,6	43	14	3,67 026 ²⁾	
2,7	46	16	3,70 027 ²⁾	
2,8	46	16	3,90 028 ²⁾	
2,9	46	16	4,07 029 ²⁾	
3,0	46	16	3,41 030 ²⁾	
3,1	49	18	4,28 031 ²⁾	
3,2	49	18	3,70 032 ²⁾	
3,3	49	18	4,28 033 ²⁾	
3,4	52	20	4,35 034 ²⁾	
3,5	52	20	4,21 035 ²⁾	
3,6	52	20	4,35 036 ²⁾	
3,7	52	20	4,48 037 ²⁾	
3,8	55	22	4,73 038 ²⁾	
3,9	55	22	4,73 039 ²⁾	
4,0	55	22	4,73 040 ²⁾	
4,1	55	22	5,44 041 ²⁾	
4,2	55	22	4,78 042 ²⁾	
4,3	58	24	6,59 043 ²⁾	
4,4	58	24	6,59 044 ²⁾	
4,5	58	24	5,37 045 ²⁾	
4,6	58	24	6,83 046 ²⁾	
4,7	58	24	6,83 047 ²⁾	
4,8	62	26	6,99 048 ²⁾	
4,9	62	26	6,99 049 ²⁾	
5,0	62	26	6,00 050 ²⁾	
5,1	62	26	7,06 051 ²⁾	
5,2	62	26	7,20 052 ²⁾	
5,3	62	26	7,35 053 ²⁾	
5,4	66	28	7,35 054 ²⁾	
5,5	66	28	6,80 055 ²⁾	
5,6	66	28	7,58 056 ²⁾	

DC_{h8} OAL LCF

mm mm mm

DC _{h8}	OAL	LCF	Article no. 10 112 ...	EUR
mm	mm	mm		
5,7	66	28	7,72 057 ²⁾	
5,8	66	28	7,90 058 ²⁾	
5,9	66	28	8,06 059 ²⁾	
6,0	66	28	7,20 060 ²⁾	
6,1	70	31	8,61 061 ²⁾	
6,2	70	31	8,61 062 ²⁾	
6,3	70	31	8,61 063 ²⁾	
6,4	70	31	8,95 064 ²⁾	
6,5	70	31	7,58 065 ²⁾	
6,6	70	31	9,09 066 ²⁾	
6,7	70	31	9,72 067 ²⁾	
6,8	74	34	10,24 068 ²⁾	
6,9	74	34	12,50 069 ²⁾	
7,0	74	34	8,27 070 ²⁾	
7,2	74	34	16,42 072 ²⁾	
7,3	74	34	16,42 073 ²⁾	
7,4	74	34	17,07 074 ²⁾	
7,5	74	34	8,95 075 ²⁾	
7,7	79	37	17,60 077 ²⁾	
8,0	79	37	9,09 080 ²⁾	
8,1	79	37	18,34 081 ²⁾	
8,2	79	37	18,87 082 ²⁾	
8,3	79	37	18,87 083 ²⁾	
8,5	79	37	10,24 085 ²⁾	
8,6	84	40	19,71 086 ²⁾	
8,7	84	40	19,71 087 ²⁾	
8,8	84	40	20,66 088 ²⁾	
9,0	84	40	11,34 090 ²⁾	
9,5	84	40	12,93 095 ²⁾	
9,7	89	43	22,99 097 ²⁾	
10,0	89	43	13,03 100 ²⁾	
10,1	89	43	29,57 101 ²⁾	
10,2	89	43	21,30 102 ²⁾	
10,5	89	43	20,66 105 ²⁾	
11,0	95	47	21,30 110 ²⁾	
11,5	95	47	23,85 115 ²⁾	
11,8	95	47	31,05 118 ²⁾	
12,0	102	51	24,16 120 ²⁾	
12,5	102	51	25,85 125 ²⁾	
12,8	102	51	33,49 128 ²⁾	
13,0	102	51	28,83 130 ²⁾	
14,0	107	54	35,29 140 ²⁾	
14,5	111	56	44,19 145 ²⁾	
15,0	111	56	38,79 150 ²⁾	
16,0	115	58	46,74 160 ³⁾	
18,0	123	62	115,50 180 ³⁾	
19,0	127	64	150,50 190 ³⁾	

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

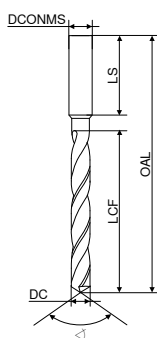
- 1) uncoated
2) nitrided chamfer
3) vaporised

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High-performance twist drill similar to DIN 338, short

- ▲ with shank to DIN 1835 A
- ▲ special point thinning
- ▲ 4 facet
- ▲ highest Performance
- ▲ very good centering behaviour

≤ 5xD



VX

TiN



A

118°

HSS-E

T2

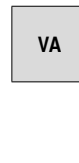
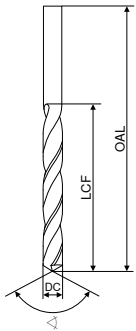
DC _{h8}	OAL	LCF	DCONMS _{h6}	LS	Article no. 10 124 ...	EUR
2,00	56	24	3	28	11,02	020
2,10	56	24	3	28	12,93	021
2,20	59	27	3	28	12,93	022
2,30	59	27	3	28	12,93	023
2,40	62	30	3	28	12,93	024
2,50	62	30	3	28	12,93	025
2,60	62	30	3	28	12,93	026
2,70	65	33	3	28	12,93	027
2,80	65	33	3	28	12,93	028
2,90	65	33	3	28	12,93	029
3,00	65	33	3	28	12,29	030
3,10	68	36	4	28	13,99	031
3,20	68	36	4	28	13,99	032
3,30	68	36	4	28	13,99	033
3,40	71	39	4	28	13,99	034
3,50	71	39	4	28	13,99	035
3,60	71	39	4	28	15,26	036
3,70	71	39	4	28	15,26	037
3,80	75	43	4	28	15,26	038
3,90	75	43	4	28	15,26	039
4,00	75	43	4	28	15,26	040
4,10	87	43	6	36	18,23	041
4,20	87	43	6	36	18,97	042
4,30	91	47	6	36	18,23	043
4,40	91	47	6	36	18,23	044
4,50	91	47	6	36	18,23	045
4,60	91	47	6	36	20,46	046
4,65	91	47	6	36	20,46	0465
4,70	91	47	6	36	20,46	047
4,80	96	52	6	36	20,46	048
4,90	96	52	6	36	20,46	049
5,00	96	52	6	36	22,57	050
5,10	96	52	6	36	22,57	051
5,20	96	52	6	36	22,57	052
5,30	96	52	6	36	23,85	053
5,40	101	57	6	36	23,85	054
5,50	101	57	6	36	22,57	055
5,55	101	57	6	36	25,65	0555
5,60	101	57	6	36	25,65	056
5,70	101	57	6	36	25,65	057
5,80	101	57	6	36	25,65	058
5,90	101	57	6	36	25,65	059
6,00	101	57	6	36	24,48	060
6,10	107	63	8	36	29,46	061
6,20	107	63	8	36	29,46	062
6,30	107	63	8	36	29,46	063
6,40	107	63	8	36	29,46	064
6,50	107	63	8	36	29,46	065
6,60	107	63	8	36	31,05	066
6,70	107	63	8	36	31,05	067
6,80	113	69	8	36	31,05	068
6,90	113	69	8	36	31,05	069
7,00	113	69	8	36	31,05	070
7,10	113	69	8	36	32,22	071
7,20	113	69	8	36	32,22	072
7,30	113	69	8	36	32,22	073

DC _{h8}	OAL	LCF	DCONMS _{h6}	LS	Article no. 10 124 ...	EUR
7,40	113	69	8	36	32,22	074
7,50	113	69	8	36	32,22	075
7,55	119	75	8	36	33,70	0755
7,60	119	75	8	36	33,70	076
7,70	119	75	8	36	33,70	077
7,80	119	75	8	36	33,70	078
7,90	119	75	8	36	33,70	079
8,00	119	75	8	36	33,70	080
8,10	125	75	10	40	36,77	081
8,20	125	75	10	40	36,77	082
8,30	125	75	10	40	36,77	083
8,40	125	75	10	40	36,77	084
8,50	125	75	10	40	38,26	085
8,60	131	81	10	40	34,12	086
8,70	131	81	10	40	34,12	087
8,80	131	81	10	40	34,12	088
8,90	131	81	10	40	34,12	089
9,00	131	81	10	40	34,12	090
9,10	131	81	10	40	36,88	091
9,20	131	81	10	40	36,88	092
9,30	131	81	10	40	36,88	093
9,40	131	81	10	40	36,88	094
9,50	131	81	10	40	36,88	095
9,55	137	87	10	40	40,49	955
9,60	137	87	10	40	40,49	096
9,70	137	87	10	40	40,49	097
9,80	137	87	10	40	40,49	098
9,90	137	87	10	40	40,49	099
10,00	137	87	10	40	40,49	100
10,10	144	87	12	45	50,13	101
10,20	144	87	12	45	50,13	102
10,30	144	87	12	45	50,13	103
10,40	144	87	12	45	50,13	104
10,50	144	87	12	45	50,13	105
10,60	144	87	12	45	55,01	106
10,70	151	94	12	45	55,01	107
10,80	151	94	12	45	55,01	108
10,90	151	94	12	45	55,01	109
11,00	151	94	12	45	47,16	110
11,10	151	94	12	45	50,76	111
11,20	151	94	12	45	50,76	112
11,30	151	94	12	45	50,76	113
11,40	151	94	12	45	50,76	114
11,50	151	94	12	45	50,76	115
11,60	151	94	12	45	54,79	116
11,70	151	94	12	45	54,79	117
11,80	151	94	12	45	54,79	118
11,90	158	101	12	45	54,79	119
12,00	158	101	12	45	54,79	120
12,10	161	101	16	48	62,42	121
12,20	161	101	16	48	62,42	122
12,30	161	101	16	48	62,42	123
12,40	161	101	16	48	62,42	124
12,50	161	101	16	48	62,42	125
12,60	161	101	16	48	66,02	126
12,70	161	101	16	48	66,02	127
12,80	161	101	16	48	66,02	128
12,90	161	101	16	48	66,02	129
13,00	161	101	16	48	73,33	130
13,50	166	106	16	48	94,74	135
14,00	166	106	16	48	94,74	140
14,50	169	109	16	48	121,90	145
15,00	169	109	16	48	114,50	150
15,50	172	112	16	48	124,00	155
16,00	172	112	16	48	119,80	160
16,50	181	115	20	50	184,40	165
17,00	181	115	20	50	184,40	170
17,50	184	118	20	50	184,40	175
18,00	184	118	20	50	184,40	180
18,50	188	122	20	50	184,40	185
19,00	188	122	20	50	184,40	190
19,50	191	125	20	50	184,40	195
20,00	191	125	20	50	165,40	200

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

Twist drill to DIN 338, short

≤ 5xD



130°
HSS-E-PM
T2

118°
HSS-E
T2

118°
HSS
T2

130°
HSS-E
T2

130°
HSS
T2

130°
HSS-E
T2

130°
HSS-E
T2

DC _{h8}	DC	OAL	LCF	Article no. 10 173 ... EUR	Article no. 10 171 ... EUR	Article no. 10 152 ... EUR	Article no. 10 175 ... EUR	Article no. 10 161 ... EUR	Article no. 10 168 ... EUR	Article no. 10 170 ... EUR
mm	inch	mm	mm							
0,20		19	2,5			4,52 00200 ¹⁾		7,80 00200		
0,25		19	3,0			4,33 00250 ¹⁾		11,66 00250		
0,30		19	3,0			3,21 00300 ¹⁾		6,03 00300		
0,35		19	4,0			3,10 00350 ¹⁾		5,60 00350		
0,40		20	5,0			2,61 00400 ¹⁾		4,65 00400		
0,45		20	5,0			2,65 00450 ¹⁾		4,87 00450		
0,50		22	6,0			2,22 00500 ¹⁾		3,41 00500		
0,55		24	7,0			3,34 00550 ¹⁾		5,95 00550		
0,60		24	7,0			2,13 00600 ¹⁾		3,67 00600		
0,65		26	8,0			3,10 00650 ¹⁾		5,95 00650		
0,70		28	9,0			1,91 00700 ¹⁾		3,35 00700		
0,75		28	9,0			2,31 00750 ¹⁾		3,46 00750		
0,80		30	10,0			1,83 00800 ¹⁾		2,91 00800		
0,85		30	10,0			2,13 00850 ¹⁾		3,37 00850		
0,90		32	11,0		2,98 009	1,74 00900 ¹⁾		2,79 00900		
0,95		32	11,0			2,13 00950 ¹⁾		3,37 00950		
1,00		34	12,0	6,26 010 ²⁾	2,98 010	1,70 01000 ¹⁾	3,57 010	2,89 01000	3,02 010 ¹⁾	6,65 010
1,05		34	12,0			1,86 01050 ¹⁾		3,30 01050		
1,10		36	14,0	6,79 011 ²⁾	3,27 011	1,64 01100 ¹⁾	3,66 011	2,71 01100	3,35 011 ¹⁾	7,44 011
1,15		36	14,0			1,91 01150 ¹⁾		3,06 01150		
1,20		38	16,0	6,65 012 ²⁾	3,19 012	1,70 01200 ¹⁾	4,05 012	2,71 01200	3,35 012 ¹⁾	7,44 012
1,25		38	16,0		125	1,86 01250 ¹⁾		2,98 01250		
1,30		38	16,0	6,79 013 ²⁾	3,27 013	1,58 01300 ¹⁾	3,85 013	2,71 01300	3,30 013 ¹⁾	7,24 013
1,35		40	18,0			1,79 01350 ¹⁾		3,06 01350		
1,40		40	18,0	6,84 014 ²⁾	3,29 014	1,55 01400 ¹⁾	3,64 014	2,71 01400	3,35 014 ¹⁾	7,44 014
1,45		40	18,0			1,64 01450 ¹⁾		3,02 01450		6,44 901
1,50		40	18,0	6,46 015 ²⁾	3,10 015	1,40 01500 ¹⁾	3,35 015	2,71 01500	3,00 015 ¹⁾	6,58 015
1,55		43	20,0		155	1,55 01550 ¹⁾		3,02 01550		6,49 902
1,60		43	20,0	6,46 016 ²⁾	3,10 016	1,36 01600 ¹⁾	3,64 016	2,41 01600	3,02 016 ¹⁾	6,65 016
1,65		43	20,0		165	1,55 01650 ¹⁾		3,02 01650		11,45 903
1,70		43	20,0	6,94 017 ²⁾	3,33 017	1,36 01700 ¹⁾	3,75 017	2,52 01700	3,02 017 ¹⁾	6,65 017
1,75		46	22,0			1,55 01750 ¹⁾		2,91 01750		
1,80		46	22,0	6,84 018 ²⁾	3,29 018	1,20 01800 ¹⁾	3,64 018	2,49 01800	3,02 018 ¹⁾	6,65 018
1,85		46	22,0			1,45 01850 ¹⁾		2,91 01850		7,89 904
1,90		46	22,0	6,84 019 ²⁾	3,29 019	1,24 01900 ¹⁾	3,75 019	2,49 01900	3,02 019 ¹⁾	6,65 019
1,95		49	24,0			1,45 01950 ¹⁾		2,79 01950		
2,00		49	24,0	6,65 020 ²⁾	3,19 020	1,02 02000 ¹⁾	3,05 020	2,01 02000	2,72 020 ¹⁾	5,95 020
2,05		49	24,0			1,40 02050 ¹⁾		2,63 02050		8,54 905
2,10		49	24,0	6,94 021 ²⁾	3,33 021	1,20 02100 ¹⁾	4,00 021	2,31 02100	2,97 021 ¹⁾	6,49 021
2,15		53	27,0			1,45 02150 ¹⁾		2,63 02150		
2,20		53	27,0	7,32 022 ²⁾	3,48 022	1,24 02200 ¹⁾	4,00 022	2,31 02200	2,97 022 ¹⁾	6,49 022
2,25		53	27,0			1,45 02250 ¹⁾		2,57 02250		
2,30		53	27,0	7,08 023 ²⁾	3,40 023	1,24 02300 ¹⁾	4,00 023	2,31 02300	2,97 023 ¹⁾	6,49 023
2,35		53	27,0			2,03 02350 ¹⁾		3,14 02350		
2,38	3/32	57	30,0	7,08 238 ²⁾	3,40 238					
2,40		57	30,0	6,65 024 ²⁾	3,19 024	1,31 02400	4,02 024	2,41 02400	2,97 024	6,49 024

Steel	●	●	●	○	●	●
Stainless steel	○	●	●	●	○	○
Cast iron	●	●	●	○	○	○
Non ferrous metals	○	●	○	○	●	○
Heat resistant alloys	○	○	○	○		
Hardened materials		○				

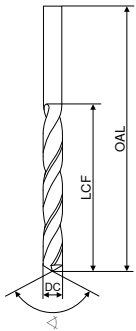
1) uncoated

2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

≤ 5xD

UNI
TiN130°
HSS-E-PM
T2UNI
TiN118°
HSS-E
T2N
vap.118°
HSS
T2

VA

130°
HSS-E
T2

W

130°
HSS
T2WTL
F-nit130°
HSS-E
T2WTL
TiN130°
HSS-E
T2

DC _{h8}	DC	OAL	LCF	Article no. 10 173 ... EUR	Article no. 10 171 ... EUR	Article no. 10 152 ... EUR	Article no. 10 175 ... EUR	Article no. 10 161 ... EUR	Article no. 10 168 ... EUR	Article no. 10 170 ... EUR
2,45		57	30,0			2,03 02450		3,19 02450		
2,50		57	30,0	6,79 025 ²⁾	3,27 025	1,31 02500	3,21 025	2,04 02500	2,75 025	6,09 025
2,55		57	30,0		3,40 255	2,06 02550		3,70 02550		
2,60		57	30,0	7,08 026 ²⁾	3,40 026	1,36 02600	4,10 026	2,49 02600	2,97 026	6,49 026
2,65		57	30,0			2,22 02650		3,70 02650		
2,70		61	33,0	7,51 027 ²⁾	3,59 027	1,36 02700	4,10 027	2,55 02700	3,16 027	7,09 027
2,75		61	33,0			1,74 02750		3,58 02750		
2,78	7/64	61	33,0	9,15 278 ²⁾	4,37 278					
2,80		61	33,0	7,37 028 ²⁾	3,50 028	1,36 02800	4,21 028	2,79 02800	3,30 028	7,24 028
2,85		61	33,0			2,06 02850		4,33 02850		
2,90		61	33,0	7,51 029 ²⁾	3,59 029	1,36 02900	4,21 029	2,79 02900	3,30 029	7,24 029
2,95		61	33,0			1,74 02950		3,70 02950		
3,00		61	33,0	7,18 030 ²⁾	3,44 030	1,14 03000	3,21 030	2,24 03000	2,91 030	6,44 030
3,05		65	36,0			1,58 03050		3,14 03050		
3,10		65	36,0	7,95 031 ²⁾	3,81 031	1,45 03100	4,25 031	2,79 03100	3,16 031	7,09 031
3,15		65	36,0			1,58 03150		3,14 03150		
3,17	1/8	65	36,0	7,90 317 ²⁾	3,79 317					
3,20		65	36,0	7,81 032 ²⁾	3,64 032	1,45 03200	3,64 032	2,52 03200	3,35 032	7,44 032
3,25		65	36,0		3,81 325	1,64 03250		3,14 03250		
3,30		65	36,0	7,95 033 ²⁾	3,70 033	1,45 03300	3,66 033	2,55 03300	3,43 033	7,56 033
3,35		65	36,0			1,74 03350		3,19 03350		
3,40		70	39,0	8,53 034 ²⁾	4,09 034	1,45 03400	4,48 034	2,83 03400	3,83 034	8,41 034
3,45		70	39,0			1,79 03450		3,37 03450		
3,50		70	39,0	8,62 035 ²⁾	4,14 035	1,31 03500	3,57 035	2,61 03500	3,16 035	7,09 035
3,55		70	39,0			1,86 03550		3,37 03550		
3,57	9/64	70	39,0	8,62 357 ²⁾	4,14 357					
3,60		70	39,0	8,73 036 ²⁾	4,19 036	1,55 03600	4,65 036	2,83 03600	3,67 036	8,28 036
3,65		70	39,0			1,86 03650		3,21 03650		
3,70		70	39,0	8,73 037 ²⁾	4,19 037	1,64 03700	4,67 037	2,89 03700	3,85 037	8,41 037
3,75		70	39,0			1,91 03750		3,52 03750		
3,80		75	43,0	9,19 038 ²⁾	4,39 038	1,70 03800	4,75 038	3,14 03800	4,08 038	9,09 038
3,85		75	43,0			2,03 03850		3,54 03850		
3,90		75	43,0	9,40 039 ²⁾	4,48 039	1,79 03900	4,95 039	3,14 03900	4,33 039	9,44 039
3,95		75	43,0			2,13 03950		3,58 03950		
3,97	5/32	75	43,0	9,54 397 ²⁾	4,58 397					
4,00		75	43,0	9,01 040 ²⁾	4,31 040	1,36 04000	3,90 040	2,65 04000	3,46 040	7,72 040
4,05		75	43,0			2,22 04050		4,65 04050		
4,10		75	43,0	9,19 041 ²⁾	4,39 041	1,86 04100	4,95 041	3,14 04100	4,31 041	9,44 041
4,15		75	43,0			2,22 04150		4,65 04150		
4,20		75	43,0	9,19 042 ²⁾	4,39 042	1,64 04200	5,00 042	2,79 04200	4,04 042	8,95 042
4,25		75	43,0			2,31 04250		4,52 04250		
4,30		80	47,0	9,84 043 ²⁾	4,70 043	1,91 04300	5,00 043	3,86 04300	4,48 043	9,94 043
4,35		80	47,0			2,94 04350		5,57 04350		
4,37	11/64	80	47,0	9,93 437 ²⁾	4,76 437					
4,40		80	47,0	9,84 044 ²⁾	4,70 044	1,91 04400	5,09 044	3,86 04400	4,48 044	9,94 044
4,45		80	47,0			2,94 04450				

Steel	●	●	●	○	●	●
Stainless steel	○	●	●	●	○	○
Cast iron	●	●	●	○	○	○
Non ferrous metals	○	●	○	○	●	○
Heat resistant alloys	○	○	○	○	○	○
Hardened materials		○				

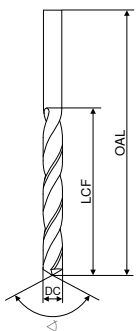
1) uncoated

2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

≤ 5xD

UNI
TiN
 $\angle 130^\circ$
HSS-E-PM
T2
UNI
TiN
 $\angle 118^\circ$
HSS-E
T2
N
vap.
 $\angle 118^\circ$
HSS
T2

VA


 $\angle 130^\circ$
HSS-E
T2

W


 $\angle 130^\circ$
HSS
T2
WTL
F-nit
 $\angle 130^\circ$
HSS-E
T2
WTL
TiN
 $\angle 130^\circ$
HSS-E
T2

DC _{h8}	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm	EUR	EUR	EUR	EUR	EUR	EUR	EUR
4,50		80	47,0	9,54	045 ²⁾	1,74 04500	4,97 045	3,37 04500	4,14 045	8,95 045
4,55		80	47,0			2,94 04550		6,78 04550		
4,60		80	47,0	10,12	046 ²⁾	1,91 04600	5,28 046	3,86 04600	4,70 046	10,59 046
4,65		80	47,0			2,94 04650		6,78 04650		
4,70		80	47,0	12,29	047 ²⁾	2,03 04700	5,35 047	3,86 04700	4,70 047	10,59 047
4,75		80	47,0			2,94 04750		5,42 04750		
4,76	3/16	86	52,0	10,37	476 ²⁾					
4,80		86	52,0	10,37	048 ²⁾	2,03 04800	5,41 048	3,86 04800	4,70 048	10,59 048
4,85		86	52,0			2,68 04850		6,78 04850		
4,90		86	52,0	10,50	049 ²⁾	2,13 04900	5,60 049	3,86 04900	4,90 049	10,81 049
4,95		86	52,0			3,30 04950		6,78 04950		
5,00		86	52,0	10,60	050 ²⁾	1,70 05000	4,75 050	3,67 05000	4,36 050	9,59 050
5,05		86	52,0			3,41 05050		8,16 05050		
5,10		86	52,0	10,60	051 ²⁾	2,22 05100	5,60 051	4,07 05100	4,90 051	10,81 051
5,15		86	52,0			3,56 05150				
5,16	13/64	86	52,0	11,55	516 ²⁾					
5,20		86	52,0	10,92	052 ²⁾	2,22 05200	5,65 052	4,20 05200	5,08 052	11,45 052
5,25		86	52,0			3,41 05250		6,49 05250		
5,30		86	52,0	11,55	053 ²⁾	2,22 05300	5,77 053	4,20 05300	5,08 053	11,45 053
5,35		93	57,0			4,05 05350				
5,40		93	57,0	14,20	054 ²⁾	2,45 05400	6,24 054	4,49 05400	5,52 054	12,19 054
5,45		93	57,0			4,20 05450		5,57 05450		
5,50		93	57,0	12,29	055 ²⁾	2,36 05500	6,76 055	4,11 05500	5,08 055	11,34 055
5,55		93	57,0			4,20 05550		5,57 05550		
5,56	7/32	93	57,0	14,41	556 ²⁾					
5,60		93	57,0	13,03	056 ²⁾	2,52 05600	6,46 056	4,95 05600	5,58 056	12,62 056
5,65		93	57,0			4,33 05650		7,68 05650		
5,70		93	57,0	12,82	057 ²⁾	2,55 05700	6,46 057	4,95 05700	5,58 057	12,62 057
5,75		93	57,0			4,33 05750		7,55 05750		
5,80		93	57,0	12,82	058 ²⁾	2,61 05800	6,46 058	4,95 05800	5,64 058	12,72 058
5,85		93	57,0			4,33 05850		9,07 05850		
5,90		93	57,0	13,68	059 ²⁾	2,65 05900	6,46 059	4,95 05900	6,07 059	13,68 059
5,95	15/64	93	57,0	16,74	595 ²⁾	2,68 05950		4,95 05950		
6,00		93	57,0	12,40	060 ²⁾	2,36 06000	6,19 060	4,87 06000	5,62 060	13,46 060
6,05		101	63,0			4,71 06050		10,60 06050		
6,10		101	63,0	13,99	061 ²⁾	2,89 06100	7,22 061	4,95 06100	6,12 061	13,78 061
6,15		101	63,0			4,71 06150		8,16 06150		
6,20		101	63,0	13,78	062 ²⁾	2,89 06200	7,22 062	4,95 06200	6,46 062	14,20 062
6,25		101	63,0			4,71 06250		8,48 06250		
6,30		101	63,0	15,26	063 ²⁾	2,94 06300	7,22 063	5,24 06300	7,09 063	15,26 063
6,35	1/4	101	63,0	16,11	635 ²⁾	3,14 06350		5,03 06350		
6,40		101	63,0	16,11	064 ²⁾	3,10 06400	7,89 064	5,24 06400	7,09 064	15,37 064
6,45		101	63,0			5,35 06450				
6,50		101	63,0	14,94	065 ²⁾	2,94 06500	7,09 065	5,01 06500	6,15 065	13,78 065
6,55		101	63,0			5,60 06550		11,45 06550		
6,60		101	63,0	16,32	066 ²⁾	3,21 06600	7,89 066	6,01 06600	7,24 066	15,90 066

Steel	●	●	●	○	●	●
Stainless steel	○	●	●	●	○	○
Cast iron	●	●	●	○	○	○
Non ferrous metals	○	●	○	○	●	○
Heat resistant alloys	○	○	○	○	○	○
Hardened materials		○				

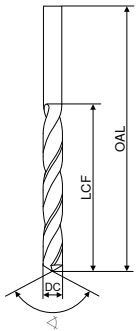
1) uncoated

2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

≤ 5xD

UNI
TiN130°
HSS-E-PM
T2UNI
TiN118°
HSS-E
T2N
vap.118°
HSS
T2

VA

130°
HSS-E
T2

W

130°
HSS
T2WTL
F-nit130°
HSS-E
T2WTL
TiN130°
HSS-E
T2

DC _{h8}	DC	OAL	LCF	Article no. 10 173 ... EUR	Article no. 10 171 ... EUR	Article no. 10 152 ... EUR	Article no. 10 175 ... EUR	Article no. 10 161 ... EUR	Article no. 10 168 ... EUR	Article no. 10 170 ... EUR
6,65		101	63,0			5,68 06650		11,02 06650		
6,70		101	63,0	16,32 067 ²⁾	7,79 067	3,34 06700	7,89 067	6,05 06700	7,24 067	15,90 067
6,75		109	69,0	22,05 675 ²⁾	10,52 675	3,90 06750		6,49 06750		
6,80		109	69,0	16,74 068 ²⁾	8,01 068	3,86 06800	8,54 068	6,49 06800	7,56 068	16,21 068
6,85		109	69,0			6,38 06850		11,45 06850		
6,90		109	69,0	17,07 069 ²⁾	8,15 069	3,86 06900	8,54 069	6,49 06900	7,89 069	17,27 069
6,95		109	69,0			6,47 06950		11,45 06950		
7,00		109	69,0	16,74 070 ²⁾	8,01 070	3,56 07000	7,38 070	5,75 07000	6,72 070	14,84 070
7,05		109	69,0			6,90 07050		9,25 07050		
7,10		109	69,0	19,29 071 ²⁾	9,21 071	3,90 07100	10,11 071	7,97 07100	10,42 071	22,89 071
7,14	9/32	109	69,0	28,83 714 ²⁾	13,78 714					
7,15		109	69,0			6,58 07150				
7,20		109	69,0	19,18 072 ²⁾	9,18 072	4,05 07200	10,11 072	7,97 07200	10,42 072	22,89 072
7,25		109	69,0			6,38 07250		13,56 07250		
7,30		109	69,0	19,93 073 ²⁾	9,53 073	4,05 07300	10,11 073	7,97 07300	10,42 073	22,89 073
7,35		109	69,0			6,90 07350				
7,40		109	69,0	19,50 074 ²⁾	9,32 074	4,24 07400	10,11 074	7,97 07400	10,42 074	22,89 074
7,45		109	69,0			6,78 07450				
7,50		109	69,0	17,70 075 ²⁾	8,49 075	3,86 07500	8,04 075	6,60 07500	7,72 075	17,27 075
7,55		117	75,0			7,89 07550				
7,60		117	75,0	21,52 076 ²⁾	10,30 076	4,43 07600	12,19 076	8,76 07600	11,45 076	25,22 076
7,65		117	75,0			7,89 07650				
7,70		117	75,0	24,48 077 ²⁾	11,76 077	4,43 07700	12,19 077	8,76 07700	11,45 077	25,22 077
7,75		117	75,0			7,19 07750		15,37 07750		
7,80		117	75,0	20,99 078 ²⁾	10,05 078	4,52 07800	12,19 078	8,76 07800	11,45 078	25,22 078
7,85		117	75,0			7,89 07850				
7,90		117	75,0	25,12 079 ²⁾	11,97 079	4,58 07900	12,19 079	10,14 07900	11,45 079	25,22 079
7,94	5/16	117	75,0	22,57 794 ²⁾	10,81 794					
7,95		117	75,0			8,25 07950				
8,00		117	75,0	20,03 080 ²⁾	9,57 080	3,86 08000	9,86 080	7,37 08000	8,73 080	19,50 080
8,05		117	75,0			8,41 08050		19,40 08050		
8,10		117	75,0	21,83 081 ²⁾	10,46 081	4,71 08100	12,19 081	10,50 08100	12,19 081	26,81 081
8,15		117	75,0			8,53 08150		19,40 08150		
8,20		117	75,0	21,52 082 ²⁾	10,30 082	4,87 08200	13,25 082	11,02 08200	12,72 082	27,55 082
8,25		117	75,0			5,94 08250		15,90 08250		
8,30		117	75,0	23,95 083 ²⁾	11,45 083	5,28 08300	13,25 083	11,55 08300	13,68 083	29,67 083
8,35		117	75,0			9,02 08350				
8,40		117	75,0	24,06 084 ²⁾	11,45 084	5,28 08400	13,68 084	11,55 08400	13,68 084	29,67 084
8,45		117	75,0			9,52 08450		18,44 08450		
8,50		117	75,0	20,56 085 ²⁾	9,85 085	5,01 08500	9,66 085	8,48 08500	9,94 085	21,93 085
8,55		125	81,0			11,13 08550		18,97 08550		
8,60		125	81,0		17,27 086	5,73 08600	14,31 086	11,55 08600	15,05 086	32,85 086
8,65		125	81,0			11,13 08650				
8,70		125	81,0		17,27 087	5,73 08700	14,31 087	12,93 08700	15,26 087	33,38 087
8,73	11/32	125	81,0	22,26 873 ²⁾	10,60 873					
8,75		125	81,0			9,92 08750		18,44 08750		

Steel	●	●	●	○	●	●
Stainless steel	○	●	●	●	○	○
Cast iron	●	●	●	○	○	○
Non ferrous metals	○	●	○	○	●	○
Heat resistant alloys	○	○	○	○		
Hardened materials		○				

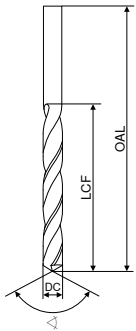
1) uncoated

2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

≤ 5xD

UNI
TiN
 $\angle 130^\circ$
HSS-E-PM
T2
UNI
TiN
 $\angle 118^\circ$
HSS-E
T2
N
vap.
 $\angle 118^\circ$
HSS
T2

VA


 $\angle 130^\circ$
HSS-E
T2

W


 $\angle 130^\circ$
HSS
T2
WTL
F-nit
 $\angle 130^\circ$
HSS-E
T2
WTL
TiN
 $\angle 130^\circ$
HSS-E
T2

DC _{h8}	DC	OAL	LCF	T2		T2		T2		T2		T2		T2		T2	
				Article no.		Article no.		Article no.		Article no.		Article no.		Article no.		Article no.	
				10 173 ...	EUR	10 171 ...	EUR	10 152 ...	EUR	10 175 ...	EUR	10 161 ...	EUR	10 168 ...	EUR	10 170 ...	EUR
mm	inch	mm	mm														
8,80		125	81,0	24,06	088 2)	11,45	088	5,94	08800	15,58	088	12,93	08800	15,26	088	33,38	088
8,90		125	81,0			16,01	089	6,20	08900	16,42	089	13,03	08900	15,37	089	33,91	089
8,95		125	81,0					11,55	08950								
9,00		125	81,0	22,68	090 2)	10,81	090	5,46	09000	12,62	090	9,25	09000	11,66	090	25,54	090
9,05		125	81,0					11,55	09050								
9,10		125	81,0			17,80	091	6,20	09100	17,48	091	14,31	09100	16,21	091	36,04	091
9,15		125	81,0					11,55	09150								
9,20		125	81,0			17,80	092	6,20	09200	18,34	092	14,31	09200	17,70	092	38,79	092
9,25		125	81,0					8,25	09250			22,15	09250				
9,30		125	81,0	26,07	093 2)	12,50	093	6,30	09300	18,87	093	14,31	09300	17,70	093	38,26	093
9,35		125	81,0			11,34	935	12,29	09350								
9,40		125	81,0			18,23	094	6,30	09400	20,24	094	14,31	09400	17,70	094	38,26	094
9,45		125	81,0					12,29	09450								
9,50		125	81,0	23,85	095 2)	11,34	095	6,23	09500	14,84	095	10,81	09500	12,62	095	27,24	095
9,55		133	87,0					13,99	09550								
9,60		133	87,0			13,56	096	6,90	09600	21,30	096	16,21	09600	18,44	096	40,80	096
9,65		133	87,0					13,99	09650								
9,70		133	87,0			19,60	097	6,90	09700	21,30	097	16,64	09700	20,13	097	43,56	097
9,75		133	87,0					9,02	09750								
9,80		133	87,0	28,40	098 2)	13,56	098	7,70	09800	21,30	098	16,64	09800	20,13	098	43,56	098
9,85		133	87,0					15,15	09850								
9,90		133	87,0			16,11	099	7,70	09900	21,30	099	17,07	09900	20,13	099	43,56	099
9,95		133	87,0					15,15	09950								
10,00		133	87,0	26,92	100 2)	12,82	100	6,58	10000	14,20	100	11,45	10000	14,20	100	31,37	100
10,05		133	87,0					20,34	10050			28,93	10050				
10,10		133	87,0			18,34	101	8,25	10100	23,95	101	17,27	10100	31,69	101	69,31	101
10,15		133	87,0					20,34	10150								
10,20		133	87,0	31,05	102 2)	14,84	102	8,41	10200	20,24	102	17,27	10200	19,50	102	42,39	102
10,25		133	87,0					11,34	10250			19,40	10250				
10,30		133	87,0			16,01	103	10,15	10300	31,79	103	17,27	10300	26,07	103	56,59	103
10,35		133	87,0					20,34	10350								
10,40		133	87,0			19,82	104	10,15	10400	31,79	104	17,27	10400	27,55	104	60,40	104
10,45		133	87,0					20,34	10450								
10,50		133	87,0	31,26	105 2)	14,94	105	8,53	10500	20,99	105	14,09	10500	17,91	105	39,43	105
10,55		133	87,0			15,48	955	14,31	10550								
10,60		133	87,0					10,70	10600	42,49	106	17,27	10600	27,55	106		
10,70		142	94,0					12,29	10700	41,86	107	19,60	10700	27,55	107	60,40	107
10,75		142	94,0					13,68	10750			22,79	10750				
10,80		142	94,0					11,97	10800	42,49	108	20,46	10800	26,28	108	57,87	108
10,90		142	94,0					12,93	10900	42,49	109	20,46	10900	33,38	109		
11,00		142	94,0	32,32	110 2)	15,48	110	9,92	11000	22,79	110	16,64	11000	21,93	110	47,16	110
11,10		142	94,0					12,93	11100	44,29	111	20,46	11100	32,43	111		
11,11	7/16	142	94,0	40,49	111 2)	19,40	111										
11,20		142	94,0			17,17	112	12,29	11200	44,29	112	26,18	11200	36,04	112	80,23	112
11,30		142	94,0			17,17	113			44,62	113			36,04	113		
11,40		142	94,0			17,17	114	13,35	11400	44,62	114	28,93	11400	36,04	114		

Steel	●	●	●	○	●	●
Stainless steel	○	●	●	●	○	○
Cast iron	●	●	●	○	○	○
Non ferrous metals	○	●	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
Hardened materials		○				

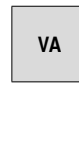
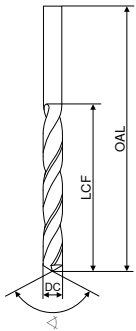
1) uncoated

2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

≤ 5xD



130°
HSS-E-PM
T2

118°
HSS-E
T2

118°
HSS
T2

130°
HSS-E
T2

130°
HSS
T2

130°
HSS-E
T2

130°
HSS-E
T2

DC _{h8}	DC	OAL	LCF	Article no. 10 173 ... EUR	Article no. 10 171 ... EUR	Article no. 10 152 ... EUR	Article no. 10 175 ... EUR	Article no. 10 161 ... EUR	Article no. 10 168 ... EUR	Article no. 10 170 ... EUR
mm	inch	mm	mm							
11,50		142	94,0	35,82	115 ²⁾	17,17	115	29,24	115	56,38
11,60		142	94,0			13,35	11600	51,08	11600	36,04
11,70		142	94,0			13,68	11700	51,08	11700	36,04
11,80		142	94,0			13,88	11800	51,08	11800	38,26
11,90		151	101,0			15,15	11900	51,08	11900	28,93
12,00		151	101,0	38,37	120 ²⁾	11,97	12000	32,96	12000	20,24
12,15		151	101,0							27,24
12,20		151	101,0			16,01	12200		12200	
12,25		151	101,0			17,91	12250			
12,30		151	101,0	68,78	123 ²⁾	32,85				
12,50		151	101,0	39,84	125 ²⁾	19,07	12500	20,24	12500	33,70
12,70		151	101,0	52,14	127 ²⁾	24,91	12700	19,60	12700	
12,80		151	101,0			18,12	12800	36,24	12800	57,12
13,00		151	101,0	42,39	130 ²⁾	20,24	13000	24,06	13000	33,70
13,10		151	101,0			36,04				
13,20		151	101,0			19,40	13200	44,29	13200	
13,30		160	108,0			36,04				
13,50		160	108,0	75,35	135 ²⁾	36,04	13500	29,78	13500	44,41
13,80		160	108,0			24,69	13800	55,74	13800	50,55
14,00		160	108,0	51,29	140 ²⁾	18,97	14000	28,71	14000	39,96
14,50		169	114,0			20,34	14500	37,94	14500	48,54
14,80		169	114,0							73,55
15,00		169	114,0			22,15	15000	33,81	15000	49,91
15,25		178	120,0			41,12	15250			
15,50		178	120,0			24,06	15500	47,80	15500	72,81
15,80		178	120,0			39,63	15800			
16,00		178	120,0			25,85	16000	45,25	16000	61,15
16,50		184	125,0			29,57	16500	75,67	16500	
17,00		184	125,0			31,26	17000	76,73	17000	
17,50		191	130,0			34,12	17500	152,60	17500	
18,00		191	130,0			36,35	18000	83,09	18000	
18,50		198	135,0			39,63	18500			
19,00		198	135,0			42,82	19000	94,64	19000	
19,50		205	140,0			45,25	19500			
20,00		205	140,0			49,60	20000	117,60	20000	

Steel	●	●	●	○	●	●
Stainless steel	○	●	●	●	○	○
Cast iron	●	●	●	○	○	○
Non ferrous metals	○	●	○	○	●	○
Heat resistant alloys	○	○	○	○		
Hardened materials		○				

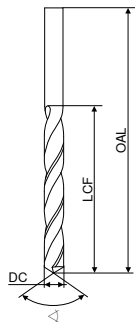
- 1) uncoated
2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

▲ Article no. 10 169 ... WTL-L – left-hand cutting drill

≤ 5xD

WTL
TiCN130°
HSS-E
T2WTL-L
F-nit130°
HSS
T2

DC _{h8}	OAL	LCF	Article no. 10 172 ... EUR	Article no. 10 169 ... EUR
mm	mm	mm		
1,0	34	12		4,96 010 ¹⁾
1,3	38	16		5,02 013 ¹⁾
1,4	40	18		5,02 014 ¹⁾
1,5	40	18		4,04 015 ¹⁾
1,6	43	20		4,22 016 ¹⁾
1,7	43	20		4,27 017 ¹⁾
1,8	46	22		4,33 018 ¹⁾
1,9	46	22		4,40 019 ¹⁾
2,0	49	24		3,43 020 ¹⁾
2,1	49	24		4,08 021 ¹⁾
2,2	53	27		4,48 022 ¹⁾
2,3	53	27		4,22 023 ¹⁾
2,4	57	30		4,22 024
2,5	57	30		3,83 025
2,6	57	30		4,33 026
2,7	61	33		4,33 027
2,8	61	33		4,48 028
2,9	61	33		4,48 029
3,0	61	33	8,54 030	4,08 030
3,1	65	36	9,09 031	4,98 031
3,2	65	36	9,59 032	4,52 032
3,3	65	36	10,31 033	4,70 033
3,4	70	39	11,34 034	5,34 034
3,5	70	39	9,09 035	4,36 035
3,6	70	39	10,81 036	5,52 036
3,7	70	39	11,34 037	5,69 037
3,8	75	43	11,97 038	5,93 038
3,9	75	43	12,62 039	6,21 039
4,0	75	43	10,31 040	4,70 040
4,1	75	43	12,62 041	6,46 041
4,2	75	43	11,66 042	5,71 042
4,3	80	47	13,03 043	7,44 043
4,4	80	47	13,03 044	7,72 044
4,5	80	47	11,97 045	6,00 045
4,6	80	47	13,88 046	7,89 046
4,7	80	47	13,88 047	7,89 047
4,8	86	52	13,88 048	7,89 048
4,9	86	52	14,09 049	8,07 049
5,0	86	52	12,72 050	5,75 050
5,1	86	52	14,09 051	8,07 051
5,2	86	52	14,84 052	8,95 052
5,3	86	52	14,84 053	8,95 053
5,4	93	57	15,79 054	9,44 054
5,5	93	57	14,73 055	7,44 055
5,6	93	57	15,90 056	9,94 056
5,7	93	57	15,90 057	9,94 057
5,8	93	57	16,21 058	9,94 058

DC _{h8}	OAL	LCF	Article no. 10 172 ... EUR	T2	Article no. 10 169 ... EUR	T2
mm	mm	mm				
5,9	93	57	17,70	059	9,94	059
6,0	93	57	16,21	060	7,44	060
6,1	101	63	17,91	061	10,81	061
6,2	101	63	18,44	062	11,97	062
6,3	101	63	20,13	063	11,97	063
6,4	101	63	20,46	064	11,97	064
6,5	101	63	17,91	065	8,95	065
6,6	101	63	21,30	066	12,93	066
6,7	101	63	21,30	067	12,93	067
6,8	109	69	21,73	068	13,88	068
6,9	109	69	22,89	069	14,20	069
7,0	109	69	19,50	070	10,42	070
7,1	109	69	29,67	071	19,50	071
7,2	109	69	29,67	072	19,50	072
7,3	109	69			19,50	073
7,4	109	69	29,67	074	19,50	074
7,5	109	69	22,57	075	12,19	075
7,7	117	75	32,85	077	20,66	077
7,8	117	75	32,85	078	20,66	078
7,9	117	75			20,66	079
8,0	117	75	25,22	080	11,66	080
8,1	117	75	34,65	081	21,30	081
8,2	117	75	36,04	082	21,30	082
8,3	117	75			21,30	083
8,4	117	75	38,79	084	21,30	084
8,5	117	75	28,40	085	14,73	085
8,6	125	81	42,82	086	23,74	086
8,7	125	81	43,35	087	23,74	087
8,8	125	81	43,35	088	23,74	088
8,9	125	81	44,41	089	23,74	089
9,0	125	81	33,17	090	14,41	090
9,2	125	81			24,38	092
9,3	125	81			24,38	093
9,5	125	81	35,71	095	18,76	095
9,8	133	87			26,07	098
9,9	133	87			27,24	099
10,0	133	87	41,12	100	16,21	100
10,1	133	87			27,24	101
10,2	133	87	54,68	102	27,87	102
10,3	133	87			27,55	103
10,4	133	87			29,04	104
10,5	133	87	51,50	105	28,40	105
11,0	142	94	73,55	110	28,40	110
11,5	142	94	73,55	115	31,37	115
12,0	151	101	78,31	120	32,43	120
12,2	151	101			51,19	122
12,5	151	101			34,65	125
13,0	151	101			35,71	130
14,0	160	108			41,43	140
14,5	169	114			45,04	145
15,0	169	114			50,23	150
16,0	178	120			56,38	160

Steel	●	●
Stainless steel	○	
Cast iron		○
Non ferrous metals		○
Heat resistant alloys		

1) uncoated

→ v_c Page 49

Twist drill sets DIN 338, short

▲ in metal box
▲ in 0.1 mm steps

≤ 5xD



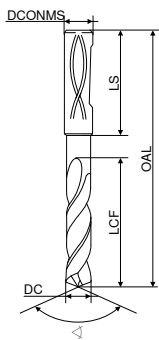
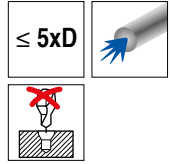
d ₁ h8 mm	N		UNI	
	vap.		TiN	
				
	Drill set type N HSS		Drill set type UNI TiN HSS-E	
	T2		T2	
	Article no. 10 158 ...		Article no. 10 158 ...	
	EUR		EUR	
1,0 - 5,9	89,76	050	267,10	054
6,0 - 10,0	197,10	100	420,70	104
Steel	●		●	
Stainless steel			●	
Cast iron	●		●	
Non ferrous metals			●	
Heat resistant alloys			○	

→ v_c Page 48

i Set of type N vap. contains the drills of Art. No. 10 152 ...
Set of type UNI TiN contains the drills of Art. No. 10 171 ...

Twist drill with thro' coolant ~ DIN 338, short

- ▲ relief ground
- ▲ special point thinning
- ▲ wide chip flutes
- ▲ rounded flute edges
- ▲ for long chipping materials up to 1000 N/mm²



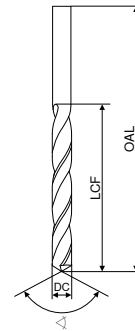
WNXi

WNXi
TiN

DC _{h8}	OAL	LCF	DCONMS _{h6}	LS	T2 Article no. 10 180 ...		T2 Article no. 10 181 ...	
					EUR		EUR	
5,0	82	44	6	38	67,61	050	94,74	050
5,5	82	44	6	38	68,46	055	96,44	055
6,0	82	44	6	38	64,75	060	90,93	060
6,5	91	53	8	38	71,96	065	100,20	065
6,8	91	53	8	38	73,23	068	102,50	068
7,0	91	53	8	38	73,23	070	101,60	070
7,5	91	53	8	38	73,44	075	103,30	075
7,8	91	53	8	38	74,92	078	105,60	078
8,0	91	53	8	38	70,69	080	99,51	080
8,5	103	61	10	42	78,10	085	110,20	085
9,0	103	61	10	42	78,74	090	111,30	090
9,5	103	61	10	42	80,33	095	112,30	095
10,0	103	61	10	42	76,41	100	107,00	100
10,2	118	71	12	47	86,37	102	120,90	102
10,5	118	71	12	47	86,37	105	121,90	105
11,0	118	71	12	47	88,70	110	124,00	110
11,5	118	71	12	47	91,78	115	129,30	115
12,0	118	71	12	47	84,04	120	116,60	120
12,5	124	77	14	47	103,30	125	147,30	125
13,0	124	77	14	47	104,90	130	149,50	130
13,5	124	77	14	47	107,00	135	152,60	135
14,0	124	77	14	47	101,00	140	144,10	140
14,5	133	83	16	50	125,00	145	179,10	145
15,0	133	83	16	50	127,20	150	181,30	150
15,5	133	83	16	50	130,30	155	184,40	155
16,0	133	83	16	50	121,90	160	178,10	160
16,5	143	93	18	50	153,70	165	216,20	165
17,0	143	93	18	50	154,80	170	222,60	170
17,5	143	93	18	50	159,00	175	228,90	175
18,0	143	93	18	50	150,50	180	212,00	180
18,5	153	101	20	52	181,30	185	255,40	185
19,0	153	101	20	52	183,40	190	260,70	190
19,5	153	101	20	52	185,40	195	263,90	195
20,0	153	101	20	52	178,10	200	252,20	200

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○

Twist drills with coolant hole, factory standard, long



NC



NC



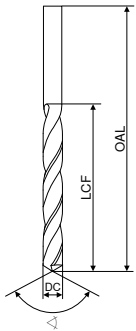
DC _{h8}	OAL	LCF	T2 Article no. 10 223 ...		T2 Article no. 10 224 ...	
			EUR		EUR	
3,0	100	66	107,00	030	118,70	030
3,3	106	69	111,30	033	134,60	033
3,5	112	73	110,20	035	132,50	035
3,8	119	78			162,10	038
4,0	119	78	111,30	040	134,60	040
4,2	119	78	112,30	042	136,80	042
4,5	126	82	112,30	045	135,60	045
4,8	132	87			160,10	048
5,0	132	87	112,30	050	136,80	050
5,5	139	91	115,50	055	140,90	055
5,8	139	91			162,10	058
6,0	139	91	119,80	060	145,20	060
6,5	148	97	128,20	065	155,80	065
6,8	156	102	129,30	068	156,80	068
7,0	156	102	129,30	070	156,80	070
7,5	156	102	134,60	075	162,10	075
7,8	165	109			173,80	078
8,0	165	109	136,80	080	165,40	080
8,5	165	109	140,90	085	173,80	085
8,8	175	115			178,10	088
9,0	175	115	140,90	090	178,10	090
9,5	175	115	145,20	095	183,40	095
9,8	184	121			187,60	098
10,0	184	121	145,20	100	183,40	100
10,2	184	121	148,40	102	187,60	102
10,5	184	121	148,40	105	188,70	105
10,8	195	128			194,00	108
11,0	195	128	148,40	110	188,70	110
11,5	195	128	152,60	115	192,90	115
11,8	205	134			224,60	118
12,0	205	134	153,70	120	197,10	120
12,8	205	134			236,30	128
13,0	205	134	160,10	130	206,70	130

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○

→ v_c Page 50→ v_c Page 49

Twist drills, DIN 340, long

≤ 10xD



			UNI		WTL		WTL		WTL		WTW	
			TiN		F-nit		F-nit		TiN			
			◊ 118° HSS-E T2		◊ 130° HSS-E T2		◊ 130° HSS T2		◊ 130° HSS T2		◊ 130° HSS T2	
			Article no. 10 270 ...		Article no. 10 225 ...		Article no. 10 215 ...		Article no. 10 210 ...		Article no. 10 200 ...	
			EUR		EUR		EUR		EUR		EUR	
1,0	56	33	5,35	010	7,72	010 1)	5,81	010 1)	13,03	010	5,58	010
1,1	60	37	6,03	011	9,59	011 1)	6,39	011 1)	13,88	011	6,07	011
1,2	65	41	6,70	012	9,09	012 1)	5,93	012 1)	13,35	012	5,69	012
1,3	65	41	6,59	013	8,95	013 1)	6,06	013 1)	13,68	013	5,38	013
1,4	70	45	6,51	014	8,54	014 1)	5,62	014 1)	12,50	014	5,02	014
1,5	70	45	5,63	015	7,44	015 1)	4,83	015 1)	10,70	015	5,04	015
1,6	76	50	6,70	016	8,28	016 1)	4,64	016 1)	10,42	016	4,63	016
1,7	76	50	7,28	017	8,07	017 1)	4,62	017 1)	10,42	017	4,54	017
1,8	80	53	6,99	018	8,07	018 1)	4,58	018 1)	10,09	018	4,54	018
1,9	80	53	7,48	019	7,56	019 1)	4,50	019 1)	9,95	019	4,52	019
2,0	85	56	5,55	020	5,75	020 1)	4,23	020 1)	9,51	020	3,72	020
2,1	85	56	6,41	021	7,09	021 1)	4,87	021 1)	10,92	021	4,46	021
2,2	90	59	6,51	022	7,24	022 1)	4,97	022 1)	11,13	022	4,54	022
2,3	90	59	6,41	023	7,24	023 1)	5,01	023 1)	11,23	023	4,54	023
2,4	95	62	5,94	024	7,44	024	5,11	024	11,55	024	4,54	024
2,5	95	62	5,63	025	6,12	025	4,40	025	9,95	025	4,04	025
2,6	95	62	6,51	026	7,44	026	5,15	026	11,55	026	4,54	026
2,7	100	66	6,90	027	7,56	027	5,17	027	11,66	027	4,54	027
2,8	100	66	6,59	028	7,56	028	5,19	028	11,66	028	4,54	028
2,9	100	66	6,90	029	7,56	029	5,24	029	11,87	029	4,54	029
3,0	100	66	6,12	030	6,44	030	4,50	030	10,09	030	4,22	030
3,1	106	69	7,28	031	7,72	031	6,02	031	13,56	031	5,62	031
3,2	106	69	6,80	032	7,56	032	5,09	032	11,23	032	4,52	032
3,3	106	69	7,19	033	8,28	033	5,71	033	12,72	033	5,08	033
3,4	112	73	7,48	034	7,89	034	6,06	034	13,68	034	5,69	034
3,5	112	73	7,28	035	7,56	035	5,17	035	11,55	035	4,77	035
3,6	112	73	7,57	036	8,07	036	6,69	036	14,52	036	5,83	036
3,7	112	73	7,38	037	8,07	037	6,21	037	13,88	037	6,00	037
3,8	119	78	7,09	038	8,28	038	6,39	038	13,88	038	6,07	038
3,9	119	78	7,96	039	8,41	039	6,54	039	14,09	039	6,18	039
4,0	119	78	7,77	040	8,07	040	5,64	040	12,50	040	5,19	040
4,1	119	78	7,87	041	8,54	041	6,69	041	14,41	041	6,44	041
4,2	119	78	7,57	042	8,95	042	6,39	042	13,88	042	5,55	042
4,3	126	82	8,44	043	9,09	043	7,14	043	15,79	043	7,09	043
4,4	126	82	7,48	044	9,28	044	7,47	044	16,54	044	7,24	044
4,5	126	82	7,96	045	9,59	045	6,54	045	14,31	045	6,39	045
4,6	126	82	7,66	046	9,44	046	7,47	046	16,54	046	7,24	046
4,7	126	82	8,82	047	9,94	047	7,47	047	16,54	047	7,44	047
4,8	132	87	8,63	048	10,59	048	7,47	048	16,54	048	7,56	048
4,9	132	87	8,75	049	11,02	049	7,78	049	17,17	049	7,72	049
5,0	132	87	8,82	050	9,59	050	6,85	050	15,15	050	6,09	050
5,1	132	87	9,82	051	11,34	051	7,89	051	17,60	051	7,89	051
5,2	132	87	9,61	052	11,66	052	8,39	052	18,65	052	8,28	052
5,3	132	87	10,59	053	11,87	053	8,56	053	18,87	053	8,41	053

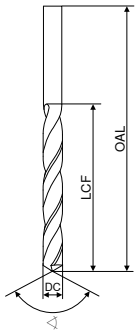
Steel	●	●	●	●
Stainless steel	○	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	○	●	●	●
Heat resistant alloys				●

1) uncoated

→ v_c Page 50

Twist drills, DIN 340, long

≤ 10xD



			UNI		WTL		WTL		WTL		WTW	
			TiN		F-nit		F-nit		TiN			
			◊ 118° HSS-E T2		◊ 130° HSS-E T2		◊ 130° HSS T2		◊ 130° HSS T2		◊ 130° HSS T2	
			Article no. 10 270 ...		Article no. 10 225 ...		Article no. 10 215 ...		Article no. 10 210 ...		Article no. 10 200 ...	
			EUR		EUR		EUR		EUR		EUR	
DC _{h8}	OAL	LCF										
mm	mm	mm										
5,4	139	91	11,55	054	11,97	054	8,72	054	19,60	054	8,54	054
5,5	139	91	9,22	055	11,45	055	8,06	055	18,12	055	7,89	055
5,6	139	91	12,08	056	12,62	056	9,80	056	21,62	056	9,28	056
5,7	139	91	13,46	057	12,72	057	10,09	057	22,15	057	9,44	057
5,8	139	91	11,66	058	12,93	058	10,42	058	22,36	058	9,94	058
5,9	139	91	13,03	059	13,03	059	10,70	059	23,85	059	10,31	059
6,0	139	91	11,13	060	11,87	060	8,39	060	18,65	060	8,07	060
6,1	148	97	13,25	061	13,78	061	11,55	061	25,22	061	11,87	061
6,2	148	97	11,76	062	13,88	062	11,66	062	25,44	062	11,97	062
6,3	148	97	13,25	063	14,09	063	11,87	063	25,65	063	12,19	063
6,4	148	97	11,97	064	14,73	064	12,82	064	27,87	064	12,72	064
6,5	148	97	11,45	065	13,46	065	9,37	065	20,46	065	9,09	065
6,6	148	97	13,35	066	15,05	066	13,35	066	28,93	066	12,93	066
6,7	148	97	13,68	067	15,37	067	13,68	067	29,57	067	13,03	067
6,8	156	102	14,52	068	16,21	068	14,20	068	31,37	068	13,78	068
6,9	156	102	15,15	069	17,27	069	14,41	069	31,69	069	13,88	069
7,0	156	102	13,78	070	14,84	070	10,92	070	24,06	070	11,13	070
7,1	156	102	13,35	071	17,70	071	14,52	071			14,09	071
7,2	156	102	15,15	072	18,23	072	15,15	072	33,38	072	14,41	072
7,3	156	102	15,79	073	18,44	073	15,37	073	33,59	073	14,73	073
7,4	156	102	16,42	074	19,50	074	15,58	074	33,91	074	14,84	074
7,5	156	102	16,64	075	17,70	075	13,56	075	29,24	075	13,46	075
7,6	165	109	17,91	076			15,79	076	34,87	076	15,37	076
7,7	165	109	17,07	077	21,30	077	16,01	077			15,58	077
7,8	165	109	18,65	078	21,73	078	16,54	078	36,04	078	15,79	078
7,9	165	109	18,01	079	21,93	079	16,54	079	36,35	079	16,21	079
8,0	165	109	15,26	080	16,54	080	12,72	080	27,66	080	12,29	080
8,1	165	109	16,74	081	22,89	081	16,74	081	37,30	081	16,64	081
8,2	165	109	18,34	082	23,21	082	17,17	082	37,51	082	17,07	082
8,3	165	109	19,50	083	23,74	083	17,17	083	38,15	083	17,27	083
8,4	165	109	20,87	084	24,38	084	18,12	084	39,10	084	17,70	084
8,5	165	109	17,91	085	20,46	085	16,54	085	36,35	085	16,21	085
8,6	175	115	17,91	086	25,01	086	18,34	086	39,96	086	17,91	086
8,7	175	115	18,01	087	25,22	087	18,34	087	40,27	087		
8,8	175	115	18,34	088	26,07	088	18,87	088	41,33	088	18,44	088
8,9	175	115	18,54	089	26,81	089	19,93	089	43,13	089	19,50	089
9,0	175	115	18,76	090	20,13	090	15,26	090	33,59	090	15,26	090
9,1	175	115	18,76	091	27,55	091	20,66	091	45,04	091	20,46	091
9,2	175	115	18,76	092	29,24	092	23,85	092			21,93	092
9,3	175	115	18,76	093	29,89	093	24,06	093			22,89	093
9,4	175	115	18,76	094	30,20	094					24,06	094
9,5	175	115	18,76	095	26,60	095	23,21	095	50,76	095	22,89	095
9,6	184	121	19,93	096			27,87	096			28,40	096
9,7	184	121	20,87	097	36,98	097	29,89	097	65,81	097		

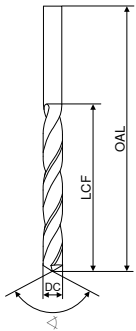
Steel	●	●	●	●
Stainless steel	○	●		
Cast iron	●	●	●	●
Non ferrous metals	○	●	●	●
Heat resistant alloys				●

1) uncoated

→ v_c Page 50

Twist drills, DIN 340, long

≤ 10xD



UNI	WTL	WTL	WTL	WTW
TiN	F-nit	F-nit	TiN	
				
118° HSS-E T2	130° HSS-E T2	130° HSS T2	130° HSS T2	130° HSS T2
Article no. 10 270 ...	Article no. 10 225 ...	Article no. 10 215 ...	Article no. 10 210 ...	Article no. 10 200 ...
EUR	EUR	EUR	EUR	EUR
22,36 098	36,98 098	31,37 098	69,10 098	29,89 098
24,27 099	36,98 099	33,38 099	73,98 099	
26,28 100	30,20 100	18,65 100	40,70 100	17,70 100
28,83 101		41,12 101	90,19 101	
30,63 102	39,00 102	33,06 102	72,81 102	32,85 102
33,17 103		49,49 103		51,50 103
33,17 104		59,46 104		53,73 104
33,59 105	41,43 105	33,38 105	73,98 105	33,91 105
			124,00 106	
	46,63 108	48,86 108		46,84 108
	45,78 110	27,66 110	60,62 110	27,55 110
39,96 110				
40,37 115	55,95 115	46,42 115	101,30 115	45,04 115
				60,62 116
	61,79 118	55,95 118		54,26 118
40,80 120	56,38 120	33,91 120	75,24 120	34,65 120
				63,59 122
				54,26 123
44,72 125		35,18 125	76,94 125	35,71 125
48,64 130		36,57 130	80,86 130	38,79 130
49,49 135		68,46 135		
51,50 140		61,36 140	139,90 140	64,54 140

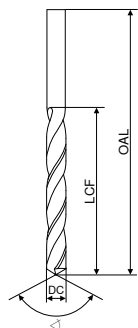
Steel	●	●	●	●
Stainless steel	○	●		
Cast iron	●	●	●	●
Non ferrous metals	○	●	●	●
Heat resistant alloys				●

1) uncoated

→ v_c Page 50

Twist drills, DIN 1869, extra-long, series 1

> 10xD

WTL
F.-nit130°
HSS
T2

DC _{h8}	OAL	LCF	Article no. 10 235 ...	EUR
mm	mm	mm		
2,0	125	85	8,54 020 ¹⁾	
2,1	125	85	10,59 021 ¹⁾	
2,2	135	90	10,59 022 ¹⁾	
2,3	135	90	10,59 023 ¹⁾	
2,4	140	95	11,13 024	
2,5	140	95	8,54 025	
2,6	140	95	11,13 026	
2,7	150	100	11,66 027	
2,8	150	100	11,66 028	
2,9	150	100	11,66 029	
3,0	150	100	9,74 030	
3,1	155	105	12,19 031	
3,2	155	105	12,19 032	
3,3	155	105	12,19 033	
3,4	165	115	12,29 034	
3,5	165	115	9,74 035	
3,6	165	115	12,29 036	
3,7	165	115	13,68 037	
3,8	175	120	13,68 038	
3,9	175	120	13,68 039	
4,0	175	120	9,94 040	
4,1	175	120	13,68 041	
4,2	175	120	13,88 042	
4,3	185	125	15,05 043	
4,4	185	125	15,05 044	
4,5	185	125	10,81 045	
4,6	185	125	15,05 046	
4,7	185	125	15,48 047	
4,8	195	135	15,79 048	
4,9	195	135	16,54 049	
5,0	195	135	11,45 050	
5,1	195	135	17,27 051	
5,2	195	135	17,70 052	
5,3	195	135	17,70 053	
5,4	205	140	17,70 054	
5,5	205	140	12,62 055	
5,6	205	140	17,70 056	
5,7	205	140	17,91 057	
5,8	205	140	18,23 058	
5,9	205	140	18,23 059	
6,0	205	140	12,62 060	
6,1	215	150	19,50 061	
6,2	215	150	19,18 062	
6,3	215	150	20,46 063	
6,4	215	150	21,30 064	
6,5	215	150	17,27 065	
6,6	215	150	21,30 066	

DC _{h8}	OAL	LCF	T2 Article no. 10 235 ...	EUR
mm	mm	mm		
6,7	215	150	22,57 067	
6,8	225	155	22,26 068	
6,9	225	155	23,21 069	
7,0	225	155	17,91 070	
7,1	225	155	26,07 071	
7,3	225	155	26,07 073	
7,4	225	155	26,07 074	
7,5	225	155	20,13 075	
7,7	240	165	27,87 077	
7,8	240	165	29,24 078	
7,9	240	165	29,89 079	
8,0	240	165	22,26 080	
8,1	240	165	34,34 081	
8,2	240	165	34,34 082	
8,3	240	165	34,34 083	
8,4	240	165	36,04 084	
8,5	240	165	28,71 085	
8,6	250	175	36,77 086	
8,7	250	175	38,79 087	
8,8	250	175	40,16 088	
9,0	250	175	30,63 090	
9,2	250	175	45,57 092	
9,4	250	175	48,86 094	
9,5	250	175	35,39 095	
9,6	265	185	50,23 096	
9,7	265	185	50,23 097	
9,8	265	185	50,87 098	
9,9	265	185	50,87 099	
10,0	265	185	31,69 100	
10,5	265	185	56,38 105	
11,0	280	195	42,18 110	
11,5	280	195	51,82 115	
12,0	295	205	48,11 120	
12,5	295	205	59,03 125	
13,0	295	205	58,50 130	

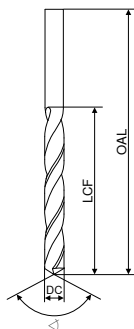
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

1) uncoated

→ v_c Page 51

Twist drills, DIN 1869, extra-long,
series 2

> 10xD

WTL
F.-nit130°
HSS

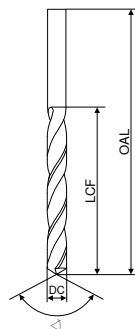
DC _{h8}	OAL	LCF	T2 Article no. 10 245 ...	EUR	
mm	mm	mm			
2,0	160	110	17,27	020	1)
2,5	180	120	17,27	025	
3,0	190	130	13,35	030	
3,5	210	145	13,46	035	
4,0	220	150	14,20	040	
4,5	235	160	15,05	045	
5,0	245	170	15,05	050	
5,5	260	180	18,44	055	
6,0	260	180	18,23	060	
6,5	275	190	20,66	065	
7,0	290	200	22,89	070	
7,5	290	200	26,81	075	
8,0	305	210	26,60	080	
8,5	305	210	41,86	085	
9,0	320	220	40,80	090	
9,5	320	220	47,48	095	
10,0	340	235	43,02	100	
10,5	340	235	62,42	105	
11,0	365	250	60,93	110	
11,5	365	250	72,06	115	
12,0	375	260	69,94	120	
12,5	375	260	69,94	125	
13,0	375	260	71,53	130	

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

1) uncoated

→ v_c Page 51Twist drills, DIN 1869, extra-long,
series 3

> 10xD

WTL
F.-nit130°
HSS

DC _{h8}	OAL	LCF	T2 Article no. 10 255 ...	EUR	
mm	mm	mm			
2,5	225	150	22,26	025	
3,0	240	160	22,26	030	
3,5	265	180	17,91	035	
4,0	280	190	17,91	040	
4,5	295	200	21,73	045	
5,0	315	210	21,73	050	
5,5	330	225	23,21	055	
6,0	330	225	24,69	060	
6,5	350	235	26,60	065	
7,0	370	250	33,91	070	
7,5	370	250	39,00	075	
8,0	390	265	39,96	080	
8,5	390	265	50,55	085	
9,0	410	280	54,26	090	
9,5	410	280	64,12	095	
10,0	430	295	63,59	100	
10,5	430	295	69,31	105	
11,0	455	310	73,55	110	
11,5	455	310	81,49	115	
12,0	480	330	86,90	120	
12,5	480	330	81,49	125	
13,0	480	330	82,35	130	

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

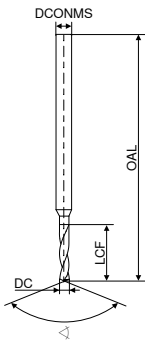
→ v_c Page 51

Micro drills, DIN 1899

- ▲ 4 facet
- ▲ with reinforced shank

Scope of supply:

- ▲ pack quantity 5 pieces
- ▲ price per piece



118°
HSS-E-PM

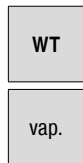
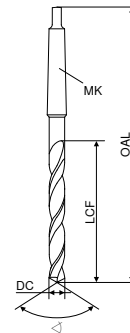
DC _{-0,004}	OAL	LCF	DCONMS _{h8}	Article no.	EUR
mm	mm	mm	mm	10 103 ...	
0,15	25	0,8	1,0	6,23 00150	
0,20	25	1,5	1,0	5,00 00200	
0,25	25	1,9	1,0	3,41 00250	
0,30	25	1,9	1,0	3,96 00300	
0,35	25	2,4	1,0	3,52 00350	
0,40	25	3,0	1,0	3,52 00400	
0,45	25	3,0	1,0	3,58 00450	
0,50	25	3,4	1,0	3,52 00500	
0,55	25	3,9	1,0	3,58 00550	
0,60	25	3,9	1,0	3,56 00600	
0,65	25	4,2	1,0	3,52 00650	
0,70	25	4,8	1,0	3,28 00700	
0,75	25	4,8	1,0	3,33 00750	
0,80	25	5,3	1,5	3,66 00800	
0,85	25	5,3	1,5	3,72 00850	
0,90	25	6,0	1,5	3,72 00900	
0,95	25	6,0	1,5	3,74 00950	
1,00	25	6,8	1,5	3,74 01000	
1,05	25	6,8	1,5	3,72 01050	
1,10	25	7,6	1,5	3,83 01100	
1,15	25	7,6	1,5	3,83 01150	
1,20	25	8,5	1,5	3,74 01200	
1,25	25	8,5	1,5	3,72 01250	
1,30	25	8,5	1,5	3,85 01300	
1,35	25	9,5	1,5	3,83 01350	
1,40	25	9,5	1,5	3,74 01400	
1,45	25	9,5	1,5	3,72 01450	

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 52

Twist drill, factory standard, short

≤ 3xD



MK

130°

HSS-E

T2

Article no.
10 285 ...

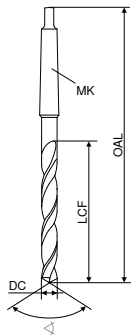
DC _{h8}	OAL	LCF	MK	Article no.	EUR
mm	mm	mm		10 285 ...	
10,0	138	57	1	38,57	100
10,5	138	57	1	41,86	105
11,0	142	61	1	34,12	110
11,5	142	61	1	44,72	115
12,0	147	66	1	38,90	120
12,5	147	66	1	41,86	125
13,0	147	66	1	40,49	130
13,5	168	70	2	51,62	135
14,0	168	70	2	51,40	140
14,5	172	74	2	55,01	145
15,0	172	74	2	53,52	150
15,5	176	78	2	80,33	155
16,0	176	78	2	51,62	160
16,5	179	81	2	81,60	165
17,0	179	81	2	54,26	170
17,5	183	85	2	85,52	175
18,0	183	85	2	57,54	180
18,5	186	88	2	86,15	185
19,0	186	88	2	62,95	190
19,5	212	91	3	102,00	195
20,0	212	91	3	73,23	200
21,0	216	95	3	82,35	210
22,0	219	98	3	86,15	220
23,0	222	101	3	91,99	230
24,0	225	104	3	94,21	240
25,0	225	104	3	98,13	250
26,0	256	107	4	137,80	260
27,0	259	110	4	145,20	270
28,0	259	110	4	148,40	280
30,0	263	114	4	162,10	300

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	○

→ v_c Page 47

Twist drills, DIN 345

≤ 5xD



MK
118°
HSS



MK
130°
HSS-E

DC _{h8}	OAL	LCF	MK	T2		T2	
				Article no. 10 265 ...	EUR	Article no. 10 280 ...	EUR
10,00	168	87	1	15,79	100	37,41	100
10,20	168	87	1	18,34	102	38,79	102
10,50	168	87	1	16,54	105	38,79	105
10,80	175	94	1	21,73	108	42,49	108
11,00	175	94	1	17,27	110	40,59	110
11,20	175	94	1	23,10	112		
11,50	175	94	1	19,50	115	49,28	115
11,80	175	94	1	24,69	118		
12,00	182	101	1	17,80	120	42,49	120
12,20	182	101	1	25,22	122	46,52	122
12,50	182	101	1	18,54	125	44,29	125
12,80	182	101	1	25,44	128		
13,00	182	101	1	19,18	130	47,80	130
13,20	182	101	1	26,18	132		
13,50	189	108	1	21,93	135	56,59	135
13,80	189	108	1	27,55	138		
14,00	189	108	1	20,34	140	51,40	140
14,25	212	114	2	30,63	142	76,30	142
14,50	212	114	2	21,52	145	59,87	145
14,75	212	114	2	32,85	147		
15,00	212	114	2	22,57	150	61,36	150
15,25	218	120	2	30,20	152	78,31	152
15,50	218	120	2	24,38	155	58,07	155
15,75	218	120	2	27,55	157	65,18	157
16,00	218	120	2	24,38	160	63,59	160
16,25	223	125	2	37,20	162		
16,50	223	125	2	26,38	165	65,18	165 ¹⁾
16,75	223	125	2	30,20	167		
17,00	223	125	2	27,24	170	61,36	170 ¹⁾
17,25	228	130	2	34,12	172	71,96	172 ¹⁾
17,50	228	130	2	27,77	175	67,61	175 ¹⁾
17,75	228	130	2	34,44	177	73,33	177 ¹⁾
18,00	228	130	2	29,46	180	69,52	180 ¹⁾
18,25	233	135	2	35,39	182		
18,50	233	135	2	31,69	185	67,61	185 ¹⁾
18,75	233	135	2	37,20	187		
19,00	233	135	2	31,47	190	71,96	190 ¹⁾
19,25	238	140	2	39,53	192		
19,50	238	140	2	36,45	195		
19,75	238	140	2	41,33	197		
20,00	238	140	2	33,59	200	77,37	200 ¹⁾
20,25	243	145	2	45,25	202		
20,50	243	145	2	35,61	205		
20,75	243	145	2	45,68	207		
21,00	243	145	2	37,94	210	91,67	210 ¹⁾
21,25	248	150	2	47,05	212		
21,50	248	150	2	43,35	215		
21,75	248	150	2	49,28	217		
22,00	248	150	2	42,29	220	98,56	220 ¹⁾
22,25	248	150	2	50,55	222		
22,50	253	155	2	45,68	225	120,90	225 ¹⁾
22,75	253	155	2	51,82	227		

DC _{h8}	OAL	LCF	MK	T2		T2	
				Article no. 10 265 ...	EUR	Article no. 10 280 ...	EUR
23,00	253	155	2	49,60	230	114,50	230 ¹⁾
23,50	276	155	3	49,28	235		
23,75	281	160	3	67,71	237		
24,00	281	160	3	51,62	240	124,00	240 ¹⁾
24,50	281	160	3	53,62	245		
24,75	281	160	3	74,51	247		
25,00	281	160	3	56,91	250	127,20	250 ¹⁾
25,50	286	165	3	59,13	255		
25,75	286	165	3	77,15	257		
26,00	286	165	3	65,38	260	147,30	260 ¹⁾
26,50	286	165	3	63,06	265		
26,75	291	170	3	99,62	267		
27,00	291	170	3	65,38	270	169,50	270 ¹⁾
27,50	291	170	3	67,30	275		
27,75	291	170	3	95,91	277		
28,00	291	170	3	72,06	280		
28,50	296	175	3	88,17	285		
28,75	296	175	3	99,62	287		
29,00	296	175	3	78,21	290		
29,50	296	175	3	79,90	295		
29,75	296	175	3	102,00	297		
30,00	296	175	3	78,21	300		
30,50	301	180	3	95,17	305		
31,00	301	180	3	92,41	310		
31,50	301	180	3	105,00	315		
32,00	334	185	4	97,18	320		
32,50	334	185	4	112,30	325		
33,00	334	185	4	104,30	330		
33,50	334	185	4	115,50	335		
34,00	339	190	4	121,90	340		
34,50	339	190	4	136,80	345		
35,00	339	190	4	124,00	350		
35,50	339	190	4	144,10	355		
36,00	344	195	4	135,60	360		
36,50	344	195	4	149,50	365		
37,00	344	195	4	147,30	370		
37,50	344	195	4	165,40	375		
38,00	349	200	4	155,80	380		
38,50	349	200	4	185,40	385		
39,00	349	200	4	171,70	390		
39,50	349	200	4	215,20	395		
40,00	349	200	4	178,10	400		
41,00	354	205	4	187,60	410		
42,00	354	205	4	205,60	420		
43,00	359	210	4	219,30	430		
44,00	359	210	4	231,00	440		
45,00	359	210	4	241,60	450		
46,00	364	215	4	249,10	460		
47,00	364	215	4	266,00	470		
48,00	369	220	4	272,40	480		
49,00	369	220	4	285,10	490		
50,00	369	220	4	294,60	500		
51,00	412	225	5	354,00	510		
52,00	412	225	5	379,40	520		
53,00	412	225	5	402,70	530		
54,00	417	230	5	413,30	540		
55,00	417	230	5	420,70	550		
56,00	417	230	5	431,30	560		
57,00	422	235	5	449,40	570		
58,00	422	235	5	480,10	580		
59,00	422	235	5	503,40	590		
60,00	422	235	5	520,30	600		

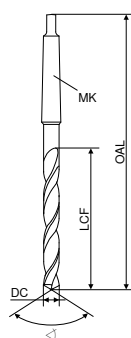
Steel	●	●
Stainless steel		○
Cast iron	●	○
Non ferrous metals	○	○
Heat resistant alloys		

1) vaporised

→ v_c Page 49

Twist drills, DIN 341, long

≤ 10xD



DC _{h8}	OAL	LCF	MK	T2		T2	
				Article no. 10 295 ...		Article no. 10 297 ...	
mm	mm	mm		EUR		EUR	
10,00	197	116	1	20,99	100	38,79	100
10,20	197	116	1	23,32	102	36,88	102
10,50	197	116	1	21,30	105	41,76	105
10,80	206	125	1	27,24	108		
11,00	206	125	1	21,93	110	40,90	110
11,20	206	125	1	29,24	112	37,20	112
11,50	206	125	1	21,93	115	41,96	115
11,80	206	125	1	29,57	118	37,20	118
12,00	215	134	1	21,93	120	41,96	120
12,20	215	134	1	29,24	122	36,57	122
12,50	215	134	1	22,15	125	42,60	125
12,80	215	134	1	31,69	128	36,88	128
13,00	215	134	1	22,15	130	44,29	130
13,20	215	134	1	31,69	132		
13,50	223	142	1	24,69	135	46,31	135
13,80	223	142	1	40,59	138	41,76	138
14,00	223	142	1	25,01	140	50,97	140
14,25	245	147	2	39,00	142		
14,50	245	147	2	31,69	145	49,60	145
14,75	245	147	2	39,00	147		
15,00	245	147	2	31,37	150	52,46	150
15,25	251	153	2	39,00	152		
15,50	251	153	2	30,52	155	51,62	155
15,75	251	153	2	39,43	157		
16,00	251	153	2	32,85	160	53,41	160
16,25	257	159	2	44,29	162		
16,50	257	159	2	34,44	165	53,73	165 1)
16,75	257	159	2	42,49	167		
17,00	257	159	2	34,12	170	60,83	170 1)
17,25	263	165	2	48,21	172		
17,50	263	165	2	39,00	175	58,29	175 1)
17,75	263	165	2	48,01	177		
18,00	263	165	2	38,79	180	63,59	180 1)
18,25	269	171	2	57,12	182		
18,50	269	171	2	43,35	185	58,29	185 1)
18,75	269	171	2	54,79	187		
19,00	269	171	2	42,60	190	71,96	190 1)
19,25	275	177	2	60,09	192		
19,50	275	177	2	49,28	195	71,53	195 1)
19,75	275	177	2	67,18	197		
20,00	275	177	2	46,74	200	76,73	200 1)
20,50	282	184	2	58,81	205	75,67	205 1)
21,00	282	184	2	53,41	210	90,40	210 1)
21,50	289	191	2	63,59	215		
21,75	289	191	2	84,99	217		
22,00	289	191	2	58,29	220	100,30	220 1)
22,50	296	198	2	64,75	225		
23,00	296	198	2	60,62	230		
23,50	319	198	3	73,86	235		

DC _{h8}	OAL	LCF	MK	T2		T2	
				Article no. 10 295 ...		Article no. 10 297 ...	
mm	mm	mm		EUR		EUR	
24,00	327	206	3	74,51	240	127,20	240 1)
24,50	327	206	3	80,01	245		
25,00	327	206	3	75,04	250	132,50	250 1)
25,50	335	214	3	89,97	255		
26,00	335	214	3	86,05	260	153,70	260 1)
26,50	335	214	3	92,30	265		
27,00	343	222	3	92,30	270		
27,50	343	222	3	114,50	275		
28,00	343	222	3	102,70	280		
29,00	351	230	3	118,70	290		
29,50	351	230	3	134,60	295		
30,00	351	230	3	118,70	300		
30,50	360	239	3	150,50	305		
31,00	360	239	3	143,10	310		
31,50	360	239	3	159,00	315		
32,00	397	248	4	153,70	320		
33,00	397	248	4	153,70	330		
33,50	397	248	4	179,10	335		
34,00	406	257	4	189,70	340		
35,00	406	257	4	184,40	350		
36,00	416	267	4	213,00	360		
37,00	416	267	4	240,60	370		
37,50	416	267	4	258,50	375		
38,00	426	277	4	229,90	380		
39,00	426	277	4	245,90	390		
40,00	426	277	4	258,50	400		
42,00	436	287	4	292,50	420		
43,00	447	298	4	313,70	430		
44,00	447	298	4	313,70	440		
45,00	447	298	4	327,50	450		
50,00	470	321	4	430,30	500		

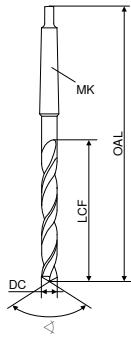
Steel	•	•
Stainless steel		•
Cast iron	•	•
Non ferrous metals	○	•
Heat resistant alloys		

1) vaporised

→ v_c Page 50

Twist drills, DIN 1870, extra-long,
series 1

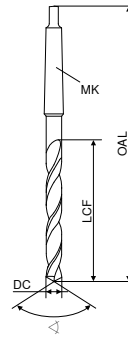
> 10xD



WTL

Twist drills, DIN 1870, extra-long,
series 2

> 10xD



WTL



DC _{h8}	OAL	LCF	MK	Article no. 10 305 ...	T2
mm	mm	mm		EUR	
10,0	285	185	1	39,63	100 ¹⁾
10,5	285	185	1	48,21	105 ¹⁾
11,0	300	195	1	46,31	110 ¹⁾
11,5	300	195	1	48,64	115 ¹⁾
12,0	310	205	1	51,62	120 ¹⁾
12,5	310	205	1	53,20	125 ¹⁾
13,0	310	205	1	53,73	130 ¹⁾
13,5	325	220	1	61,99	135 ¹⁾
14,0	325	220	1	60,30	140 ¹⁾
14,5	340	220	2	62,42	145 ¹⁾
15,0	340	220	2	65,71	150 ¹⁾
15,5	355	230	2	71,96	155 ¹⁾
16,0	355	230	2	68,99	160 ¹⁾
16,5	355	230	2	69,52	165 ²⁾
17,0	355	230	2	70,69	170 ²⁾
17,5	370	245	2	74,51	175 ²⁾
18,0	370	245	2	76,73	180 ²⁾
18,5	370	245	2	84,99	185 ²⁾
19,0	370	245	2	86,80	190 ²⁾
19,5	385	260	2	93,68	195 ²⁾
20,0	385	260	2	99,09	200 ²⁾
21,0	385	260	2	114,50	210 ²⁾
22,0	405	270	2	119,80	220 ²⁾
23,0	405	270	2	140,90	230 ²⁾
24,0	440	290	3	156,80	240 ²⁾
25,0	440	290	3	159,00	250 ²⁾
26,0	440	290	3	172,70	260 ²⁾
28,0	460	305	3	200,30	280 ²⁾
30,0	460	305	3	229,90	300 ²⁾

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

- 1) nitrided chamfer
2) vaporised

→ v_c Page 51

DC _{h8}	OAL	LCF	MK	Article no. 10 315 ...	T2
mm	mm	mm		EUR	
10,0	360	235	1	56,91	100 ¹⁾
10,5	360	235	1	71,53	105 ¹⁾
11,0	375	250	1	65,18	110 ¹⁾
11,5	375	250	1	69,52	115 ¹⁾
12,0	395	260	1	79,27	120 ¹⁾
13,0	395	260	1	83,09	130 ¹⁾
13,5	410	275	1	88,60	135 ¹⁾
14,0	410	275	1	88,60	140 ¹⁾
14,5	425	275	2	89,34	145 ¹⁾
15,0	425	275	2	89,97	150 ¹⁾
15,5	445	295	2	93,68	155 ¹⁾
16,0	445	295	2	92,30	160 ¹⁾
16,5	445	295	2	105,30	165 ²⁾
17,0	445	295	2	99,09	170 ²⁾
17,5	465	310	2	107,00	175 ²⁾
18,0	465	310	2	111,30	180 ²⁾
18,5	465	310	2	119,80	185 ²⁾
19,0	465	310	2	121,90	190 ²⁾
19,5	490	325	2	138,80	195 ²⁾
20,0	490	325	2	137,80	200 ²⁾
21,0	490	325	2	147,30	210 ²⁾
22,0	515	345	2	177,00	220 ²⁾
23,0	515	345	2	179,10	230 ²⁾
24,0	555	365	3	200,30	240 ²⁾
25,0	555	365	3	202,40	250 ²⁾
26,0	555	365	3	237,40	260 ²⁾
28,0	580	385	3	275,50	280 ²⁾
30,0	580	385	3	319,00	300 ²⁾

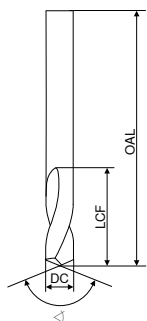
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

- 1) nitrided chamfer
2) vaporised

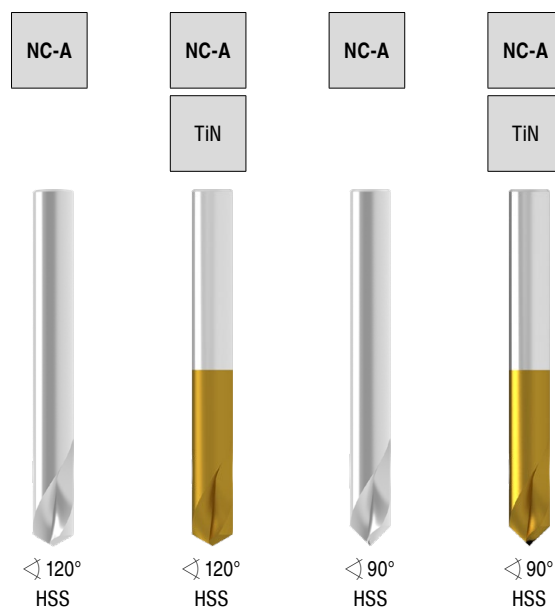
→ v_c Page 51

NC spot drills, factory standard

▲ helical flutes

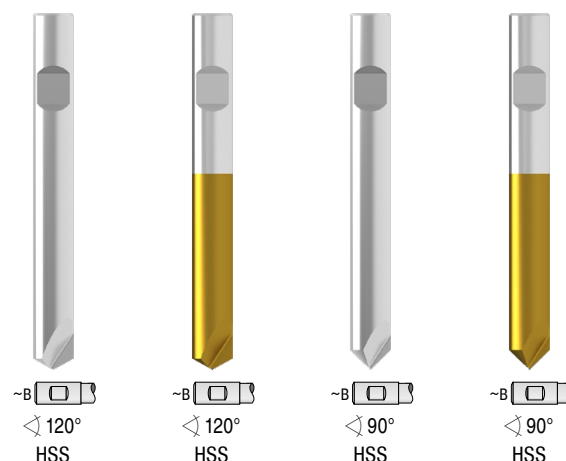
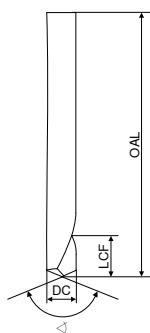


DC _{h6}	OAL	LCF
mm	mm	mm
3	46	12,0
4	55	12,0
5	62	14,0
6	66	16,0
8	79	21,0
10	89	25,0
12	102	30,0
16	115	37,5
20	131	45,0



NC-A	NC-A TiN	NC-A	NC-A TiN
120° HSS	120° HSS	90° HSS	90° HSS
T2 Article no. 10 510 ...	T2 Article no. 10 512 ...	T2 Article no. 10 520 ...	T2 Article no. 10 522 ...
EUR	EUR	EUR	EUR
6,84 030	9,93 030	6,84 030	9,93 030
6,95 040	10,16 040	6,95 040	10,16 040
7,27 050	10,58 050	7,27 050	10,58 050
7,45 060	10,70 060	7,45 060	10,70 060
12,50 080	18,12 080	12,50 080	18,12 080
13,88 100	20,03 100	13,88 100	20,03 100
20,13 120	29,36 120	20,13 120	29,36 120
26,38 160	38,37 160	26,38 160	38,37 160
42,49 200	61,68 200	42,49 200	61,68 200

▲ with clamping flat to DIN 1835 B



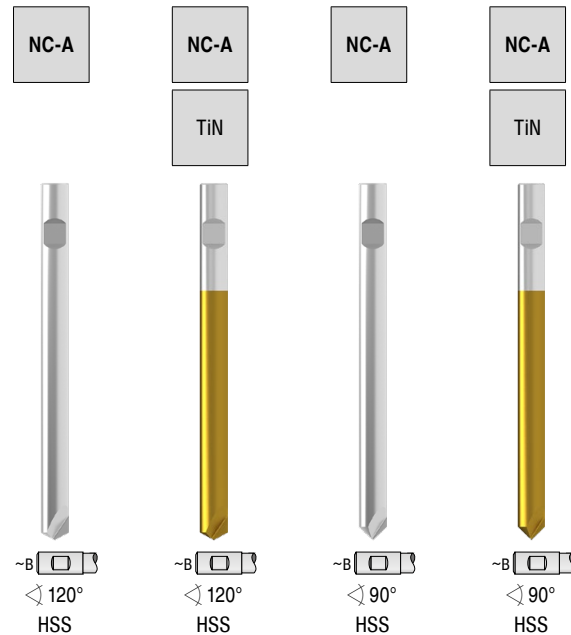
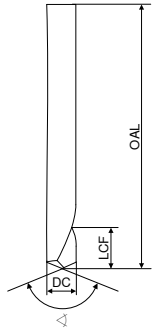
DC _{h6}	OAL	LCF	120° HSS	120° HSS	90° HSS	90° HSS
mm	mm	mm	T2 Article no. 10 511 ...	T2 Article no. 10 513 ...	T2 Article no. 10 521 ...	T2 Article no. 10 523 ...
6	66	7,0	7,66 060	10,70 060	7,66 060	10,70 060
8	79	9,0	10,81 080	15,26 080	10,81 080	15,26 080
10	89	11,5	12,08 100	16,85 100	12,08 100	16,85 100
12	102	14,0	16,74 120	23,95 120	16,74 120	23,95 120
16	115	18,0	21,93 160	31,26 160	21,93 160	31,26 160
20	131	23,0	31,26 200	45,57 200	31,26 200	45,57 200

Steel	15-35	25-55	15-35	25-55
Stainless steel	10-15	20-25	10-15	20-25
Cast iron	20-35	30-55	20-35	30-55
Non ferrous metals	50-70	65-85	50-70	65-85
Heat resistant alloys				

i Suitable only for spot drilling!

NC spot Drill Factory Standard Long

▲ with clamping flat to DIN 1835 B



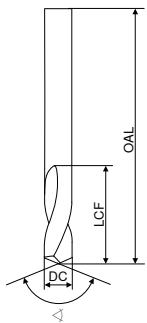
DC _{h6}	OAL	LCF	T2		T2		T2		T2	
			Article no. 10 530 ...		Article no. 10 532 ...		Article no. 10 526 ...		Article no. 10 528 ...	
			EUR		EUR		EUR		EUR	
6	93	7,0	9,40	060	13,35	060	9,40	060	13,35	060
8	117	9,0	14,62	080	21,09	080	14,62	080	21,09	080
10	133	11,5	16,11	100	23,10	100	16,11	100	23,10	100
12	151	14,0	19,18	120	27,34	120	19,18	120	27,34	120
16	178	18,0	29,36	160	42,39	160	29,36	160	42,39	160
20	205	23,0	40,70	200	59,66	200	40,70	200	59,66	200
Steel			15-35		25-55		15-35		25-55	
Stainless steel			10-15		20-25		10-15		20-25	
Cast iron			20-35		30-55		20-35		30-55	
Non ferrous metals			50-70		65-85		50-70		65-85	
Heat resistant alloys										

i Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes

NC-A



90°
HSS

DC _{h6}	OAL	LCF	T2 Article no. 10 525 ... EUR	
mm	mm	mm		
6,35	105	17	11,55	025
8,00	118	21	21,20	030
9,52	132	25	21,52	040
12,70	159	30	30,52	050
15,87	186	37	26,60	060
19,05	213	45	61,26	075
Steel				15-35
Stainless steel				10-15
Cast iron				20-35
Non ferrous metals				50-70
Heat resistant alloys				

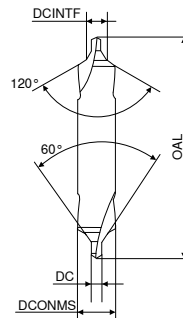
i Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°

ZB

ZB

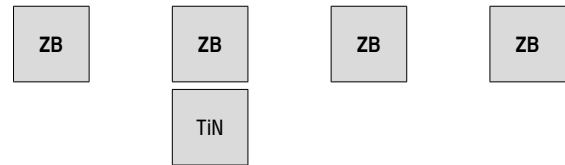
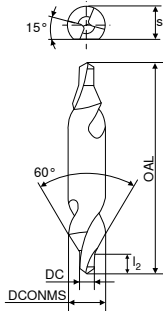


Right-hand
118°
HSS

Left-hand
118°
HSS

DC	DCONMS _{h8}	DCINTF _{k12}	OAL	T2 Article no. 10 480 ... EUR		T2 Article no. 10 485 ... EUR	
mm	mm	mm	mm				
1,00	4,0	2,12	35,5	7,02	100	16,01	100
1,25	5,0	2,65	40,0	7,94	125	18,76	125
1,60	6,3	3,35	45,0	7,34	160	19,71	160
2,00	8,0	4,25	50,0	7,94	200	20,99	200
2,50	10,0	5,30	56,0	9,69	250	21,30	250
3,15	11,2	6,70	62,0	14,09	315	28,93	315
4,00	14,0	8,50	69,0	18,12	400	31,58	400
5,00	18,0	10,60	77,0	23,21	500	33,91	500
Steel				15-35		15-35	
Stainless steel				10-15		10-15	
Cast iron				20-35		20-35	
Non ferrous metals				50-70		50-70	
Heat resistant alloys							

Centre drills, DIN 333, form A



Right-hand
118°
HSS

Right-hand
118°
HSS

Left-hand
118°
HSS

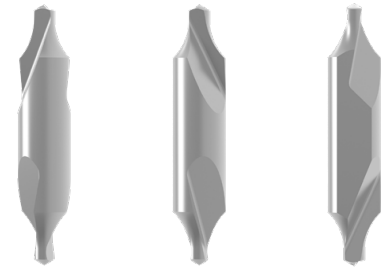
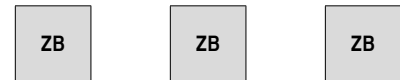
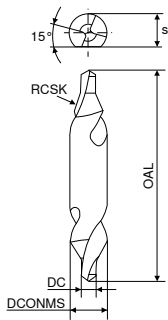
Right-hand
118°
HSS-E

DC	s	DCNMS _{h8}	OAL	l ₂	Article no. 10 415 ...	Article no. 10 425 ...	Article no. 10 435 ...	Article no. 10 445 ...
mm	mm	mm	mm	mm	EUR	EUR	EUR	EUR
0,50		3,15	25,0	0,8	5,16	050 ²⁾	12,19	050 ²⁾
0,80		3,15	25,0	1,1	4,96	080 ²⁾	11,76	080 ²⁾
1,00		3,15	31,5	1,3	4,50	100	10,81	100
1,25		3,15	31,5	1,6	5,16	125	12,29	125
1,60	3,25	4,00	35,5	2,0				5,55
1,60		4,00	35,5	2,0	4,14	160	9,86	160
2,00	4,20	5,00	40,0	2,5				5,68
2,00		5,00	40,0	2,5	4,41	200	10,50	200
2,50	5,35	6,30	45,0	3,1				6,58
2,50		6,30	45,0	3,1	5,12	250	12,19	250
3,15	6,95	8,00	50,0	3,9				8,65
3,15		8,00	50,0	3,9	6,58	315	15,48	315
4,00	8,40	10,00	56,0	5,0				12,62
4,00		10,00	56,0	5,0	10,33	400	24,27	400
5,00	10,95	12,50	63,0	6,3				18,44
5,00		12,50	63,0	6,3	14,84	500	34,76	500
6,30	14,00	16,00	71,0	8,0				30,94
6,30		16,00	71,0	8,0	22,05	630	51,72	630
Steel					15-35	25-55	15-35	15-35
Stainless steel					10-15	20-25	10-15	10-15
Cast iron					20-35	30-55	20-35	20-35
Non ferrous metals					50-70	65-85	50-70	50-70
Heat resistant alloys								

1) with flat

2) Single ended

Centre drills, DIN 333, form R



Right-hand
118°
HSS

Left-hand
118°
HSS

Right-hand
118°
HSS

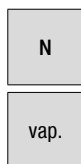
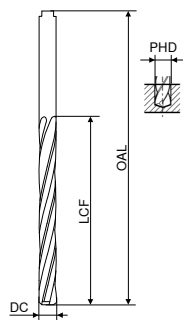
DC	s	DCONMS _{HB}	OAL	RCSK	Article no. 10 455 ... EUR	Article no. 10 475 ... EUR	Article no. 10 465 ... EUR
0,50		3,15	25,0	2,00	5,16	050 ²⁾	
0,80		3,15	25,0	2,50	4,96	080 ²⁾	
1,00		3,15	31,5	2,90	4,44	100	
1,25		3,15	31,5	3,15	5,06	125	
1,60	3,25	4,00	35,5	4,00			5,55 160 ¹⁾
1,60		4,00	35,5	4,00	4,14	160	
2,00	4,20	5,00	40,0	5,00			5,68 200 ¹⁾
2,00		5,00	40,0	5,00	4,41	200	
2,50	5,35	6,30	45,0	6,30			6,58 250 ¹⁾
2,50		6,30	45,0	6,30	5,12	250	
3,15	6,95	8,00	50,0	8,00			8,46 315 ¹⁾
3,15		8,00	50,0	8,00	6,58	315	
4,00	8,40	10,00	56,0	10,00			12,93 400 ¹⁾
4,00		10,00	56,0	10,00	9,57	400	
5,00	10,95	12,50	63,0	12,50			18,44 500 ¹⁾
5,00		12,50	63,0	12,50	14,52	500	
6,30	14,00	16,00	71,0	16,00			30,94 630 ¹⁾
6,30		16,00	71,0	16,00	22,05	630	
Steel					15-35	15-35	15-35
Stainless steel					10-15	10-15	10-15
Cast iron					20-35	20-35	20-35
Non ferrous metals					50-70	50-70	50-70
Heat resistant alloys							

1) with flat

2) Single ended

Core drills (spiral countersinks)

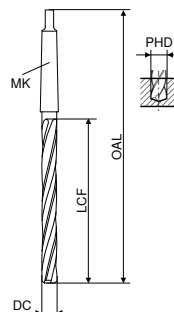
▲ with cylindrical shank, DIN 344



120°
HSS

DC _{h8}	OAL	LCF	PHD	Article no. 10 226 ...	EUR
mm	mm	mm	mm		
3,80	96	64	2,8	038	20,99
4,00	96	64	2,8	040	20,46
4,80	108	74	3,5	048	15,26
5,00	108	74	3,5	050	15,05
5,80	116	80	4,2	058	15,26
6,00	116	80	4,2	060	15,05
6,80	133	93	4,9	068	17,17
7,00	133	93	4,9	070	17,17
7,80	142	100	5,6	078	19,71
8,00	142	100	5,6	080	19,40
8,80	151	107	6,3	088	20,99
9,00	151	107	6,3	090	20,46
9,80	162	116	7,0	098	23,21
10,00	162	116	7,0	100	22,89
10,75	173	125	7,7	107	31,26
11,00	173	125	7,7	110	27,55
11,75	184	134	8,4	117	31,58
12,00	184	134	8,4	120	28,40
Steel					15-35
Stainless steel					10-15
Cast iron					20-35
Non ferrous metals					50-80
Heat resistant alloys					14-28

Core drills (spiral countersinks)



120°
HSS

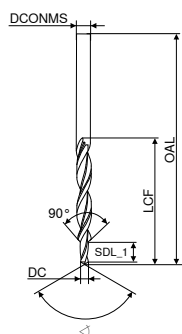
DC _{h8}	OAL	LCF	PHD	MK	Article no. 10 228 ...	EUR
mm	mm	mm	mm			
10,00	168	87	7,0	1	100	27,55
10,75	175	94	7,7	1	107	33,28
11,00	175	94	7,7	1	110	29,57
11,75	182	101	8,4	1	117	33,28
12,00	182	101	8,4	1	120	29,57
12,75	182	101	9,1	1	127	36,24
13,00	182	101	9,1	1	130	32,43
13,75	189	108	9,8	1	137	36,57
14,00	189	108	9,8	1	140	32,96
14,75	212	114	10,5	2	147	41,12
15,00	212	114	10,5	2	150	36,57
15,75	218	120	11,2	2	157	42,60
16,00	218	120	11,2	2	160	38,15
16,75	223	125	11,9	2	167	45,47
17,00	223	125	11,9	2	170	40,37
17,75	228	130	12,6	2	177	46,63
18,00	228	130	12,6	2	180	41,12
18,70	233	135	13,3	2	187	46,95
19,00	233	135	13,3	2	190	46,31
19,70	238	140	14,0	2	197	46,95
20,00	238	140	14,0	2	200	46,31
20,70	243	145	14,6	2	207	54,79
21,00	243	145	14,6	2	210	54,15
21,70	248	150	15,3	2	217	55,42
22,00	248	150	15,3	2	220	54,58
22,70	253	155	16,0	2	227	61,15
23,00	253	155	16,0	2	230	60,40
23,70	281	160	16,6	3	237	63,79
24,00	281	160	16,6	3	240	62,42
24,70	281	160	17,3	3	247	67,83
25,00	281	160	17,3	3	250	66,66
25,70	286	165	18,0	3	257	71,00
26,00	286	165	18,0	3	260	70,05
26,70	291	170	18,6	3	267	82,88
27,00	291	170	18,6	3	270	81,29
27,70	291	170	19,3	3	277	83,62
28,00	291	170	19,3	3	280	82,23
28,70	296	175	20,0	3	287	91,56
29,00	296	175	20,0	3	290	90,72
29,70	296	175	20,5	3	297	95,27
30,00	296	175	20,5	3	300	94,01
Steel					15-35	
Stainless steel					10-15	
Cast iron					20-35	
Non ferrous metals					50-80	
Heat resistant alloys					14-28	

Stepped drills, DIN 8378

- ▲ countersinking angle 90°
- ▲ for tapping drill holes according to DIN 336, Table 1 with 90° chamfer and for through holes according to DIN EN 20273 – medium



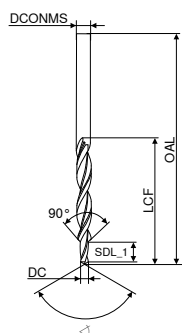
vap.



118°
HSS

For threads	DC _{h9}	DCONMS _{h8}	OAL	SDL_1	LCF	Article no. 10 365 ...	
	mm	mm	mm	mm	mm	EUR	
M3	2,5	3,4	70	8,8	39	17,70	030
M4	3,3	4,5	80	11,4	47	18,97	040
M5	4,2	5,5	93	13,6	57	19,50	050
M6	5,0	6,6	101	16,5	63	22,26	060
M8	6,8	9,0	125	21,0	81	25,01	080
M10	8,5	11,0	142	25,5	94	32,00	100
M12	10,2	13,5	160	30,0	108	41,12	120

- ▲ for through holes according to DIN EN 20273 – fine
- ▲ with 90° screw head countersink



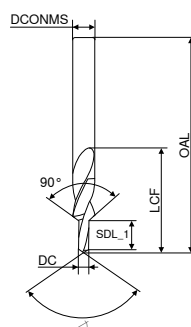
118°
HSS

For threads	DC _{h9}	DCONMS _{h8}	OAL	SDL_1	LCF	Article no. 10 355 ...	
	mm	mm	mm	mm	mm	EUR	
M3	3,2	6,0	93	9	57	20,34	030
M4	4,3	8,0	117	11	75	24,16	040
M5	5,3	10,0	133	13	87	29,67	050
M6	6,4	11,5	142	15	94	33,91	060
M8	8,4	15,0	169	19	114	55,95	080
M10	10,5	19,0	198	23	135	86,37	100

Steel	10-30
Stainless steel	10-15
Cast iron	20-35
Non ferrous metals	50-70
Heat resistant alloys	

Stepped drills, overall length to DIN 1897

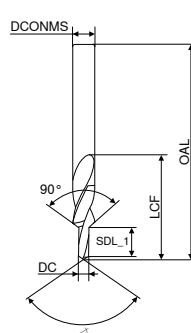
- ▲ countersinking angle 90°
- ▲ for tapping drill holes according to DIN 336, Table 1 with 90° chamfer and for through holes according to DIN EN 20273 – medium



118°
HSS

For threads	DC _{h6}	DCONMS _{h6}	OAL	SDL_1	LCF	Article no. 10 320 ...	
	mm	mm	mm	mm	mm	EUR	
M3	2,5	3,4	52	8,8	20	11,34	030
M4	3,3	4,5	58	11,4	24	11,45	040
M5	4,2	5,5	66	13,6	28	12,29	050
M6	5,0	6,6	70	16,5	31	13,25	060
M8	6,8	9,0	84	21,0	40	15,26	080
M10	8,5	11,0	95	25,5	47	19,71	100
M12	10,2	13,5	107	30,0	54	25,32	120

- ▲ for through holes according to DIN EN 20273 – fine
- ▲ with 90° screw head countersink



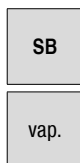
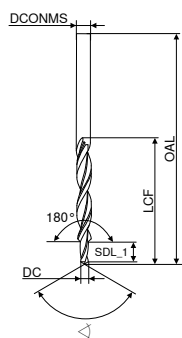
118°
HSS

For threads	DC _{h6}	DCONMS _{h6}	OAL	SDL_1	LCF	Article no. 10 330 ...	
	mm	mm	mm	mm	mm	EUR	
M3	3,2	6,0	66	9	28	13,25	030
M4	4,3	8,0	79	11	37	14,73	040
M5	5,3	10,0	89	13	43	18,54	050
M6	6,4	11,5	95	15	47	20,56	060
M8	8,4	15,0	111	19	56	24,16	080
M10	10,5	19,0	127	23	64	35,71	100

Steel	10-30
Stainless steel	10-15
Cast iron	20-35
Non ferrous metals	50-70
Heat resistant alloys	

Stepped drills, DIN 8376

- ▲ countersinking angle 180°
- ▲ for through holes according to DIN EN 20273 – Medium
- ▲ for screw heads to DIN 974-1 – Series 1



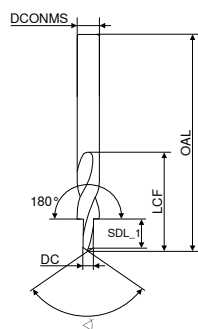
118°
HSS

For threads	DC _{h9}	DCONMS _{h8}	OAL	SDL_1	LCF	T2 Article no. 10 375 ...	
	mm	mm	mm	mm	mm	EUR	
M3	3,4	6	93	9	57	20,34	030 ¹⁾
M4	4,5	8	117	11	75	24,16	040
M5	5,5	10	133	13	87	28,83	050
M6	6,6	11	142	15	94	33,17	060
M8	9,0	15	169	19	114	41,86	080
M10	11,0	18	191	23	130	87,11	100
Steel							10-30
Stainless steel							10-15
Cast iron							20-35
Non ferrous metals							50-70
Heat resistant alloys							

1) DCONMS not according to DIN 974-1

Stepped drills, factory standard, total length according to DIN 1897

- ▲ countersinking angle 180°
- ▲ for through holes according to DIN EN 20273 – Medium
- ▲ for screw heads to DIN 974-1 – Series 1



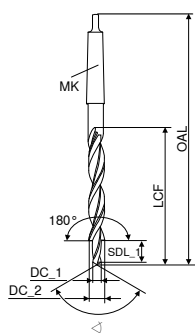
118°
HSS
T2

For threads	DC _{h6}	DCONMS _{h6}	OAL	SDL_1	LCF	Article no. 10 340 ...	
	mm	mm	mm	mm	mm	EUR	
M3	3,4	6	66	9	28	12,62	030 ¹⁾
M4	4,5	8	79	11	37	14,31	040
M5	5,5	10	89	13	43	17,70	050
M6	6,6	11	95	15	47	20,34	060
M8	9,0	15	111	19	56	26,07	080
M10	11,0	18	123	23	62	38,90	100
Steel							10-30
Stainless steel							10-15
Cast iron							20-35
Non ferrous metals							50-70
Heat resistant alloys							

1) DCONMS not according to DIN 974-1

Stepped drills, DIN 8377

- ▲ countersinking angle 180°
- ▲ for through holes according to DIN EN 20273 - Medium
- ▲ for screw heads to DIN 974-1 - Series 1



118°

HSS

T2

For threads	DC_1 _{h9}	DC_2	OAL	SDL_1	LCF	MK	Article no. 10 405 ...	
	mm	mm	mm	mm	mm		EUR	
M5	5,5	10	168	13	87	1	41,33	050
M6	6,6	11	175	15	94	1	41,86	060
M8	9,0	15	212	19	114	2	55,01	080
M10	11,0	18	228	23	130	2	73,55	100
M12	13,5	20	238	27	140	2	89,13	120
M14	15,5	24	281	31	160	3	114,50	140
M16	17,5	26	286	35	165	3	135,60	160
M18	20,0	30	296	39	175	3	156,80	180
M20	22,0	33	334	43	185	4	182,30	200

Steel	10-30
Stainless steel	10-15
Cast iron	20-35
Non ferrous metals	50-70
Heat resistant alloys	

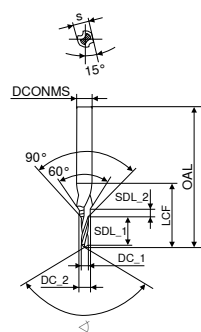
Stepped drills for centring, factory standard

- ▲ with flat
- ▲ countersinking angle 60°
- ▲ special drill for creating tapping drill holes with centring, 60° countersinking angle according to DIN 332, sheet 2, form D.
- ▲ point thinning $\geq \varnothing 3,3$ mm



SB

vap.



118°
HSS

T2

Article no.
10 350 ...

EUR

For threads	DC_1 _{h8}	DCONMS _{h7}	DC_2	s	OAL	SDL_1	LCF	SDL_2	
	mm	mm	mm	mm	mm	mm	mm	mm	
M4	3,3	8,0	4,3	6,75	63	11,0	23	1,60	48,86 040
M5	4,2	10,0	5,3	8,45	67	13,0	27	2,15	53,62 050
M6	5,0	12,5	6,4	10,45	71	16,0	33	2,90	58,71 060
M8	6,8	14,0	8,4	12,50	88	19,5	41	3,50	55,64 080
M10	8,5	16,0	10,5	14,85	94	23,0	47	4,70	63,79 100
M12	10,2	20,0	13,0	18,45	105	28,0	59	6,50	83,93 120
M16	14,0	25,0	17,0	23,40	132	33,0	67	8,30	117,60 160
M20	17,5	31,5	21,0	29,35	145	38,0	77	10,35	156,80 200
M24	21,0	40,0	25,0	36,50	160	45,0	90	12,00	251,20 240

Steel	10-30
Stainless steel	10-15
Cast iron	20-35
Non ferrous metals	50-70
Heat resistant alloys	

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm ² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm ²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm ²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm ²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm ²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm ²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm ²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm ²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm ²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm ²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm ²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm ²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm ²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm ²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm ²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm ²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm ²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm ²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm ²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm ²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm ²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm ²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm ²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm ²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm ²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm ²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm ²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm ²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm ²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm ²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm ²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm ²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm ²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm ²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm ²	3.2315	A-G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm ²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm ²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm ²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm ²	2.1247	Cub2 (Beryllium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm ²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm ²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm ²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm ²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm ²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm ²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm ²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm ²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm ²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm ²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm ²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values – Hole depth 3xD

Index	Type VX-TiN 10 122 ...		Type UNI-PM-TiN 10 113 ...		Type UNI-TiN 10 107 ...		Type N 10 105 ...		Type VA 10 130 ...		Type WNX 10 106 ...	
	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F
1.1	33–38	5–6	37–42	5–6	33–38	5–6	22–27	5–6			22–27	5–6
1.2	40–44	6	44–47	6–7	40–44	6	26–34	5–6			22–30	5–6
1.3	44	6	47	4	44	6	30	6	36	6	30	6
1.4	18–22	3–4	20–25	4–5	18–22	3–4			18–32	3–4	15–18	3–4
1.5	40–44	6	47	6	40–44	6	25	5			25	5
1.6	26	5	44	5	26	5	16	5			20	5
1.7	27	4	30	4	27	4					18	4
1.8	22	3	25	3	22	3					15	3
1.9	20	4	22	4	20	4					18	4
1.10	22	4	25	4	22	4			20	4	18	4
1.11	16	3	20	4	16	3			15	3	13	4
1.12	20	4	25	4	20	4	16	4			18	4
1.13	9	2	10	2	9	2			12	2	6	2
1.14	13	3	16	3	13	3					12	3
1.15	15–20	3–4	17–22	4–5	15–20	3–4	12–16	3–4			13–18	3–4
1.16	15–20	3–4	17–22	4–5	15–20	3–4	12–16	3–4			13–18	3–4
2.1	20	4	19	4	20	4			18	4	13	4
2.2	18	4	17	4	18	4			15	4	11	4
2.3	18	4	16	4	18	4			14	3	12	4
2.4	18	4	15	4	18	4					11	4
2.5	15	3	14	3	15	3			13	3	10	3
2.6	16	3	15	3	16	3			12	3	9	3
2.7	12	3	13	3	12	3					8	3
3.1	45	6	50	6	45	6	34	6			31	6
3.2	40	6	44	6	40	6	26	6			28	6
3.3	40	6	44	6	40	6	25	6			21	6
3.4	30	6	33	6	30	6	20	6			17	6
3.5	42	6	44	6	42	6	26	6	45	6	21	6
3.6	35	6	33	6	35	6	23	6	32	6	18	6
3.7	32	6	44	6	32	6	22	6			24	6
3.8	30	6	33	6	30	6	21	6			23	6
4.1	70	7			70	7			90	7	70	7
4.2	70	7			70	7			90	7	70	7
4.3	85	7			85	7			80	7	50	7
4.4	70	7			70	7			70	6	50	6
4.5	70	6			70	6			70	6	50	6
4.6	88	5	88	5	88	5			40	5	60	5
4.7	44	5	50	5	44	5			38	4	40	4
4.8	50	4	33	5	50	4			48	4	36	4
4.9	45	4	29	5	45	4			43	4	35	4
4.10	40	4	28	5	40	4			37	4	32	4
4.11	77	5	84	5	77	5	36–40	4				
4.12	44	5	46	5	44	5			40	5	40	5
4.13	15	4	27	5	15	4					28	4
4.14	25	4	22	4	25	4	18	4	20	4	18	4
4.15												
4.16	70	6			70	6					70	6
4.17												
4.18	14	3			14	3						
4.19	18	4			18	4						
5.1	8	2			8	2						
5.2	10	2			10	2						
5.3	8	1			8	1						
5.4	8	1	5	2	8	1						
5.5	8	2			8	2						
5.6	8	2			8	2						
5.7	10	2	10	2	10	2			7	2	6	2
5.8	8	1			8	1						
5.9	8	1			8	1						
5.10	12	2			12	2			10	2		
5.11	8	2			8	2			6	2		
6.1	8	1			8	1						
6.2												
6.3												
6.4												
6.5												



The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Index	Type WT 10 109 ...		Type WT-TiN 10 110 ...		Type WTL-L 10 112 ...		Type WT-MK 10 285 ...	
	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	30-35	5	35-45	5	22-27	5-6	30-35	5
1.2	30-35	5	35-45	5	26-34	5-6	30-40	5
1.3	36	4	44	4	30	6	36	6
1.4	15-20	3-4	18-22	3-4	13-16	3-4	15-20	3-4
1.5	40	5	44	5	25-34	5	35-40	5
1.6	35	4	38	4	16	5	35	4
1.7	20	4	27	4	16	4	20	4
1.8	16	3	22	3	13	3	16	3
1.9	16	3	18	3	16	4	16	3
1.10	16	4	22	4	16	4	16	4
1.11	12	3	18	3	11	4	12	3
1.12	15	4	17	4	16	4	20	4
1.13	8	2	9	2	12	2	8	2
1.14	12	3	15	3	12	3	15	3
1.15	12-15	3-4	14-19	3-4	12-16	3-4	12-20	3-4
1.16	12-15	3-4	14-19	3-4	12-16	3-4	12-20	3-4
2.1	16	4	18	4	12	4	16	4
2.2	14	4	15	4	10	3	14	4
2.3	15	3	17	3	11	3	15	3
2.4	14	3	15	3	10	3	14	3
2.5	13	3	15	3	9	3	13	3
2.6	12	3	14	3	8	3	12	3
2.7	11	3	13	3	7	3	11	3
3.1	35	6	40	6	30	6	35	6
3.2	30	6	35	6	25	6	30	6
3.3	30	6	33	6	25	6	30	6
3.4	25	6	27	6	20	6	25	6
3.5	30	6	36	6	26	6	30	6
3.6	28	6	34	6	23	6	28	6
3.7	26	6	30	6	22	6	26	6
3.8	24	6	28	6	21	6	24	6
4.1					70	7		
4.2					70	7		
4.3					50	7		
4.4					50	6		
4.5					45	6		
4.6					60	5		
4.7	38	5	40	5	40	4	38	5
4.8	38	4	40	4	32	4	38	4
4.9	25	4	32	4	30	4	25	4
4.10					28	4		
4.11								
4.12					40	5		
4.13					28	5		
4.14	20	4	25	4	18	4	20	4
4.15								
4.16					70	6		
4.17								
4.18								
4.19								
5.1								
5.2								
5.3	7	1	8	1			7	1
5.4	7	1	8	1			7	1
5.5	7	1	8	1			7	1
5.6	8	2	10	2			8	2
5.7								
5.8								
5.9	12	2	15	2			10	2
5.10	12	2	15	2			10	2
5.11	8	2	10	2			6	2
6.1	4	1	8	1	6	1-2	4	1
6.2			4	1				
6.3								
6.4								
6.5								



When drilling tough materials which tend to jam, chips should be removed at drilling depth $\geq 4xD$ and the cutting speed v_c should be reduced as follows: at drilling depths $> 4xD$ by 10%, at drilling depths $> 6xD$ by 15–20%. It is also recommended to use an emulsion for cooling.



v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → Page 53

Cutting data standard values – Hole depth 5xD

	Type VX-TiN 10 124 ...		Type UNI-PM-TiN 10 173 ...		Type UNI-TiN 10 171 ...		Type N 10 152 ...		Type VA 10 175 ...		Type W 10 161 ...		Type WTL 10 168 ...	
Index	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F
1.1	33-38	5-6	37-42	5-6	33-38	5-6	22-27	5-6					30-35	5
1.2	40-44	5-6	44-47	6-7	40-44	5-6	26-34	5-6					40	5
1.3	44	6	47	4	44	6	30	6					36	5
1.4	18-22	3-4	20-25	4-5	18-22	3-4			16-28	3-4			15-20	3-4
1.5	40-44	6	47	6	40-44	6	25	5					40	5
1.6	26	5	44	5	26	5							35	4
1.7	27	4	30	4	27	4							20	4
1.8	22	3	25	3	22	3							16	3
1.9	20	4	22	4	20	4							14	3
1.10	22	4	25	4	22	4			18	4			16	4
1.11	16	3	20	4	16	3			15	3			12	3
1.12	20	4	25	4	20	4	16	4					10	3
1.13	9	2	10	2	9	2								
1.14	13	3	16	3	13	3							15	3
1.15	15-20	3-4	17-22	4-5	15-20	3-4	12-16	3-4					15	4
1.16	15-20	3-4	17-22	4-5	15-20	3-4	12-16	3-4					12	3
2.1	20	4	19	4	20	4			16	4			15	4
2.2	18	4	17	4	18	4			14	4			14	4
2.3	18	4	16	4	18	4			13	4			12	3
2.4	18	4	15	4	18	4			14	3			13	3
2.5	15	3	14	3	15	3			12	3				
2.6	16	3	15	3	16	3			11	3				
2.7	12	3	13	3	12	3			10	3				
3.1	45	6	50	6	45	6	34	6					36	6
3.2	40	6	44	6	40	6	26	6					28	6
3.3	40	6	44	6	40	6	25	6					30	6
3.4	30	6	33	6	30	6	20	6					22	6
3.5	42	6	44	6	42	6	26	6	42	6			28	6
3.6	35	6	33	6	35	6	23	6	30	6			23	6
3.7	32	6	44	6	32	6	22	6					20	6
3.8	30	6	33	6	30	6	21	6					18	6
4.1	70	7			70	7					80	7		
4.2	70	7			70	7			90	7	80	7		
4.3	85	7			85	7			90	7	63	7		
4.4	70	7			70	7			70	6			55	6
4.5	70	6			70	6			70	6			55	6
4.6	88	5	88	5	88	5			55	5	50	5	40	5
4.7	44	5	50	5	44	5			44	4			36	5
4.8	47	4	33	5	47	4			36	4			28	4
4.9	43	4	29	5	43	4			30	4			22	4
4.10	38	4	28	5	38	4			30	3			20	4
4.11	77	5	84	5	77	5								
4.12	44	5	46	5	44	5			45	5			45	4
4.13	15	4	27	5	15	4					28	5		
4.14	25	4	22	4	25	4	18	4					20	4
4.15														
4.16	70	6			70	6								
4.17														
4.18	14	3			14	3			11	3				
4.19	18	4			18	4			13	4				
5.1	8	2			8	2								
5.2	10	2			10	2								
5.3	8	1			8	1								
5.4	8	1	5	2	8	1								
5.5	8	2			8	2								
5.6	8	2			8	2								
5.7	10	1	10	2	10	1			9	2				
5.8	8	1			8	1								
5.9	8	1			8	1								
5.10	12	2			12	2			10	2				
5.11	8	2			8	2								
6.1	8	1			8	1								
6.2														
6.3														
6.4														
6.5														



The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

	Type WTL-TiN 10 170 ...		Type WTL-TiCN 10 172 ...		Type WTL-L 10 169 ...		Type WNXi 10 180 ...		Type WNXi-TiN 10 181 ...		Type N-MK 10 265 ...		Type WTL-MK 10 280 ...	
Index	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F	v _c in m/min	F
1.1	36-42	5	36-42	6	22-27	5-6	42-50	6-7	42-60	6-7	22-27	5-6	30-35	5
1.2	42-48	5	42-48	6	25-32	5-6	42-50	6-7	42-60	6-7	25-32	5-6	40	5
1.3	48	4	48	7	32	6	50	7	62	7	30	6	36	6
1.4	20-24	3-4	20-24	4-5			16-22	4-5	20-31	4-5			15-20	3-4
1.5	48	5	48	6	25	5	38-48	6	48-60	6	25	5	28-40	5
1.6	42	4	42	5			28	5	30	5			28	4
1.7	34	4	34	5			25	5	30	5			18-20	4
1.8	30	3	30	4			20	4	25	4			16	3
1.9	18	3	20	4			22	5	25	5			14	3
1.10	24	4	20	5			22	5	28	5			14-16	4
1.11	20	3	15	4			14	4	20	4			12	3
1.12	13	3	15	4			24	5	26	5	16	4	10	3
1.13			11	3			15	3	18	3				
1.14	17	3	17	4			18	4	20	4			10-15	3
1.15	18	4	21	5	16	4	16-24	4-5	18-30	4-5	12-16	3-4	15	4
1.16	14	3	15	4			16-24	4-5	18-30	4-5	12-16	3-4	12	3
2.1	18	4	20	5			20	5	25	5			15	4
2.2	16	4	18	4			18	5	22	5			14	4
2.3	14	3	16	4			16	5	20	5			12	3
2.4	15	3	17	4			18	5	22	5			13	3
2.5							15	4	19	4				
2.6							14	4	18	4				
2.7							12	4	17	4				
3.1	45	6			32	6	48	7	60	7	32	6	36	6
3.2	36	6			25	6	42	7	52	7	25	6	28	6
3.3	40	6			28	6	42	7	52	7	28	6	30	6
3.4	28	6			20	6	40	7	50	7	20	6	22	6
3.5	36	6			25	6	42	7	52	7	25	6	28	6
3.6	30	6			22	6	35	7	45	7	22	6	23	6
3.7	25	6			18	6	32	7	42	7	21	6	20	6
3.8	22	6			16	6	30	7	40	7	20	6	18	6
4.1					80	7								
4.2					80	7								
4.3	85	7			63	7	95	7	120	7			70-80	7
4.4	70	6			50	6	75	8	95	8			60-70	6
4.5	70	6			50	6	75	8	95	8			60-70	6
4.6	88	5			32	5	78	6	98	6			40	5
4.7	45	5			50	5	55	6	62	6			36	5
4.8	32	4			15	4							28	4
4.9	25	4					42	5	48	5			22	4
4.10	22	4					38	5	44	5			20	4
4.11														
4.12					40	5	55	6	55	6			45	4
4.13							38	6	44	6	28	5		
4.14	24	4			16	4					18	4	18	4
4.15														
4.16														
4.17														
4.18							15	4	20	4				
4.19							18	4	22	5				
5.1							9	3	11	3				
5.2							11	3	13	3				
5.3							9	2	11	2				
5.4							9	2	11	2				
5.5							9	2	11	2				
5.6							11	3	13	3				
5.7							9	2	11	2				
5.8							9	3	11	3				
5.9							9	2	11	2				
5.10							14	3	17	3				
5.11							10	3	12	3				
6.1							8	3	10	3				
6.2							4	3	5	3				
6.3														
6.4														
6.5														



When drilling tough materials which tend to jam, chips should be removed at drilling depth $\geq 4xD$ and the cutting speed v_c should be reduced as follows: at drilling depths $> 4xD$ by 10 %, at drilling depths $> 6xD$ by 15–20 %. It is also recommended to use an emulsion for cooling.



v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 53**

Cutting data standard values – Hole depth 10xD and over 10xD

Index	Hole depth 10xD													
	Type NC 10 223 ...		Type NC-TiALN 10 224 ...		Type UNI-TiN 10 270 ...		Type WTL 10 225 ...		Type WTL 10 215 ...		Type WTL-TiN 10 210 ...		Type WTW 10 200 ...	
	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	30-40	5-6	50-65	6-7	25-32	5-6	28-32	5-6	22-28	5-6	24-30	5-6		
1.2	30-40	5-6	50-65	6-7	28-35	6	28-32	5-6	22-28	5-6	28-32	5-6		
1.3	40	6	65	7	28	6	32	6	28	6	32	6		
1.4	12-17	3-4	18-25	4-5	12-14	3-4	13-18	3-4			10-14	4		
1.5	30-40	5	45-55	6	25-28	6	26-36	5	22	5	26-36	5		
1.6	22	4	35	5	15	5	24	4-5			24	4		
1.7	20	3	30	4	13	4	16	4			18	4		
1.8	14	3	20	4	12	3	12	3						
1.9	14	3	20	4	13	4	12	3						
1.10	14	4	20	5	13	4	14	4			12	4		
1.11	10	3	15	4	8	3	10	3						
1.12	10	3	15	4			8	3			8	3		
1.13	7	2	12	3			6	2						
1.14	10	3	15	4	10	3	12	3						
1.15	20	4	30	4	10-13	3-4	16	8	14	4	15	4		
1.16	10	3	15	4	10-13	3-4	8	3			8	3		
2.1	14	4	20	4	13	4	12	4						
2.2	14	4	20	4			13	4						
2.3	12	3	18	3	12	4	10	3						
2.4	13	3	20	3			11	3						
2.5	11	3	16	3			9	3						
2.6	10	3	15	3	8-13	3-4	8	3						
2.7							7	2-3						
3.1	40	6	65	7	32	6	28	6	28	6	36	6-7		
3.2	30	6	50	7	26	6	22	6	22	6	28	6-7		
3.3	35	6	60	7	28	6	30	6	22	6	28	6-7		
3.4	25	6	40	7	20	6	24	6	18	6	22	6-7		
3.5	30	6	50	7	28	6	24	6	22	6	28	6-7		
3.6	32	6	55	7	20	6	20	6	16	6	30	6-7		
3.7	24	6	36	7	28	6	16	6	14	6	20	6-7		
3.8	22	6	32	7	20	6	15	6	13	6	18	6-7		
4.1					50	7							65	7
4.2	80	6	110	7	60	7							65	7
4.3	80	6	110	7	60	7	70	7	55	7	70	7		
4.4	75	7	95	8	50	6	60	6	45	6	55	6		
4.5	60	6	80	7	50	6	60	6	45	6	55	6		
4.6	60	5	60	6	24	5	54	5	54	5	65	5		
4.7	40	5	60	6			30	5	28	5	36	5		
4.8	36	4	55	5			26	4	24	4	28	4		
4.9	25	4	35	5			22	4	20	4	22	4		
4.10	23	4	30	5			20	4	18	4	20	4		
4.11					35-50	4-5								
4.12	50	5	65	5	28	5	38	5	34	5	44	5		
4.13	30	5	40	5	12	4							22	5
4.14					18	4	16	4	14	4	18	4		
4.15														
4.16					50	6							63	6
4.17														
4.18	8	2	10	3										
4.19	7	2	9	3										
5.1	8	2	11	2-3										
5.2	6	2	7	2-3										
5.3	6	1	7	2										
5.4	6	2	7	2										
5.5	6	1	7	2										
5.6	5	1	6	2										
5.7	5	1	6	2										
5.8	5	1	6	1										
5.9	5	1	6	1										
5.10	6	2	7	2-3										
5.11	6	1	7	2-3										
6.1	6	3	7	3										
6.2	4	2	5	2										
6.3														
6.4														
6.5														



The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Index	Hole depth 10xD				Hole depth above 10xD									
	Type N-MK 10 295 ...		Type WTL-MK 10 297 ...		Type WTL-R1 10 235 ...		Type WTL-R2 10 245 ...		Type WTL-R3 10 255 ...		Type WTL-MK-R1 10 305 ...		Type WTL-MK-R2 10 315 ...	
	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	28-36	5-6	28-32	5-6	18-22	4-5	18-22	4-5	18-22	4-5	18-22	4-5	18-22	4-5
1.2	28-36	5-6	28-32	5-6	18-22	4-5	18-22	4-5	18-22	4-5	18-22	4-5	18-22	4-5
1.3	27	6	32	6	22	4	22	4	22	4	22	4	22	4
1.4	14	4	10-14	3-4	10	3	10	3	10	3	10	3	10	3
1.5	28-36	5	36	5	18-22	4	18-22	4	18-22	4	18-22	4	18-22	4
1.6	22	4	24	4										
1.7	18	4	16	4	12	3	12	3	12	3	12	3	12	3
1.8			12	3										
1.9			12	3										
1.10	12	4	12	4	8	3	8	3	8	3	8	3	8	3
1.11			8	3										
1.12	8	3	8	3										
1.13			6	2										
1.14			8	3	6	2	6	2	6	2	6	2	6	2
1.15	18	4	16	4										
1.16	8	3	8	3										
2.1			12	4	8	3	8	3	8	3	8	3	8	3
2.2			13	4	8	3	8	3	8	3	8	3	8	3
2.3			10	3										
2.4			11	3										
2.5			9	3										
2.6			8	3										
2.7			7	2-3										
3.1	36	6-7	28	6	22	5	22	5	22	5	22	5	22	5
3.2	28	6-7	22	6	18	5	18	5	18	5	18	5	18	5
3.3	28	6-7	30	6	20	5	20	5	20	5	20	5	20	5
3.4	22	6-7	24	6	14	5	14	5	14	5	14	5	14	5
3.5	28	6-7	22	6	18	5	18	5	18	5	18	5	18	5
3.6	30	6-7	20	6	16	5	16	5	16	5	16	5	16	5
3.7	20	6-7	16	6	14	5	14	5	14	5	14	5	14	5
3.8	18	6-7	15	6	12	5	12	5	12	5	12	5	12	5
4.1														
4.2														
4.3	70	7	70	7	45	6	45	6	45	6	45	6	45	6
4.4	55	6	60	6	36	5	36	5	36	5	36	5	36	5
4.5	55	6	50	6	36	5	36	5	36	5	36	5	36	5
4.6	54	5	54	5	22	4	22	4	22	4	22	4	22	4
4.7	36	5	30	5	20	3	20	3	20	3	20	3	20	3
4.8	28	4	26	4	22	3	22	3	22	3	22	3	22	3
4.9	22	4	22	4	22	3	22	3	22	3	22	3	22	3
4.10	20	4	20	4	20	3	20	3	20	3	20	3	20	3
4.11														
4.12	36	4	38	5	28	4	28	4	28	4	28	4	28	4
4.13	22	5			20	3	20	3	20	3	20	3	20	3
4.14	14	4	16	4	14	4	14	4	14	4	14	4	14	4
4.15														
4.16					55	5	55	5	55	5	55	5	55	5
4.17														
4.18														
4.19														
5.1														
5.2														
5.3														
5.4														
5.5														
5.6														
5.7														
5.8														
5.9														
5.10														
5.11														
6.1														
6.2														
6.3														
6.4														
6.5														



When drilling tough materials which tend to jam, chips should be removed at drilling depth $\geq 4xD$ and the cutting speed v_c should be reduced as follows: at drilling depths $> 4xD$ by 10 %, at drilling depths $> 6xD$ by 15–20 %. It is also recommended to use an emulsion for cooling.



v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → Page 53

Cutting data standard values – micro drills 10 103 ...

Index	v _c in m/min	Nominal Ø in mm						
		Ø 0,15	Ø 0,20–0,25	Ø 0,30–0,35	Ø 0,40–0,55	Ø 0,60–0,75	Ø 0,80–0,95	Ø 1,00–1,45
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	18	0,009	0,011	0,015	0,019	0,026	0,031	0,050
1.2	18	0,007	0,009	0,011	0,014	0,020	0,024	0,041
1.3	18	0,009	0,011	0,015	0,019	0,026	0,031	0,050
1.4	14	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.5	18	0,007	0,009	0,011	0,014	0,020	0,024	0,041
1.6	14	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.7	14	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.8	12	0,004	0,005	0,007	0,009	0,012	0,016	0,029
1.9	12	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.10	14	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.11	12	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.12	14	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.13	8	0,003	0,004	0,005	0,007	0,009	0,013	0,024
1.14	14	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.15	12–14	0,004	0,006	0,008	0,007	0,010	0,014	0,026
1.16	12–14	0,004	0,006	0,008	0,007	0,010	0,014	0,026
2.1	12	0,005	0,007	0,009	0,011	0,015	0,020	0,035
2.2	10	0,005	0,007	0,009	0,011	0,015	0,020	0,035
2.3	6	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.4	6	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.5	6	0,004	0,006	0,008	0,007	0,010	0,014	0,026
2.6	6	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.7	6	0,004	0,005	0,007	0,008	0,012	0,016	0,029
3.1	25	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.2	22	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.3	18	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.4	22	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.5	22	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.6	20	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.7	22	0,004	0,005	0,007	0,008	0,012	0,016	0,029
3.8	20	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.1								
4.2								
4.3	26	0,012	0,014	0,019	0,024	0,034	0,038	0,060
4.4	24	0,012	0,014	0,019	0,024	0,034	0,038	0,060
4.5	18	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.6	42	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.7	38	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.8	45	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.9	35	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.10	30	0,007	0,009	0,011	0,014	0,02	0,024	0,041
4.11								
4.12	22	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.13	18	0,005	0,007	0,009	0,011	0,015	0,020	0,035
4.14	16	0,005	0,007	0,009	0,011	0,015	0,020	0,035
4.15								
4.16	75	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.17								
4.18	6	0,004	0,005	0,007	0,008	0,012	0,016	0,029
4.19	6	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.1	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.2	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.3	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.4	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.5	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.6	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.7	6	0,005	0,007	0,009	0,011	0,015	0,020	0,035
5.8	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.9	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.10	4	0,003	0,004	0,005	0,007	0,009	0,013	0,024
5.11	4	0,003	0,004	0,005	0,007	0,009	0,013	0,024
6.1	3	0,002	0,003	0,004	0,005	0,007	0,010	0,020
6.2								
6.3								
6.4								
6.5								



The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Feed rate guide values for HSS twist drills

Factor F	Drill diameter in mm															
	0,5	1	2	3	4	5	6	8	10	12	14	16	18	20	26	30
	Feed rate f in mm/rev.															
1	0,004	0,006	0,02	0,03	0,04	0,04	0,05	0,06	0,08	0,08	0,09	0,1	0,12	0,15	0,18	0,19
2	0,006	0,008	0,02	0,03	0,05	0,05	0,05	0,08	0,1	0,1	0,1	0,12	0,12	0,2	0,2	0,2
3	0,007	0,012	0,03	0,05	0,06	0,069	0,08	0,1	0,12	0,13	0,13	0,16	0,16	0,25	0,25	0,25
4	0,008	0,014	0,04	0,06	0,08	0,09	0,1	0,14	0,16	0,16	0,16	0,2	0,2	0,3	0,3	0,3
5	0,01	0,016	0,06	0,08	0,1	0,12	0,13	0,16	0,2	0,2	0,22	0,25	0,25	0,4	0,4	0,4
6	0,012	0,018	0,06	0,1	0,12	0,14	0,16	0,2	0,25	0,25	0,25	0,3	0,3	0,5	0,5	0,5
7	0,014	0,02	0,08	0,13	0,16	0,18	0,2	0,25	0,35	0,35	0,35	0,4	0,4	0,6	0,6	0,6
8	0,016	0,023	0,1	0,16	0,2	0,2	0,25	0,35	0,4	0,4	0,4	0,4	0,5	0,6	0,7	0,8
9	0,019	0,025	0,13	0,17	0,2	0,23	0,32	0,4	0,4	0,5	0,5	0,5	0,6	0,8	0,9	0,9

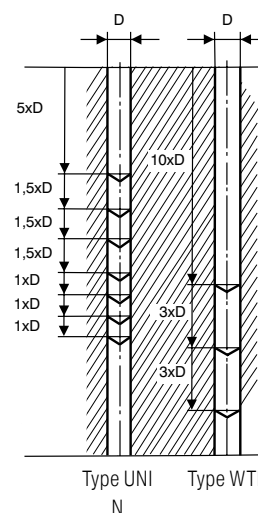
i All the indicated data are guide values only and represent average values.

Speed for HSS drills

v _c m/min	Drill diameter in mm																
	2,0	2,5	3,15	4,0	5,0	6,3	8,0	10,0	12,5	16,0	20,0	25,0	31,5	40,0	50,0	63,0	80,0
	Speed in U/min																
80	12500	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320
63	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250
50	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200
40	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160
32	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125
25	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100
20	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80
16	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63
12	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50
10	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40
8	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32
6	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25
5	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20
4	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16
3	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16	12

Peck frequency for deep drilling

- ▲ drill must be sufficiently cooled
- ▲ by use of a drill with flat chip gullet profile (type WTL)
chip transport is substantially improved
- ▲ for extremely deep drilling or when machining horizontally through coolant drills
with internal coolant supply are recommended



Coatings

TiN

- ▲ TiN coating
- ▲ maximum application temperature: 450 °C

TiAlN

- ▲ TiAlN multilayer coating
- ▲ maximum application temperature: 900 °C

vap.

- ▲ vaporised
- ▲ vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance

TiCN

- ▲ TiCN multilayer coating
- ▲ maximum application temperature: 450 °C

F-nit

- ▲ titanium carbon nitride based PVD coating particularly suitable for steel machining
- ▲ applicable up to approx. 450 °C