

DRILLING - HSS

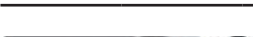
DRILLING - HSS



Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Stub drills

	N	right-hand	HSS	bright	DIN 1897	0,500 - 31,000	71110	134	180
	N	left-hand	HSS	bright	DIN 1897	0,500 - 32,000	71111	138	180
	N	right-hand	HSS	bright/steam >2,36	DIN 1897	2,000 - 30,000	71108	132	185
	N	left-hand	HSS	bright/steam >6,0	DIN 1897	2,000 - 26,500	71109	134	185
	N	right-hand	HSS	TiN	DIN 1897	1,000 - 13,000	61118	133	188
	N	right-hand	M42	bright	DIN 1897	1,000 - 10,000	71106	138	188
	NX	right-hand	HSS-Co	bright	DIN 1897	1,000 - 14,000	71220	134	191
	NX	right-hand	HSS-Co	TiN	DIN 1897	1,000 - 14,000	61220	135	191
	V97	right-hand	HSS	<2,36br./n.l./ steam>16,0	DIN 1897	1,000 - 16,000	71107	136	194
	V97	right-hand	HSS-Co	FIRE	DIN 1897	2,000 - 16,000	51159	137	194
	V-PM	right-hand	HSS-E-PM	TiN	DIN 1897	1,000 - 14,000	61131	135	197
	V-PM	right-hand	HSS-E-PM	FIRE	DIN 1897	2,100 - 13,000	51131	115	197
	VX	right-hand	HSS-Co	bright/steam >2,36	DIN 1897	1,000 - 13,000	71112	134	200

Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Stub drills

	VX	right-hand	HSS-Co	TiN	DIN 1897	1,000 - 12,500	61112	135	200
	V72	right-hand	HSS	bright	DIN 1897	1,000 - 16,000	71114	134	203
	V72	left-hand	HSS	bright	DIN 1897	1,000 - 16,000	71113	138	203

Jobber drills

	N	right-hand	HSS	bright	DIN 338	0,200 - 16,000	71116	130	207
	N	left-hand	HSS	bright	DIN 338	0,900 - 14,700	71119	134	207
	N	right-hand	HSS	bright/steam >2,36	DIN 338	2,000 - 20,000	71115	130	212
	N	right-hand	HSS	steam tempered	DIN 338	3,000 - 12,000	71164	132	212
	N	right-hand	HSS	TiN	DIN 338	1,000 - 16,000	61116	131	212
	N	right-hand	HSS-Co	bright/steam >2,36	DIN 338	1,000 - 15,000	71149	134	218
	N	right-hand	M42	bright	DIN 338	1,000 - 16,000	71148	138	218
	H	right-hand	HSS	bright	DIN 338	1,000 - 12,000	71117	134	221
	NX	right-hand	HSS-Co	bright	DIN 338	1,000 - 14,000	71221	134	224

Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Jobber drills

	NX	right-hand	HSS-Co	TiN	DIN 338	1,000 - 14,000	61221	135	224
	V66	right-hand	HSS-Co	bright/n. lands >2,0	DIN 338	0,800 - 13,500	71123	134	227
	V66 Ti	right-hand	HSS-Co	bright	DIN 338	1,000 - 16,000	71122	134	231
	V66 Ti	right-hand	HSS-Co	TiN	DIN 338	1,000 - 13,500	61223	135	231
	V66 Ti	right-hand	HSS-Co	FIRE	DIN 338	2,000 - 13,000	51122	135	231
	V70	right-hand	HSS	bright	DIN 338	1,500 - 16,000	71124	136	234
	V70	left-hand	HSS	bright	DIN 338	1,500 - 16,000	71126	138	234
	V70	right-hand	HSS	TiN	DIN 338	1,500 - 16,000	61124	137	234
	V70	right-hand	HSS-Co	nit. lands	DIN 338	1,500 - 13,000	71158	136	239
	V70	right-hand	HSS-Co	TiN	DIN 338	1,500 - 13,000	61158	137	239
	V72	right-hand	HSS	bright	DIN 338	0,550 - 13,000	71128	136	242
	V72	left-hand	HSS	bright	DIN 338	0,500 - 13,000	71129	138	242
	V97	right-hand	HSS	FIRE	DIN 338	2,000 - 9,500	51124	137	246

Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Jobber drills



V97	right-hand		HSS-Co	FIRE	DIN 338	1,000 - 13,000	51158	137	246
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V-PM	right-hand		HSS-E-PM	TiN	DIN 338	1,000 - 14,000	61232	135	249
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Set of jobber drills in case



N	right-hand		HSS	bright/steam >2,36	DIN 338	-	78879	130	252
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Set of jobber drills

N	right-hand	HSS	bright/steam >2,36	DIN 338	Boxes	78878	138	256
					Stand	78877	138	257
					-	71160	130	254

Twist drills with reinforced shank



NX	right-hand		HSS-Co	TiN	Stock std.	2,000 - 20,000	61120	115	258
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NX	right-hand		HSS-Co	TiN	Stock std.	2,000 - 20,000	61121	115	258
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V-PM	right-hand		HSS-E-PM	FIRE	Stock std.	2,000 - 13,000	51132	115	258
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Stub drills with 16.0 mm dia. shank



V72	right-hand		HSS-Co	bright	Stock std.	16,000 - 30,000	71168	138	266
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Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Stub drills with 25.4 mm dia. shank



V72	right-hand		HSS-Co	bright	Stock std.	28,000 - 40,000	71169	138	268
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Bushing drills



N	right-hand		HSS	bright/steam >2,36	DIN 339	1,000 - 19,500	71130	134	270
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Long series twist drills



N	right-hand		HSS	bright	DIN 340	0,500 - 16,500	71136	132	273
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N	right-hand		HSS	bright/steam >2,36	DIN 340	2,000 - 24,000	71135	132	273
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N	right-hand		HSS	TiN	DIN 340	1,000 - 16,000	61136	133	273
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V66	right-hand		HSS-Co	bright	DIN 340	1,000 - 13,000	71225	134	277
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V70	right-hand		HSS	bright	DIN 340	1,500 - 12,000	71150	136	280
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V70	left-hand		HSS	bright	DIN 340	1,500 - 13,000	71152	138	280
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V70	right-hand		HSS	TiN	DIN 340	2,000 - 12,000	61150	137	280
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V73	right-hand		HSS	nitr. lands	DIN 340	1,500 - 13,000	71154	136	283
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V73	right-hand		HSS-Co	nitr. lands	DIN 340	1,500 - 13,000	71156	136	283
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Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Extra long twist drills, series 1



V63	right-hand		HSS	bright/n. lands > 2,36	DIN 1869	2,000 - 13,000	71145	136	288
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V63	right-hand		HSS	TiN	DIN 1869	3,000 - 12,700	61145	137	288
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V63	right-hand		HSS-Co	nitr. lands	DIN 1869	3,000 - 12,700	71192	136	288
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Extra long twist drills, series 2



V63	right-hand		HSS	bright/n. lands > 2,36	DIN 1869	3,000 - 13,000	71146	136	291
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V63	right-hand		HSS	TiN	DIN 1869	4,000 - 8,500	61146	139	291
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V63	right-hand		HSS-Co	nitr. lands	DIN 1869	3,000 - 10,000	71193	138	291
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Extra long twist drills series 3



V63	right-hand		HSS	bright/n. lands > 2,36	DIN 1869	3,500 - 13,000	71147	136	293
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Extra long twist drills



V63	right-hand		HSS	nitr. lands	Stock std.	6,000 - 12,000	71195	136	295
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V63	right-hand		HSS	bright	Stock std.	8,000 - 12,000	71196	138	295
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Straight shank twist drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Oil feed drills



V94-IK	right-hand		HSS-Co	bright	Stock std.	5,000 - 20,000	71586	134	298
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V94-IK	right-hand		HSS-Co	TiN	Stock std.	5,500 - 19,000	61586	135	298
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V73-IK	right-hand		HSS	bright	Stock std.	3,000 - 13,000	71584	136	298
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Micro-precision drills



N	right-hand		HSS-Co	bright	DIN 1899	0,050 - 1,450	71187	134	301
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Type	Cutting direction	Point angle °	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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NC-spotting drills



N	right-hand	90	HSS	bright	Stock std.	3,000 - 25,400	71175	134	305
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N	right-hand	120	HSS	bright	Stock std.	3,000 - 25,400	71176	134	305
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Taper shank twist drills

Type	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Short length



N		HSS-Co8	bright	Stock std.	10,000 - 25,500	71303	138	308
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N		HSS-Co8	bright	Stock std.	12,000 - 30,000	71304	138	308
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Standard length



N		HSS	steam tempered	DIN 345	3,000 - 99,000	71300	132	311
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N		HSS	TiN	DIN 345	10,500 - 24,000	61301	133	311
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N		HSS-Co	steam tempered	DIN 345	5,000 - 35,000	71416	134	311
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V70		HSS	bright	DIN 345	7,940 - 32,000	71305	136	317
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V66 Ti		HSS-Co	bright	DIN 345	8,000 - 32,000	71312	134	317
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V66 Ti	with oversized MT	HSS-Co	bright	DIN 346	11,000 - 29,000	71313	138	317
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Bushing drills



N		HSS	steam tempered	DIN 341	5,000 - 41,000	71320	132	321
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V70		HSS	bright	DIN 341	7,940 - 50,000	71322	136	321
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Taper shank twist drills

Type		Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Extra long twist drills, series 1



V63		HSS	nitr. lands/steam >16.0	DIN 1870	7,940 - 30,000	71325	136	324
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Extra long twist drills, series 2



V63		HSS	nitr. lands/steam >16.0	DIN 1870	7,940 - 43,000	71326	136	326
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Twist drills with internal coolant



V70-IK		HSS-Co	steam tempered	Stock std.	14,500 - 32,000	71550	138	328
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V70-IK	oversize Morse taper	HSS-Co	steam tempered	Stock std.	8,000 - 31,500	71553	138	328
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Deep hole twist drills with internal coolant



V63-IK	series 1	HSS-Co	steam tempered	Stock std.	14,290 - 31,500	71565	136	330
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V63-IK	series 1	HSS-Co	steam tempered	Stock std.	8,000 - 14,000	71567	136	330
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V63-IK	series 2	HSS-Co	steam tempered	Stock std.	14,500 - 27,000	71566	136	332
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V63-IK	series 2	HSS-Co	steam tempered	Stock std.	8,000 - 31,500	71568	136	332
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Coolant feeding „System Stock“

MT2 - MT4	71560	138
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Subland drills

Type	Form	Step angle	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Straight shank subland drills



N	fine	90°	HSS	steam tempered	DIN 8374	6,000 - 19,000	71501	138	335
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N	medial	90°	HSS	steam tempered	Stock std.	13,000 - 17,200	71502	138	335
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N	tap. size	90°	HSS	steam tempered	DIN 8378	3,400 - 13,500	71503	138	335
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N	medial	180°	HSS	steam tempered	DIN 8376	6,000 - 18,000	71500	138	339
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Taper shank subland drills



N	tap. size	90°	HSS	steam tempered	DIN 8379	9,000 - 22,000	71523	138	341
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N	medial	180°	HSS	steam tempered	DIN 8377	10,000 - 26,000	71520	138	341
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Center drills

Form	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Center drills without flat



A	right-hand		HSS	bright	DIN 333	0,500 - 12,500	71600	132	344
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A	left-hand		HSS	bright	DIN 333	0,500 - 8,000	71601	138	344
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A	right-hand	reinf. neck	HSS	bright	Stock std.	1,000 - 6,300	71605	138	346
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B	right-hand		HSS	bright	DIN 333	1,000 - 6,300	71604	138	348
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R	right-hand		HSS	bright	DIN 333	0,500 - 10,000	71602	138	350
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R	right-hand		HSS	TiN	DIN 333	0,800 - 6,300	61602	139	350
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Center drills with flat



A	right-hand		HSS	bright	Stock std.	1,600 - 6,300	71607	138	352
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R	right-hand		HSS	bright	Stock std.	1,600 - 8,000	71609	138	352
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Core drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	d1	Catalogue no.	Discount group	Page
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Straight shank core drills



N	right-hand		HSS	steam tempered	DIN 344	4,800 - 19,000	72200	138	354
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Taper shank core drills



N	right-hand		HSS	steam tempered	DIN 343	9,000 - 48,600	72210	138	356
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Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000	1.250
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only ⓘ

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		ⓘ
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn Pb	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn Pb, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	—		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	—		■ □
Kevlar	Kevlar	—		□
Glass/carbon-concentr. plastics	GFK/CFK	—		—

$\leq 3 \times D$ drilling depth

Catalogue no.

Tool material

Surface finish

DIN/Form

Type

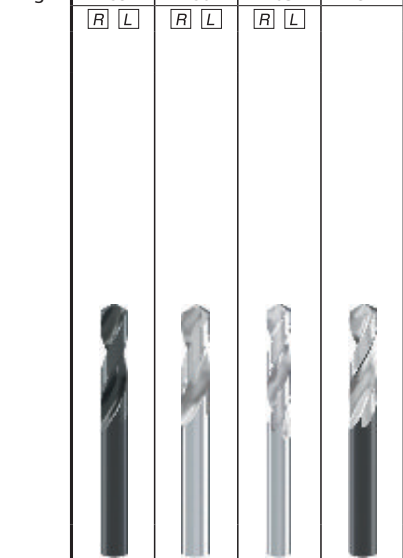
Page

71108 71109	71110 71111	71114 71113	71107
HSS			
steam	bright	bright	nitr.lands
1897	1897	1897	1897
N	N	V72	V97
185	180	203	194

61118
HSS
TiN
1897
N
188

71112	71168	71169	71303 71304	71106
HSS-Co				M42
steam	bright	bright	bright	bright
1897	Stock	Stock	Stock	1897
N	V72	V72	N	N
200	266	268	308	188

61112	51159
HSS-Co	
TiN	FIRE
1897	1897
VX	V97
200	194



V_c m/min	Feed column no.		
36	F	F	F
28	E	E	E
36	F	F	F
28	E	E	E
36	E	E	E
28	E	E	E
36	F	F	F
18	D		D
36	F	F	F
28	F	F	F
32	F	F	F
23	F	F	F
90		G	G
90		G	G
70	G*	G	G
55	F*	F	F
90	F*	F	F
36	E*	E	E
70			
45	E*	E	E
36	D*	D	D
32	D*	D	D
28	D*	D	D
18	D	D	D
28	E*	E	E

v_c m/min	Feed no.
45	F
36	E
45	F
36	E
45	E
32	E
18	D
22	D
45	F
20	D
18	D
22	D
45	F
36	F
40	F
28	F
90	G
80	F
45	E
55	E
45	D
40	D
35	D
28	D
22	D
36	E

V_c m/min	Feed column no.			
30	E	E		
30	E			
22	D	D	D	
20	D	D	D	
16	C	C	C	C
18	D	D	D	
14	C	C	C	C
16	D	D	D	
12	C	C	C	C
20	D	D	D	
12	C	C	C	C
12	C	C	C	C
10	B	B	B	B
16	D	D		
12	C	C	C	C
14	C	C	C	C
4			A	A
8	A	A	A	A
40	F			
30	F			
36	F			
28	F			
10	C		C	C
12	B		B	B
8	B		B	B
40	D			
36	D			
30	D			
25	D			
20	D	D		

TiN	FIRE		
V _c m/min	V _c m/min	Feed column no.	
40	52	E	F
40	52	E	F
28	36	D	E
25	32	D	E
20	26	C	D
22	29	D	E
18	23	C	D
20	26	D	E
15	19	C	D
25	22	D	E
15	19	C	D
15	19	C	D
12	16	B	C
20	26	D	E
15	19	C	D
18	23	C	D
5	7	A	B
10	13	A	B
50	65	F	G
40	52	F	G
45	59	F	G
32	42	F	G
12	16	C	D
15	19	B	C
10	13	B	C
50	60	E	F
45	59	D	E
40	52	D	E
32	42	D	E

Application recommendations for drills

Feed column									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

R right-hand cutting
(catalogue no. without symbol is always right-hand cutting)

L left-hand cutting

* only bright surface drills, respectively with bright ground flutes

** cutting edge corrected approx. 10°

Feed column for 71187									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.10	0.002	0.003	0.003	0.004	0.006	0.007	0.010	0.013
	0.16	0.002	0.003	0.004	0.005	0.007	0.009	0.012	0.016
	0.25	0.003	0.004	0.005	0.007	0.009	0.011	0.014	0.019
	0.30	0.004	0.005	0.007	0.009	0.011	0.015	0.019	0.025
	0.50	0.005	0.007	0.008	0.011	0.014	0.019	0.024	0.031
	0.63	0.007	0.009	0.012	0.015	0.020	0.026	0.034	0.044
	0.80	0.010	0.013	0.016	0.020	0.024	0.031	0.038	0.048
	1.00	0.020	0.024	0.029	0.035	0.041	0.050	0.060	0.072
	1.50	0.030	0.035	0.040	0.046	0.052	0.060	0.069	0.080
	2.00	0.040	0.046	0.053	0.061	0.070	0.080	0.093	0.106

Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only ⓘ

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		ⓘ
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		—	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		—	■ □
Kevlar	Kevlar		—	□
Glass/carbon-concentr. plastics	GFK/CFK		—	—

$\leq 3 \times D$ drilling depth

Catalogue no.
Tool material
Surface finish
DIN/Form
Type
Page

61120		71220		61220		61131		51131		61118		71187	
HSS-Co		HSS-Co		HSS-Co		HSS-E-PM		HSS-E-PM		HSS		HSS-Co	
TiN		bright		TiN		TiN		FIRE		TiN		bright	
Stock		Stock		Stock		1897		1897		1897		1899	
NX		NX		NX		V-PM		V-PM		N		N	
258		191		191		197		197		188		301	
													
v_c m/min	Feed no.	v_c m/min	Feed column no.		v_c m/min	Feed no.	v_c m/min	Feed no.	v_c m/min	Feed no.	v_c m/min	Feed no.	
	F	35	F		40	F	50	F	45	F	21	F	
	E	30	E		32	E	40	E	36	E	18	E	
	F	45	F		45	F	60	G	45	F	18	F	
	F	35	F		40	F	52	F	36	E	16	E	
	F	35	F		42	F	50	F	45	E	20	E	
	F	30	F		40	F	45	F	36	E	18	E	
	E	20	E		25	E	32	E	18	D	14	D	
	D	20	D		25	D	32	D	22	D	14	D	
	C	15	C		22	D	28	C			12	C	
	F	30	F		40	C	48	D	45	F	18	F	
	D	15	D		22	D	28	E	20	D	14	D	
	C	15	C		18	C	23	D			12	C	
	D	15	D		20	D	25	E	18	D	14	D	
	C	15	C		15	C	20	D			12	C	
	D	20	D		24	D	28	E	22	D	16	D	
	C	10	C		15	C	20	D			14	C	
	C	10	C		15	C	20	D			14	C	
					12	B	16	B			8	B	
	D	20	D		15	D	18	D			6	D	
	D	15	D		10	C	12	C			6	C	
	D	15	D		12	C	15	C			6	C	
	F	35	F		50	F	65	G	45	F	26	F	
	F	30	F		40	F	52	G	36	F	22	F	
	F	30	F		45	F	60	G	40	F	18	F	
	F	25	F		32	F	42	G	28	F	22	F	
					8	C	10	D					
	G	50	G										
	G	50	G										
	G	65	G		65	G	90	G	90	G	26	G	
	F	60	F		70	F	80	F	80	F	18	F	
	F	60	F								75	F	
	E	25	E		50	E	65	E	45	E	42	E	
	E	45	E										
	E	30	E		60	E	78	F	55	E	22	E	
	D	35	D		50	E	60	E	45	D	22	D	
	D	25	D		45	D	59	E	40	D	18	D	
	D	30	D		40	D	52	E	35	D	13	D	
	D	25	D		32	D	42	E	28	D			
	D	20	D		22	D	28	E	22	D	16	D	
	D	20	D						36	E	18	D	

Application recommendations for drills

Feed column									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn Pb	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn Pb, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		—	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		—	■ □
Kevlar	Kevlar		—	□
Glass/carbon-concentr. plastics	GFK/CFK		—	—

$\leq 5 \times D$ drilling depth

Catalogue no.

Tool material

Surface finish

DIN/Form

Type

Page

71164	71116 71119	71115	71300	71117	71124 71126	71305	71128 71129
HSS							
steam	bright	steam	steam	bright	bright	bright	bright
338	338	338	338	338	338	338	338
N	N	N	N	H	V70	V70	V72
212	207	212	311	221	234	317	242

61116	61301	61124
HSS		
TiN	TiN	TiN
338	345	338
N	N	V70
212	311	234

51124
HSS
FIRE
338
V97
246

61223
HSS-Co
TiN
338
V66-Ti
231

v_c m/min	Feed column no.						
32	F	F	F	F		F	F
25	E	E	E	E		E	E
32	F	F	F	F		F	F
25	E	E	E	E		E	E
32	E	E	E	E		E	E
25	E	E	E	E		E	E
32	F	F	F	F		F	F
16	D		D	D		D	
32	F	F	F	F	G	G	F
25	F	F	F	F	F	F	F
28	F	F	F	F		F	F
20	F	F	F	F		F	F
80					G	G	G
80					G	G	G
63	G*	G	G*	G*		G	G
50	F*	F	F*	F*		F	F
80	F*	F	F*	F*	F	F	F
32	E*	E	E*	E*		F	E
63					F		
40	E*	E	E*	E*		F	E
32	D*	D	D*	D*	D		D
28	D*	D	D*	D*			D
25	D*	D	D*	D*		D	D
16	D	D	D	D	D	D	D
25	E*	E	E*	E*	E		E

v_c m/min	Feed column no.	
40	F	F
32	E	E
40	F	F
32	E	E
40	E	E
32	E	E
16	D	D
20	D	D
40	F	F
18	D	D
15	D	D
20	D	D
40	F	G
30	F	F
35	F	F
25	F	F
80	G	G
70	F	F
100	F	F
40	E	F
50	E	F
40	D	
36	D	
32	D	D
25	D	D
20	D	D
32	E	D

v_c m/min	Feed no.
52	G
40	F
52	G
40	F
52	F
40	F
20	E
26	E
52	G
23	E
20	E
26	E
52	G
52	G
47	G
32	G
105	H
91	G
130	G
52	F
65	F
52	
47	
40	E
32	E
26	E

v_c m/min	Feed no.
18	C
15	C
13	C
13	C
13	C
10	B
18	D
13	C
15	C
4	A
8	A
10	C
13	B
8	B
28	D

Application recommendations for drills

Feed column									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn Pb	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn Pb, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	—		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	—		■ □
Kevlar	Kevlar	—		□
Glass/carbon-concentr. plastics	GFK/CFK	—		—

$\leq 5 \times D$ drilling depth

Catalogue no.
Tool material
Surface finish
DIN/Form
Type
Page

71416	71149	71158	71123	71122	71312	71313	71148
HSS-Co							M42
steam	bright	nitr.lands	nitr.lands	bright	bright	bright	bright
345	338	338	338	338	345	346	338
N	N	V70	V66	V66-Ti	V66-Ti	V66-Ti	N
311	218	239	227	231	317	317	218

v_c m/min	Feed column no.					
28	E	E				
28 15	E D	E D				
18 14	D C	D C	C	C	C	
16 12 14 10	D C D C	D C D C	C	C	C	
18 10	D C	D C	C	C	C	
10 8	C B	C B	C B	C B	C B	
14 10 12	D C C	D C C	D C C	D C C	D C C	
3					A	
6			A	A	A	
36 28 30 22	F F F F	F F F F				
8 10 6	C C	C C	C B B	C B B	C B B	
70 55		G F				
36	E*	E				
45 36 30	E* D* D*	E				
28 22 18	D* D* D	D D D				

71586	61586
HSS-Co	
bright	TiN
Stock	Stock
V94	V94
298	298

bright	TiN
--------	-----

v_c m/min	v_c m/min	Feed column no.	
48 38	60 48	G	G
48 38	60 48	G	G
48 38	60 48	F	F
48 38	60 48	F	F
20 25	25	E	E
25 20	30 25	E	E
20 50	25 62	D	D
22 16	28 20	G	G
20 14	25 18	E	E
24 14	30 18	E	E
14 12	18 15	D	D
20 14 16	25 18 20	C	C
4	5	C	C
10 48 38 42 30	12 60 48 52 38	B	B
12 14 10	15 18 12	D	D
		C	C
95 75	120 95	G	G
		H	H
48 60	60 75	F	F
42 38 30	52 48 38	E	E
38 30	48 38	E	E
38	48	F	F

71221	61221
HSS-Co	
bright	TiN
338	338
NX	NX
224	224

v_c m/min	Feed column no.
35 30	F E
45 35	F F
35 30 20	F F E
20 15	D C
30	F
15 15	D C
20 10	D C
10	C
20 15 15	D D D
35 30 30 25	F F F F
50 50	G G
65 60 60	G F F
25 45 30	E E E
35 25 30 25	D D D D
20 20	D D

Application recommendations for drills

Feed column									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	—		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	—		■ □
Kevlar	Kevlar	—		□
Glass/carbon-concentr. plastics	GFK/CFK	—		—

$\leq 5 \times D$ drilling depth

Catalogue no.
Tool material
Surface finish
DIN/Form
Type
Page

61121
HSS-Co
TiN
Stock
NX
258



61158
HSS-Co
TiN
338
V70
239



61232
HSS-E-PM
TiN
338
V-PM
249



51132
HSS-E-PM
FIRE
Stock
V-PM
258



51158	51122
HSS-Co	
FIRE	FIRE
338	338
V97	V66-Ti
195	231



v_c m/min	Feed no.	v_c m/min	Feed no.	v_c m/min	Feed no.	v_c m/min	Feed no.	v_c m/min	Feed column no.	
45	F			35	F	50	F			
35	E			30	E	40	E			
50	F			45	F	60	F			
40	E	36	E	35	F	50	F	47	F	
42	F			35	F	50	F			
35	F	32	E	30	F	40	F	42	F	
22	E	18	D	25	E	32	E	23	E	
18	D	22	D	25	D	32	D	28	E	
15	C	18	C	25	D	28	C	23	D	D
40	F			30	C	48	C			
20	D	20	D	20	D	25	D	26	E	
15	C	15	C	15	C	20	C	20	D	D
18	D	18	D	15	D	25	D	23	E	
12	C	13	C	10	C	20	D	17	D	D
18	D	22	D	15	D	28	E	28	E	
13	C	13	C	15	C	17	D	17	D	D
13	C	13	C	15	C	20	D	17	D	D
				10	B	12	B	12		B
18	D	18	D	20	D	18	D	23	E	E
12	D			15	C	12	C	18		C
15	D	15	C	15	C	15	C	20	D	D
								6		A
								10		A
				10	B			59	G	
45	F	45	F	35	F	55	G	47	G	
36	F	36	F	30	F	45	G	52	G	
40	F	40	F	30	F	52	G	23	G	
28	F	28	F	25	F	34	G	13	D	C
						13	D	15		B
								10		B
70	G									
70	G									
89	G	85	G	65	G	85	G	110	H	
70	F	70	F	60	F	76	F	91	G	
70	F			60	F					
32	E	45	E					59	F	
63	E									
40	E									
50	D									
35	D									
32	D	36	D					47	E	
28	D	28	D					30	E	D
25	D	22	D					28	E	
15	D									

Application recommendations for drills

Feed column									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn Pb	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn Pb, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	—		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	—		■ □
Kevlar	Kevlar	—		□
Glass/carbon-concentr. plastics	GFK/CFK	—		—

$\leq 10 \times D$ drilling depth

Catalogue no.

Tool material

Surface finish

DIN/Form

Type

Page

71136	71130	71135	71320	71150 71152	71322	71154
HSS						
bright	steam	steam	steam	bright	bright	nit.lands
340	339	340	341	340	341	340
N	N	N	N	V70	V70	V73
273	270	273	321	280	321	283
      						

71584
HSS
bright
Stock
V73-IK
298


61136	61150
HSS	
TiN	TiN
340	340
N	V70
273	280
 	

71225	71156
HSS-Co	
bright	nit.lands
340	340
V66-Ti	V73
277	283
 	

71550 71553
HSS-Co
steam
Stock
V70-IK
328


v_c m/min	Feed column no.					
28	F		F		F	F
22	E		E		E	E
28	F		F		F	F
22	E		E		E	E
28	E		E		E	E
22	E		E		E	E
28		F		F		F
14		D		D		D
12				D		
28	F		F		G	F
22	F		F		F	F
22	F		F		F	F
18	F		F		F	F
70				G		
70				G		
55	G		G*		G	G
45	F		F*		F	F
70	F		F*		F	
28	E		E*		F	E
34	E		E*		F	E
28	D		D*			
22	D		D*			
14	D		D		D	D
22	E		E*			

v_c m/min	Feed no.
40	F
30	E
40	F
30	E
40	E
30	E
22	D
20	D
14	C
40	F
17	D
12	C
14	D
10	C
20	D
10	C
10	C
7	B
14	D
10	C
12	C
4	B
6	A
40	F
30	F
35	F
25	F
7	C
10	B
6	B
80	F
75	G
60	F
40	E
50	E
35	D
30	D
25	D
30	E

v_c m/min	Feed column no.	
36	F	F
28	E	E
36	F	F
28	E	E
36	E	E
28	E	E
22	D	D
18	D	D
8	C	C
36	F	F
28	F	F
28	F	F
22	F	F
70	G	G
55	F	F
95	F	
36	E	E
45	E	E
36	D	D
28	D	D
28	D	D
22	D	D
18	D	D
28	E	

v_c m/min	Feed column no.	
24		E
24		E
16		D
16	C	D
12	C	C
14		D
10		C
12		D
8		C
16		D
8		C
8		C
6		B
12	D	D
8	C	A
10	C	C
5	A	
30		F
24		F
24		F
20		F
6	C	
8	B	
5	B	
60		G
50		F
30		E
38		E
24	D	D
20	D	D
16		D

v_c m/min	Feed no.
40	F
30	E
40	F
30	E
40	E
30	E
22	D
20	D
14	C
40	F
17	D
12	C
14	D
10	C
20	D
10	C
10	C
7	B
14	D
10	C
12	C
4	B
6	A
40	F
30	F
35	F
25	F
7	C
10	B
6	B
75	G
60	F
40	E
50	E
35	D
30	D
25	D
30	E

Application recommendations for drills

Feed column									
Code-letter	A	B	C	D	E	F	G	H	I
drill-Ø mm	0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016
	1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023
	2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100
	2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
	3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
	4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
	6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
	8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
	10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
	16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
	20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
	25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	31.50	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
	40.00	0.200	0.250	0.315	0.400	0.500	0.630	0.800	1.000
	50.00	0.250	0.310	0.400	0.500	0.630	0.800	1.000	1.250
	63.00	0.315	0.400	0.500	0.630	0.800	1.000	1.250	1.600
	80.00	0.400	0.500	0.630	0.800	1.000	1.250	1.600	2.000

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

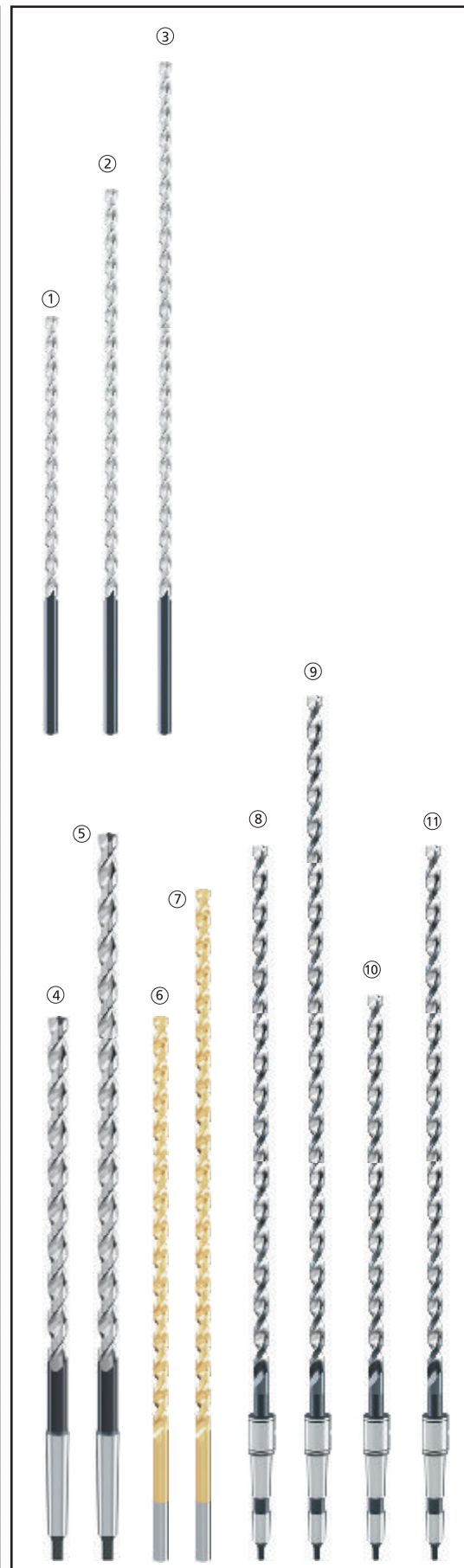
Lubricants:
cutting oil, highly activated ■
soluble oil (emulsion) ■
without lubricant □
air only ⓘ

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9 1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850 ≤850 ≤850		■
Hardened steels	—		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB ≤300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	—		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1 3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤400 ≤450		■
Al cast alloys ≤ 10 % Si > 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9 3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		ⓘ
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400		■ ■
Brass, short-chipping long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600 ≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		—	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		—	■ □
Kevlar	Kevlar		—	□
Glass/carbon-concentr. plastics	GFK/CFK		—	—

$\geq 10 \times D$ drilling depth

Catalogue no.	71145 ① 71146 ② 71147 ③	71195 ① 71196 ②	71325 ④ 71326 ⑤	61145 ⑥ 61146 ⑦	71192 ① 71193 ②	71565 ⑧ 71566 ⑨ 71567 ⑩ 71568 ⑪
Tool material	HSS			HSS	HSS-Co	HSS-Co
Surface finish	nit. lands	nit. lands	nit. lands	TiN	nit. lands	steam
DIN/Form	1869	Stock	1870	1869	1869	Stock
Type	V63	V63	V63	V63	V63	V63-IK
Page	288...	295	324/326	288/291	288/291	330/332

v_c m/min	Feed column no.			v_c m/min	Feed no.	v_c m/min	Feed no.	v_c m/min	Feed no.
22		E		28	E			30	E
18		D		22	D			25	D
22		E		28	E			30	E
18		D		22	D	20	D	25	D
22		D		28	D			30	D
18		D		22	D			25	D
				16	C	14	C	18	C
12		C		15	C	14	C	16	C
				10	B	10	B	12	B
22		E		28	E			30	E
10		C		12	C	12	C	14	C
				10	B	10	B	12	B
8		C		10	C	10	C	12	C
				8	B	8	B	8	B
12		C		12	C	14	C	16	C
6		B		8	B	8	B	8	B
6		B		8	B	8	B	8	B
				6	A	6	A	6	A
8		C		10	C	10	C	12	C
				8	B	8	B	8	B
				10	B	10	B	12	B
						3	A	3	A
				6	A	6	A	6	A
22		E		28	E	20	E	30	E
18		E		22	E			25	E
20		E		25	E	16	E	28	E
14		E		18	E	6	B	20	E
				6	B	6	B	6	B
				8	A	8	A	8	B
				6	A	6	A	6	B
				70	F				
				70	F				
45		F		55	F	50	F	63	F
36		E		45	E	40	E	50	E
55		E		70	E				
22		D		28	D	24	D	30	D
28		D		36	D	30	D	40	D
22		C		28	C			28	D
20		C		25	C			25	D
18		C		22	C	20	C	20	D
				18	C	16	C		
12		C		15	C	14	C		
18		D		22	D			25	D



Straight shank twist drills

Stub drills

Catalogue
no. 71110



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills

Catalogue
no. 71111



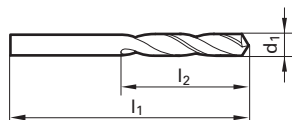
For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright
Type	N
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71110

71111

HSS

134

138

right-hand

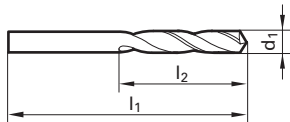
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	0.500	20.00	3.00	●	○
	0.600	21.00	3.50	●	○
	0.700	23.00	4.50	●	○
	0.750	23.00	4.50	●	○
	0.800	24.00	5.00	●	
	0.900	25.00	5.50	●	○
	1.000	26.00	6.00	●	○
	1.100	28.00	7.00	●	○
	1.150	28.00	7.00	○	
	1.200	30.00	8.00	●	○
	1.250	30.00	8.00	○	○
	1.300	30.00	8.00	●	○
	1.350	32.00	9.00	○	
	1.400	32.00	9.00	●	
	1.450	32.00	9.00		○
	1.500	32.00	9.00	●	○
	1.550	34.00	10.00	○	○
	1.600	34.00	10.00	●	○
	1.700	34.00	10.00	●	○
	1.750	36.00	11.00	○	○
	1.800	36.00	11.00	●	○
	1.850	36.00	11.00		○
	1.900	36.00	11.00	●	
	1.950	38.00	12.00	○	○
	2.000	38.00	12.00	●	○
	2.050	38.00	12.00	○	
	2.100	38.00	12.00	●	○
	2.150	40.00	13.00	○	
	2.200	40.00	13.00	●	○
	2.250	40.00	13.00	○	
	2.300	40.00	13.00	●	○
	2.350	40.00	13.00		○
	2.400	43.00	14.00	●	○
	2.450	43.00	14.00		○
	2.500	43.00	14.00	●	○
	2.550	43.00	14.00	○	○
	2.600	43.00	14.00	●	○
	2.650	43.00	14.00	○	○
	2.700	46.00	16.00	●	○
	2.750	46.00	16.00	○	
	2.800	46.00	16.00	●	○
	2.850	46.00	16.00	○	○
	2.900	46.00	16.00	●	○
	2.950	46.00	16.00	○	○
	3.000	46.00	16.00	●	○
	3.100	49.00	18.00	●	○
	3.150	49.00	18.00		○
	3.200	49.00	18.00	●	○
	3.250	49.00	18.00	○	
	3.300	49.00	18.00	●	○
	3.400	52.00	20.00	●	
	3.450	52.00	20.00		○
	3.500	52.00	20.00	●	○
	3.550	52.00	20.00		○
	3.600	52.00	20.00	●	○
	3.650	52.00	20.00		○
	3.700	52.00	20.00	●	
	3.750	52.00	20.00	○	○
	3.800	55.00	22.00	●	○
	3.850	55.00	22.00		○

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71110

71111

HSS

134

138

right-hand

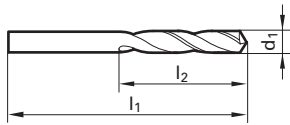
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	3.900	55.00	22.00	●	○
	3.950	55.00	22.00		○
	4.000	55.00	22.00	●	○
	4.100	55.00	22.00	●	○
	4.200	55.00	22.00	●	○
	4.250	55.00	22.00	○	
	4.300	58.00	24.00	●	○
	4.400	58.00	24.00	●	○
	4.500	58.00	24.00	●	○
	4.600	58.00	24.00	●	○
	4.700	58.00	24.00	●	○
	4.750	58.00	24.00	○	○
	4.800	62.00	26.00	●	○
	4.900	62.00	26.00	●	
	5.000	62.00	26.00	●	●
	5.100	62.00	26.00	●	○
	5.200	62.00	26.00	●	○
	5.250	62.00	26.00	○	○
	5.300	62.00	26.00	●	○
	5.400	66.00	28.00	●	○
	5.500	66.00	28.00	●	○
	5.600	66.00	28.00	●	○
	5.700	66.00	28.00	●	○
	5.750	66.00	28.00	●	○
	5.800	66.00	28.00	●	○
	5.900	66.00	28.00	●	○
	6.000	66.00	28.00	●	○
	6.100	70.00	31.00	●	
	6.200	70.00	31.00	●	○
	6.250	70.00	31.00	○	○
	6.300	70.00	31.00	●	○
	6.400	70.00	31.00	●	○
	6.500	70.00	31.00	●	○
	6.600	70.00	31.00	●	○
	6.700	70.00	31.00	●	○
17/64	6.750	74.00	34.00	○	
	6.800	74.00	34.00	●	○
	6.900	74.00	34.00	●	○
	7.000	74.00	34.00	●	●
	7.100	74.00	34.00	●	○
	7.200	74.00	34.00	●	○
	7.250	74.00	34.00	○	
	7.300	74.00	34.00	●	○
	7.400	74.00	34.00	●	○
	7.500	74.00	34.00	●	○
	7.600	79.00	37.00	●	○
	7.700	79.00	37.00	●	○
	7.750	79.00	37.00	○	○
	7.800	79.00	37.00	●	○
	7.900	79.00	37.00	●	○
	8.000	79.00	37.00	●	
	8.100	79.00	37.00	●	
	8.200	79.00	37.00	●	●
	8.250	79.00	37.00		○
	8.300	79.00	37.00	●	○
	8.400	79.00	37.00	●	○
	8.500	79.00	37.00	●	○
	8.600	84.00	40.00	●	○
	8.700	84.00	40.00	●	○
	8.750	84.00	40.00	○	○

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71110

71111

HSS

134

138

right-hand

left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	8.800	84.00	40.00	●	○
	8.900	84.00	40.00	●	○
	9.000	84.00	40.00	●	○
	9.100	84.00	40.00	●	○
	9.200	84.00	40.00	●	○
	9.250	84.00	40.00	○	○
	9.300	84.00	40.00	●	
	9.400	84.00	40.00	●	○
	9.500	84.00	40.00	●	○
	9.600	89.00	43.00	●	○
	9.700	89.00	43.00	●	○
	9.750	89.00	43.00	●	○
	9.800	89.00	43.00	●	○
	9.900	89.00	43.00	●	○
	10.000	89.00	43.00	●	○
	10.100	89.00	43.00	●	○
	10.200	89.00	43.00	●	○
	10.300	89.00	43.00	●	○
	10.400	89.00	43.00		○
	10.500	89.00	43.00	●	○
	10.600	89.00	43.00		○
	10.700	95.00	47.00		○
	10.750	95.00	47.00	○	
	10.800	95.00	47.00		○
	11.000	95.00	47.00	●	○
	11.100	95.00	47.00		○
	11.300	95.00	47.00		○
	11.400	95.00	47.00		○
	11.500	95.00	47.00	●	
	11.600	95.00	47.00		○
	11.750	95.00	47.00		○
	11.900	102.00	51.00		○
	12.000	102.00	51.00	●	○
31/64	12.100	102.00	51.00		○
	12.300	102.00	51.00		○
	12.400	102.00	51.00		○
	12.500	102.00	51.00	●	
	12.750	102.00	51.00	○	○
	12.900	102.00	51.00		○
33/64	13.000	102.00	51.00	●	
	13.100	102.00	51.00		○
	13.200	102.00	51.00		○
	13.250	107.00	54.00		○
	13.300	107.00	54.00		○
	13.500	107.00	54.00	●	
	13.600	107.00	54.00		○
	13.750	107.00	54.00		○
	13.800	107.00	54.00		○
	13.900	107.00	54.00		○
	14.000	107.00	54.00	●	○
	14.100	111.00	56.00		○
	14.300	111.00	56.00		○
	14.400	111.00	56.00		○
	14.500	111.00	56.00	●	
	14.800	111.00	56.00		○
	14.900	111.00	56.00		○
	15.000	111.00	56.00	●	●
	15.300	115.00	58.00		○
	15.400	115.00	58.00		○
	15.500	115.00	58.00	●	

Straight shank twist drills

Stub drills

Catalogue
no. 71108



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills

Catalogue
no. 71109



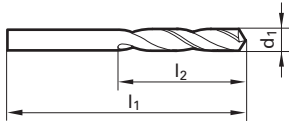
For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright/steam >6,0
Type	N
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71108

71109

HSS

132

134

right-hand

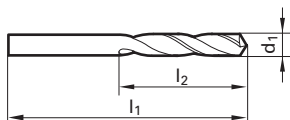
left-hand

bright/steam >2,36

bright/steam >6,0

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	2.000	38.00	12.00	●	○
	2.100	38.00	12.00	●	
	2.200	40.00	13.00	●	
	2.300	40.00	13.00	●	
	2.400	43.00	14.00	●	
	2.500	43.00	14.00	●	
	2.600	43.00	14.00	●	○
	2.700	46.00	16.00	●	
	2.750	46.00	16.00		○
	2.800	46.00	16.00	●	
	2.900	46.00	16.00	●	
	3.000	46.00	16.00	●	○
	3.100	49.00	18.00	●	○
	3.200	49.00	18.00	●	○
	3.250	49.00	18.00	○	
	3.300	49.00	18.00	●	○
	3.400	52.00	20.00	●	○
	3.500	52.00	20.00	●	○
	3.600	52.00	20.00	●	
	3.700	52.00	20.00	●	
	3.800	55.00	22.00	●	
	3.900	55.00	22.00	●	
	4.000	55.00	22.00	●	○
	4.100	55.00	22.00	●	○
	4.200	55.00	22.00	●	○
	4.250	55.00	22.00		○
	4.300	58.00	24.00	●	○
	4.400	58.00	24.00	●	○
	4.500	58.00	24.00	●	○
	4.600	58.00	24.00	●	
	4.700	58.00	24.00	●	
	4.800	62.00	26.00	●	○
	4.900	62.00	26.00	●	○
	5.000	62.00	26.00	●	○
	5.100	62.00	26.00	●	○
	5.200	62.00	26.00	●	○
	5.300	62.00	26.00	●	○
	5.400	66.00	28.00	●	○
	5.500	66.00	28.00	●	○
	5.600	66.00	28.00	●	○
	5.700	66.00	28.00	●	○
	5.800	66.00	28.00	●	
	5.900	66.00	28.00	●	
	6.000	66.00	28.00	●	○
	6.100	70.00	31.00	●	○
	6.200	70.00	31.00	●	○
	6.300	70.00	31.00	●	
	6.400	70.00	31.00	●	○
	6.500	70.00	31.00	●	○
	6.600	70.00	31.00	●	
	6.700	70.00	31.00	●	
17/64	6.750	74.00	34.00	○	
	6.800	74.00	34.00	●	○
	6.900	74.00	34.00	●	○
	7.000	74.00	34.00	●	○
	7.100	74.00	34.00	●	
	7.200	74.00	34.00	●	○
	7.300	74.00	34.00	●	
	7.400	74.00	34.00	●	
	7.500	74.00	34.00	●	○

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71108

71109

HSS

132

134

right-hand

left-hand

bright/steam >2,36

bright/steam >6,0

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	7.600	79.00	37.00	●	
	7.700	79.00	37.00	●	
	7.800	79.00	37.00	●	○
	7.900	79.00	37.00	●	○
	8.000	79.00	37.00	●	○
	8.100	79.00	37.00	●	○
	8.200	79.00	37.00	●	
	8.300	79.00	37.00	●	○
	8.400	79.00	37.00	●	
	8.500	79.00	37.00	●	
	8.600	84.00	40.00	●	
	8.700	84.00	40.00	●	○
	8.750	84.00	40.00	○	
	8.800	84.00	40.00	●	○
	8.900	84.00	40.00	●	○
	9.000	84.00	40.00	●	
	9.100	84.00	40.00	●	○
	9.200	84.00	40.00	●	
	9.300	84.00	40.00	●	○
	9.400	84.00	40.00	●	○
	9.500	84.00	40.00	●	○
	9.600	89.00	43.00	●	
	9.700	89.00	43.00	●	○
	9.800	89.00	43.00	●	
	9.900	89.00	43.00	●	
	10.000	89.00	43.00	●	
	10.200	89.00	43.00		○
	10.500	89.00	43.00	●	
	10.750	95.00	47.00		○
	11.000	95.00	47.00	●	○
	11.500	95.00	47.00	●	○
	12.000	102.00	51.00	●	
	12.100	102.00	51.00		○
	12.500	102.00	51.00	●	○
	13.000	102.00	51.00	●	○
	13.250	107.00	54.00		○
	13.500	107.00	54.00	●	
	14.000	107.00	54.00	●	
	14.500	111.00	56.00	●	○
	15.000	111.00	56.00	●	
	15.500	115.00	58.00		○
	15.750	115.00	58.00		○
	16.000	115.00	58.00	●	○
	16.500	119.00	60.00	●	
	17.000	119.00	60.00	○	○
	17.250	123.00	62.00		○
	17.500	123.00	62.00		○
	18.000	123.00	62.00		○
	18.500	127.00	64.00		○
	19.500	131.00	66.00	○	
	20.000	131.00	66.00	○	
	20.500	136.00	68.00	○	
	21.000	136.00	68.00		●
	22.000	141.00	70.00		○
	24.000	151.00	75.00		○
	26.500	156.00	78.00		○
	27.000	162.00	81.00	○	
	30.000	168.00	84.00	○	

Straight shank twist drills

Stub drills

Catalogue
no. 61118



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills

Catalogue
no. 71106



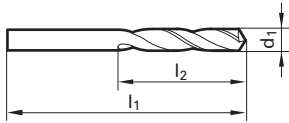
A very robust, rigid, high heat-resistant drill of high alloyed CoMo steel (8% Co, 10% Mo). Preferential application in medium and high-strength alloys on a CrNi base such as Hastelloy, Inconel, Monel, Nimonic, stainless steels, non-corrosive and heat resistant sheet metal as well as steels or bronzes with tensile strengths of up to approx 1400 N/mm².

DIN 1897

Tool material	M42
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: considerably greater than standard
Web taper: smaller than normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

61118

HSS

133

right-hand

TiN

71106

M42

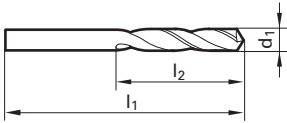
138

right-hand

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	26.00	6.00	●	●
	1.100	28.00	7.00	●	
	1.200	30.00	8.00	●	
	1.300	30.00	8.00	●	
	1.400	32.00	9.00	●	
	1.500	32.00	9.00	●	●
	1.600	34.00	10.00	●	
	1.700	34.00	10.00	●	
	1.800	36.00	11.00	●	
	1.900	36.00	11.00	●	
	2.000	38.00	12.00	●	●
	2.100	38.00	12.00	●	
	2.200	40.00	13.00	●	
	2.300	40.00	13.00	●	
	2.400	43.00	14.00	●	
	2.500	43.00	14.00	●	●
	2.600	43.00	14.00	●	
	2.700	46.00	16.00	●	
	2.800	46.00	16.00	●	
	2.900	46.00	16.00	●	
	3.000	46.00	16.00	●	●
	3.100	49.00	18.00	●	
	3.200	49.00	18.00	●	
	3.300	49.00	18.00	●	●
	3.400	52.00	20.00	●	
	3.500	52.00	20.00	●	●
	3.600	52.00	20.00	●	
	3.700	52.00	20.00	●	
	3.800	55.00	22.00	●	
	3.900	55.00	22.00	●	
	4.000	55.00	22.00	●	●
	4.100	55.00	22.00	●	
	4.200	55.00	22.00	●	●
	4.300	58.00	24.00	●	
	4.400	58.00	24.00	●	
	4.500	58.00	24.00	●	●
	4.600	58.00	24.00	●	
	4.700	58.00	24.00	●	
	4.800	62.00	26.00	●	
	4.900	62.00	26.00	●	
	5.000	62.00	26.00	●	●
	5.100	62.00	26.00	●	
	5.200	62.00	26.00	●	
	5.300	62.00	26.00	●	
	5.400	66.00	28.00	●	
	5.500	66.00	28.00	●	●
	5.600	66.00	28.00	●	
	5.700	66.00	28.00	●	
	5.800	66.00	28.00	●	
	5.900	66.00	28.00	●	
	6.000	66.00	28.00	●	●
	6.100	70.00	31.00	●	
	6.200	70.00	31.00	●	
	6.300	70.00	31.00	●	
	6.400	70.00	31.00	●	
	6.500	70.00	31.00	●	●
	6.600	70.00	31.00	●	
	6.700	70.00	31.00	●	
	6.800	74.00	34.00	●	●
	6.900	74.00	34.00	●	

Stub drills

[illegible]

Straight shank twist drills

Stub drills

Catalogue no. **71220**



Very stabile universal application drill with reinforced shank and two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 1897

Tool material	HSS-Co
Surface	bright
Type	<i>NX</i>
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: greater than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Stub drills

Catalogue no. **61220**



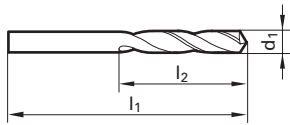
Very stabile universal application drill with reinforced shank and two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 1897

Tool material	HSS-Co
Surface	TiN
Type	<i>NX</i>
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: greater than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71220

61220

HSS-Co

134

135

right-hand

right-hand

bright

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	26.00	6.00	●	●
	1.100	28.00	7.00	●	●
	1.200	30.00	8.00	●	●
	1.300	30.00	8.00	●	●
	1.400	32.00	9.00	●	●
	1.500	32.00	9.00	●	●
	1.600	34.00	10.00	●	●
	1.700	34.00	10.00	●	●
	1.800	36.00	11.00	●	●
	1.900	36.00	11.00	●	●
	2.000	38.00	12.00	●	●
	2.100	38.00	12.00	●	●
	2.200	40.00	13.00	●	●
	2.300	40.00	13.00	●	●
	2.400	43.00	14.00	●	●
	2.500	43.00	14.00	●	●
	2.600	43.00	14.00	●	●
	2.700	46.00	16.00	●	●
	2.800	46.00	16.00	●	●
	2.900	46.00	16.00	●	●
	3.000	46.00	16.00	●	●
	3.100	49.00	18.00	●	●
	3.200	49.00	18.00	●	●
	3.300	49.00	18.00	●	●
	3.400	52.00	20.00	●	●
	3.500	52.00	20.00	●	●
	3.600	52.00	20.00	●	●
	3.700	52.00	20.00	●	●
	3.800	55.00	22.00	●	●
	3.900	55.00	22.00	●	●
	4.000	55.00	22.00	●	●
	4.100	55.00	22.00	●	●
	4.200	55.00	22.00	●	●
	4.300	58.00	24.00	●	●
	4.400	58.00	24.00	●	●
	4.500	58.00	24.00	●	●
	4.600	58.00	24.00	●	●
	4.700	58.00	24.00	●	●
	4.800	62.00	26.00	●	●
	4.900	62.00	26.00	●	●
	5.000	62.00	26.00	●	●
	5.100	62.00	26.00	●	●
	5.200	62.00	26.00	●	●
	5.300	62.00	26.00	●	●
	5.400	66.00	28.00	●	●
	5.500	66.00	28.00	●	●
	5.600	66.00	28.00	●	●
	5.700	66.00	28.00	●	●
	5.800	66.00	28.00	●	●
	5.900	66.00	28.00	●	●
	6.000	66.00	28.00	●	●
	6.100	70.00	31.00	●	●
	6.200	70.00	31.00	●	●
	6.300	70.00	31.00	●	●
	6.400	70.00	31.00	●	●
	6.500	70.00	31.00	●	●
	6.600	70.00	31.00	●	●
	6.700	70.00	31.00	●	●
	6.800	74.00	34.00	●	●
	6.900	74.00	34.00	●	●

Straight shank twist drills

Stub drills

Catalogue
no. 71107



A rigid special drill for use principally in automatic turning machines, NC-machines and capstan lathes. For drilling into long-chipping materials with tensile strengths of up to 800 N/mm², Al- and copper-alloys, soft bronzes and electrolytic copper and tough brass.

DIN 1897

Tool material	HSS
Surface	<2,36br./n.l./ steam>16,0
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: wide flutes with „rounded“
heels
Web thinning: special

Stub drills

Catalogue
no. 51159



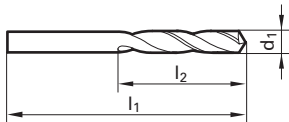
A high heat-resistant drill. For use principally in automatics and NC-machines. For drilling into long-chipping materials with tensile strengths of up to 1000 N/mm², Al- and copper-alloys, soft bronzes and electrolytic copper and tough brass.

DIN 1897

Tool material	HSS-Co
Surface	FIRE
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: wide flutes with „rounded“
heels
Web thinning: special

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71107

HSS

136

right-hand

<2,36br./n.l./steam>16,0

51159

HSS-Co

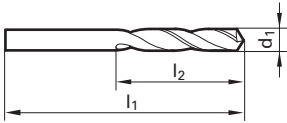
137

right-hand

FIRE

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	26.00	6.00	●	
	1.500	32.00	9.00	●	
	2.000	38.00	12.00	●	●
	2.100	38.00	12.00		●
	2.200	40.00	13.00		●
	2.300	40.00	13.00		●
	2.400	43.00	14.00		●
	2.500	43.00	14.00	●	●
	2.600	43.00	14.00		●
	2.700	46.00	16.00		●
	2.800	46.00	16.00		●
	2.900	46.00	16.00		●
	3.000	46.00	16.00	●	●
	3.100	49.00	18.00		●
	3.200	49.00	18.00		●
	3.300	49.00	18.00	●	●
	3.400	52.00	20.00		●
	3.500	52.00	20.00	●	●
	3.600	52.00	20.00		●
	3.700	52.00	20.00		●
	3.800	55.00	22.00		●
	3.900	55.00	22.00		●
	4.000	55.00	22.00	●	●
	4.100	55.00	22.00		●
	4.200	55.00	22.00	●	●
	4.300	58.00	24.00		●
	4.400	58.00	24.00		●
	4.500	58.00	24.00	●	●
	4.600	58.00	24.00		●
	4.700	58.00	24.00		●
	4.800	62.00	26.00		●
	4.900	62.00	26.00		○
	5.000	62.00	26.00	●	●
	5.100	62.00	26.00		●
	5.200	62.00	26.00		●
	5.300	62.00	26.00		●
	5.400	66.00	28.00		●
	5.500	66.00	28.00	●	●
	5.600	66.00	28.00		●
	5.700	66.00	28.00		●
	5.800	66.00	28.00		●
	5.900	66.00	28.00		○
	6.000	66.00	28.00	●	●
	6.100	70.00	31.00		●
	6.200	70.00	31.00		●
	6.300	70.00	31.00		●
	6.400	70.00	31.00		●
	6.500	70.00	31.00	●	●
	6.700	70.00	31.00		●
	6.800	74.00	34.00	●	●
	6.900	74.00	34.00		●
	7.000	74.00	34.00	●	●
	7.100	74.00	34.00		●
	7.300	74.00	34.00		●
	7.400	74.00	34.00		●
	7.500	74.00	34.00	●	●
	7.600	79.00	37.00		●
	7.700	79.00	37.00		●
	7.800	79.00	37.00		●
	7.900	79.00	37.00		●

Stub drills



Catalogue no.	71107	51159
Tool material	HSS	HSS-Co
Discount group	136	137
Cutting direction	right-hand	right-hand
Surface	<2,36br./n.l./steam>16,0	FIRE

[illegible]

Straight shank twist drills

Stub drills

Catalogue
no. 61131



High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

DIN 1897

Tool material	HSS-E-PM
Surface	TiN
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special

Stub drills

Catalogue
no. 51131



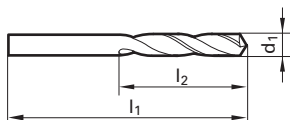
High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

DIN 1897

Tool material	HSS-E-PM
Surface	FIRE
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

61131

51131

HSS-E-PM

135

115

right-hand

right-hand

TiN

FIRE

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	26.00	6.00	○	
	1.100	28.00	7.00	○	
	1.300	30.00	8.00	○	
	1.400	32.00	9.00	○	
	1.500	32.00	9.00	○	
	1.600	34.00	10.00	○	
	1.700	34.00	10.00	○	
	1.800	36.00	11.00	○	
	1.900	36.00	11.00	○	
	2.000	38.00	12.00	○	
	2.100	38.00	12.00	○	○
	2.200	40.00	13.00	○	
	2.300	40.00	13.00	○	
	2.400	43.00	14.00	○	
	2.500	43.00	14.00	○	○
	2.600	43.00	14.00	○	
	2.700	46.00	16.00	○	
	2.800	46.00	16.00	○	
	2.900	46.00	16.00	○	
	3.000	46.00	16.00	○	○
	3.100	49.00	18.00	○	
	3.200	49.00	18.00	○	
	3.300	49.00	18.00	○	
	3.400	52.00	20.00	○	○
	3.500	52.00	20.00	○	○
	3.600	52.00	20.00	○	
	3.700	52.00	20.00	○	○
	3.800	55.00	22.00	○	○
	3.900	55.00	22.00	○	
	4.000	55.00	22.00	○	
	4.100	55.00	22.00	○	
	4.200	55.00	22.00	○	○
	4.300	58.00	24.00	○	○
	4.400	58.00	24.00	○	
	4.500	58.00	24.00	○	○
	4.600	58.00	24.00	○	○
	4.700	58.00	24.00	○	
	4.800	62.00	26.00	○	○
	4.900	62.00	26.00	○	
	5.000	62.00	26.00	○	○
	5.100	62.00	26.00	○	○
	5.200	62.00	26.00	○	
	5.300	62.00	26.00	○	
	5.400	66.00	28.00	○	
	5.500	66.00	28.00	○	○
	5.600	66.00	28.00	○	
	5.700	66.00	28.00	○	○
	5.800	66.00	28.00	○	○
	5.900	66.00	28.00	○	
	6.000	66.00	28.00	○	○
	6.100	70.00	31.00	○	
	6.200	70.00	31.00	○	
	6.300	70.00	31.00	○	
	6.400	70.00	31.00	○	
	6.500	70.00	31.00	○	○
	6.600	70.00	31.00	○	
	6.700	70.00	31.00	○	
	6.800	74.00	34.00	○	○
	6.900	74.00	34.00	○	
	7.000	74.00	34.00	○	○

Straight shank twist drills

Stub drills

Catalogue
no. 71112



A high heat-resistant drill to stub dimensions. For use principally in automatics and capstan lathes. For drilling difficult materials such as: stainless steel, non-corrosive steels, austenitic steels, etc.

DIN 1897

Tool material	HSS-Co
Surface	bright/steam >2,36
Type	VX
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills

Catalogue
no. 61112



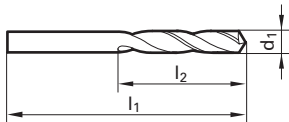
A high heat-resistant drill to stub dimensions. For use principally in automatics and capstan lathes. For drilling difficult materials such as: stainless steel, non-corrosive steels, austenitic steels, etc.

DIN 1897

Tool material	HSS-Co
Surface	TiN
Type	VX
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71112

61112

HSS-Co

134

135

right-hand

right-hand

bright/steam >2,36

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	26.00	6.00	●	●
	1.100	28.00	7.00	●	●
	1.200	30.00	8.00	●	●
	1.300	30.00	8.00	●	●
	1.400	32.00	9.00	●	●
	1.500	32.00	9.00	●	●
	1.600	34.00	10.00	●	●
	1.700	34.00	10.00	●	●
	1.800	36.00	11.00	●	●
	1.900	36.00	11.00	●	●
	2.000	38.00	12.00	●	●
	2.100	38.00	12.00	●	●
	2.200	40.00	13.00	●	●
	2.300	40.00	13.00	●	●
	2.400	43.00	14.00	●	●
	2.500	43.00	14.00	●	●
	2.600	43.00	14.00	●	●
	2.700	46.00	16.00	●	●
	2.800	46.00	16.00	●	●
	2.900	46.00	16.00	●	●
	3.000	46.00	16.00	●	●
	3.100	49.00	18.00	●	●
	3.200	49.00	18.00	●	●
	3.300	49.00	18.00	●	●
	3.400	52.00	20.00	●	●
	3.500	52.00	20.00	●	●
	3.600	52.00	20.00	●	●
	3.700	52.00	20.00	●	●
	3.800	55.00	22.00	●	●
	3.900	55.00	22.00	●	●
	4.000	55.00	22.00	●	●
	4.100	55.00	22.00	●	●
	4.200	55.00	22.00	●	●
	4.250	55.00	22.00	○	●
	4.300	58.00	24.00	●	●
	4.400	58.00	24.00	●	●
	4.500	58.00	24.00	●	●
	4.600	58.00	24.00	●	●
	4.700	58.00	24.00	●	●
	4.800	62.00	26.00	●	●
	4.900	62.00	26.00	●	●
	5.000	62.00	26.00	●	●
	5.100	62.00	26.00	●	●
	5.200	62.00	26.00	●	●
	5.300	62.00	26.00	●	●
	5.400	66.00	28.00	●	●
	5.500	66.00	28.00	●	●
	5.600	66.00	28.00	●	●
	5.700	66.00	28.00	●	●
	5.800	66.00	28.00	●	●
	5.900	66.00	28.00	●	●
	6.000	66.00	28.00	●	●
	6.100	70.00	31.00	●	●
	6.200	70.00	31.00	●	●
	6.300	70.00	31.00	●	●
	6.400	70.00	31.00	●	●
	6.500	70.00	31.00	●	●
	6.600	70.00	31.00	●	●
	6.700	70.00	31.00	●	●
	6.800	74.00	34.00	●	●

Straight shank twist drills

Stub drills

Catalogue
no. 71114



An extremely rigid high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel (Pb alloyed), brass and aluminium.

DIN 1897

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: smaller than normal
Web taper: standard
Flute form: extremely wide and open
Web thinning: not necessary

Stub drills

Catalogue
no. 71113



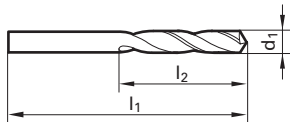
An extremely rigid high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel (Pb alloyed), brass and aluminium.

DIN 1897

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: smaller than normal
Web taper: standard
Flute form: extremely wide and open
Web thinning: not necessary

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71114

71113

HSS

134

138

right-hand

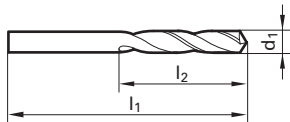
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	28.00	8.00	○	○
	1.050	28.00	8.00	○	
	1.100	30.00	9.00	○	○
	1.150	30.00	9.00	○	○
	1.200	32.00	10.00	○	
	1.250	32.00	10.00	○	○
	1.300	32.00	10.00	○	○
	1.350	35.00	12.00		○
	1.400	35.00	12.00		○
	1.450	35.00	12.00	○	
	1.550	37.00	13.00	○	
	1.600	37.00	13.00	○	○
	1.650	37.00	13.00	○	
	1.700	37.00	13.00	○	○
	1.750	39.00	14.00	○	○
	1.800	39.00	14.00	○	○
	1.850	39.00	14.00	○	○
	1.900	39.00	14.00	○	○
	1.950	42.00	16.00	○	○
	2.000	42.00	16.00	○	○
	2.050	42.00	16.00	○	○
	2.100	42.00	16.00	○	○
	2.150	44.00	17.00	○	○
	2.200	44.00	17.00	○	○
	2.250	44.00	17.00		○
	2.300	44.00	17.00	○	○
	2.350	44.00	17.00	○	○
	2.400	47.00	18.00	○	○
	2.450	47.00	18.00	○	○
	2.500	47.00	18.00	○	
	2.550	47.00	18.00	○	○
	2.600	47.00	18.00	○	○
	2.650	47.00	18.00		○
	2.700	51.00	21.00	○	○
	2.750	51.00	21.00	○	
	2.800	51.00	21.00	○	○
	2.850	51.00	21.00		○
	2.900	51.00	21.00	○	○
	2.950	51.00	21.00	○	
	3.000	51.00	21.00	○	○
	3.100	54.00	23.00	○	○
	3.150	54.00	23.00	○	
	3.200	54.00	23.00	○	○
	3.250	54.00	23.00	○	
	3.300	54.00	23.00	○	○
	3.350	54.00	23.00	○	
	3.400	58.00	26.00	○	○
	3.450	58.00	26.00		○
	3.500	58.00	26.00	○	○
	3.550	58.00	26.00	○	○
	3.600	58.00	26.00	○	○
	3.650	58.00	26.00	○	
	3.700	58.00	26.00	○	○
	3.750	58.00	26.00	○	○
	3.800	62.00	29.00	○	○
	3.850	62.00	29.00	○	○
	3.900	62.00	29.00	○	○
	3.950	62.00	29.00	○	○
	4.000	62.00	29.00	○	○
	4.050	62.00	29.00	○	

Stub drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71114

71113

HSS

134

138

right-hand

left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	4.100	62.00	29.00	○	○
	4.200	62.00	29.00	○	○
	4.250	62.00	29.00		○
	4.300	65.00	31.00	○	○
	4.350	65.00	31.00	○	○
	4.400	65.00	31.00	○	○
	4.450	65.00	31.00	○	○
	4.500	65.00	31.00	○	
	4.550	65.00	31.00	○	
	4.600	65.00	31.00	○	○
	4.650	65.00	31.00	○	○
	4.700	65.00	31.00	○	○
	4.750	65.00	31.00	○	○
	4.800	70.00	34.00	○	○
	4.850	70.00	34.00	○	○
	4.900	70.00	34.00	○	○
	4.950	70.00	34.00		○
	5.000	70.00	34.00	○	
	5.200	70.00	34.00	○	○
	5.300	70.00	34.00	○	○
	5.400	74.00	36.00	○	○
	5.500	74.00	36.00	○	○
	5.600	74.00	36.00	○	○
	5.700	74.00	36.00	○	○
	5.800	74.00	36.00	○	○
	5.900	74.00	36.00	○	○
	6.000	74.00	36.00	○	
	6.200	79.00	40.00	○	○
	6.300	79.00	40.00	○	○
	6.400	79.00	40.00		○
	6.500	79.00	40.00		○
	6.600	79.00	40.00	○	○
	6.700	79.00	40.00	○	○
	6.900	84.00	44.00	○	○
	7.000	84.00	44.00	○	
	7.100	84.00	44.00	○	○
	7.200	84.00	44.00		○
	7.300	84.00	44.00		○
	7.400	84.00	44.00		○
	7.500	84.00	44.00		○
	7.600	90.00	48.00		○
	7.700	90.00	48.00		○
	7.800	90.00	48.00		○
	7.900	90.00	48.00		○
	8.000	90.00	48.00	○	○
	8.300	90.00	48.00		○
	8.500	90.00	48.00	○	○
	8.600	96.00	52.00		○
	8.700	96.00	52.00		○
	8.800	96.00	52.00		○
	8.900	96.00	52.00		○
	9.000	96.00	52.00	○	
	9.100	96.00	52.00	○	○
	9.200	96.00	52.00		○
	9.300	96.00	52.00		○
	9.400	96.00	52.00		○
	9.500	96.00	52.00	○	○
	9.600	102.00	56.00		○
	9.700	102.00	56.00		○
	9.800	102.00	56.00		○

Straight shank twist drills

Jobber drills

Catalogue
no. 71116



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue
no. 71119



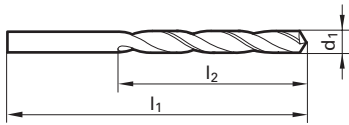
Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	bright
Type	N
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71116

71119

HSS

130

134

right-hand

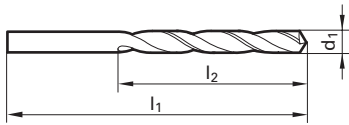
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	0.200	19.00	2.50	●	
	0.250	19.00	3.00	○	
	0.260	19.00	3.00	○	
	0.290	19.00	3.00	○	
	0.300	19.00	3.00	●	
	0.310	19.00	4.00	○	
	0.320	19.00	4.00	○	
	0.330	19.00	4.00	○	
	0.340	19.00	4.00	○	
	0.350	19.00	4.00	○	
	0.370	19.00	4.00	○	
	0.390	20.00	5.00	○	
1/64	0.400	20.00	5.00	●	
	0.440	20.00	5.00	○	
	0.450	20.00	5.00	○	
	0.470	20.00	5.00	○	
	0.500	22.00	6.00	●	
	0.540	24.00	7.00	○	
	0.550	24.00	7.00	●	
	0.560	24.00	7.00	○	
	0.580	24.00	7.00	○	
	0.590	24.00	7.00	○	
	0.600	24.00	7.00	●	
	0.630	26.00	8.00	○	
	0.650	26.00	8.00	○	
	0.660	26.00	8.00	○	
	0.680	28.00	9.00	○	
	0.690	28.00	9.00	○	
	0.700	28.00	9.00	●	
	0.710	28.00	9.00	○	
	0.730	28.00	9.00	○	
	0.740	28.00	9.00	○	
	0.750	28.00	9.00	○	
	0.760	30.00	10.00	○	
	0.770	30.00	10.00	○	
	0.780	30.00	10.00	○	
1/32	0.790	30.00	10.00	○	
	0.800	30.00	10.00	●	
	0.810	30.00	10.00	○	
	0.850	30.00	10.00	○	
	0.860	32.00	11.00	○	
	0.870	32.00	11.00	○	
	0.880	32.00	11.00	○	
	0.890	32.00	11.00	○	
	0.900	32.00	11.00	●	○
	0.920	32.00	11.00	○	
	0.930	32.00	11.00	○	
	0.940	32.00	11.00	○	
	0.950	32.00	11.00	●	
	0.960	34.00	12.00	○	
	0.980	34.00	12.00	○	
	1.000	34.00	12.00	●	
	1.040	34.00	12.00	○	
	1.050	34.00	12.00	○	
	1.060	34.00	12.00	○	
	1.080	36.00	14.00	○	
	1.100	36.00	14.00	●	
	1.110	36.00	14.00	○	
	1.120	36.00	14.00	○	
	1.130	36.00	14.00	○	

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71116

71119

HSS

130

134

right-hand

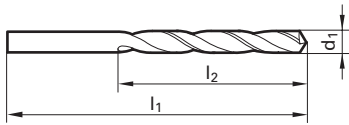
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
3/64	1.150	36.00	14.00	○	
	1.160	36.00	14.00	○	
	1.170	36.00	14.00	○	
	1.190	38.00	16.00	○	
	1.200	38.00	16.00	●	
	1.230	38.00	16.00	○	
	1.250	38.00	16.00	●	
	1.300	38.00	16.00	●	
	1.320	38.00	16.00	○	
	1.340	40.00	18.00	○	
	1.350	40.00	18.00	○	
	1.360	40.00	18.00	○	
1/16	1.380	40.00	18.00	○	
	1.400	40.00	18.00	●	
	1.430	40.00	18.00	○	
	1.440	40.00	18.00	○	
	1.450	40.00	18.00	○	
	1.500	40.00	18.00	●	○
	1.550	43.00	20.00	○	
	1.560	43.00	20.00	○	
	1.570	43.00	20.00	○	
	1.590	43.00	20.00	○	
	1.600	43.00	20.00	●	○
	1.610	43.00	20.00	○	
	1.620	43.00	20.00	○	
	1.630	43.00	20.00	○	
	1.640	43.00	20.00	○	
	1.650	43.00	20.00	○	
	1.660	43.00	20.00	○	
	1.670	43.00	20.00	○	
	1.680	43.00	20.00	○	
	1.690	43.00	20.00	○	
	1.700	43.00	20.00	●	○
	1.710	46.00	22.00	○	
	1.730	46.00	22.00	○	
	1.750	46.00	22.00	●	
	1.800	46.00	22.00	●	○
	1.810	46.00	22.00	○	
	1.850	46.00	22.00	○	
	1.870	46.00	22.00	○	
	1.890	46.00	22.00	○	
	1.900	46.00	22.00	●	○
	1.950	49.00	24.00	○	
	1.990	49.00	24.00	○	
	2.000	49.00	24.00	●	
	2.050	49.00	24.00		○
	2.100	49.00	24.00	●	
	2.150	53.00	27.00	○	
	2.200	53.00	27.00	●	○
	2.250	53.00	27.00		○
	2.300	53.00	27.00	●	○
	2.370	57.00	30.00	○	
	2.400	57.00	30.00	●	○
	2.450	57.00	30.00		○
	2.500	57.00	30.00	●	
	2.600	57.00	30.00	●	○
	2.650	57.00	30.00		○
	2.700	61.00	33.00	●	○
	2.800	61.00	33.00	●	○
	2.850	61.00	33.00		○

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71116

71119

HSS

130

134

right-hand

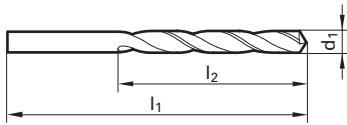
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	2.900	61.00	33.00	●	○
	3.000	61.00	33.00	●	
	3.100	65.00	36.00	●	
	3.200	65.00	36.00	●	
	3.250	65.00	36.00		○
	3.300	65.00	36.00	●	
	3.350	65.00	36.00		○
	3.400	70.00	39.00	●	○
	3.500	70.00	39.00	●	
	3.600	70.00	39.00	●	○
	3.700	70.00	39.00	●	○
	3.750	70.00	39.00	○	○
	3.800	75.00	43.00	●	○
	3.900	75.00	43.00	●	
	4.000	75.00	43.00	●	
	4.100	75.00	43.00	●	○
	4.200	75.00	43.00	●	
	4.250	75.00	43.00		○
	4.300	80.00	47.00	●	○
	4.400	80.00	47.00	●	○
	4.500	80.00	47.00	●	
	4.600	80.00	47.00	●	○
	4.650	80.00	47.00		○
	4.700	80.00	47.00	●	○
	4.750	80.00	47.00		○
	4.800	86.00	52.00	●	
	4.850	86.00	52.00		○
	4.900	86.00	52.00	●	○
	4.950	86.00	52.00		○
	5.000	86.00	52.00	●	
	5.100	86.00	52.00	●	○
	5.200	86.00	52.00	●	○
	5.250	86.00	52.00		○
	5.300	86.00	52.00	●	○
	5.400	93.00	57.00	●	○
	5.500	93.00	57.00	●	
	5.600	93.00	57.00	●	○
	5.700	93.00	57.00	●	○
	5.750	93.00	57.00		○
	5.800	93.00	57.00	●	○
	5.900	93.00	57.00	●	○
	6.000	93.00	57.00	●	○
	6.100	101.00	63.00	●	
	6.200	101.00	63.00	●	
	6.250	101.00	63.00	○	○
	6.300	101.00	63.00	●	
	6.400	101.00	63.00		○
	6.500	101.00	63.00	●	○
	6.600	101.00	63.00	●	○
	6.700	101.00	63.00	●	○
17/64	6.750	109.00	69.00		○
	6.800	109.00	69.00	●	
	6.900	109.00	69.00	●	○
	7.000	109.00	69.00	●	○
	7.100	109.00	69.00	●	○
	7.200	109.00	69.00	●	○
	7.250	109.00	69.00		○
	7.300	109.00	69.00		○
	7.400	109.00	69.00		○
	7.500	109.00	69.00	●	○

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71116

71119

HSS

130

134

right-hand

left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	7.600	117.00	75.00		○
	7.700	117.00	75.00	●	○
	7.750	117.00	75.00		○
	7.800	117.00	75.00	●	○
	7.900	117.00	75.00		○
	8.000	117.00	75.00	●	○
	8.100	117.00	75.00	●	○
	8.200	117.00	75.00	●	
	8.300	117.00	75.00	●	
	8.500	117.00	75.00	●	
	8.600	125.00	81.00	●	○
	8.800	125.00	81.00	●	○
	8.900	125.00	81.00		○
	9.000	125.00	81.00	●	○
	9.100	125.00	81.00	●	
	9.200	125.00	81.00	●	
	9.300	125.00	81.00	●	○
	9.400	125.00	81.00	●	
	9.500	125.00	81.00	●	○
	9.600	133.00	87.00	●	○
	9.900	133.00	87.00	●	○
	10.000	133.00	87.00	●	
	10.100	133.00	87.00		○
	10.200	133.00	87.00	●	
	10.300	133.00	87.00	○	
	10.500	133.00	87.00	●	
	10.700	142.00	94.00	●	
	10.900	142.00	94.00	●	
	11.000	142.00	94.00	●	
	11.400	142.00	94.00		○
	11.500	142.00	94.00	●	○
	11.800	142.00	94.00	●	○
	11.900	151.00	101.00	●	○
	12.000	151.00	101.00	●	
	12.200	151.00	101.00	●	
31/64	12.300	151.00	101.00		○
	12.500	151.00	101.00	●	○
1/2	12.700	151.00	101.00		○
	12.750	151.00	101.00	○	○
	13.000	151.00	101.00	●	○
	13.500	160.00	108.00	●	○
	13.700	160.00	108.00		○
	13.800	160.00	108.00		○
	14.000	160.00	108.00	●	
	14.300	169.00	114.00		○
	14.500	169.00	114.00		○
	14.700	169.00	114.00		○
	15.000	169.00	114.00	●	
	15.500	178.00	120.00	●	
	15.600	178.00	120.00	○	
	16.000	178.00	120.00	●	

Straight shank twist drills

Jobber drills

Catalogue
no. 71115



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue
no. 71164



With tang to DIN 1809

Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue
no. 61116



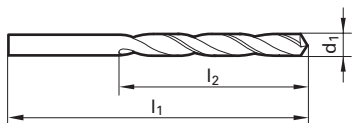
Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71115

71164

61116

HSS

130

132

131

right-hand

right-hand

right-hand

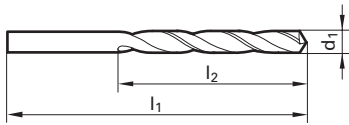
bright/steam >2,36

steam tempered

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
	1.000	34.00	12.00			●
	1.100	36.00	14.00			●
	1.200	38.00	16.00			●
	1.300	38.00	16.00			●
	1.400	40.00	18.00			●
	1.500	40.00	18.00			●
	1.600	43.00	20.00			●
	1.700	43.00	20.00			●
	1.800	46.00	22.00			●
	1.900	46.00	22.00			●
	2.000	49.00	24.00	●		●
	2.050	49.00	24.00	○		
	2.100	49.00	24.00	●		●
	2.150	53.00	27.00	○		
	2.200	53.00	27.00	●		●
	2.250	53.00	27.00	●		
	2.300	53.00	27.00	●		●
	2.350	53.00	27.00	○		
	2.400	57.00	30.00	●		●
	2.450	57.00	30.00	○		
	2.490	57.00	30.00	○		
	2.500	57.00	30.00	●		●
	2.550	57.00	30.00	○		
	2.600	57.00	30.00	●		●
	2.650	57.00	30.00	○		
	2.700	61.00	33.00	●		●
	2.710	61.00	33.00	○		
	2.750	61.00	33.00	○		
	2.800	61.00	33.00	●		●
	2.850	61.00	33.00	○		
	2.900	61.00	33.00	●		●
	2.950	61.00	33.00	○		
	3.000	61.00	33.00	●	○	●
	3.050	65.00	36.00	○		
	3.100	65.00	36.00	●		●
	3.150	65.00	36.00	○		
	3.200	65.00	36.00	●		●
	3.250	65.00	36.00	○		
	3.300	65.00	36.00	●	○	●
	3.350	65.00	36.00	○		
	3.400	70.00	39.00	●		●
	3.450	70.00	39.00	○		
	3.500	70.00	39.00	●	○	●
	3.550	70.00	39.00	○		
	3.570	70.00	39.00	○		
9/64	3.600	70.00	39.00	●	○	●
	3.650	70.00	39.00	○		
	3.700	70.00	39.00	●	○	●
	3.730	70.00	39.00	○		
	3.750	70.00	39.00	○		
	3.800	75.00	43.00	●	○	●
	3.850	75.00	43.00	○		
	3.860	75.00	43.00	○		
	3.900	75.00	43.00	●		●
	3.910	75.00	43.00	○		
	3.950	75.00	43.00	○		
	3.990	75.00	43.00	○		
	4.000	75.00	43.00	●	○	●
	4.050	75.00	43.00	○		
	4.090	75.00	43.00	○		

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71115

71164

61116

HSS

130

132

131

right-hand

right-hand

right-hand

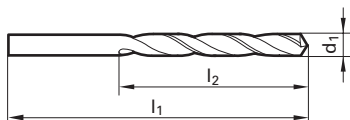
bright/steam >2,36

steam tempered

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
	4.100	75.00	43.00	●		●
	4.150	75.00	43.00	○		
	4.200	75.00	43.00	●	○	●
	4.220	75.00	43.00	○		
	4.250	75.00	43.00	○	○	○
	4.300	80.00	47.00	●		●
	4.350	80.00	47.00	○		
	4.390	80.00	47.00	○		
	4.400	80.00	47.00	●	○	●
	4.450	80.00	47.00	○		
	4.500	80.00	47.00	●		●
	4.550	80.00	47.00	○		
	4.570	80.00	47.00	○		
	4.600	80.00	47.00	●		●
	4.620	80.00	47.00	○		
	4.650	80.00	47.00	○		
	4.700	80.00	47.00	●		●
	4.750	80.00	47.00	○		
3/16	4.760	86.00	52.00	○		
	4.800	86.00	52.00	●		●
	4.850	86.00	52.00	○		
	4.900	86.00	52.00	○		●
	4.920	86.00	52.00	○		
	4.950	86.00	52.00	○		
	5.000	86.00	52.00	●	○	●
	5.050	86.00	52.00	○		
	5.060	86.00	52.00	○		
	5.100	86.00	52.00	●		●
	5.110	86.00	52.00	○		
	5.150	86.00	52.00	○		
13/64	5.160	86.00	52.00	○		
	5.180	86.00	52.00	○		
	5.200	86.00	52.00	●		●
	5.220	86.00	52.00	○		
	5.250	86.00	52.00	○		
	5.300	86.00	52.00	●		●
	5.310	93.00	57.00	○		
	5.350	93.00	57.00	○		
	5.400	93.00	57.00	●		●
	5.410	93.00	57.00	○		
	5.450	93.00	57.00	○		
	5.500	93.00	57.00	●		●
7/32	5.550	93.00	57.00	○		
	5.560	93.00	57.00	○		
	5.600	93.00	57.00	●		●
	5.610	93.00	57.00	○		
	5.650	93.00	57.00	○		
	5.700	93.00	57.00	●		●
	5.750	93.00	57.00	○		
	5.790	93.00	57.00	○		
	5.800	93.00	57.00	●		●
15/64	5.900	93.00	57.00	●		●
	5.950	93.00	57.00	○		
	6.000	93.00	57.00	●	○	●
	6.050	101.00	63.00	○		
	6.100	101.00	63.00	●		●
	6.150	101.00	63.00	○		
	6.200	101.00	63.00	●		●
	6.250	101.00	63.00	○		
	6.300	101.00	63.00	●		●

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71115

71164

61116

HSS

130

132

131

right-hand

right-hand

right-hand

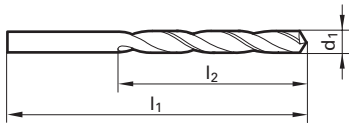
bright/steam >2,36

steam tempered

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
1/4	6.350	101.00	63.00	○		
	6.400	101.00	63.00	●		●
	6.450	101.00	63.00	○		
	6.500	101.00	63.00	●	○	●
	6.550	101.00	63.00	○		
	6.600	101.00	63.00	●	○	●
	6.650	101.00	63.00	○		
	6.700	101.00	63.00	●		●
	6.750	109.00	69.00	○		
17/64	6.800	109.00	69.00	●	○	●
	6.850	109.00	69.00	○		
	6.900	109.00	69.00	●		●
	6.950	109.00	69.00	○		
	7.000	109.00	69.00	●	○	●
	7.100	109.00	69.00	●	○	●
9/32	7.140	109.00	69.00	○		
	7.200	109.00	69.00	●		●
	7.250	109.00	69.00	○		
	7.300	109.00	69.00	●		●
	7.400	109.00	69.00	●		●
	7.500	109.00	69.00	●		●
19/64	7.540	117.00	75.00	○		
	7.550	117.00	75.00	○		
	7.600	117.00	75.00	●	○	●
	7.700	117.00	75.00	●		●
	7.750	117.00	75.00	○		
	7.800	117.00	75.00	●		●
5/16	7.900	117.00	75.00	○	○	●
	7.940	117.00	75.00	○		
	7.950	117.00	75.00	○		
	8.000	117.00	75.00	●	○	●
	8.050	117.00	75.00	○		
	8.100	117.00	75.00	●		●
	8.200	117.00	75.00	○	○	●
	8.250	117.00	75.00	○		
	8.300	117.00	75.00	●		●
	8.400	117.00	75.00	●		●
	8.450	117.00	75.00	○		
	8.500	117.00	75.00	●	○	●
	8.550	125.00	81.00	○		
	8.600	125.00	81.00	●		●
	8.650	125.00	81.00	○		
11/32	8.700	125.00	81.00	●		●
	8.730	125.00	81.00	○		
	8.750	125.00	81.00	○		
	8.800	125.00	81.00	●	○	●
	8.850	125.00	81.00	○		
	8.900	125.00	81.00	●	○	●
	9.000	125.00	81.00	●	○	●
	9.050	125.00	81.00	○		
	9.100	125.00	81.00	●	○	●
23/64	9.130	125.00	81.00	○		
	9.150	125.00	81.00	○		
	9.200	125.00	81.00	●		●
	9.250	125.00	81.00	○		
	9.300	125.00	81.00	●		●
	9.350	125.00	81.00	○		
	9.400	125.00	81.00	●		●
	9.450	125.00	81.00	○		
	9.500	125.00	81.00	●		●

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71115

71164

61116

HSS

130

132

131

right-hand

right-hand

right-hand

bright/steam >2,36

steam tempered

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
3/8	9.520	133.00	87.00	○		
	9.600	133.00	87.00	●		●
	9.650	133.00	87.00	○		
	9.700	133.00	87.00	●		●
	9.750	133.00	87.00	○		
	9.800	133.00	87.00	●		●
	9.900	133.00	87.00	●	○	●
	10.000	133.00	87.00	●		●
	10.100	133.00	87.00	●		
	10.200	133.00	87.00	●	○	●
13/32	10.250	133.00	87.00	○		
	10.300	133.00	87.00	●		
	10.320	133.00	87.00	○		
	10.400	133.00	87.00	●		
	10.500	133.00	87.00	●		●
	10.600	133.00	87.00	●		
	10.700	142.00	94.00	●	○	
	10.750	142.00	94.00	○		
	10.800	142.00	94.00	●		
	10.900	142.00	94.00	●		
15/32	11.000	142.00	94.00	●	○	●
	11.100	142.00	94.00	●		
	11.200	142.00	94.00	●		
	11.250	142.00	94.00	○		
	11.300	142.00	94.00	●		
	11.400	142.00	94.00	●		
	11.500	142.00	94.00	●		●
	11.600	142.00	94.00	●		
	11.700	142.00	94.00	●		
	11.750	142.00	94.00	○		
15/32	11.800	142.00	94.00	●		●
	11.900	151.00	101.00	●		
	11.910	151.00	101.00	○		
	12.000	151.00	101.00	●	○	●
31/64	12.100	151.00	101.00	●		
	12.200	151.00	101.00	●		
	12.250	151.00	101.00	○		
	12.300	151.00	101.00	●		
1/2	12.400	151.00	101.00	●		
	12.500	151.00	101.00	●		●
	12.600	151.00	101.00	●		
	12.700	151.00	101.00	●		●
33/64	12.750	151.00	101.00	●		
	12.800	151.00	101.00	●		
	12.900	151.00	101.00	●		
	13.000	151.00	101.00	●		●
	13.100	151.00	101.00	●		
	13.200	151.00	101.00	●		
	13.250	160.00	108.00	○		
	13.300	160.00	108.00	●		
	13.400	160.00	108.00	●		
	13.500	160.00	108.00	●		●
33/64	13.600	160.00	108.00	●		
	13.700	160.00	108.00	●		
	13.750	160.00	108.00	○		
	13.800	160.00	108.00	●		
	13.900	160.00	108.00	●		
	14.000	160.00	108.00	●		●
	14.100	169.00	114.00	●		
	14.200	169.00	114.00	●		

Straight shank twist drills

Jobber drills

Catalogue no. **71149**



Standard drill with high heat resistance. For drilling in alloyed and unalloyed steels and cast iron with a tensile strength of more than 800 N/mm². Especially suitable for hot and cold-rolled steels as well as case hardening and heat treatable steels.

DIN 338

Tool material	HSS-Co
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue no. **71148**



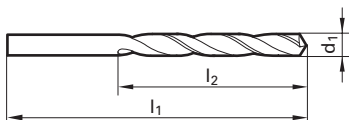
A very robust, rigid high-heat resistant drill of high alloyed CoMo steel (8% Co, 10% Mo). Preferential application in medium and high-strength alloys on a CrNi base such as Hastelloy, Inconel, Monel, Nimonic, stainless steels, noncorrosive and heat resistant steels. Also for machining wear-resistant sheet metals as well as steels or bronzes with tensile strengths of up to approx 1400 N/mm².

DIN 338

Tool material	M42
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: considerably greater than standard
Web taper: smaller than normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71149

HSS-Co

134

right-hand

bright/steam >2,36

71148

M42

138

right-hand

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	34.00	12.00	●	●
	1.100	36.00	14.00	●	●
	1.200	38.00	16.00	●	●
	1.300	38.00	16.00	●	●
	1.400	40.00	18.00	●	●
	1.500	40.00	18.00	●	●
	1.600	43.00	20.00	●	●
	1.700	43.00	20.00	●	●
	1.800	46.00	22.00	●	●
	1.900	46.00	22.00	●	●
	2.000	49.00	24.00	●	●
	2.100	49.00	24.00	●	●
	2.200	53.00	27.00	●	●
	2.300	53.00	27.00	●	●
	2.400	57.00	30.00	●	●
	2.500	57.00	30.00	●	●
	2.600	57.00	30.00	●	●
	2.700	61.00	33.00	●	●
	2.800	61.00	33.00	●	●
	2.900	61.00	33.00	●	●
	3.000	61.00	33.00	●	●
	3.100	65.00	36.00	●	●
	3.200	65.00	36.00	●	●
	3.300	65.00	36.00	●	●
	3.400	70.00	39.00	●	●
	3.500	70.00	39.00	●	●
	3.600	70.00	39.00	●	●
	3.700	70.00	39.00	●	●
	3.800	75.00	43.00	●	●
	3.900	75.00	43.00	●	●
	4.000	75.00	43.00	●	●
	4.100	75.00	43.00	●	●
	4.200	75.00	43.00	●	●
	4.300	80.00	47.00	●	●
	4.400	80.00	47.00	●	●
	4.500	80.00	47.00	●	●
	4.600	80.00	47.00	●	●
	4.700	80.00	47.00	●	●
	4.800	86.00	52.00	●	●
	4.900	86.00	52.00	●	●
	5.000	86.00	52.00	●	●
	5.100	86.00	52.00	●	●
	5.200	86.00	52.00	●	●
	5.300	86.00	52.00	●	●
	5.400	93.00	57.00	●	●
	5.500	93.00	57.00	●	●
	5.600	93.00	57.00	●	●
	5.700	93.00	57.00	●	●
	5.800	93.00	57.00	●	●
	5.900	93.00	57.00	●	●
	6.000	93.00	57.00	●	●
	6.100	101.00	63.00	●	●
	6.200	101.00	63.00	●	●
	6.300	101.00	63.00	●	●
	6.400	101.00	63.00	●	●
	6.500	101.00	63.00	●	●
	6.600	101.00	63.00	●	●
	6.700	101.00	63.00	●	●
	6.800	109.00	69.00	●	●
	6.900	109.00	69.00	●	●

Straight shank twist drills

Jobber drills

Catalogue
no. 71117



For drilling hard, crumbly materials such as brass, magnesium alloys, bronze, phosphor bronze, slate, mica, pertinax, zamak (thin sections), electron (thin sections), *(insulating materials, ebonite, bakelite, galalithe, celluloid, synthetic resins, horn compounds, eternit, hardboard, perspex and plastic laminates).

*For these and similar materials a point angle of 140° is recommended when drilling in the plane of the laminations: for drilling of right angles to the laminations a point angle of 80 - 100° will give the best results.

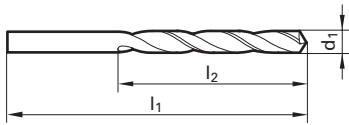
Please note: Polishing of the cutting surfaces will improve drill performance in eternit or hardboard.

DIN 338

Tool material	HSS
Surface	bright
Type	H
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: smaller than normal
Web thickness: normal
Web taper: smaller than normal
Flute form: wider than standard
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71117

HSS

134

right-hand

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€
	1.000	34.00	12.00	●
	1.100	36.00	14.00	●
	1.200	38.00	16.00	●
	1.300	38.00	16.00	●
	1.400	40.00	18.00	●
	1.500	40.00	18.00	●
	1.600	43.00	20.00	●
	1.700	43.00	20.00	●
	1.800	46.00	22.00	●
	2.000	49.00	24.00	●
	2.100	49.00	24.00	●
	2.200	53.00	27.00	●
	2.300	53.00	27.00	●
	2.400	57.00	30.00	●
	2.500	57.00	30.00	●
	2.600	57.00	30.00	●
	2.700	61.00	33.00	●
	2.800	61.00	33.00	●
	2.900	61.00	33.00	●
	3.000	61.00	33.00	●
	3.100	65.00	36.00	●
	3.300	65.00	36.00	●
	3.500	70.00	39.00	●
	3.600	70.00	39.00	●
	3.700	70.00	39.00	●
	3.800	75.00	43.00	●
	3.900	75.00	43.00	●
	4.000	75.00	43.00	●
	4.100	75.00	43.00	●
	4.200	75.00	43.00	●
	4.300	80.00	47.00	●
	4.400	80.00	47.00	●
	4.500	80.00	47.00	●
	4.600	80.00	47.00	●
	4.700	80.00	47.00	●
	4.800	86.00	52.00	●
	5.000	86.00	52.00	●
	5.100	86.00	52.00	●
	5.300	86.00	52.00	●
	5.400	93.00	57.00	●
	5.500	93.00	57.00	●
	5.600	93.00	57.00	●
	5.700	93.00	57.00	●
	5.800	93.00	57.00	●
	5.900	93.00	57.00	●
	6.000	93.00	57.00	●
	6.100	101.00	63.00	●
	6.200	101.00	63.00	●
	6.300	101.00	63.00	●
	6.400	101.00	63.00	●
	6.500	101.00	63.00	●
	6.600	101.00	63.00	●
	6.700	101.00	63.00	●
	6.800	109.00	69.00	●
	6.900	109.00	69.00	●
	7.000	109.00	69.00	●
	7.100	109.00	69.00	●
	7.200	109.00	69.00	●
	7.300	109.00	69.00	●
	7.400	109.00	69.00	●

Straight shank twist drills

Jobber drills

Catalogue
no. 71221



Universal application drill with two ground faces per cutting edge. The special webthinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 338

Tool material	HSS-Co
Surface	bright
Type	<i>NX</i>
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Jobber drills

Catalogue
no. 61221



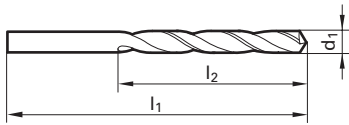
Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 338

Tool material	HSS-Co
Surface	TiN
Type	<i>NX</i>
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71221

61221

HSS-Co

134

135

right-hand

right-hand

bright

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	34.00	12.00	●	●
	1.100	36.00	14.00	●	●
	1.200	38.00	16.00	●	●
	1.300	38.00	16.00	●	●
	1.400	40.00	18.00	●	●
	1.500	40.00	18.00	●	●
	1.600	43.00	20.00	●	●
	1.700	43.00	20.00	●	●
	1.800	46.00	22.00	●	●
	1.900	46.00	22.00	●	●
	2.000	49.00	24.00	●	●
	2.100	49.00	24.00	●	●
	2.200	53.00	27.00	●	●
	2.300	53.00	27.00	●	●
	2.400	57.00	30.00	●	●
	2.500	57.00	30.00	●	●
	2.600	57.00	30.00	●	●
	2.700	61.00	33.00	●	●
	2.800	61.00	33.00	●	●
	2.900	61.00	33.00	●	●
	3.000	61.00	33.00	●	●
	3.100	65.00	36.00	●	●
	3.200	65.00	36.00	●	●
	3.300	65.00	36.00	●	●
	3.400	70.00	39.00	●	●
	3.500	70.00	39.00	●	●
	3.600	70.00	39.00	●	●
	3.700	70.00	39.00	●	●
	3.800	75.00	43.00	●	●
	3.900	75.00	43.00	●	●
	4.000	75.00	43.00	●	●
	4.100	75.00	43.00	●	●
	4.200	75.00	43.00	●	●
	4.300	80.00	47.00	●	●
	4.400	80.00	47.00	●	●
	4.500	80.00	47.00	●	●
	4.600	80.00	47.00	●	●
	4.700	80.00	47.00	●	●
	4.800	86.00	52.00	●	●
	4.900	86.00	52.00	●	●
	5.000	86.00	52.00	●	●
	5.100	86.00	52.00	●	●
	5.200	86.00	52.00	●	●
	5.300	86.00	52.00	●	●
	5.400	93.00	57.00	●	●
	5.500	93.00	57.00	●	●
	5.600	93.00	57.00	●	●
	5.700	93.00	57.00	●	●
	5.800	93.00	57.00	●	●
	5.900	93.00	57.00	●	●
	6.000	93.00	57.00	●	●
	6.100	101.00	63.00	●	●
	6.200	101.00	63.00	●	●
	6.300	101.00	63.00	●	●
	6.400	101.00	63.00	●	●
	6.500	101.00	63.00	●	●
	6.600	101.00	63.00	●	●
	6.700	101.00	63.00	●	●
	6.800	109.00	69.00	●	●
	6.900	109.00	69.00	●	●

Straight shank twist drills

Jobber drills

Catalogue
no. 71123



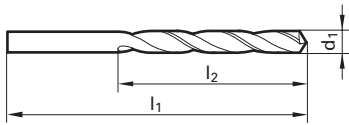
An extremely high heat resistant twist drill. Therefore suitable with little or no cooling. From 3 x D it has to be withdrawn. Applicable for materials which need a tool with a very good resistance to high temperature, e.g. stainless, noncorrosive or high temperature steel, chilled cast iron, titanium and special materials.

DIN 338

Tool material	HSS-Co
Surface	bright/n. lands >2,0
Type	V66
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	0.96
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71123

HSS-Co

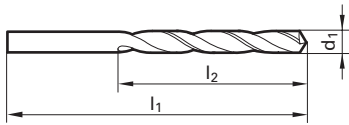
134

right-hand

bright/n. lands >2,0

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€
	0.800	30.00	10.00	●
	0.850	30.00	10.00	○
	0.900	32.00	11.00	●
	0.950	32.00	11.00	○
	1.000	34.00	12.00	●
	1.050	34.00	12.00	○
	1.100	36.00	14.00	●
	1.200	38.00	16.00	●
	1.250	38.00	16.00	○
	1.300	38.00	16.00	●
	1.350	40.00	18.00	○
	1.400	40.00	18.00	●
	1.450	40.00	18.00	○
	1.500	40.00	18.00	●
	1.550	43.00	20.00	○
	1.600	43.00	20.00	●
	1.700	43.00	20.00	●
	1.800	46.00	22.00	●
	1.850	46.00	22.00	○
	1.900	46.00	22.00	●
	1.950	49.00	24.00	○
	2.000	49.00	24.00	●
	2.050	49.00	24.00	○
	2.100	49.00	24.00	●
	2.200	53.00	27.00	●
	2.250	53.00	27.00	○
	2.300	53.00	27.00	●
	2.400	57.00	30.00	●
	2.450	57.00	30.00	○
	2.500	57.00	30.00	●
	2.550	57.00	30.00	○
	2.600	57.00	30.00	●
	2.700	61.00	33.00	●
	2.750	61.00	33.00	○
	2.800	61.00	33.00	●
	2.850	61.00	33.00	○
	2.900	61.00	33.00	●
	2.950	61.00	33.00	○
	3.000	61.00	33.00	●
	3.100	65.00	36.00	●
	3.200	65.00	36.00	●
	3.300	65.00	36.00	●
	3.400	70.00	39.00	●
	3.500	70.00	39.00	●
	3.600	70.00	39.00	●
	3.700	70.00	39.00	●
	3.800	75.00	43.00	●
	3.900	75.00	43.00	●
	4.000	75.00	43.00	●
	4.100	75.00	43.00	●
	4.200	75.00	43.00	●
	4.300	80.00	47.00	●
	4.400	80.00	47.00	●
	4.500	80.00	47.00	●
	4.600	80.00	47.00	●
	4.700	80.00	47.00	●
	4.800	86.00	52.00	●
	4.900	86.00	52.00	●
	5.000	86.00	52.00	●
	5.100	86.00	52.00	●

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71123

HSS-Co

134

right-hand

bright/n. lands >2,0

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€
	5.200	86.00	52.00	●
	5.300	86.00	52.00	●
	5.400	93.00	57.00	●
	5.500	93.00	57.00	●
	5.600	93.00	57.00	●
	5.700	93.00	57.00	●
	5.800	93.00	57.00	●
	5.900	93.00	57.00	○
	6.000	93.00	57.00	●
	6.100	101.00	63.00	●
	6.200	101.00	63.00	●
	6.300	101.00	63.00	●
	6.400	101.00	63.00	●
	6.500	101.00	63.00	●
	6.600	101.00	63.00	●
	6.700	101.00	63.00	●
	6.800	109.00	69.00	●
	6.900	109.00	69.00	●
	7.000	109.00	69.00	●
	7.100	109.00	69.00	●
	7.200	109.00	69.00	●
	7.300	109.00	69.00	●
	7.400	109.00	69.00	●
	7.500	109.00	69.00	●
	7.600	117.00	75.00	●
	7.700	117.00	75.00	●
	7.800	117.00	75.00	●
	7.900	117.00	75.00	●
	8.000	117.00	75.00	●
	8.100	117.00	75.00	●
	8.200	117.00	75.00	●
	8.300	117.00	75.00	●
	8.400	117.00	75.00	●
	8.500	117.00	75.00	●
	8.600	125.00	81.00	●
	8.700	125.00	81.00	●
	8.800	125.00	81.00	●
	8.900	125.00	81.00	●
	9.000	125.00	81.00	●
	9.100	125.00	81.00	●
	9.200	125.00	81.00	●
	9.300	125.00	81.00	●
	9.400	125.00	81.00	●
	9.500	125.00	81.00	●
	9.600	133.00	87.00	●
	9.700	133.00	87.00	●
	9.800	133.00	87.00	●
	9.900	133.00	87.00	●
	10.000	133.00	87.00	●
	10.200	133.00	87.00	●
	10.500	133.00	87.00	●
	10.800	142.00	94.00	●
	11.000	142.00	94.00	●
	11.100	142.00	94.00	○
	11.200	142.00	94.00	●
	11.500	142.00	94.00	●
	11.700	142.00	94.00	○
	11.800	142.00	94.00	●
	11.900	151.00	101.00	○
	12.000	151.00	101.00	●

Straight shank twist drills

Jobber drills

Catalogue
no. 71122



Extra rigid, high heat-resistant drill with large helix angle (35°). Preferential application in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant and austenitic steels. Also suitable for high tensile strength steels from approx 900 N/mm² and above, forming short chips (antifriction bearing steel) with shallow drilling depth up to approx. 3 x D. Limited suitability for special alloys such as Hastelloy, Inconel, Nimonic etc.

DIN 338

Tool material	HSS-Co
Surface	bright
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Jobber drills

Catalogue
no. 61223



Extra rigid, high heat-resistant drill with large helix angle (35°). Preferential application in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant and austenitic steels. Also suitable for high tensile strength steels from approx 900 N/mm² and above, forming short chips (antifriction bearing steel) with shallow drilling depth up to approx. 3 x D. Limited suitability for special alloys such as Hastelloy, Inconel, Nimonic etc.

DIN 338

Tool material	HSS-Co
Surface	TiN
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Jobber drills

Catalogue
no. 51122



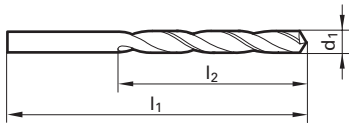
Extra rigid, high heat-resistant drill with large helix angle (35°). Preferential application in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant and austenitic steels. Also suitable for high tensile strength steels from approx 900 N/mm² and above, forming short chips (antifriction bearing steel) with shallow drilling depth up to approx. 3 x D. Limited suitability for special alloys such as Hastelloy, Inconel, Nimonic etc.

DIN 338

Tool material	HSS-Co
Surface	FIRE
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71122

61223

51122

HSS-Co

134

135

135

right-hand

right-hand

right-hand

bright

TiN

FIRE

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
	1.000	34.00	12.00	●	●	
	1.100	36.00	14.00	●	●	
	1.200	38.00	16.00	●	●	
	1.300	38.00	16.00	●	●	
	1.400	40.00	18.00	●	●	
	1.500	40.00	18.00	●	●	
	1.600	43.00	20.00	●	●	
	1.700	43.00	20.00	●	●	
	1.800	46.00	22.00	●	●	
	1.900	46.00	22.00	●	●	
	2.000	49.00	24.00	●	●	●
	2.100	49.00	24.00	●	●	
	2.200	53.00	27.00	●	●	
	2.300	53.00	27.00	●	●	
	2.400	57.00	30.00	●	●	
	2.500	57.00	30.00	●	●	●
	2.600	57.00	30.00	●	●	
	2.700	61.00	33.00	●	●	
	2.800	61.00	33.00	●	●	
	2.900	61.00	33.00	●	●	
	3.000	61.00	33.00	●	●	●
	3.100	65.00	36.00	●	●	
	3.200	65.00	36.00	●	●	
	3.300	65.00	36.00	●	●	
	3.400	70.00	39.00	●	●	
	3.500	70.00	39.00	●	●	●
	3.600	70.00	39.00	●	●	
	3.700	70.00	39.00	●	●	
	3.800	75.00	43.00	●	●	
	3.900	75.00	43.00	●	●	
	4.000	75.00	43.00	●	●	●
	4.100	75.00	43.00	●	●	
	4.200	75.00	43.00	●	●	●
	4.300	80.00	47.00	●	●	
	4.400	80.00	47.00	●	●	
	4.500	80.00	47.00	●	●	●
	4.600	80.00	47.00	●	●	
	4.700	80.00	47.00	●	●	
	4.800	86.00	52.00	●	●	
	4.900	86.00	52.00	●	●	
	5.000	86.00	52.00	●	●	●
	5.100	86.00	52.00	●	●	
	5.200	86.00	52.00	●	●	
	5.300	86.00	52.00	●	●	
	5.400	93.00	57.00	●	●	
	5.500	93.00	57.00	●	●	●
	5.600	93.00	57.00	●	●	
	5.700	93.00	57.00	●	●	
	5.800	93.00	57.00	●	●	
	5.900	93.00	57.00	●	●	
	6.000	93.00	57.00	●	●	●
	6.100	101.00	63.00	●	●	
	6.200	101.00	63.00	●	●	
	6.300	101.00	63.00	●	●	
	6.400	101.00	63.00	●	●	
	6.500	101.00	63.00	●	●	●
	6.600	101.00	63.00	●	●	
	6.700	101.00	63.00	●	●	
	6.800	109.00	69.00	●	●	●
	6.900	109.00	69.00	●	●	

Straight shank twist drills

Jobber drills

Catalogue no. **71124**



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue no. **71126**



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue no. **61124**



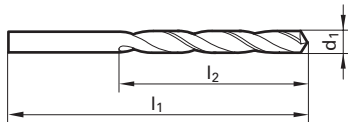
Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS
Surface	TiN
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71124

71126

61124

HSS

136

138

137

right-hand

left-hand

right-hand

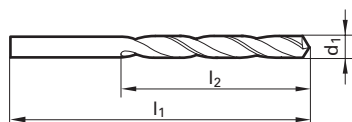
bright

bright

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
5/64	1.500	40.00	18.00	●	○	○
	1.600	43.00	20.00	●	○	○
	1.700	43.00	20.00	●	○	○
	1.750	46.00	22.00	○	○	
	1.780	46.00	22.00	○		
	1.800	46.00	22.00	●	○	○
	1.850	46.00	22.00	●		
	1.900	46.00	22.00	●	○	○
	1.930	49.00	24.00	○		
	1.980	49.00	24.00	○		
	1.990	49.00	24.00	○		
	2.000	49.00	24.00	●	○	○
	2.050	49.00	24.00	○		
	2.080	49.00	24.00	○		
	2.100	49.00	24.00	●	○	○
7/64	2.180	53.00	27.00	○		
	2.200	53.00	27.00	●	○	○
	2.260	53.00	27.00	○		
	2.300	53.00	27.00	●	○	○
	2.370	57.00	30.00	○		
	2.400	57.00	30.00	●	○	○
	2.450	57.00	30.00	○		
	2.490	57.00	30.00	○		
	2.500	57.00	30.00	●	○	○
	2.580	57.00	30.00	○		
	2.600	57.00	30.00	●	○	○
	2.640	57.00	30.00	○		
	2.700	61.00	33.00	●	○	○
	2.780	61.00	33.00	○		
	2.800	61.00	33.00	●	○	○
5/32	2.820	61.00	33.00	○		
	2.870	61.00	33.00	○		
	2.900	61.00	33.00	●	○	○
	2.950	61.00	33.00	○		
	3.000	61.00	33.00	●	○	○
	3.100	65.00	36.00	●	○	○
	3.200	65.00	36.00	●	○	○
	3.300	65.00	36.00	●	○	○
	3.400	70.00	39.00	●	○	○
	3.450	70.00	39.00	○		
	3.500	70.00	39.00	●	○	○
	3.600	70.00	39.00	●	○	○
	3.700	70.00	39.00	●	○	○
	3.730	70.00	39.00	○		
	3.800	75.00	43.00	●	○	○
	3.860	75.00	43.00	○		
5/16	3.900	75.00	43.00	●	○	○
	3.970	75.00	43.00	○		
	3.990	75.00	43.00	○		
	4.000	75.00	43.00	●	○	○
	4.040	75.00	43.00		○	
	4.090	75.00	43.00	○		
	4.100	75.00	43.00	●	○	○
	4.200	75.00	43.00	●	○	○
	4.220	75.00	43.00	○		
	4.300	80.00	47.00	●	○	○
	4.390	80.00	47.00	○		
	4.400	80.00	47.00	●	○	○
	4.500	80.00	47.00	●	○	○
	4.600	80.00	47.00	●	○	○

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71124

71126

61124

HSS

136

138

137

right-hand

left-hand

right-hand

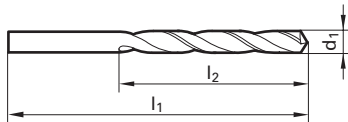
bright

bright

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
	4.700	80.00	47.00	●	○	○
	4.800	86.00	52.00	●	○	○
	4.850	86.00	52.00	○		
	4.900	86.00	52.00	●	○	○
	4.980	86.00	52.00	○		
	5.000	86.00	52.00	●	○	○
	5.100	86.00	52.00	●	○	○
	5.110	86.00	52.00	○		
	5.180	86.00	52.00	○		
	5.200	86.00	52.00	●	○	○
	5.220	86.00	52.00	○		
	5.300	86.00	52.00	●	○	○
	5.310	93.00	57.00	○		
	5.400	93.00	57.00	●	○	○
	5.410	93.00	57.00	○		
7/32	5.500	93.00	57.00	●	○	○
	5.560	93.00	57.00	○		
	5.600	93.00	57.00	●	○	○
	5.610	93.00	57.00	○		
	5.700	93.00	57.00	●	○	○
	5.790	93.00	57.00	○		
	5.800	93.00	57.00	●	○	○
	5.900	93.00	57.00	●	○	○
	5.940	93.00	57.00	○		
15/64	5.950	93.00	57.00	○		
	6.000	93.00	57.00	●	○	○
	6.040	101.00	63.00	○		
	6.050	101.00	63.00	○		
	6.100	101.00	63.00	●	○	○
	6.200	101.00	63.00	●	○	○
	6.250	101.00	63.00	○		
1/4	6.300	101.00	63.00	●	○	○
	6.350	101.00	63.00	○		
	6.400	101.00	63.00	●		
	6.500	101.00	63.00	●	○	○
	6.530	101.00	63.00	○		
	6.600	101.00	63.00	●	○	○
	6.630	101.00	63.00	○		
	6.700	101.00	63.00	●	○	○
17/64	6.750	109.00	69.00	○		
	6.760	109.00	69.00	○		
	6.800	109.00	69.00	●	○	○
	6.900	109.00	69.00	●	○	○
	6.910	109.00	69.00	○		
	7.000	109.00	69.00	●	○	○
	7.040	109.00	69.00	○		
9/32	7.100	109.00	69.00	●	○	
	7.140	109.00	69.00	○		
	7.200	109.00	69.00	●	○	○
	7.300	109.00	69.00	●	○	○
	7.370	109.00	69.00	○		
	7.400	109.00	69.00	●	○	○
	7.490	109.00	69.00	○		
	7.500	109.00	69.00	●	○	○
19/64	7.540	117.00	75.00	○		
	7.600	117.00	75.00	●	○	○
	7.670	117.00	75.00	○		
	7.700	117.00	75.00	●	○	○
	7.750	117.00	75.00	○		
	7.800	117.00	75.00	●	○	○

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71124

71126

61124

HSS

136

138

137

right-hand

left-hand

right-hand

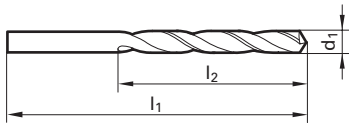
bright

bright

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
5/16	7.900	117.00	75.00	●		○
	7.940	117.00	75.00	○		
	8.000	117.00	75.00	●	○	○
	8.030	117.00	75.00	○		
21/64	8.100	117.00	75.00	●	○	○
	8.200	117.00	75.00	●	○	○
	8.300	117.00	75.00	●	○	○
	8.330	117.00	75.00	○		
	8.400	117.00	75.00	●	○	○
	8.430	117.00	75.00	○		
	8.500	117.00	75.00	●	○	○
	8.600	125.00	81.00	●	○	○
23/64	8.610	125.00	81.00	○		
	8.700	125.00	81.00	●	○	○
	8.800	125.00	81.00	●	○	○
	8.840	125.00	81.00	○		
	8.900	125.00	81.00	●	○	○
	9.000	125.00	81.00	●	○	○
	9.090	125.00	81.00	○		
	9.100	125.00	81.00	●	○	○
	9.130	125.00	81.00	○		
	9.200	125.00	81.00	●	○	○
3/8	9.300	125.00	81.00	●	○	○
	9.350	125.00	81.00	○		
	9.400	125.00	81.00	●	○	○
	9.500	125.00	81.00	●	○	○
	9.520	133.00	87.00	○		
	9.530	133.00	87.00	○		
25/64	9.580	133.00	87.00	○		
	9.600	133.00	87.00	●	○	○
	9.700	133.00	87.00	●	○	○
	9.800	133.00	87.00	●	○	○
	9.900	133.00	87.00	●	○	○
	9.920	133.00	87.00	○		
	10.000	133.00	87.00	●	○	○
	10.080	133.00	87.00	○		
	10.100	133.00	87.00	●	○	○
	10.200	133.00	87.00	●	○	○
27/64	10.260	133.00	87.00	○		
	10.300	133.00	87.00	●	○	○
	10.400	133.00	87.00	●	○	○
	10.490	133.00	87.00	○		
	10.500	133.00	87.00	●	○	○
	10.600	133.00	87.00	●	○	○
	10.700	142.00	94.00	●	○	○
	10.720	142.00	94.00	○		
	10.800	142.00	94.00	●	○	○
	10.900	142.00	94.00	●	○	○
7/16	11.000	142.00	94.00	●	○	○
	11.100	142.00	94.00	○		
	11.110	142.00	94.00	○		
	11.200	142.00	94.00	●	○	○
	11.300	142.00	94.00	●	○	○
29/64	11.400	142.00	94.00	●	○	○
	11.500	142.00	94.00	●	○	○
	11.510	142.00	94.00	○		
	11.600	142.00	94.00	●	○	○
	11.700	142.00	94.00	●	○	○
	11.800	142.00	94.00	●	○	○
	11.900	151.00	101.00	●	○	○

Jobber drills



Straight shank twist drills

Jobber drills

Catalogue no. **71158**



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1300 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS-Co
Surface	nitr. lands
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue no. **61158**



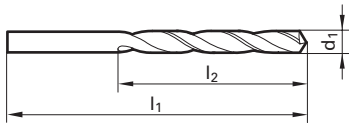
Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1300 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS-Co
Surface	TiN
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71158

61158

HSS-Co

136

137

right-hand

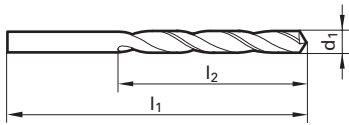
right-hand

nitr. lands

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
1/16	1.500	40.00	18.00	●	●
	1.590	43.00	20.00	○	●
	1.600	43.00	20.00	○	●
	1.700	43.00	20.00	○	●
	1.800	46.00	22.00	○	●
	1.900	46.00	22.00	○	●
	2.000	49.00	24.00	●	●
	2.100	49.00	24.00	○	●
	2.200	53.00	27.00	●	●
	2.300	53.00	27.00	●	●
	2.400	57.00	30.00	●	●
	2.500	57.00	30.00	●	●
	2.600	57.00	30.00	●	●
	2.700	61.00	33.00	●	●
	2.800	61.00	33.00	●	●
1/8	2.900	61.00	33.00	●	●
	3.000	61.00	33.00	●	●
	3.100	65.00	36.00	●	●
	3.170	65.00	36.00	○	●
	3.200	65.00	36.00	●	●
	3.300	65.00	36.00	●	●
	3.400	70.00	39.00	●	●
	3.500	70.00	39.00	●	●
	3.600	70.00	39.00	●	●
	3.700	70.00	39.00	●	●
	3.800	75.00	43.00	●	●
	3.900	75.00	43.00	●	●
	4.000	75.00	43.00	●	●
	4.100	75.00	43.00	●	●
	4.200	75.00	43.00	●	●
	4.300	80.00	47.00	●	●
1/4	4.400	80.00	47.00	●	●
	4.500	80.00	47.00	●	●
	4.600	80.00	47.00	●	●
	4.700	80.00	47.00	●	●
	4.800	86.00	52.00	●	●
	4.900	86.00	52.00	●	●
	5.000	86.00	52.00	●	●
	5.100	86.00	52.00	●	●
	5.200	86.00	52.00	●	●
	5.300	86.00	52.00	●	●
	5.400	93.00	57.00	●	●
	5.500	93.00	57.00	●	●
	5.600	93.00	57.00	●	●
	5.700	93.00	57.00	●	●
	5.800	93.00	57.00	●	●
	5.900	93.00	57.00	●	●
	6.000	93.00	57.00	●	●
1/4	6.100	101.00	63.00	●	●
	6.200	101.00	63.00	●	●
	6.300	101.00	63.00	●	●
	6.350	101.00	63.00	○	●
	6.400	101.00	63.00	●	●
	6.500	101.00	63.00	●	●
	6.600	101.00	63.00	●	●
	6.700	101.00	63.00	●	●
	6.800	109.00	69.00	●	●
	6.900	109.00	69.00	●	●
	7.000	109.00	69.00	●	●
	7.100	109.00	69.00	●	●

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71158

61158

HSS-Co

136

137

right-hand

right-hand

nitr. lands

TiN

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
9/32	7.140	109.00	69.00	○	
	7.200	109.00	69.00	●	●
	7.300	109.00	69.00	●	●
	7.400	109.00	69.00	●	●
	7.500	109.00	69.00	●	●
	7.600	117.00	75.00	●	●
5/16	7.700	117.00	75.00	●	●
	7.800	117.00	75.00	●	●
	7.900	117.00	75.00	●	●
	7.940	117.00	75.00	○	
	8.000	117.00	75.00	●	●
	8.100	117.00	75.00	●	●
11/32	8.200	117.00	75.00	●	●
	8.300	117.00	75.00	●	●
	8.400	117.00	75.00	●	●
	8.500	117.00	75.00	●	●
	8.600	125.00	81.00	●	●
	8.700	125.00	81.00	●	●
3/8	8.730	125.00	81.00	○	
	8.800	125.00	81.00	●	●
	8.900	125.00	81.00	●	●
	9.000	125.00	81.00	●	●
	9.100	125.00	81.00	●	●
	9.200	125.00	81.00	●	●
7/16	9.300	125.00	81.00	●	●
	9.400	125.00	81.00	●	●
	9.500	125.00	81.00	●	●
	9.520	133.00	87.00	○	
	9.600	133.00	87.00	●	●
	9.700	133.00	87.00	●	●
15/32	9.800	133.00	87.00	●	●
	9.900	133.00	87.00	●	●
	10.000	133.00	87.00	●	●
	10.200	133.00	87.00	●	●
	10.500	133.00	87.00	●	●
	10.800	142.00	94.00	○	
1/2	11.000	142.00	94.00	●	●
	11.110	142.00	94.00	○	
	11.200	142.00	94.00	●	●
	11.500	142.00	94.00	●	●
	11.800	142.00	94.00	●	●
	11.910	151.00	101.00	○	
	12.000	151.00	101.00	●	●
	12.500	151.00	101.00	○	
	12.700	151.00	101.00	●	●
	13.000	151.00	101.00	●	●

Straight shank twist drills

Jobber drills

Catalogue no. **71128**



An extremely rigid, high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel(Pb alloyed), brass and aluminium.

DIN 338

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: smaller than normal
Web taper: standard
Flute form: extremely wide and open
Web thinning: not necessary

Jobber drills

Catalogue no. **71129**



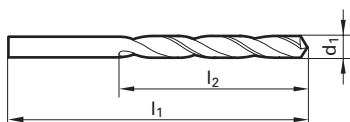
An extremely rigid, high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel(Pb alloyed), brass and aluminium.

DIN 338

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: smaller than normal
Web taper: standard
Flute form: extremely wide and open
Web thinning: not necessary

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71128

71129

HSS

136

138

right-hand

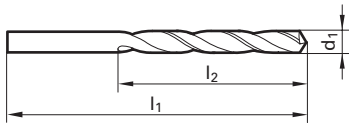
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	0.500	22.00	6.00		○
	0.550	24.00	7.00	○	○
	0.600	24.00	7.00	○	○
	0.650	26.00	8.00	○	○
	0.700	28.00	9.00	○	○
	0.750	28.00	9.00	○	○
	0.800	30.00	10.00	○	
	0.850	30.00	10.00	○	
	0.900	32.00	11.00	○	○
	0.950	32.00	11.00	○	○
	1.000	34.00	12.00	○	○
	1.050	34.00	12.00	○	○
	1.100	36.00	14.00	○	
	1.150	36.00	14.00	○	
	1.200	38.00	16.00	○	
	1.250	38.00	16.00	○	○
	1.300	38.00	16.00	○	
	1.400	40.00	18.00	○	○
	1.450	40.00	18.00	○	
	1.500	40.00	18.00	○	
	1.550	43.00	20.00	○	○
	1.600	43.00	20.00	○	○
	1.650	43.00	20.00	○	○
	1.700	43.00	20.00	○	○
	1.750	46.00	22.00	○	
	1.800	46.00	22.00	○	
	1.850	46.00	22.00	○	○
	1.900	46.00	22.00	○	○
	1.950	49.00	24.00	○	
	2.000	49.00	24.00	○	
	2.100	49.00	24.00	○	
	2.150	53.00	27.00	○	○
	2.200	53.00	27.00	○	○
	2.250	53.00	27.00	○	○
	2.300	53.00	27.00	○	○
	2.350	53.00	27.00	○	○
	2.400	57.00	30.00	○	○
	2.450	57.00	30.00	○	○
	2.500	57.00	30.00	○	○
	2.550	57.00	30.00	○	○
	2.600	57.00	30.00	○	○
	2.650	57.00	30.00	○	○
	2.700	61.00	33.00	○	○
	2.750	61.00	33.00	○	○
	2.800	61.00	33.00	○	○
	2.850	61.00	33.00	○	○
	2.900	61.00	33.00	○	○
	2.950	61.00	33.00	○	○
	3.000	61.00	33.00	○	○
	3.100	65.00	36.00	○	○
	3.150	65.00	36.00	○	○
	3.250	65.00	36.00	○	○
	3.300	65.00	36.00	○	○
	3.350	65.00	36.00	○	○
	3.400	70.00	39.00	○	○
	3.450	70.00	39.00	○	○
	3.500	70.00	39.00	○	○
	3.550	70.00	39.00	○	○
	3.600	70.00	39.00	○	○
	3.650	70.00	39.00	○	○

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71128

71129

HSS

136

138

right-hand

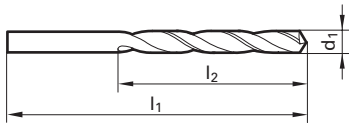
left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	3.700	70.00	39.00	○	
	3.750	70.00	39.00	○	○
	3.800	75.00	43.00	○	
	3.850	75.00	43.00	○	○
	3.900	75.00	43.00	○	
	3.950	75.00	43.00		○
	4.000	75.00	43.00	○	○
	4.050	75.00	43.00		○
	4.100	75.00	43.00	○	○
	4.150	75.00	43.00	○	○
	4.200	75.00	43.00	○	
	4.250	75.00	43.00	○	○
	4.300	80.00	47.00	○	○
	4.350	80.00	47.00	○	○
	4.400	80.00	47.00	○	○
	4.450	80.00	47.00	○	○
	4.500	80.00	47.00	○	○
	4.550	80.00	47.00	○	○
	4.600	80.00	47.00	○	○
	4.650	80.00	47.00		○
	4.700	80.00	47.00	○	○
	4.750	80.00	47.00	○	
	4.800	86.00	52.00	○	○
	4.850	86.00	52.00	○	○
	4.900	86.00	52.00	○	○
	4.950	86.00	52.00	○	○
	5.000	86.00	52.00	○	○
	5.100	86.00	52.00	○	
	5.200	86.00	52.00	○	○
	5.300	86.00	52.00	○	○
	5.400	93.00	57.00	○	○
	5.500	93.00	57.00	○	○
	5.600	93.00	57.00	○	○
	5.700	93.00	57.00	○	○
	5.800	93.00	57.00	○	○
	5.900	93.00	57.00	○	○
	6.000	93.00	57.00	○	
	6.100	101.00	63.00	○	○
	6.200	101.00	63.00	○	○
	6.300	101.00	63.00	○	○
	6.400	101.00	63.00	○	○
	6.500	101.00	63.00	○	○
	6.600	101.00	63.00	○	○
	6.700	101.00	63.00	○	○
	6.800	109.00	69.00	○	○
	6.900	109.00	69.00	○	○
	7.000	109.00	69.00	○	○
	7.100	109.00	69.00	○	○
	7.200	109.00	69.00	○	○
	7.300	109.00	69.00	○	○
	7.400	109.00	69.00	○	○
	7.500	109.00	69.00	○	○
	7.600	117.00	75.00	○	○
	7.700	117.00	75.00	○	○
	7.800	117.00	75.00	○	○
	7.900	117.00	75.00	○	○
	8.000	117.00	75.00	○	○
	8.100	117.00	75.00		○
	8.200	117.00	75.00		○
	8.300	117.00	75.00		○

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71128

71129

HSS

136

138

right-hand

left-hand

bright

bright

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	8.400	117.00	75.00		○
	8.500	117.00	75.00	○	○
	8.600	125.00	81.00	○	○
	8.700	125.00	81.00		○
	8.800	125.00	81.00		○
	8.900	125.00	81.00		○
	9.000	125.00	81.00	○	○
	9.100	125.00	81.00		○
	9.200	125.00	81.00		○
	9.300	125.00	81.00		○
	9.400	125.00	81.00		○
	9.500	125.00	81.00	○	○
	9.600	133.00	87.00		○
	9.700	133.00	87.00		○
	9.800	133.00	87.00	○	○
	9.900	133.00	87.00		○
	10.000	133.00	87.00	○	○
	10.100	133.00	87.00		○
	10.200	133.00	87.00	○	○
	10.300	133.00	87.00		○
	10.400	133.00	87.00		○
	10.500	133.00	87.00	○	○
	10.600	133.00	87.00		○
	10.700	142.00	94.00		○
	10.800	142.00	94.00		○
	10.900	142.00	94.00		○
	11.000	142.00	94.00	○	○
	11.100	142.00	94.00		○
	11.200	142.00	94.00		○
	11.300	142.00	94.00		○
	11.400	142.00	94.00		○
	11.500	142.00	94.00	○	○
	11.600	142.00	94.00		○
	11.700	142.00	94.00		○
	11.800	142.00	94.00		○
	11.900	151.00	101.00		○
	12.000	151.00	101.00	○	○
	12.100	151.00	101.00		○
	12.200	151.00	101.00		○
31/64	12.300	151.00	101.00		○
	12.400	151.00	101.00		○
	12.500	151.00	101.00	○	●
	12.600	151.00	101.00		○
1/2	12.700	151.00	101.00		○
	12.800	151.00	101.00		○
	12.900	151.00	101.00		○
	13.000	151.00	101.00	○	○

Straight shank twist drills

Jobber drills

Catalogue
no. 51124



A robust tool for drilling in difficult conditions such as when swarf congestion prevents a sufficient coolant supply. For use in steel and cast iron with a hardness of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials. Well suited for drilling depths greater than 3 x D (nitrided lands and wide flutes).

DIN 338

Tool material	HSS
Surface	FIRE
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Jobber drills

Catalogue
no. 51158



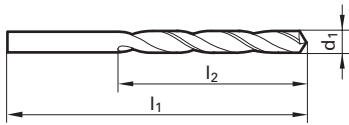
High heat-resistant drill with wide chip space. Suitable for drilling alloyed and unalloyed steels and castings with tensile strengths over 800 N/mm². Particularly suitable for drilling hot and cold-rolled steels, antifriction bearing steel, high alloyed steels as well as case hardening and heat-treatable steels. Well suited for drilling depths greater than 3 x D (nitrided lands and wide flutes).

DIN 338

Tool material	HSS-Co
Surface	FIRE
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

51124

HSS

137

right-hand

FIRE

51158

HSS-Co

137

right-hand

FIRE

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€	
	1.000	34.00	12.00		●
	1.100	36.00	14.00		●
	1.200	38.00	16.00		●
	1.300	38.00	16.00		●
	1.400	40.00	18.00		●
	1.500	40.00	18.00		●
	1.600	43.00	20.00		●
	1.700	43.00	20.00		●
	1.800	46.00	22.00		●
	1.900	46.00	22.00		●
	2.000	49.00	24.00	○	●
	2.100	49.00	24.00		●
	2.200	53.00	27.00		●
	2.300	53.00	27.00		●
	2.400	57.00	30.00		●
	2.500	57.00	30.00	○	●
	2.600	57.00	30.00		●
	2.700	61.00	33.00		●
	2.800	61.00	33.00		●
	2.900	61.00	33.00		●
	3.000	61.00	33.00	○	●
	3.100	65.00	36.00		●
	3.200	65.00	36.00		●
	3.300	65.00	36.00		●
	3.400	70.00	39.00		●
	3.500	70.00	39.00	○	●
	3.600	70.00	39.00		●
	3.700	70.00	39.00		●
	3.800	75.00	43.00		●
	3.900	75.00	43.00		●
	4.000	75.00	43.00	○	●
	4.100	75.00	43.00		●
	4.200	75.00	43.00	○	●
	4.300	80.00	47.00		●
	4.400	80.00	47.00		●
	4.500	80.00	47.00	○	●
	4.600	80.00	47.00		●
	4.700	80.00	47.00		●
	4.800	86.00	52.00		●
	4.900	86.00	52.00		●
	5.000	86.00	52.00	○	●
	5.100	86.00	52.00		●
	5.200	86.00	52.00		●
	5.300	86.00	52.00		●
	5.400	93.00	57.00		●
	5.500	93.00	57.00	○	●
	5.600	93.00	57.00		●
	5.700	93.00	57.00		●
	5.800	93.00	57.00		●
	5.900	93.00	57.00		●
	6.000	93.00	57.00	○	●
	6.100	101.00	63.00		●
	6.200	101.00	63.00		●
	6.300	101.00	63.00		●
	6.400	101.00	63.00		●
	6.500	101.00	63.00	○	●
	6.600	101.00	63.00		●
	6.700	101.00	63.00		●
	6.800	109.00	69.00	○	●
	6.900	109.00	69.00		●

Straight shank twist drills

Jobber drills

Catalogue
no. 61232



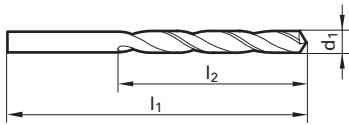
High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

DIN 338

Tool material	HSS-E-PM
Surface	TiN
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“
heels
Web thinning: special

Jobber drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

61232

HSS-E-PM

135

right-hand

TiN

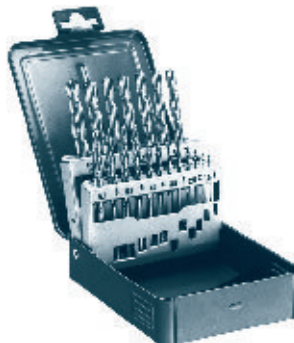
d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€
	1.000	34.00	12.00	○
	1.100	36.00	14.00	○
	1.200	38.00	16.00	○
	1.300	38.00	16.00	○
	1.400	40.00	18.00	○
	1.500	40.00	18.00	○
	1.600	43.00	20.00	○
	1.700	43.00	20.00	○
	1.800	46.00	22.00	○
	1.900	46.00	22.00	○
	2.000	49.00	24.00	○
	2.100	49.00	24.00	○
	2.200	53.00	27.00	○
	2.300	53.00	27.00	○
	2.400	57.00	30.00	○
	2.500	57.00	30.00	○
	2.600	57.00	30.00	○
	2.700	61.00	33.00	○
	2.800	61.00	33.00	○
	2.900	61.00	33.00	○
	3.000	61.00	33.00	○
	3.100	65.00	36.00	○
	3.200	65.00	36.00	○
	3.300	65.00	36.00	○
	3.400	70.00	39.00	○
	3.500	70.00	39.00	○
	3.600	70.00	39.00	○
	3.700	70.00	39.00	○
	3.800	75.00	43.00	○
	3.900	75.00	43.00	○
	4.000	75.00	43.00	○
	4.100	75.00	43.00	○
	4.200	75.00	43.00	○
	4.300	80.00	47.00	○
	4.400	80.00	47.00	○
	4.500	80.00	47.00	○
	4.600	80.00	47.00	○
	4.700	80.00	47.00	○
	4.800	86.00	52.00	○
	4.900	86.00	52.00	○
	5.000	86.00	52.00	○
	5.100	86.00	52.00	○
	5.200	86.00	52.00	○
	5.300	86.00	52.00	○
	5.400	93.00	57.00	○
	5.500	93.00	57.00	○
	5.600	93.00	57.00	○
	5.700	93.00	57.00	○
	5.800	93.00	57.00	○
	5.900	93.00	57.00	○
	6.000	93.00	57.00	○
	6.100	101.00	63.00	○
	6.200	101.00	63.00	○
	6.300	101.00	63.00	○
	6.400	101.00	63.00	○
	6.500	101.00	63.00	○
	6.600	101.00	63.00	○
	6.700	101.00	63.00	○
	6.800	109.00	69.00	○
	6.900	109.00	69.00	○

Straight shank twist drills

Set of jobber drills in case

Catalogue no. **78879**

For mechanics and craftsmen we matched sets out of the most commonly used drill dimensions. They are suitable for workshops (in bakelite stands) and when travelling (in boxes). On demand other set combinations are available.



DIN 338

Tool material	HSS
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Straight shank twist drills

Set of jobber drills

Catalogue no. **71160**

For mechanics and craftsmen we matched sets out of the most commonly used drill dimensions. They are suitable for workshops (in bakelite stands) and when travelling (in boxes). On demand other set combinations are available.

DIN 338

Tool material	HSS
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Straight shank twist drills

Twist drills with reinforced shank

Catalogue no. **61120**



Very stabile universal application drill with reinforced shank and two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

Stock std.

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Twist drills with reinforced shank

Catalogue no. **61121**



Very stabile universal application drill with reinforced shank and two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

Stock std.

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Twist drills with reinforced shank

Catalogue no. **51132**



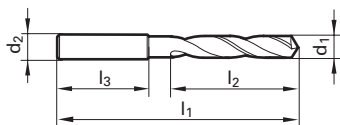
High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

Stock std.

Tool material	HSS-E-PM
Surface	FIRE
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special

Twist drills with reinforced shank



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

61120

HSS-Co

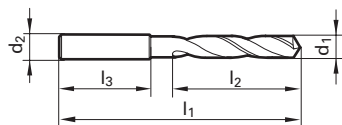
115

right-hand

TiN

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	Gross price/€
2.000	3.000	44.00	12.00	28.00	●
2.100	3.000	44.00	12.00	28.00	●
2.200	3.000	45.00	13.00	28.00	●
2.300	3.000	45.00	13.00	28.00	●
2.400	3.000	46.00	14.00	28.00	●
2.500	3.000	46.00	14.00	28.00	●
2.600	3.000	46.00	14.00	28.00	●
2.700	3.000	48.00	16.00	28.00	●
2.800	3.000	48.00	16.00	28.00	●
2.900	3.000	48.00	16.00	28.00	●
3.000	3.000	48.00	16.00	28.00	●
3.100	4.000	50.00	18.00	28.00	●
3.200	4.000	50.00	18.00	28.00	●
3.300	4.000	50.00	18.00	28.00	●
3.400	4.000	52.00	20.00	28.00	●
3.500	4.000	52.00	20.00	28.00	●
3.600	4.000	52.00	20.00	28.00	●
3.700	4.000	52.00	20.00	28.00	●
3.800	4.000	54.00	22.00	28.00	●
3.900	4.000	54.00	22.00	28.00	●
4.000	4.000	54.00	22.00	28.00	●
4.100	6.000	66.00	22.00	36.00	●
4.200	6.000	66.00	22.00	36.00	●
4.300	6.000	68.00	24.00	36.00	●
4.400	6.000	68.00	24.00	36.00	●
4.500	6.000	68.00	24.00	36.00	●
4.600	6.000	68.00	24.00	36.00	●
4.700	6.000	68.00	24.00	36.00	●
4.800	6.000	70.00	26.00	36.00	●
4.900	6.000	70.00	26.00	36.00	●
5.000	6.000	70.00	26.00	36.00	●
5.100	6.000	70.00	26.00	36.00	●
5.200	6.000	70.00	26.00	36.00	●
5.300	6.000	70.00	26.00	36.00	●
5.400	6.000	72.00	28.00	36.00	●
5.500	6.000	72.00	28.00	36.00	●
5.600	6.000	72.00	28.00	36.00	●
5.700	6.000	72.00	28.00	36.00	●
5.800	6.000	72.00	28.00	36.00	●
5.900	6.000	72.00	28.00	36.00	●
6.000	6.000	72.00	28.00	36.00	●
6.100	8.000	75.00	31.00	36.00	●
6.200	8.000	75.00	31.00	36.00	●
6.300	8.000	75.00	31.00	36.00	●
6.400	8.000	75.00	31.00	36.00	●
6.500	8.000	75.00	31.00	36.00	●
6.600	8.000	75.00	31.00	36.00	●
6.700	8.000	75.00	31.00	36.00	●
6.800	8.000	78.00	34.00	36.00	●
6.900	8.000	78.00	34.00	36.00	●
7.000	8.000	78.00	34.00	36.00	●
7.100	8.000	78.00	34.00	36.00	●
7.200	8.000	78.00	34.00	36.00	●
7.300	8.000	78.00	34.00	36.00	●
7.400	8.000	78.00	34.00	36.00	●
7.500	8.000	78.00	34.00	36.00	●
7.600	8.000	81.00	37.00	36.00	●
7.700	8.000	81.00	37.00	36.00	●
7.800	8.000	81.00	37.00	36.00	●
7.900	8.000	81.00	37.00	36.00	●

Twist drills with reinforced shank



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

61120

HSS-Co

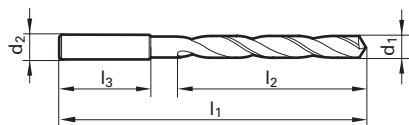
115

right-hand

TiN

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	Gross price/€
8.000	8.000	81.00	37.00	36.00	●
8.100	10.000	87.00	37.00	40.00	●
8.200	10.000	87.00	37.00	40.00	●
8.300	10.000	87.00	37.00	40.00	●
8.400	10.000	87.00	37.00	40.00	●
8.500	10.000	87.00	37.00	40.00	●
8.600	10.000	91.00	40.00	40.00	●
8.700	10.000	91.00	40.00	40.00	●
8.800	10.000	91.00	40.00	40.00	●
8.900	10.000	91.00	40.00	40.00	●
9.000	10.000	91.00	40.00	40.00	●
9.100	10.000	91.00	40.00	40.00	●
9.200	10.000	91.00	40.00	40.00	●
9.300	10.000	91.00	40.00	40.00	●
9.400	10.000	91.00	40.00	40.00	●
9.500	10.000	91.00	40.00	40.00	●
9.600	10.000	93.00	43.00	40.00	●
9.700	10.000	93.00	43.00	40.00	●
9.800	10.000	93.00	43.00	40.00	●
9.900	10.000	93.00	43.00	40.00	●
10.000	10.000	93.00	43.00	40.00	●
10.100	12.000	100.00	43.00	45.00	●
10.200	12.000	100.00	43.00	45.00	●
10.300	12.000	100.00	43.00	45.00	●
10.400	12.000	100.00	43.00	45.00	●
10.500	12.000	100.00	43.00	45.00	●
10.600	12.000	100.00	43.00	45.00	●
10.700	12.000	104.00	47.00	45.00	●
10.800	12.000	104.00	47.00	45.00	●
10.900	12.000	104.00	47.00	45.00	●
11.000	12.000	104.00	47.00	45.00	●
11.100	12.000	104.00	47.00	45.00	●
11.200	12.000	104.00	47.00	45.00	●
11.300	12.000	104.00	47.00	45.00	●
11.400	12.000	104.00	47.00	45.00	●
11.500	12.000	104.00	47.00	45.00	●
11.600	12.000	104.00	47.00	45.00	●
11.700	12.000	104.00	47.00	45.00	●
11.800	12.000	104.00	47.00	45.00	●
11.900	12.000	108.00	51.00	45.00	●
12.000	12.000	108.00	51.00	45.00	●
12.100	16.000	111.00	51.00	48.00	●
12.200	16.000	111.00	51.00	48.00	●
12.300	16.000	111.00	51.00	48.00	●
12.400	16.000	111.00	51.00	48.00	●
12.500	16.000	111.00	51.00	48.00	●
12.600	16.000	111.00	51.00	48.00	●
12.700	16.000	111.00	51.00	48.00	●
12.800	16.000	111.00	51.00	48.00	●
12.900	16.000	111.00	51.00	48.00	●
13.000	16.000	111.00	51.00	48.00	●
13.100	16.000	111.00	51.00	48.00	●
13.500	16.000	114.00	54.00	48.00	●
14.000	16.000	114.00	54.00	48.00	●
14.500	16.000	116.00	56.00	48.00	●
15.000	16.000	116.00	56.00	48.00	●
15.500	16.000	118.00	58.00	48.00	●
16.000	16.000	118.00	58.00	48.00	●
16.500	20.000	126.00	60.00	50.00	●
17.000	20.000	126.00	60.00	50.00	●

Twist drills with reinforced shank



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

61121

HSS-Co

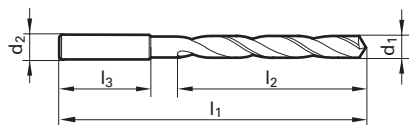
115

right-hand

TiN

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	Gross price/€
2.000	3.000	56.00	24.00	28.00	●
2.100	3.000	56.00	24.00	28.00	●
2.200	3.000	59.00	27.00	28.00	●
2.300	3.000	59.00	27.00	28.00	●
2.400	3.000	62.00	30.00	28.00	●
2.500	3.000	62.00	30.00	28.00	●
2.600	3.000	62.00	30.00	28.00	●
2.700	3.000	65.00	33.00	28.00	●
2.800	3.000	65.00	33.00	28.00	●
2.900	3.000	65.00	33.00	28.00	●
3.000	3.000	65.00	33.00	28.00	●
3.100	4.000	68.00	36.00	28.00	●
3.200	4.000	68.00	36.00	28.00	●
3.300	4.000	68.00	36.00	28.00	●
3.400	4.000	71.00	39.00	28.00	●
3.500	4.000	71.00	39.00	28.00	●
3.600	4.000	71.00	39.00	28.00	●
3.700	4.000	71.00	39.00	28.00	●
3.800	4.000	75.00	43.00	28.00	●
3.900	4.000	75.00	43.00	28.00	●
4.000	4.000	75.00	43.00	28.00	●
4.100	6.000	87.00	43.00	36.00	●
4.200	6.000	87.00	43.00	36.00	●
4.300	6.000	91.00	47.00	36.00	●
4.400	6.000	91.00	47.00	36.00	●
4.500	6.000	91.00	47.00	36.00	●
4.600	6.000	91.00	47.00	36.00	●
4.700	6.000	91.00	47.00	36.00	●
4.800	6.000	96.00	52.00	36.00	●
4.900	6.000	96.00	52.00	36.00	●
5.000	6.000	96.00	52.00	36.00	●
5.100	6.000	96.00	52.00	36.00	●
5.200	6.000	96.00	52.00	36.00	●
5.300	6.000	96.00	52.00	36.00	●
5.400	6.000	101.00	57.00	36.00	●
5.500	6.000	101.00	57.00	36.00	●
5.600	6.000	101.00	57.00	36.00	●
5.700	6.000	101.00	57.00	36.00	●
5.800	6.000	101.00	57.00	36.00	●
5.900	6.000	101.00	57.00	36.00	●
6.000	6.000	101.00	57.00	36.00	●
6.100	8.000	107.00	63.00	36.00	●
6.200	8.000	107.00	63.00	36.00	●
6.300	8.000	107.00	63.00	36.00	●
6.400	8.000	107.00	63.00	36.00	●
6.500	8.000	107.00	63.00	36.00	●
6.600	8.000	107.00	63.00	36.00	●
6.700	8.000	107.00	63.00	36.00	●
6.800	8.000	113.00	69.00	36.00	●
6.900	8.000	113.00	69.00	36.00	●
7.000	8.000	113.00	69.00	36.00	●
7.100	8.000	113.00	69.00	36.00	●
7.200	8.000	113.00	69.00	36.00	●
7.300	8.000	113.00	69.00	36.00	●
7.400	8.000	113.00	69.00	36.00	●
7.500	8.000	113.00	69.00	36.00	●
7.600	8.000	119.00	75.00	36.00	●
7.700	8.000	119.00	75.00	36.00	●
7.800	8.000	119.00	75.00	36.00	●
7.900	8.000	119.00	75.00	36.00	●

Twist drills with reinforced shank



Catalogue no.

61121

Tool material

HSS-Co

Discount group

115

Cutting direction

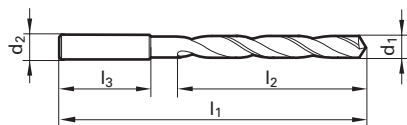
right-hand

Surface

TiN

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	Gross price/€
8.000	8.000	119.00	75.00	36.00	●
8.100	10.000	125.00	75.00	40.00	●
8.200	10.000	125.00	75.00	40.00	●
8.300	10.000	125.00	75.00	40.00	●
8.400	10.000	125.00	75.00	40.00	●
8.500	10.000	125.00	75.00	40.00	●
8.600	10.000	131.00	81.00	40.00	●
8.700	10.000	131.00	81.00	40.00	●
8.800	10.000	131.00	81.00	40.00	●
8.900	10.000	131.00	81.00	40.00	●
9.000	10.000	131.00	81.00	40.00	●
9.100	10.000	131.00	81.00	40.00	●
9.200	10.000	131.00	81.00	40.00	●
9.300	10.000	131.00	81.00	40.00	●
9.400	10.000	131.00	81.00	40.00	●
9.500	10.000	131.00	81.00	40.00	●
9.600	10.000	137.00	87.00	40.00	●
9.700	10.000	137.00	87.00	40.00	●
9.800	10.000	137.00	87.00	40.00	●
10.000	10.000	137.00	87.00	40.00	●
10.100	12.000	144.00	87.00	45.00	●
10.200	12.000	144.00	87.00	45.00	●
10.300	12.000	144.00	87.00	45.00	●
10.400	12.000	144.00	87.00	45.00	●
10.500	12.000	144.00	87.00	45.00	●
10.600	12.000	144.00	87.00	45.00	●
10.700	12.000	151.00	94.00	45.00	●
10.800	12.000	151.00	94.00	45.00	●
10.900	12.000	151.00	94.00	45.00	●
11.000	12.000	151.00	94.00	45.00	●
11.100	12.000	151.00	94.00	45.00	●
11.200	12.000	151.00	94.00	45.00	●
11.300	12.000	151.00	94.00	45.00	●
11.400	12.000	151.00	94.00	45.00	●
11.500	12.000	151.00	94.00	45.00	●
11.600	12.000	151.00	94.00	45.00	●
11.700	12.000	151.00	94.00	45.00	●
11.800	12.000	151.00	94.00	45.00	●
11.900	12.000	158.00	101.00	45.00	●
12.000	12.000	158.00	101.00	45.00	●
12.100	16.000	161.00	101.00	48.00	●
12.200	16.000	161.00	101.00	48.00	●
12.300	16.000	161.00	101.00	48.00	●
12.400	16.000	161.00	101.00	48.00	●
12.500	16.000	161.00	101.00	48.00	●
12.600	16.000	161.00	101.00	48.00	●
12.700	16.000	161.00	101.00	48.00	●
12.800	16.000	161.00	101.00	48.00	●
12.900	16.000	161.00	101.00	48.00	●
13.000	16.000	161.00	101.00	48.00	●
13.100	16.000	161.00	101.00	48.00	●
13.500	16.000	166.00	106.00	48.00	●
14.000	16.000	166.00	106.00	48.00	●
14.500	16.000	169.00	109.00	48.00	●
15.000	16.000	169.00	109.00	48.00	●
15.500	16.000	172.00	112.00	48.00	●
16.000	16.000	172.00	112.00	48.00	●
16.500	20.000	181.00	115.00	50.00	●
17.000	20.000	181.00	115.00	50.00	●
17.500	20.000	184.00	118.00	50.00	●

Twist drills with reinforced shank



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

51132

HSS-E-PM

115

right-hand

FIRE

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	Gross price/€
2.000	3.000	56.00	24.00	28.00	○
2.200	3.000	59.00	27.00	28.00	○
2.500	3.000	62.00	30.00	28.00	○
3.000	3.000	65.00	33.00	28.00	○
3.300	4.000	68.00	36.00	28.00	○
3.400	4.000	71.00	39.00	28.00	○
3.500	4.000	71.00	39.00	28.00	○
3.700	4.000	71.00	39.00	28.00	○
3.800	4.000	75.00	43.00	28.00	○
4.000	4.000	75.00	43.00	28.00	○
4.200	6.000	87.00	43.00	36.00	○
4.300	6.000	91.00	47.00	36.00	○
4.500	6.000	91.00	47.00	36.00	○
4.600	6.000	91.00	47.00	36.00	○
4.800	6.000	96.00	52.00	36.00	○
5.000	6.000	96.00	52.00	36.00	○
5.100	6.000	96.00	52.00	36.00	○
5.500	6.000	101.00	57.00	36.00	○
5.700	6.000	101.00	57.00	36.00	○
5.800	6.000	101.00	57.00	36.00	○
6.000	6.000	101.00	57.00	36.00	○
6.500	8.000	107.00	63.00	36.00	○
6.800	8.000	113.00	69.00	36.00	○
6.900	8.000	113.00	69.00	36.00	○
7.000	8.000	113.00	69.00	36.00	○
7.400	8.000	113.00	69.00	36.00	○
7.500	8.000	113.00	69.00	36.00	○
7.800	8.000	119.00	75.00	36.00	○
8.000	8.000	119.00	75.00	36.00	○
8.200	10.000	125.00	75.00	40.00	○
8.500	10.000	125.00	75.00	40.00	○
8.600	10.000	131.00	81.00	40.00	○
8.800	10.000	131.00	81.00	40.00	○
9.000	10.000	131.00	81.00	40.00	○
9.300	10.000	131.00	81.00	40.00	○
9.500	10.000	131.00	81.00	40.00	○
10.000	10.000	137.00	87.00	40.00	○
10.200	12.000	144.00	87.00	45.00	○
10.300	12.000	144.00	87.00	45.00	○
10.500	12.000	144.00	87.00	45.00	○
11.000	12.000	151.00	94.00	45.00	○
11.200	12.000	151.00	94.00	45.00	○
11.500	12.000	151.00	94.00	45.00	○
12.000	12.000	158.00	101.00	45.00	○
12.100	14.000	161.00	101.00	45.00	○
12.500	14.000	161.00	101.00	45.00	○
13.000	14.000	161.00	101.00	45.00	○

Straight shank twist drills

Stub drills with 16.0 mm dia. shank

Catalogue
no. 71168



An extremely rigid high heat-resistant twist drill. Suitable for the drilling of difficult- to-machine materials such as stainless steel, non-corrosive steels (VAsteels), spring steels, austenitic steels etc. For use primarily in automatic and capstan lathes. These short length drills are supplied with both ends centred and without point relief to allow finishing operations to be carried out, e.g. reduction of diameter, the grinding of steps, special point forms and similar modifications.

Stock std.

Tool material	HSS-Co
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Without point grind
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: none

Straight shank twist drills

Stub drills with 25.4 mm dia. shank

Catalogue
no. 71169

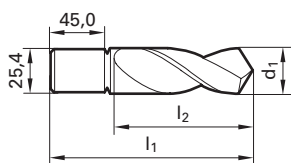


An extremely rigid high heat-resistant twist drill. Suitable for the drilling of difficult- to-machine materials such as stainless steel, non-corrosive steels (VAsteels), spring steels, austenitic steels etc. For use primarily in automatic and capstan lathes. These short length drills are supplied with both ends centred and without point relief to allow finishing operations to be carried out, e.g. reduction of diameter, the grinding of steps, special point forms and similar modifications.

Stock std.

Tool material	HSS-Co
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Without point grind
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: none



Surface

bright

[illegible]

Straight shank twist drills

Bushing drills

Catalogue
no. 71130



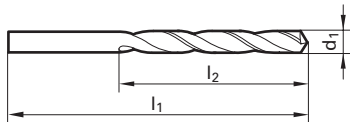
Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.
> Ø 3,00 mm with tang

DIN 339

Tool material	HSS
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Bushing drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71130

HSS

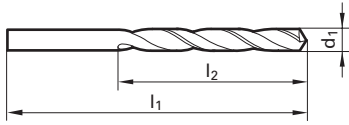
134

right-hand

bright/steam >2,36

d1 mm	l1 mm	l2 mm	Gross price/€
1.000	48.00	26.00	○
1.150	50.00	28.00	○
1.200	52.00	30.00	○
1.350	55.00	33.00	○
1.500	55.00	33.00	○
1.850	62.00	38.00	○
2.000	66.00	41.00	○
2.300	70.00	44.00	○
2.500	74.00	47.00	○
2.600	74.00	47.00	○
2.800	79.00	51.00	○
2.850	79.00	51.00	○
2.900	79.00	51.00	○
3.100	84.00	55.00	○
3.200	84.00	55.00	○
3.400	91.00	60.00	○
3.800	96.00	64.00	○
3.900	96.00	64.00	○
4.000	96.00	64.00	○
4.100	96.00	64.00	○
4.300	102.00	69.00	○
4.400	102.00	69.00	○
4.500	102.00	69.00	○
4.600	102.00	69.00	○
4.700	102.00	69.00	○
4.800	108.00	74.00	○
4.900	108.00	74.00	○
5.000	108.00	74.00	○
5.100	108.00	74.00	○
5.400	116.00	80.00	○
5.500	116.00	80.00	○
5.600	116.00	80.00	○
5.700	116.00	80.00	○
5.800	116.00	80.00	○
5.900	116.00	80.00	○
6.000	116.00	80.00	○
6.100	124.00	86.00	○
6.200	124.00	86.00	○
6.400	124.00	86.00	○
6.500	124.00	86.00	○
6.600	124.00	86.00	○
6.800	133.00	93.00	○
7.000	133.00	93.00	○
7.100	133.00	93.00	○
7.200	133.00	93.00	○
7.300	133.00	93.00	○
7.400	133.00	93.00	○
7.500	133.00	93.00	○
7.600	142.00	100.00	○
7.700	142.00	100.00	○
7.800	142.00	100.00	○
7.900	142.00	100.00	○
8.000	142.00	100.00	○
8.100	142.00	100.00	○
8.200	142.00	100.00	○
8.300	142.00	100.00	○
8.500	142.00	100.00	○
8.700	151.00	107.00	○
8.800	151.00	107.00	○
9.000	151.00	107.00	○

Bushing drills



Catalogue no.	71130
Tool material	HSS
Discount group	134
Cutting direction	right-hand
Surface	bright/steam >2,36

[illegible]

Straight shank twist drills

Long series twist drills

Catalogue
no. 71136



Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.

DIN 340

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: greater than standard
Flute form: normal
Web thinning: to DIN 1412, form A

Long series twist drills

Catalogue
no. 71135



Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.

DIN 340

Tool material	HSS
Surface	bright/steam >2,36
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: greater than standard
Flute form: normal
Web thinning: to DIN 1412, form A

Long series twist drills

Catalogue
no. 61136



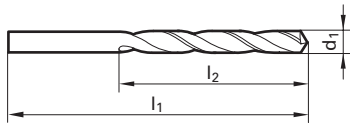
Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.

DIN 340

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: greater than standard
Flute form: normal
Web thinning: to DIN 1412, form A

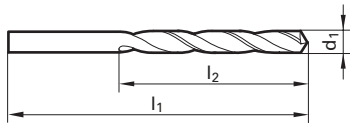
Long series twist drills



Catalogue no.	71136	71135	61136
Tool material	HSS		
Discount group	132	132	133
Cutting direction	right-hand	right-hand	right-hand
Surface	bright	bright/steam >2,36	TiN

d1 mm	l1 mm	l2 mm	Gross price/€		
0.500	32.00	12.00	○		
0.600	35.00	15.00	○		
0.700	42.00	21.00	○		
0.800	46.00	25.00	○		
0.900	51.00	29.00	○		
1.000	56.00	33.00	○		○
1.050	56.00	33.00	○		
1.100	60.00	37.00	○		
1.200	65.00	41.00	○		○
1.250	65.00	41.00	○		
1.300	65.00	41.00	○		○
1.350	70.00	45.00	○		
1.400	70.00	45.00	○		
1.450	70.00	45.00	○		
1.500	70.00	45.00	○		○
1.550	76.00	50.00	○		
1.600	76.00	50.00	○		
1.650	76.00	50.00	○		
1.700	76.00	50.00	○		
1.750	80.00	53.00	○		
1.800	80.00	53.00	○		○
1.850	80.00	53.00	○		
1.900	80.00	53.00	○		○
2.000	85.00	56.00	○	●	○
2.050	85.00	56.00		○	
2.100	85.00	56.00	○	●	○
2.150	90.00	59.00		○	
2.200	90.00	59.00	○	●	
2.250	90.00	59.00		○	
2.300	90.00	59.00		●	○
2.400	95.00	62.00	○	○	
2.500	95.00	62.00		●	○
2.600	95.00	62.00	○	●	
2.700	100.00	66.00		○	○
2.800	100.00	66.00		●	○
2.900	100.00	66.00	○	●	
3.000	100.00	66.00		●	○
3.050	106.00	69.00	○	○	
3.100	106.00	69.00	○	●	○
3.150	106.00	69.00		○	
3.200	106.00	69.00	○	●	○
3.250	106.00	69.00	○	○	
3.300	106.00	69.00		●	○
3.400	112.00	73.00		●	○
3.500	112.00	73.00		●	○
3.550	112.00	73.00		○	
3.600	112.00	73.00	○	●	○
3.700	112.00	73.00	○	●	○
3.750	112.00	73.00		○	
3.800	119.00	78.00	○	●	○
3.850	119.00	78.00		○	
3.900	119.00	78.00		●	
3.950	119.00	78.00		○	
4.000	119.00	78.00	○	●	○
4.050	119.00	78.00		○	
4.100	119.00	78.00		●	○
4.150	119.00	78.00		○	
4.200	119.00	78.00	○	●	
4.250	119.00	78.00		○	
4.300	126.00	82.00	○	●	○

Long series twist drills



Catalogue no.	71136	71135	61136
Tool material	HSS		
Discount group	132	132	133
Cutting direction	right-hand	right-hand	right-hand
Surface	bright	bright/steam >2,36	TiN

d1 mm	l1 mm	l2 mm	Gross price/€		
4.350	126.00	82.00		○	
4.400	126.00	82.00	○	●	
4.450	126.00	82.00		○	
4.500	126.00	82.00		●	○
4.600	126.00	82.00	○		○
4.650	126.00	82.00		○	
4.700	126.00	82.00	○	●	
4.750	126.00	82.00		○	
4.800	132.00	87.00		●	○
4.850	132.00	87.00		○	
4.900	132.00	87.00	○	●	
5.000	132.00	87.00	○	●	○
5.100	132.00	87.00	○	●	○
5.200	132.00	87.00	○	●	○
5.250	132.00	87.00		○	
5.300	132.00	87.00	○	●	○
5.400	139.00	91.00	○	●	○
5.500	139.00	91.00		●	○
5.600	139.00	91.00	○	●	○
5.700	139.00	91.00	○	●	
5.800	139.00	91.00	○	●	○
5.900	139.00	91.00		●	○
6.000	139.00	91.00	○	●	○
6.100	148.00	97.00		●	○
6.200	148.00	97.00	○	●	○
6.250	148.00	97.00		○	
6.300	148.00	97.00	○	●	
6.400	148.00	97.00		●	○
6.500	148.00	97.00		●	○
6.600	148.00	97.00	○	●	○
6.700	148.00	97.00	○	●	○
6.750	156.00	102.00		○	
6.800	156.00	102.00	○	●	○
6.900	156.00	102.00	○	●	○
7.000	156.00	102.00	○	●	○
7.100	156.00	102.00	○	●	
7.200	156.00	102.00	○	●	○
7.250	156.00	102.00		○	
7.300	156.00	102.00	○	●	
7.400	156.00	102.00		●	
7.500	156.00	102.00	○	●	○
7.600	165.00	109.00	○	●	○
7.700	165.00	109.00		●	
7.750	165.00	109.00		○	
7.800	165.00	109.00		●	○
7.900	165.00	109.00		●	○
8.000	165.00	109.00		●	○
8.100	165.00	109.00	○	●	○
8.200	165.00	109.00	○	●	○
8.250	165.00	109.00		○	
8.300	165.00	109.00		●	○
8.400	165.00	109.00		●	○
8.500	165.00	109.00		●	○
8.600	175.00	115.00		●	○
8.700	175.00	115.00	○	●	
8.750	175.00	115.00		○	
8.800	175.00	115.00	○	●	○
8.900	175.00	115.00	○	●	○
9.000	175.00	115.00		●	○
9.100	175.00	115.00	○	●	

Straight shank twist drills

Long series twist drills

Catalogue
no. 71225



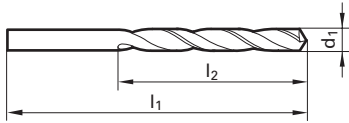
Extra rigid high heat resistant drill for use with drill bushings. Preferential application in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant austenitic steels. Also suitable for high tensile strength steels of approx 900 N/mm², forming short chips (antifriction bearing steel) with shallow drilling depths up to appr. 3 x D. Limited suitability for special alloys such as Hastelloy, Inconel, Nimonic etc.

DIN 340

Tool material	HSS-Co
Surface	bright
Type	V66
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: greater than standard
Web taper: normal
Flute form: normal
Web thinning: special

Long series twist drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71225

HSS-Co

134

right-hand

bright

d1 mm	l1 mm	l2 mm	Gross price/€
1.000	56.00	33.00	●
1.100	60.00	37.00	●
1.200	65.00	41.00	●
1.300	65.00	41.00	●
1.400	70.00	45.00	●
1.500	70.00	45.00	●
1.600	76.00	50.00	●
1.700	76.00	50.00	●
1.800	80.00	53.00	●
1.900	80.00	53.00	●
2.000	85.00	56.00	●
2.100	85.00	56.00	●
2.200	90.00	59.00	●
2.300	90.00	59.00	●
2.400	95.00	62.00	●
2.500	95.00	62.00	●
2.600	95.00	62.00	●
2.700	100.00	66.00	●
2.800	100.00	66.00	●
2.900	100.00	66.00	●
3.000	100.00	66.00	●
3.100	106.00	69.00	●
3.200	106.00	69.00	●
3.300	106.00	69.00	●
3.400	112.00	73.00	●
3.500	112.00	73.00	●
3.600	112.00	73.00	●
3.700	112.00	73.00	●
3.800	119.00	78.00	●
3.900	119.00	78.00	●
4.000	119.00	78.00	●
4.100	119.00	78.00	●
4.200	119.00	78.00	●
4.300	126.00	82.00	●
4.400	126.00	82.00	●
4.500	126.00	82.00	●
4.600	126.00	82.00	●
4.700	126.00	82.00	●
4.800	132.00	87.00	●
4.900	132.00	87.00	●
5.000	132.00	87.00	●
5.100	132.00	87.00	●
5.200	132.00	87.00	●
5.300	132.00	87.00	●
5.400	139.00	91.00	●
5.500	139.00	91.00	●
5.600	139.00	91.00	●
5.700	139.00	91.00	●
5.800	139.00	91.00	●
5.900	139.00	91.00	●
6.000	139.00	91.00	●
6.100	148.00	97.00	●
6.200	148.00	97.00	●
6.300	148.00	97.00	●
6.400	148.00	97.00	●
6.500	148.00	97.00	●
6.600	148.00	97.00	●
6.700	148.00	97.00	●
6.800	156.00	102.00	●
6.900	156.00	102.00	●

Straight shank twist drills

Long series twist drills

Catalogue no. **71150**



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 340

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Web thinning: to DIN 1412, form A

Long series twist drills

Catalogue no. **71152**



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 340

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Web thinning: to DIN 1412, form A

Long series twist drills

Catalogue no. **61150**



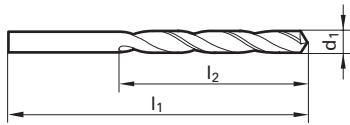
Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 340

Tool material	HSS
Surface	TiN
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Web thinning: to DIN 1412, form A

Long series twist drills



Catalogue no.	71150	71152	61150
Tool material	HSS		
Discount group	136	138	137
Cutting direction	right-hand	left-hand	right-hand
Surface	bright	bright	TiN

d1 mm	l1 mm	l2 mm	Gross price/€		
1.500	70.00	45.00	●	○	
1.600	76.00	50.00	●	○	
1.700	76.00	50.00	●		
1.750	80.00	53.00	○	○	
1.800	80.00	53.00	●	○	
1.900	80.00	53.00	●	○	
2.000	85.00	56.00	●		●
2.050	85.00	56.00	○	○	
2.100	85.00	56.00	●		
2.200	90.00	59.00	●		
2.300	90.00	59.00	●		
2.400	95.00	62.00	●	○	
2.500	95.00	62.00	●	○	●
2.600	95.00	62.00	●		
2.700	100.00	66.00	●	○	
2.800	100.00	66.00	●		
2.900	100.00	66.00	●	○	
3.000	100.00	66.00	●	○	●
3.100	106.00	69.00	●		
3.200	106.00	69.00	●		
3.300	106.00	69.00	●	○	●
3.400	112.00	73.00	●	○	
3.500	112.00	73.00	●	○	●
3.600	112.00	73.00	●		
3.700	112.00	73.00	●		
3.800	119.00	78.00	●		
3.900	119.00	78.00	●		
4.000	119.00	78.00	●	○	●
4.100	119.00	78.00	●		
4.200	119.00	78.00	●	○	●
4.300	126.00	82.00	●		
4.400	126.00	82.00	●		
4.500	126.00	82.00	●	○	●
4.600	126.00	82.00	●		
4.700	126.00	82.00	●		
4.800	132.00	87.00	●		
4.900	132.00	87.00	●		
5.000	132.00	87.00	●	○	●
5.100	132.00	87.00	●		
5.200	132.00	87.00	●		
5.300	132.00	87.00	●		
5.400	139.00	91.00	●		
5.500	139.00	91.00	●		●
5.600	139.00	91.00	●		
5.700	139.00	91.00	●		
5.800	139.00	91.00	●		
5.900	139.00	91.00	●		
6.000	139.00	91.00	●	○	●
6.100	148.00	97.00	●		
6.200	148.00	97.00	●		
6.300	148.00	97.00	●		
6.400	148.00	97.00	●		
6.500	148.00	97.00	●		
6.600	148.00	97.00	●	○	
6.700	148.00	97.00	●		
6.800	156.00	102.00	●	○	
6.900	156.00	102.00	●		
7.000	156.00	102.00	●	○	
7.100	156.00	102.00	●		
7.200	156.00	102.00	●		

Straight shank twist drills

Long series twist drills

Catalogue
no. 71154



Multi purpose quick helix drill which has the advantage of the V63-stability and the wide open flutes of the V70. Suitable for alloyed and unalloyed steels (for steels of up to 1000 N/mm² tensile strength), Al- and Al-alloys, copper, brass, bronze and soft plastics, for holes deeper than 2 x D.

DIN 340

Tool material	HSS
Surface	nitr. lands
Type	V73
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: extremely wide open flutes
Web thinning: to DIN 1412, form A

Long series twist drills

Catalogue
no. 71156



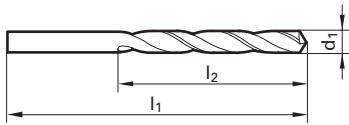
Multi purpose quick helix drill which has the advantage of the V63-stability and the wide open flutes of the V70. Suitable for alloyed and unalloyed steels (for steels of up to 1300 N/mm² tensile strength), Al- and Al-alloys, copper, brass, bronze and soft plastics, for holes deeper than 2 x D.

DIN 340

Tool material	HSS-Co
Surface	nitr. lands
Type	V73
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: extremely wide open flutes
Web thinning: to DIN 1412, form A

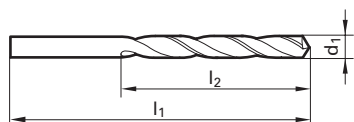
Long series twist drills



Catalogue no.	71154	71156
Tool material	HSS	HSS-Co
Discount group	136	136
Cutting direction	right-hand	right-hand
Surface	nitr. lands	nitr. lands

d1 mm	l1 mm	l2 mm	Gross price/€	
1.500	70.00	45.00	●	●
1.590	76.00	50.00	○	○
1.600	76.00	50.00	●	●
1.610	76.00	50.00	○	
1.700	76.00	50.00	●	●
1.780	80.00	53.00	○	
1.800	80.00	53.00	●	●
1.850	80.00	53.00	○	
1.900	80.00	53.00	●	●
1.930	85.00	56.00	○	
1.980	85.00	56.00	○	
1.990	85.00	56.00	○	
2.000	85.00	56.00	●	●
2.050	85.00	56.00	○	
2.060	85.00	56.00	○	
2.080	85.00	56.00	○	
2.100	85.00	56.00	●	●
2.180	90.00	59.00	○	
2.200	90.00	59.00	●	●
2.260	90.00	59.00	○	
2.300	90.00	59.00	●	●
2.370	95.00	62.00	○	
2.380	95.00	62.00	○	○
2.400	95.00	62.00	●	●
2.440	95.00	62.00	○	
2.490	95.00	62.00	○	
2.500	95.00	62.00	●	●
2.580	95.00	62.00	○	
2.600	95.00	62.00	●	●
2.640	95.00	62.00	○	
2.700	100.00	66.00	●	●
2.710	100.00	66.00	○	
2.780	100.00	66.00	○	
2.790	100.00	66.00	○	
2.800	100.00	66.00	●	●
2.820	100.00	66.00	○	
2.870	100.00	66.00	○	
2.900	100.00	66.00	●	●
2.950	100.00	66.00	○	
3.000	100.00	66.00	●	●
3.100	106.00	69.00	●	●
3.170	106.00	69.00	○	○
3.180	106.00	69.00	○	○
3.200	106.00	69.00	●	●
3.260	106.00	69.00	○	
3.300	106.00	69.00	●	●
3.400	112.00	73.00	●	●
3.450	112.00	73.00	○	
3.500	112.00	73.00	●	●
3.570	112.00	73.00	○	
3.600	112.00	73.00	●	●
3.660	112.00	73.00	○	
3.700	112.00	73.00	●	●
3.730	112.00	73.00	○	
3.800	119.00	78.00	●	●
3.860	119.00	78.00	○	
3.900	119.00	78.00	●	●
3.910	119.00	78.00	○	
3.970	119.00	78.00	○	○
3.990	119.00	78.00	○	

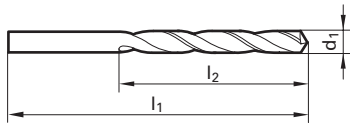
Long series twist drills



Catalogue no.	71154	71156
Tool material	HSS	HSS-Co
Discount group	136	136
Cutting direction	right-hand	right-hand
Surface	nitr. lands	nitr. lands

d1 mm	l1 mm	l2 mm	Gross price/€	
4.000	119.00	78.00	●	●
4.040	119.00	78.00	○	
4.090	119.00	78.00	○	
4.100	119.00	78.00	●	●
4.200	119.00	78.00	●	●
4.300	126.00	82.00	●	●
4.310	126.00	82.00	○	
4.370	126.00	82.00	○	
4.390	126.00	82.00	○	
4.400	126.00	82.00	○	●
4.500	126.00	82.00	●	●
4.570	126.00	82.00	○	
4.600	126.00	82.00	●	●
4.700	126.00	82.00	●	●
4.760	132.00	87.00	○	○
4.800	132.00	87.00	●	●
4.850	132.00	87.00	○	
4.900	132.00	87.00	●	●
4.920	132.00	87.00	○	
4.980	132.00	87.00	○	
5.000	132.00	87.00	●	●
5.060	132.00	87.00	○	
5.100	132.00	87.00	●	●
5.110	132.00	87.00	○	
5.180	132.00	87.00	○	
5.200	132.00	87.00	●	●
5.220	132.00	87.00	○	
5.300	132.00	87.00	●	●
5.310	139.00	91.00	○	
5.400	139.00	91.00	●	●
5.410	139.00	91.00	○	
5.500	139.00	91.00	●	●
5.560	139.00	91.00	○	
5.600	139.00	91.00	●	●
5.610	139.00	91.00	○	
5.700	139.00	91.00	●	●
5.790	139.00	91.00	○	
5.800	139.00	91.00	●	●
5.900	139.00	91.00	●	●
5.940	139.00	91.00	○	
5.950	139.00	91.00	○	
6.000	139.00	91.00	●	●
6.040	148.00	97.00	○	
6.050	148.00	97.00	○	
6.100	148.00	97.00	●	●
6.150	148.00	97.00	○	
6.200	148.00	97.00	●	●
6.250	148.00	97.00	○	
6.300	148.00	97.00	●	●
6.350	148.00	97.00	○	
6.400	148.00	97.00	●	●
6.500	148.00	97.00	●	●
6.530	148.00	97.00	○	
6.600	148.00	97.00	●	●
6.700	148.00	97.00	●	●
6.750	156.00	102.00	○	
6.760	156.00	102.00	○	
6.800	156.00	102.00	●	●
6.900	156.00	102.00	●	●
6.910	156.00	102.00	○	

Long series twist drills



Catalogue no.	71154	71156
Tool material	HSS	HSS-Co
Discount group	136	136
Cutting direction	right-hand	right-hand
Surface	nitr. lands	nitr. lands

d1 mm	l1 mm	l2 mm	Gross price/€	
7.000	156.00	102.00	●	●
7.040	156.00	102.00	○	
7.100	156.00	102.00	●	●
7.140	156.00	102.00	○	○
7.200	156.00	102.00	●	●
7.300	156.00	102.00	●	●
7.370	156.00	102.00	○	
7.400	156.00	102.00	●	●
7.490	156.00	102.00	○	
7.500	156.00	102.00	●	●
7.540	165.00	109.00	○	
7.600	165.00	109.00	●	●
7.670	165.00	109.00	○	
7.700	165.00	109.00	●	●
7.800	165.00	109.00	●	●
7.900	165.00	109.00	●	●
7.940	165.00	109.00	○	○
8.000	165.00	109.00	●	●
8.030	165.00	109.00	○	
8.100	165.00	109.00	●	●
8.200	165.00	109.00	●	●
8.300	165.00	109.00	●	●
8.330	165.00	109.00	○	
8.400	165.00	109.00	●	●
8.430	165.00	109.00	○	
8.500	165.00	109.00	●	●
8.600	175.00	115.00	●	●
8.610	175.00	115.00	○	
8.700	175.00	115.00	●	●
8.730	175.00	115.00	○	○
8.800	175.00	115.00	●	●
8.840	175.00	115.00	○	
8.900	175.00	115.00	●	●
9.000	175.00	115.00	●	●
9.090	175.00	115.00	○	
9.100	175.00	115.00	●	●
9.130	175.00	115.00	○	
9.200	175.00	115.00	●	●
9.300	175.00	115.00	●	●
9.400	175.00	115.00	●	●
9.500	175.00	115.00	●	●
9.520	184.00	121.00	○	○
9.530	184.00	121.00	○	○
9.580	184.00	121.00	○	
9.600	184.00	121.00	●	●
9.700	184.00	121.00	●	●
9.800	184.00	121.00	●	●
9.900	184.00	121.00	●	●
9.920	184.00	121.00	○	
10.000	184.00	121.00	●	●
10.080	184.00	121.00	○	
10.200	184.00	121.00	●	●
10.260	184.00	121.00	○	
10.320	184.00	121.00	○	○
10.490	184.00	121.00	○	
10.500	184.00	121.00	●	●
10.720	195.00	128.00	○	
10.800	195.00	128.00	●	●
11.000	195.00	128.00	●	●
11.110	195.00	128.00	○	○

Straight shank twist drills

Extra long twist drills, series 1

Catalogue
no. 71145



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	bright/n. lands>2,36
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills, series 1

Catalogue
no. 61145



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	TiN
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills, series 1

Catalogue
no. 71192



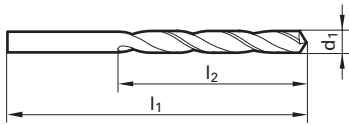
High heat-resistant drill with wide chip space for very deep holes in difficult conditions, when swarf congestion hinders the flow of coolant to the drill point or when tool over-heating arises from other causes (Not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast steels of high tensile strengths, cast iron, malleable iron, spheroidal iron, etc.

DIN 1869

Tool material	HSS-Co
Surface	nitr. lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills, series 1



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71145

61145

71192

HSS

HSS-Co

136

137

136

right-hand

right-hand

right-hand

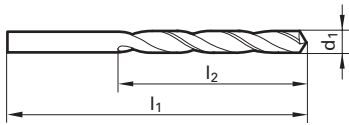
bright/n.

TiN

nitr. lands

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
	2.000	125.00	85.00	●		
	2.100	125.00	85.00	○		
	2.200	135.00	90.00	●		
	2.300	135.00	90.00	●		
	2.400	140.00	95.00	●		
	2.500	140.00	95.00	●		
	2.600	140.00	95.00	●		
	2.800	150.00	100.00	●		
	2.900	150.00	100.00	●		
	3.000	150.00	100.00	●	○	●
1/8	3.100	155.00	105.00		○	○
	3.170	155.00	105.00			○
	3.200	155.00	105.00	●	○	
	3.300	155.00	105.00	●	○	
	3.400	165.00	115.00	●	○	○
	3.500	165.00	115.00	●	○	●
	3.600	165.00	115.00	●	○	
	3.700	165.00	115.00	●		○
	3.800	175.00	120.00	●		○
5/32	3.900	175.00	120.00	●	○	
	3.970	175.00	120.00	○		○
	4.000	175.00	120.00	●	○	●
	4.100	175.00	120.00	●		○
	4.200	175.00	120.00	●	○	●
	4.300	185.00	125.00	●		●
	4.500	185.00	125.00	●		○
	4.600	185.00	125.00	●		●
3/16	4.700	185.00	125.00	●		
	4.760	195.00	135.00	○		○
	4.800	195.00	135.00	●		●
	4.900	195.00	135.00	●		○
	5.000	195.00	135.00	●	○	●
	5.100	195.00	135.00	●		
	5.200	195.00	135.00	●		
	5.300	195.00	135.00	●		●
	5.400	205.00	140.00			○
7/32	5.500	205.00	140.00	●		●
	5.560	205.00	140.00			○
	5.600	205.00	140.00			●
	5.700	205.00	140.00	●		
	5.800	205.00	140.00	●		
	5.900	205.00	140.00	●		
15/64	5.950	205.00	140.00	○		
	6.000	205.00	140.00	●	○	●
	6.100	215.00	150.00	●		○
1/4	6.200	215.00	150.00	●		●
	6.300	215.00	150.00	●		
	6.350	215.00	150.00	○		○
	6.400	215.00	150.00	●		
	6.500	215.00	150.00	●		●
	6.600	215.00	150.00	●		
17/64	6.700	215.00	150.00			●
	6.750	225.00	155.00	○		
	6.800	225.00	155.00	●		
	6.900	225.00	155.00	●		○
	7.000	225.00	155.00	●		●
	7.100	225.00	155.00	●		○
	7.200	225.00	155.00	●		
	7.300	225.00	155.00	●		
	7.400	225.00	155.00	●		○

Extra long twist drills, series 1



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71145

61145

71192

HSS

HSS-Co

136

137

136

right-hand

right-hand

right-hand

bright/n.

TiN

nitr. lands

d1 inch	d1 mm	l1 mm	l2 mm	Gross price/€		
19/64	7.500	225.00	155.00	●	○	●
	7.540	240.00	165.00	○		
	7.600	240.00	165.00	●		○
	7.700	240.00	165.00	●		●
	7.800	240.00	165.00	●		
5/16	7.900	240.00	165.00			○
	7.940	240.00	165.00	○		○
	8.000	240.00	165.00	●	○	●
	8.100	240.00	165.00	●		
	8.200	240.00	165.00	●	○	
	8.400	240.00	165.00	●		○
	8.500	240.00	165.00	●		●
	8.600	250.00	175.00	●		○
	8.700	250.00	175.00	●		
	8.730	250.00	175.00			●
11/32	8.800	250.00	175.00	●		
	8.900	250.00	175.00			○
	9.000	250.00	175.00	●	○	
	9.100	250.00	175.00	○		○
	9.200	250.00	175.00	○		
3/8	9.300	250.00	175.00	●		
	9.400	250.00	175.00	●		○
	9.500	250.00	175.00	●		○
	9.520	265.00	185.00	○		
	9.530	265.00	185.00			○
	9.600	265.00	185.00	●		○
	9.700	265.00	185.00	●		
	9.800	265.00	185.00	●		
	9.900	265.00	185.00	●		○
	10.000	265.00	185.00	●	○	●
13/32	10.100	265.00	185.00	●		○
	10.200	265.00	185.00	●		●
	10.320	265.00	185.00			○
	10.500	265.00	185.00	●		
	10.720	280.00	195.00	○		
27/64	10.800	280.00	195.00	●		○
	11.000	280.00	195.00	●	○	
	11.110	280.00	195.00	○		
7/16	11.200	280.00	195.00	●		○
	11.500	280.00	195.00	●		
	11.510	280.00	195.00	○		
29/64	11.800	280.00	195.00	●		
	11.910	295.00	205.00	○		○
	12.000	295.00	205.00	●		
1/2	12.700	295.00	205.00	●	○	○
	13.000	295.00	205.00	●		

Straight shank twist drills

Extra long twist drills, series 2

Catalogue no. **71146**



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	bright/n. lands>2,36
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills, series 2

Catalogue no. **61146**



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	TiN
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	4.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills, series 2

Catalogue no. **71193**



High heat-resistant drill with wide chip space for very deep holes in difficult conditions, when swarf congestion hinders the flow of coolant to the drill point or when tool over-heating arises from other causes (Not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast steels of high tensile strengths, cast iron, malleable iron, spheroidal iron, etc.

DIN 1869

Tool material	HSS-Co
Surface	nitr. lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Straight shank twist drills

Extra long twist drills series 3

Catalogue
no. 71147



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	bright/n. lands>2,36
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standart
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Straight shank twist drills

Extra long twist drills

Catalogue no. 71195

Total length 500 or 600 mm

A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.



Stock std.

Tool material	HSS
Surface	nitr. lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	6.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: smaller than standard
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills

Catalogue no. 71196

Total length 750 mm

A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

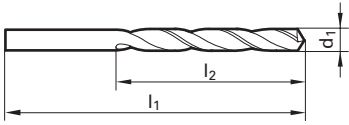


Stock std.

Tool material	HSS
Surface	bright
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	8.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: smaller than standard
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Extra long twist drills



Catalogue no.	71196
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	bright

[illegible]

Straight shank twist drills

Oil feed drills

Catalogue no. **71586**



A very rigid, multi-purpose through coolant drill, ideally suited for drilling long-chipping materials such as steels with a tensile strength of up to 1000 N/mm², stainless steels, cast materials and non-ferrous metals. Suitable for the application on less rigid machines and/or machines with low coolant pressure systems. For drilling depths of up to 5 x D.

Stock std.

Tool material	HSS-Co
Surface	bright
Type	V94-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	5.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special
Shank: HE

Oil feed drills

Catalogue no. **61586**



A very rigid, multi-purpose through coolant drill, ideally suited for drilling long-chipping materials such as steels with a tensile strength of up to 1000 N/mm², stainless steels, cast materials and non-ferrous metals. Suitable for the application on less rigid machines and/or machines with low coolant pressure systems. For drilling depths of up to 5 x D.

Stock std.

Tool material	HSS-Co
Surface	TiN
Type	V94-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	5.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special
Shank: HE

Oil feed drills

Catalogue no. **71584**



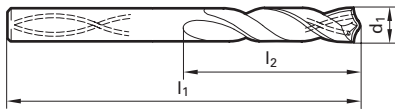
For horizontal and vertical drilling operations, especially for hole depths exceeding 5 times the drill diameter. For drilling laminated sheet metal, steel and cast steel, grey iron, austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance, the tool life is increased since the coolant, delivered directly to the cutting edge, provides optimum cooling and lubricating conditions and assists in the rapid evacuation of swarf.

Stock std.

Tool material	HSS
Surface	bright
Type	V73-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Oil feed drills



Catalogue no.	71584
Tool material	HSS
Discount group	136
Cutting direction	right-hand
Surface	bright

[illegible]

Straight shank twist drills

Micro-precision drills

Catalogue
no. **71187**



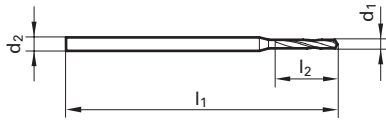
A special purpose drill with over size shank for use in the instrument and clock making industries and for general precision engineering. Specially designed for drilling high alloyed steels.

DIN 1899

Tool material	HSS-Co
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance	-0,004

Shank tolerance: h8
Helix angle: normal
Web tickness: normal
Web taper: normal
Flute form: normal

Micro-precision drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71187

HSS-Co

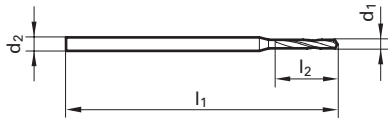
134

right-hand

bright

d1 mm	d2 mm	l1 mm	l2 mm	Gross price/€
0.050	1.000	25.00	0.40	●
0.060	1.000	25.00	0.40	●
0.070	1.000	25.00	0.50	●
0.080	1.000	25.00	0.50	●
0.090	1.000	25.00	0.50	●
0.100	1.000	25.00	0.50	●
0.110	1.000	25.00	0.50	●
0.120	1.000	25.00	0.50	●
0.130	1.000	25.00	0.80	●
0.140	1.000	25.00	0.80	●
0.150	1.000	25.00	0.80	●
0.160	1.000	25.00	1.10	●
0.170	1.000	25.00	1.10	●
0.180	1.000	25.00	1.10	●
0.190	1.000	25.00	1.10	●
0.200	1.000	25.00	1.50	●
0.210	1.000	25.00	1.50	●
0.220	1.000	25.00	1.50	●
0.230	1.000	25.00	1.50	●
0.240	1.000	25.00	1.50	●
0.250	1.000	25.00	1.90	●
0.260	1.000	25.00	1.90	●
0.270	1.000	25.00	1.90	●
0.280	1.000	25.00	1.90	●
0.290	1.000	25.00	1.90	●
0.300	1.000	25.00	1.90	●
0.310	1.000	25.00	2.40	●
0.320	1.000	25.00	2.40	●
0.330	1.000	25.00	2.40	●
0.340	1.000	25.00	2.40	●
0.350	1.000	25.00	2.40	●
0.360	1.000	25.00	2.40	●
0.370	1.000	25.00	2.40	●
0.380	1.000	25.00	2.40	●
0.390	1.000	25.00	3.00	●
0.400	1.000	25.00	3.00	●
0.410	1.000	25.00	3.00	●
0.420	1.000	25.00	3.00	●
0.430	1.000	25.00	3.00	●
0.440	1.000	25.00	3.00	●
0.450	1.000	25.00	3.00	●
0.460	1.000	25.00	3.00	●
0.470	1.000	25.00	3.00	●
0.480	1.000	25.00	3.00	●
0.490	1.000	25.00	3.40	●
0.500	1.000	25.00	3.40	●
0.510	1.000	25.00	3.40	●
0.520	1.000	25.00	3.40	●
0.530	1.000	25.00	3.40	●
0.540	1.000	25.00	3.90	●
0.550	1.000	25.00	3.90	●
0.560	1.000	25.00	3.90	●
0.570	1.000	25.00	3.90	●
0.580	1.000	25.00	3.90	●
0.590	1.000	25.00	3.90	●
0.600	1.000	25.00	3.90	●
0.610	1.000	25.00	4.20	●
0.620	1.000	25.00	4.20	●
0.630	1.000	25.00	4.20	●
0.640	1.000	25.00	4.20	●

Micro-precision drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71187

HSS-Co

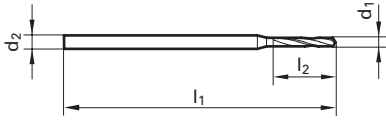
134

right-hand

bright

d1 mm	d2 mm	l1 mm	l2 mm	Gross price/€
0.650	1.000	25.00	4.20	●
0.660	1.000	25.00	4.20	●
0.670	1.000	25.00	4.20	●
0.680	1.000	25.00	4.80	●
0.690	1.000	25.00	4.80	●
0.700	1.000	25.00	4.80	●
0.710	1.000	25.00	4.80	●
0.720	1.000	25.00	4.80	●
0.730	1.000	25.00	4.80	●
0.740	1.000	25.00	4.80	●
0.750	1.000	25.00	4.80	●
0.760	1.000	25.00	5.30	●
0.770	1.000	25.00	5.30	●
0.780	1.000	25.00	5.30	●
0.790	1.000	25.00	5.30	●
0.800	1.500	25.00	5.30	●
0.810	1.500	25.00	5.30	●
0.820	1.500	25.00	5.30	●
0.830	1.500	25.00	5.30	●
0.840	1.500	25.00	5.30	●
0.850	1.500	25.00	5.30	●
0.860	1.500	25.00	6.00	●
0.870	1.500	25.00	6.00	●
0.880	1.500	25.00	6.00	●
0.890	1.500	25.00	6.00	●
0.900	1.500	25.00	6.00	●
0.910	1.500	25.00	6.00	●
0.920	1.500	25.00	6.00	●
0.930	1.500	25.00	6.00	●
0.940	1.500	25.00	6.00	●
0.950	1.500	25.00	6.00	●
0.960	1.500	25.00	6.80	●
0.970	1.500	25.00	6.80	●
0.980	1.500	25.00	6.80	●
0.990	1.500	25.00	6.80	●
1.000	1.500	25.00	6.80	●
1.010	1.500	25.00	6.80	●
1.020	1.500	25.00	6.80	●
1.030	1.500	25.00	6.80	●
1.040	1.500	25.00	6.80	●
1.050	1.500	25.00	6.80	●
1.060	1.500	25.00	6.80	●
1.070	1.500	25.00	7.60	●
1.080	1.500	25.00	7.60	●
1.090	1.500	25.00	7.60	●
1.100	1.500	25.00	7.60	●
1.110	1.500	25.00	7.60	●
1.120	1.500	25.00	7.60	●
1.130	1.500	25.00	7.60	●
1.140	1.500	25.00	7.60	●
1.150	1.500	25.00	7.60	●
1.160	1.500	25.00	7.60	●
1.170	1.500	25.00	7.60	●
1.180	1.500	25.00	7.60	●
1.190	1.500	25.00	8.50	●
1.200	1.500	25.00	8.50	●
1.210	1.500	25.00	8.50	●
1.220	1.500	25.00	8.50	●
1.230	1.500	25.00	8.50	●
1.240	1.500	25.00	8.50	●

Micro-precision drills



Catalogue no.	71187
Tool material	HSS-Co
Discount group	134
Cutting direction	right-hand
Surface	bright

[illegible]

Straight shank twist drills

NC-spotting drills

Catalogue
no. 71175



Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	90
Web thinned $\geq \emptyset$	
Tolerance	h6

Helix angle: smaller than normal
Web thickness: considerably smaller than normal
Web taper: normal
Flute form: normal
Web thinning: none

NC-spotting drills

Catalogue
no. 71176



Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	
Tolerance	h6

Helix angle: smaller than normal
Web thickness: considerably smaller than normal
Web taper: normal
Flute form: normal
Web thinning: none

Taper shank twist drills

Short length

Catalogue
no. 71303



Special strong and resistant short twist drill made of cobalt alloyed high speed steel. For highest stress and extreme conditions. Suitable for steel and cast steel with high tensile strength, stainless steels, CoNi-alloys (Hastelloy, Nimonic, Inconel).

Stock std.

Tool material	HSS-Co8
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	10.00
Tolerance	h8

Helix angle: normal
Web thickness: larger than standard
Web taper: larger than standard
Flute form: normal
Web thinning: to DIN 1412, form A

Short length

Catalogue
no. 71304



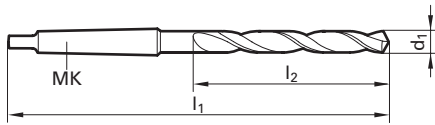
Special strong and resistant short twist drill made of cobalt alloyed high speed steel. For highest stress and extreme conditions. Suitable for steel and cast steel with high tensile strength, stainless steels, CoNi-alloys (Hastelloy, Nimonic, Inconel).

Stock std.

Tool material	HSS-Co8
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	12.00
Tolerance	h8

Helix angle: normal
Web thickness: larger than standard
Web taper: larger than standard
Flute form: normal
Web thinning: to DIN 1412, form A

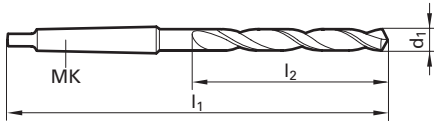
Short length



Catalogue no.	71303
Tool material	HSS-Co8
Discount group	138
Cutting direction	right-hand
Surface	bright

[illegible]

Short length



Catalogue no.	71304
Tool material	HSS-Co8
Discount group	138
Cutting direction	right-hand
Surface	bright

[illegible]

Taper shank twist drills

Standard length

Catalogue no. **71300**



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 345

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Standard length

Catalogue no. **61301**



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 345

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	10.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Standard length

Catalogue no. **71416**



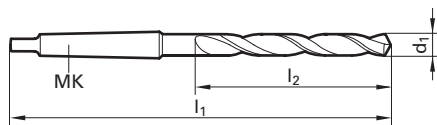
A standard, high heat-resistant drill with wide chip space. Suitable for drilling alloyed and unalloyed steels and castings with tensile strengths of over 800 N/mm². Particularly suitable for drilling hot and cold-rolled steels, anti-friction bearing steels, high-alloyed steels as well as case hardened and heat-treatable steels.

DIN 345

Tool material	HSS-Co
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	5.00
Tolerance	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

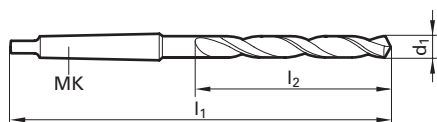
Standard length



Catalogue no.	71300	61301	71416
Tool material	HSS		HSS-Co
Discount group	132	133	134
Cutting direction	right-hand	right-hand	right-hand
Surface	steam tempered	TiN	steam tempered

d1 mm	MK	l1 mm	l2 mm	Gross price/€		
3.000	1	114.00	33.00	●		
3.500	1	120.00	39.00	○		
3.750	1	120.00	39.00	○		
4.000	1	124.00	43.00	●		
4.200	1	124.00	43.00	●		
4.250	1	124.00	43.00	●		
4.500	1	128.00	47.00	●		
4.600	1	128.00	47.00	○		
4.900	1	133.00	52.00	●		
5.000	1	133.00	52.00	●		○
5.100	1	133.00	52.00	○		
5.200	1	133.00	52.00	●		
5.300	1	133.00	52.00	○		
5.500	1	138.00	57.00	●		○
5.750	1	138.00	57.00	○		
5.800	1	138.00	57.00	○		
6.000	1	138.00	57.00	●		○
6.200	1	144.00	63.00	○		
6.500	1	144.00	63.00	●		
6.600	1	144.00	63.00	○		
6.700	1	144.00	63.00	○		
6.750	1	150.00	69.00	○		
6.800	1	150.00	69.00	●		
7.000	1	150.00	69.00	●		○
7.200	1	150.00	69.00	○		
7.250	1	150.00	69.00	○		
7.400	1	150.00	69.00	●		
7.500	1	150.00	69.00	●		
7.750	1	156.00	75.00	○		
7.800	1	156.00	75.00	●		
7.900	1	156.00	75.00	●		
8.000	1	156.00	75.00	●		○
8.100	1	156.00	75.00	●		
8.200	1	156.00	75.00	●		
8.250	1	156.00	75.00	○		
8.300	1	156.00	75.00	○		
8.400	1	156.00	75.00	●		
8.500	1	156.00	75.00	●		
8.600	1	162.00	81.00	●		
8.700	1	162.00	81.00	●		
8.750	1	162.00	81.00	○		
8.800	1	162.00	81.00	●		
8.900	1	162.00	81.00	●		
9.000	1	162.00	81.00	●		
9.200	1	162.00	81.00	●		
9.250	1	162.00	81.00	○		
9.300	1	162.00	81.00	●		
9.400	1	162.00	81.00	●		
9.500	1	162.00	81.00	●		○
9.700	1	168.00	87.00	●		
9.750	1	168.00	87.00	○		
9.800	1	168.00	87.00	○		
9.900	1	168.00	87.00	○		
10.000	1	168.00	87.00	●		
10.100	1	168.00	87.00	○		
10.200	1	168.00	87.00	●		○
10.250	1	168.00	87.00	○		
10.300	1	168.00	87.00	●		
10.400	1	168.00	87.00	●		
10.500	1	168.00	87.00	●	○	○

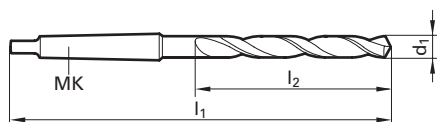
Standard length



Catalogue no.	71300	61301	71416
Tool material	HSS		HSS-Co
Discount group	132	133	134
Cutting direction	right-hand	right-hand	right-hand
Surface	steam tempered	TiN	steam tempered

d1 mm	MK	l1 mm	l2 mm	Gross price/€		
10.600	1	168.00	87.00			○
10.750	1	175.00	94.00	○		
10.900	1	175.00	94.00	●		
11.000	1	175.00	94.00	●		○
11.100	1	175.00	94.00	●		
11.200	1	175.00	94.00	●		
11.500	1	175.00	94.00	●		
11.600	1	175.00	94.00	○		
11.700	1	175.00	94.00			○
11.750	1	175.00	94.00	●		
11.800	1	175.00	94.00	●		
11.900	1	182.00	101.00	○		
12.000	1	182.00	101.00	●	○	
12.100	1	182.00	101.00	●		
12.200	1	182.00	101.00	●		○
12.250	1	182.00	101.00	○		
12.300	1	182.00	101.00	●		
12.400	1	182.00	101.00	○		
12.500	1	182.00	101.00	●		○
12.600	1	182.00	101.00	○		
12.750	1	182.00	101.00	○		
12.800	1	182.00	101.00	●		
12.900	1	182.00	101.00	●		
13.000	1	182.00	101.00	●	○	○
13.100	1	182.00	101.00	●		
13.200	1	182.00	101.00	○		
13.250	1	189.00	108.00	○		
13.300	1	189.00	108.00	○		
13.400	1	189.00	108.00	○		
13.500	1	189.00	108.00	●	○	
13.600	1	189.00	108.00	○		
13.700	1	189.00	108.00	●		
13.750	1	189.00	108.00	●		
13.800	1	189.00	108.00	●		
13.900	1	189.00	108.00	○		
14.000	1	189.00	108.00	●	○	○
14.100	2	212.00	114.00	●		
14.200	2	212.00	114.00	●		
14.250	2	212.00	114.00	●		○
14.400	2	212.00	114.00	○		
14.500	2	212.00	114.00	●	○	○
14.600	2	212.00	114.00	○		
14.700	2	212.00	114.00	○		
14.750	2	212.00	114.00	○		
14.800	2	212.00	114.00	●		
15.000	2	212.00	114.00	●		○
15.100	2	218.00	120.00	○		
15.250	2	218.00	120.00	○		
15.300	2	218.00	120.00	○		
15.500	2	218.00	120.00	●		
15.600	2	218.00	120.00	○		
15.700	2	218.00	120.00	○		
15.750	2	218.00	120.00	○		
15.800	2	218.00	120.00	●		
16.000	2	218.00	120.00	●		○
16.100	2	223.00	125.00	●		
16.200	2	223.00	125.00	●		
16.250	2	223.00	125.00	○		
16.300	2	223.00	125.00	○		
16.400	2	223.00	125.00	○		

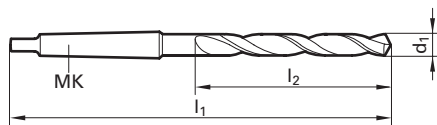
Standard length



Catalogue no.	71300	61301	71416
Tool material	HSS		HSS-Co
Discount group	132	133	134
Cutting direction	right-hand	right-hand	right-hand
Surface	steam tempered	TiN	steam tempered

d1 mm	MK	l1 mm	l2 mm	Gross price/€		
16.500	2	223.00	125.00	●	○	
16.600	2	223.00	125.00	○		
16.700	2	223.00	125.00	○		
16.750	2	223.00	125.00	○		
17.000	2	223.00	125.00	●	○	○
17.250	2	228.00	130.00	○		
17.500	2	228.00	130.00	●	○	○
17.750	2	228.00	130.00	○		
18.000	2	228.00	130.00	●	○	○
18.250	2	233.00	135.00	○		
18.500	2	233.00	135.00	●		
18.600	2	233.00	135.00	●		
18.750	2	233.00	135.00	○		
18.800	2	233.00	135.00	○		
18.900	2	233.00	135.00	○		
19.000	2	233.00	135.00	●	○	○
19.200	2	238.00	140.00	○		
19.250	2	238.00	140.00	○		○
19.500	2	238.00	140.00	●		
19.600	2	238.00	140.00	○		
19.750	2	238.00	140.00	●		
20.000	2	238.00	140.00	●	○	○
20.100	2	243.00	145.00	●		
20.250	2	243.00	145.00	○		
20.500	2	243.00	145.00	●		
20.750	2	243.00	145.00	○		
21.000	2	243.00	145.00	●	○	○
21.100	2	243.00	145.00	○		
21.250	2	248.00	150.00	○		
21.500	2	248.00	150.00	●		○
21.750	2	248.00	150.00	○		
22.000	2	248.00	150.00	●	○	○
22.250	2	248.00	150.00	○		
22.400	2	248.00	150.00	○		
22.500	2	253.00	155.00	●		
22.800	2	253.00	155.00	○		
22.900	2	253.00	155.00	○		
23.000	2	253.00	155.00	●		○
23.250	3	276.00	155.00	○		
23.500	3	276.00	155.00	●		
23.750	3	281.00	160.00	○		
23.800	3	281.00	160.00	○		
24.000	3	281.00	160.00	●	○	
24.250	3	281.00	160.00	○		
24.500	3	281.00	160.00	●		○
24.750	3	281.00	160.00	○		
25.000	3	281.00	160.00	●		○
25.250	3	286.00	165.00	○		
25.400	3	286.00	165.00	○		
25.500	3	286.00	165.00	●		○
25.750	3	286.00	165.00	○		
26.000	3	286.00	165.00	●		○
26.500	3	286.00	165.00	●		
26.750	3	291.00	170.00	○		
27.000	3	291.00	170.00	●		○
27.250	3	291.00	170.00	○		
27.500	3	291.00	170.00	●		
27.750	3	291.00	170.00	○		
28.000	3	291.00	170.00	●		
28.250	3	296.00	175.00	○		

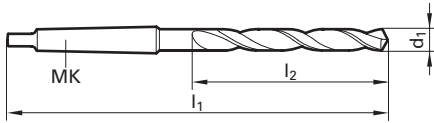
Standard length



Catalogue no.	71300	61301	71416
Tool material	HSS		HSS-Co
Discount group	132	133	134
Cutting direction	right-hand	right-hand	right-hand
Surface	steam tempered	TiN	steam tempered

d1 mm	MK	l1 mm	l2 mm	Gross price/€
28.500	3	296.00	175.00	●
28.750	3	296.00	175.00	○
29.000	3	296.00	175.00	●
29.250	3	296.00	175.00	○
29.500	3	296.00	175.00	●
29.750	3	296.00	175.00	○
30.000	3	296.00	175.00	●
30.250	3	301.00	180.00	○
30.500	3	301.00	180.00	●
30.750	3	301.00	180.00	○
31.000	3	301.00	180.00	●
31.500	3	301.00	180.00	○
31.750	3	306.00	185.00	○
32.000	4	334.00	185.00	●
32.500	4	334.00	185.00	●
33.000	4	334.00	185.00	●
33.500	4	334.00	185.00	○
34.000	4	339.00	190.00	●
34.500	4	339.00	190.00	●
35.000	4	339.00	190.00	○
35.500	4	339.00	190.00	●
36.000	4	344.00	195.00	●
36.500	4	344.00	195.00	●
37.000	4	344.00	195.00	●
37.500	4	344.00	195.00	●
38.000	4	349.00	200.00	●
38.500	4	349.00	200.00	○
39.000	4	349.00	200.00	●
39.500	4	349.00	200.00	●
40.000	4	349.00	200.00	●
40.500	4	354.00	205.00	○
41.000	4	354.00	205.00	●
41.500	4	354.00	205.00	○
42.000	4	354.00	205.00	●
42.500	4	354.00	205.00	○
43.000	4	359.00	210.00	●
43.500	4	359.00	210.00	○
44.500	4	359.00	210.00	○
45.000	4	359.00	210.00	●
45.500	4	364.00	215.00	●
47.000	4	364.00	215.00	●
47.500	4	364.00	215.00	○
48.000	4	369.00	220.00	●
48.500	4	369.00	220.00	○
49.000	4	369.00	220.00	●
49.500	4	369.00	220.00	○
50.000	4	369.00	220.00	●
50.500	4	374.00	225.00	○
51.000	5	412.00	225.00	○
52.000	5	412.00	225.00	○
53.000	5	412.00	225.00	○
53.500	5	417.00	230.00	○
54.000	5	417.00	230.00	○
55.000	5	417.00	230.00	○
56.000	5	417.00	230.00	○
57.000	5	422.00	235.00	○
58.000	5	422.00	235.00	○
59.000	5	422.00	235.00	○
60.000	5	422.00	235.00	○
62.000	5	427.00	240.00	○

Standard length



Catalogue no.	71300	61301	71416
Tool material	HSS		HSS-Co
Discount group	132	133	134
Cutting direction	right-hand	right-hand	right-hand
Surface	steam tempered	TiN	steam tempered

[illegible]

Taper shank twist drills

Standard length

Catalogue no. **71305**



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 345

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	7.94
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Web thinning: to DIN 1412, form A

Standard length

Catalogue no. **71312**



Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable for materials which need a tool with very good resistance to high temperatures, e.g. stainless, non-corrosive and heat-resistant steels, chilled cast iron, titanium and special alloyed materials.

DIN 345

Tool material	HSS-Co
Surface	bright
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	8.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Standard length

Catalogue no. **71313**



With oversize taper shank

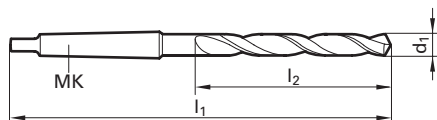
Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable for materials which need a tool with very good resistance to high temperatures, e.g. stainless, non-corrosive and heat-resistant steels, chilled cast iron, titanium and special alloyed materials.

DIN 346

Tool material	HSS-Co
Surface	bright
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	11.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Standard length



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71305

HSS

136

right-hand

bright

71312

HSS-Co

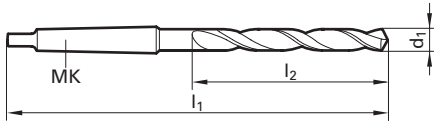
134

right-hand

bright

d1 mm	MK	l1 mm	l2 mm	Gross price/€	
7.940	1	156.00	75.00	○	
8.000	1	156.00	75.00	○	●
8.250	1	156.00	75.00	○	
8.500	1	156.00	75.00	○	●
8.750	1	162.00	81.00	○	
9.000	1	162.00	81.00	○	●
9.250	1	162.00	81.00	○	
9.500	1	162.00	81.00	○	●
9.520	1	168.00	87.00	○	
9.530	1	168.00	87.00	○	
10.000	1	168.00	87.00	○	●
10.200	1	168.00	87.00	○	●
10.250	1	168.00	87.00	○	
10.500	1	168.00	87.00	○	●
10.750	1	175.00	94.00	○	
11.000	1	175.00	94.00	○	●
11.250	1	175.00	94.00	○	○
11.500	1	175.00	94.00	○	●
11.750	1	175.00	94.00	○	○
12.000	1	182.00	101.00	○	●
12.250	1	182.00	101.00	○	
12.500	1	182.00	101.00		●
12.700	1	182.00	101.00	○	
13.000	1	182.00	101.00	○	●
13.500	1	189.00	108.00	○	●
14.000	1	189.00	108.00	○	●
14.500	2	212.00	114.00	○	●
15.000	2	212.00	114.00	○	●
15.500	2	218.00	120.00	○	●
16.000	2	218.00	120.00	○	●
16.250	2	223.00	125.00		○
16.500	2	223.00	125.00	○	●
17.000	2	223.00	125.00	○	●
17.500	2	228.00	130.00	○	●
18.000	2	228.00	130.00	○	●
18.250	2	233.00	135.00		○
18.500	2	233.00	135.00	○	●
19.000	2	233.00	135.00	○	●
19.500	2	238.00	140.00	○	●
19.750	2	238.00	140.00		○
20.000	2	238.00	140.00	○	●
20.250	2	243.00	145.00		○
20.500	2	243.00	145.00	○	
21.000	2	243.00	145.00	○	●
22.000	2	248.00	150.00	○	●
23.000	2	253.00	155.00	○	●
24.000	3	281.00	160.00	○	●
25.000	3	281.00	160.00	○	●
25.500	3	286.00	165.00	○	
26.000	3	286.00	165.00	○	●
26.500	3	286.00	165.00	○	
26.990	3	291.00	170.00	○	
27.000	3	291.00	170.00	○	●
27.500	3	291.00	170.00	○	○
28.000	3	291.00	170.00	○	●
28.570	3	296.00	175.00	○	
28.580	3	296.00	175.00	○	
29.000	3	296.00	175.00	○	●
29.500	3	296.00	175.00	○	
30.000	3	296.00	175.00		●

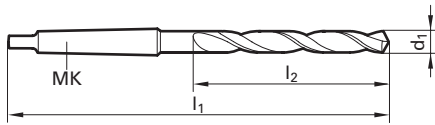
Standard length



Catalogue no.	71305	71312
Tool material	HSS	HSS-Co
Discount group	136	134
Cutting direction	right-hand	right-hand
Surface	bright	bright

[illegible]

Standard length



Catalogue no.	71313
Tool material	HSS-Co
Discount group	138
Cutting direction	right-hand
Surface	bright

[illegible]

Taper shank twist drills

Bushing drills

Catalogue no. **71320**



Standard drill for use with drill bushing sand for deep hole drilling in alloyed and unalloyed steel and cast steel, grey cast iron, malleable cast iron, spheroidal cast iron, sintered powder metals, German silver, graphite.

DIN 341

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Bushing drills

Catalogue no. **71322**



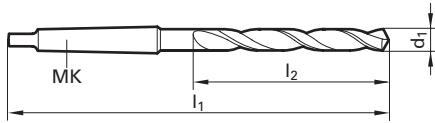
Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels of up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drilling over 2 x D. Large helix angle and wide opened flutes guarantee a good cooling of the flutes and less with drawing. Usually drilling of up to flute length is possible without the need for lifting to remove the chips.

DIN 341

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	7.94
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: STOCK-V-70
Web thinning: to DIN 1412, form A

Bushing drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71320

71322

HSS

132

136

right-hand

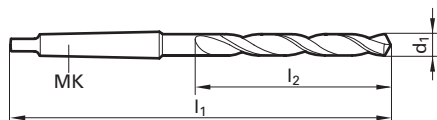
right-hand

steam tempered

bright

d1 mm	MK	l1 mm	l2 mm	Gross price/€	
5.000	1	155.00	74.00	●	
6.000	1	161.00	80.00	●	
6.500	1	167.00	86.00	●	
6.800	1	174.00	93.00	●	
7.000	1	174.00	93.00	●	
7.940	1	181.00	100.00		○
8.000	1	181.00	100.00	●	○
8.200	1	181.00	100.00	●	
8.300	1	181.00	100.00	○	
8.500	1	181.00	100.00	●	○
8.730	1	188.00	107.00		○
8.750	1	188.00	107.00		○
8.800	1	188.00	107.00	●	
9.000	1	188.00	107.00	●	○
9.250	1	188.00	107.00		○
9.500	1	188.00	107.00	●	○
9.700	1	197.00	116.00	○	
9.750	1	197.00	116.00	○	
9.800	1	197.00	116.00	○	
9.900	1	197.00	116.00	○	
9.920	1	197.00	116.00		○
10.000	1	197.00	116.00	●	○
10.100	1	197.00	116.00	●	
10.200	1	197.00	116.00	●	
10.250	1	197.00	116.00	○	○
10.300	1	197.00	116.00	●	
10.320	1	197.00	116.00		○
10.500	1	197.00	116.00	○	○
10.700	1	206.00	125.00	○	
10.720	1	206.00	125.00		○
10.750	1	206.00	125.00		○
11.000	1	206.00	125.00	●	○
11.300	1	206.00	125.00	○	
11.500	1	206.00	125.00	●	○
11.600	1	206.00	125.00	●	
11.750	1	206.00	125.00		○
11.800	1	206.00	125.00	○	
12.000	1	215.00	134.00		○
12.100	1	215.00	134.00	●	
12.200	1	215.00	134.00	○	
12.500	1	215.00	134.00	●	○
12.700	1	215.00	134.00		○
12.750	1	215.00	134.00	○	○
12.800	1	215.00	134.00	○	
13.000	1	215.00	134.00	●	○
13.250	1	223.00	142.00		○
13.500	1	223.00	142.00	●	○
13.750	1	223.00	142.00	○	○
13.900	1	223.00	142.00	●	
14.000	1	223.00	142.00	●	○
14.500	2	245.00	147.00	●	○
14.750	2	245.00	147.00	○	
15.000	2	245.00	147.00	●	○
15.250	2	251.00	153.00	○	
15.500	2	251.00	153.00	●	○
15.750	2	251.00	153.00	○	
16.000	2	251.00	153.00	●	○
16.250	2	257.00	159.00	○	
16.500	2	257.00	159.00	●	○
16.750	2	257.00	159.00	○	

Bushing drills



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71320

71322

HSS

132

136

right-hand

right-hand

steam tempered

bright

d1 mm	MK	l1 mm	l2 mm	Gross price/€	
17.000	2	257.00	159.00	●	○
17.500	2	263.00	165.00	●	○
17.750	2	263.00	165.00		○
18.000	2	263.00	165.00	●	○
18.260	2	269.00	171.00		○
18.500	2	269.00	171.00	●	
18.650	2	269.00	171.00		○
18.750	2	269.00	171.00	○	
19.250	2	275.00	177.00		○
19.450	2	275.00	177.00		○
19.500	2	275.00	177.00	○	○
20.000	2	275.00	177.00	●	○
20.250	2	282.00	184.00		○
20.500	2	282.00	184.00	●	
20.640	2	282.00	184.00		○
21.000	2	282.00	184.00	●	○
21.250	2	289.00	191.00		○
21.430	2	289.00	191.00		○
21.500	2	289.00	191.00	●	
21.750	2	289.00	191.00		○
21.830	2	289.00	191.00		○
22.000	2	289.00	191.00	●	○
22.220	2	289.00	191.00		○
22.250	2	289.00	191.00		○
22.500	2	296.00	198.00		○
22.620	2	296.00	198.00		○
22.750	2	296.00	198.00		○
23.000	2	296.00	198.00	○	
23.020	2	296.00	198.00		○
23.420	3	319.00	198.00		○
23.500	3	319.00	198.00	○	○
23.810	3	327.00	206.00		○
24.000	3	327.00	206.00	○	○
24.500	3	327.00	206.00	○	○
25.000	3	327.00	206.00	○	○
26.000	3	335.00	214.00	●	○
26.500	3	335.00	214.00	○	
27.000	3	343.00	222.00	○	○
27.500	3	343.00	222.00		○
27.780	3	343.00	222.00		○
28.000	3	343.00	222.00	●	○
28.500	3	351.00	230.00		○
28.580	3	351.00	230.00		○
29.500	3	351.00	230.00	●	○
30.000	3	351.00	230.00	●	○
31.000	3	360.00	239.00	○	
31.500	3	360.00	239.00		○
31.750	3	369.00	248.00		○
32.000	4	397.00	248.00	●	○
33.000	4	397.00	248.00	○	○
35.000	4	406.00	257.00	○	
36.000	4	416.00	267.00	○	○
37.000	4	416.00	267.00	○	○
37.500	4	416.00	267.00		○
39.000	4	426.00	277.00	○	○
40.000	4	426.00	277.00	○	○
41.000	4	436.00	287.00	○	
44.000	4	447.00	298.00		○
50.000	4	470.00	321.00		○

Taper shank twist drills

Extra long twist drills, series 1

Catalogue
no. 71325



A robust tool for drilling very deep holes in difficult conditions, when swarf congestion prevents an sufficient flow of coolant to the drill point (not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast iron with tensile strengths of up to 1000 N/mm².

DIN 1870

Tool material	HSS
Surface	nitr. lands/steam >16.0
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	7.94
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Taper shank twist drills

Extra long twist drills, series 2

Catalogue
no. 71326



A robust tool for drilling very deep holes in difficult conditions, when swarf congestion prevents an sufficient flow of coolant to the drill point (not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast iron with tensile strengths of up to 1000 N/mm².

DIN 1870

Tool material	HSS
Surface	nitr. lands/steam >16.0
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	7.94
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Taper shank twist drills

Twist drills with internal coolant

Catalogue no. 71550



Multi-purpose quick helix drill with through coolant. Trouble-free drilling and long tool life, multi diameters. Special design type V73-IK on request. Suitable for steels of low to medium tensile strengths, tough hard steels and other metals.

Stock std.

Tool material	HSS-Co
Surface	steam tempered
Type	V70-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	14.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: STOCK-V-70
Web thinning: to DIN 1412, form A

Twist drills with internal coolant

Catalogue no. 71553



With oversize taper shank

Multi-purpose quick helix drill with through coolant. Trouble-free drilling and long tool life, multi diameters with reinforced Morse taper shanks compared to DIN 341. Special design type V73-IK on request. Suitable for steels of low to medium tensile strengths, tough hard steels and other metals.

Stock std. oversize

Tool material	HSS-Co
Surface	steam tempered
Type	V70-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	8.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: STOCK-V-70
Web thinning: to DIN 1412, form A

Taper shank twist drills

Deep hole twist drills with internal coolant

Catalogue
no. 71565



For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Stock std. series 1

Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	14.29
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably larger than standard
Web taper: standard
Flute form: STOCK-V-63
Web thinning: to DIN 1412, form A

Deep hole twist drills with internal coolant

Catalogue
no. 71567



With oversive taper shank.

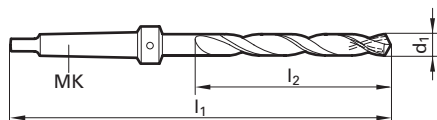
For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Stock std. series 1

Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	8.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably larger than standard
Web taper: standard
Flute form: STOCK-V-63
Web thinning: to DIN 1412, form A

Deep hole twist drills with internal coolant



Catalogue no.

Tool material

Discount group

Cutting direction

Surface

71565

71567

HSS-Co

136

136

right-hand

right-hand

steam tempered

steam tempered

d1 mm	MK	l1 mm	l2 mm	Gross price/€	
8.000	2	315.00	165.00		○
8.730	2	325.00	175.00		○
9.000	2	325.00	175.00		○
10.000	2	335.00	185.00		○
10.320	2	335.00	185.00		○
10.500	2	335.00	185.00		○
10.720	2	345.00	195.00		○
11.000	2	345.00	195.00		○
11.110	2	345.00	195.00		○
11.510	2	345.00	195.00		○
12.000	2	355.00	205.00		○
12.500	2	355.00	205.00		○
12.800	2	355.00	205.00		○
13.000	2	355.00	205.00		○
13.100	2	355.00	205.00		○
13.490	2	370.00	220.00		○
14.000	2	370.00	220.00		○
14.290	2	370.00	220.00	○	
14.500	2	370.00	220.00	○	
15.000	2	370.00	220.00	○	
15.480	2	380.00	230.00	○	
15.500	2	380.00	230.00	○	
16.000	2	380.00	230.00	○	
17.860	2	395.00	245.00	○	
18.000	2	395.00	245.00	○	
19.000	2	395.00	245.00	○	
19.840	2	410.00	260.00	○	
20.000	2	410.00	260.00	○	
20.500	2	410.00	260.00	○	
20.640	2	410.00	260.00	○	
21.430	2	420.00	270.00	○	
21.500	2	420.00	270.00	○	
22.000	2	420.00	270.00	○	
22.220	2	420.00	270.00	○	
22.500	2	420.00	270.00	○	
23.500	3	438.00	270.00	○	
23.810	3	458.00	290.00	○	
25.000	3	458.00	290.00	○	
25.500	3	458.00	290.00	○	
26.000	3	458.00	290.00	○	
27.780	3	473.00	305.00	○	
28.500	3	473.00	305.00	○	
28.570	3	473.00	305.00	○	
29.000	3	473.00	305.00	○	
29.370	3	473.00	305.00	○	
29.500	3	473.00	305.00	○	
30.000	3	473.00	305.00	○	
30.500	3	488.00	320.00	○	
31.000	3	488.00	320.00	○	
31.500	3	488.00	320.00	○	

Taper shank twist drills

Deep hole twist drills with internal coolant

Catalogue no. 71566



For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Stock std. series 2

Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	14.50
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably larger than standard
Web taper: standard
Flute form: STOCK-V-63
Web thinning: to DIN 1412, form A

Deep hole twist drills with internal coolant

Catalogue no. 71568



With oversive taper shank.

For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Stock std. series 2

Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	8.00
Tolerance	h8

Helix angle: larger than standard
Web thickness: considerably larger than standard
Web taper: standard
Flute form: STOCK-V-63
Web thinning: to DIN 1412, form A

Subland drills

Straight shank subland drills

Catalogue no. **71501**



Standard drill for the efficient production of clearance holes to DIN EN 20 273 and screw head angles of 90°, form A and B, to DIN 74, section 1. For screws to DIN 963 and DIN 964.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8374 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	6.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Straight shank subland drills

Catalogue no. **71502**



Standard drill for the efficient production of clearance holes to DIN EN 20 273 and screw head angles of 90°, form A and B, to DIN 74, section 1. For screws to DIN 963 and DIN 964.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

Stock std. 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	3.40
Tolerance	h9

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Straight shank subland drills

Catalogue no. **71503**



Standard drill for the efficient production of tapping-size holes to DIN 336, section 1, and 90° screw head countersinks corresponding to the clearance holes of DIN EN20 273.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8378 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	3.40
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Subland drills

Straight shank subland drills

Catalogue
no. **71500**



A standard drill for the production of clearance holes to DIN EN 20 273 and 180° screw head countersinks, form H, J and K, to DIN 74, section 2. For screws to DIN 84, DIN 912, DIN 6912, DIN 7513 and DIN 7984.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8376 180°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	6.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Subland drills

Taper shank subland drills

Catalogue
no. 71523



Standard drill for the efficient production of tapping-size holes to DIN 336, section 1, and 90° screw head counter sinks corresponding to the clearance holes of DIN EN20 273.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8379 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	9.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Taper shank subland drills

Catalogue
no. 71520



A standard drill for the production of clearance holes to DIN EN 20 273 and 180° screw head counter sinks, form H, J and K, to DIN 74, section 2. For screws to DIN 84, DIN 912, DIN 6912, DIN 7513 and DIN 7984.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8377 180°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	10.00
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Center drills

Center drills without flat

Catalogue no. **71600**



Standard drill for producing centre holes acc. to DIN 332, Sheet 1, form A (without protecting chamfer).
Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body Ø: h7 (to DIN h9)
tol. on pilot Ø (to new standard):
Ø 0,50 – 2,50 = + 0,14 mm
Ø 3,15 – 5,00 = + 0,18 mm
Ø 6,30 – 10,0 = + 0,22 mm
Ø 12,50 = + 0,27 mm
Web thinning: to DIN 1412, form A

Center drills without flat

Catalogue no. **71601**



Standard drill for producing centre holes acc. to DIN 332, Sheet 1, form A (without protecting chamfer).
Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	bright
Form	A
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body Ø: h7 (to DIN h9)
tol. on pilot Ø (to new standard):
Ø 0,50 – 2,50 = + 0,14 mm
Ø 3,15 – 5,00 = + 0,18 mm
Ø 6,30 – 10,0 = + 0,22 mm
Ø 12,50 = + 0,27 mm
Web thinning: to DIN 1412, form A

Center drills

Center drills without flat

Catalogue no. **71605**



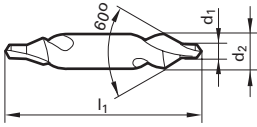
Special purpose drill for producing centre holes to DIN 332, sheet 1, form A (without protecting chamfer), except for an annular groove at the junction of the countersink and the drilled hole. Special features of these tools are: high fracture-resistant properties, specially strengthened form at the junction of the pilot and body which permits high metal removal rates, special form cuts annular groove which acts as a reservoir for the lubricant.

Stock std. reinf. neck

Tool material	HSS
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body $\emptyset$: h7 (to DIN h9)
 tol. on pilot $\emptyset$ (to new standard):
 $\emptyset$ 0,50 – 2,50 = + 0,14 mm
 $\emptyset$ 3,15 – 5,00 = + 0,18 mm
 $\emptyset$ 6,30 – 10,0 = + 0,22 mm
 $\emptyset$ 12,50 = + 0,27 mm
 Web thinning: to DIN 1412, form A

Center drills without flat



Catalogue no.	71605
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	bright

[illegible]

Center drills

Center drills without flat

Catalogue
no. **71604**



Special purpose drill for producing centre holes to DIN 332, Sheet 1, form B (with protecting countersink of 120°).

DIN 333

Tool material	HSS
Surface	bright
Form	B
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body $\emptyset$: h7 (to DIN h9)
 tol. on pilot $\emptyset$ (to new standard):
 $\emptyset$ 0,50 – 2,50 = + 0,14 mm
 $\emptyset$ 3,15 – 5,00 = + 0,18 mm
 $\emptyset$ 6,30 – 10,0 = + 0,22 mm
 $\emptyset$ 12,50 = + 0,27 mm
 Web thinning: to DIN 1412, form A

Center drills

Center drills without flat

Catalogue no. **71602**



Special purpose drill for producing centre holes to DIN 332, sheet 1, form R (radiused). Special features of these tools are: 1. high fracture-resistant properties. 2. precise concentricity of the point in relation to the body. 3. radiused form providing a protected centre hole.

Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	bright
Form	R
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body Ø: h7 (to DIN h9)
tol. on pilot Ø (to new standard):
Ø 0,50 – 2,50 = + 0,14 mm
Ø 3,15 – 5,00 = + 0,18 mm
Ø 6,30 – 10,0 = + 0,22 mm
Ø 12,50 = + 0,27 mm
Web thinning: to DIN 1412, form A

Center drills without flat

Catalogue no. **61602**



Special purpose drill for producing centre holes to DIN 332, sheet 1, form R (radiused). Special features of these tools are: 1. high fracture-resistant properties. 2. precise concentricity of the point in relation to the body. 3. radiused form providing a protected centre hole.

Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	TiN
Form	R
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body Ø: h7 (to DIN h9)
tol. on pilot Ø (to new standard):
Ø 0,50 – 2,50 = + 0,14 mm
Ø 3,15 – 5,00 = + 0,18 mm
Ø 6,30 – 10,0 = + 0,22 mm
Ø 12,50 = + 0,27 mm
Web thinning: to DIN 1412, form A

Center drills

Center drills with flat

Catalogue no. **71607**



Special purpose drill for producing centre holes to DIN 332, sheet 1, form A (without protecting chamfer). For centering and facing machines where the end face is required to be dressed and centred in the same operation.

Stock std.

Tool material	HSS
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body $\emptyset$: h7 (to DIN h9)
 tol. on pilot $\emptyset$ (to new standard):
 $\emptyset 0,50 - 2,50 = + 0,14 \text{ mm}$
 $\emptyset 3,15 - 5,00 = + 0,18 \text{ mm}$
 $\emptyset 6,30 - 10,0 = + 0,22 \text{ mm}$
 $\emptyset 12,50 = + 0,27 \text{ mm}$
 Web thinning: to DIN 1412, form A

Center drills with flat

Catalogue no. **71609**



Special purpose drill for producing centre holes to DIN 332, sheet 1, form R (radiused). For centering and facing machines where the end face is required to be dressed and centered in the same operation. Special features of these tools are:

1. high fracture-resistant properties.
2. precise concentricity of the point in relation to the body.
3. radiused form providing a protected centre hole.

Stock std.

Tool material	HSS
Surface	bright
Form	R
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance	

tol. on body $\emptyset$: h7 (to DIN h9)
 tol. on pilot $\emptyset$ (to new standard):
 $\emptyset 0,50 - 2,50 = + 0,14 \text{ mm}$
 $\emptyset 3,15 - 5,00 = + 0,18 \text{ mm}$
 $\emptyset 6,30 - 10,0 = + 0,22 \text{ mm}$
 $\emptyset 12,50 = + 0,27 \text{ mm}$
 Web thinning: to DIN 1412, form A

bright

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Core drills

Straight shank core drills

Catalogue
no. 72200



Core drills are used for enlarging punched, drilled or cored holes. The extremely rigid, 3-flute design serves to correct both the alignment and the concentricity of existing holes. In addition, the finish of the hole is improved, creating, where required, the best conditions for final reaming.

Note: It must be kept in mind that the hole to be enlarged must have a diameter larger than the diameter of the core drill measured across the inner corners of the cutting edges. See the column headed „Min. hole size“ in the size table.

DIN 344

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: normal

Core drills

Taper shank core drills

Catalogue no. 72210



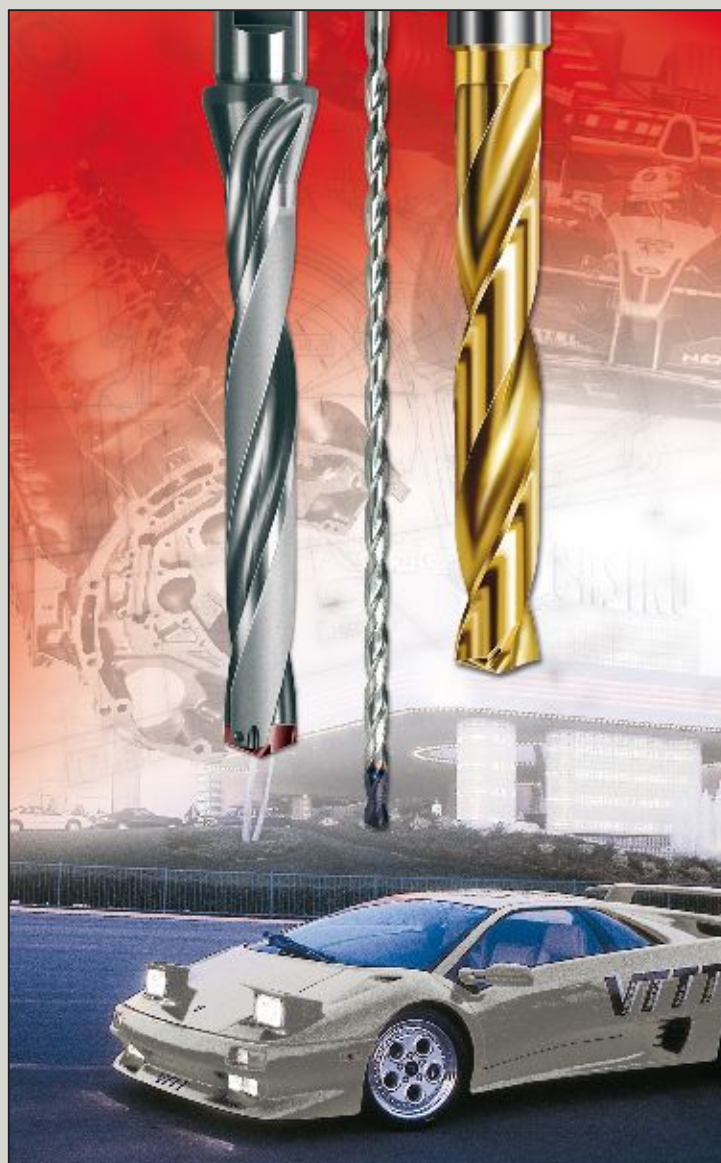
Core drills are used for enlarging punched, drilled or cored holes. The extremely rigid, 3-flute design serves to correct both the alignment and the concentricity of existing holes. In addition, the finish of the hole is improved, creating, where required, the best conditions for final reaming.

Note: It must be kept in mind that the hole to be enlarged must have a diameter larger than the diameter of the core drill measured across the inner corners of the cutting edges. See the column headed „Min. hole size“ in the size table.

DIN 343

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	
Tolerance	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: normal



Automotive Industry

Chip – by Chip – to the Top