

GUHRINGNAVIGATOR Micro-precision drills

Tools with bold feed column no. are preferred choice.

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

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

Drill Ø mm	Feed column no.												
	56	57	58	59	60	61	62	63	64	65	66	67	68
	f (mm/rev.)												
0.50	0.006	0.012	0.018	0.022	0.030	0.035	0.040	0.045	0.050	0.050	0.055	0.060	0.060
0.80	0.008	0.016	0.024	0.032	0.040	0.050	0.060	0.070	0.080	0.080	0.080	0.090	0.090
1.00	0.012	0.022	0.032	0.042	0.060	0.070	0.080	0.090	0.100	0.100	0.110	0.110	0.120
1.50	0.021	0.036	0.051	0.066	0.090	0.100	0.120	0.130	0.150	0.150	0.160	0.170	0.180
2.00	0.032	0.052	0.072	0.092	0.120	0.140	0.160	0.180	0.200	0.210	0.220	0.230	0.240
2.50	0.045	0.070	0.095	0.120	0.150	0.170	0.200	0.220	0.250	0.260	0.270	0.280	0.300
3.00	0.060	0.090	0.120	0.150	0.180	0.210	0.240	0.270	0.300	0.310	0.330	0.340	0.360

Coolant:

- Air
- Neat oil
- Soluble oil

Cutting direction:

Ⓜ right-hand cutting

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



	≤4xD	≤7xD	≤5xD	≤8xD	≤15xD	≤20xD
5652	6400	6401	6405	6408	6412	6493
Company std.	Company std.	Company std.	Company std.	Company std.	Company std.	Company std.
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
K/P	K/P	K/P	K/P	K/P	K/P	K/P
N	N	N	N	N	N	N
114	115	117	119	121	123	125

Drilling tools

V _c m/min	Feed col. no.	V _c m/min	Feed col. no.		V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
100	62	100	64	62	105	58	100	59
100	62	100	64	62	100	58	85	58
100	62	100	64	62	105	59	85	58
90	61	90	63	61	90	59	75	57
90	62	90	64	62	95	58	85	58
90	62	90	64	62	95	58	85	58
90	61	90	63	61	90	58	75	57
90	61	90	63	61	90	58	75	57
70	60	70	62	60	70	58	70	57
100	61	100	63	61	100	57	85	58
85	61	85	63	61	85	58	75	57
70	60	70	62	60	70	58	70	57
70	60	70	62	60	70	57	75	57
60	60	60	62	60	60	57	70	57
50	60	50	62	60	60	58	80	57
60	60	60	62	60	60	58	70	56
		60	57	57	60	57	70	56
		60	57	57	60	57	70	56
		30	57	57	70	57	70	57
		15	56	56	60	56	80	57
		30	57	57	70	57	70	56
130	66	130	68	66	150	60	120	59
130	66	130	68	66	140	60	120	58
130	66	130	68	66	140	60	120	59
120	65	120	67	65	130	60	110	58
		10	56	56	25	56	20	56
		15	56	56	35	56	35	56
		15	56	56	35	56	25	56
		70	68	68	100	68	135	60
		70	68	68	100	68	135	60
		135	59	59	135	59	135	60
		135	59	59	135	59	115	60
							135	59
							130	58
							110	58
							110	57
							110	57
							110	57
							105	57
							105	57