

# GUHRING Navigator

Made by Guhring

## RT 100 R-Application recommendations

**General hints:**

Powerful machines, no play in spindle bearings, alignment accurate tool holders. Max. concentricity error of clamped tools 0.02 mm, high coolant pressures. We recommend the application of hydraulic chucks or shrink fit chucks.

**Coolant hints:**

We recommend lubrication by soluble oil or neat oil. Under special conditions cooling just by air is possible. But instead of air cooling we would always prefer minimal quantity lubrication, that the tools are especially suited for. With MQL we recommend the conical shank end and the Guhring MQL components. Please contact our technical service department for more information.

- FIRE-coated
- with coolant ducts

drill-Ø mm	Feed column no.								
	1	2	3	4	5	6	7	8	9
	f (mm/rev.)								
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

Tool material	VHM	
Carbide grade	K20	
Surface finish	●	
Cooling	■	
Drilling depth	~ 5 x D	~ 7 x D
Guh. no.	DIN 6537	6501
	Guhring std.	6502



Material	Material example <i>Figures in bold = material no. to DIN EN 10 027</i>	Tens. strength Hard- MPa (N/mm <sup>2</sup> ) ness	Vc m/min	Feed column no.	
Common structural steels	<b>1.0035</b> S185, <b>1.0486</b> StE P275N, <b>1.0345</b> P235GH, <b>1.0425</b> P265GH <b>1.0050</b> E295, <b>1.0070</b> E360, <b>1.8937</b> P500NH	≤ 500 > 500-850			
Free-cutting steels	<b>1.0718</b> 11SMnPb30, <b>1.0736</b> 115Mn37 <b>1.0727</b> 46 S20, <b>1.0728</b> 60 S20, <b>1.0757</b> 46SPb20	≤850 850-1000			
Unalloyed heat-treatable steels	<b>1.0402</b> C22, <b>1.1178</b> C30E <b>1.0503</b> C45, <b>1.1191</b> C45E <b>1.0601</b> C60, <b>1.1221</b> C60E	≤700 700-850 850-1000			
Alloyed heat-treatable steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-1000 1000-1200			
Unalloyed case hardened steels	<b>1.0301</b> C10, <b>1.1121</b> C10E	≤750			
Alloyed case hardened steels	<b>1.7043</b> 38Cr4 <b>1.5752</b> 14NiCr14, <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-1000 1000-1200			
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	850-1000 1000-1200			
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 850-1000			
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> 61CrV4	≥650-1000			
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4	≤330 HB			
Stainless steels, sulphured austenitic martensitic	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18 9 <b>1.4301</b> X5CrNi18 10, <b>1.4541</b> X6CrNiTi18 10, <b>1.4571</b> X6CrNiMoTi 17 12 2 <b>1.4057</b> X17CrNi16-1, <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18 2	≤850 ≤850 ≤850			
Hardened steels	-	≤40-60 HRC			
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200			
Cast iron	<b>0.6010</b> EN-GJL-100 (GG10), <b>0.6020</b> EN-GJL-200 (GG20) <b>0.6025</b> EN-GJL-250 (GG25), <b>0.6035</b> EN-GJL-350 (GG35)	≤240 HB <300 HB	210 160	9 9	8 8
New cast materials GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo 6		130 100	8 8	7 7
New cast materials ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400	80 60	8 8	7 7
Spheroidal graphite and malleable cast iron	<b>0.7050</b> EN-GJS-500-7 (GGG50), <b>0.8035</b> EN-GJMW-350-4 (GTW35) <b>0.7070</b> EN-GJS-700-2 (GGG70), <b>0.8170</b> EN-GJMB-700-2 (GTS70)	≤240 HB <300 HB	160 130	9 8	8 7
Chilled cast iron	-	≤350 HB			
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7164</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, -TiAl8Mo1V1	≤850 850-1200			
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400			
Al wrought alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450			
Al cast iron ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600			
> 10 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600			
Magnesium alloys	MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	≤450			
Copper, low-alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400			
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600			
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600			
Bronze, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600			
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	>600-850			
Bronze, long-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤850			
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	850-1000			