



TS 100 T - Recommendations

Procedure:

- Initial milling of surface. The surface must be machined at right angles to the entry angle of the drilling operation.
- Production of a cylindrical pilot hole (tolerance F9) with a minimum drilling depth of 1 x D.
- Entry in the pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
- Setting of coolant pressure and speed.
- Continuous drilling to complete hole depth without wood pecking.
- For through holes with plain - i.e. 90° - exit, reduce the feed rate v_f to 50% approx. 1 mm prior to break-through.
- For through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to break-through.
- After reaching hole depth, stop machine spindle and coolant supply, withdrawal in top gear.

TS 100 T - on deep hole drilling machines

After checking the clamping and the total length, the application of TS 100 T is possible on deep hole drilling machines with a guide bush.

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



All deep hole drills must have support for the pilot hole.
Deep hole drills must never operate at full speed without support in the machine shop.

Material group	Material examples, new description (old description in brackets) <i>Figures in bold = material no. to DIN EN</i>	Tensile strength MPa (N/mm ²)	Hardness
Common structural steels	1.0035 S185, 1.0486 StE P275N, 1.0345 P235GH, 1.0425 P265GH 1.0050 E295, 1.0070 E360, 1.8937 P500NH	≤ 500 > 500-850	
Free-cutting steels	1.0718 11SMnPb30, 1.0736 115Mn37 1.0727 46 S20, 1.0728 60 S20, 1.0757 46SPb20	≤ 850 850-1000	
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C45E 1.0601 C60, 1.1221 C60E	≤ 700 700-850 850-1000	
Alloyed heat-treatable 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	≤ 750	
Alloyed case hardened steels	1.7043 38Cr4 1.5752 14NiCr14, 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 61CrV4	≥ 650-1000	
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4		≤ 330 HB
Stainless steels, sulphured austenitic martensitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4301 X5CrNi18 10, 1.4541 X6CrNiTi18 10, 1.4571 X6CrNiMoTi 17 12 2 1.4057 X17CrNi16-1, 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
New cast materials CGI	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400	
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 < 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, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤ 850 850-1200	
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	≤ 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	MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	≤ 450	
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤ 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	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤ 600 > 600-850	
Bronze, long-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2 2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤ 850 850-1000	

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Order no.	86509				86511				86512				86513				86514			
Standard	Hartner std.				Hartner std.				Hartner std.				Hartner std.				Hartner std.			
Tool material	Solid carbide				Solid carbide				Solid carbide				Solid carbide				Solid carbide			
Carbide grade	K30/K40				K30/K40				K30/K40				K30/K40				K30/K40			
Surface finish	A TiAlN-tip-coated				A TiAlN-tip-coated				A TiAlN-tip-coated				A TiAlN-tip-coated				A TiAlN-tip-coated			
Drilling depth	15 x D				20 x D				25 x D				30 x D				40 x D			
NEW     NEW 																				
conventional cooling min. 40 bar		MQL		conventional cooling min. 40 bar		MQL		conventional cooling min. 40 bar		MQL		conventional cooling min. 40 bar		MQL		conventional cooling min. 40 bar				
Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.	Vc (m/min)	Feed col. no.			
110	8			110	8			100	8			80	7			80	7			
110	8			110	8			100	8			80	7			80	7			
120	8			120	8			120	8			100-120	8			100	8			
120	8			120	8			100	8			100	8			100	8			
110	6			110	6			110	6			110	6			110	6			
110	8			110	8			100	8			80	7			80	7			
100	7			100	7			100	7			80	7			80	7			
110	7	80	7	110	7	80	7	100	7	70	7	80	7	60	6-7	80	6-7			
110	6	80	7	110	6	80	7	100	6	70	7	80	6	60	6	80	6			
110	8			110	8			100	8			80	7			80	7			
110	7	80	6-7	110	7	80	6-7	100	7	70	6-7	80	6	60	6-7	80	6			
110	6	80	6-7	110	6	80	6-7	100	6	70	6-7	80	6	60	6-7	80	6			
100	5			100	5			80	5			80	5			80	5			
80	5			80	5			60	5			60	5			60	5			
100	6-7			100	6-7			90	6-7			80	6-7			80	6-7			
80	5			80	5			70	4			70	4			70	4			
50	5			50	5			50	4			50	4			50	4			
50	5			50	5			50	4			50	4			50	4			
100	5			100	5			100	5			80	5			80	5			
60-80	2-3			60-80	2-3			60-80	2-3			60-80	2-3			60-80	2-3			
100	5			100	5			100	5			80	5			80	5			
50	4			50	4			50	4			50	4			50	4			
30	2			30	2			30	2			30	2			30	2			
140	8			140	8			130	8			120	8			120	8			
100	8			100	8			90	8			80	8			80	8			
100	6			100	6			90	6			80	6			80	6			
100	6			100	6			90	6			80	6			80	6			
90	8	90	8	90	8	90	8	80	8	80	8	70	8	70	8	70	8			
140	8			140	8			130	8			120	8			120	8			
100	8			100	8			90	8			80	8	65	8	80	8			
120	1			120	1			120	1			120	1			120	1			
120	8			120	8			110	8			100	8			100	8			