

				High Performance Internal Coolant Drills						
Series 140M 5D Metric	Hardness BRINELL	Vc (m/min)		Diameter (D ₁) (mm)						
				3	6	8	10	12	14	16
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	46	RPM	4877	2438	1829	1463	1219	1045	914
		> 270 ≤ 370 (37-55)	Fr	0.065	0.085	0.115	0.145	0.170	0.200	0.230
			Feed (mm/min)	317	207	210	212	207	209	210
		37	RPM	3923	1961	1471	1177	981	841	735
		> 270 ≤ 370 (30-44)	Fr	0.055	0.070	0.095	0.120	0.145	0.170	0.190
			Feed (mm/min)	132	137	140	141	142	143	140
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	30	RPM	3181	1590	1193	954	795	682	596
		≤ 220 (24-36)	Fr	0.035	0.050	0.065	0.080	0.095	0.110	0.130
			Feed (mm/min)	111	80	78	62	76	75	78
		21	RPM	2226	1113	835	668	557	477	417
		> 220 ≤ 330 (17-25)	Fr	0.030	0.035	0.050	0.065	0.070	0.090	0.105
			Feed (mm/min)	67	39	42	43	39	43	44
		15	RPM	1590	795	596	477	398	341	298
		> 330 ≤ 420 (12-18)	Fr	0.020	0.025	0.030	0.040	0.050	0.055	0.065
			Feed (mm/min)	32	20	18	19	20	19	19
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	61	RPM	6467	3234	2425	1940	1617	1386	1213
		≤ 280 (49-73)	Fr	0.065	0.085	0.115	0.145	0.170	0.200	0.230
			Feed (mm/min)	420	275	279	281	275	277	279
		49	RPM	5195	2597	1948	1558	1299	1113	974
		> 280 ≤ 350 (39-59)	Fr	0.055	0.070	0.095	0.120	0.145	0.170	0.190
			Feed (mm/min)	286	182	185	187	188	189	185
		37	RPM	3923	1961	1471	1177	981	841	735
		> 350 ≤ 440 (30-44)	Fr	0.045	0.060	0.085	0.105	0.120	0.145	0.165
			Feed (mm/min)	177	118	125	124	118	122	121
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	235	RPM	24914	12457	9343	7474	6228	5339	4671
		≤ 80 (188-282)	Fr	0.200	0.265	0.355	0.440	0.530	0.620	0.705
			Feed (mm/min)	4983	3301	3317	3289	3301	3310	3293
		201	RPM	21309	10655	7991	6393	5327	4566	3996
		> 80 (161-241)	Fr	0.180	0.240	0.320	0.400	0.485	0.560	0.640
			Feed (mm/min)	3836	2557	2557	2557	2584	2557	2557
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	168	RPM	17811	8905	6679	5343	4453	3817	3340
		≤ 140 (134-202)	Fr	0.070	0.095	0.130	0.160	0.195	0.225	0.255
			Feed (mm/min)	1247	846	868	855	868	859	852
		134	RPM	14206	7103	5327	4262	3552	3044	2664
		> 140 (107-161)	Fr	0.070	0.095	0.130	0.160	0.195	0.225	0.255
			Feed (mm/min)	994	675	693	682	693	685	679

rpm = (1000 x m/min) / (3.14 x D₁)

mm / min = (mm / revolution) x rpm

reduce speed and feed for materials harder than listed

refer to the SGS Tool Wizard for complete technical information ()