

Speed & Feed Recommendations



				Diameter (D ₁) (mm)							High Performance Internal Coolant Drills
Series 140M 8D Metric	Hardness BRINELL	Vc (m/min)									
				3	6	8	10	12	14	16	
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	> 270 ≤ 370	40	RPM	4241	2120	1590	1272	1060	909	795
			(32-48)	Fr	0.065	0.085	0.115	0.145	0.170	0.200	0.230
				Feed (mm/min)	276	180	183	184	180	182	183
		> 270 ≤ 370	30	RPM	3181	1590	1193	954	795	682	596
			(24-36)	Fr	0.055	0.070	0.095	0.120	0.145	0.170	0.190
				Feed (mm/min)	175	111	113	114	115	116	113
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	≤ 220	24	RPM	2544	1272	954	763	636	545	477
			(19-29)	Fr	0.030	0.035	0.050	0.065	0.070	0.090	0.105
				Feed (mm/min)	76	45	132	9160	45	49	50
		> 220 ≤ 330	15	RPM	1590	795	596	477	398	341	298
			(12-18)	Fr	0.020	0.025	0.030	0.040	0.050	0.055	0.065
				Feed (mm/min)	32	20	210	19	20	19	19
		> 330 ≤ 420	11	RPM	1166	583	437	350	292	250	219
			(9-13)	Fr	0.020	0.025	0.030	0.040	0.050	0.055	0.065
				Feed (mm/min)	23	15	13	14	15	14	14
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	≤ 280	55	RPM	5831	2915	2187	1749	1458	1249	1093
			(44-66)	Fr	0.055	0.070	0.095	0.120	0.145	0.170	0.190
				Feed (mm/min)	321	204	208	210	211	212	208
		> 280 ≤ 350	48	RPM	5089	2544	1908	1527	1272	1090	954
			(38-58)	Fr	0.045	0.060	0.085	0.105	0.120	0.145	0.165
				Feed (mm/min)	229	153	162	160	153	158	157
		> 350 ≤ 440	34	RPM	3605	1802	1352	1081	901	772	676
			(27-41)	Fr	0.035	0.050	0.065	0.080	0.095	0.110	0.130
				Feed (mm/min)	126	90	88	87	86	85	88
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 80	223	RPM	23642	11821	8866	7093	5910	5066	4433
			(178-268)	Fr	0.180	0.240	0.320	0.400	0.485	0.560	0.640
				Feed (mm/min)	4256	2837	2837	2837	2867	2837	2837
		> 80	192	RPM	20355	10178	7633	6107	5089	4362	3817
			(154-230)	Fr	0.165	0.215	0.290	0.360	0.435	0.505	0.575
				Feed (mm/min)	3359	2188	2214	2198	2214	2203	2195
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140	158	RPM	16751	8375	6281	5025	4188	3589	3141
			(126-190)	Fr	0.065	0.085	0.115	0.145	0.170	0.200	0.230
				Feed (mm/min)	1089	712	722	729	712	718	722
		> 140	128	RPM	13570	6785	5089	4071	3393	2908	2544
			(102-154)	Fr	0.065	0.085	0.115	0.145	0.170	0.200	0.230
				Feed (mm/min)	882	577	585	590	577	582	585

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 ()