

	Series 101M, 108M Metric	Hardness BRINELL	Vc (m/min)	Diameter (D ₁) (mm)							
				1	3	6	8	10	12	16	
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	≤ 270	20	RPM	6301	2100	1050	788	630	525	394
			(16-24)	Fr	0.005	0.020	0.045	0.055	0.065	0.085	0.115
				Feed (mm/min)	32	42	47	43	41	45	45
		> 270 ≤ 370	17	RPM	5332	1777	889	666	533	444	333
			(13-20)	Fr	0.005	0.020	0.035	0.050	0.065	0.070	0.105
				Feed (mm/min)	27	36	31	33	35	31	35
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	≤ 220	12	RPM	3878	1293	646	485	388	323	242
			(10-15)	Fr	0.005	0.020	0.045	0.055	0.065	0.085	0.115
				Feed (mm/min)	19	26	29	27	25	27	28
		> 220 ≤ 330	8	RPM	2424	808	404	303	242	202	151
			(6-9)	Fr	0.005	0.020	0.035	0.050	0.065	0.070	0.105
				Feed (mm/min)	12	16	14	15	16	14	16
		> 330 ≤ 420	6	RPM	1939	646	323	242	194	162	121
			(5-7)	Fr	0.010	0.025	0.030	0.040	0.050	0.065	0.080
				Feed (mm/min)	19	16	10	10	10	11	10
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	≤ 280	26	RPM	8240	2747	1373	1030	824	687	515
			(21-31)	Fr	0.015	0.040	0.075	0.105	0.135	0.155	0.205
				Feed (mm/min)	124	110	103	108	111	106	106
		> 280 ≤ 350	20	RPM	6301	2100	1050	788	630	525	394
			(16-24)	Fr	0.005	0.020	0.045	0.055	0.065	0.085	0.115
				Feed (mm/min)	32	42	47	43	41	45	45
		> 350 ≤ 440	17	RPM	5332	1777	889	666	533	444	333
			(13-20)	Fr	0.005	0.020	0.035	0.050	0.065	0.070	0.105
				Feed (mm/min)	27	36	31	33	35	31	35
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 80	165	RPM	52348	17449	8725	6544	5235	4362	3272
			(132-198)	Fr	0.020	0.060	0.120	0.160	0.200	0.240	0.320
				Feed (mm/min)	1047	1047	1047	1047	1047	1047	1047
		> 80	139	RPM	44108	14703	7351	5514	4411	3676	2757
			(111-166)	Fr	0.020	0.060	0.120	0.160	0.200	0.240	0.320
				Feed (mm/min)	882	882	882	882	882	882	882
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140	58	RPM	18419	6140	3070	2302	1842	1535	1151
			(46-69)	Fr	0.010	0.030	0.060	0.075	0.095	0.120	0.165
				Feed (mm/min)	184	184	184	173	175	184	190
		> 140	53	RPM	16965	5655	2827	2121	1696	1414	1060
			(43-64)	Fr	0.010	0.030	0.060	0.075	0.095	0.120	0.165
				Feed (mm/min)	170	170	170	159	161	170	175
	PLASTICS Polycarbonate, PVC		152	RPM	48471	16157	8078	6059	4847	4039	3029
			(122-183)	Fr	0.020	0.060	0.120	0.160	0.200	0.240	0.320
				Feed (mm/min)	969	969	969	969	969	969	969

$$\text{rpm} = (1000 \times \text{m/min}) / (3.14 \times D_1)$$

$$\text{mm / min} = (\text{mm / revolution}) \times \text{rpm}$$

reduce speed and feed rates shown by 30 percent when using uncoated drills

reduce speed and feed for materials harder than listed

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