

	Series 135M 3D Metric	Hardness BRINELL	Vc (m/min)	Diameter (D ₁) (mm)							
				3	6	8	10	12	16	20	
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	> 270 ≤ 370	27	RPM	2908	1454	1091	872	727	545	436
			(22-33)	Fr	0.035	0.070	0.095	0.120	0.145	0.190	0.240
				Feed (mm/min)	102	102	104	105	105	104	105
		> 270 ≤ 370	21	RPM	2262	1131	848	679	565	424	339
			(17-26)	Fr	0.035	0.070	0.095	0.120	0.145	0.190	0.240
				Feed (mm/min)	79	79	81	81	82	81	81
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	≤ 220	18	RPM	1939	969	727	582	485	364	291
			(15-22)	Fr	0.025	0.050	0.065	0.080	0.095	0.130	0.160
				Feed (mm/min)	48	48	47	47	46	47	47
		> 220 ≤ 330	12	RPM	1293	646	485	388	323	242	194
			(10-15)	Fr	0.020	0.035	0.050	0.065	0.070	0.105	0.125
				Feed (mm/min)	26	23	24	25	23	25	24
		> 330 ≤ 420	9	RPM	969	485	364	291	242	182	145
			(7-11)	Fr	0.010	0.025	0.030	0.040	0.050	0.065	0.080
				Feed (mm/min)	10	12	11	12	12	12	12
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	≤ 280	37	RPM	3878	1939	1454	1163	969	727	582
			(29-44)	Fr	0.040	0.085	0.115	0.145	0.170	0.230	0.285
				Feed (mm/min)	155	165	167	169	165	167	166
		> 280 ≤ 350	30	RPM	3231	1616	1212	969	808	606	485
			(24-37)	Fr	0.035	0.070	0.095	0.120	0.145	0.190	0.240
				Feed (mm/min)	113	113	115	116	117	115	116
		> 350 ≤ 440	21	RPM	2262	1131	848	679	565	424	339
			(17-26)	Fr	0.030	0.060	0.085	0.105	0.120	0.165	0.205
				Feed (mm/min)	68	68	72	71	68	70	70
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 80	213	RPM	22620	11310	8482	6786	5655	4241	3393
			(171-256)	Fr	0.135	0.265	0.355	0.440	0.530	0.705	0.880
				Feed (mm/min)	3054	2997	3011	2986	2997	2990	2986
		> 80	183	RPM	19388	9694	7271	5816	4847	3635	2908
			(146-219)	Fr	0.120	0.240	0.320	0.400	0.485	0.640	0.800
				Feed (mm/min)	2327	2327	2327	2327	2351	2327	2327
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140	152	RPM	16157	8078	6059	4847	4039	3029	2424
			(122-183)	Fr	0.050	0.095	0.130	0.160	0.195	0.255	0.320
				Feed (mm/min)	808	767	788	776	788	773	776
		> 140	122	RPM	12926	6463	4847	3878	3231	2424	1939
			(98-146)	Fr	0.050	0.095	0.130	0.160	0.195	0.255	0.320
				Feed (mm/min)	646	614	630	620	630	618	620

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 ()