



	Series 135 5D Fractional	Hardness BRINELL	Vc (SFM)		Diameter (D ₁) (inch)						
					1/8	3/16	1/4	3/8	1/2	5/8	3/4
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	> 270 ≤ 370	80	RPM	2445	1630	1222	815	611	489	407
			(64-96)	Fr	0.0018	0.0026	0.0035	0.0055	0.0070	0.0090	0.0125
				Feed (IPM)	4.3	4.2	4.3	4.5	4.3	4.4	5.1
		> 270 ≤ 370	60	RPM	1834	1222	917	611	458	367	306
			(48-72)	Fr	0.0015	0.0023	0.0030	0.0045	0.0060	0.0075	0.0105
				Feed (IPM)	2.8	2.8	2.8	2.8	2.8	2.8	3.2
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	≤ 220	50	RPM	1528	1019	764	509	382	306	255
			(40-60)	Fr	0.0010	0.0015	0.0020	0.0030	0.0040	0.0050	0.0070
				Feed (IPM)	1.5	1.5	1.5	1.5	1.5	1.5	1.8
		> 220 ≤ 330	30	RPM	917	611	458	306	229	183	153
			(24-36)	Fr	0.0008	0.0012	0.0015	0.0025	0.0030	0.0040	0.0055
				Feed (IPM)	0.7	0.7	0.7	0.8	0.7	0.7	0.8
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	> 330 ≤ 420	20	RPM	611	407	306	204	153	122	102
			(16-24)	Fr	0.0005	0.0008	0.0010	0.0015	0.0020	0.0025	0.0035
				Feed (IPM)	0.3	0.3	0.3	0.3	0.3	0.3	0.4
		≤ 280	100	RPM	3056	2037	1528	1019	764	611	509
			(80-120)	Fr	0.0018	0.0027	0.0035	0.0055	0.0070	0.0090	0.0125
				Feed (IPM)	5.3	5.5	5.3	5.6	5.3	5.5	6.4
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	> 280 ≤ 350	80	RPM	2445	1630	1222	815	611	489	407
			(64-96)	Fr	0.0015	0.0023	0.0030	0.0045	0.0060	0.0075	0.0105
				Feed (IPM)	3.7	3.7	3.7	3.7	3.7	3.7	4.3
		> 350 ≤ 440	60	RPM	1834	1222	917	611	458	367	306
			(48-72)	Fr	0.0013	0.0019	0.0025	0.0040	0.0050	0.0065	0.0090
				Feed (IPM)	2.3	2.3	2.3	2.4	2.3	2.4	2.8
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 80	630	RPM	19253	12835	9626	6418	4813	3851	3209
			(504-756)	Fr	0.0055	0.0083	0.0110	0.0165	0.0220	0.0275	0.0385
				Feed (IPM)	105.9	106.5	105.9	105.9	105.9	105.9	123.5
		> 80	540	RPM	16502	11002	8251	5501	4126	3300	2750
			(432-648)	Fr	0.0050	0.0075	0.0100	0.0150	0.0200	0.0250	0.0350
				Feed (IPM)	82.5	82.5	82.5	82.5	82.5	82.5	96.3
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140	450	RPM	13752	9168	6876	4584	3438	2750	2292
			(360-540)	Fr	0.0020	0.0030	0.0040	0.0060	0.0080	0.0100	0.0140
				Feed (IPM)	27.5	27.5	27.5	27.5	27.5	27.5	32.1
		> 140	360	RPM	11002	7334	5501	3667	2750	2200	1834
			(288-432)	Fr	0.0020	0.0030	0.0040	0.0060	0.0080	0.0100	0.0140
				Feed (IPM)	22.0	22.0	22.0	22.0	22.0	22.0	25.7

rpm = sfm x 3.82 / D₁

ipm = (inch / revolution) x rpm

reduce speed and feed for materials harder than listed

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