

Series 101 Fractional	Hardness BRINELL	Vc (SFM)		Diameter (D ₁) (inch)							
				1/64	1/32	1/16	1/8	1/4	3/8	1/2	
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	> 270 ≤ 370	65	RPM	15891	7946	3973	1986	993	662	497
			(52-78)	Fr	0.0001	0.0002	0.0005	0.0009	0.0018	0.0025	0.0035
				Feed (IPM)	1.6	1.6	2.0	1.8	1.8	1.7	1.7
		> 270 ≤ 370	55	RPM	13446	6723	3362	1681	840	560	420
			(44-66)	Fr	0.0001	0.0002	0.0004	0.0008	0.0015	0.0025	0.0030
				Feed (IPM)	1.3	1.3	1.3	1.3	1.3	1.4	1.3
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	≤ 220	40	RPM	9779	4890	2445	1222	611	407	306
			(32-48)	Fr	0.0001	0.0002	0.0005	0.0009	0.0018	0.0025	0.0035
				Feed (IPM)	1.0	1.0	1.2	1.1	1.1	1.0	1.1
		> 220 ≤ 330	25	RPM	6112	3056	1528	764	382	255	191
			(20-30)	Fr	0.0001	0.0002	0.0004	0.0008	0.0015	0.0025	0.0030
				Feed (IPM)	0.6	0.6	0.6	0.6	0.6	0.6	0.6
		> 330 ≤ 420	20	RPM	4890	2445	1222	611	306	204	153
			(16-24)	Fr	0.00005	0.0001	0.0002	0.0004	0.0008	0.0010	0.0015
				Feed (IPM)	0.2	0.2	0.2	0.2	0.2	0.2	0.2
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	≤ 280	85	RPM	20781	10390	5195	2598	1299	866	649
			(68-102)	Fr	0.0002	0.0004	0.0008	0.0016	0.0032	0.0050	0.0065
				Feed (IPM)	4.2	4.2	4.2	4.2	4.2	4.3	4.2
		> 280 ≤ 350	65	RPM	15891	7946	3973	1986	993	662	497
			(52-78)	Fr	0.0001	0.0002	0.0005	0.0009	0.0018	0.0025	0.0035
				Feed (IPM)	1.6	1.6	2.0	1.8	1.8	1.7	1.7
		> 350 ≤ 440	55	RPM	13446	6723	3362	1681	840	560	420
			(44-66)	Fr	0.0001	0.0002	0.0004	0.0008	0.0015	0.0025	0.0030
				Feed (IPM)	1.3	1.3	1.3	1.3	1.3	1.4	1.3
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 80	540	RPM	132019	66010	33005	16502	8251	5501	4126
			(432-648)	Fr	0.0003	0.0006	0.0013	0.0025	0.0050	0.0075	0.0100
				Feed (IPM)	39.6	39.6	42.9	41.3	41.3	41.3	41.3
		> 80	455	RPM	111238	55619	27810	13905	6952	4635	3476
			(364-546)	Fr	0.0003	0.0006	0.0013	0.0025	0.0050	0.0075	0.0100
				Feed (IPM)	33.4	33.4	36.2	34.8	34.8	34.8	34.8
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140	190	RPM	46451	23226	11613	5806	2903	1935	1452
			(152-228)	Fr	0.00015	0.0003	0.0006	0.0012	0.0024	0.0035	0.0050
				Feed (IPM)	7.0	7.0	7.0	7.0	7.0	6.8	7.3
		> 140	175	RPM	42784	21392	10696	5348	2674	1783	1337
			(140-210)	Fr	0.00015	0.0003	0.0006	0.0012	0.0024	0.0035	0.0050
				Feed (IPM)	6.4	6.4	6.4	6.4	6.4	6.2	6.7
	PLASTICS Polycarbonate, PVC	500	(400-600)	RPM	122240	61120	30560	15280	7640	5093	3820
				Fr	0.0003	0.0006	0.0013	0.0025	0.0050	0.0075	0.0100
				Feed (IPM)	36.7	36.7	39.7	38.2	38.2	38.2	38.2

rpm = sfm x 3.82 / D₁

ipm = (inch / revolution) x 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 ()