

				High Performance Internal Coolant Drills						
Series 140 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	150	RPM	4584	3056	2292	1528	1146	917	764
		> 270 (120-180)	Fr	0.0018	0.0027	0.0035	0.0055	0.0070	0.0090	0.0110
			Feed (IPM)	8.3	8.3	8.0	8.4	8.0	8.3	8.4
		120	RPM	3667	2445	1834	1222	917	733	611
		> 270 ≤ 370 (96-144)	Fr	0.0012	0.0023	0.0030	0.0045	0.0060	0.0075	0.0090
			Feed (IPM)	4.4	132.0	5.5	5.5	5.5	5.5	5.5
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	100	RPM	3056	2037	1528	1019	764	611	509
		≤ 220 (80-120)	Fr	0.0010	0.0015	0.0020	0.0030	0.0040	0.0050	0.0060
			Feed (IPM)	3.1	3.1	3.1	3.1	3.1	3.1	3.1
		70	RPM	2139	1426	1070	713	535	428	357
		> 220 ≤ 330 (56-84)	Fr	0.0008	0.0012	0.0015	0.0025	0.0030	0.0040	0.0050
			Feed (IPM)	1.7	1.7	1.6	1.8	1.6	1.7	1.8
		50	RPM	1528	1019	764	509	382	306	255
		> 330 ≤ 420 (40-60)	Fr	0.0005	0.0008	0.0010	0.0015	0.0020	0.0025	0.0030
			Feed (IPM)	0.8	0.8	0.8	0.8	0.8	0.8	0.8
S	TITANIUM ALLOYS (DIFFICULT) Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	200	RPM	6112	4075	3056	2037	1528	1222	1019
		≤ 280 (160-240)	Fr	0.0018	0.0027	0.0035	0.0055	0.0070	0.0090	0.0110
			Feed (IPM)	11.0	11.0	10.7	11.2	10.7	11.0	11.2
		160	RPM	4890	3260	2445	1630	1222	978	815
		> 280 ≤ 350 (128-192)	Fr	0.0015	0.0023	0.0030	0.0045	0.0060	0.0075	0.0090
			Feed (IPM)	7.3	7.5	7.3	7.3	7.3	7.3	7.3
		120	RPM	3667	2445	1834	1222	917	733	611
		> 350 ≤ 440 (96-144)	Fr	0.0013	0.0019	0.0025	0.0040	0.0050	0.0065	0.0080
			Feed (IPM)	4.8	4.6	4.6	4.9	4.6	4.8	4.9
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	770	RPM	23531	15687	11766	7844	5883	4706	3922
		≤ 80 (616-924)	Fr	0.0055	0.0083	0.0110	0.0165	0.0220	0.0275	0.0330
			Feed (IPM)	129.4	130.2	129.4	129.4	129.4	129.4	129.4
		660	RPM	20170	13446	10085	6723	5042	4034	3362
		> 80 (528-792)	Fr	0.0050	0.0075	0.0100	0.0150	0.0200	0.0250	0.0300
			Feed (IPM)	100.8	100.8	100.8	100.8	100.8	100.8	100.8
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	550	RPM	16808	11205	8404	5603	4202	3362	2801
		≤ 140 (440-660)	Fr	0.0020	0.0030	0.0040	0.0060	0.0080	0.0100	0.0120
			Feed (IPM)	33.6	33.6	33.6	33.6	33.6	33.6	33.6
		440	RPM	13446	8964	6723	4482	3362	2689	2241
		> 140 (352-528)	Fr	0.0020	0.0030	0.0040	0.0060	0.0080	0.0100	0.0120
			Feed (IPM)	26.9	26.9	26.9	26.9	26.9	26.9	26.9

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 ()