

Speed & Feed Recommendations

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
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	265	RPM	64787	32394	16197	8098	4049	2699	2025
		≤ 200 (212-318)	Fr	0.0002	0.0004	0.0009	0.0017	0.0034	0.0050	0.0070
			Feed (IPM)	13.0	13.0	14.6	13.8	13.8	13.5	14.2
		125	RPM	30560	15280	7640	3820	1910	1273	955
		> 200 ≤ 300 (100-150)	Fr	0.0002	0.0004	0.0008	0.0016	0.0031	0.0045	0.0060
			Feed (IPM)	6.1	6.1	6.1	6.1	5.9	5.7	5.7
		85	RPM	20781	10390	5195	2598	1299	866	649
		> 300 ≤ 420 (68-102)	Fz	0.0001	0.0002	0.0005	0.0009	0.0018	0.0025	0.0035
			Feed (IPM)	2.1	2.1	2.6	2.3	2.3	2.2	2.3
		230	RPM	56230	28115	14058	7029	3514	2343	1757
		≤ 275 (184-276)	Fz	0.0002	0.0004	0.0008	0.0016	0.0031	0.0045	0.0060
			Feed (IPM)	11.2	11.2	11.2	11.2	10.9	10.5	10.5
P	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100	145	RPM	35450	17725	8862	4431	2216	1477	1108
		> 275 ≤ 375 (116-174)	Fr	0.0002	0.0004	0.0008	0.0015	0.0030	0.0045	0.0060
			Feed (IPM)	7.1	7.1	7.1	6.6	6.6	6.6	6.6
		60	RPM	14669	7334	3667	1834	917	611	458
		> 375 ≤ 450 (48-72)	Fr	0.0001	0.0002	0.0004	0.0007	0.0013	0.0020	0.0025
			Feed (IPM)	1.5	1.5	1.5	1.3	1.2	1.2	1.1
		85	RPM	20781	10390	5195	2598	1299	866	649
		≤ 250 (68-102)	Fr	0.0001	0.0002	0.0005	0.0009	0.0018	0.0025	0.0035
			Feed (IPM)	2.1	2.1	2.6	2.3	2.3	2.2	2.3
		55	RPM	13446	6723	3362	1681	840	560	420
		> 250 ≤ 330 (44-66)	Fr	0.00005	0.0001	0.0002	0.0004	0.0008	0.0010	0.0015
			Feed (IPM)	0.7	0.7	0.7	0.7	0.7	0.6	0.6
		40	RPM	9779	4890	2445	1222	611	407	306
		> 330 ≤ 450 (32-48)	Fr	0.00005	0.0001	0.0002	0.0004	0.0008	0.0010	0.0015
			Feed (IPM)	0.5	0.5	0.5	0.5	0.5	0.4	0.5
K	CAST IRONS Gray, Malleable, Ductile	280	RPM	68454	34227	17114	8557	4278	2852	2139
		≤ 200 (224-336)	Fr	0.00025	0.0005	0.0011	0.0021	0.0041	0.0060	0.0080
			Feed (IPM)	17.1	17.1	18.8	18.0	17.5	17.1	17.1
		250	RPM	61120	30560	15280	7640	3820	2547	1910
		> 200 ≤ 330 (200-300)	Fr	0.00025	0.0005	0.0011	0.0021	0.0041	0.0060	0.0080
			Feed (IPM)	15.3	15.3	16.8	16.0	15.7	15.3	15.3
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F 440F	210	RPM	51341	25670	12835	6418	3209	2139	1604
		< 250 (168-252)	Fr	0.00015	0.0003	0.0006	0.0012	0.0024	0.0035	0.0050
			Feed (IPM)	7.7	7.7	7.7	7.7	7.7	7.5	8.0
		110	RPM	26893	13446	6723	3362	1681	1121	840
		> 250 ≤ 330 (88-132)	Fr	0.0001	0.0002	0.0004	0.0007	0.0014	0.0020	0.0030
			Feed (IPM)	2.7	2.7	2.7	2.4	2.4	2.2	2.5

continued on next page