

Speed & Feed Recommendations

Series 301M Metric	Hardness BRINELL	Vc (m/min)	Diameter (D ₁) (mm)							
			0.5	1	1.6	2.5	4	5		
M	STAINLESS STEELS (DIFFICULT) 304, 316, 321, 13-8 PH, 15-5PH, 17-4 PH, Custom 450	> 270 ≤ 370	21	RPM	13572	6786	4241	2714	1696	1357
			(17-26)	Fr	0.002	0.004	0.008	0.012	0.019	0.023
				Feed (mm/min)	27	27	34	33	32	31
		> 270 ≤ 370	15	RPM	9694	4847	3029	1939	1212	969
			(12-18)	Fr	0.002	0.004	0.006	0.008	0.013	0.016
				Feed (mm/min)	19	19	18	16	16	16
S	SUPER ALLOYS (NICKEL, COBALT, IRON BASE) Inconel 601, 617, 625, Incoly 800, Monel 400, Rene, Waspaloy	≤ 220	8	RPM	4847	2424	1515	969	606	485
			(6-9)	Fr	0.003	0.006	0.010	0.014	0.023	0.030
				Feed (mm/min)	15	15	15	14	14	15
		> 220 ≤ 330	6	RPM	3878	1939	1212	776	485	388
			(5-7)	Fr	0.002	0.003	0.004	0.006	0.011	0.014
				Feed (mm/min)	8	6	5	5	5	5
		> 330 ≤ 420	5	RPM	2908	1454	909	582	364	291
			(4-5)	Fr	0.002	0.002	0.002	0.004	0.006	0.009
				Feed (mm/min)	6	3	2	2	2	3
S	TITANIUM ALLOYS Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si, Ti-6Al4V	≤ 280	26	RPM	16480	8240	5150	3296	2060	1648
			(21-31)	Fr	0.005	0.009	0.014	0.022	0.036	0.046
				Feed (mm/min)	82	74	72	73	74	76
		> 280 ≤ 350	20	RPM	12602	6301	3938	2520	1575	1260
			(16-24)	Fr	0.002	0.004	0.008	0.012	0.019	0.023
				Feed (mm/min)	25	25	32	30	30	29
		> 350 ≤ 440	15	RPM	9694	4847	3029	1939	1212	969
			(12-18)	Fr	0.002	0.004	0.004	0.008	0.013	0.016
				Feed (mm/min)	19	19	12	16	16	16
N	ALUMINUM ALLOYS 2017, 2024, 356, 6061, 7075	≤ 80	165	RPM	104697	52348	32718	20939	13087	10470
			(132-198)	Fr	0.007	0.015	0.023	0.036	0.057	0.071
				Feed (mm/min)	733	785	753	754	746	743
		> 80	139	RPM	88217	44108	27568	17643	11027	8822
			(111-166)	Fr	0.007	0.015	0.023	0.036	0.057	0.071
				Feed (mm/min)	618	662	634	635	629	626
N	COPPER ALLOYS Alum Bronze, C110, Muntz Brass	≤ 140	70	RPM	44593	22297	13935	8919	5574	4459
			(56-84)	Fr	0.003	0.006	0.010	0.018	0.028	0.034
				Feed (mm/min)	134	134	139	161	156	152
		> 140	53	RPM	33930	16965	10603	6786	4241	3393
			(43-64)	Fr	0.003	0.006	0.010	0.018	0.028	0.034
				Feed (mm/min)	102	102	106	122	119	115

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 ()