



HIGH-VOLUME ROUGHING

Material	Hardness	max. ap	max. ae	Max. Angle of Engagement	SFM	feed rate inch per tooth, by diameter							
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 28 HRc	max a_p = flute length (l_2)	0.15 x D	46°	925	0.0011	0.0016	0.0021	0.0033	0.0039	0.0052	0.0065	0.0078
Alloyed heat-treatable, tool and high speed steels	28 - 44 HRc		0.15 x D	46°	725	0.0011	0.0016	0.0021	0.0030	0.0036	0.0048	0.0059	0.0071
Stainless steel - easy to machine / sulphured	up to 20 HRc		0.10 x D	37°	525	0.0010	0.0015	0.0020	0.0025	0.0030	0.0040	0.0050	0.0060
Stainless steel - moderately difficult to machine	20 - 30 HRc		0.10 x D	37°	330	0.0010	0.0015	0.0020	0.0025	0.0030	0.0040	0.0050	0.0060
Titanium	up to 40 HRc		0.08 x D	31°	300	0.0011	0.0016	0.0022	0.0027	0.0033	0.0044	0.0055	0.0066
High Temp Alloys Inconel, Nimonic, Hastelloy, Monel	up to 40 HRc		0.08 x D	31°	195	0.0009	0.0014	0.0019	0.0023	0.0028	0.0038	0.0047	0.0056

HIGH-SPEED ROUGHING

Material	Hardness	max. ap	max. ae	Max. Angle of Engagement	SFM	feed rate inch per tooth, by diameter							
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 28 HRc	max a_p = flute length (l_2)	0.10 x D	37°	1015	0.0013	0.0019	0.0026	0.0040	0.0047	0.0063	0.0079	0.0095
Alloyed heat-treatable, tool and high speed steels	28 - 44 HRc		0.10 x D	37°	790	0.0013	0.0019	0.0026	0.0036	0.0043	0.0058	0.0072	0.0086
Stainless steel - easy to machine / sulphured	up to 20 HRc		0.08 x D	31°	560	0.0011	0.0016	0.0022	0.0027	0.0033	0.0044	0.0055	0.0066
Stainless steel - moderately difficult to machine	20 - 30 HRc		0.08 x D	31°	360	0.0011	0.0016	0.0022	0.0027	0.0033	0.0044	0.0055	0.0066
Titanium	up to 40 HRc		0.05 x D	26°	330	0.0011	0.0016	0.0022	0.0027	0.0033	0.0044	0.0055	0.0066
High Temp Alloys Inconel, Nimonic, Hastelloy, Monel	up to 40 HRc		0.05 x D	26°	230	0.0009	0.0014	0.0019	0.0023	0.0028	0.0038	0.0047	0.0056

HIGH-SPEED FINISHING

Material	Hardness	max. ap	max. ae	Max. Angle of Engagement	SFM	feed rate inch per tooth, by diameter							
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
Struct./free-cutting steels, unall. heat-treat./case hard. steels	up to 28 HRc	max a_p = flute length (l_2)	0.01 x D	11°	1120	0.0010	0.0015	0.0020	0.0031	0.0037	0.0050	0.0062	0.0074
Alloyed heat-treatable, tool and high speed steels	28 - 44 HRc		0.01 x D	11°	885	0.0010	0.0015	0.0020	0.0028	0.0034	0.0045	0.0056	0.0068
Stainless steel - easy to machine / sulphured	up to 20 HRc		0.01 x D	11°	590	0.0008	0.0012	0.0016	0.0020	0.0024	0.0032	0.0039	0.0047
Stainless steel - moderately difficult to machine	20 - 30 HRc		0.01 x D	11°	395	0.0008	0.0012	0.0016	0.0020	0.0024	0.0032	0.0039	0.0047
Titanium	up to 40 HRc		0.01 x D	11°	330	0.0008	0.0012	0.0016	0.0020	0.0024	0.0032	0.0039	0.0047
High Temp Alloys Inconel, Nimonic, Hastelloy, Monel	up to 40 HRc		0.01 x D	11°	230	0.0007	0.0010	0.0014	0.0017	0.0020	0.0027	0.0034	0.0041