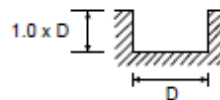




MATERIAL GROUP	HRc		Size (mm)											
			2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	11 12	< 30	v_c (m/min)	40	40	40	40	40	40	40	40	40	40	40
			n	6720	4480	3360	2860	2240	1680	1330	1120	980	840	670
			f_z	0.004	0.008	0.01	0.013	0.015	0.02	0.025	0.03	0.034	0.042	0.052
	13 14	30-40	f (mm/min)	85	105	105	100	100	100	100	100	100	105	105
			v_c (m/min)	35	35	35	35	35	35	35	35	35	35	35
			n	5600	3640	2800	2240	1820	1400	1120	924	798	700	560
M	21 22		f_z	0.004	0.007	0.009	0.011	0.014	0.018	0.022	0.027	0.031	0.043	0.054
			f (mm/min)	70	75	75	75	75	75	75	75	75	90	90
			v_c (m/min)	70	70	70	70	70	70	70	70	70	70	70
K	31 32 33		n	11200	7420	5600	4480	3640	2800	2240	1820	1540	1400	1120
			f_z	0.002	0.003	0.004	0.006	0.008	0.01	0.013	0.016	0.018	0.024	0.03
			f (mm/min)	75	75	75	75	85	85	85	85	85	100	100
			v_c (m/min)	55	55	55	55	55	55	55	55	55	55	55
N	61 62 63		n	9100	5880	4480	3500	2940	2240	1820	1400	1260	1120	900
			f_z	0.007	0.011	0.013	0.018	0.026	0.036	0.046	0.063	0.074	0.083	0.111
			f (mm/min)	195	195	180	190	225	240	250	265	280	280	300
			v_c (m/min)	105	105	105	105	105	105	105	105	105	105	105
	71 72 73		n	16800	11200	8400	6720	5600	4200	3380	2800	2380	2100	1680
			f_z	0.006	0.009	0.012	0.015	0.02	0.025	0.032	0.038	0.045	0.051	0.063
			f (mm/min)	310	310	310	310	335	320	320	320	320	320	320
			v_c (m/min)	140	145	140	140	140	140	140	135	140	140	140
S	41 42 43		n	22400	15400	11200	8960	7420	5600	4480	3640	3220	2800	2240
			f_z	0.006	0.009	0.012	0.015	0.019	0.026	0.032	0.038	0.043	0.05	0.063
			f (mm/min)	405	420	405	405	425	435	425	420	420	420	420
			v_c (m/min)	70	70	70	70	70	70	70	70	70	70	70
S	41 42 43		n	11200	7420	5600	4480	3640	2800	2240	1820	1540	1400	1120
			f_z	0.002	0.003	0.004	0.006	0.008	0.01	0.013	0.016	0.018	0.024	0.03
			f (mm/min)	75	75	75	75	85	85	85	85	85	100	100
			v_c (m/min)	70	70	70	70	70	70	70	70	70	70	70



► The feed rate for long and long reach tools should be reduced by up to 50%

v_c - cutting speed (m/min)

n - RPM (rev/min)

f_z - feed rate (mm/tooth)

f - feed rate (mm/rev)

z - No. of teeth

a_p - axial depth of cut

a_w - radial depth of cut

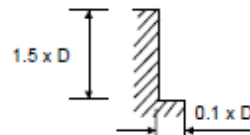
$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \times 1000}{\pi \times \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \times \pi \times \phi}{1000}$$

All recommendations are based on ideal machining conditions. Adjustments may need to be made according to your set-up. The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.



MATERIAL GROUP	HRc		Size (mm)											
			2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	
P	11 12	< 30	v_c (m/min)	40	40	40	40	40	40	40	40	40	40	40
			n	6720	4480	3360	2660	2240	1680	1330	1120	980	840	670
			f_z	0.011	0.018	0.025	0.031	0.037	0.05	0.063	0.074	0.085	0.105	0.132
	13 14	30-40	f (mm/min)	225	240	250	250	250	250	250	250	250	265	256
			v_c (m/min)	35	35	35	35	35	35	35	35	35	35	35
			n	5600	3640	2800	2240	1820	1400	1120	924	798	700	560
M	21 22		f_z	0.01	0.016	0.021	0.027	0.033	0.043	0.054	0.065	0.075	0.107	0.134
			f (mm/min)	170	180	180	180	180	180	180	180	180	225	225
			v_c (m/min)	70	70	70	70	70	70	70	70	70	70	70
K	31 32 33		n	11200	7420	5600	4480	3640	2800	2240	1820	1540	1400	1120
			f_z	0.006	0.009	0.012	0.015	0.019	0.025	0.031	0.038	0.045	0.057	0.074
			f (mm/min)	195	195	195	195	210	210	210	210	210	240	250
			v_c (m/min)	55	55	55	55	55	55	55	55	55	55	55
N	61 62 63		n	9100	5880	4480	3500	2940	2240	1820	1400	1260	1120	900
			f_z	0.017	0.026	0.035	0.045	0.063	0.089	0.115	0.157	0.181	0.213	0.28
			f (mm/min)	460	460	475	475	560	600	630	660	685	715	755
			v_c (m/min)	105	105	105	105	105	105	105	105	105	105	105
	71 72 73		n	16800	11200	8400	6720	5600	4200	3360	2800	2380	2100	1680
			f_z	0.015	0.022	0.03	0.037	0.048	0.064	0.08	0.096	0.113	0.129	0.161
			f (mm/min)	755	740	755	740	810	810	810	810	810	810	810
			v_c (m/min)	140	145	140	140	140	140	140	135	140	140	140
S	41 42 43		n	22400	15400	11200	8960	7420	5600	4480	3640	3220	2800	2240
			f_z	0.015	0.021	0.03	0.037	0.048	0.063	0.079	0.098	0.11	0.127	0.158
			f (mm/min)	1010	965	1010	995	1065	1065	1065	1065	1065	1065	1065
			v_c (m/min)	70	70	70	70	70	70	70	70	70	70	70



► The feed rate for long and long reach tools should be reduced by up to 50%

v_c - cutting speed (m/min)
 n - RPM (rev/min)
 f_z - feed rate (mm/tooth)
 f - feed rate (mm/rev)
 z - No. of teeth
 a_p - axial depth of cut
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$$\text{To calculate RPM from cutting speed: } n = \frac{v_c \times 1000}{\pi \times \phi}$$

$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \times \pi \times \phi}{1000}$$

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