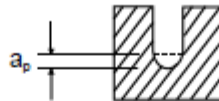




MATERIAL GROUP	HARDNESS HRC		Size (mm)									
			0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	
P	13 14	< 35	a_p (mm)	0.007	0.007	0.014	0.011	0.014	0.018	0.023	0.043	0.034
			v_c (m/min)	31	42	46	48	58	77	77	89	101
			n	45000	45000	36900	30780	30780	30780	24640	23670	21510
			f_z	0.003	0.004	0.005	0.009	0.013	0.016	0.02	0.024	0.03
			f (mm/min)	270	385	395	555	830	995	985	1115	1280
H	15 16	35-45	a_p (mm)	0.006	0.005	0.011	0.009	0.011	0.014	0.018	0.034	0.028
			v_c (m/min)	28	42	44	46	55	73	73	84	96
			n	45000	45000	34920	29070	29070	29070	23280	22320	20340
			f_z	0.003	0.004	0.005	0.008	0.012	0.014	0.018	0.021	0.027
			f (mm/min)	250	350	345	470	680	840	840	930	1100
	16 16	45-55	a_p (mm)	0.004	0.004	0.008	0.006	0.008	0.01	0.013	0.024	0.019
			v_c (m/min)	24	36	39	40	48	64	65	74	85
			n	38880	38520	30780	25650	25650	25650	20560	19710	18000
			f_z	0.003	0.004	0.004	0.008	0.011	0.014	0.017	0.02	0.024
			f (mm/min)	210	295	275	415	555	695	690	770	870
K	31 32 33 34		a_p (mm)	0.007	0.007	0.014	0.011	0.014	0.018	0.023	0.043	0.034
			v_c (m/min)	31	42	46	48	58	77	77	89	101
			n	45000	45000	36900	30780	30780	30780	24640	23670	21510
			f_z	0.003	0.004	0.005	0.009	0.013	0.016	0.02	0.024	0.03
			f (mm/min)	270	385	395	555	830	995	985	1115	1280



► The data shown is based on medial length tools. Please adjust machining conditions according to length.

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_r - radial depth of cut

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

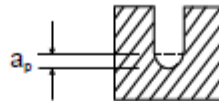
$$\text{To calculate cutting speed from RPM: } v_c = \frac{n \times \pi \times \phi}{1000}$$

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.

102365 (2 Flute Extended Neck, Ball Nose)



MATERIAL GROUP	HARDNESS HRC		Size (mm)								
			2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	13 14	< 35	a_p (mm)	0.045	0.108	0.144	0.18	0.378	0.504	0.9	0.758
			v_c (m/min)	102	116	111	109	123	122	121	121
			n	16200	12330	8820	6930	6500	4850	3850	3200
			f_z	0.045	0.067	0.09	0.108	0.146	0.186	0.214	0.238
			f (mm/min)	1455	1660	1590	1495	1900	1800	1650	1520
H	15 16	35-45	a_p (mm)	0.035	0.084	0.112	0.14	0.294	0.392	0.7	0.588
			v_c (m/min)	96	109	105	103	117	116	116	115
			n	15300	11610	8370	6570	6200	4600	3680	3050
			f_z	0.04	0.06	0.081	0.09	0.129	0.163	0.19	0.213
			f (mm/min)	1235	1400	1355	1180	1600	1500	1400	1300
	16 16	45-55	a_p (mm)	0.036	0.06	0.08	0.1	0.21	0.28	0.5	0.42
			v_c (m/min)	85	97	93	90	104	101	101	100
			n	13500	10260	7380	5760	5500	4000	3200	2650
			f_z	0.039	0.057	0.077	0.09	0.121	0.16	0.188	0.208
			f (mm/min)	1040	1160	1130	1040	1330	1280	1200	1100
K	31 32 33 34		a_p (mm)	0.045	0.108	0.144	0.18	0.378	0.504	0.9	0.758
			v_c (m/min)	102	116	111	109	123	122	121	121
			n	16200	12330	8820	6930	6500	4850	3850	3200
			f_z	0.045	0.067	0.09	0.108	0.146	0.186	0.214	0.238
			f (mm/min)	1455	1660	1590	1495	1900	1800	1650	1520



► The data shown is based on medial length tools. Please adjust machining conditions according to length.

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_r - radial depth of cut

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

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.