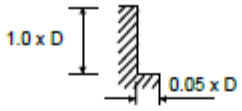
104365, 122365 (4 Flute, Standard & Heavy Cut)

MATERIAL GROUP		HARDNESS HRc		Size (mm)								
				1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5
P	13 14	< 35	v_c (m/min)	84	85	88	91	101	105	113	119	122
			n	26800	22500	18750	14450	12800	11150	10300	9450	8660
			f_z	0.002	0.003	0.003	0.005	0.0006	0.007	0.011	0.015	0.017
			f (mm/min)	240	250	255	280	300	320	445	570	585
H	15 16	35-45	v_c (m/min)	51	51	53	59	64	66	70	73	74
			n	16080	13500	11250	9450	8200	6950	6360	5780	5250
			f_z	0.002	0.003	0.003	0.004	0.006	0.007	0.011	0.015	0.017
			f (mm/min)	145	150	115	170	185	200	275	350	355
	15 16	45-55	v_c (m/min)	34	34	35	40	41	40	43	46	47
			n	10720	9000	7500	6300	5250	4200	3940	3680	3290
			f_z	0.001	0.001	0.002	0.002	0.003	0.004	0.004	0.004	0.005
			f (mm/min)	45	45	45	50	55	60	60	60	65
M	21 22 23		v_c (m/min)	42	42	44	50	54	54	58	61	62
			n	13400	11250	9380	7880	6830	5780	5310	4850	4400
			f_z	0.002	0.003	0.003	0.004	0.006	0.007	0.011	0.014	0.016
			f (mm/min)	120	125	130	140	155	170	225	280	290
K	31 32 33 34		v_c (m/min)	84	85	88	91	101	105	113	119	122
			n	26800	22500	18750	14450	12800	11150	10300	9450	8660
			f_z	0.002	0.003	0.003	0.005	0.0006	0.007	0.011	0.015	0.017
			f (mm/min)	240	250	255	280	300	320	445	570	585



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_e - radial depth of cut

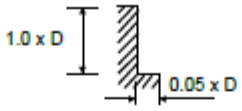
To calculate RPM from cutting speed: $n = \frac{v_c \times 1000}{\pi \times \varnothing}$

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

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.

104365, 122365 (4 Flute, Standard & Heavy Cut)

MATERIAL GROUP		HARDNESS HRc		Size (mm)								
				5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0
P	13	< 35	v_c (m/min)	124	128	131	133	134	134	132	132	132
			n	7880	7410	6950	6530	6100	5680	5250	4960	4660
	14		f_z	0.019	0.021	0.024	0.026	0.028	0.031	0.034	0.035	0.035
			f (mm/min)	600	630	660	675	685	700	710	685	660
H	15	35-45	v_c (m/min)	74	77	79	80	81	80	79	80	80
			n	4730	4460	4200	3940	3680	3410	3150	2990	2830
	16		f_z	0.019	0.022	0.024	0.026	0.027	0.029	0.03	0.03	0.03
			f (mm/min)	360	385	410	405	395	390	380	360	340
	15	45-55	v_c (m/min)	46	47	47	49	51	52	53	53	57
			n	2900	2700	2500	2400	2300	2200	2100	2000	1900
	16		f_z	0.006	0.007	0.008	0.009	0.01	0.012	0.013	0.013	0.013
			f (mm/min)	70	75	80	90	95	105	110	105	100
M	21		v_c (m/min)	62	65	67	68	68	68	66	66	67
			n	3950	37550	3550	3320	3090	2860	2630	2490	2360
	22		f_z	0.019	0.021	0.023	0.025	0.028	0.03	0.033	0.034	0.034
			f (mm/min)	300	315	330	335	340	345	350	340	325
	23											
K	31		v_c (m/min)	124	128	131	133	134	134	132	132	132
	32		n	7880	7410	6950	6530	6100	5680	5250	4960	4660
	33		f_z	0.019	0.021	0.024	0.026	0.028	0.031	0.034	0.035	0.035
	34		f (mm/min)	600	630	660	675	685	700	710	685	660



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_e - radial depth of cut

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

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

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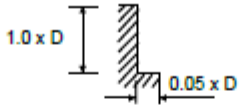
104365, 122365 (4 Flute, Standard & Heavy Cut)

MATERIAL GROUP		HARDNESS HRc		Size (mm)							
				9.5	**10.0**	**11.0**	**12.0**	**14.0**	**16.0**	**18.0**	**20.0**
P	13	< 35	v_c (m/min)	130	128	130	129	136	138	137	132
			n	4370	4080	3750	3430	3090	2750	2430	2100
	14		f_z	0.036	0.037	0.038	0.038	0.038	0.038	0.038	0.038
			f (mm/min)	635	640	565	520	465	420	365	320
H	15	35-45	v_c (m/min)	79	79	79	79	84	85	85	84
			n	2660	2500	2300	2100	1900	1700	1510	1330
	15		f_z	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
			f (mm/min)	320	300	275	250	225	205	180	160
	16	45-55	v_c (m/min)	54	53	55	55	57	57	56	53
			n	1800	1700	1580	1450	1290	1130	990	850
	16		f_z	0.013	0.013	0.013	0.014	0.014	0.013	0.013	0.012
			f (mm/min)	95	90	85	80	70	60	50	40
M	21		v_c (m/min)	67	66	66	64	68	69	68	66
			n	2230	2100	1900	1700	1540	1380	1210	1050
	22		f_z	0.035	0.036	0.036	0.035	0.036	0.036	0.036	0.036
			f (mm/min)	315	300	270	240	220	200	175	150
K	31		v_c (m/min)	130	128	130	129	136	138	137	132
	32		n	4370	4080	3750	3430	3090	2750	2430	2100
	33		f_z	0.036	0.037	0.038	0.038	0.038	0.038	0.038	0.038
	34		f (mm/min)	635	640	565	520	465	420	365	320



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

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

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