



MATERIAL GROUP	HRc		Size (mm)								
			2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
<b>P</b>	11 12	< 30	$v_c$ (m/min)	50	55	65	70	70	70	70	70
			$n$	7850	6100	5150	4300	3800	2850	2200	1850
			$f_z$	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.085
			$f$ (mm/min)	160	180	255	270	300	325	280	240
	13 14	30-45	$v_c$ (m/min)	30	35	40	40	45	45	40	45
			$n$	5150	3800	3150	2550	2300	1700	1350	1150
			$f_z$	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048
			$f$ (mm/min)	100	120	155	160	190	170	135	110
<b>M</b>	21 22		$v_c$ (m/min)	25	30	35	35	35	35	35	35
			$n$	4300	3150	2650	2150	1950	1450	1150	950
			$f_z$	0.009	0.016	0.025	0.031	0.04	0.053	0.059	0.058
			$f$ (mm/min)	80	100	130	135	155	155	135	110
<b>K</b>	31 32 33		$v_c$ (m/min)	60	55	60	55	55	55	60	55
			$n$	9350	6050	4800	3650	2950	2200	1850	1450
			$f_z$	0.012	0.018	0.024	0.03	0.043	0.063	0.077	0.102
			$f$ (mm/min)	220	220	220	220	255	275	285	295
<b>N</b>	61 62 63		$v_c$ (m/min)	105	105	110	105	105	110	105	105
			$n$	16500	1000	8800	6800	5700	4400	3400	2850
			$f_z$	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066
			$f$ (mm/min)	340	340	340	340	375	375	375	375
	71 72 73		$v_c$ (m/min)	140	145	140	145	145	145	145	140
			$n$	22000	15400	11000	9150	7600	5700	4600	3750
			$f_z$	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065
			$f$ (mm/min)	460	460	460	460	485	485	485	485
STEEL, STAINLESS STEEL			CAST IRON, COPPER, ALUMINIUM								
$< \phi 3.0\text{mm}: 0.2 \times D$ $> \phi 3.0\text{mm}: 0.5 \times D$											

► 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  
 $a_e$  - radial depth of cut

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

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

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.