

CUTTING CONDITIONS

Materials to be machined			CARBIDE		TiN		DICUT- TiAIN	
			Vc [m/min]		Vc [m/min]		Vc [m/min]	
<b>P</b>	Unalloyed steel / Low alloyed steel	< 600 N/mm <sup>2</sup>	40	60	50	70	50	70
<b>P</b>	Lead alloyed cutting steel		60	90				
<b>P</b>	High alloyed steel	700 – 1500 N/mm <sup>2</sup>			40	60	40	60
<b>M</b>	Stainless steel	400 – 700 N/mm <sup>2</sup>	40	60	50	70	50	70
<b>M</b>	DUPLEX stainless steel	> 800 N/mm <sup>2</sup>	20	40	30	50	30	50
<b>K</b>	Grey cast iron / Nodular pearlitic iron	< 250 HB	50	80	60	80	60	80
<b>K</b>	Nodular ferritic cast iron / Malleable cast iron		30	50	40	60	40	60
<b>S</b>	Special alloys / Heat resistant stainless steel	Inconel Nimonic Hastelloy	15	25	20	40	20	40
<b>S</b>	Titanium, titanium alloys		35	55				
<b>N</b>	Copper alloys - easy to machine (brass - bronze)		80	100				
<b>N</b>	Copper alloys - difficult to machine / Aluminium bronze	(CuAlFe) (Ampco)	40	70	60	90	60	90
<b>N</b>	Aluminium alloys	Si < 8%	80	100			90	130
<b>N</b>	Plastic		30	60				
<b>N</b>	Gold, silver		50	80				

$$n \text{ [tr/min]} = \frac{Vc \text{ [m/min]} \times 1000}{\pi \times D_1 \text{ [mm]}}$$

$$Vf \text{ [mm/min]} = n \text{ [tr/min]} \times f \text{ [mm]}$$

Feed per revolution **f [mm]**

Ø D <sub>1</sub> 0.20 - 0.40	Ø D <sub>1</sub> 0.40 - 0.60	Ø D <sub>1</sub> 0.60 - 0.80	Ø D <sub>1</sub> 0.80 - 1.00	Ø D <sub>1</sub> 1.00 - 1.20	Ø D <sub>1</sub> 1.20 - 1.40	Ø D <sub>1</sub> 1.40 - 1.60	Ø D <sub>1</sub> 1.60 - 1.80	Ø D <sub>1</sub> 1.80 - 2.00	Ø D <sub>1</sub> 2.00 - 2.50
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070
0.003 - 0.010	0.008 - 0.015	0.012 - 0.018	0.015 - 0.020	0.018 - 0.025	0.022 - 0.030	0.026 - 0.035	0.030 - 0.045	0.034 - 0.055	0.038 - 0.070

**D<sub>1</sub> < 1mm ⇒ Vc - 30 %**