CUTTING CONDITIONS

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

$$Vf\ [mm/min] = n\ [tr/min] \times fz\ [mm] \times z$$

Feed per tooth **f [mm]**

	Materials to be machined		CARBIDE Vc [m/min]		CUTINOX Vc [m/min]		Ø D_1 0.60 - 1.00	Ø D_1 1.00 -1.50	Ø D_1 1.50 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 5.00	Ø D_1 5.00 - 9.00
P	Unalloyed steel / Low alloyed steel	< 600 N/mm²	**100**	150	**120**	180	**0.008** - 0.015	**0.010** - 0.025	**0.015** - 0.030	**0.020** - 0.050	**0.030** - 0.070	**0.040** - 0.080
P	Unalloyed steel / Low alloyed steel	600 – 1500 N/mm²	**90**	130	**110**	150	**0.005** - 0.012	**0.008** - 0.020	**0.013** - 0.025	**0.020** - 0.045	**0.025** - 0.060	**0.035** - 0.075
P	Lead alloyed cutting steel		**100**	180	**120**	200	**0.012** - 0.030	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.035** -0.080	**0.050** - 0.100
P	High alloyed steel	700 – 1500 N/mm²	**40**	70	**50**	80	**0.002** - 0.011	**0.008** - 0.015	**0.012** - 0.023	**0.015** - 0.038	**0.023** - 0.060	**0.038** -0.060
M	Stainless steel	400 – 700 N/mm²	**50**	80	**60**	110	**0.003** - 0.016	**0.011** - 0.023	**0.018** - 0.034	**0.023** - 0.056	**0.034** - 0.090	**0.056** -0.090
M	DUPLEX stainless steel	> 800 N/mm²	**35**	60	**45**	75	**0.002** - 0.009	**0.007** - 0.014	**0.011** - 0.020	**0.014** - 0.034	**0.020** - 0.054	**0.034** - 0.054
K	Grey cast iron / Nodular pearlitic iron	< 250 HB	**100**	200	**150**	250	**0.012** - 0.030	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
K	Alloyed cast iron / Nodular pearlitic iron	> 250 HB	**100**	140	**120**	160	**0.005** - 0.012	**0.008** - 0.020	**0.013** - 0.025	**0.020** - 0.045	**0.025** -0.060	**0.035** - 0.075
K	Nodular ferritic cast iron / Malleable cast iron		**70**	110	**80**	140	**0.005** - 0.012	**0.008** - 0.020	**0.013** - 0.025	**0.020** - 0.045	**0.025** - 0.060	**0.035** - 0.075
S	Special alloys / Heat resistant stainless steel	Inconel Nimonic Hastelloy	**20**	45	**30**	60	**0.001** - 0.007	**0.005** - 0.010	**0.008** - 0.015	**0.010** - 0.025	**0.015** - 0.040	**0.025** - 0.040
S	Titanium, titanium alloys		**40**	65	**40**	65	**0.008** - 0.015	**0.010** - 0.020	**0.015** - 0.040	**0.030** - 0.060	**0.040** - 0.080	**0.060** - 0.100
N	Copper alloys - easy to machine (brass - bronze)		**100**	200	**100**	200	**0.015** - 0.035	**0.020** - 0.040	**0.025** - 0.050	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
N	Copper alloys - difficult to machine / Aluminium bronze	(CuAlFe) (Ampco)	**80**	150	**80**	150	**0.012** - 0.030	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
N	Aluminium alloys	Si < 8%	**100**	250	**100**	250	**0.015** - 0.035	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
N	Cast aluminium	Si > 8%	**100**	200	**100**	200	**0.015** - 0.035	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
N	Graphite		**100**	200	**100**	200	**0.015** - 0.035	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
N	Plastic		**100**	250	**100**	250	**0.015** - 0.035	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150
N	Gold, silver		**100**	200	**100**	200	**0.015** - 0.035	**0.020** - 0.040	**0.025** - 0.055	**0.030** - 0.070	**0.050** - 0.100	**0.080** - 0.150