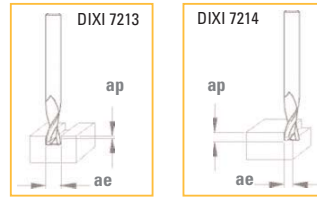


CUTTING CONDITIONS



Materials to be machined			CARBIDE		TiAlN		ap		ae	
			Vc [m/min]	Vc [m/min]	Vc [m/min]	Vc [m/min]	[mm]	[mm]	[mm]	[mm]
P	Unalloyed steel / Low alloyed steel	< 600 N/mm ²	70	100	90	110	< 1.0 x ØD1	1 x ØD1	< 1 x ØD1	< 0.5 x ØD1
P	Unalloyed steel / Low alloyed steel	600 – 1500 N/mm ²			70	90	< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	< 0.3 x ØD1
P	Lead alloyed cutting steel		70	100			< 1.0 x ØD1	1 x ØD1	< 1.5 x ØD1	< 0.5 x ØD1
P	High alloyed steel	700 – 1500 N/mm ²			40	60	< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	< 0.3 x ØD1
M	Stainless steel	400 – 700 N/mm ²			80	100	< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	< 0.3 x ØD1
K	Grey cast iron / Nodular pearlitic iron	< 250 HB	70	100	90	110	< 1.0 x ØD1	1 x ØD1	< 1 x ØD1	< 0.5 x ØD1
K	Alloyed cast iron / Nodular pearlitic iron	> 250 HB	40	70	70	90	< 0.4 x ØD1	1 x ØD1	< 1 x ØD1	< 0.4 x ØD1
K	Nodular ferritic cast iron / Malleable cast iron		70	100	90	110	< 0.4 x ØD1	1 x ØD1	< 1 x ØD1	< 0.4 x ØD1
S	Titanium, titanium alloys		30	45			< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	< 0.3 x ØD1
N	Copper alloys - easy to machine (brass - bronze)		140	160			< 2.0 x ØD1	1 x ØD1	< 1.5 x ØD1	< 0.5 x ØD1
N	Copper alloys - difficult to machine / Aluminium bronze (CuAlFe) (Ampco)		120	140	170	190	< 1.0 x ØD1	1 x ØD1	< 1 x ØD1	< 0.3 x ØD1
N	Aluminium alloys	Si < 8%	180	260	230	340	< 2.0 x ØD1	1 x ØD1	< 1.5 x ØD1	< 0.5 x ØD1
N	Cast aluminium	Si > 8%	140	160	210	230	< 2.0 x ØD1	1 x ØD1	< 1.5 x ØD1	< 0.5 x ØD1
N	Gold, silver		140	160	200	220	< 1.0 x ØD1	1 x ØD1	< 1.5 x ØD1	< 0.5 x ØD1

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

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

Feed per tooth **fz [mm]**

Ø D ₁ 4.00 - 5.00	Ø D ₁ 5.00 - 6.00	Ø D ₁ 6.00 - 7.00	Ø D ₁ 7.00 - 8.00	Ø D ₁ 8.00 - 9.00	Ø D ₁ 9.00 - 10.00	Ø D ₁ 10.00 - 12.00	Ø D ₁ 12.00 - 14.00	Ø D ₁ 14.00 - 16.00	Ø D ₁ 16.00 - 20.00
0.008 - 0.02	0.010 - 0.02	0.012 - 0.02	0.014 - 0.03	0.016 - 0.03	0.018 - 0.04	0.020 - 0.04	0.02 - 0.05	0.03 - 0.06	0.03 - 0.07
0.006 - 0.01	0.008 - 0.02	0.009 - 0.02	0.011 - 0.02	0.012 - 0.02	0.014 - 0.03	0.015 - 0.03	0.02 - 0.04	0.02 - 0.04	0.02 - 0.05
0.010 - 0.03	0.013 - 0.03	0.015 - 0.04	0.018 - 0.04	0.020 - 0.05	0.023 - 0.05	0.025 - 0.06	0.03 - 0.07	0.04 - 0.08	0.04 - 0.10
0.006 - 0.01	0.008 - 0.02	0.009 - 0.02	0.011 - 0.02	0.012 - 0.02	0.014 - 0.03	0.015 - 0.03	0.02 - 0.04	0.02 - 0.04	0.02 - 0.05
0.008 - 0.02	0.010 - 0.02	0.012 - 0.02	0.014 - 0.03	0.016 - 0.03	0.018 - 0.04	0.020 - 0.04	0.02 - 0.05	0.03 - 0.06	0.03 - 0.07
0.006 - 0.01	0.008 - 0.02	0.009 - 0.02	0.011 - 0.02	0.012 - 0.02	0.014 - 0.03	0.015 - 0.03	0.02 - 0.04	0.02 - 0.04	0.02 - 0.05
0.010 - 0.03	0.013 - 0.03	0.015 - 0.04	0.018 - 0.04	0.020 - 0.05	0.023 - 0.05	0.025 - 0.06	0.03 - 0.07	0.04 - 0.08	0.04 - 0.10
0.006 - 0.01	0.008 - 0.02	0.009 - 0.02	0.011 - 0.02	0.012 - 0.02	0.014 - 0.03	0.015 - 0.03	0.02 - 0.04	0.02 - 0.04	0.02 - 0.05
0.010 - 0.03	0.013 - 0.03	0.015 - 0.04	0.018 - 0.04	0.020 - 0.05	0.023 - 0.05	0.025 - 0.06	0.03 - 0.07	0.04 - 0.08	0.04 - 0.10
0.010 - 0.03	0.013 - 0.03	0.015 - 0.04	0.018 - 0.04	0.020 - 0.05	0.023 - 0.05	0.025 - 0.06	0.03 - 0.07	0.04 - 0.08	0.04 - 0.10
0.010 - 0.03	0.013 - 0.03	0.015 - 0.04	0.018 - 0.04	0.020 - 0.05	0.023 - 0.05	0.025 - 0.06	0.03 - 0.07	0.04 - 0.08	0.04 - 0.10