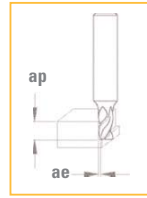


CUTTING CONDITIONS - ROUTING



Materials to be machined			CUTINOX		ap [mm]	ae [mm]
		Vc [m/min]				
P	Unalloyed steel / Low alloyed steel	< 600 N/mm ²	160	200	< 1 x ØD1	< 0.6 x ØD1
P	Unalloyed steel / Low alloyed steel	600 – 1500 N/mm ²	130	170	< 1 x ØD1	< 0.6 x ØD1
P	Lead alloyed cutting steel		160	200	< 1 x ØD1	< 0.6 x ØD1
P	High alloyed steel	700 – 1500 N/mm ²	70	100	< 1 x ØD1	< 0.5 x ØD1
M	Stainless steel	400 – 700 N/mm ²	80	110	< 1 x ØD1	< 0.5 x ØD1
M	DUPLEX stainless steel	> 800 N/mm ²	70	100	< 1 x ØD1	< 0.5 x ØD1
K	Grey cast iron / Nodular pearlitic iron	< 250 HB	160	200	< 1 x ØD1	< 0.6 x ØD1
K	Alloyed cast iron / Nodular pearlitic iron	> 250 HB	130	170	< 1 x ØD1	< 0.6 x ØD1
K	Nodular ferritic cast iron / Malleable cast iron		110	150	< 1 x ØD1	< 0.6 x ØD1
S	Special alloys / Heat resistant stainless steel	Inconel Nimonic Hastelloy	40	70	< 1 x ØD1	< 0.6 x ØD1
S	Titanium, titanium alloys		20	50	< 1 x ØD1	< 0.3 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 3.00 - 4.00	Ø D ₁ 4.00 - 6.00	Ø D ₁ 6.00 - 8.00	Ø D ₁ 8.00 - 10.00	Ø D ₁ 10.00 - 12.00	Ø D ₁ 12.00 - 16.00	Ø D ₁ 16.00 - 20.00
0.019 - 0.045	0.029 - 0.070	0.040 - 0.100	0.052 - 0.115	0.057 - 0.130	0.063 - 0.155	0.086 - 0.185
0.017 - 0.040	0.023 - 0.065	0.035 - 0.085	0.046 - 0.105	0.052 - 0.115	0.058 - 0.135	0.075 - 0.165
0.029 - 0.065	0.035 - 0.100	0.052 - 0.130	0.069 - 0.155	0.081 - 0.175	0.086 - 0.210	0.115 - 0.250
0.014 - 0.035	0.017 - 0.050	0.029 - 0.070	0.040 - 0.085	0.046 - 0.090	0.052 - 0.110	0.063 - 0.130
0.017 - 0.040	0.023 - 0.065	0.035 - 0.085	0.046 - 0.105	0.052 - 0.115	0.058 - 0.135	0.075 - 0.165
0.014 - 0.035	0.017 - 0.050	0.029 - 0.070	0.040 - 0.085	0.046 - 0.090	0.052 - 0.110	0.063 - 0.130
0.029 - 0.065	0.035 - 0.100	0.052 - 0.130	0.069 - 0.155	0.081 - 0.175	0.086 - 0.210	0.115 - 0.250
0.024 - 0.055	0.029 - 0.085	0.044 - 0.111	0.059 - 0.132	0.068 - 0.149	0.073 - 0.179	0.098 - 0.213
0.024 - 0.055	0.029 - 0.085	0.044 - 0.111	0.059 - 0.132	0.068 - 0.149	0.073 - 0.179	0.098 - 0.213
0.019 - 0.045	0.029 - 0.070	0.040 - 0.100	0.052 - 0.115	0.057 - 0.130	0.063 - 0.155	0.086 - 0.185
0.007 - 0.017	0.009 - 0.025	0.012 - 0.035	0.017 - 0.040	0.023 - 0.050	0.026 - 0.060	0.032 - 0.070

Cutting conditions based on oil lubrication.

For high alloyed steels (> 12% Chrome), stainless steels, titanium alloys, cutting speed shall be reduced by 20% when emulsion is used.