DIXI 1730 - 1731 - 1735 - 1736 - 1738 - 1739

CUTTING CONDITIONS

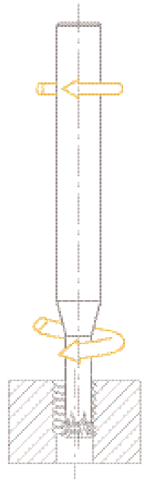
$$n\ [tr/min] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

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

MACHINING WITH A FIXED WORKPIECE

Feed per tooth f [mm]

	Materials to be machined		CARBIDE Vc [m/min]		TiALN Vc [m/min]		CUTINOX Vc [m/min]		Ø D_1 0.20 - 0.60	Ø D_1 0.60 - 1.20	Ø D_1 1.20 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 5.00	Ø D_1 5.00 - 8.00
P	Unalloyed steel / Low alloyed steel	< 600 N/mm²	**65**	80	**70**	100			**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
P	Unalloyed steel / Low alloyed steel	600 – 1500 N/mm²			**40**	60			**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
P	High alloyed steel	700 – 1500 N/mm²			**25**	50	**60**	80	**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
M	Stainless steel	400 – 700 N/mm²	**35**	40	**40**	60	**70**	90	**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
M	DUPLEX stainless steel	> 800 N/mm²			**25**	50	**60**	80	**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
K	Tool steel and cast iron	> 1500 N/mm² (50 - 65 HRC)	**65**	80	**70**	100			**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
K	Grey cast iron / Nodular pearlitic iron	< 250 HB	**35**	40	**40**	60			**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
K	Alloyed cast iron / Nodular pearlitic iron	> 250 HB	**35**	40	**40**	60			**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
S	Special alloys / Heat resistant stainless steel	Inconel Nimonic Hastelloy			**25**	50	**40**	60	**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07
S	Titanium, titanium alloys		**15**	35					**0.003** - 0.006	**0.004** - 0.01	**0.01** - 0.03	**0.02** - 0.04	**0.03** - 0.05	**0.04** - 0.07



MACHINING ON A SWISS-TURNING MACHINE - Workpiece turns

	Materials to be machined	CARBIDE Vc [m/min]	fz [m/min] Pitch 0.20 - 0.25	fz [m/min] Pitch 0.30 - 0.35	fz [m/min] Pitch 0.40 - 0.50	fz [m/min] Pitch 0.70 - 1.00
P	Steel	**50** - 100	**0.002** - 0.25	**0.002** - 0.004	**0.003** - 0.006	**0.005** - 0.013
M	Stainless steel	**40** - 80	**0.002** - 0.003	**0.002** - 0.004	**0.002** - 0.005	**0.004** - 0.01
S	Titanium, titanium alloys	**50** - 90	**0.002** - 0.003	**0.002** - 0.004	**0.002** - 0.005	**0.004** - 0.01
N	Copper alloys	**60** - 150	**0.002** - 0.005	**0.002** - 0.006	**0.003** - 0.007	**0.005** - 0.013

Example for M2 x 0.40 in titanium, DIXI 1730 Ø D_1 = 1.55

❶ **Tool rotation n (min^{-1})** = $\frac{1000 \times Vc}{p \times Ø D_1}$

$\frac{1000 \times 90}{(p \times 1.55)}$ ⇒ 19'000 min^{-1}

❷ **Feed Vf mm/min** = n x fz x z

19'000 x 0.004 x 3 = 223 mm/min

❸ **Piece rotation min^{-1}** = $\frac{Vf}{\text{threaded } Ø \times p}$

$\frac{223}{M2 \times p}$ ⇒ 36 min^{-1}

When necessary, convert in degrees nb° = min^{-1} x 360° ⇒ 36 min^{-1} x 360° = 12960°