Lamina Technologies Technical Formulas (Metric)

Turning

Cutting Speed (m/min)	$V_c = \frac{D_m \times \pi \times n}{1000}$
Rotation (Rev/min)	$n = \frac{V_c \times 1000}{D_m \times \pi}$
Chip Removal Rate (cm^3/min)	$Q = V_c \times a_p \times f_n$
Cutting Time (min)	$T_c = \frac{l_m}{f_n \times n}$
Surface Roughness (µm)	$R_{max} = \frac{f_n^2}{r_\varepsilon} \times 125$

Millling

Cutting Speed (m/min)	$V_c = \frac{n \times \pi \times D}{1000}$
Rotation (Rev/min)	$n = \frac{V_c \times 1000}{\pi \times D}$
Table Feed (mm/min)	$V_f = n \times z_c \times f_z$
Cutting Output (cm^3/min)	$Q = \frac{a_e \times a_p \times V_f}{1000}$
Feed per Tooth	$f_z = \frac{V_f}{n \times z_c}$

Symbol	Designation	Unit
D_m	Machining diameter	mm
f_n	Feed per revolution	mm/rev
l_m	Machining length	mm
n	Rotation	rev/min
Q	Chip removal rate	cm^3/min
A_{max}	d.o.c x feed	mm^2
r_ε	Nose radius	mm
T_c	Cutting time	min
R_{max}	Surface roughness	µm

Symbol	Designation	Unit
V_c	Cutting speed	m/min
a_p	Depth of cut (d.o.c.)	mm
a_e	Radial depth of cut (width of cut)	mm
D	Cutter diameter	mm
f_z	Feed per tooth	mm/tooth
Z_c	Effective number of teeth	pcs
V_f	Table Feed	mm/min
Z_n	Total number of teeth	pcs

LAMINA TECHNOLOGIES