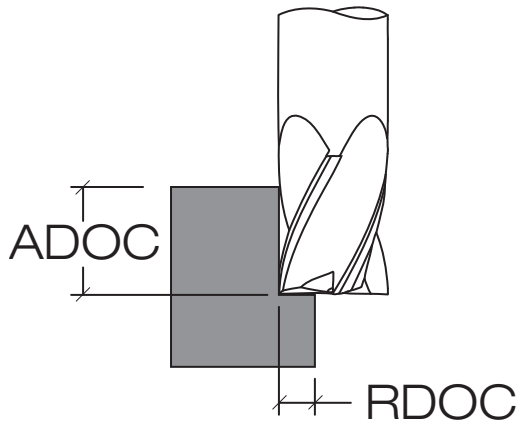


Common Milling Calculations



KEY

D	Tool Cutting Diameter
Z	Number of Flutes
RPM	Revolutions per Minute
SFM	Surface Feet per Minute
IPM	Inches per Minute
IPR	Inches per Revolution
IPT	Inches per Tooth
IPT _{adj}	Inches per Tooth (adjusted)
CT	Chip Thickness
RDOC	Radial Depth of Cut
ADOC	Axial Depth of Cut
MRR	Metal Removal Rate
r _i	Part Radius (inside arc)
r _o	Part Radius (outside arc)

Revolutions Per Minute	RPM =	$\frac{\text{SFM} \times 3.82}{D}$
Surface Feet Per Minute	SFM =	RPM x D x .262
Inches Per Minute	IPM =	RPM x IPT x Z
Inches Per Revolution	IPR =	$\frac{\text{IPM}}{\text{RPM}}$
Inches Per Tooth	IPT =	$\frac{\text{IPR}}{Z}$
Inches Per Tooth (Chip Thinning Adjustment)	IPT _{adj} =	$\frac{\text{CT} \times D}{2 \times \sqrt{(D \times \text{RDOC}) - \text{RDOC}^2}}$
Chip Thickness*	CT =	$\frac{2 \times \text{IPT} \times \sqrt{(D \times \text{RDOC}) - \text{RDOC}^2}}{D}$
Metal Removal Rate (cu. in./min.)	MRR =	RDOC x ADOC x IPM
Feed Rate Adjustment - Outside Arc	F _o =	$\frac{\text{IPM} \times (r_o + R)}{r_o}$
Feed Rate Adjustment - Inside Arc	F _i =	$\frac{\text{IPM} \times (r_i - R)}{r_i}$
Ball Nose "Effective Diameter"	D _{eff} =	$2 \times \sqrt{\text{ADOC} \times (D - \text{ADOC})}$
Ball Nose Velocity Adjustment	V _{adj} =	$\frac{\text{SFM} \times 3.82}{D_{\text{eff}}}$