Conversion Formulas

inch x 25.4 = mm	mm x 0.03937 = inch
foot x 304.8 = mm	meter x 39.37 = inch
mile x 1.609 = km	km x 0.6214 = mile

Fahrenheit to Celsius: °C = °F - 32 x 5 ÷ 9
Celsius to Fahrenheit: °F = °C x 9 ÷ 5 + 32

Mill and Lathe Conversions

To Find:			Formula:
Revolutions Per Minute	**RPM**	=	(SFM x 3.8197) ÷ D
Surface Feet Per Minute	**SFM**	=	RPM x D x 0.2618
Surface Meters Per Minute (Metric)	**SMPM**	=	SFM x 0.3048
Inches Per Minute Milling Feedrate	**IPM**	=	FPT x T x RPM
Feed Per Tooth Mill	**FPT**	=	IPM ÷ (T x RPM)
Feed Per Revolution	**FPR**	=	IPM ÷ RPM
Inches Per Minute *Lathe*	**IPM**	=	IPR x RPM
Metal Removal Rate	**MMR**	=	W x d x F
Advance Per Revolution (Inches)	**ADV/R**	=	F ÷ RPM

Threads

Mill Tapping Feedrate	**IPM**	=	1 ÷ TPI x RPM
Lathe Threading Feedrate (Thread Lead)	**IPR**	=	1 ÷ TPI

Tap Drill Size = Major Dia. of Tap - $\frac{\text{\% of Thread Height x .01299}}{\text{TPI}}$

Percent of Full Thread = TPI x $\frac{\text{Major Dia. of Tap - Drill Dia.}}{.01299}$

Mill Tapping Feedrate (Metric) = 1 ÷ RPM x Metric Pitch

Tap Drill Size (Metric) = Tap Major Dia. (mm) - $\frac{\text{\% of Thread Height x Metric Pitch}}{76.980}$

Percent of Full Thread (Metric) = $\frac{\text{Basic Major Dia. (mm) x 76.980 - Drilled Hole (mm)}}{\text{Metric Pitch}}$

Miscellaneous

Radius of Circle	=	Circumference x 0.159155
Diameter of Circle	=	Circumference x 0.31831
Circumference of Circle	=	D x 3.1416
Area of Circle	=	R2 x 3.1416
Cutting Time in Minutes (Mill)	=	L ÷ IPM
Cutting Time in Seconds (Lathe)	=	$\frac{\text{Distance to go x 60 sec}}{\text{IPR x RPM}}$

Abbreviations and Measurement Units

D	=	Diameter of Milling Cutter or Lathe Part	**SFM**	=	Surface Feet per Minute
d	=	Depth of Cut	**SMPM**	=	Surface Meters per Minute
FPR	=	Feed per Revolution (in Inches)	**T**	=	Number of Teeth in the Cutter
FPT	=	Feed per Tooth (in Inches)	**TPI**	=	Threads per Inch
IPM	=	Inches per Minute (Table Travel Feedrate)	**W**	=	Width of Cut
IPR	=	Inches per Revolution	**°C**	=	Degrees Celsius
L	=	Length of Cut (Inches)	**°F**	=	Degrees Fahrenheit
RPM	=	Revolutions per Minute (Spindle Speed)			