Formulas

Measurement unit abbreviations

fpr	feed per revolution
fpt	feed per tooth
rpm	revolutions per minute

Constants

π	3.1416

Formulas

Descriptions	Full	Abbreviated
Bend allowance	(radius + C variable) $\times \left(\frac{2 \times \pi \times \text{angle}}{360}\right)$	$(r + C) \times \left(\frac{2\pi \times \text{angle}}{360}\right)$
Cutting force	length × thickness × shear strength	L × T × S
Feed rate per minute	feed per tooth × # teeth × revolutions per minute	fpt × N × rpm
Revolutions per minute (imperial)	$\frac{12 \times \text{cutting speed}}{\pi \times \text{diameter}}$	$\frac{12 \times CS}{\pi D}$
Revolutions per minute (metric)	$\frac{1\,000 \times \text{cutting speed}}{\pi \times \text{diameter}}$	$\frac{1\,000 \times CS}{\pi D}$

Formulas (continued)

Tap drill size	major diameter − pitch	MD − P
Time (for lathe)	$\frac{\text{length}}{\text{feed per revolution} \times \text{revolutions per minute}}$	$\frac{L}{fpr \times rpm}$
Time (for mill)	$\frac{\text{length}}{\text{feed per tooth} \times \#\ \text{teeth} \times \text{revolutions per minute}}$	$\frac{L}{fpt \times N \times rpm}$