



TECHNICAL

TAP DRILL SECTION

Obtaining Tap Drill Sizes for Thread Cutting Taps

Basic Major Dia. of Thread (inch) $- .0130 \times \frac{\% \text{ of Full Thread}}{\text{Threads Per Inch}} = \text{Drilled Hole Size}$

Example: Find drilled hole size, 1/4 – 20 tap with 75% thread.

$$.2500 - .0130 \times \frac{75}{20} = .2010 \text{ Dia. Hole} \\ \text{(# 7 Drill)}$$

Basic Major Dia. of Thread (mm) $- \frac{\% \text{ of Full Thread} \times \text{mm Pitch}}{76.98} = \text{Drilled Hole Size}$

Example: Find drilled hole size, M6.0 X 1.0 tap with 70% thread.

$$.2362 - \frac{70 \times .0393701}{76.98} = .2003 \text{ Dia. Hole} \\ \text{(5.08 mm Drill)}$$

Obtaining Tap Drill Sizes for Thread Forming Taps

Basic Major Dia. of Thread (inch) $- .0068 \times \frac{\% \text{ of Full Thread}}{\text{Threads Per Inch}} = \text{Drilled Hole Size}$

Example: Find drilled hole size, 1/4 – 20 tap with 75% thread.

$$.2500 - .0068 \times \frac{75}{20} = .2245 \text{ Dia. Hole} \\ \text{(5.7 mm Drill)}$$

Basic Major Dia. Of Thread (mm) $- \frac{\% \text{ of Full Thread} \times \text{mm Pitch}}{147.06} = \text{Drilled Hole Size}$

Example: Find drilled hole size, M6.0 X 1.0 tap with 70% thread.

$$.2362 - \frac{70 \times .0393701}{147.06} = .2174 \text{ Dia. Hole} \\ \text{(5.52 mm Drill)}$$

TECHNICAL

OPERATING FORMULAS

Drilling Terminology

The following terms and formulas can be used to determine the appropriate operating parameters.

Terms	Formulas
IPM = Inches Per Minute	$\text{IPR} \times \text{RPM} = \text{IPM}$
IPR = Inches Per Revolution	$\frac{\text{IPM}}{\text{RPM}} = \text{IPR}$
RPM = Revolutions Per Minute	$\frac{\text{SFM} \times 3.82}{D} = \text{RPM}$
SFM = Surface Feet Per Minute	$D \times \text{RPM} \times .26 = \text{SFM}$
D = Drill Diameter	

Milling Terminology

The following terms and formulas can be used to determine the appropriate operating parameters.

Terms	Formulas
SFM = Surface Feet Per Minute	$D \times \text{RPM} \times .26 = \text{SFM}$
RPM = Revolutions Per Minute	$\frac{\text{SFM} \times 3.82}{D} = \text{RPM}$
F = Feed in Inches Per Minute	$\text{Ft} \times \text{T} \times \text{RPM} = \text{F}$
Ft = Feed per Tooth	$\frac{\text{F}}{\text{T} \times \text{RPM}} = \text{Ft}$
D = Cutter Diameter	
T = Number of Teeth	