# Tapping Formulas and Calculations

## RPM for UNC/UNF Taps

\[
\text{RPM} = \frac{\text{cutting speed (SFM)} \times 3.82}{\text{tap diameter}}
\]

## Feed Rate for UNC/UNF Taps

\[
\begin{align*}
\text{IPR} &= \frac{1 \text{ inch}}{\text{threads per inch (TPI)}} \\
\text{IPM} &= \frac{\text{RPM}}{\text{threads per inch (TPI)}}
\end{align*}
\]

## RPM for M/MF Taps

\[
\text{RPM} = \frac{\text{cutting speed (SFM)} \times 97.028}{\text{tap diameter (mm)}}
\]

## Feed Rate for M/MF Taps

\[
\begin{align*}
\text{IPR} &= \frac{\text{pitch (mm)} \times 0.03937}{\text{threads per inch (TPI)}} \\
\text{IPM} &= \frac{\text{RPM} \times \text{pitch (mm)} \times 0.03937}{\text{threads per inch (TPI)}}
\end{align*}
\]

## To calculate Tap Drill Size

### UNC/UNF and M/MF Cut Taps – General Requirements

\[
\text{Tap Drill Size} = \text{Tap basic major diameter} \times \text{pitch}
\]

### UNC/UNF Cut Taps – Special Percentage of Thread Requirements

\[
\text{Drill Size} = \frac{0.01299 \times \text{desired percentage of thread}^*}{\text{threads per inch (TPI)}}
\]

### M/MF Cut Taps – Special Percentage of Thread Requirements

\[
\text{Drill Size (mm)} = \frac{\text{desired percentage of thread}^* \times \text{pitch (mm)}}{76.98}
\]

### UNC/UNF and M/MF Form Taps – General Requirements

\[
\text{Tap Drill Size} = \frac{\text{pitch}}{2}
\]

### UNC/UNF Form Taps – Special Percentage of Thread Requirements

\[
\text{Drill Size} = \frac{0.0068 \times \text{desired percentage of thread}^*}{\text{threads per inch (TPI)}}
\]

### M/MF Form Taps – Special Percentage of Thread Requirements

\[
\text{Drill Size (mm)} = \frac{\text{desired percentage of thread}^* \times \text{pitch (mm)}}{147.06}
\]

* Actual percentage will vary from desired percentage due to runout of drilling operation.