



Machinist LEVEL 3 Formulas

1. $IPM = CPT \times N \times RPM$
2. $RPM = \frac{CS \times 4}{D}$
3. $Pitch = \frac{1}{\text{Threads per inch (TPI)}}$
4. Depth of an external thread = $.6134 \times \text{Pitch}$ (17/24 of the theoretical height)
5. Depth of an internal thread = $.5413 \times \text{Pitch}$ (5/8 of the theoretical height)
6. Minor diameter of an external or internal thread = Major diameter - $(2 \times \text{depth of thread})$
* Use appropriate internal or external thread depth.
7. Pitch Diameter = Major Diameter - $(.6495 \times \text{Pitch})$
8. Width of crest of an external thread = $.125 \times \text{Pitch}$
9. Width of root of an external thread = $.166 \times \text{Pitch}$
10. Width of crest of an internal thread = $.25 \times \text{Pitch}$
11. Width of root of an internal thread = $.125 \times \text{Pitch}$
12. Tap drill size = Nominal diameter – PitchG17