

# Bolt Preload (Clamp Load) Calculator

Work backwards from your torque wrench: given the applied torque, diameter, and finish, see the clamp load - and whether the bolt is near yield.

## How it works

This inverts the torque-tension equation  $T = K \cdot D \cdot F$  to solve for preload:  $F = T \div (K \times D)$ , with torque converted to pound-inches. The bolt stress is then  $F$  divided by the tensile stress area, compared against the proof load of the selected grade. Because  $K$  varies +/-25% with thread condition and lubrication, the result is a starting estimate - a lubricated bolt at the same torque develops far more clamp load (and may yield) than a dry one, which is exactly what the proof-load comparison is for. Always confirm critical joints against the specification.

*For live values, use the interactive calculator: [bookoffasteners.com/calculators/bolt-preload-calculator/](http://bookoffasteners.com/calculators/bolt-preload-calculator/)*





Reference values only — verify against the governing standard or manufacturer before use.