

Common Units of Measurement Table

Below is a table of the specific units of measure used for structural bolts.

Torque is a turning force. In the case of bolting, it is the amount of turning force applied to a nut. Tension or load, however, is the amount of clamping force generated as the nut is tightened. It is tension or load that holds the joint together.

Note that some specifications described in the following content may not be the same as the specifications followed by your agency. Always check with your State agency's standards and specifications when using these guidelines.

Item	Measure	Notes
Pre-tension or bolt load	Pounds or “kips”	1 kip = 1,000 pounds
Friction	Expressed in torque formulas as a “nut factor” (K) which is a dimensionless decimal factor	A measure of how hard it is to turn the bolt or nut
Torque	Use the formula: $T = (K \times D \times P)/12$	T = torque in ft-lbs D = bolt diameter in inches P = Pre-tension (load) in pounds Divide by 12 to convert from in-lbs to ft-lbs