



# Nickel Systems Torque Tables

## Disclaimer

*These tables are for a standard hex head cap screw, washer, and nut assembly. They are for uniform materials in the assembly. These materials should be new without corrosion. This is for static loading. Vibration or other dynamic loading factors were not considered. This is for bolts under six inches. Yield strength is selected based upon the ASTM minimum 0.2% offset for rods and bars at room temperature typically. For the most accurate yield strength values, request MTRS that contain actual values from tested material samples for your specific fasteners. Stress area is calculated by this equation:  $A = \pi/4 * (D - 0.9743/n)^2$  where  $D$  = diameter and  $n$  = threads per in. Proof load is calculated by multiplying the yield strength by the stress area and then multiplying it by 90%. Clamping load is 75% of the proof load. Fastener torque is finally calculated by multiplying the clamp load by the diameter then by the  $k$  value. This is then converted from in-lbf to ft-lbf by dividing by 12 inches. Our  $k$  values are typical. The dry value for  $k$  is typical for unlubricated, corrosion free conditions. The lubricated  $k$  value is also typical. We considered molybdenum disulfide-based or nickel based anti-seize lubricants. There are other factors that affect the  $k$  value, which we may or may not have considered. This table was reviewed by an engineer & is believed by Nickel Systems to be accurate. However, it is not to be used as a substitute for professional engineering bolt design and installation. Please use it as a resource for estimates but consult with a professional engineer prior to a formal design and/or installation. Nickel Systems assumes no liability for any use of these tables beyond its intended purpose.*