

Stainless steel threads are notorious for galling or seizing during tightening. For a successful assembly, tightening should be carried out with a slow smooth action. Impact wrenches or air powered screw drivers are not recommended. In addition an anti-seize compound must be applied to the threads. A high quality nickel anti-seize has been found to be very effective.

Recommended torque values are calculated figures based upon several factors including friction, bolt diameter and proof stress. As the use of anti-seize is going to vary the friction characteristics of the assembly, the actual torque

required will also vary. Consequently the torque values quoted can only be regarded as a guide and bench trials should be conducted first.

Standard engineering practice requires fasteners to be tightened to a point where the included screw tension is 65-70% of the proof load. Once the proof load is exceeded the bolt will start to stretch permanently. Therefore, during the bench trials the torque required to start permanent stretching of the bolt should be noted. Applying 70% of this torque figure will be a safe installation torque.

## Tightening Torques for Stainless Steel (304 and 316) Metric Bolts

Nominal Diameter	Grade A2-70 and A4-70 Recommended Assembly Torque to include 70% Proof Load		Grade A2-80 and A4-80 Recommended Assembly Torque to include 70% Proof Load	
	(NM)	(ft lbf)	(NM)	(ft lbf)
M5	4.5	3.3	6.5	4.8
M6	7.6	5.6	11.1	8.2
M8	18.4	13.6	26.7	19.6
M10	37.0	27.0	52.6	38.7
M12	64.0	47.0	91.5	67.3
M16	158.0	116.7	223.0	163.9
M20	309.0	227.7	435.0	319.8

## How To Stop Thread Galling on Stainless Fasteners

A few times each year we receive calls from fasteners suppliers who are in conflict with their customer over the quality of stainless steel bolts and nuts. The customer's

complaint is that during installation the bolts are twisting off and/or the bolt's threads are seizing to the nut's thread. The frustration of the supplier is that