

**Tension Control Bolt Installation**

There are three friction areas (fa) in the tension control bolt assembly:

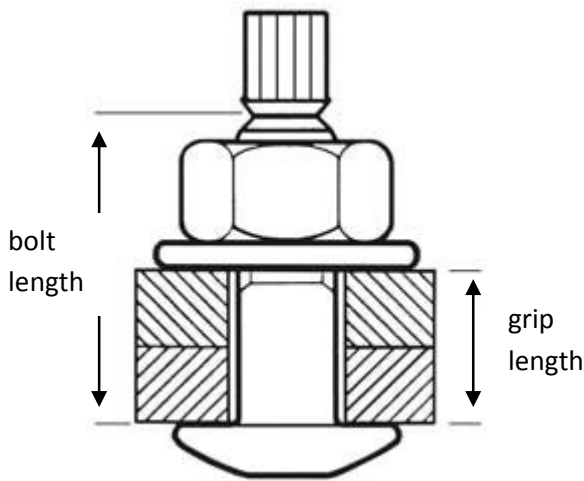
- Bolt head the material
- Material to washer
- Washer to nut

During installation the shear wrench applies rotation to the nut and bolt:

- Clockwise at the nut
- Counterclockwise at the bolt spline

The bolt head and washer face are equal in area causing high friction and rotational resistance. The nut bearing surface is 50% or less in area, and is lubricated, therefore has the lowest friction and rotation occurs. During nut rotation, the bolt is held in place through friction at (fa) and counterforce at the spline. Counterforce at the spline increases as bolt is tightened. The spline is removed at the shear groove (sg) when bolt reaches proper tension.

The shear wrench is not calibrated and has no control or effect on final installed bolt tension. The calibration is set in the bolt assembly at the time of production.



**Determining Bolt Length**

Bolt Size, in.	To Determine Required Bolt Length Add to Grip, in.
5/8	7/8
3/4	1
7/8	1 1/8
1	1 1/4
1 1/8	1 3/8

Add value in above column for your desired bolt diameter to the total material thickness in the grip. Round value up to the nearest 1/8".

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