

## BOLT FASTENING – FORCE

INDUSTRIES: AEROSPACE / AUTOMOTIVE AND VEHICLE / ENERGY /  
INDUSTRIAL AUTOMATION/ TEST AND MEASUREMENT

### SUMMARY

#### Customer Need / Challenge

Overtightening bolts during installation can cause damage to the objects being installed.

#### Interface Solution

Using Interface Model LW or LWCF Load Washers along with Interface Instrumentation can provide a solution that monitors the force being applied during bolt tightening.

#### Results

Bolts are tightened to the correct force targets and objects are installed undamaged.

### MATERIALS

#### Interface Products

- Model LW or LWCF Load Washers
- Model INF-USB2 PC Interface Module

#### Alternate Setup

- Model 9860 TEDS High Speed Digital Indicator
- Model 9320 Battery Powered Hand Held Indicator
- Model DMA Din Rail Mount Signal Conditioner

#### Additional Materials

- Add Mating Connector to Load Cell Cable
- Setup and Scaling of Instrument
- Spherical & Flat Washers if needed (customer supplied)

### HOW IT WORKS

1. Model LW or LWCF Load Washer is installed between the bolt head and nut. The load washer will measure the load as torque is applied to the nut.
2. Using Model INF-USB2 PC Module, force readings from the load cell will be displayed, logged and graphed directly into the PC.
3. Using Model 9860 TEDS High Speed Digital Indicator, force readings can display in a local indicator, provides 4 limit setpoints and can log data on a PC as well.
4. Using Model 9320 Battery Powered Hand Held Indicator, force readings can be read directly on the indicator and can be performed in the field under battery power.
5. Using Model DMA Din Rail Mount Signal Conditioner, force readings can be converted to a  $\pm 5\text{VDC}$ ,  $\pm 10\text{VDC}$  or 4-20mA Outputs for use with customer's PLC and Data Acquisition System.

