

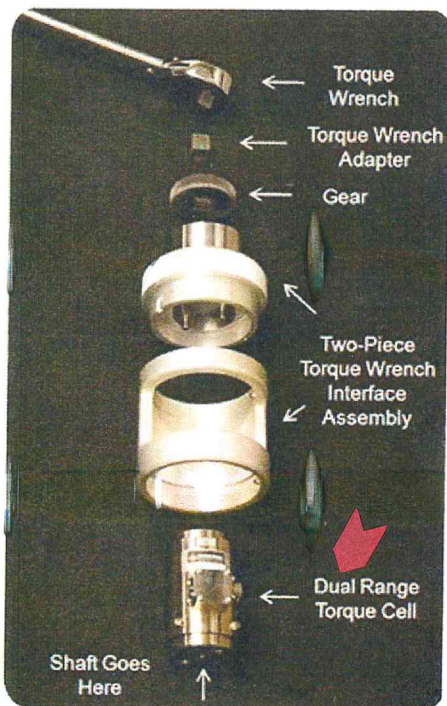


DynTORQ: Torque Wrench Calibration System

*Automatic and Accurate
Calibration from
1 ft-lb to 1,500 ft-lbs*

The DynTORQ torque calibration system (TCS) provides an automatic and accurate torque wrench calibrator capable of applying torque in the range of 1 ft-lb to 1500 ft-lbs. The TCS was designed as an integral component of the US Army's AN/GSM-421 mobile calibration vehicle, which consists of a HMMWV mounted shelter containing calibration standards and computer controllers, utilizing available components and making efficient use of the limited space available. Dynetics modified the original design to achieve a stand-alone bench version for fixed-site calibration laboratories.

In both the mobile and bench versions, force is developed by a motor-actuator that is capable of generating over 3500 lbs. of force. The motor-actuator is under computer control via the motor-actuator controller. The motor-actuator is connected to a six inch lever arm that is connected to the primary shaft. Smooth movement of the primary shaft is facilitated by the isolation bearings located at each end of the shaft. The top side of the primary shaft is located flush with the counter-top and interfaces directly with a dual range torque sensor. Dynetics TCS design is unique in that the dual range torque sensor is isolated by the TCS torque sensor head. The sensor head utilizes low-loss bearings that reduce friction by a factor of 10 below the minimum measurement value of 1 ft-lb. Isolation of the torque sensor eliminates undesired parasitic forces that can affect the torque measurement.



The mechanical interface to the TCS torque cell head is achieved by an indexing ring that allows for calibration of multiple types of torque wrenches. The indexing ring is quantized in 3.6 degree increments which allows for the variations in the torque wrench ratchet mechanism. The indexing ring has a square hole in the top which interfaces, either directly or with torque wrench adapters, with the torque wrench under test.

The torque wrench is held in place by a sliding handle assembly that is rigidly mounted, either to the bench frame or the curbside wall of the AN/GSM-421. The handle moves along the slide to accommodate torque wrench lengths from 8 to 80 inches.

Isolation of the torque sensor is key to accurate measurements.

Product Highlights

- Fully automated through computer/controller
- Computer interface provides error-checking and error alerts help prevent tool damage
- Provides a dual range capability that minimizes torque cell changes
- Force is created by a motor-actuator
- Isolation of the torque sensor head eliminates interference that may affect measurements
- Indexing ring allows calibration of ratchet type torque wrench
- Sliding handle assembly accommodates torque wrench lengths from 8- to 80 inches
- System supports scheduling and reporting functions

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