

TED Series Calibration Procedure

You must have the proper equipment to calibrate the torque tester.

Equipment required:

1. Certified NIST traceable dead weights
2. Certified NIST traceable Calibration arm.

The tester is calibrated by loading the tester to eight predetermined points (three clockwise and three counterclockwise plus zero in each direction). The calibration must be done in the equivalent primary units of the meter (in.lb. or ft.lb.). For example, to calibrate a 250 ft.lb. tester (TED-250FS) you must have the ability to apply 25.00 ft.lb. (10% of full scale), 125.0 ft.lb. (50%) and 250.0 ft.lb. (100%) in both the cw and ccw direction. The tester uses 4 calibration points in each direction (including zero), however you should test accuracy to 5 points (or as many as our specification requires).

Test Accuracy Procedure:

1. Mount the tester firmly as described in the operation manual.
2. Put the torque tester in Track mode.
3. Attach a certified torque arm. Make sure the arm is balanced and is applying either no torque or a small amount of torque in the direction to be tested.
4. Apply proper torque with certified dead weights at the following points:
10%, 40%, 60%, 80%, 100% of full scale.
5. When going from clockwise to counterclockwise always load the tester to full scale three times prior to calibration. This “shifts” the zero to the opposite direction as a result of hysteresis (hysteresis is a natural phenomenon which occurs in material).
6. The TED tester product line is specified to an accuracy of $\pm 1\%$ IV from 10-100% of full scale. Note the readings and determine the accuracy. If the tester is out of tolerance re-calibrate per the procedure below. Be sure to take into account the accuracy of your weights and arms when checking for accuracy.

Calibration Procedure:

1. When the tester is OFF, press the Clear/On key and the Mode key at the same time. The tester will turn on showing: “C...” for a moment. The tester will then display “0”. Load the tester to full scale (CW) three times. Then, with no torque applied, press the Mode button to accept zero.
NOTE: Each level requires you to apply the correct torque and press the mode key to go on to the next level. If you make a mistake you must start over at step 1. **IMPORTANT:** you must always calibrate in the clockwise direction **FIRST**, then the Counterclockwise direction.
2. The tester will now show “10”. This means apply 10% of full scale to the tester in the CW direction. If the tester range is 250 ft.lb. apply exactly 25.00 ft.lb. (10% of full scale) press the mode key to accept the 10% torque value. **IMPORTANT! After loading the desired torque and pressing the mode key the tester will wait approximately 3 seconds to take a reading to allow the torque to stabilize, do not touch the tester or go on to the next step until the tester prompts you to do so. Make sure the weights are not swinging when you press the mode key.**
3. Repeat above procedure for 50% and 100% Clockwise torque values.
4. After completing the CW direction the tester will display “0” and the direction icon will point to CCW. Load the tester to full scale (CCW) three times. Then, with no torque applied, press the Mode button to accept the CCW zero.
5. The tester will now show “10”. This means apply 10% of full scale to the tester (this time in the counterclockwise direction). If the tester is a 250 ft.lb. tester apply exactly 25 ft.lb. (10% of full scale). With a stable 10% load press the mode key. **IMPORTANT! After loading the torque and pressing the mode key the tester will wait approximately 3 seconds to take a reading to allow the torque to stabilize, do not touch the tester, or go on to the next step until the tester prompts you to do so.**
6. Repeat for 50% and 100% in the Counterclockwise direction.

After pressing the final mode key, at 100% of full scale in the counterclockwise direction, the tester will start reading torque in the track mode. The value should be correct.

Retest the unit at all points.

Important Calibration issues:

- The calibration will only be as accurate as the accuracy of the torque applied at the calibration points.
- When testing the tester for accuracy, make sure you are in Track mode.