

TSC (Cam-Over Wrench) Operating Instructions

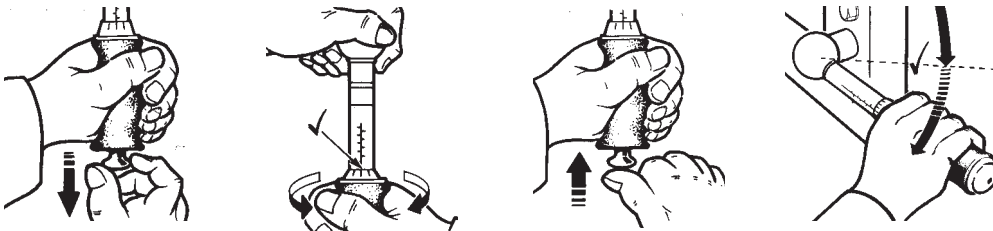
Rev 2.3 (4/13/2017)

TSC Cam-Over Torque Wrenches

The wrench features an externally adjustable micrometer scale and easy-to-use positive locking adjustment system. The TSC wrench is ideal for applications where over-torque conditions are not tolerated. The use of cam-over wrenches takes the operator influence out of the torque equation and offers more accurate and repeatable results than a standard 'click' type wrench.

Setting and Applying Torque

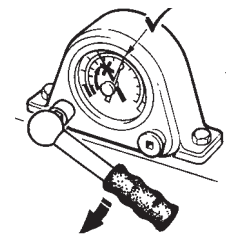
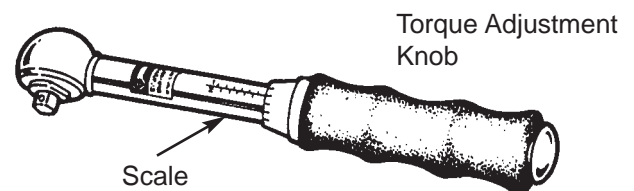
1. Set desired torque on the scale. Pull down on the "Adjustment Knob" and turn handle clockwise to increase torque and counter clockwise to decrease torque on the scale. Align the desired torque value on the micrometer scale. Press "Adjustment Knob" back in and lock in the torque setting.
2. Tighten nut or bolt by applying steady twists. Wrench should be kept at 90 degrees to axis of bolt during tightening. When pre-set torque is reached, the wrench will 'slip.'
3. The wrench will automatically reset itself for the next application.
4. With its unique cam-over design, it's impossible to over tighten beyond the preset load.



Calibrating Torque Wrenches

To calibrate torque wrenches either use a torque tester or torque sensor within the range of the torque wrench. For cam-over torque wrenches calibrate torque in "Peak" mode with a torque tester or torque sensor. Make sure to apply the torque slowly and smoothly.

1. Select a torque tester or torque sensor that covers the torque range of the TSC wrench. Connect wrench to the torque tester or torque sensor.
2. Using micrometer scale, set wrench to 20% full scale setting. Apply torque CW slowly until wrench 'slips' and note reading from test device.
3. Repeat step 2 for 60% and 100% tool settings (other test points can be used if desired.)
4. If readings are not within the specification tolerance, then perform calibration adjustments as described below.
5. Recalibrate torque wrench at prescribed intervals.



Note: Refer to ISO6789 International Standard for more information on hand tool testing requirements.

Calibration Adjustments

1. Test tool through full range. Make scale adjustments, if required, as described in steps 2 - 7. If wrench is nonlinear, contact Mountz for technical repair service.
2. Peel back the rubber hand grip from the end of the tool to reveal the three equally spaced socket set Screws located in the adjusting sleeve.
3. Ensure that the red lock knob is pulled fully out and engage the tool with the test device.
4. Disregarding any scale or bezel markings, rotate the adjusting sleeve as required until the torque tester displays a reading equal to the first setting on the wrench and at the same time ensure the lock mechanism has engaged with one of the ten lock positions in the handle tube. It should be possible to feel and hear this action, which will be confirmed by pushing in



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Calibration Adjustments (continued)

- the red knob to lock the tool. Ensure that the tool is operated as slowly as possible during the test procedure.
5. If, to achieve the correct reading, the zero position on the bezel is no longer in alignment with the center line of the main scale, unscrew the three socket set screws by two full turns each and rotate the adjusting sleeve until the zero position is in alignment with the center line of the main scale. (A 1.5 mm A/F hex key is required for the screws).
 6. Apply a minimal amount of Loctite 222 to the threads of each screw and carefully “nip up” each of the screws evenly with sufficient torque to enable the tool to be adjusted.
 7. Re-test the tool with a torque tester and if satisfactory readings are obtained throughout the range, fully tighten the socket screws and release the rubber grip to its original position.
 8. If, after several attempts, should it be found impossible to obtain satisfactory readings, it is recommended that the tool be returned to the manufacturers for re-calibration.

TSC Maintenance Schedule

Expected Tool Life

With normal use – 100,000 operations

Period between Resetting of Torque

5000 operations (as recommended in BS EN 26789:1994). It is acknowledged that some TSC tools achieve 5000 operations in a relatively short period of time. Under these circumstances the User may decide, with the benefit of their experience, to increase the period between calibration checks.

Routine Maintenance

After 100,000 operations, strip, clean & re-grease the Spindle, Cam & Roller. Any worn components should be replaced.

Note: Any tool that is dismantled during its life must be re-lubricated in accordance with the Mountz recommendations. Do not clean tools by immersing them in solvent, as this will destroy the internal lubrication and cause failure of the tool.

Tool Lubrication Chart for TSC

Lubricant:	Fuchs Renolit CXI 2 Grease	Rocol Dry Moly Paste
Product Part:	Bearings. TSC Locking Mechanism	Thrust Pin



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Mountz Calibration & Repair Services

Mountz Inc. features an experienced calibration and repair staff. Our trained technicians can calibrate and repair most any tool. Mountz provides rapid service with quality that you can trust as we offer three state-of-the-art calibration lab and repair facilities that can calibrate up to 20,000 lbf.ft.

Since 1965, Mountz's in-depth knowledge of torque is reflected in our tool's craftsmanship and our ability to provide solutions to both common and uncommon torque applications. We perform calibrations in accordance with ANSI/NCSL-Z540. Mountz is dedicated solely to the manufacturing, marketing and servicing of high quality torque tools.

Tool Service & Repair Capability

- Torque Wrench Calibration: Click Wrench, Dial Torque Wrench, Beam Wrench, Cam-Over & Break-Over Wrench
- Torque Screwdrivers: Dial, Micrometer, Preset & Adjustable
- Torque Analyzers/Sensors: All brands
- Electric Screwdrivers: All brands
- Air Tools: All brands
 - Impact Wrenches, Drills, Pulse Tools, Grinders, Percussive Tools, Air Screwdrivers, Nutrunners, DC Controlled Nutrunners
- Torque Multipliers: All brands

Mountz Torque Testers and Calibration Equipment

Torque tools go out of calibration with use. Calibrating a torque tool is a fine-tuning process of bringing the tool back within its tolerance. Torque testers can also be used for quick tools tests on the line or in the lab to determine whether torque tools are holding a given setting.

A regular torque tool calibration and re-calibration guarantees the operator repeatable accuracy and adherence to international standards. Torque testing also ensures torque equipment is operating to peak performance and can highlight potential tooling problems before they arise perhaps due to tool wear or broken components.

Controlling torque is essential for companies to ensure their product's quality, safety and reliability isn't compromised. The failure of a three-cent fastener that isn't properly tightened can lead to catastrophic or latent failures. Fasteners that are insufficiently torqued can vibrate loose and excessive torque can strip threaded fasteners. Using a quality torque tool has become increasingly important for many companies to ensure that proper torque is being applied and maintains gauge requirements associated with the ISO 9001 Quality Standard. Look for the Mountz hexagon logo - it's a stamp for quality tools, service and knowledge in the field of torque control.

Mountz Service Locations

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Download a "Service Form" and include a copy when you send the tools in to be serviced.

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