

Mark-10 MTT01-25

Mark-10 MTT01-25 Series TT01 Cap Torque Tester User Manual

MODEL: MTT01-25

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1. Product Overview

The Mark-10 Series TT01 Cap Torque Tester is engineered for precise measurement of application and removal torque on bottle caps. It supports capacities up to 100 lbFin [11.5 Nm]. Its robust aluminum construction and user-friendly interface make it suitable for both laboratory and production environments. The TT01 features high accuracy (+/-0.3%) and a rapid sampling rate of 7,000 Hz, ensuring reliable results for various applications, including tamper-evident closures.



Figure 1: Mark-10 TT01 Cap Torque Tester with adjustable posts.

This tester is crucial for bottlers to verify the proper functioning of capping machines and ensure caps are tight enough to prevent leakage during transport, yet loose enough for consumers to open. It includes advanced features such as USB and RS-232 outputs, automatic data output, zeroing upon cap removal, and memory storage for 1,000 readings.



Figure 2: Mark-10 TT01 Cap Torque Tester with included accessories, including power adapter and USB cable.

2. Setup

The TT01 Cap Torque Tester is designed for easy setup to accommodate various bottle shapes and sizes.

2.1. Initial Placement

Place the TT01 on a stable, flat surface. Ensure adequate space around the unit for operation and sample placement.

2.2. Adjusting Posts for Sample Gripping

The tester comes with four movable posts that can be adjusted to securely grip different bottle shapes and sizes. To adjust, loosen the posts, position them around your sample, and then tighten them to secure the bottle.



Figure 3: The TT01 Cap Torque Tester with a bottle secured by its adjustable posts.

2.3. Optional Jaws

For unique or square-shaped containers, optional flat rubber jaws or adjustable jaws are available. These can be individually positioned to provide optimal grip for specialized applications.

2.4. Powering the Unit

The TT01 can be powered by its internal rechargeable battery or via the included AC adapter. Connect the AC adapter to the power input port on the rear of the unit.



Figure 4: Rear view of the TT01 showing the power input, USB, and serial ports.

3. Operation

Operating the TT01 involves placing the sample, performing the torque test, and interpreting the results from the digital display.

3.1. Performing a Torque Test

1. Place the bottle securely between the adjustable posts.
2. Ensure the display is zeroed before starting a new test. Press the 'ZERO' button if needed.
3. Twist the cap until it loosens. The display will show the peak torque value achieved during the loosening process.

3.2. Display Indicators

The TT01 features a clear digital display with various indicators:

- **Primary Reading:** Configurable to show live or peak torque values.

- **Units of Measurement:** Selectable units include lbFin, ozFin, lbFft, Ncm, or Nm.
- **Set Points:** Programmable upper and lower set points define the acceptable tolerance range.
- **Pass/Fail Indicators:** Visual cues on the display indicate whether the reading is within range, too high, or too low.
- **Peak Detection:** Features 1st/2nd peak torque detection, useful for measuring slip and breakaway torques in tamper-evident closures.



Figure 5: Detailed view of the TT01's digital display showing various measurement parameters.

Display Indicators

Set points

Current or peak reading

Set point (pass/fail) indicators

Battery indicator

Memory storage for 1000 readings (auto-save also possible)

Access the tester's settings menu via an easy-to-use interface

Out-push data output to a PC, printer, or other device (auto-output also possible)

Clockwise/counter-clockwise indicator

Peak readings (CW/CCW or 1st/2nd peaks)

Measurement mode

Unit of measurement

Analog load bar w/set point markers

Zero the reading to begin a new test (auto-zero also possible)

Toggle between real time, peak, and 1st peak/2nd peak display modes

Figure 6: Diagram illustrating the various display indicators and their functions.

3.3. Data Management

The TT01 can store up to 1,000 readings in its internal memory. You can view saved data, calculate statistics (min, max, mean, standard deviation), and clear data in bulk.

3.4. Connectivity and Software

The unit offers multiple output options for data transfer:

- **USB Output:** Allows direct connection to a PC for data transfer. A USB cable and MESUR Lite data acquisition software are included.
- **Multi-purpose Serial Connector:** Includes RS-232, Mitutoyo, analog, and set point outputs for integration with other systems.

For increased testing efficiency, the TT01's Break Detection function can automatically save the reading, output the reading, and zero the display when the cap is loosened.

MESUR Lite software tabulates continuous or single point data, and data stored in the TT01's memory can be downloaded in bulk. One-click export to Excel is available for further data manipulation. MESURgauge advanced data collection software is also available, providing graphs and analysis with customizable reports and start/stop triggers.

3.5. Instructional Video

For a visual guide on the features and operation of the TT01 Cap Torque Tester, please watch the official product video below:

Video 1: Series TT01 Cap Testers Overview. This video demonstrates the key features, setup, testing procedures, and data management capabilities of the Mark-10 TT01 Cap Torque Tester.

4. Maintenance

To ensure the longevity and accuracy of your Mark-10 TT01 Cap Torque Tester, follow these general maintenance guidelines:

- **Cleaning:** Wipe the unit with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure no liquids enter the device.
- **Storage:** Store the tester in a clean, dry environment, away from extreme temperatures and humidity. The included carrying case (Figure 7) provides excellent protection during storage and transport.
- **Calibration:** Regular calibration is essential to maintain measurement accuracy. Refer to the full technical manual or contact Mark-10 for recommended calibration intervals and procedures.
- **Battery Care:** If the unit is not used for extended periods, charge the battery periodically to prevent deep discharge.



Figure 7: The TT01 Cap Torque Tester securely stored in its custom carrying case.

5. Troubleshooting

This section provides solutions to common issues you might encounter with your TT01 Cap Torque Tester.

Problem	Possible Cause	Solution
Unit does not power on	Low battery or power adapter issue	Connect to AC adapter and charge. Verify adapter is working.
Inaccurate readings	Needs calibration, improper sample setup, or overload.	Perform calibration. Ensure sample is centered and securely gripped. Avoid exceeding capacity.
Data transfer issues	Incorrect cable, software settings, or driver issues.	Check USB/serial cable connection. Verify software settings. Install/update drivers.

Problem	Possible Cause	Solution
Display is blank or frozen	Software error or power issue.	Perform a soft reset (refer to full manual). Ensure stable power supply.

If you encounter problems not listed here or if the suggested solutions do not resolve the issue, please contact Mark-10 technical support.

6. Specifications


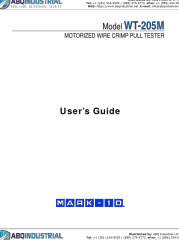
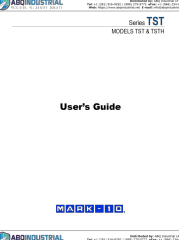



Key technical specifications for the Mark-10 MTT01-25 Series TT01 Cap Torque Tester:

- **Model Number:** MTT01-25
- **Capacity:** 25 lbFin / 290 Ncm
- **Accuracy:** +/-0.3% of full scale
- **Sampling Rate:** 7,000 Hz
- **Material:** Aluminum
- **Item Weight:** 10.3 Pounds
- **Package Dimensions:** 15.4 x 12.5 x 8.9 inches
- **Data Memory:** 1,000 readings
- **Outputs:** USB, RS-232, Mitutoyo, Analog
- **Power:** Rechargeable battery or AC adapter
- **First Available:** January 28, 2013
- **UPC:** 666758809663

7. Warranty & Support

For information regarding product warranty, please refer to the documentation provided with your purchase or visit the official Mark-10 website. Standard protection plans may be available for purchase, offering extended coverage for 2 or 3 years.

For technical support, service, or additional information, please contact Mark-10 Corporation directly. Their contact details can typically be found on their official website or in the product packaging.

 <p>Model WT-205 WIRE CRIMP PULL TESTER</p> <p>User's Guide</p>	<p>Mark-10 WT-205 Wire Crimp Pull Tester: Specifications & Features</p> <p>Detailed data sheet for the Mark-10 WT-205 Wire Crimp Pull Tester, covering specifications, controls, optional functions, and ordering information. Learn about its capabilities for force and torque measurement.</p>
 <p>Model WT-205M MOTORIZED WIRE CRIMP PULL TESTER</p> <p>User's Guide</p>	<p>Mark-10 WT-205M Motorized Wire Crimp Pull Tester User's Guide</p> <p>This user's guide provides comprehensive instructions for the Mark-10 WT-205M Motorized Wire Crimp Pull Tester. It covers setup, safety precautions, operating modes, controls, calibration, specifications, and troubleshooting for pull test applications up to 200 lbf (1,000 N).</p>
 <p>Series TST MODELS TST & TSTH</p> <p>User's Guide</p>	<p>Mark-10 Series TST & TSTH User's Guide</p> <p>User's guide for Mark-10 Series TST and TSTH torque measurement test stands, detailing setup, safety procedures, operation, maintenance, technical specifications, and dimensional information.</p>
 <p>Model WT-205 WIRE CRIMP PULL TESTER</p> <p>User's Guide</p>	<p>Mark-10 WT-205 Wire Crimp Pull Tester User's Guide</p> <p>User's Guide for the Mark-10 WT-205 Wire Crimp Pull Tester, detailing setup, operation, safety, specifications, and features for force measurement applications.</p>
 <p>Model WT-205 WIRE CRIMP PULL TESTER</p> <p>User's Guide</p>	<p>Mark-10 WT-205 Wire Crimp Pull Tester User's Guide</p> <p>Comprehensive user's guide for the Mark-10 WT-205 Wire Crimp Pull Tester, covering setup, operation, safety, specifications, and troubleshooting.</p>
 <p>Model WT-205M MOTORIZED WIRE CRIMP PULL TESTER</p> <p>User's Guide</p>	<p>Mark-10 WT-205M Motorized Wire Crimp Pull Tester User's Guide</p> <p>User's Guide for the Mark-10 WT-205M Motorized Wire Crimp Pull Tester, detailing setup, safety, operation, specifications, and calibration for force measurement applications.</p>