



## UNIVERSAL MATERIAL TESTING MACHINES MTE-1/1L models

Electromechanical one column testing framework designed to perform tensile, compression, bending, shearing, peeling..., tests of very light materials up to 1 kN



TECHLABSYSTEMS

Universal Materials Testing Machines with one column testing framework designed to perform Tensile - Compression - Flex - Shear - Peel - Tear tests..., on samples of materials such as Plastics, Rubber, Adhesives, Textiles, Threads, Ropes ...

## MTE-1/1L models

- **Maximum force capacity: 1 kN**
- **Available load cells not included in the standard supply:**  
1kN - 500N - 250N - 100N - 50N y 10N
- **Tests - Tension – Compression - Flexion - Shear...**
- **Accuracy  $\pm 0,5\%$  (Class 0,5)**
- **Precise electromechanical drive**
- **High stiffness test frame**
- **The Testing Machine in standard supply is equipped with METROTEST testing software and Mini-PC**
- **Large workspace in test area**
- **Ergonomic, robust, and precise**



## General Information

The MTE-1/1L Universal Electromechanical Testing Machines have the most advanced and reliable structure in the framework of electromechanical tests with ball circulation spindle. The computerized control system allows for closed-loop control of parameters such as test force, specimen deformation and crossbar travel, etc. The system realizes in real time on the PC screen test diagrams, test curves and creation of test reports. Closed-loop control through the METROTEST test program makes it possible to carry out cyclical tests. By simply connecting with different accessories, the MTE-1/1L series machines can test various materials and components to suit your needs in quality control and research.

In the International Standards compliance section, it meets or exceeds the requirements of the following standards: ISO 7500-1, ASTM-E4, EN 10002-2, BS 1610, DIN 51221, and ISO 6892.

To configure the tests and complete the MTE-1 Universal Testing Machines, we optionally have a wide range of test accessories such as Grips, Extensometers, Flexural Bending Fixtures, Special Devices, etc.

The **MTE-1 UNIVERSAL MATERIALS TESTING MACHINE** is made up of a robust frame in which the test frame is located. The high stiffness frame incorporates a crosshead guidance system to prevent side loading of the sample under test. The test frame is made up of a low friction coefficient drive and re-circulation ball screw with protectors and a rectified and chromed steel guide column.

Force measurement is carried out through a compression-tension load cell housed in the mobile crossbar. The necessary test tools are attached to this load cell (not included in the standard supply of the MTE-1 Universal Testing Machine).

The test framework admits overloads of 120% of the nominal force without affecting its measurement or operating precision, which gives the frame a great robustness and safety of correct operation under intensive work.

It has a system of upper and lower travel limiters adjustable independently by the user. Inside the base box are included the transmission elements, the transformer, regulation electronics, servo motor, etc.

## Features

- **Fully computerized: The control and measurement system with a specific electronic card used for testing machines, performing the tare to zero and adding a setting which is very reliable.**
- **It has a Database manager for the test results which stores according to a standard format which facilitates analysis and transfer to other programs.**
- **Compliance with testing requirements for all types of materials with all international testing standards.**
- **With a wide range of graph functions, curve color changes, magnifications (zoom), reductions, curve auto-scaling can be performed (making it easier and shorter to run a test with a new material), displacement of the curves in the deformation axis, designate standard curve, association of labels to each graph, indication of the values digitally on the screen and printing of all kinds of test curves.**
- **Modular design makes it easier to upgrade software in the future.**

## METROTEST material testing software

**METROTEST** testing program based on WINDOWS MS is easy and fast to use to achieve different functions, adaptable to most operator habits. With all the integrated functions such as test sample information, sample choice, data display, data processing, data analysis, test operations ... easy to use.

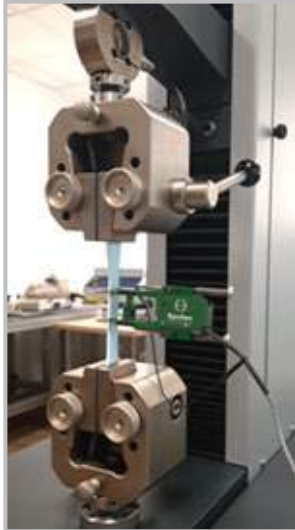


- Very clear, intuitive, attractive interface design with information on the screen.
- Choice of different units for each of the results.
- Route of all the points of the graph, point by point.
- Association of labels to each graph.
- Creation and management of standard curves.
- Context sensitive help
- Customizable report
- Reports in PDF format directly without the need for additional software
- Automatic auto scaling on charts
- Test limits independent of graph limits
- Auto-save of results, specimen by specimen
- Single or multiple curve display
- Customizable interface
- Option to request sample dimensions at the beginning of each trial.
- On-screen information of the tasks being carried out by the program (log)
- Visual parameterization of results

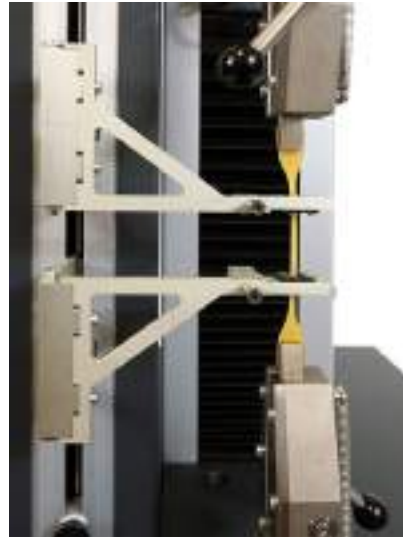


Depending on the type of materials and shapes of the test specimens to be tested, we have a wide range of accessories and test tools, such as Grips, Testing Fixtures, Extensometers...

**Ask us about your testing needs!**



**Extensometers**  
Small Elongations



**Extensometer**  
High Elongations



**Flexure / Bending**  
Fixtures



**Compression Plates**  
Square - Rectangular -  
Circular



**Manual Grips**  
(Film - Fabrics - Sheets...)



**Self-clamping Grips**  
(Elastomers - Rubber...)



**Pneumatic Grips**  
(Film - Fabrics - Sheets...)



**Bollard type Grips**  
(Threads - Ropes - Wires  
Fine Ductile Cables ...)

## Functional Technical Specifications

### Control unit

- PC Control and METROTEST Testing Software
- Level of breakage of the sample (% of force drop at the end of the test)
- Maintenance of Peak Force / Extension in Tension or Compression
- Selection of force and deformation units
- External control mode by Mini-PC
- RS-232 serial port

### Force measurement

- Range: 2% to 100% - Accuracy 0.5% of applied force
- Precision in Forces: Class 0.5 (accuracy  $\pm 0.5\%$ )
- Load reading resolution: 1 / 200,000 points:
  - 1 / 100,000 in Traction
  - 1 / 100,000 in Compression
- Force Data Sampling Rate (internal): 30,000 S / second
- Digital load tare 20% with the Load Cell at its maximum capacity
- Selectable units: kN, N, cN, kgf, gf, lbf.
- Protection system of the Load Cell
- Programmable preload
- 18 bit high speed A / D converter

### Measurement of travel (mobile crosshead)

- Direct measurement from the drive spindles
- Single measurement range (1 scale)
- Reading resolution: 0.001 mm
- Auto-return precision, better than 0.05mm
- Selectable units: Millimeters and Inches
- Programmable extension limits

### Speed control

- Servo motor drive
- Variable speed range (see table)
- Variable return speed within range (see table)
- Default speed resolution:  $<0.02\text{mm} / \text{minute}$
- Speed accuracy:  $\leq \pm 0.5\%$
- Variable Preload speed within the range (see table)
- Current protection system



Mod. MTE-1



Mod. MTE-1L



MODEL	MTE-1	MTE-1L
Capacity	1 kN	
Force resolution with 5kN Load Cell	0.01 N	
Measured force accuracy	≤ ± 0.5 %	
Displacement resolution	0.001 mm	
Travel accuracy	≤ ± 1 %	
Mobile crosshead travel	500 mm	800 mm
Separation between column and grips adapter	150 mm	
Range Standard Test Speeds	0.5 – 1000 mm /min.	
Accuracy of test speed	≤ ± 1 %	
Maximum return speed	1000 mm/min	
Spacing between fixings (adapters)	500 mm	800 mm
Electric supply	220V / 50Hz - 110V/60Hz single-phase	
Approximate power	400 W	
Working Ambient Temperature and Relative Humidity Condition	10 °C ~ 35 °C   20% -80%	
Dimensions Test Frame approx.	420x670x950 mm (Width x Depth x Height)	420x670x1250 mm (Width x Depth x Height)
Net Weight approx.	50 kg	60 kg
Dimensions Wooden packaging approx.	550x870x1250 mm (Width x Depth x Height)	550x870x1550 mm (Width x Depth x Height)
Gross Weight approx.	95 kg	110 kg

#### ESTÁNDAR SUPPLY CONTENT:

- \* MTE-1 or MTE-1/L model Universal Testing Machine
- \* METROTEST Multilingual Testing Software
- \* Management Module with Basic Statistics Packs:  
Bar Charts - Gaussian Bells and Reference Comparison
- \* Mini PC – Windows O.S.