



FRICTION TESTER Model FT-10

With a one column test framework designed to quickly and accurately determine Static and Dynamic Coefficients of Friction in samples of Paper, Cardboard, Plastic Film ...



APPLICABLE STANDARDS

ASTM D1894 - ASTM D2534 - ASTM D4521 - TAPPI T549 - ISO 8295 - ISO 15359 - BS 2782 pt8 - DIN 53375

PRINCIPLE

The friction gauge is based on a mobile skate dragged by a highly accurate force measurement dynamometer system.

Thanks to the high precision and repeatability of the results, this equipment can be used in R&D (Research and Development) to analyze the friction properties of previously mentioned materials or similar materials, under perfectly controlled test conditions.

Model FT-10

- **Maximum force capacity: 1 kN**
- **Load cell included in the standard supply: 10N**
- **Accuracy $\pm 0.5\%$ (Class 0.5)**
- **Selectable units: (N / m, N / mm, Kg / m, Kg / mm, lb / in and lb / ft)**
- **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 and precise**

General Information

The Model FT-10 Friction Tester has the most advanced and reliable structure in an electromechanical test frame with a 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** testing program makes it possible to test quickly and precisely to suit your needs in quality control and research on Corrugated Paper and Board used in modern packaging.



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

The Model FT-10 Friction Test Set is made up of a robust frame in which the test frame is located. 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 crosshead. The end of the fine cable attached to the friction shoe is directly coupled to said load cell.

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, servomotor, etc.

Sled dimensions (1 to choose is supplied):

- A. According to ASTM D 1894 method B: 63.5 x 63.5 mm of surface 200 g \pm 5 g of weight.
- B. According to TAPPI T 816 standard: 63.5 x 63.5 mm of surface 1,360 g of weight.

The sled moves at a uniform and constant speed of 150 \pm 1 mm / min and a total travel of 150 mm, equipped with stop limits, other speeds, e.g., AFNOR NF Q 03-082 indicates 175 \pm 25 mm / min.

The aluminum sample holder platform has dimensions of 150 x 300 mm

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



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 Tension
 - 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



| MODEL | FT-10 |
|---|---|
| Capacity of the machine | 1 kN |
| Capacity of load cell standard supply | 10 N |
| Force resolution with 10 N Load Cell | 0.0001 N |
| Measured force accuracy | $\leq \pm 0.5 \%$ |
| Displacement resolution | 0.001 mm |
| Travel accuracy | $\leq \pm 1 \%$ |
| Mobile crosshead travel | 500 mm |
| Separation between column and grips adapter | 150 mm |
| Range Standard Test Speeds | 0.5 – 1000 mm /min. |
| Accuracy of test speed | $\leq \pm 1 \%$ |
| Maximum return speed | 1000 mm/min |
| Spacing between fixings (adapters) | 500 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) |
| Net Weight approx. | 66 Kg |
| Dimensions Wooden packaging approx. | 550x870x1250 mm (Width x Depth x Height) |
| Gross Weight approx. | 115 Kg |

STANDARD SUPPLY CONTENT:

- * FT-10 Friction Tester + 1 Load Cell 10 N + 1 Friction Sled to choose weight 200 g according to ASTM D1894 or 1,360 g according to TAPPI T816.
- * METROTEST Multilingüe Software
- * Management Module with Basic Statistics Packs:
Bar Charts - Gaussian Bells and Reference Comparison
- * Mini PC – Windows O.S.