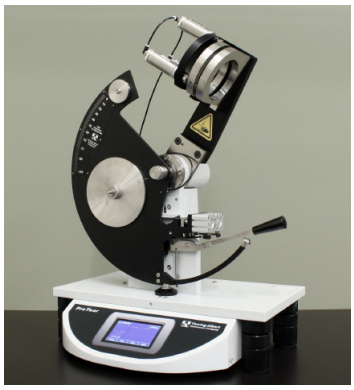
ELMENDORF TEARING TESTER



Thwing-Albert is the original manufacturer of the Elmendorf Tear Tester which was designed by Dr. Thwing and Mr. Armin Elmendorf. This method developed over a century ago established the industry standards used worldwide today to measure tear strength.

The ProTear Testers provide a rapid and precise way to evaluate the tear resistance of sheet materials including paper, textiles, roofing products, plastic film, and foils.

The electronic model features a touch-screen panel that allows for a simple one-touch process to run tear tests and track data. Two different pendulums are available with various augmenting weights. The ProTear Tester offers several capacity configurations. MAP4 Software can be used to evaluate the sample test results. The Dynamic Tear data is calculated at every point of the test to allow for real-time data as the sample tears.

Three models to choose from:

Mechanical, Electronic & Heavy Duty
Capacity Ranges: 200 to 25,600 grams

Electronic ProTear Features:

- Touch-screen menu
- Toolless easy mount pendulums and augmenting weights
- Electronic leveling sensor for accurate setup
- Configurable display for results and reporting
- MAP4 Software for advanced analysis
- Multi-Port connections for data export
- One-touch pneumatic clamping and pendulum release

The ProTear Elmendorf Tear Tester is capable of testing to a variety of standards:

ASTM D295, D752, D4247, D1424, D1922, D5734
TAPPI T414, T496
BS 2782, 4253, 4468
CPPA D.9
DIN 53862, 53128
ISO 1974,6383-2, 9290
EN21974
SCAN P11

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Electronic ProTear Model

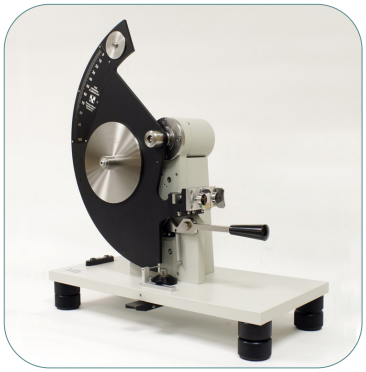
The Electronic ProTear calculates all test results and statistics automatically and displays them immediately. Data can be exported to a PC, directly printed or analyzed in more depth using MAP4 materials testing software.

Precision and accuracy are increas
real-time digitally. The capacity ca
with easy-mount technology for p
does not require tools. Testing cap
up to 12,800g allowing for a varie
one machine.

The touch-screen display allows for quick clamping and testing. Lab technicians can easily customize units of measurement to their screen preference. Other functions include data entry of sample information such as sample ID, thickness, basis weight, sample direction and number of plies being torn.

Mechanical ProTear Model

The Mechanical ProTear is a basic tear tester that offers an economic alternative to the electronic version. This model offers the quick change pendulum configuration without an electronic readout. Test results are obtained by means of a pointer on a graduated scale from 0-100%.



Heavy-Duty ProTear Model

The Heavy Duty Elmendorf ProTear is ideal for measuring the tearing strength of textile materials and is available as an electronic or mechanical model. Extremely durable yet compact, this rugged instrument provides capacities of 6,400, 12,800, and 25,600 grams with the use of augmenting weights.

Update an existing Heavy Duty Elmendorf with an electronics package to quickly enhance the functionality of the unit.

Spencer Impact Attachment

The Spencer Impact Attachment was developed for use with Thwing-Albert's Elmendorf Tear Tester and complies with ASTM D3420-94. It provides one of the most repeatable methods of testing impact resistance of plastic films and packagingmaterials. The fixture closely approximates the strain rates experienced in enduse applications; thereby, results correlate well with actual material performance. The clamping mechanism is air-operated which ensures a secure hold and high level of accuracy. The Spencer Impact Attachment consists of a puncture arm that is permanently attached to the pendulum and is fi tted on the end with an interchangeable impact head that is available in various shapes and sizes. The pendulum swings the impact head through the clamped specimen and the energy required to puncture the sample is recorded.

Specifications

Standard Impact Head:

Radius: 0.5 inches (12.7 mm)
Diameter: 0.75 inches (19.0 mm)

O-Ring Clamp:
Inside Diameter: 89 mm

Sample Size:
5 x 5 in (127 x 127 mm) square
5.25 in (133.35 mm) diameter circle

Air Clamp Assembly:
Min 60 PSI

Pendulum Capacities:
200, 400, 800,1600, 3200 ,
6400, 12,800 gram

Operation

Testing with the ProTear is easy - simply secure the sample in the clamps, make an initial tear with the attached blade and release the pendulum. The tearing resistance of the material is measured via the transference of the potential energy stored in the raised pendulum to kinetic energy. A portion of this energy is absorbed during the tearing of the sample and is used as a measure of the material's resistance to a continuing tear. The energy required to tear the sample is reported as a percentage of the pendulum capacity or force.

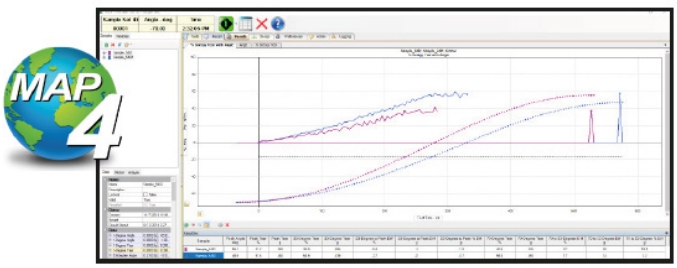
Fast, Flexible Software

The ProTear's touch-screen controls provide easy access to test parameters and reports test data as soon as the test is complete.

- Test Results include tear strength, tear per ply, average tear strength and tear index.
- Quickly enter sample data - thickness, basis weight, sample ID, sample direction.
- Obtain results as percent of pendulum capacity, grams, pounds or millinewtons.
- Calculated Statistics - average, high, low, standard deviation, range & variance.
- Configurable results and reports.

MAP4 Materials Testing Software

MAP4 software is available for customers that would like to run detailed reports and have access to in depth data. A preloaded test will be available and is configured to meet the industry standards from ASTM, TAPPI and others. The program includes a SQL Lite database. MAP4 will provide real-time data curve at the same time as the results are being displayed.



Accessories

Air Clamp Assembly

An air-operated clamping assembly is available for both the Mechanical and the Mechanical Heavy Duty. Air clamps eliminate user variability, shorten sample set-up time and provide a secure hold.

Augmenting Weights

Quickly change the capacity of the ProTear Tester fortesting different material.

Calibration Checkweights

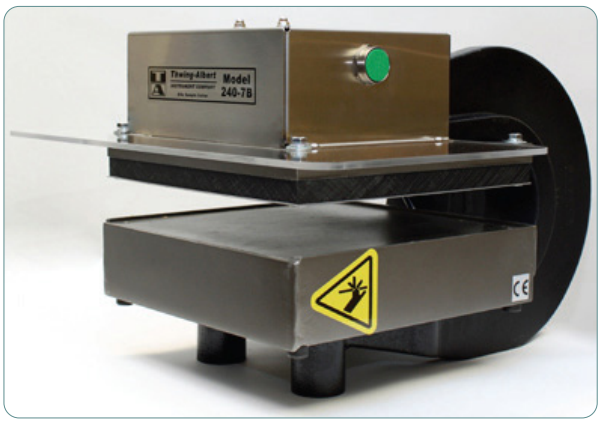
To ensure the accuracy of test results, it is vital to maintain the calibration of the ProTear tester. Checkweights are available for periodically verifying the calibration of the instrument.

98-1 Sample Cutter

Accurate samples are necessary to achieve repeatable test results. The 98-1 is a twin blade cutter which ensures precise cuts, facilitates testing and reduces operator fatigue. Quickly and accurately prepare samples 63 mm wide and up to 152 mm long

Alfa Sample Cutter

The Alfa Sample Cutter utilizes interchangeable dies to prepare a wide range of samples. As industry standards specify different shape and size samples, simply change the die to prepare any shape required. A typical standard, ASTM D1922, calls for a constant radius sample which can be prepared quickly and accurately with an Alfa Cutter.



Physical Specifications - ProTear Elmendorf Tear Tester

MODEL TYPE	PROTEAR ELECTRONIC	MECHANICAL ELMENDORF
Dimensions	584 mm x 483 mm x 406 mm 23 in x 19 in x 16 in	483 mm x 229 mm x 539 mm 19 in x 9 in x 21.2 in
Net weight	37 lbs (16.8 kg)	31.6 lbs (14.3 kg)
MODEL TYPE	HEAVY-DUTY PROTEAR	HEAVY-DUTY MECHANICAL ELMENDORF
Dimensions	483 mm x 330 mm x 610 mm 19 in x 13 in x 24 in Electronic Box: 375 mm x 356 mm x 89 mm (14.75 in x 14 in x 3.5 in)	483 mm x 330 mm x 610 mm 19 in x 13 in x 24 in
Net weight	Base Unit with 6400 gm pendulum: 71 lbs (31.3 kg)	Base Unit with 6400 gm pendulum: 69 lbs (31.3 kg)

Performance Data

MODEL TYPE	PROTEAR ELECTRONIC	MECHANICAL ELMENDORF
Capacity	200, 400, 800, 1600, 3200, 6400, 12.800 gms	400, 800, 1600, 3200 & 6400 gms
Accuracy	±0.2% of Pendulum Capacity	±0.5% of Pendulum Capacity
MODEL TYPE	HEAVY-DUTY PROTEAR	HEAVY-DUTY MECHANICAL ELMENDORF
Capacity	6400, 12,800 & 25,600 gms	6400, 12,800 & 25,600 gms
Accuracy	±0.2% of Pendulum Capacity	±0.5% of Pendulum Capacity

- Electronic Models: Touch-screen display
- Operating/Storage Environment:
  Touch-Screen Display Air Temperature:
  Operating: 10° to 50° C (50° to 122° F)
  Storage: -25° to 70° C (-13° to 158° F)
- Relative Humidity:
  Operating: 10% to 85% (Non-Condensing)
  Storage: 5% to 90% (Non-Condensing)
- Power Requirements
  120-230 VAC
  50/60 Hz
  18A