

product specification

ProTear™ Elmendorf Electronic Tearing Tester



Description

The Elmendorf Tear Testers are essential in materials quality control, providing more information on tearing properties than any other instrument. They are recognised as the worldwide standard and are the best way to measure accurately the tear resistance of sheet materials including paper, packaging, foils, textiles, non-wovens and plastic films.

Operation

The tearing resistance of a 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 force required to tear the sample is reported as a percentage of the pendulum capacity, mN, g or lb.

The electronic ProTear™ tester is distinguished by good design, ease of operation and menu-driven software, which enable crucial data to be obtained in seconds. Specimen data can be input as thickness; g/m²; number of plies being torn; MD/CD direction and an indication of the results of the pendulum capacity specific to the specimens, displayed in %, mN or g.

There are several configurations ranging from 200 to 6400 g, with capacities quickly and easily changed using augmenting weights, which both eliminate the need for multiple pendulums and simplify the testing of different materials.

Features

- User-friendly, one-touch software offering:
 - test results that include tear strength, tear per ply, average tear strength and tear index
 - rapid sample data entry – thickness, basis weight, sample id and sample direction
 - a configurable display of test parameters, results and reports
 - ability to delete and restore test results
 - results displayed as a percentage of pendulum capacity, g, lb and mN
 - statistics including average, high, low, standard deviation, range and variance
- Digital encoder ensures accurate results – 0.2% accuracy of the pendulum capacity
- RS-232 data output
- One-touch pneumatic clamping and pendulum release

Physical specifications

Dimensions 48 x 40 x 58 cm (W x L x H) Net weight 15.2 kg



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Options

- Augmenting weights – quick change of the pendulum capacities between 200 and 6400 g
- Calibration weights of 200, 400, 800, 1600, 3200 and 6400 g to verify instrument calibration
- Calibration certificates for augmenting weights and calibration weights
- Spencer impact attachment – for the measurement of the impact resistance of various materials, typically plastic film. The attachment consists of a curved metal arm that is permanently attached to the pendulum and fitted on the end with an interchangeable impact head that is available in various shapes and sizes. The pendulum wings the impact head through the clamped specimen and the energy required to puncture the sample is recorded. Complies with ASTM D3420
- Data acquisition software (DAS) to capture serial data, customise it for specific requirements and then transfer it to any Windows® application. Enables creation of graphs and reports that automatically update with real-time data

Performance data

Capacity
200, 400, 800, 1600, 3200, 6400 g

Accuracy
± 0.2% of pendulum capacity

Interface
Digital via encoder

Capacity options
% of pendulum capacity, g, lb, mN

Display
4 line by 16-character backlit LCD

Tests
99 tests with statistics

Statistics
Mean value, standard deviation, highest, lowest values, variance

Power
Pneumatic

Accuracy
Pneumatic

Interface
Compressed air 6 bar

Capacity options
110 V, 50/60 Hz; 220/230 V, 50 Hz; 240 V, 50 Hz

Display
Operating maximum 600 W
Standby maximum 12 W

Tests
Air temperature: operating 10–50°C,
storage –25–70°C
Relative humidity: operating 10–85%
(non-condensing), storage 5–90%
(non-condensing)

Standards

DIN 53862, 53128, ISO 1974, EN 21974, ASTM D295, D751, D1424, D1922, TAPPI T-414, T-496, BS 4253, 4468, CPPA D.9, SCAN P-11

