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Testing Machines Group

Tear Tester from Büchel B.V.

(Netherlands) February 2007 – Büchel B.V. offers the " Tear Tester", 83-20 series which is a combination of technological integration and user comfort unique to this type of instrument. The tear tester measures the force required to continue the tearing of an initial cut in sheet materials. Models and weights are available to test material with a variety of strengths.

Also known as the Elmendorf test, the tearing test has been performed in the paper industry for more than half century in order to measure the mean internal resistance of cellulose or papers to the propagation of a deliberately initiated tear. It enables rapid determination of the dynamic resistance of materials designed to be subjected to strong shearing loads (e.g. newspaper) or liable to be damaged by sharp or heavy objects (e.g. paper bags).
Subsequently, the test was naturally adopted for all materials in the form of sheet or films (cardboards, cloth, knitted fabrics, plastic films, aluminium foil, non-woven fabrics, complex flexible packaging, etc.) for which the service requirements are similar to those for paper.

Principle:

The test is carried out on a specimen composed of one or more sheets of standard dimensions, usually with a distance of 43mm (1.7”) remaining to be torn after initiating the tear. The energy of a pendulum of suitable weight is used to completely tear the specimen. The difference in the angle from the vertical of the center of gravity of the pendulum between the downswing and the upswing is a measure of the energy absorbed in tearing the sample. This angular movement is measured with a digital encoder and is immediately converted to the mean tearing force for a single sheet by the microprocessor incorporated in the apparatus.

Features:

- **Repeatability:** The mechanical-pneumatic specimen gripping system guarantees sufficient clamping pressure to avoid all slipping phenomena, thus ensuring perfect reproducibility of the experimental conditions.

- **Safety:** As soon as the safety hood preventing access of the operator to the swinging pendulum zone is closed, the specimen is pre-notched automatically by a pneumatically driven shear.

- **User-friendliness:** The mean tearing force is indicated on an easy-to-read alphanumerical liquid crystal display and can also be transferred to a computer, either for additional statistical treatment or for record keeping purposes.

- **Ergonomics:** When the apparatus is equipped with an automatic pendulum raising device, after each test, the pendulum raising device, after each test, the pendulum is immediately reset in its starting position.

Advantages:

- Automatic specimen notching
- Safety Hood
- Mechanical-pneumatic clamping avoids sample slippage to ensure repeatable results

- Automatic pendulum reset with lifting device.
- Tearing force displayed digitally
- RS-232 data output

Applications in paper, foil, film, textiles, non woven's and flexible packaging. Meets TAPPI 414, APPITA P 400, ASTM D 689, NEN 1760, BS 4468, SCAN P 11, UNI 6444, CSA D9, ISO 1974- 1974, NF T.54.141, ISO 6383/2, ASTM D 1922, NF G.07.149, ASTM D 1424B

About TMI

Testing Machines Inc. (TMI) manufactures and markets physical property testing instruments for the paper, pulp, film, foil, ink, coatings, nonwoven, textile and corrugated industries. TMI has a network of sales offices and agents throughout the US and in over 50 countries.

The TMI Group of Companies consists of Testing Machines Inc., New York, Lawson-Hemphill, Swansea, Ma., Messmer Instruments Ltd., UK, Büchel BV, Netherlands, Adamel Lhomargy, France and TMI Canada.

For more information contact:
Testing Machines Inc.
2 Fleetwood Court, Ronkonkoma, NY 11779 USA
Tel: 631-439-5400
Fax: 631-439-5420
Website: www.testingmachines.com