

Lawson-Hemphill: new textile tear tester

The latest addition in tearing testers, the new Textile Tear Tester 83-20 series by Lawson-Hemphill, Swansea, MA/USA offer a combination of technological integration and user comfort. The tear tester measures the force required to continue the tearing of an initial cut in textile 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 textile industry for more than half century in order to measure the mean internal resistance of textiles 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. suitcases, industrial fabrics) or liable to be damaged by sharp or heavy objects (e.g. seatbelts, outerwear, protective clothing).

Subsequently, the test was naturally adopted for all materials in the form of cloth, knitted fabrics, nylons, industrial fabrics, non-woven fabrics, etc.) for which the service requirements are required to sustain high tolerance.

The test is carried out on a specimen composed of one or more samples of standard dimensions, usually with a distance of 43 mm 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 sin-

gle sheet by the microprocessor incorporated in the apparatus.

New features are the repeatability (the mechanical-pneumatic specimen gripping system guarantees sufficient clamping pressure to avoid all slipping phenomena, thus ensuring perfect reproducibility of the experimental conditions), the 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), the user-friendliness (the mean tearing force is indicated on an easy-to-read alphanumeric liquid crystal display and can also be transferred to a computer, either for additional statistical treatment or for record keeping purposes) and the 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).

Some important features of this tester include 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 as well as RS-232 data output.

Applications in textiles, linens, cotton, outerwear, industrial fabrics, home goods, upholstery, nonwovens and outdoor coverings and materials. 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.



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83-20
(Lawson-Hemphill)