

PULP AND PAPER

L&W Tearing Tester

Testing and industry-specific instruments



ABB's L&W Tearing Tester measures the tearing resistance of paper and paperboard, an important determining factor of toughness and runnability. It offers mills the best features for automation, digitalization, and operator safety, as well as a global support network, providing an easy-to-use system with accurate and repeatable results.

— The enhanced L&W Tearing Tester comes with interchangeable weights to increase the working range without much operator effort.

Overview

ABB's L&W Tearing Tester uses the tearing principle according to the Elmendorf method, which is the classical method to measure tearing resistance in paper. The instrument now offers several enhanced features for automatic, easy and safe operation to get more tests done – faster.

Features

- Intuitive touchscreen with user-friendly interface
- One pendulum with interchangeable weights enhances working range and ease of operation
- Two-hand operation for operator safety
- Pendulum swing path safety guard
- Automatic clamping and notch cutting of test piece
- Automatic pendulum release, catch and retraction
- Easy instrument check and calibration from touchscreen using provided check weights
- Connectivity to L&W Lab Management System
- Ethernet connection

Benefits

- Easy-to-use
- Enhanced safety
- Reliable, operator-independent results
- Faster and streamlined operations across different paper grades

Increased focus on safety

The test method requires a pendulum to further tear a pre-cut sample. Now, operators are better protected with two-hand operation requirement, which keeps the operator away from the pendulum and knife during operation and pendulum swing path safety guard to protect the operator from the path of the pendulum swing. This minimizes the risk of injury without interrupting the swing or slowing down the test.

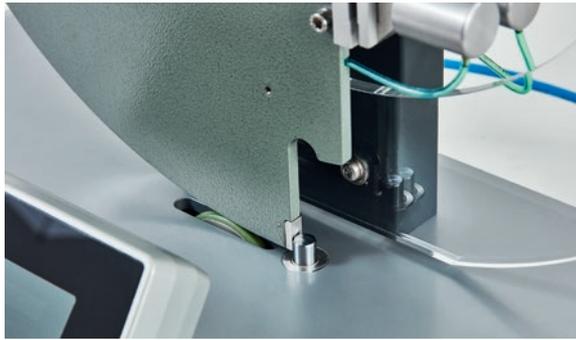
Enhanced automation

The L&W Tearing Tester handles most of the work with limited operator involvement. The instrument automatically clamps the sample and cuts a notch with an interior knife before the pendulum releases. The pendulum is programmed to release after the cut for the start of test. After measurement, the pendulum is automatically caught and retracted to the start position. All contribute to making results accurate and precise, regardless of operator.

Operator friendly

The easy-to-use touchscreen has intuitive menus and a user-friendly interface, removing the need for external PC connections. The touchscreen has a protective surface for easy cleaning and durability, with fast response and high resolution. Users can expedite testing by creating their own testing program with predefined settings as well as perform checks and calibrations directly from the screen.

After measurement, pendulum is automatically caught and retracted to start position. The automatic return drive and start cylinder are pictured here.



Two check weights are included in the delivery.



Easy adaptability for different paper grades

Interchangeable weights increase the working range of the instrument without much operator effort. Instead of changing pendulums when results are outside of the capacity, now operators can quickly and easily add or remove weights to the existing pendulum.

Global service with a local touch

As a global supplier with local service organizations in all markets, ABB is the worldwide technical support market leader for paper testing, including both calibration and maintenance services. We provide specialized testing using L&W-specific calibration devices that are regularly certified with traceable calibration from global certification institutes.

About the measurement

The mean force required to continue the tearing of an initial cut in a single sheet of paper is expressed as the internal tearing resistance. If the initial slit is made in the machine direction, the result is given as machine direction tearing resistance and similarly for the cross-machine direction (ISO 1974).

Why measure tearing resistance?

Tearing resistance depends on many factors: fiber strength, fiber length, degree of bonding between fibers and more. Measurement results can be used

to understand the toughness of products – especially important for wrapping paper and sack – as well as help mills characterize pulp and determine if refining and reinforcement fibers are optimized.

Technical specifications – L&W Tearing Tester, Code 289

Inclusive	Pendulum with two interchangeable weights and three check weights
Max Capacity	<ul style="list-style-type: none"> – A setup (No attached weight) 8000 mN, 800 gf – B setup (Attached B weight) 16000 mN, 1600 gf – C setup (Attached C weight) 32000 mN, 3200 gf
Dimensions	0.6 × 0.6 × 0.4 m (24 × 24 × 16 in)
Net weight	21 kg (46 lb.)
Measurement	
Method	According to Elmendorf
Units	mN, gram force (gf)
Results	Measurement values <ul style="list-style-type: none"> – Individual tearing resistance Statistics <ul style="list-style-type: none"> – Mean value – Standard deviation – Coefficient of variation – Maximum and minimum approved values of the series

Connections

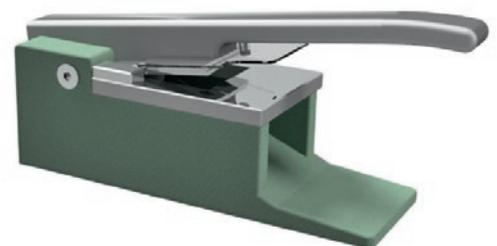
Data	<ul style="list-style-type: none"> – Ethernet – The instrument acts as an FTP-server and test results can be retrieved by an FTP-client – Connectivity to L&W Lab Management System
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Installation requirements

Power	15W
Instrument air	0.5 MPa – 1MPa

Applicable standards and test piece length

ISO 1974	62 mm
TAPPI T414	63 mm



ABB's L&W Sample Cutter can be used for easy and quick preparation of accurate and precise test pieces for use in the L&W Tearing Tester. It is manually operated and ergonomically designed with safety features for easy and secure operation, while ensuring precision cutting over across a wide range of paper grades and grammages.