

PULP AND PAPER

L&W Bendtsen Tester

Lorentzen & Wettre Products | Paper testing



L&W Bendtsen Tester combines rapid routine measuring with high precision, in accordance with both traditional and new test standards. The Bendtsen method has long been a well known method for measuring the roughness of paper grades, from newsprint to liner.

L&W Bendtsen Tester enables accurate measurement of the surface roughness according to the Bendtsen method. The automatic and precise alignment of the measuring head on the sample ensures correct and reliable results. The compact design effectively protects the measuring head and the glass surface. The instrument comes with an optional strip feeder which makes testing even easier.

Operator friendly

When the instrument arrives it is ready to use. The easy to use colour touch screen has intuitive menus and large easily accessible buttons. The capacitive colour touch screen has a protective surface for easy cleaning and durability with fast response and high resolution.

The operator merely chooses appropriate testing sequence and places the test piece in the measuring gap and the instrument begins measuring automatically. An auto cycling function permits the continuous cycling of the measuring head to facilitate repetitive and continuous measurements.

Benefits

- Compact design protecting the measuring head and the glass surface
- Superior precision due to automatic measuring process
- Presents both traditional and pressure drop compensation Bendtsen values
- Barometric pressure compensation for improved precision
- Measurement air inlet for lab conditioned measurement air
- Touch screen for ease of use
- Integrated strip feeder (optional)

Testing procedure

The sample is placed in the measuring gap, and measurement starts when a photocell detects the presence of a sample or the start button is pushed in manual mode. The measuring head is automatically lowered against the sample so that it rests against the paper sample with a constant standard contact pressure of 98 kPa (14.2 psi).

The air flow measurement is performed during a predefined testing time at the same time is the actual pressure in the measuring head registered. The sample is then released and can be moved to next measuring position. The automatic measuring process prevents handling errors.

Measurement results

The traditional Bendtsen roughness and the pressure drop compensated Bendtsen are presented on the colour touch screen, either tabular or graphic form. The result can also be printed on the built-in printer, on a network printer or exported via Ethernet

Strip feeder

Extensive measurements are facilitated with an optional strip feeder. With the strip feeder each position is measured at a fixed interval and continues until the strip ends. To speed up the strip measurement, the strip feeder can be set to measure more frequent at certain positions and less on others. Defined position measurement ensures repeatable testing.



The measuring head and glass plate are well protected.



Touch screen for ease of use.



Built-in thermo printer.



Integrated strip feeder.

DEFINITION

Bendtsen surface roughness is calculated from the airflow in the contact surface between a flat, circular measurement land and a paper or board test piece.

The test piece is held securely between a glass disc and a circular measurement land. Air is passed through the space between the circular measurement land to the contact land between the measurement land and the test piece. The airflow, measured in ml/min, is a measure of the test piece's surface roughness.



Optional strip holder here with L&W Micrometer.

Technical specifications – L&W Bendtsen Tester, code 264

Inclusive	Check equipment comprising of two check nozzles and one adaptor.		
Measurement range	50–3500 ml/min traditional Bendtsen 50–6000 ml/min compensated		
Instrument			
Presentation	8.4 in colour touch screen		
Max throat depth	112 mm (4.4 in) (from sample edge to centre of measuring head)		
Dwell time	Adjustable 2–10 s		
Repetitive measurement	Adjustable 1–10 s		
Contact pressure	98 kPa (14.2 psi)		
Test air pressure	1.47 kPa (0.22 psi) Adjustable 0.5–1.9 kPa (0.04–0.28 psi)		
Results			
Measurement values	- roughness traditional - roughness pressure drop compensated		
Statistics	- mean value - standard deviation - coefficient of variation - maximum and minimum values of the series		
Connections			
Data	Ethernet (The instrument acts as a FTP-server. Test results can be retrieved by an FTP-client.)		
Installation requirements			
Power	100 W		
Instrument air	Instrument air: >0.2 MPa (30 psi). Good quality instrument air can also be used as measurement air. If separate measurement air is used; Measurement air: 0.01-0.1 MPa (1.45-14.5 psi).		
Air consumption	0.2 m ³ /h (0.1 ft ³ /min) NTP		
Options	Internal strip feeder Foot switch Strip holder		
Dimensions	0.3 × 0.3 × 0.4 m 12 × 12 × 16 in	Volume	0.12 m ³ 4.3 ft ³
Net weight	16 kg 35 lb	Gross weight	26 kg 57 lb
Applicable standards			
BS 4420, DIN 53108, ISO 8791-2, SCAN P 21, SCAN P 84, NEN 2012, NF Q 03-076			
Related standard			
APPITA 1301.439			

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