

PULP AND PAPER

L&W Compressive Strength Tester STFI Lorentzen & Wettre Products | Paper testing



L&W Compressive Strength Tester STFI measures the comp-ressive strength of liner and fluting according to the SCT-method. Compressive strength determines the stacking ability of corrugated boxes. The aim is to produce strong boxes, and use a minimum of raw material.

Benefits

- Proven measurement technology, SCT is the best method for optimization of compressive strength
- Improved measuring unit for better precision and reproducibility (L&W Ultra Precision)
- Touchscreen for ease of use
- Built-in thermo printer for alternative logging of results
- Strip feeder for fast and easy testing (option)
- Moisture sensor for correction of the measurement values to give strength as for standardized moisture content (option)

L&W Compressive Strength Tester STFI comes with a new improved measuring unit, L&W Ultra Precision. The new unit has a partly new design for higher accuracy and reproducibility. All important tolerances have been tightened and surpasses the requirements from ISO and Tappi. Further the new design leads to less wear of critical parts, longer life time, simplified maintenance work, and less sensitiveness to build-up of fibers and dust.

Easy to use

L&W Compressive Strength Tester STFI is easy to use, the operator only needs to place the test piece in the measuring gap, press start and measurements are performed automatically. The capacitive colour touchscreen has intuitive menus, large accessible buttons, and has a protective surface for easy cleaning.

Quality assurance

Before leaving the factory all instruments are checked against our master instrument in a conditioned laboratory. The measured compressive strength must agree with our master instrument level on all three different reference grades.

Used directly at the paper machine

The ability to make quick and continuous checks of compressive strength is decisive when predicting product quality. For traditional paper testing, in order to give correct measurement values, the test piece must be conditioned (time consuming) before measurement. If not, measurement results will be false, which in the long run can cause increased and unnecessary production costs. A change in moisture content by 1 % in the test piece leads to a change in compressive strength of approximately 7 %. The integrated moisture sensor (optional) corrects the measured value to the equivalent compressive strength for a correctly conditioned sample. With an integrated moisture sensor the instrument can be used directly at the paper machine, and thereby give quicker feedback to production.

Moisture correction calibration

In order to perform the moisture content correction with L&W Compressive Strength Tester STFI paper samples needs to be sent to our laboratory where the moisture content sensitivity is analyzed. At delivery the instrument is preset with ten (10) different calibration curves.

Strip feeder

With the integrated strip feeder (optional) each position is measured at a fixed interval and continues until the strip ends. Defined position measurements ensures repeatable testing. The measuring speed is about five seconds per measuring point. This makes it the fastest compressive strength tester on the market.

Automatic strip feeding also means minimum manual handling by an operator and keeps the test piece unaffected by moisture from fingers, which has a negative effect on measurement results. L&W Compressive Strength Tester STFI therefore gives more accurate measurement values.

Measurement results

The values are presented on the touchscreen, either in tabular or graphic form. Results can also be printed on the built-in printer, on a network printer or exported via Ethernet. The instrument acts as an FTP-server and test results can be retrieved by an FTP-client.

Proven measurement technology

The instrument employs the SCT-method (Short Span Compression Test), which has been well established for 40 years. The method is considered to be the best one for estimating and optimizing the compressive strength of liner or fluting.

Methods such as the RCT-method (Ring Crush Test) can underestimate the strength of low grammage material (see fig. 1) because the sample 'buckles'. The SCT-method was originally developed by the Swedish research institute STFI. In fact, in many markets the method is referred to as the 'STFI'. Lorentzen & Wettre developed the first instrument to utilize the SCT method.



L&W Compressive Strength Tester STFI comes with a touchscreen and a built-in thermo printer.



L&W Strip Punch provides precisely cut test pieces.



Figure 1: The compression index as a function of the grammage for different tests. Only SCT is grammage independent.



Figure 2: When the clamps are moved towards each other, the length is reduced and the stress in the test strip increases until rupture occurs.

Technical specifications – L&W Compressive Strength Tester STFI, code 282			
Measurement			
Unit	kN/m or lbf/in		
Range	up to 20 kN/m (115 lbf/in)		
Instrument			
Max force	350N (78 lbf)		
Free span	0.3–0.7 mm		
Test piece	Width 15 mm (0.6 in) Length at least 90 mm (3.54 in) with strip feeder option		
Step length	30–200 mm (1.2–7.8 in) with strip feeder option		
Moisture content in test piece	4–12% with moisture sensor option		
Printer	Built-in thermo printer		
Results			
Measurement values	- compressive strength - moisture corrected compressive strength (option) - moisture content (option)		
Statistics	- individual measurement values - standard deviation - coefficient of variation - maximum and minimum values in the measurement series		
Connections			
Data	Ethernet The instrument acts as an FTP-server. Test results can be retrieved by an FTP-client.		
Installation requirem	ents		
Power	90 W		
Instrument air	0.6-1 MPa		
Option			
	- strip feeder - moisture sensor (moisture correction including 10 calibration curves)		
Dimensions	0.4 × 0.5 × 0.4 m 16 × 20 × 16 in	Volume	0.34 m ³ 12 ft ³
Net weight	29 kg 46 lb	Gross weight	43 kg 95 lb
Applicable standards			
APPITA/AS 1301.450,	BS 7325, DIN 54 518,	ISO 9895, JISP81	56, SCAN P 46, TAPPI T 826

Options



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