Data sheet

L&W Fiber Tester

Lorentzen & Wettre Products | Pulp Measurements

L&W Fiber Tester measures fibre quality quickly and easily and is at the same time an instrument for advanced analysis of fibre dimensions. The measurement technology is automated, which enables frequent analysis of pulp quality. The instrument is intended and optimized for laboratories and has a compact design.

L&W Fiber Tester measures fibre length, width, fines, shape factor and coarseness. The instrument has a sample feeder with six positions designed as a rotating disc. This automates the measurement procedure, making it easier for the operator.

The total measurement cycle is made within six minutes. One feature is that images of fibres are displayed during measurements. It is also possible to save images of detected objects for later viewing.

Easy to place

L&W Fiber Tester is a bench-top model, making it easy to fit in any laboratory. The reports and statistics are flexible. For example, it is easy to select different weighing functions for averages and distributions of fibre properties. The report is also easy to customise.

Two-dimensional imaging technology

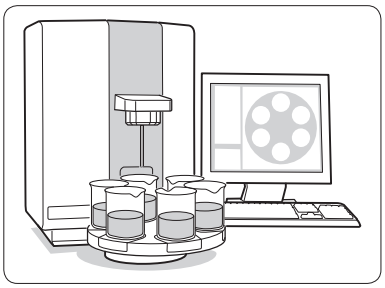
The principle with two plates allows the fibres to move freely in two dimensions but not in the third. This is not the case in a capillary tube, which orients the fibres only in one dimension. A very small measurement gap between the plates secures a good alignment of the fibres. The whole fibre can then be seen by the camera.

Benefits

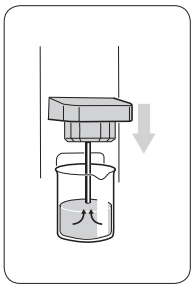
- Fast classification of pulp quality
- Early detection of deviations in pulp quality
- New properties to define pulp quality
- Compact design
- Sample feeder
- Proven measurement methodology
- Self cleaning measurement cell

Extra software is available for the analysis of kink, vessel cells, minishives and fibre blends. Refer to separate descriptions/ data sheets of these programs.

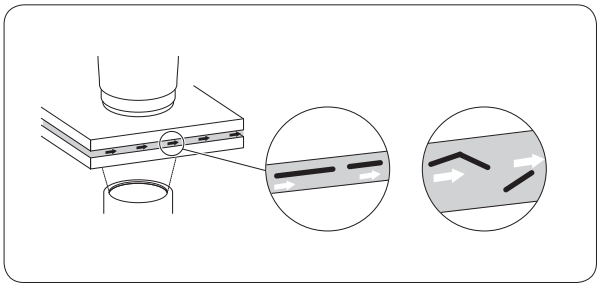
Automated measurement technology enables frequent analysis of pulp quality:



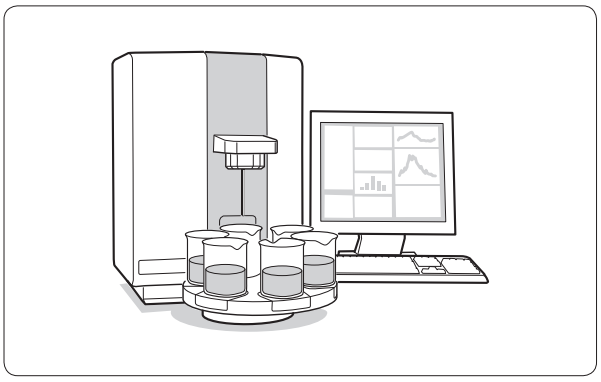
1. The measurement procedure is initiated via the computer. The operator can load up to 6 different samples.



2. The pulp is fed into L&W Fiber Tester.



3. For measurement accuracy, a very small distance between the plates is needed. The fibres are then oriented in two dimensions, which enables L&W Fiber Tester to make a correct measurement.



4. All results from the measurement are presented on the screen and stored in a database. They can also be obtained as printed out reports and easily transferred to other computers for further analysis or for example in Excel.

Measures several different fibre properties:

Length – L&W Fiber Tester Plus is designed to measure true fibre length with minimum impact from the degree of deformation.

Width – The calculation principle allows for detection of variations of parts of µm.

Shape factor – Calculates how straight the fibre is, a variation in shape factor between 81% and 85% for a bleached chemical softwood pulp can make a difference of 15 Nm/g of tensile index. A change of 1% in shape factor has a significant impact on Tensile Index.

Fines – Fines have a negative effect on dewatering and pressing. Fines generated in beating are good for strength.

Coarseness – Coarseness is defined as weight per fibre length unit and is often related to fibre wall thickness and flexibility.

Technical specifications

L&W Fiber Tester – code 912

Inclusive	L&W Fiber Tester, software, PC, power supply

Technical details

	Monitoring of fibres during measurement. Possible to save images of each fibre. Sample amount typically 0.1 g dry weight pulp, not critical

Measurement

Results	- Weighted averages and difference between double measurements for length, width and shape factor are reported. A small difference confirms a good measurement. - Number of measured fibres - Number of fibres in sample, number of fibres per gram (with coarseness) - Fibre area in sample, fibre area per gram (with coarseness measured) - Fibre volume in sample, fibre volume per gram (with coarseness) Table/bar chart with 2–15 length intervals with limits, which are easy to select from menu. For each interval weighted amount of material in interval (choice of weights), mean width and mean shape factor are shown. Fines can be selected to be included or excluded with the fibres. Specially weighted properties can be added to the report.
Range	- Length (0)0.2–7.5 mm - Width 10(5)–100 µm, upper limit can be set from menu depending on sampling type - Resolution within measurement range is 0.2 µm for an average SW fibre - Shape factor (0)50–100% - Alternative weights used in the statistical calculations are 1 (arithmetic), length, width, surface, volume and square of length - Fines (l<0.2 mm) as % of fibres >0.2 mm, this limit can be selected by user - Coarseness as weight per unit fibre length
Repeatability	Length, width and shape typically better than 0.5% of average Kink / mm typically better than 1% Fines typically better than 3% Coarseness typically better than 2%
Distributions	Frequency and accumulated distributions: - Length 75 classes - Width in 50 classes - Shape factor in 50 classes
2D data	Length/width matrix, 15 × 20 classes
RAW data	Length, width, shape factor
Sample types	- Separate sample types can be declared for different sampling points or by different users - Different sampling types will generate different reports - Raw data is saved the reports can be changed afterwards if the sampling type is modified with respect to weighting, scales etc.

Installation requirements

Power	100 W
Instrument air	0.4–0.6 MPa (60–90 psi) Dry and oil free

Water

Consumption	100 l/h
Pressure	0.3–0.6 MPa (45–90 psi)
Temperature	20–40°C (for accurate Coarseness 30 +/- 2 °C)
Filtration	3 µm
Options	L&W Fiber Tester Blend L&W Fiber Tester Kink/Vessel

Dimensions	0.4 × 0.5 × 0.6 m 16 × 20 × 24 in	**Volume**	0.2 m³ 7 ft³
Net weight	35 kg 77 lb	**Gross weight**	65 kg 143 lb

Applicable standards

ISO 16065-2

For more information, please contact:

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