

**Automatic Hydrostatic Head Tester
FX 3000 HYDROTESTER III**



SCOPE

The TEXTEST Automatic Hydrostatic Head Tester FX 3000 HYDROTESTER III is used for fast, accurate and **automatic** determination of the resistance of plastic foils, coated and uncoated fabrics, and non-wovens to water penetration by means of the dynamic test method, the static test method, and the program test method.

FUNCTION

The instrument contains a high precision pressure control system, which produces the test pressure in an internal water tank. The tank is linked to a test head to which the specimen is clamped quickly, and without any strenuous effort, by means of a lever. After the test has been started, the test pressure is automatically controlled.

The test is over, when the water has penetrated the test specimen at three different positions. A new, unique drop detector **automatically** detects the drops, so that no operator attendance is required during testing. At the end of the test, the penetration pressure or the penetration time, respectively, is digitally displayed.

Alternatively the test specimen may be observed visually for evidence of penetration by water. The well illuminated test area is unobstructed visible from all sides, thus greatly facilitating the visual drop detection.

When using the visual test method, the time the operator has to spend at the instrument for observation can be significantly reduced by means of a unique alarm feature. The estimated test result of the specimen - reduced by a safety margin - is entered as "alarm value" into the instrument. For measurements in accordance with the dynamic test method this alarm value is a pressure, for measurements in accordance with the static test method it is a time. When the alarm value is reached, the instrument alerts the operator with an audible and optical alarm, and the operator observes the specimen only for the remainder of the testing time, thus saving up to 90 % of the observation time.

If measurements are performed only to determine whether or not the specimen meets a certain minimum requirement ("pass-or-fail test"), the test is performed in "Automatic"

The instrument conforms to AATCC 127, ASTM F 903-C, ASTM F 1,670, ASTM F 1,671, BS 2,823, DIN 53,886, EDANA 120.2-02, EN 1,734, EN 20,811, INDA IST 80.4, ISO 811, ISO 1,420 A, JIS L 1,092 A, JIS L 1,092 B-b, NF G07-057, SNV 198'571 and many other standards.

mode, and the minimum required test result is entered as alarm value. When the alarm value is reached, the test is automatically terminated and an audible and optical alarm is set off. The operator determines only whether or not the specimen has been penetrated. The observation time is eliminated entirely.

Two models of the instrument are available:

- Model FX 3000-3L+ with a maximum test pressure of 1,000 mbar
- Model FX 3000-3H+ with a maximum test pressure of 2,000 mbar.

A high stability, precision electronic pressure sensor provides for an excellent measuring accuracy and reproducibility of the test results.

The instrument can be calibrated and is supplied with an ISO conform calibration certificate.

Although a maximum test pressure of twenty meters of water column can be achieved, the instrument is a table top model with a height of only 60 cm. Sufficient room is provided behind the test head to take measurements from large samples without having to cut smaller test specimens.

The instrument is equipped with a bi-directional RS 232C data port.

For measurements on abrasion test areas or on small test samples three optional test heads with a test area of 10 cm², 26 cm² (4 in²) and 28 cm², respectively are available. For measurements on fine non-woven test samples optional protective sleeves are available, which effectively prevent premature water penetration near the clamping area and "flooding" of the test specimen.

EVALUATION OF THE TEST RESULTS

The simplest method for evaluation of the test results is to read the test results from the digital display, to write them down and to evaluate them manually.

In order to eliminate all reading, writing and calculating tasks and related errors, the instrument can be connected to the Strip Printer L 5130 MINIPRINT, which documents the test results, including statistical analysis, on a 57 mm (2.25") wide strip of paper (see adjacent picture).

Alternatively, the instrument can be connected to a PC or Laptop computer with the Evaluation Program L 5110 LABODATA III. The PC prints a comprehensive test report, including statistical analysis of the test results (see separate picture). In addition, it stores the test results on the hard disk and performs long-term evaluations based on various selection criterions.

Up to five different TEXTEST instruments can be connected to the PC at the same time. The test results from these instruments can be processed *simultaneously* and documented together on the same test report. Thus, the Evaluation Program L 5110 LABODATA III turns the PC into a complete data processing system for the testing laboratory.

HYDROSTATIC HEAD DYNAMIC TEST METHOD	
ID:	
Gradient:	60 mbar/min
Test area:	100 cm ²
Instrument:	FX 3000-III
S/n:	651
Date:	20.1.2005
Time:	12:07
Operator:	

1st / 3rd drop	

1:	1630 / 1770 mbar
2:	915 / 918 mbar
2:	deleted
2:	1600 / 1690 mbar
3:	1790 / 1860 mbar

Avg:	1670 / 1770 mbar
Min:	1600 / 1690 mbar
Max:	1790 / 1860 mbar
CV :	6.1 / 4.8 %

Test report, printed with the Strip Printer L 5130 MINIPRINT (original size).

TECHNICAL SPECIFICATIONS

- Dynamic Test Method:**

Penetration pressure:	
Model FX 3000-3L+:	0 through 1,000 mbar (10 m water column)
Model FX 3000-3H+:	0 through 2,000 mbar (20 m water column)
Measuring accuracy:	± 0.5 % of displayed value ± 1 mbar
Readability:	0.1 mbar up to 99.9 mbar, 1 mbar between 100 and 999 mbar, 2 mbar over 1,000 mbar
Pressure gradient:	2/10, 3, 10, 20, 60, 100 and 500 mbar/min
Alarm pressure:	1 mbar through maximum penetration pressure

- Static Test Method:**

Penetration time:	0 through 65,535 minutes (45.5 days)
Readability:	0.1 minutes up to 99.9 minutes, 1 minute over 100 minutes
Test pressure:	
Model FX 3000-3L+:	0.1 through 1,000 mbar
Model FX 3000-3H+:	0.1 through 2,000 mbar
Alarm time:	1 through 9,999 minutes (7 days)

- Program Test Method:**

Time-pressure sequence:	0-1-0 psi for 5-1-54 minutes (1 psi = 69 mbar)
	0-2-0 psi for 5-1-54 minutes,
	33 mbar/min, followed by 3 to 5 min. of constant pressure

TECHNICAL SPECIFICATIONS (cont.)

- Unit of measure for the test pressure: mbar, cm w.c., and mm w.c.
- Test area: 100 cm² (10 cm², 26 cm², and 28 cm² optional)
- Maximum sample thickness: 5 mm
- Maximum clearance of the clamping mechanism: 50 mm
- Space behind the test head: 50 cm
- Clamping pressure:
 - Model FX 3000-3L+: 2,500 N
 - Model FX 3000-3H+: 5,000 N
- Water content: 0.8 liters
- Required compressed air supply: 5 through 8 bar (clean and dry)
- Data port: RS 232 C, asynchronous, bi-directional
- Power requirements: 100 through 240 V, 50 through 60 Hz, 40 W
- Dimensions (w x d x h): 54 x 83 x 55 cm
- Net/gross weight: 90 / 110 kgs.

The instrument is supplied complete with a skimmer, a 1 m long drain hose, a wash-bottle, one liter of de-

ionized water, as well as an ISO conform calibration certificate.

OPTIONAL ACCESSORIES AND CONSUMABLES

For the Automatic Hydrostatic Head Tester FX 3000 HYDROTESTER III the following accessories are available:

FX 3000-AUT Automatic Drop Detector

Fits all test heads.

FX 3000-010 Test Head 10 cm²

For measurements on small test samples and abrasion test areas.

FX 3000-026 Test Head 26 cm²

For measurements on small test samples.

FX 3000-028 Test Head 28 cm²

For measurements in accordance with EDANA 120.2-02 and for measurements on small test samples.

FX 3000-3NE Protective Sleeve 26/28 cm²

For tests on fine non-wovens with a test area of 26 cm² or 28 cm². Effectively prevents premature water penetration near the clamping area and "flooding" of the test specimen. Pack of 50 pieces.

FX 3000-3NH Protective Sleeve 100 cm²

For tests on fine non-wovens with a test area of 100 cm². Effectively prevents premature water penetration near the clamping area and "flooding" of the test specimen. Pack of 50 pieces.

FX 3000-3NP Protective Sleeve Holder

For fast, precise, and easy positioning of fine non-woven specimens with protective sleeve on the test head.

L 5130 Strip Printer MINIPRINT

For documentation and statistical analysis of the test results from various TEXTEST instruments on a 57 mm (2.25") wide paper strip.

L 5110 Evaluation Program for PC LABODATA III

Program for documentation, statistical analysis, storage, and long-term evaluation of the test results from various TEXTEST instruments by means of a PC.

Your company name and address

Test Report no. 2006.06.30, 14.55.04.LBD

 **LBD013**

Style: SA 3200-06
 Lot: 5190-06
 Piece: 17
 Customer: Textile Ltd

Date/time: 06/30/2006, 14:55 - 06/30/2006, 14:56
 Operator: J. Smith

Hydrostatic Head - Dynamic Test Method

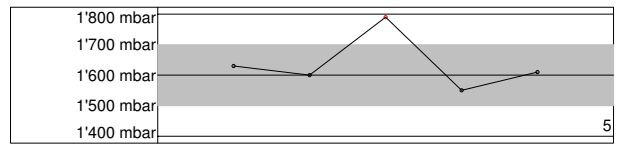
Rate of rise: 60 mbar/min
 Test area: 100 cm²

Date/time: 06/30/2006, 14:55 - 06/30/2006, 14:56
 Instrument: Textest FX 3000-III, s/n: 674

	<i>1st drop</i>	<i>3rd drop</i>
1:	1'630 mbar	1'770 mbar
2:	1'600 mbar	1'690 mbar
3:	1'790 mbar +	1'860 mbar +
4:	1'550 mbar	1'630 mbar
5:	1'610 mbar	1'760 mbar

Commentary:

Avg:	1'640 mbar	Nominal:	1'600 mbar
Min:	1'550 mbar	Min:	1'500 mbar
Max:	1'790 mbar +	Max:	1'700 mbar
CV:	5.6 %	Tests:	5
CI:	6.9 %	CI:	3.0 %



Avg:	1'740 mbar	Nominal:	1'700 mbar
Min:	1'630 mbar	Min:	1'600 mbar
Max:	1'860 mbar +	Max:	1'800 mbar
CV:	5.0 %	Tests:	5
CI:	6.2 %	CI:	3.0 %

