

Fabric Touch Tester

Comfort Evaluation Instrument for
Textiles and Soft Materials




SDL ATLAS[®]
TEXTILE TESTING SOLUTIONS

Fabric Touch Tester

INNOVATIVE INSTRUMENT

Determination of sensations of fabric — skin touch

Although comfort is a highly subjective perception, many researchers have developed various objective measurement methods to quantify the sensations when touching a fabric. The way that the fabric feels has been described as “fabric hand”, which has been traditionally used in the textile and clothing industries as a description of fabric quality and prospective performance.

Clothing is one of the most intimate objects associated with our daily life. It covers and interacts with most parts of our body throughout the day and night. Since the skin is extremely sensitive to pressure, friction, and heat transfer due to millions of receptors all over the body, there is a need to characterize the tactile sensory properties of textile materials with simulation of the fabric-skin contact process during wear.

Now, the innovative Fabric Touch Tester (FTT) from SDL Atlas is available to measure skin touch comfort objectively and quantitatively. The comprehensive, sophisticated design of the FTT enables it to measure all the mechanical and surface properties of a fabric in one simple test.

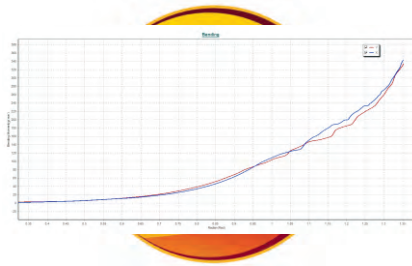


The FTT Fabric Touch Tester provides the objective assessment of fabric quality and performance with 18 indices through the measurement of the following properties:

- Fabric thickness
- Fabric compression
- Fabric bending
- Fabric surface roughness
- Fabric surface friction
- Fabric thermal properties

FTT Physical Indices- Bending Module:

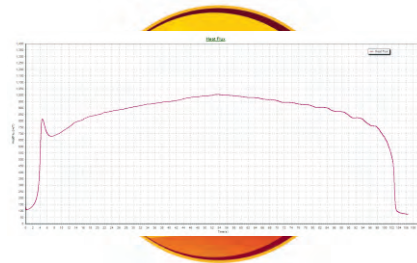
The bending module of the FTT measures physical properties as bending average rigidity and bending work (in both warp and weft directions). A sample measurement curve is shown in following:



FTT Physical Indices – Thermal Module:

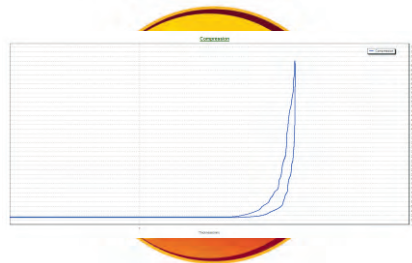
The thermal module of the FTT measures thermal conductivity (under compression and recovery) and maximum thermal heatflux (Qmax).

A sample measurement curve (heatflux vs. time) is shown:



FTT Physical Indices – Compression Module:

The compression module of the FTT measures compression work, compression recovery rate, and compression average rigidity (under compression and recovery). A sample measurement curve is shown:



FTT Primary Touch/Hand Predicted Values:

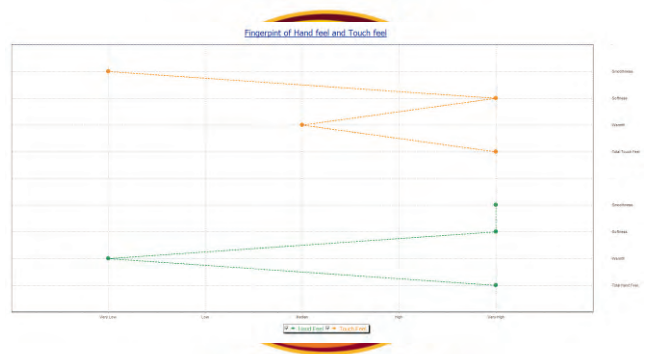
Statistical analysis of the FTT indices reveals strong correlation to human sensations. Modelling of these indices can be developed to predict the primary touch and hand feels on smoothness, softness, and warmth.

Primary touch feels mean the subjective (human) feeling when contacting textile samples passively, i.e. wearing. Primary hand feel means the subjective feeling when contacting textile samples actively, i.e. hand evaluation.

FTT primary hand values illustrate the predicted touch/hand feels of samples. The higher value of fabric primary touch/hand - smoothness means a smoother surface; the higher value of fabric primary touch/hand - softness means a softer sample; and the higher value of fabric primary touch/hand - warmth hand means a warmer sample.

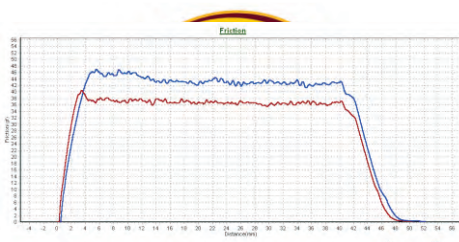
The FTT tests a fabric's physical properties on both it's face side and back side. Results obtained from face side are used to calculate hand feels while those from back side are used for hand/touch feels. Total comfort measurements under both circumstances are evaluated as well.

A sample fingerprint chart of the FTT primary hand and touch is shown in following:

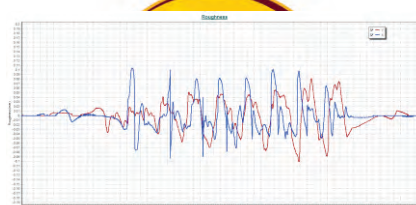


FTT Physical Indices – Surface Module:

The surface module of the FTT measures surface friction coefficients and surface roughness wave amplitude and wavelength (in both warp and weft directions). Sample measurement curves are shown:



Surface friction measurement curves



Surface roughness measurement curves

FABRIC TOUCH TESTER

The testing area of the Fabric Touch Tester consists of an upper plate and a lower plate. An L shaped specimen to be tested is prepared which includes both the warp and weft directions. A constant 10 degree C temperature difference between the upper and lower plates is established before the test is started. Different measurements within the multiple modules (thermal-compression, surface friction and roughness, and bending) are performed with the downwards and upwards movement of the upper and lower plates.



Studies have shown that the measurements from the FTT Fabric Touch Tester have strong correlation with human subjective touch sensations, thus the FTT is able to measure and distinguish fabric touch comfort properties. This innovative equipment permits quality control and research and development laboratories to measure and predict the comfort perception of fabrics, from product designs, to processing control, and end products for consumers. The precise objective measurements make the FTT an excellent tool for designers, retailers, and their supply chains for communication about comfort requirements.

SPECIFICATIONS

Weight	: 85kg 188lb
Dimension	: 510mm x 598mm x 840mm (20 inch x 23 inch x 33 inch)
Electric	: 115-230V, single phase, 60/50 Hz, 2.5A
Fuse	: 2.5 A, 250 V, fast acting
Test Specimen	: 310mm *310mm letter "L" Width=110mm Cross Area 110mm*110mm
Max. Thickness	: 5mm
Test Plate	: 120mm*120mm, Brass
Test Travel	: 0~50 mm
Max. Pressure	: 70g/cm ²
Standard Pressure	: 42g/cm ²
Heating Time	: About 5 Minutes
One Test Duration	: About 10 Minutes
Laboratory Environment	: 21+/-3° C/ 60+/-5%
Control	: FTT Tester Software, USB To PC Connect PC Soft. Analysis Interface and Control, For Windows XP/Win7
Patent Info.	: US Patent No. 6,601,457 China Patent App. No. 201210275485.6 / 201210275648.0 / 201210278839.2
Ordering Info.	: 107052 FTT Fabric Touch Tester

PACKING LIST

- Host Machine
- Sample Cutting Template
- Software Disk with Data Cable
- Power Cables (EU & USA)

RELATED TEST PRODUCTS

Complete support: products, installation, consumables, training, and service

SDL Atlas offers a full line of laboratory testing equipment, products and consumables, backed by the support of a cross disciplined team of textile technologists, hardware and software engineers, mechanical and instrumentation engineers, calibration experts and installation and maintenance technicians.

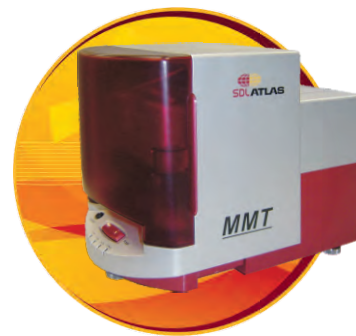


Sweating Guarded Hotplate

The Sweating Guarded Hotplate measures thermal and water vapour resistance, simulating the heat and mass transfer processes of human skin. The specimen to be tested is placed on an electronically heated porous plate with conditioned air ducted to flow across and parallel to its upper surface. Housed in a conditioned cabinet, the instrument operates with user-friendly Windows software and prints out standard test reports. This instrument conforms to requirements in ISO 11092, ASTM F1868 and ASTM D1518.

Moisture Management Tester (MMT)

Beyond traditional absorbency and wicking evaluations, SDL Atlas's Moisture Management Tester (MMT) dynamically measures moisture transfer across knit and woven apparel materials. The instrument calculates the moisture absorbing rate of a fabric's inner and outer surfaces, one-way transportation capability from inner to outer surface and the moisture spreading rate.



Air Permeability Tester

The SDL Atlas Air Permeability Tester offers unmatched ease of use, efficiency, and reliability for air permeability tests. It automatically measures the flow of air through a given area of a fabric (set by a selected standard orifice) at a given pressure drop over this test area during the time called out by the accepted standard. Exclusive features include automatic detection of the test head size and an automatic ranging system that eliminates the need for a pretest to discover and then set the instrument range.



A Research Project of HKRITA



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Wherever people test textiles, you'll find SDL Atlas!