



FTT[®]

Fabric Touch Tester

Determination of Sensations of Fabric — Skin Touch

Comfort is perhaps the most basic prerequisite when a consumer selects clothing for purchase. Although comfort is a highly subjective perception, 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 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 contact during wear.

Now, the innovative 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 fabric hand in one simple test.



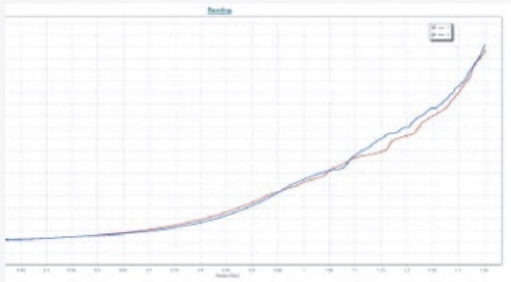
Determines the Hand and Skin Touch comfort of fabric, objectively and quantitatively

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

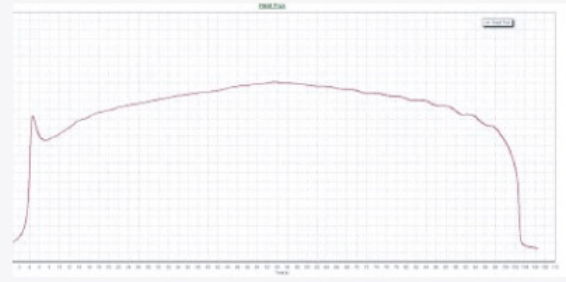
Physical Indices - Bending Module:

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:



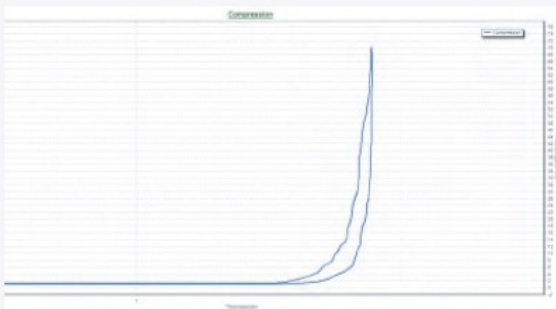
Physical Indices - Thermal Module:

The thermal module of the FTT measures thermal conductivity (under compression and recovery) and maximum thermal heatflux (Qmax). A sample measurement (heatflux vs. time) curve is shown:



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:



Physical 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 feel means 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.

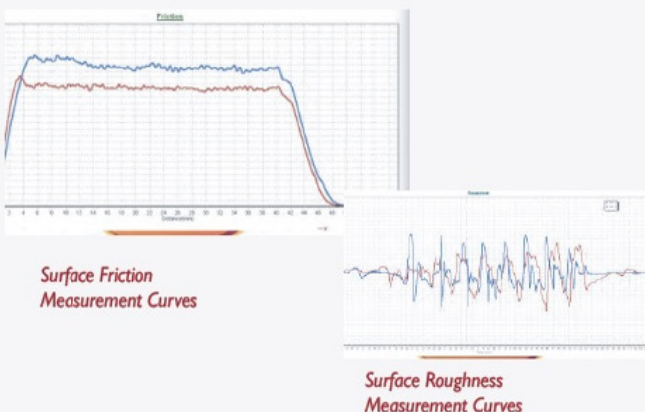
FTT primary hand values illustrate the predicted touch/hand feels of samples. The higher value of fabric primary touch/hand - smoothness means a smoother surface; the higher value of fabric primary touch/hand - softness means a softer sample; and the higher value of fabric primary touch/hand - warmth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

The FTT tests a fabric's physical properties on both its 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 finger print chart of the FTT primary hand and touch is shown:

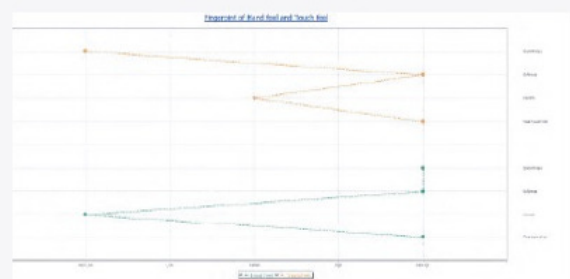
Physical Indices - Surface Module:

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

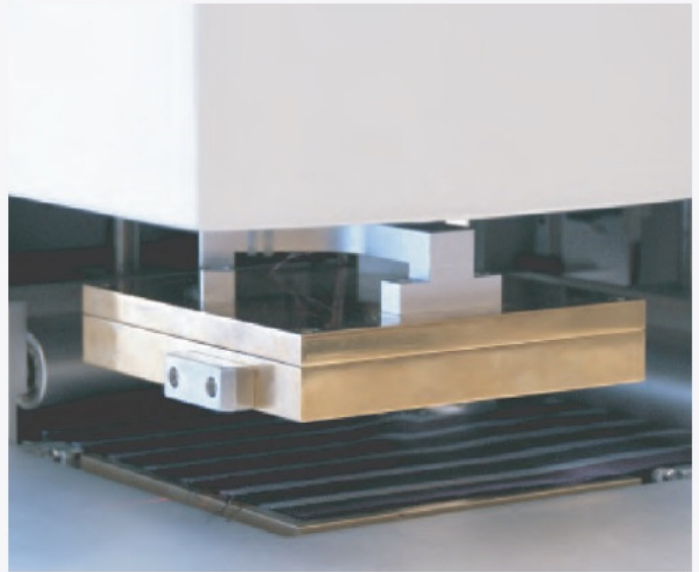
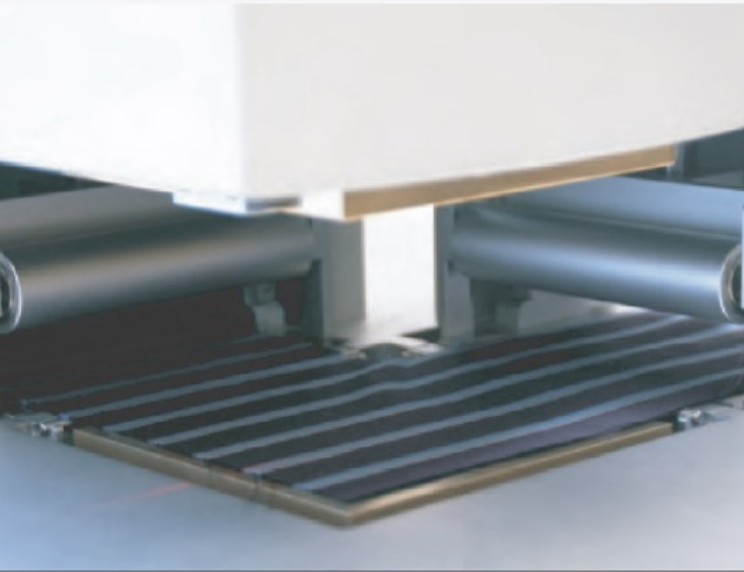
Surface Roughness Measurement Curves



Transferring Subject Sensations to Objective Data

The testing area of the FTT 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 instrument permits quality control and research and development laboratories to measure and predict the comfort perception of the fabrics, from product design, to processing control, to end products for consumers.



The FTT is the only instrument available that has proven correlations to the Kawabata system and subjective human panel evaluation studies

QC Evaluation Module

QC-FTT Features

- Radar Chart for comparing Primary Sensory Indices (PSI) from the FTT test results of different fabrics
- Calculate the differences of multiple fabrics' PSI to a reference fabric's
- User defined Quality Control upper and lower limits of the PSI
- Quality Control PASS/FAIL decision based on user defined tolerance

No.	Total	Warmth	Softness	Smoothness
Reference	0.583	0.711	0.680	0.452
1	-0.075	-0.041	-0.185	-0.024
2	-0.021	-0.076	-0.037	-0.018
3	-0.303	0.206	-0.521	-0.436
4	-0.003	-0.222	-0.014	0.122

Fig. 1 Differences of PSI of fabrics from the reference fabric.

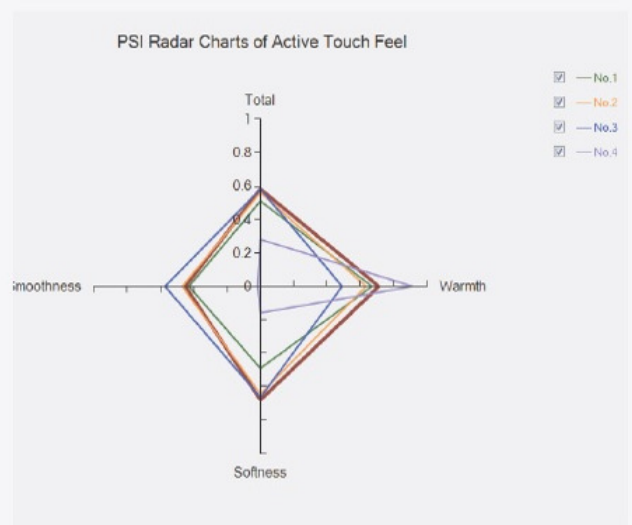


Fig. 2 Radar Chart of Primary Sensory Indices (PSI) of Active Touch Feel (Hand Feel) for different fabrics.

Product Specifications

Size (Width x Depth x Height)	510 mm x 598 mm x 840 mm
Weight	85 kg
Electric	115-230 V, Single Phase, 60/50 Hz, 2.5 A
Fuse	2.5 A, 250 V, Fast Acting
Test Specimen	310 mm x 310 mm letter "L" Width= 110 mm Cross Area 110 mm x 110 mm
Max. Thickness	5 mm
Test Plate	120 mm x 120 mm, Brass
Test Travel	0~50 mm
Max. Pressure	70 g/cm ²
Standard Pressure	42 g/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/Win 7
Patent Info.	US Patent No. 6,601,457 / China Patent App. No. 201210275485.6 / 201210275648.0 / 201210278839.2

Applications

- Compares production fabric to designer standard
- Determines quantitative values for Fabric Hand and Fabric Touch
- Measures all the mechanical and surface properties related to hand
- Correlates with human subjective touch sensations
- Eases communication across the supply chain

Ordering Information

- 107052 FTT[®] Fabric Touch Tester
Sample Cutting Template
Software Disk with Data Cable
Power Cables (EU & USA)
- 107740 QC Evaluation Software

A Research Project of HKRITA Research Institution



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Providing Confidence

For over 60 years, the SDL Atlas companies have been providing confidence in standard based testing through expertise and global partnering. Our customers can be assured that they are making informed decisions based on accurate test results.

SDL Atlas experts work closely with standards committees and retailers on development of standards. Our engineers develop instruments to meet these standards. Our service team calibrates the instruments to exacting UKAS and internal standards. High quality consumables that are consistent from batch to batch are also produced and distributed by SDL Atlas.

Fabrics and Consumables

Consumables are a critical part of many textile tests. SDL Atlas produces and distributes a complete line of consumables. Each batch is thoroughly tested to ensure conformity and consistency from batch to batch.

Our consumables offerings include:

- Multifiber
- Cork Liners
- Abradents
- Phenolic Yellowing
- Detergents
- Ballasts
- Crocking Fabric

Calibration & Service

- UKAS calibration
- ISO calibration
- Service support
- Factory trained representatives
- SDL Atlas service technicians



With UKAS accredited technicians located in Europe, Asia, and North America, we are prepared to support our customers in maintaining their investment and their confidence in their test instruments. SDL Atlas calibration certificates are accepted by all accreditors.

Providing confidence in standard based testing through expertise and global partnering



SDL ATLAS LLC
3934 Airway Drive
Rock Hill, SC 29732-9200, USA
Telephone: +1 803 329 2110
Facsimile: +1 803 329 2133
Website: www.sdlatlas.com

SDL ATLAS LTD.
1B, Building B, JunXiangDa Mansion,
No. 9 ZhongShan Park Road, Nanshan,
Shenzhen 518052, China
Telephone: +86 (755) 2671 1168
Facsimile: +86 (755) 2671 1337
Website: www.sdlatlas.com

SDL ATLAS LTD.
3J, Garment Centre, 576 Castle Peak Road,
Kowloon, Hong Kong.
Telephone: (852) 3443 4888
Facsimile: (852) 3443 4999
Website: www.sdlatlas.com