SDL ATLAS®
TEXTILE TESTING SOLUTIONS

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 higly 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.

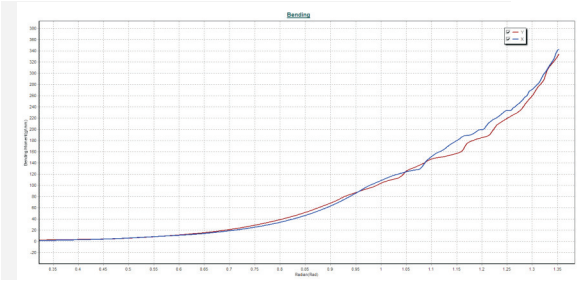
Determines the Hand and Skin Touch comfort of fabric, objectively and quantitatively

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

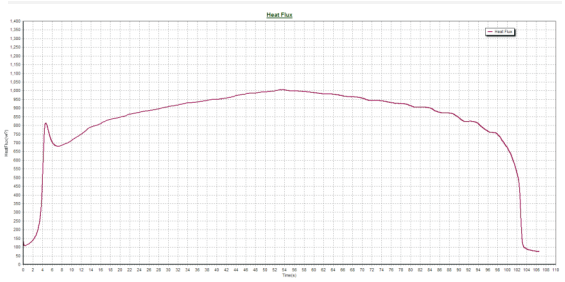
Physical Indices - Bending Module:

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



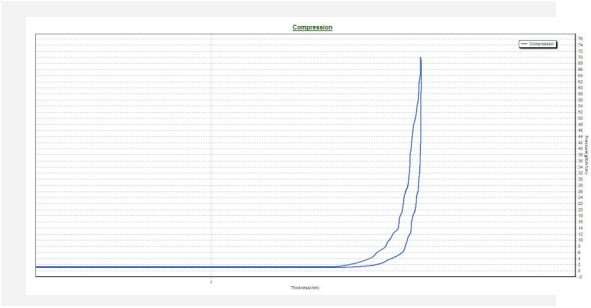
Physical Indices - Thermal Module:

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:



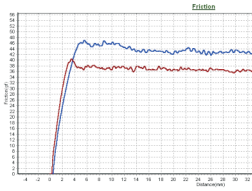
Physical Indices - Compression Module

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:

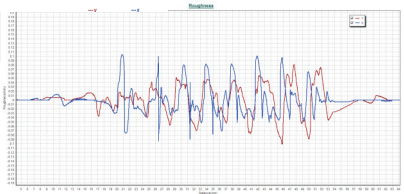


Physical Indices - Surface Module:

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



Surface Friction Measurement Curves



Surface Roughness Measurement Curves

Physical Touch/ Hand Predicted Values:

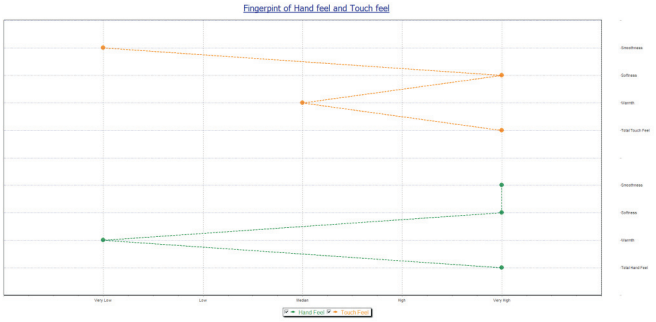
Statistical analysis of the FTT indices reveals strong correlation to human sensations. Modelling of these indices can be developed to predict the primary touch and hand feels on smoothness, softness and warmth.

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 - warmness 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.

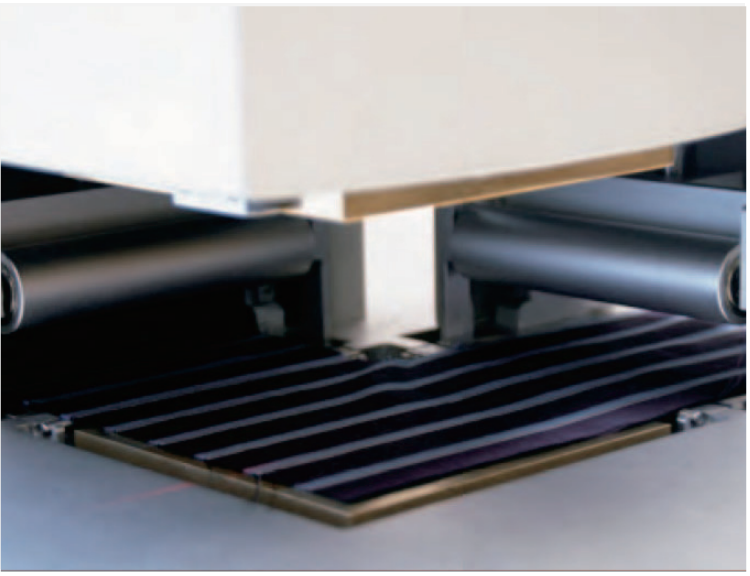
A sample finger print chart of the FTT primary hand and touch is shown:

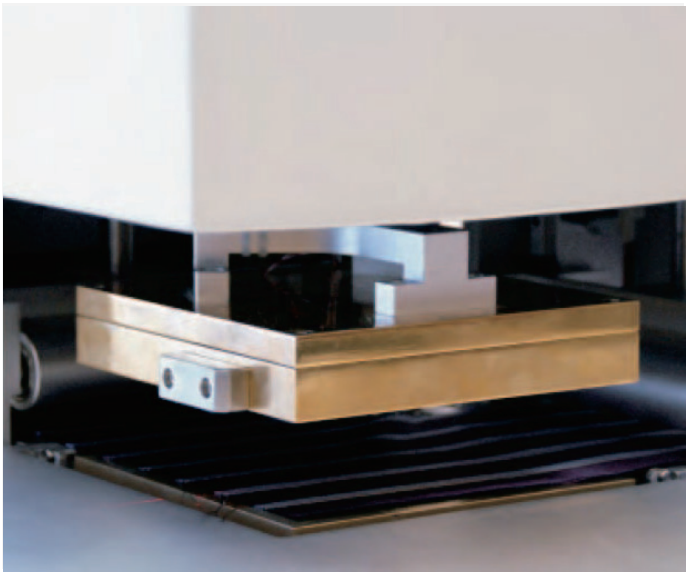


Transferring Subject Sensations to Objective Data

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.



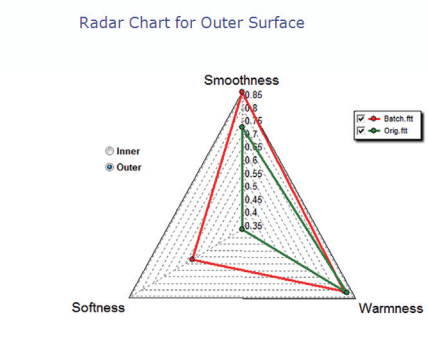


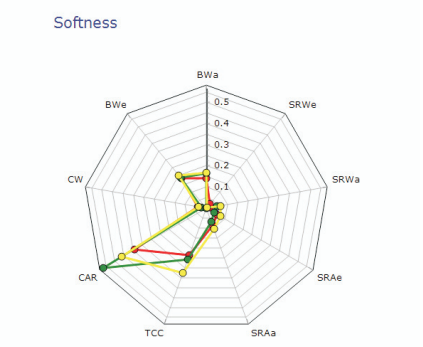
The FTT is the only instrument available that has proven correlations to the Kawabata system and subjective human panel evaluation studies

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
- Comparison of the fabrics' physical parameters used in the related PSI calculations





PSI Smoothness Warmness Softness

Sample	BWa	BWe	CW	CAR	TCC	SRAa	SRAe	SRWa	SRWe	Smoothn...	Softness	Warmness
[Normalized data]	mm	gf*mm	gf/(cm^...	W*mm/(...	W/(m^2)	mm	mm					C
Sample A.ftt	0.14	0.18	0.04	0.39	0.24	0.09	0.06	0.01	0.03	0.55	0.54	0.44
Sample B.ftt	0.16	0.19	0.02	0.57	0.26	0.07	0.04	0.05	-0.00	0.66	0.58	0.32
Sample C.ftt	0.17	0.20	0.04	0.46	0.33	0.10	0.08	0.07	0.00	0.63	0.55	0.39
Sample D.ftt	0.17	0.20	0.04	0.40	0.27	0.09	0.07	0.00	0.07	0.55	0.52	0.44
Sample E.ftt	0.14	0.21	0.07	0.26	0.28	0.20	0.05	0.23	0.01	0.49	0.53	0.53

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 Enviroment	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

HKRITA
THE HONG KONG 香港紡織及成衣研發中心
RESEARCH INSTITUTE OF TEXTILES AND APPAREL

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.

Test Materials

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

Our test materials 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

SDL Atlas is a UKAS accredited calibration laboratory No. 0688. With fully trained technicians located in Europe, Asia, and North America, we are prepared to support our customers in maintaining their investments and their confidence in their testing instruments.

Providing confidence in standard based testing through expertise and global partnering

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