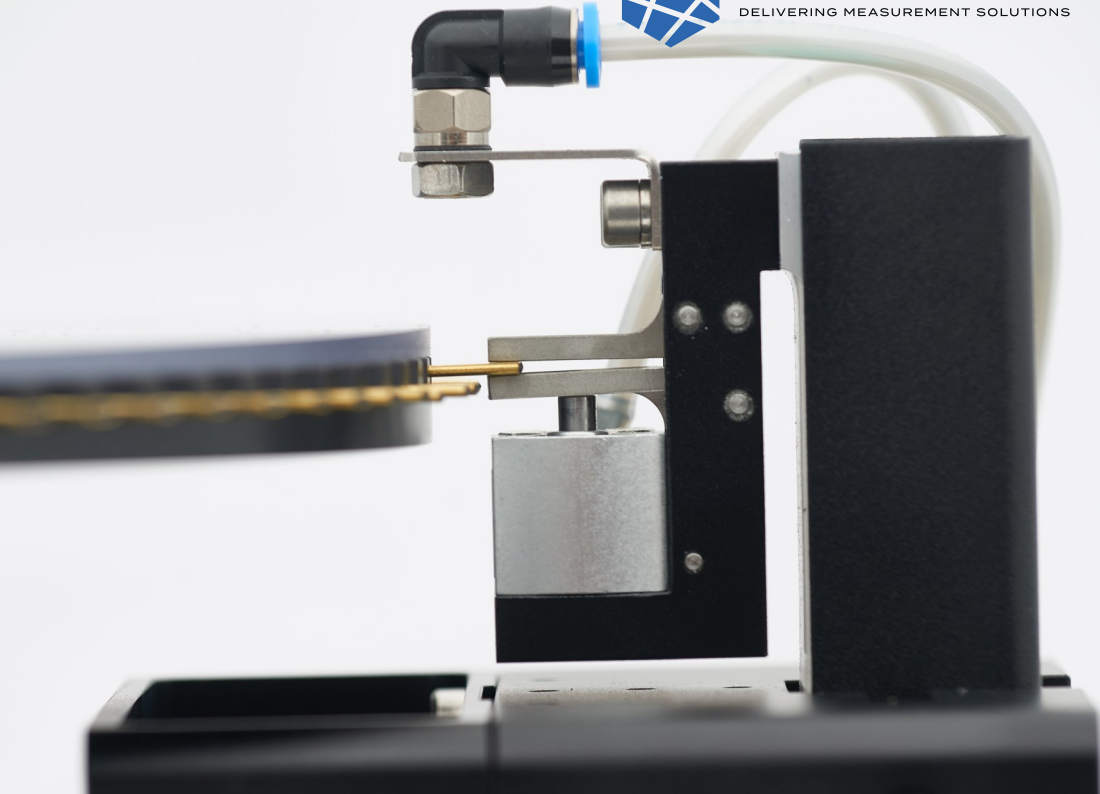


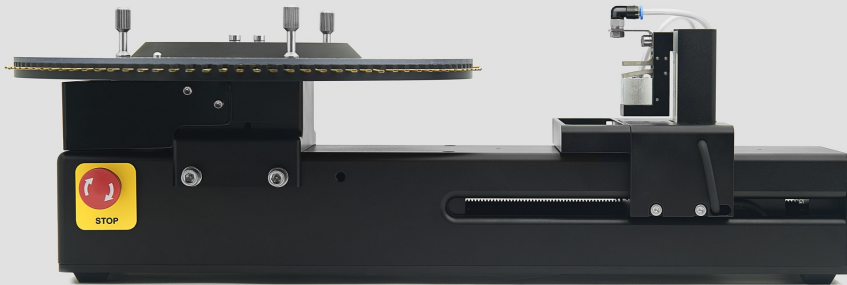


DIA-STRON
DELIVERING MEASUREMENT SOLUTIONS



MTT690

Miniature Tensile Tester



Overview

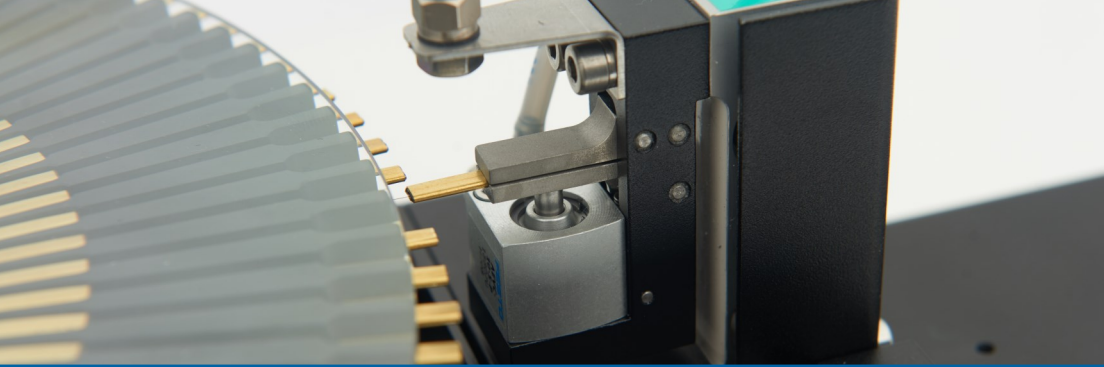
The MTT690 is an automated tensile tester designed to measure the tensile properties of single hair fibres by stretching them to a specified percentage or to failure. The MTT690 was developed to overcome the low productivity associated with manual testing of mechanical properties of single fibres. The system is based on a circular sample cassette, which allows the automatic measurement up to 100 pre-mounted fibre samples.

Principal benefits:

- Automated operations and analysis
- High throughput: 100 fibre rotary cassette
- Can incorporate additional module for wet testing
- Multi-tasking allows for simultaneous measurement, reducing resting time

Applications and claims:

- Strength claims
- Hydration claims
- Damage repair/alleviation claims



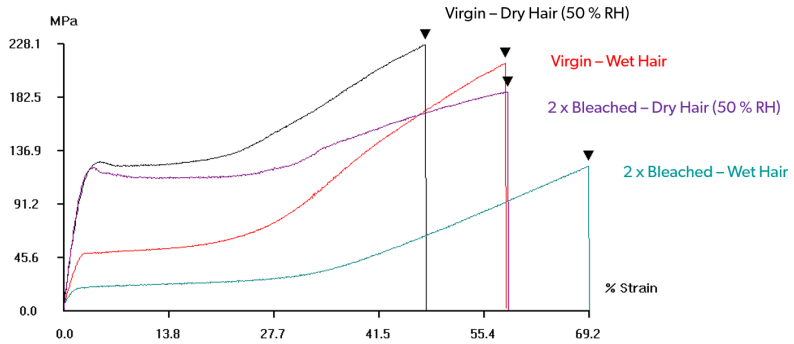
Metrology principle —

Hair fibre samples are mounted using brass crimps and placed onto a 100-slot rotary cassette, from which a pneumatically operated sample gripper picks up the sample. The gripper is mounted onto a load cell which measures the force being applied to the sample, which can be stretched to either a specific percentage or to failure. The MTT690 can also be integrated onto the automated sample loading system (ALS1500) with the FDAS770 to provide both dimensional and tensile data from a single fully automated measurement operation. Normalising tensile data with fibre cross-sectional area reduces data variability up to 80%, helping with group significant discrimination.

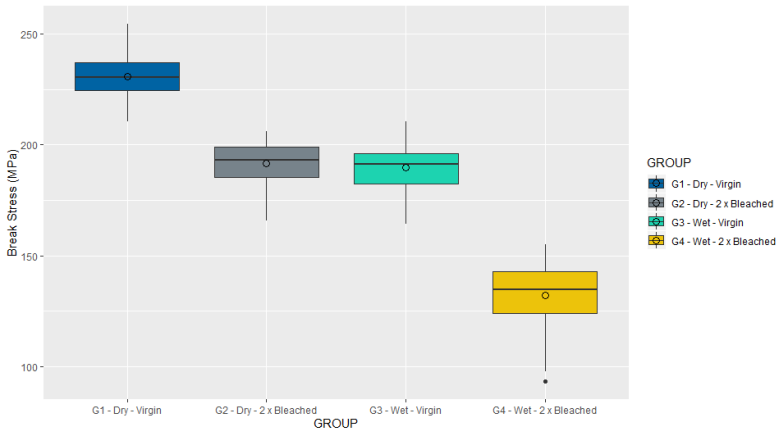
Dedicated software – UvWin

The MTT690 is controlled using Dia-Stron UvWin software. UvWin offers several analysis options, e.g. 1 or 3 phase tensile analysis, hysteresis analysis and stress relaxation, as well as a number of integrated data processing tools. Raw data can also be exported as a text file, for use in Excel or other statistical packages. UvWin is compatible with the latest versions of the Windows OS.

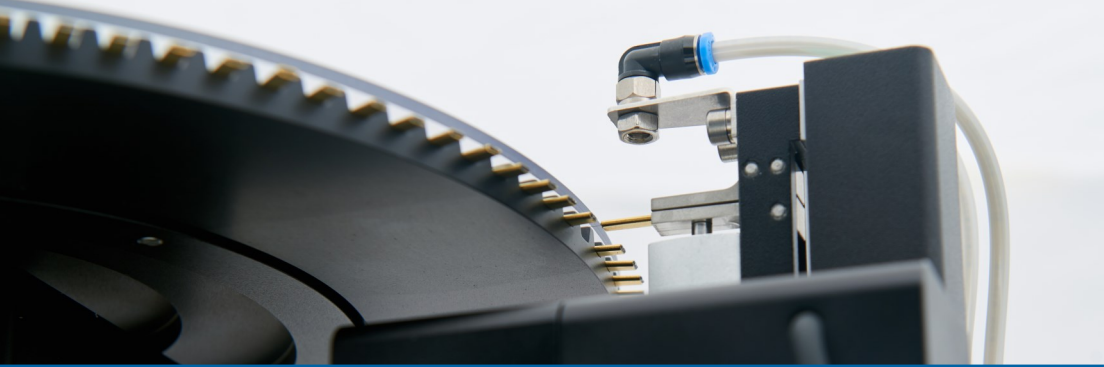
Sample data and analysis—



Stress-strain curve created in UvWin software



Boxplot of the break stress, where the circle denotes the mean break stress



References —

Publications:

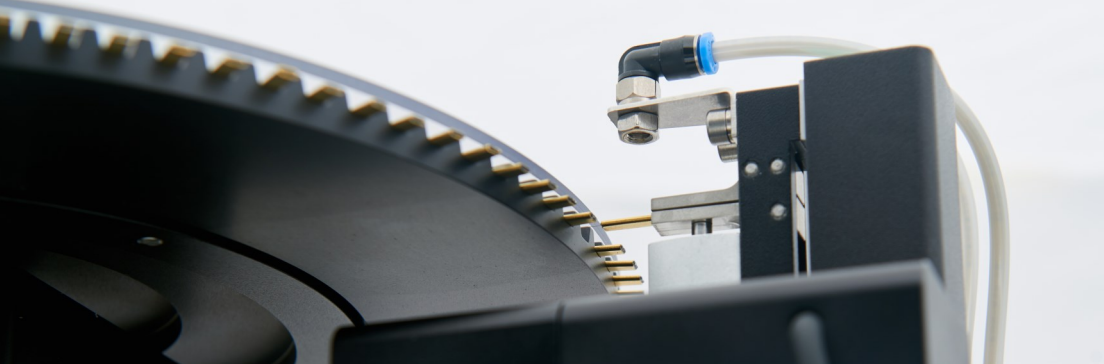
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Examples of use in patent claims:

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US20140190507 Compositions And Methods For Enhancing The Structure Of Hair Fibers (Estee Lauder) July 2014

US8697040 Hair treatment compositions (Access Business Group) Apr 2014

WO2014025686 Compositions and Methods for Treating a Keratin Based Substrate (Ashland) Feb 2014

US8273332 Hair care product containing acetylpyridinium salts (Henkel) Sept 2012

US20120201776 Hair Relaxer (BASF) Aug 2012

US8221731 Continuous moisturization compositions (Aveda) July 2012

US8158116 Method for treating hair damaged by color treatments (Ecolab/Lubrizon) April 2012

MTT690 Tensile Tester

Extension range	0-120mm
Speed range	1-2000mm/min
Force range	0 to 20N (2000gmf)
Force resolution	0.05gmf
Displacement resolution	10µm
Sample size	30mm

Programmable Features

Methods	Strain/stress method with break detection Stress relaxation Hysteresis Creep
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Content

UV1000
PU1100
MTT690 Mechanical Unit
UvWin software for Windows OS

Requirements

Power supply	Universal 85-265V AC 47-63Hz, 50W
Compressed air	Dry, clean compressed air. 4.5bar min, 20l/min
Computer	Windows OS: 7 and 10, 1 x USB port

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