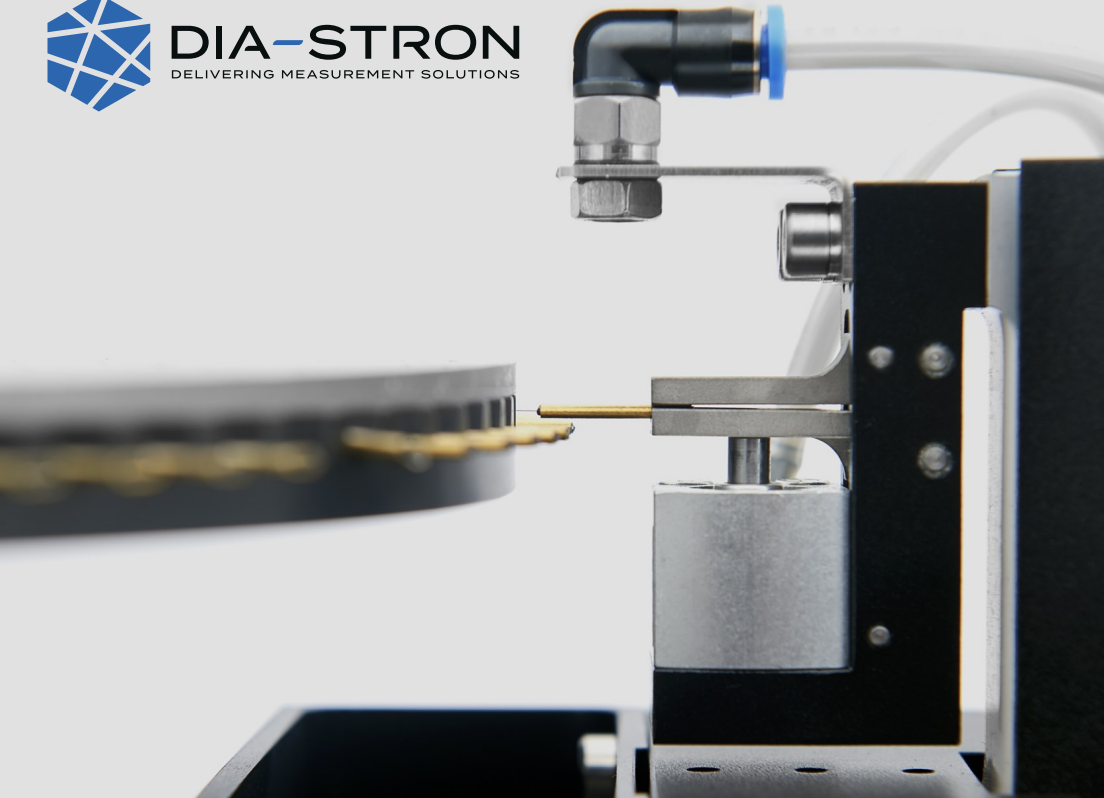




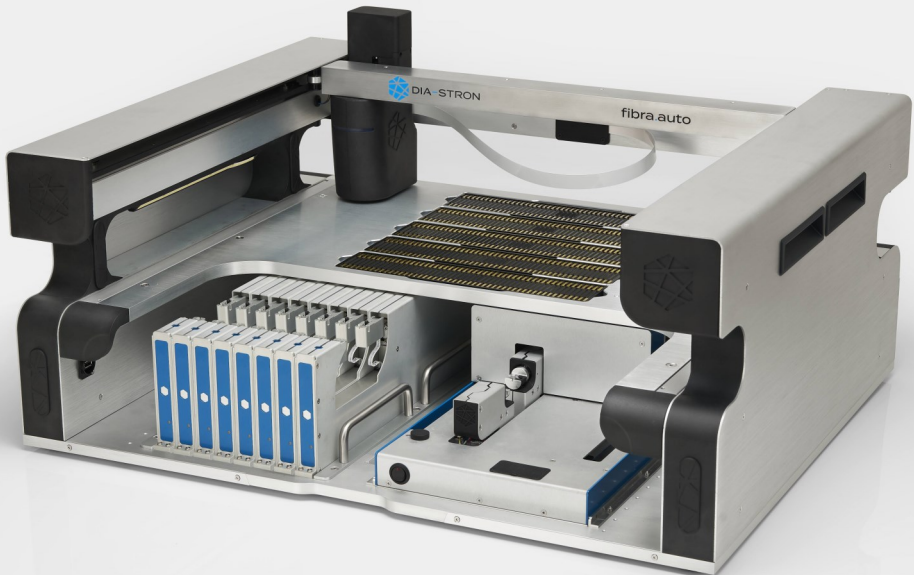
DIA-STRON
DELIVERING MEASUREMENT SOLUTIONS



Hair Fibre Testing Instrumentation

Dia-Stron is the leading manufacturer of automated measurement systems for both single hair fibres and hair tresses. We have a unique and comprehensive approach to metrology, from design and development to production of complete scientific systems.

We launched our first miniature tensile tester in the late 1980s, and quickly moved to an automated, cassette-based system by 1992. Since then we've constantly driven innovations for our customers' ever changing requirements – most notably by widening our module options beyond tensile testing to include dimensional, fatigue, bending and torsional testing, as well as incorporating automation and additional diameter measurement modules.



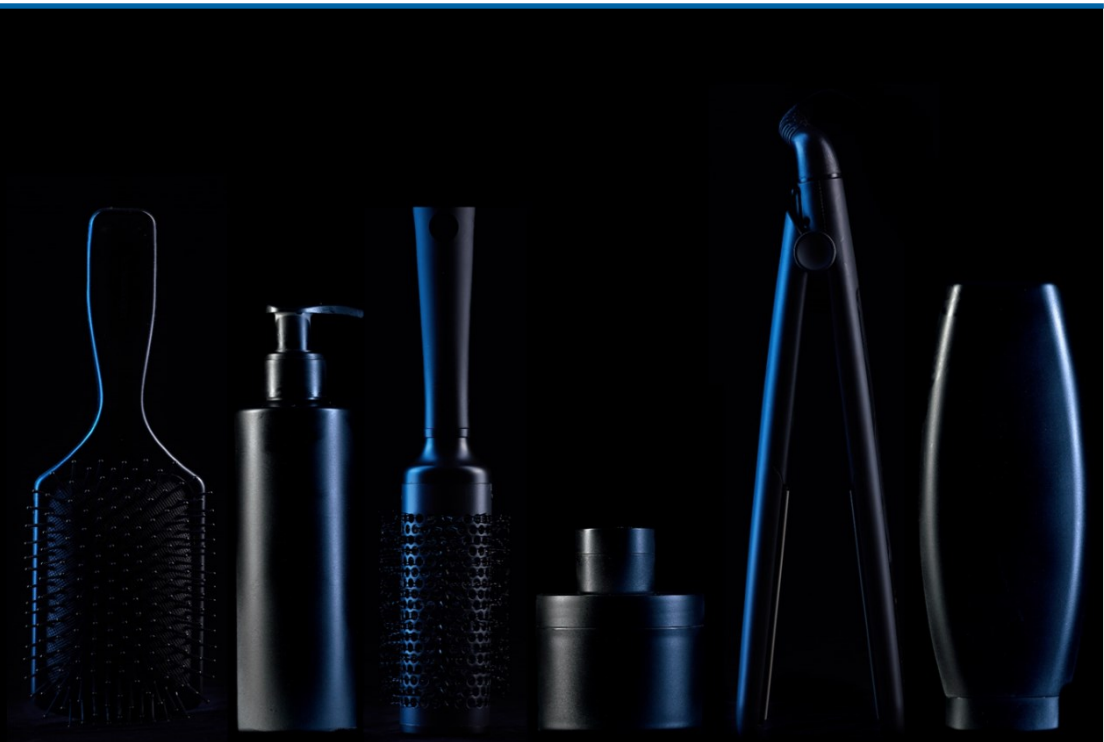


In 2023, Dia-Stron acquired Bossa Nova Vision - global-leaders in visual hair and skin instruments. The acquisition allows us to expand our reach in delivering innovative measurement solutions to the personal care industry. By combining our engineering expertise, we can better support customers with the development of hair and skin care products, cosmetic ingredients, hair styling tools, and ongoing hair research.

From the beginning our mission has been to develop new and improved fibre measurement techniques and approaches, while still producing results of the highest quality.

Dia-Stron and Bossa Nova Vision instrumentation can be found in the R&D laboratories of multinational organisations, local companies, universities and CROs, from research to raw ingredients, from formulation to consumer product manufacture.

Our measurement systems can be used to develop new hair care ingredients and technologies, to evaluate technical performance of new formulations, and to advance hair fibre science. They also provide an evidence-based claims support package, substantiating claims referring to the efficacy, benefits or improvements in hair attributes as a result of using your hair care products and appliances.





Claims Support

Hair Tresses

- Ease of combing/conditioning
- Detangling
- Manageability
- Softness/suppleness
- Combability after styling
- Styling hold/flexibility
- Long lasting
- Frizz
- Volume
- Fly-away
- Shine
- Curl retention

Single Hair Fibres

- Anti breaking/strength
- Thickening
- Damage prevention/repair
- Hydration/moisturising
- Repeated grooming
- Heat protection
- Elasticity
- Depilatory cream claims
- * Mechanical testing methods
- * Visual testing methods

Tress Testing



fibra.one

All-in-one tress testing solution



Combing accessory

The design of this accessory enables rapid tress mounting/dismounting (to change samples or re-wet samples during testing), flexibility for a range of comb sizes and thicknesses and a magnetic clamp plate to hold tresses within the comb during testing. Combing measurements provide invaluable information about the conditioning performance of a product, and can be performed on both wet and dry tresses. Hair combing properties correlate well with consumer attributes e.g. “ease of combing”, “manageability” or “detangling”.

3-Point Bend accessory

This ergonomically designed accessory measures flexural properties of hair tresses, and is most commonly used for styling claims such as “hold”, “stiffness” or “feel” in the claims packages for styling polymers, hair gels and hair sprays. This can be used in the same vertical orientation as the combing accessory, reducing the time spent changing between accessories and testing methods.



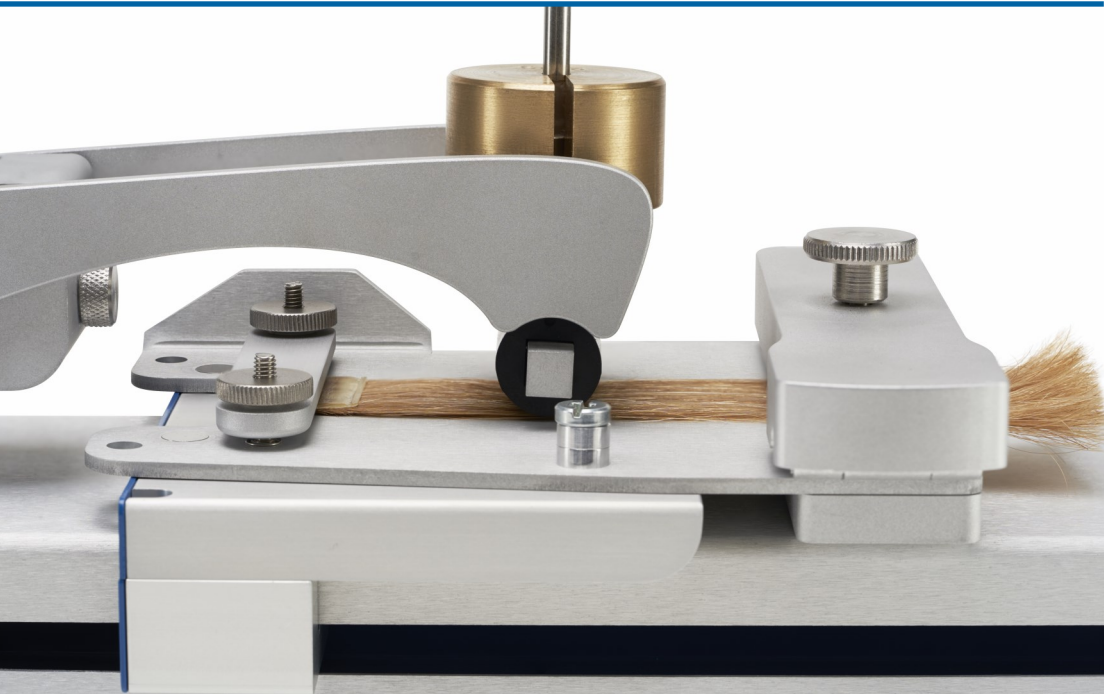


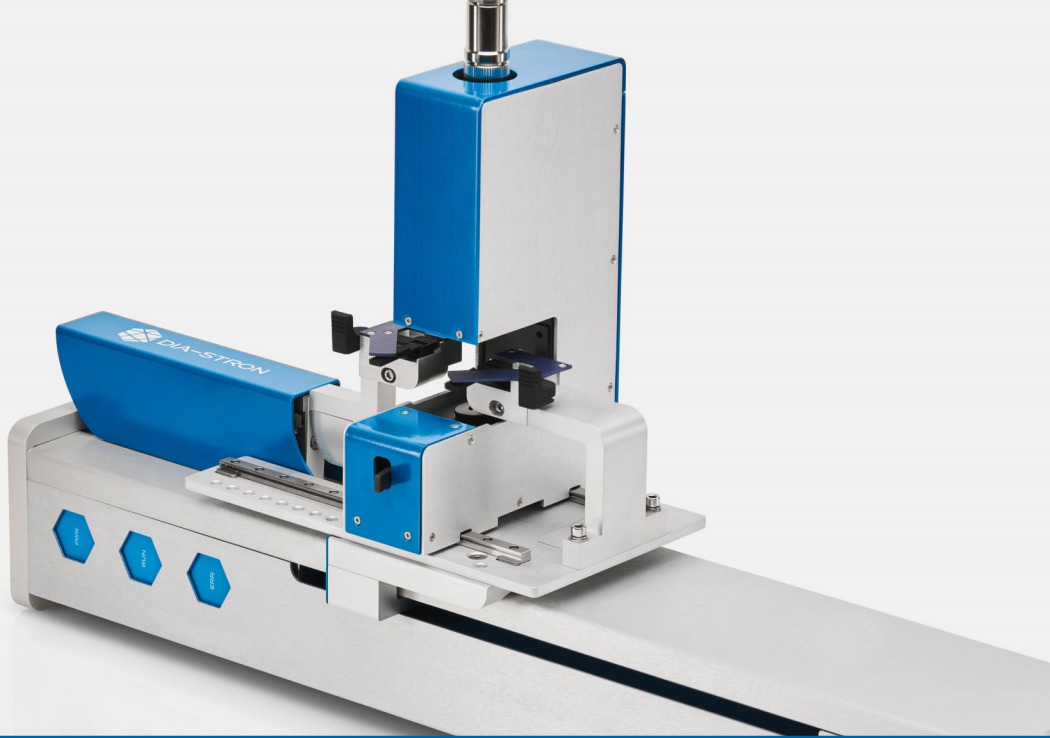
Curl compression accessory

The curl accessory was developed to measure the compression properties of circular hair curls formed from hair tresses as a technical test, predictive of consumer hair curl sensory feel. The hair curl compression method is perfect for “softness” or “curl retention” claims, for styling products such as hair gels, mousses, hair sprays, pomades as well as wash and care products.

Friction accessory

The friction accessory combines a rubber probe mimicking hand/skin compliance and texture properties, and a base plate with mechanism for secure and quick hair clamping. New design features include a detachable platen for rapid tress mounting/dismounting, simplified indexing of the probe position and an integrated auto-lift mechanism, removing the need for a compressed air supply. Hair friction properties correlate well with consumer attributes such as “smoothness” or “surface damage” (heat, environmental, bleaching, repeated styling).





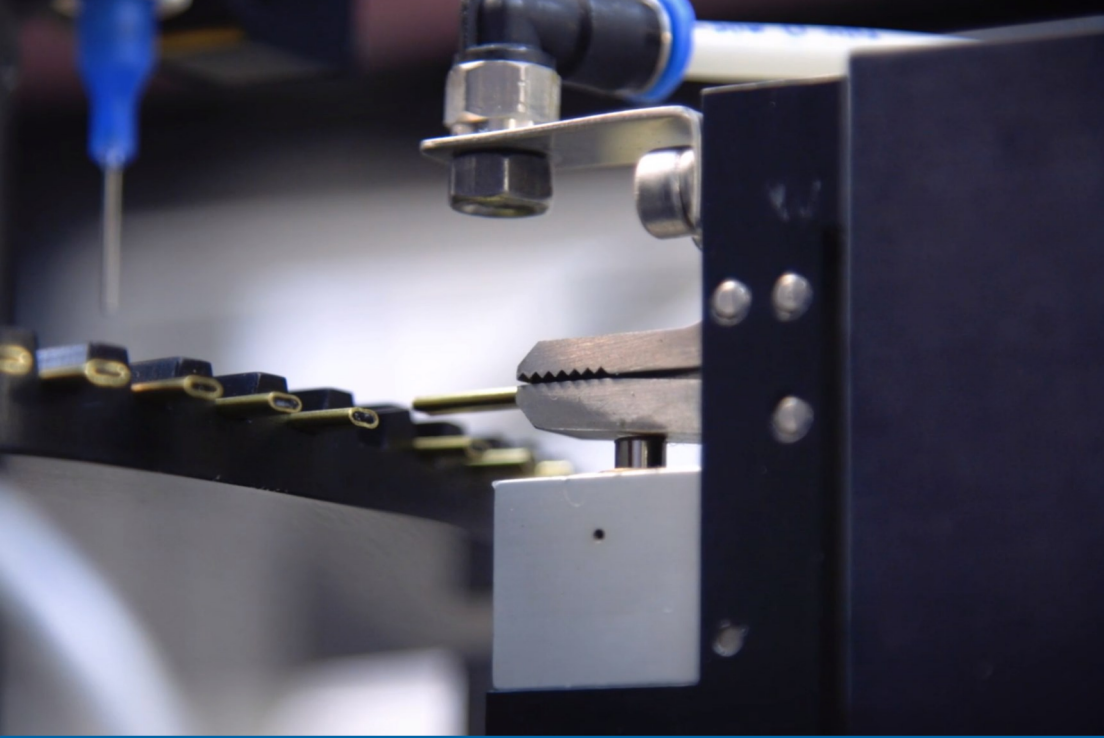
Stress and tensile accessories

The tensile and stress accessories for the fibra.one allow users to manually test single hair fibres, and generate data that can be used to substantiate claims such as “strengthening”, “hydrating” and “damage repair”.

Comparisons on the same fibre samples before and after treatment can be made with the tensile accessory, using a non-destructive tensile method. The stress accessory enables additional dimensional measurements, allowing for normalisation of tensile data and the conversion to stress data.

Single Fibre Testing

A close-up, low-angle shot of a curved, black, multi-fiber optical cable. The cable is densely packed with fibers, and the ends are terminated with gold-colored connectors. The cable is curved, creating a sense of depth and perspective. The background is a plain, light color, making the cable stand out. The text "Single Fibre Testing" is overlaid in a clean, white, sans-serif font across the middle of the image.

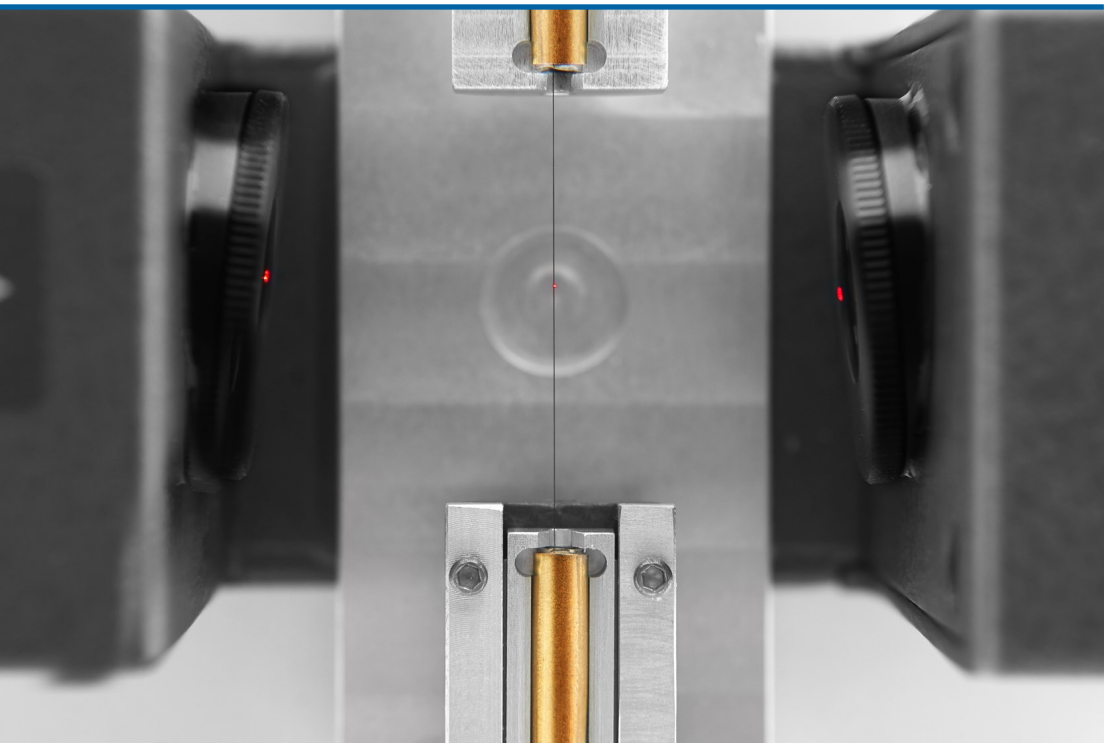


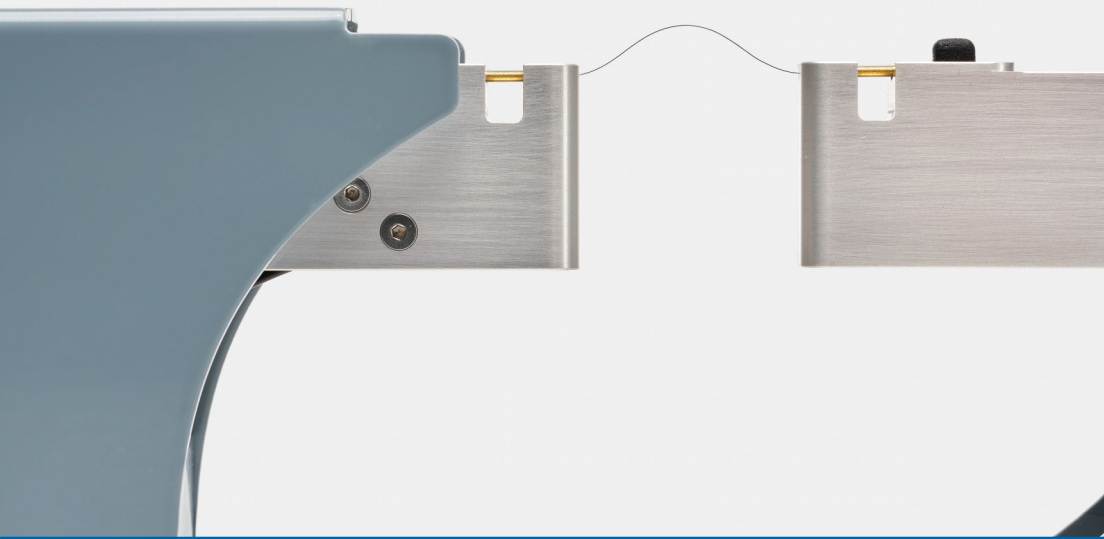
MTT690 — Miniature Tensile Tester

The MTT690 is an automated, consistent and efficient instrument designed to measure the tensile properties of hair. It offers a high throughput of 100 single specimens, in either a dry or wet state. The MTT690 measures the tensile properties of single hair fibres by stretching them to a specified percentage or to failure, and is primarily used to support “strength”, “hydration” and “damage repair” claims.

FDAS770 — Fibre Dimensional Analysis System

The FDAS770 utilises a Laser Scanning Micrometer to allow accurate, non-contact dimensional measurement of fibres for the normalisation of mechanical (stress) data. It allows for cross-sectional area calculation, with fully automated fibre rotation and translation. A Dynamic Swelling Module (DSM770) can be incorporated for swelling and wet diameter measurements. Primarily used for “thickening” product claims or wettability performance, and to normalise mechanical testing with fibre dimensional data.





fibra.cyc — Cyclic Fatigue

The fibra.cyc measures the dynamic strength of hair fibres by subjecting them to repeated cyclic tensile deformations until failure, simulating repeated grooming. Up to eight cyclic modules can be integrated on an automated platform, offering high-throughput testing of up-to 250 pre-prepared samples. An ideal technique for evaluating the damage caused by treatments (such as heat or chemical damage), and for claims relating to “strengthening” or “damage protection/prevention”.

FTT950 — Fibre Torsion Tester

Our FTT950 systems allows torsion force, torsion/shear modulus (with dimensional data), torsion stress relaxation and other parameters to be calculated, as well as being fully automated for a high throughput and efficient workflow. Hair fibres are pulled taught and twisted up to 360° against a balance, directly measuring torsional properties. Torsion is particularly useful for measuring the impact of products and treatments on the hair fibre cuticle layers and cortex matrix e.g. oil treatments making hair fibres softer.



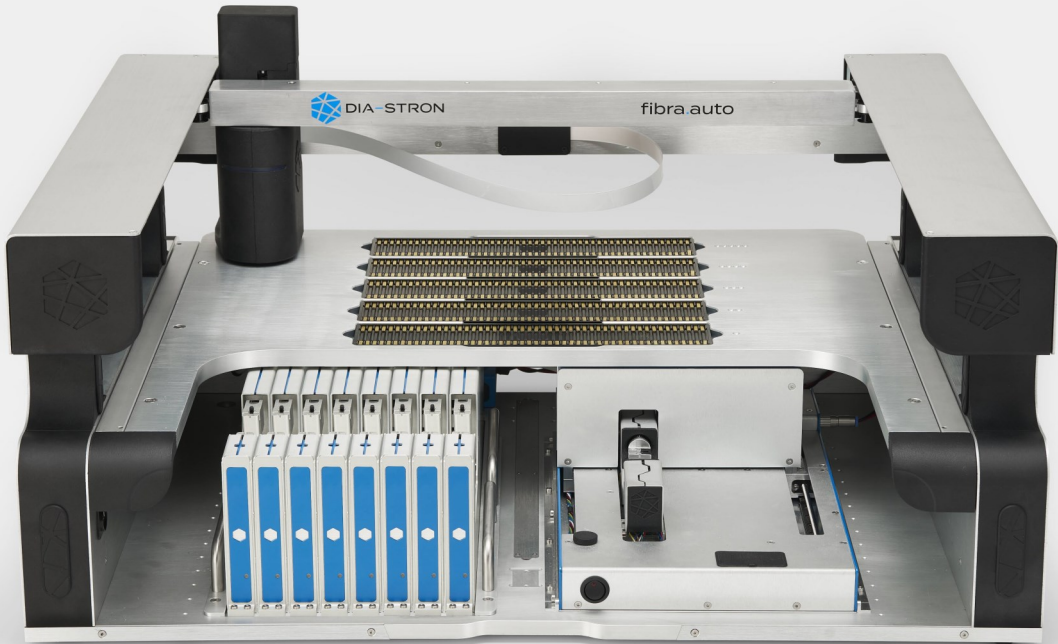


FBS900 — Fibre Bending System

The FBS900 fibre bending system is based on the single cantilever method, where the fibre specimen is bent against a pin and the bending force is measured using a micro-balance. The bending force and bending stress relaxation can be calculated, as well as the bending modulus (when combined with dimensional data). Applications include measuring how cuticle damage affects hair bending stiffness, impact of styling products on fibre rigidity and formulation development for mascaras and shaving products.

Automation

All our measurement modules can be used in conjunction with our automation platforms, delivering high throughput testing of hair fibres for maximum productivity. The “Pick & Place” mechanism transports fibre specimens from storage cassette to measurement modules and back continuously, with capacity for 5 cassettes holding a total of 250 pre-prepared fibre specimens. All our automated platforms fit entirely within climate-controlled cabinets, allowing for humidity and temperature consistency during testing and the ability to study the effects of these conditions independently.





Contract Testing

Our dedicated hair testing laboratory was established to provide customers with a wide range of fibre/tress testing services to substantiate product claims. Our skilled laboratory staff and purpose-built instrumentation range enable us to conduct entire studies, big or small, in-house, using testing methodologies developed by experts with a wealth of practical experience in the hair care industry.

Our contract testing service is an efficient, cost-effective way to ensure you receive valid, reliable and reproducible results - contact us today for a bespoke quotation!

Contact Us

Dia-Stron Ltd.

Hikenield House
East Anton Court, Icknield Way
Andover, Hampshire
SP10 5RG | United Kingdom
T. +44(0) 1264 334700

Dia-Stron Inc.

9 Trenton Lakewood Road
Clarksburg, NJ
08510 | U.S.A.
T. +1 (609) 454 6008

Email: enquiry@diastron.com

www.diastron.com